ORIGINAL

NEW APPLICATION

E000054997

L-21424A-26-0431-00271

Steele Energy
CENTER

# Application for a Certificate of Environmental Compatibility



**Prepared for:**

Arizona Power Plant and Line Siting Committee

**Prepared by:**

Steele Energy Center, LLC

**Case #**

**Docket #**

**October**

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# LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ACC | Arizona Corporation Commission |
| AD | Anno Domini |
| ADA | Arizona Department of Agriculture |
| ADOT | Arizona Department of Transportation |
| ADWR | Arizona Department of Water Resources |
| AERMOD | American Meteorological Society/Environmental Protection Agency Regulatory Model |
| AFY | Acre-Feet per Year |
| AG | Agriculture |
| AGFD | Arizona Game and Fish Department |
| AMA | Active Management Area |
| ANP | Arizona Native Plant |
| ANPL | Arizona Native Plant Law |
| ANSI | American National Standards Institute |
| APE | Area of Potential Effect |
| APLIC | Avian Power Line Interaction Committee |
| A.R.S | Arizona Revised Statute |
| ASLD | Arizona State Land Development |
| ASM | Arizona State Museum |
| AWCS | Arizona Wildlife Conservation Strategy |
| AZ | Arizona |
| AZDA | Arizona Department of Agriculture |
| AZGFD | Arizona Game and Fish Department |
| BACT | Best Available Control Technology |
| BCC | Birds of Conservation Concern |
| BCR | Bird Conservation Region |
| BESS | Battery Energy Storage System |
| BGA | Bald and Golden Eagle Protection Act |
| BGEPA | Bald and Golden Eagle Protection Act |
| BMPs | Best Management Practices |
| CAP | Central Arizona Project |
| CCA | Candidate Conservation Agreement |
| CCAA | Candidate Conservation Agreement and Assurances |
| CCGT | Combined Cycle Natural Gas-Fired Turbine |
| CEC | Certificate of Environmental Compatibility |
| CO | Carbon Monoxide |
| CoR | County Code of Regulations |
| DB | Duct Burner |
| dBA | A-weighted Decibel |
| ENO | Excessive Noise Ordinance |
| EPA | U.S. Environmental Protection Agency |
| ERT | Environmental Review Tool |
| ESA | Endangered Species Act |
| Ft/yr | Feet per Year |
| GHG | Greenhouse Gas |
| GR | General Rural |
| GT | Combustion Gas Turbine |
| HDMS | Heritage Data Management System |
| HGIS | Heritage Geographic Information System |

| | |
|---|---|
| HHV | Higher Heating Value |
| HIDD | Hohokam Irrigation Drainage District |
| HRSG | Heat Recovery Steam Generator |
| HUD | U.S. Department of Housing and Urban Development |
| H2SO4 | Sulfuric Acid |
| IBA | Important Bird Area |
| IPaC | Information for Planning and Consultation |
| ISO | International Organization for Standardization |
| Km | Kilometer |
| KOPs | Key Observation Points |
| KPE | KP Environmental, Inc. |
| kV | Kilovolt |
| LCRMSCP | Lower Colorado River Multi Species Conservation Program |
| Ldn | Day-Night Average Sound Level |
| LE | Listed Endangered |
| Leq | Equivalent Continuous Sound Level |
| LT | Listed Threatened |
| LTSCs | Long-Term Storage Credits |
| MBTA | Migratory Bird Treaty Act |
| MMBtu | Million British Thermal Units |
| Mph | Miles Per Hour |
| MST | Major Source Threshold |
| MW | Megawatt |
| NAAQS | National Ambient Air Quality Standards |
| NEPA | National Environmental Policy Act |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |
| NG | Natural Gas |
| NOx | Nitrogen Oxides |
| NRHP | National Register of Historic Places |
| NSR | New Source Review |
| NSPS | New Source Performance Standards |
| PAD | Planned Area Development |
| PCAQCD | Pinal County Air Quality Control District |
| PM | Particulate Matter |
| PSD | Prevention of Significant Deterioration |
| PTE | Potential to Emit |
| ROW | Right-Of-Way |
| SC | Species of Concern |
| SCIDD | San Carlos Irrigation and Drainage District |
| SCR | Selective Catalytic Reduction |
| SEC | Steele Energy Center |
| SER | Significant Emission Rate |
| SGCN | Species of Greatest Conservation Need |
| SHPO | State Historic Preservation Office |
| SIL | Significant Impact Level |
| SO2 | Sulfur Dioxide |
| ST | Steam Turbine |
| SWAP | State Wildlife Action Plan |
| TEP | Tribal Environmental Plan |
| TIMP | Transportation Improvement and Maintenance Program |
| tpy | Tons Per Year |

| | |
|---|---|
| ULSD | Ultra Low Sulphur Diesel |
| USBR | U.S. Bureau of Reclamation |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | United States Geological Survey |
| VOC | Volatile Organic Compounds |
| WSC | Wildlife of Special Concern |
| 5MP | Fifth Management Plan |

# INTRODUCTION

Steele Energy Center, LLC (Applicant), an affiliate of Southwestern Power Group II, LLC, under Arizona Revised Statute (A.R.S.) § 40-360 *et seq*., submits this Certificate of Environmental Compatibility (CEC) Application (Application) to develop the Steele Energy Center (SEC or Project). The Applicant is requesting a CEC for an approximately 1400 megawatts (MW) combined cycle natural gas-fired turbine (CCGT) power plant. The Project plans to provide power to the regional electric grid by connecting to the adjacent, previously permitted, RioSol 500 kV transmission line.

The SEC is being developed to help meet growing electricity demand and support the reliability the local and regional power system, which is facing increasing strain from unprecedented load growth, more frequent extreme weather events, and the continued expansion of intermittent renewable energy resources.

As required by Arizona Administrative Code R14-7-119, this Application is structured as follows:

- Application
- Exhibit A – Project Location and Land Use
- Exhibit B – Environmental Studies
- Exhibit C – Areas of Biological Wealth
- Exhibit D – Biological Resources
- Exhibit E – Scenic Areas, Historic Sites and Structures, Archaeological Sites
- Exhibit F – Recreational Purposes and Aspects
- Exhibit G – Concepts of Typical Facilities
- Exhibit H – Existing Plans
- Exhibit I – Noise Emissions and Communication Interference
- Exhibit J – Special Factors

A list of abbreviations is provided following the Table of Contents.

## Purpose and Need

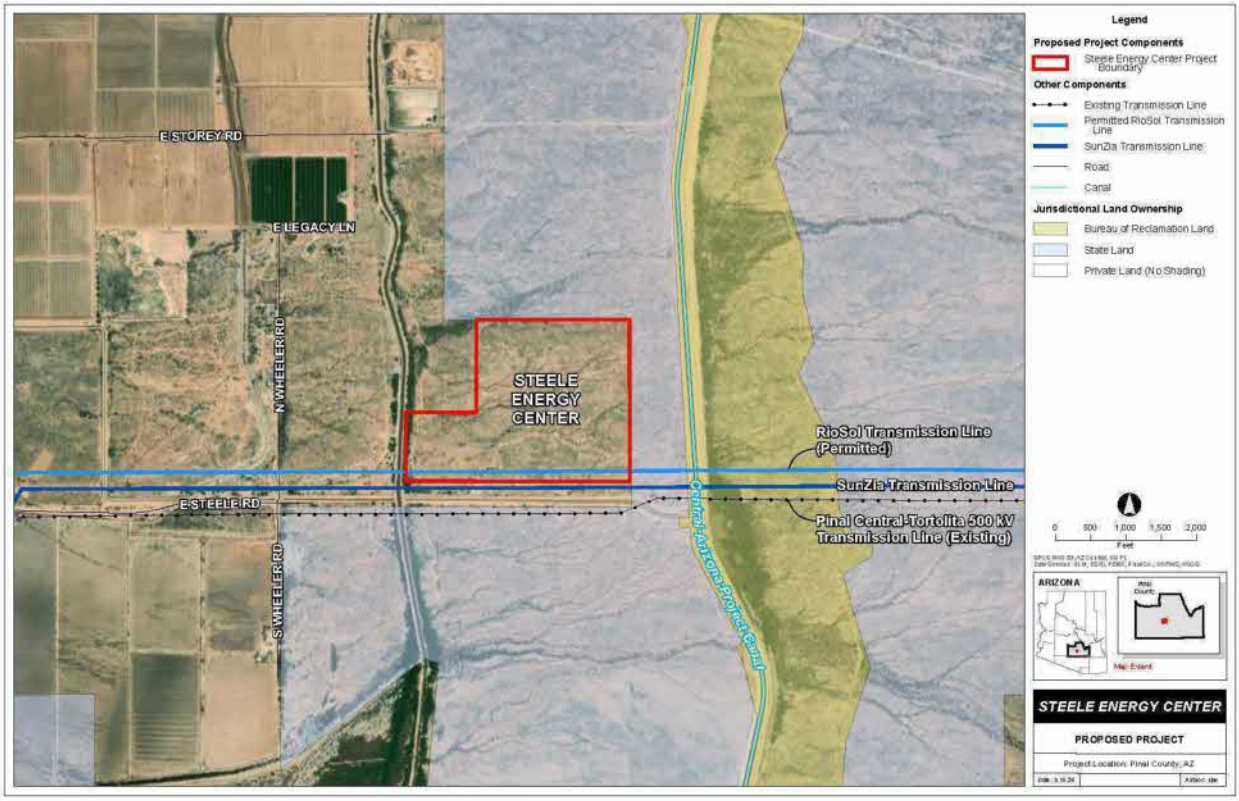
The SEC is being proposed to address growing electricity demand required to support the reliability of the local and regional grid, which is strained due to unprecedented load growth, increasingly frequent extreme weather events, and greater reliance on intermittent resources. In addition, the SEC will be in a strategic location, near existing and planned natural gas and electrical transmission corridors, in an area designated as attainment for all national ambient air quality standards and a relatively undeveloped area, making it well suited for development as a reliable energy resource.

## Project Description

The SEC is located in Pinal County on approximately 137 acres of private land. The existing land use is undeveloped in a rural area of Pinal County with only about six residences within one-mile of the SEC Project site. **Figure 1** includes an aerial base map depicting the site boundary and

surrounding land. The Applicant is requesting a CEC for an approximately 1400 MW CCGT power plant. The Project plans to provide power to the regional electric grid by connecting to the adjacent, previously permitted RioSol 500 kV transmission line.

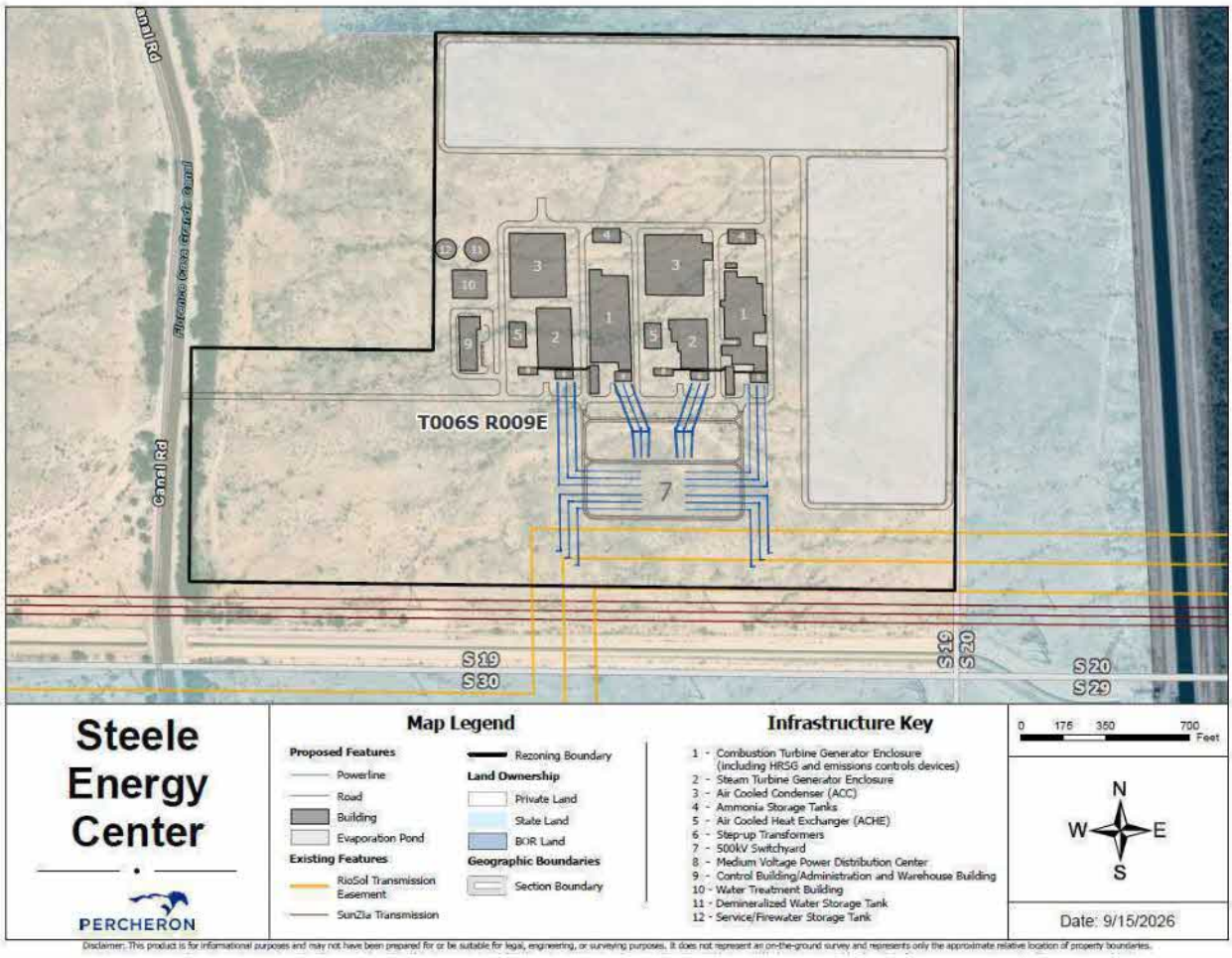
**Figure 1**




As depicted on **Figure 2**, there would be two GE Vernova 7HA.03 CCGT power blocks, each consisting of one combustion gas turbine (GT), exhausting into one Heat Recovery Steam Generator (HRSG). The steam from the HRSG is routed to one steam turbine (ST), augmenting the cycle power production without additional fuel to increase the plant's fuel efficiency. The HRSG is also designed for supplementary steam production via the use of an integral duct burner (DB). The steam turbine cycle will be equipped with an air-cooled condenser for "dry cooling" of the steam turbine exhaust and to minimize makeup water consumption.

The GT and ST for each power block are arranged in a what is called a "1x1" configuration: one GT and one ST per unit. Each CCGT unit will also have the capability to operate in combined cycle or simple cycle mode, allowing GT operation independent of steam cycle availability to further increase plant reliability. The power design rating for both power blocks will total approximately 1400 MW.

**Figure 2**




The proposed CCGT units are designed for continuous operation but will undergo periodic startup and shutdown events. When operating at steady-state, the GTs will be capable of operating between a minimum load of approximately 20-percent and 100-percent load.

## Summary of Public Process and Siting Study

The Applicant engaged in a comprehensive public involvement process to gather community input and feedback, as described in detail in **Exhibit J** of this Application. The outreach process also informed the general public, public officials, jurisdictional agencies, and stakeholders about the Project. The process included briefings and meetings, live online open houses, in-person open houses, postcard mailings, phone calls and emails. In addition, social media advertisements were used to inform the public and stakeholders. A toll-free information line and website were created to inform the public about the Project and provide an opportunity for public comment.

The Project's public process consisted of two phases. The Applicant hosted a total of four virtual open houses, two in-person open houses and several stakeholder meetings. The public process is more fully described in **Exhibit J**.

- The Applicant sent a Project informational mailer to stakeholders and property owners within one mile of the Project on July 13, 2026. The mailer included information about the upcoming virtual and in-person open houses as well as a link to the Project website and Project informational phone line. The open houses were also noticed on the Project website and promoted to the local community through social media advertisements. The social media advertisements targeted specific areas within Pinal County utilizing zip codes in the vicinity to the Project, which included, 85122, 85128, 85192 and 85194. The campaign achieved 39,789 impressions and demonstrated a higher than industry average click-through rate.
- The Applicant hosted two virtual open houses, one on July 28, 2026, at 5:30 PM and one on July 29, 2026, at 12:00 PM. Both virtual open houses included Q&A sessions with members of the public and stakeholder representatives.
- The Applicant hosted an in-person open house at the Mary C O'Brien Elementary School on July 29, 2026, from 4:30 PM – 6:00 PM. The meeting was an open house/drop-in format where participants could view Project information boards and speak to Project team members and specialists.
- The Applicant sent a second round of Project informational mailers to stakeholders and property owners on September 4, 2026. To ensure local community members were made aware of the Project; the Applicant expanded the one-mile radius to two-miles. The mailer included information about the upcoming virtual and in-person open houses as well as a link to the Project website and Project informational phone line. This mailer also included information about the CEC process. The open houses were also noticed on the Project website and promoted to the local community through social media advertisements. The social media advertisements targeted the same geographical location used prior achieving 47,386 impressions, also with a higher than industry average click-through rate.
- The Applicant hosted two virtual open houses, one on September 23, 2026, at 1:00 PM and one on September 24, 2026, at 5:00 PM. Both virtual open houses included Q&A sessions with members of the public and stakeholder representatives.
- The Applicant hosted an in-person open house at the Mary C O'Brien Elementary School on September 23, 2026, from 5:00 PM – 7:00 PM. The meeting was an open house/drop-in format where participants could view Project information boards and speak to Project team members and specialists.

## Summary of Environmental Analysis

In support of this Application, the Applicant performed various studies that analyzed the impact of the Project under the factors identified in A.R.S. § 40-360.06 (Environmental Factors). The following provides a summary of the conclusions reached regarding the compatibility of the project under the Environmental Factors:

- No significant or detrimental effects to fish, wildlife, plant life and associated forms of life upon which they are dependent.
- No significant or detrimental effects associated with noise emission levels and interference with communication signals.
- There are no plans for development of recreational facilities for the Project site.
- Project implementation will be consistent with safety considerations and regulations.

- No significant or detrimental effects to existing scenic areas, historic sites, structures or archaeological sites at or in the vicinity of the Project.
- No significant or detrimental effects to surface water or groundwater quality and availability.
- The Project is environmentally compatible with the total environment of the area.

## Conclusion

The Project's generation resources will provide essential energy to the regional grid and is capable of providing reliable, affordable, baseload power. The Project is well positioned to help address the critical energy needs of the modern economy using fuel- and water-efficient generation technologies. In developing the Project, the Applicant sought and incorporated feedback gained from the public and other stakeholders. The Project is environmentally compatible.

The Applicant therefore respectfully requests that the Committee grant, and the ACC approve, the CEC for the construction of the Steele Energy Center.

# APPLICATION

In accordance with Arizona Revised Statutes (A.R.S.) Sections 40-360.03 and 40-360.06 and Arizona Administrative Code R14-7-119, the Applicant provides the following information:

1. ***Name and address of the Applicant***

   Name: Steele Energy Center, LLC
   Address: 3610 N 44th Street
   Phoenix, AZ 85018

2. ***Name, address, and telephone number of a representative of the applicant who has access to technical knowledge and background information concerning this application, and who will be available to answer questions or furnish additional information***

   Name: Dennis Loria
   Address: 3610 N 44th Street
   Phoenix, AZ 85018
   Telephone: 1-617-803-7363
   Email: dloria@mmrgrp.com

3. ***State each date on which the applicant has filed a ten-year plan in compliance with A.R.S. § 40-360.02 and designate each such filing in which the facilities for which this application is made were described. If they have not been previously described in a ten-year plan, state the reasons*** therefore.

   In accordance with A.R.S. Section 40-360.02(B), the Applicant filed a Ninety Day Plan with the Arizona Corporation Commission (ACC) on July 15, 2026. The Ninety Day Plan, which describes the Project, can be found in Docket No. E-00000M-08-0170.

4. ***Description of the proposed facility, including:***

   *1.* ***With respect to an electric generating plant:***

      ***i. Type of generating facilities (nuclear, hydro, fossil-fueled, etc.).***

      The Steele Energy Center (SEC or Project) consists of two combined cycle natural gas-fired turbine (CCGT) power blocks.

      ***ii. Number and size of proposed units.***

      The net nameplate capacity of the Project is 1,420 megawatts (MW), with an approximate estimated output of 1,400 MW. The Project consists of two GE Vernova 7HA.03 CCGT power blocks, each consisting of one combustion gas turbine (GT), exhausting into one Heat Recovery Steam Generator (HRSG). The steam from the HRSG is routed to one steam turbine (ST), augmenting the cycle power production without additional fuel to increase the plant's fuel efficiency. The HRSG is also designed for supplementary steam production

via the use of one integral duct burner (DB). The steam turbine cycle will be equipped with an air-cooled condenser for "dry cooling" of the steam turbine exhaust to minimize makeup water consumption.

The GT and ST for each power block are arranged in what is called a "1x1" configuration: one GT and one ST per unit. Each CCGT unit will also have the capability to operate in combined cycle or simple cycle mode, allowing GT operation independent of steam cycle availability for additional reliability. The power design rating for both power blocks will total approximately 1,400 MW.

The proposed CCGT units are designed for continuous operation but will undergo periodic startup and shutdown events. When operating at steady-state, the CTs will be capable of operating between a minimum load of approximately 20-percent and 100-percent load.

*Site Layout and Arrangement*

**Figure 2** in the Introduction depicts the proposed site layouts and arrangement of the Steele Energy Center. The layout shows the relative sizes and locations of the proposed equipment and improvements on the Project site, including access roads, the new 500 kilovolt (kV) switchyard and evaporation ponds.

The power generation facilities will occupy approximately 30 acres of the approximately 137-acre site. A network of roads for fire equipment and maintenance access surrounds the generation equipment.

*Combined Cycle Natural-Gas Turbine Equipment*

The Steele Energy Center utilizes two CCGT power blocks (1x1 GE 7HA.03 units). Each power block consists of one GT exhausting to a HRSG equipped with one NG-fired DB, with steam generated by the HRSG routed to a ST.

The CCGT will utilize Selective Catalytic Reduction (SCR) to control the emission of NOx. The SCR will inject aqueous ammonia downstream of the GT and DBs at the appropriate temperature zone in the HRSG to allow for the NOx reduction reactions. The SCR system will consist of aqueous ammonia storage and handling equipment, ammonia injection grids, and catalyst beds.

In addition, CO and volatile organic compounds (VOCs) will be controlled through the use of oxidation catalysts. Each oxidation catalyst system will be comprised of catalyst bed modules and be installed in a location where exhaust temperatures optimize CO reduction reactions.

Other equipment includes acoustic enclosures, silencers to reduce sound levels, intercooler systems, fire detection and protection systems, and state-of-the-art instrumentation for safety and performance monitoring.

***iii. The source and type of fuel to be utilized, including a proximate analysis of fossil fuels.***

The Project will use pipeline-quality natural gas. The Project will also include two emergency generators that will utilize back up Ultra Low Sulphur Diesel (ULSD) fuel. Gas service will be provided through a tie-in to a newly-constructed gas lateral with the existing El Paso Natural Gas interstate gas transmission line and the planned Energy Transfer Transwestern interstate gas transmission line approximately one-mile north of the Project. The two interstate gas transmission lines are expected to be located parallel to each other and may be accessed in the same general area.

***iv. Amount of fuel to be utilized daily, monthly, and yearly.***

The turbines are proposed to operate a maximum of 8,760 hours per year respectively. These CCGTs can operate in two operational modes, primary combined cycle mode and back-up simple cycle mode.

The Applicant plans to operate each CCGT in primary combined cycle mode for up to 8,760 hours per year respectively. The Applicant proposes to operate each GT in simple cycle mode for up to 100 hours per year.

The Project's operation will be variable over time. Estimated maximum daily, monthly, and yearly fuel use is approximately 255,000 MMBtu, 7,865,000 MMBtu, and 81,000,000 MMBtu. For calculation purposes, the natural gas consumption at full load and International Organization for Standardization (ISO) conditions will average approximately 4,400 million British Thermal Units (MMBtu) (HHV) of gas per hour per CCGT, 72,000 MMBtu per 16-hour day, and 110,000 MMBtu per 24-hour day. Monthly and yearly fuel use will vary based on the factors referenced above.

***v. Type of cooling to be utilized and source of any water to be utilized.***

The Project will utilize water-efficient generation technologies and will only regularly use makeup water for evaporative cooling and steam cycle makeup. (Makeup water will also be used for emergency purposes in the fire protection system and for potable water). The two 1x1 7HA.03 CCGTs will be air-cooled and equipped with evaporative intake coolers for use during periods of high ambient temperatures to reduce intake air temperature and increase electrical output of the GTs. These evaporative coolers utilize a wetted-media system over a fogging system to reduce water consumption and blowdown wastewater. The air-cooled condensers work by directly condensing low-pressure exhaust steam from the ST back into liquid water. The steam enters a manifold at the top of the structure and flows downward through parallel rows of tightly packed, finned metal tubes. Large, motor-driven axial fans force ambient air across the outside of these tubes, transferring the heat directly into the atmosphere without consuming any water. As the steam loses its heat, it

condenses into water at the bottom of the tubes and is pumped back to the HRSG to repeat the closed-loop cycle.

*Water Use Requirements*

The Project is designed to minimize water consumption. Water will primarily be utilized by the Project to increase the fuel efficiency and power output of the CTs with evaporative intake cooling during periods of high ambient temperatures. There is also wastewater from the water treatment system that will be sent directly to the evaporation ponds.

*Source of Water*

The Project is located within the Pinal Active Management Area, and an affiliate of the Applicant has an existing groundwater irrigation right (Irrigation Grandfathered Right No. 58-104163.0000) with an existing maximum annual groundwater allotment of approximately 1,230 acre-feet/year located on an adjacent property owned by an affiliate of the Applicant. Project water will be provided from four existing wells located on adjacent property owned by an affiliate of the Applicant. The anticipated water usage for the Project will be approximately 300 acre-feet/year.

***vi. Proposed height of stacks and number of stacks, if any.***

The Project will include four exhaust stacks, one for each HRSG and one for each GT which will only be utilized during simple cycle operation mode. Each stack extending from the HRSG will be approximately 173 feet in height and approximately 23 feet in diameter. The simple cycle stacks will be approximately 154 feet in height and approximately 27 feet in diameter. Other features in the area include the existing SunZia and TEP 500 kilovolt (kV) transmission lines with structures approximately 120-150 feet in height.

***vii. Dates for scheduled start-up and firm operation of each unit and date construction must commence in order to meet schedules.***

It is anticipated that the Project will begin operations in the fourth quarter of 2032. The Project will operate year-round, as needed by load serving entities in Arizona.

Construction on the Project is anticipated to commence by the fourth quarter of 2029 to meet the commercial operation dates and planned startup schedule.

***viii. To the extent available, the estimated costs of the proposed facilities and site, stated separately. (If application contains alternative sites, furnish an estimate for each site and a brief description of the reasons for any variations in estimates.)***

The estimated cost for development and construction of the Project is

approximately $4.1 billion. The estimated cost for the purchase of the Project site is approximately $3.1 million.

***ix. Legal description of proposed site. (If application contains alternative sites, list sites in order of applicant's preference with a summary of reasons for such order or preference and any changes such alternative sites would require in the plans reflected in (i) through (viii) hereof.)***

The Project will be located on an approximately 137-acre parcel in Section 19, Township 6 South, Range 9 East, of the Gila and Salt River Base and Meridian in Pinal County, Arizona. The proposed site includes APN 40001009C.

***x. Nominal voltage for which the line is designed; description of the proposed structures and switchyards or substations associated therewith; and purpose for constructing said transmission line***

The Project is expected to provide power to the regional grid by connecting to the adjacent, previously permitted, RioSol 500 kV transmission line. The interconnecting transmission line will be under one-mile long and contain less than five structures. Thus, it and the proposed switchyard are not jurisdictional and not subject to this CEC.

*Nominal voltage*

Not applicable.

*Description of the proposed structures*

Not applicable.

*Description of proposed switchyards and substations associated therewith.*

Not applicable. The nominal voltage of the proposed switchyard will be 500 kV.

*Purpose for constructing the Transmission Line*

Not applicable. The purpose for constructing the proposed switchyard is to interconnect the Steele Energy Center to the regional transmission system.

***xi. Description of geographical points between which the transmission line will run the straight-line distance between such points and the length of the transmission line for each alternative route for which the application is made.***

*Description of geographical points between which the transmission line will run*

Not applicable.

*Straight-line distance between such points*

Not applicable.

*Length of the transmission line for each alternative route*

Not applicable.

***xii. Nominal width of right-of-way required, nominal length of spans, maximum height of supporting structures and minimum height of conductor above ground.***

*Nominal width of right-of-way required*

Not applicable.

*Nominal length of spans*

Not applicable.

*Maximum height of supporting structures*

Not applicable.

*Minimum height of conductor above ground:*

Not applicable.

***xiii. To the extent available, the estimated costs of proposed transmission line and route, stated separately. (If application contains alternative routes, furnish an estimate for each route and a brief description of the reasons for any variations in such estimates.)***

Not applicable.

**xiv.** ***Description of proposed route and switchyard locations. (If application contains alternative routes, list routes in order of applicant's preference with a summary of reasons for such order of preference and any changes such alternative routes would require in the plans reflected in (i) through (iv) hereof.)***

Not applicable. The proposed switchyard will be located on private land owned by the Applicant.

***xv. For each alternative route for which application is made, list the ownership percentages of land traversed by the entire route (federal, state, Indian, private, etc.).***

Not applicable.

***5. List the areas of jurisdiction [as defined in A.R.S. § 40-360(1)] affected by each alternative site or route and designate those proposed sites or routes, if any, which are contrary to the zoning ordinances or master plans of any of such areas of jurisdiction.***

The Project is within unincorporated Pinal County on private land owned by the Applicant. The Project team has met with the Pinal County Planning staff and is preparing a Non-major Comprehensive Plan Amendment, Rezone and Planned Area Development

to be submitted to Pinal County to comply with existing zoning and land use designations.

6. ***Describe any environmental studies applicant has performed or caused to be performed in connection with this application or intends to perform or cause to be performed in such connection, including the contemplated date of completion.***

   The Applicant has evaluated available desktop and field data related to air quality, biological resources, visual resources, cultural resources, recreational resources, land use, noise levels, and communication signals in order to assess the potential impacts that may result from the construction, operation, and maintenance of the Project. These evaluations are included in Exhibits A, B, C, D, E, F, G, H, and I to this Application.

Based on the information provided herein, the Applicant hereby affirms, upon thorough expert scientific environmental evaluation and analysis, that the Steele Energy Center is environmentally compatible and respectfully requests the Arizona Power Plant and Transmission Line Siting Committee issue a CEC, with a term of 10 years.

By: 

Dennis Loria
Steele Energy Center, LLC

ORIGINAL and 8 copies of the foregoing hand delivered and filed with the Director of Utilities, Arizona Corporation Commission, this 15th of October, 2026.

# EXHIBIT A
# PROJECT LOCATION AND LAND USE

In accordance with Arizona Administrative Code R14-7-119, the Applicant provides the following information:

*Where commercially available, a topographic map, 1:250,000 scale, showing the proposed plant site and the adjacent area within 20 miles thereof If application is made for alternative plant sites, all sites may be shown on the same map, if practicable, designated by applicant's order of preference.*

*Where commercially available, a topographic map, 1:62,500 scale, of each proposed plant site, showing the area within two miles of any subdivided area. The general land use plan within the area shall be shown on the map, which shall also show the areas of jurisdiction affected and any boundaries between such areas of jurisdiction. If the general land use plan is uniform throughout the area depicted, it may be described in the legend in lieu of an overlay.*

## Project Location

**Figure A-1** depicts the proposed Steele Energy Center (SEC or Project), jurisdictional land ownership, and the adjacent area within a 20-mile buffer on a topographic map (1:250,000 scale).

**Figure A-2** depicts the Project including a two-mile buffer of the Project site, jurisdictional land ownership, and the adjacent area on a topographic map (1:62,500 scale).

**Figure A-3** depicts the Pinal County Comprehensive Plan designated Land Use within a two-mile buffer of the project on a topographic map (1:62,500 scale).

**Figure A-4** depicts the City of Coolidge General Plan designated Land Use within a two-mile buffer.

**Figure A-5** depicts the Pinal County designated Zoning Districts within a two-mile buffer.

**Figure A-6** depicts the City of Coolidge designated Zoning Districts within a two-mile buffer.

## Land Ownership

The Project is located in central Pinal County southeast of Coolidge and east of Casa Grande and encompasses approximately 137 acres of undeveloped land. The Project is 0.3 miles east of the intersection of E Steele Road S Wheeler Road and N Wheeler Road. The western boundary of the Project property coincides with the Florence Casa Grande Canal while the southern boundary runs parallel with the existing SunZia Transmission Line, existing Pinal Central Tortolita 500 kilovolt (kV) Transmission Line, and the permitted RioSol Transmission Line. The eastern boundary of the Project is approximately 0.15 miles west of the Central Arizona Project (CAP) Canal. The northern boundary of the Project extends through open desert between the CAP Canal and Florence Casa Grande Canal.

Land ownership within a 20-mile radius of the Project area consists of private parcels in Pinal County, Gila River Indian Community Tribal land, Tohono O'odham Nation Tribal land, Bureau of Reclamation lands, National Park lands, Bureau of Land Management jurisdiction, state-owned parcels, Department of Defense land, Department of Interior land, municipal lands owned by the cities of Eloy, Coolidge, and Casa Grande and federally designated wilderness areas (see **Figures A-1** and **A-2**). The Project area includes many existing linear features including highway corridors, roadways, electric transmission lines, natural gas pipelines and hydraulic features.

## Land Use

Existing land uses around the Project generally include agricultural, scattered low-density residential, open space, solar fields and vacant land. The CAP Canal is located to the east, and the Florence-Casa Grande Canal is to the west.

### Pinal County

Pinal County is located in the south-central area of the State of Arizona and encompasses approximately 5,376 square miles. Pinal County is bordered by Maricopa County to the north and west, Pima County to the south, Graham County to the east, and Gila County to the northeast. Within Pinal County, there are five incorporated cities and eight incorporated towns. The City of Coolidge boundary is immediately west of the site, the City of Eloy is southwest of the site, and the city of Florence is northeast of the site.

The Pinal County Comprehensive Plan is the current planning guide for developments within the County. The Pinal County Comprehensive Plan "is the landmark document that will serve to steer the County on a positive course of action to manage growth, preserve the quality of life, and promote sustainability. It is a long-term vision that promotes effective economic vitality while ensuring environmental stewardship" (Pinal County, 2019).

The land use categories depicted in **Figure A-3** show the designated land uses from the Pinal County Comprehensive Plan. The designated land uses within two miles of the Project include Aviation Based Commerce Center, Employment, General Public Facilities/Services, Major Open Space, Mid-Intensity Activity Center, Moderate Low Density Residential (1-3.5 du/ac), Proposed Regional Park, Very Low Density Residential (0-1 du/ac).

The land use designation for the Project site is Very Low Density Residential (0-1 du/ac) and Major Open Space.

### City of Coolidge

The Project borders the municipal limits of the City of Coolidge. The land use categories depicted in **Figure A-4** show the designated land uses from the City of Coolidge 2035 General Plan (Coolidge, 2024). The designated land uses within two miles of the Project includes Business & Commerce, Rural Ranchette and Urban Neighborhood.

## Zoning

### Pinal County

Pinal County is classified into zoning districts and Planned Area Development (PAD) overlay district zones. As depicted on **Figure A-4**, the zoning district for the Project site and within two miles of the Project include the following:

- GR – General Rural

### City of Coolidge

The City of Coolidge is divided into multiple zoning districts, however the area inside the one-mile buffer is Agriculture (AG). There is a proposed Planned Area Development (PAD) within one-mile of the Project site, that is further discussed in **Exhibit H** of this Application. As depicted on **Figure A-5**, the City of Coolidge zoning district within two miles of the Project include the following:

- AG – Agriculture

## Potential Effects

### Jurisdiction and Land Ownership

The Project is located in central Pinal County southeast of Coolidge and east of Casa Grande and encompasses approximately 137 acres of undeveloped land. The Project is on land designated as Very Low Density Residential (0-1 du/ac) and Major Open Space. The Project is zoned as GR (General Rural).

### Future Land Use

The current Pinal County designated land use of the Project is Very Low Density Residential (0-1 du/ac) and Major Open Space. The Very Low-Density Residential designation permits residential and agricultural uses. The Applicant will file a Non-major Comprehensive Plan Amendment with Pinal County changing the land use designation to General Public Facilities/Services comply with land use designations.

With a Non-major Comprehensive Plan Amendment that changes the designated land use to General Public Facilities/Services, the Project will be compatible with the Pinal County Comprehensive Plan. This land use designation is appropriate and consistent with existing land use in the area due to the limited residential uses in the area and number of utility infrastructure.

### Zoning

The Project site is currently zoned for GR use. The Applicant is currently undergoing a Rezone of the Project site from GR to Industrial (I-3) with a PAD Overlay.

With the Rezoning, the Project will be compatible with Pinal County's Zoning Ordinance.

Both the Non-major Comprehensive Plan Amendment and Rezone case (including the PAD) have been undergoing meetings and communication with Pinal County and will be filing applications before the end of the year.

**Conclusions**

As stated above, the Project is located entirely on private land in unincorporated Pinal County that is controlled by the Applicant. The Project would convert existing Very Low-Density Residential land uses to an industrial-electrical generation use, requiring a Non-major Comprehensive Plan Amendment, Rezone and PAD from Pinal County. Therefore, the Project will be consistent with Pinal County's Comprehensive Plan and Zoning Ordinance.

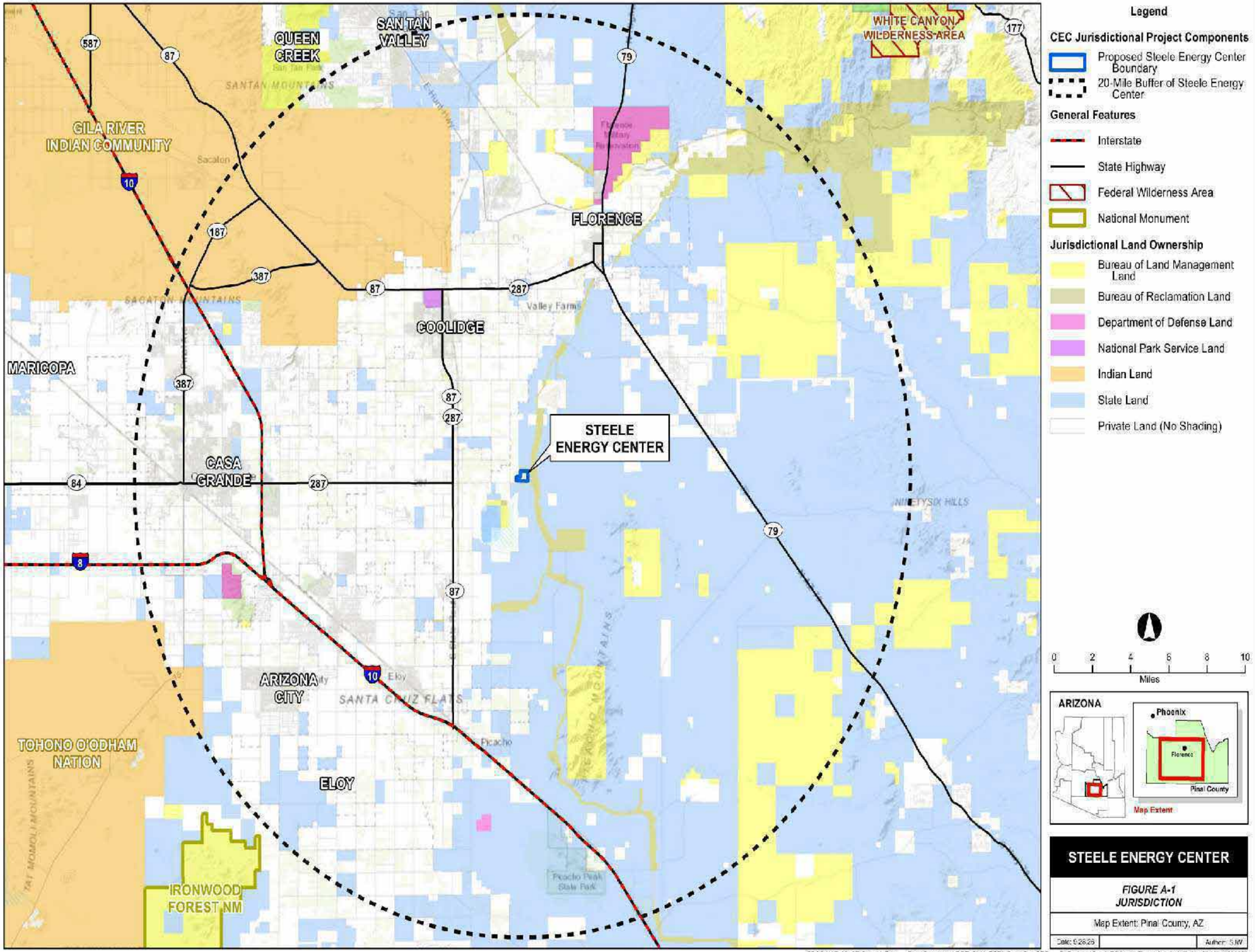
## References

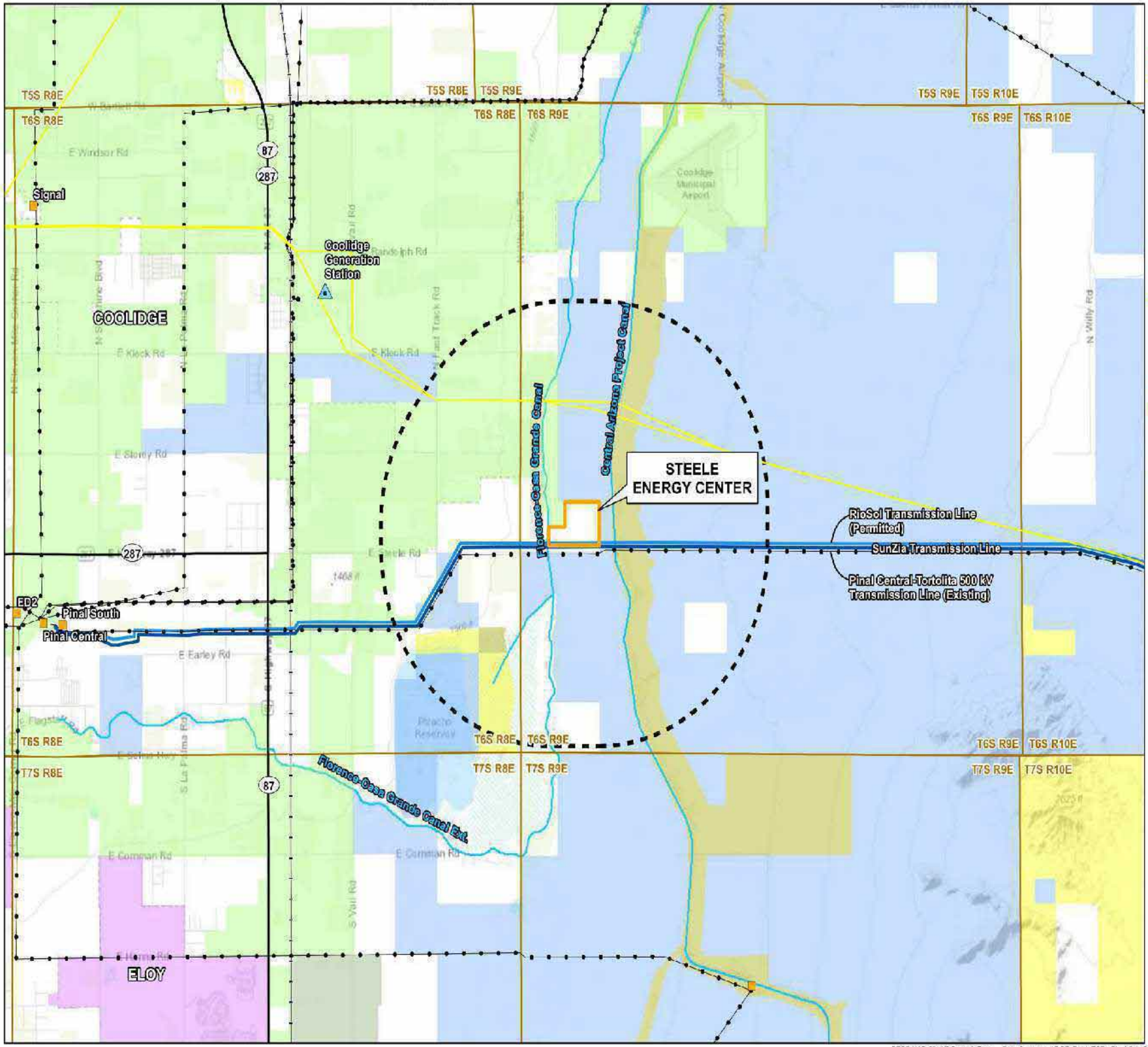
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Pinal County. 2026. Planning Division. Accessed 9/12/2026. Available at: https://www.pinal.gov/226/Planning


QUEEN CREEK
SAN TAN VALLEY
WHITE CANYON WILDERNESS AREA
GILA RIVER INDIAN COMMUNITY
FLORENCE
COOLIDGE
MARICOPA
CASA GRANDE
STEELE ENERGY CENTER
ARIZONA CITY
ELOY
TOHONO O'ODHAM NATION
IRONWOOD FOREST NM
Legend
CEC Jurisdictional Project Components
Proposed Steele Energy Center Boundary
20-Mile Buffer of Steele Energy Center
General Features
Interstate
State Highway
Federal Wilderness Area
National Monument
Jurisdictional Land Ownership
Bureau of Land Management Land
Bureau of Reclamation Land
Department of Defense Land
National Park Service Land
Indian Land
State Land
Private Land (No Shading)
0 2 4 6 8 10
Miles
ARIZONA
Phoenix
Florence
Pinal County
Map Extent
STEELE ENERGY CENTER
FIGURE A-1
JURISDICTION
Map Extent: Pinal County, AZ




## Legend

**CEC Jurisdictional Project Components**

- Proposed Steele Energy Center Boundary
- 2-Mile Buffer of Steele Energy Center

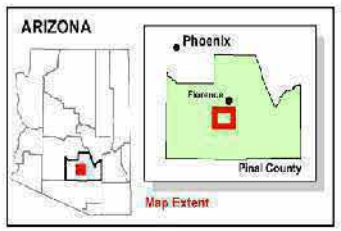
**General Features**

- Existing Power Plant
- Existing Substation
- Existing Transmission Line
- SunZia Transmission Line
- Permitted RioSol Transmission Line
- Natural Gas Pipeline
- State Highway
- Road
- Major Stream / Wash / Canal
- Township / Range Boundary

**Jurisdictional Land Ownership**

- Bureau of Land Management Land
- Bureau of Reclamation Land
- State Land
- City of Coolidge
- City of Eloy

0 0.5 1 1.5 2 Miles



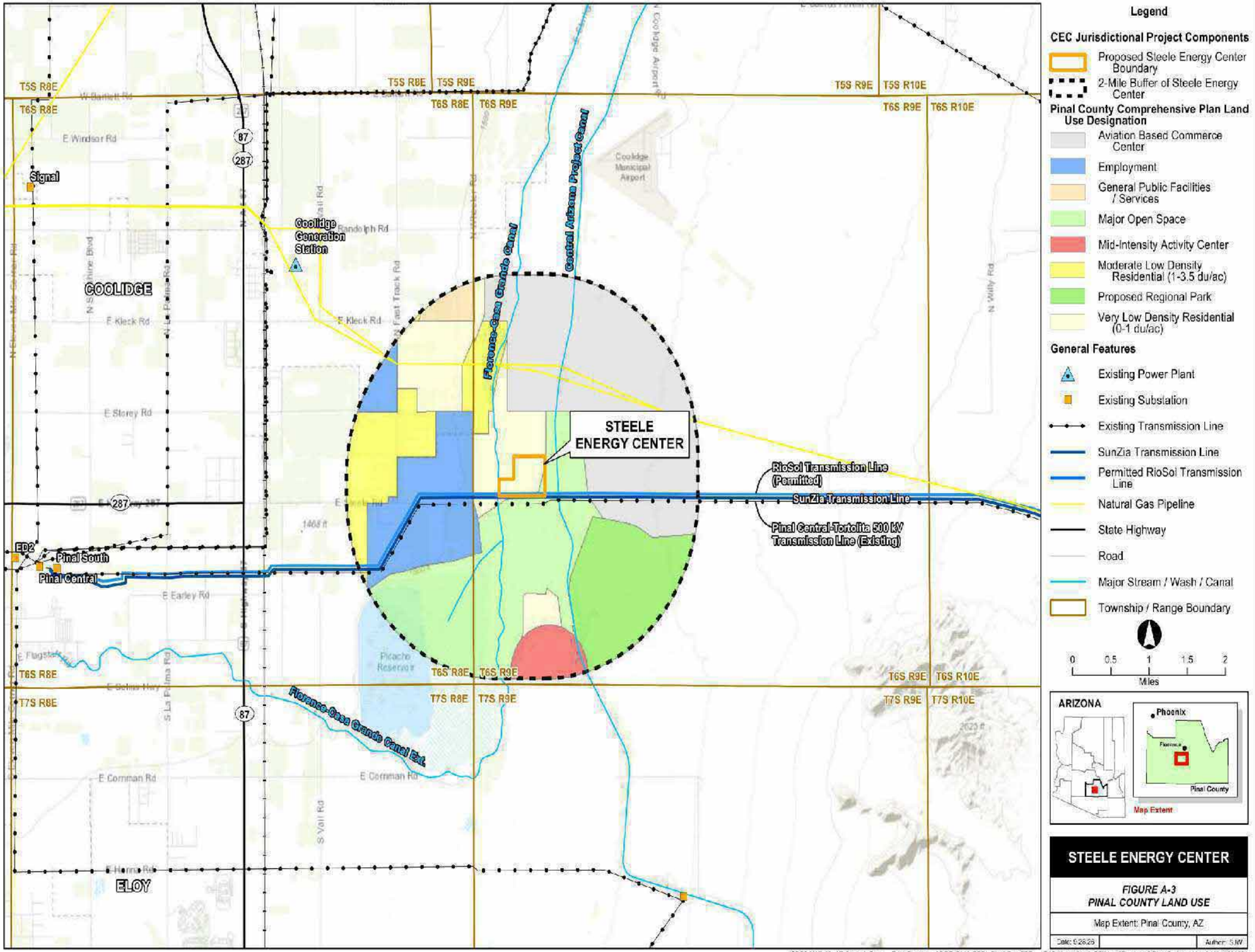

# STEELE ENERGY CENTER

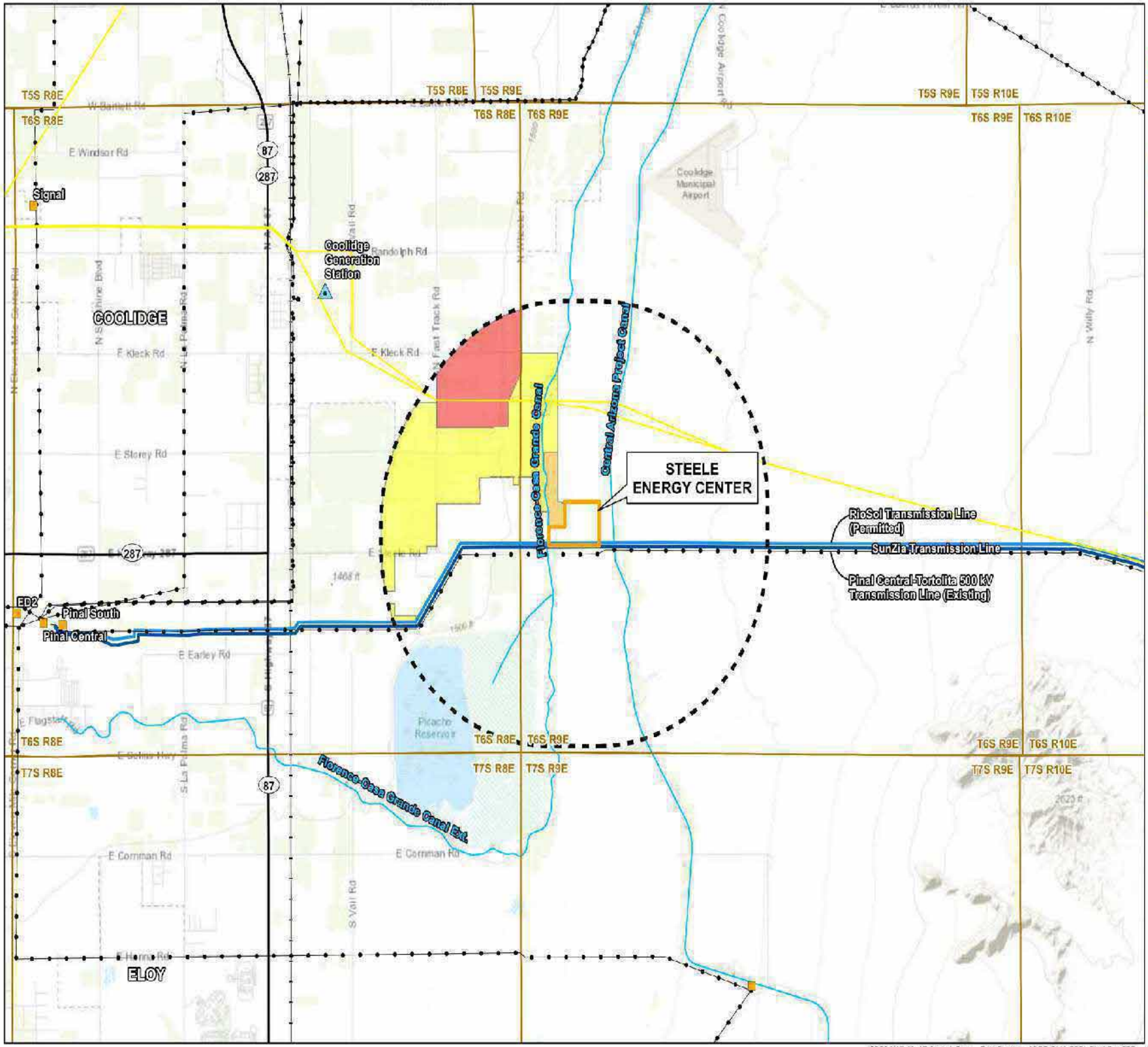
***FIGURE A-2***
***JURISDICTION***

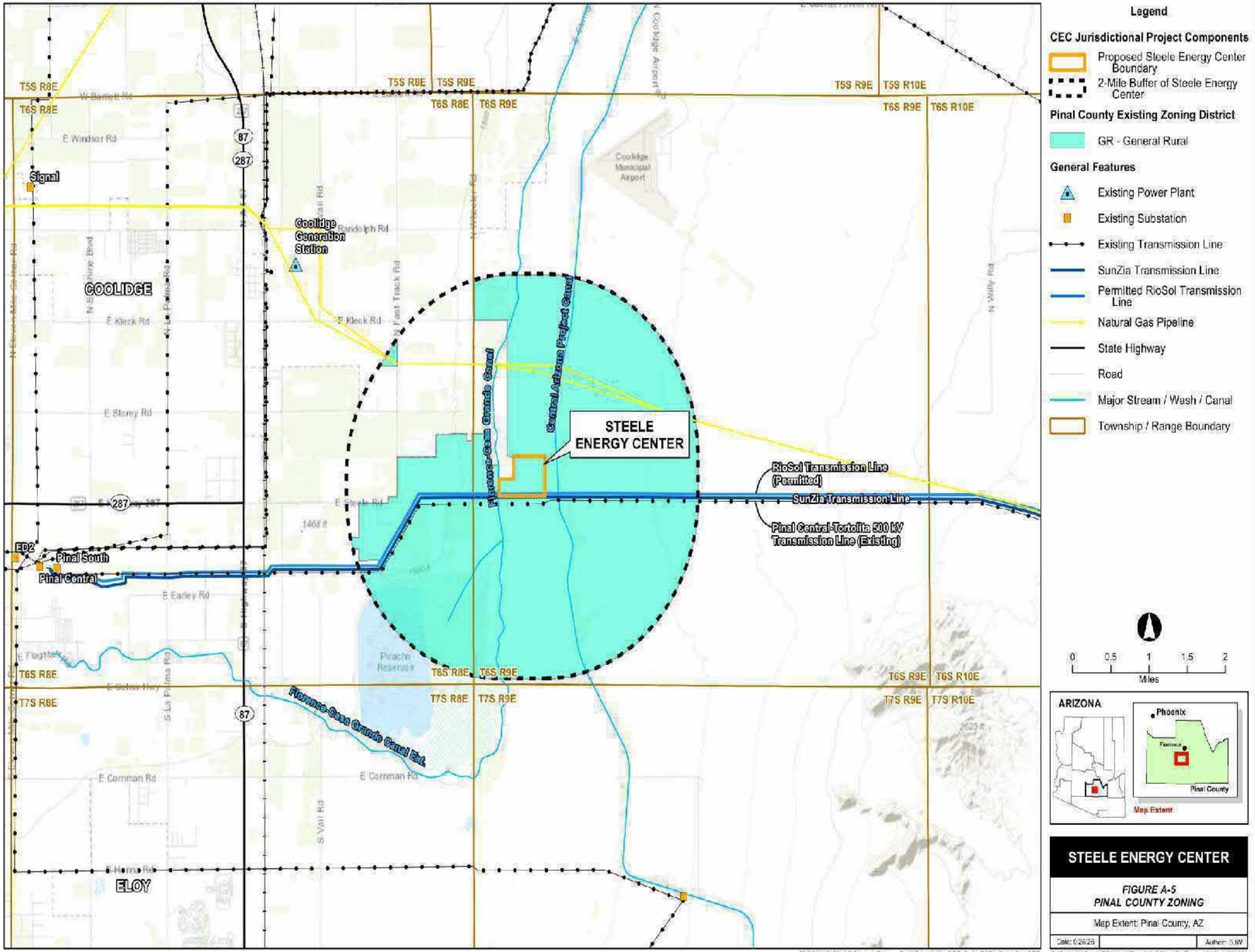
Map Extent: Pinal County, AZ

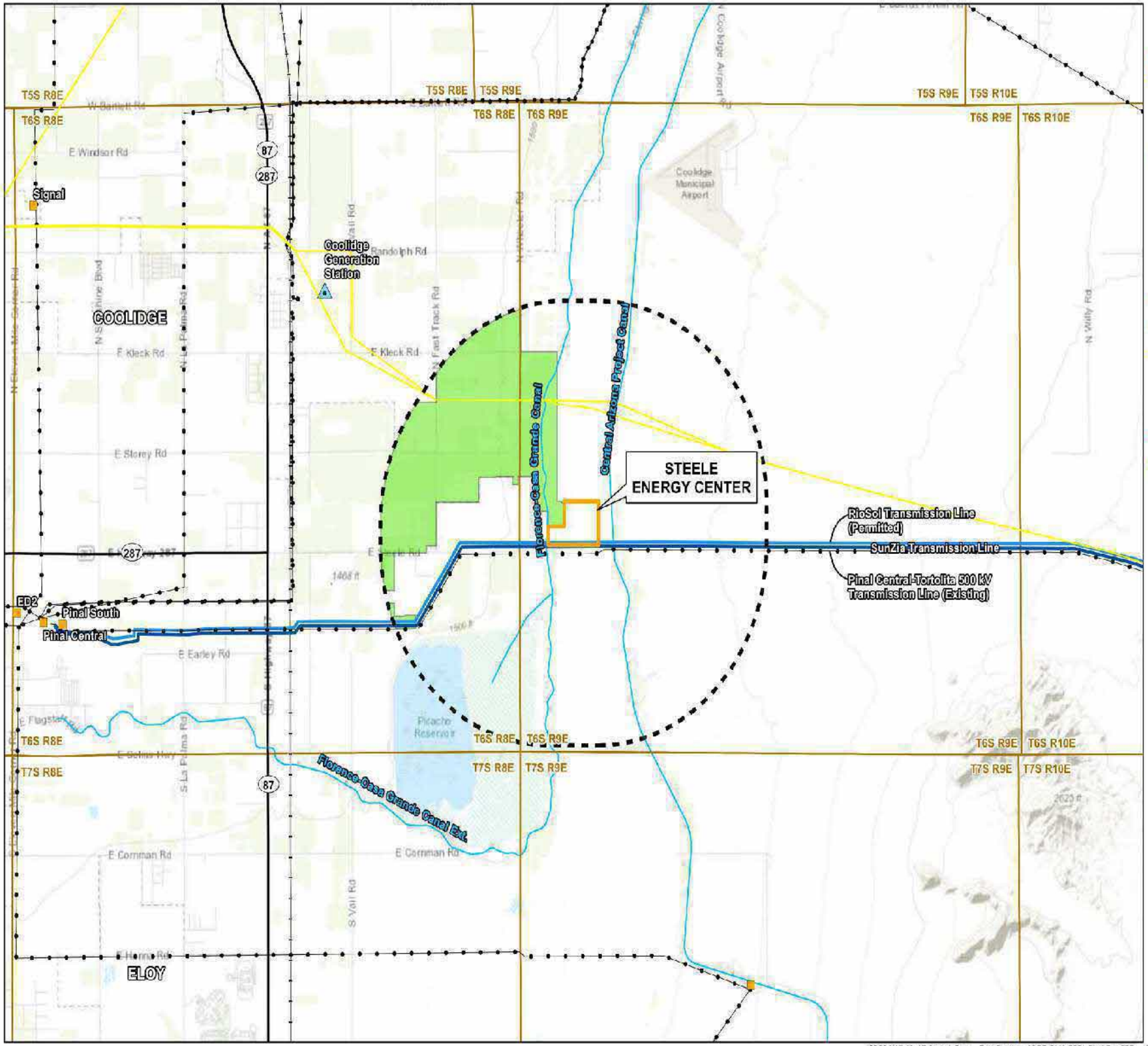
Date: 9.26.25 | Author: SJW

SPCS NAD 83, AZ Central, Foot. Data Sources: ADOT, BLM, ESRI, Pinal Co., SRP. D:\Projects\SteeleEC\Maps\Figure A-2 Jurisdiction 2 Miles 091226


STEELE ENERGY CENTER
Florence-Casa Grande Canal
Central Arizona Project Canal
Florence-Casa Grande Canal Ext.
Coolidge Generation Station
Signal
COOLIDGE
ELOY
ED2
Pinal South
Pinal Central
RioSol Transmission Line (Permitted)
SunZia Transmission Line
Pinal Central-Tortolita 500 kV Transmission Line (Existing)
T5S R8E
T5S R9E
T5S R10E
T6S R8E
T6S R9E
T6S R10E
T7S R8E
T7S R9E
T7S R10E
E Windsor Rd
E Kleck Rd
E Storey Rd
E Earley Rd
E Flagstaff Rd
E Corman Rd
E Hanna Rd
W Barnett Rd
E Randolph Rd
Coolidge Municipal Airport
Picacho Reservoir
1468 ft
2625 ft
87
287
Legend
CEC Jurisdictional Project Components
Proposed Steele Energy Center Boundary
2-Mile Buffer of Steele Energy Center
Pinal County Comprehensive Plan Land Use Designation
Aviation Based Commerce Center
Employment
General Public Facilities / Services
Major Open Space
Mid-Intensity Activity Center
Moderate Low Density Residential (1-3.5 du/ac)
Proposed Regional Park
Very Low Density Residential (0-1 du/ac)
General Features
Existing Power Plant
Existing Substation
Existing Transmission Line
SunZia Transmission Line
Permitted RioSol Transmission Line
Natural Gas Pipeline
State Highway
Road
Major Stream / Wash / Canal
Township / Range Boundary
0 0.5 1 1.5 2
Miles
ARIZONA
Phoenix
Florence
Pinal County
Map Extent
STEELE ENERGY CENTER
FIGURE A-3
PINAL COUNTY LAND USE
Map Extent: Pinal County, AZ
Date: 9.26.25
Author: SJW
SPCS NAD 83, AZ Central, Foot. Data Sources: ADOT, BLM, ESRI, Pinal Co., SRP. C:\Projects\SteeleECV\Maps\Figure A-3 Pinal Co Land Use 2 Miles 091226


STEELE ENERGY CENTER
Coolidge Generation Station
Signal
COOLIDGE
ELOY
Florence-Casa Grande Canal
Central Arizona Project Canal
RioSol Transmission Line (Permitted)
SunZia Transmission Line
Pinal Central-Tortolita 500 kV Transmission Line (Existing)
ED2
Pinal South
Pinal Central
Florence-Casa Grande Canal Ext.
Picacho Reservoir
Coolidge Municipal Airport
T5S R8E
T5S R9E
T5S R10E
T6S R8E
T6S R9E
T6S R10E
T7S R8E
T7S R9E
T7S R10E
E Windsor Rd
E Kleck Rd
E Storey Rd
E Earley Rd
E Flagstaff Rd
E Corman Rd
E Hanna Rd
E Randolph Rd
N Vail Rd
S Vail Rd
N Wheeler Rd
N Willy Rd
N La Palma Rd
S La Palma Rd
N Eastland Rd
N East Track Rd
N Coolidge Airport Rd
87
287
1468 ft
1500 ft
2625 ft
Legend
CEC Jurisdictional Project Components
Proposed Steele Energy Center Boundary
2-Mile Buffer of Steele Energy Center
City of Coolidge General Plan Land Use
Business & Commerce
Rural Ranchette
Urban Neighborhood
General Features
Existing Power Plant
Existing Substation
Existing Transmission Line
SunZia Transmission Line
Permitted RioSol Transmission Line
Natural Gas Pipeline
State Highway
Road
Major Stream / Wash / Canal
Township / Range Boundary
0
0.5
1
1.5
2
Miles
ARIZONA
Phoenix
Florence
Pinal County
Map Extent
STEELE ENERGY CENTER
FIGURE A-4
COOLIDGE LAND USE
Map Extent: Pinal County, AZ
Date: 9.28.23
Author: SJW
SPCS NAD 83, AZ Central, Foot.
Data Sources: ADOT, BLM, ESRI, Pinal Co., SRP.
D:\Projects\SteeleECA\Maps\Figure A-3 Pina Co Land Use 2 Miles 091226


Legend
CEC Jurisdictional Project Components
Proposed Steele Energy Center Boundary
2-Mile Buffer of Steele Energy Center
Pinal County Existing Zoning District
GR - General Rural
General Features
Existing Power Plant
Existing Substation
Existing Transmission Line
SunZia Transmission Line
Permitted RioSol Transmission Line
Natural Gas Pipeline
State Highway
Road
Major Stream / Wash / Canal
Township / Range Boundary
STEELE ENERGY CENTER
Coolidge Generation Station
COOLIDGE
ELOY
Signal
ED2
Pinal South
Pinal Central
Florence-Casa Grande Canal
Central Arizona Project Canal
Florence-Casa Grande Canal Ext.
RioSol Transmission Line (Permitted)
SunZia Transmission Line
Pinal Central-Tortolita 500 kV Transmission Line (Existing)
Picacho Reservoir
Coolidge Municipal Airport
T5S R8E
T5S R9E
T5S R10E
T6S R8E
T6S R9E
T6S R10E
T7S R8E
T7S R9E
T7S R10E
0 0.5 1 1.5 2
Miles
ARIZONA
Phoenix
Florence
Pinal County
Map Extent
STEELE ENERGY CENTER
FIGURE A-5
PINAL COUNTY ZONING
Map Extent: Pinal County, AZ
Date: 9.26.25
Author: SJW
SPCS NAD 83, AZ Central, Foc... Data Sources: ADOT, B.M. ESRI, Pinal Co. SRP... D:\Projects\SteeleEC\Maps\Figure A-5 Pinal Co Zoning 2 Miles 091226




## Legend

**CEC Jurisdictional Project Components**

- Proposed Steele Energy Center Boundary
- 2-Mile Buffer of Steele Energy Center

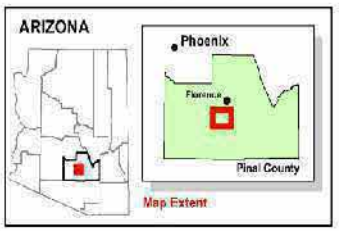
**City of Coolidge Zoning**

- AG - Agricultural

**General Features**

- Existing Power Plant
- Existing Substation
- Existing Transmission Line
- SunZia Transmission Line
- Permitted RioSol Transmission Line
- Natural Gas Pipeline
- State Highway
- Road
- Major Stream / Wash / Canal
- Township / Range Boundary

0 0.5 1 1.5 2 Miles




# STEELE ENERGY CENTER

***FIGURE A-6***
***COOLIDGE ZONING***

Map Extent: Pinal County, AZ

Date: 9.26.25 | Author: SJW

SPCS NAD 83, AZ Central, Foot. Data Sources: ADOT, BLM, ESRI, Pinal Co., SRP. C:\Projects\SteeleECM\Maps\Figure A-6 Coolidge Zoning 2 Miles 091225

# EXHIBIT B
# ENVIRONMENTAL STUDIES

In accordance with Arizona Administrative Code R14-7-119, the Applicant provides the following information:

*Attach any environmental studies which applicant has made or obtained in connection with the proposed site(s) or route(s). If an environmental report has been prepared for any federal agency or if a federal agency has prepared an environmental statement pursuant to Section 102 of the National Environmental Policy Act, a copy shall be included as part of this exhibit.*

The results of the environmental studies associated with the portions of the proposed Steele Energy Center (SEC or Project) that are the subject of this Application are discussed in previous and subsequent exhibits: **Exhibit A** describes land use; **Exhibit C** addresses potential impacts to sensitive biological resources; **Exhibit D** discusses potential impacts to other biological resources; **Exhibit E** summarizes the potential effects on the area's scenic quality and cultural resources; **Exhibit F** summarizes the potential effects on recreation resources; **Exhibit H** describes how the Thermal Plant could affect existing local plans; and **Exhibit I** discusses the noise and communication impacts that are expected.

There is a federal action associated with potential authorizations related to off-site access to the Project site that would cross the San Carlos Irrigation and Drainage District (SCIDD) Canal and the Hohokam Irrigation Drainage District (HIDD) that is located to the west and south of the site. These authorizations will be based on detailed design on the road, and the Applicant will be working with SCIDD and HIDD on National Environmental Policy Act (NEPA) documents. However, it would be anticipated that Categorical Exclusions would be the anticipated NEPA document.

In addition to the analysis in the CEC Exhibits listed above, below includes the following overview:

- Air Quality
- Water Resources

Consultants on behalf of the Applicant have prepared the following reports and plans that are attached to **Exhibit B**:

- **Exhibit B-1:** Air Permit Application
- **Exhibit B-2:** Groundwater Availability Assessment

## Environmental Studies

### Air Quality

The Applicant submitted an application for a Prevention of Significant Deterioration (PSD) Air Quality Permit from the Pinal County Air Quality Control District (PCAQCD) on October 9, 2026. The Application seeks authorization for an approximately 1400-megawatt (MW) natural gas-fired generation power plant and evaluates emissions and regulatory applicability for the proposed Project as described below. This exhibit summarizes the Project description, baseline air quality, air quality impacts during operation, and greenhouse gas (GHG) emissions from the Project.

#### *Project Description*

The Project will utilize two combined cycle natural gas-fired turbine (CCGT) power (1x1 GE 7HA.03 units). Each power block consists of one combustion gas turbine (GT) exhausting to a Heat Recovery Steam Generator (HRSG) equipped with one natural gas-fired duct burner (DB), with steam generated by the HRSG routed to a steam turbine (ST).

Ancillary equipment includes natural gas-fired auxiliary boilers, two emergency generators with diesel-fired engines, one emergency diesel-fired fire pump engine, natural gas-fired dew point heaters, lube oil vents and circuit breakers.

The CCGT will utilize Selective Catalytic Reduction (SCR) to control the emission of nitrogen oxides ($NO_x$). The SCR will inject aqueous ammonia downstream of the CT and DBs at the appropriate temperature zone in the HRSG to allow for the NOx reduction reactions. The SCR system will consist of aqueous ammonia storage and handling equipment, ammonia injection grids, and catalyst beds.

In addition, carbon monoxide (CO), and volatile organic compounds (VOC) will be controlled through the use of oxidation catalysts. Each oxidation catalyst system will be comprised of catalyst bed modules and be installed in a location where exhaust temperatures optimize CO reduction reactions.

#### *Air Quality Impacts During Operation*

The Project is in a portion of Pinal County that is designated as being in attainment or unclassifiable for all criteria pollutants. Operational emissions would result primarily from combustion of natural gas in the combustion gas turbines including normal steady-state operation as well as startup and shutdown. Additional emissions would be associated with emergency diesel-fired generators, lube oil vents, natural gas fugitive components, $SF_6$-containing circuit breakers, and additional auxiliary equipment.

Since the proposed turbines are fossil-fuel-fired steam electric plants with a heat input capacity greater than 250 million British thermal units per hour (MMBtu/hr), the facility is in a listed source category, and PSD review therefore applies if the facility potential to emit (PTE) triggers the 100 tons per year (tpy) major source threshold (MST) of any regulated New Source Review (NSR) pollutant. The SEC triggers PSD review for particulate matter (PM), particulate matter of aerodynamic diameter of 10 microns or less ($PM_{10}$), particulate matter of aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$), $NO_x$, CO, sulfur dioxide ($SO_2$), VOCs, sulfuric acid ($H_2SO_4$) mist, and greenhouse gases (GHG) as the Project will have a PTE greater than the corresponding MST, and/or Significant Emission Rate (SER)[1]. The SEC will be a PSD major source per the Pinal County Code of Regulations (CoR) §1-3-140.80. Based upon the foregoing regulatory analysis, a Class I application is required.

The Applicant supported the PSD demonstration with an air dispersion modeling analysis using the EPA promulgated American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD). Based on results from the modeling demonstration, including a Modeled Emission Rates for Precursors evaluation for ozone, the Project will not cause or contribute to a violation of any applicable National Ambient Air Quality Standards (NAAQS). Additionally, the predicted ozone formation from the project emissions were all below the significant impact level (SIL) and as such no further ozone analysis was conducted.

***Greenhouse Gas Emissions (GHG)***

GHG emissions are a regulated NSR pollutant if the stationary source is a major source for a regulated NSR pollutant which is not GHGs and will also have the potential to emit 75,000 tpy CO2e or more. The Project GHG PTE exceeds this threshold and is therefore also subject to PSD requirements for GHGs.

***Conclusion***

The PSD Air Quality Permit Application supports the conclusion that the Project will operate in compliance with Pinal County, State of Arizona, and federal air quality regulations. The Project is located in an attainment or unclassifiable area for all NAAQS, would employ SCR and oxidation catalyst controls on the primary combustion equipment, would limit diesel use, and is subject to PSD permitting, BACT review, applicable New Source Performance Standards/National Emission Standards for Hazardous Air Pollutants (NSPS)/(NESHAP) requirements, monitoring, recordkeeping, reporting, and annual compliance certification. The Project will not cause or

[1] See CoR §1-3-140.122.

contribute to a violation of the NAAQS, which Environmental Protection Agency (EPA) has established to be protective of human health and the environment.

## Water Resources

### *Introduction*

A Groundwater Availability Assessment was conducted in support of this Application. The analysis concluded that operation of the Project would result in negligible impacts to groundwater levels and groundwater within the aquifer. The proposed facility will utilize four existing wells that are currently permitted under irrigation grandfathered right (IGFR) No. 58-104163.0000, which authorizes groundwater pumping up to 1,230 AFY. The Project water demand will be supplied by a portion of the IGFR that will be converted for non-irrigation uses under A.R.S. § 45-469 before the Project is operational. Groundwater modeling results show that future water levels will be higher in a Project scenario compared to a continued agricultural operation scenario, therefore the Project does not adversely affect the aquifer or surrounding wells.

### *General Hydrologic Setting*

The Project lies in the Basin and Range Physiographic Province of southern Arizona. The Basin and Range is the result of faulting and extension of the crust during the Late Oligocene to Early Miocene. Groundwater occurs under unconfined conditions in the upper sedimentary units and under confined to semi-confined conditions in the lower regional aquifer as represented in the Arizona Department of Water Resource (ADWR) Pinal Active Management Area (AMA) groundwater flow model as the Upper Alluvial Unit, Middle Silt and Clay Unit, and Lower Conglomerate Unit. Groundwater elevation mapping across the study area indicates a regional high point in the immediate vicinity of the Project with water flowing to the west and southwest. The wells with measured water levels within 3.5 miles of the Project indicate both a rise and fall of groundwater levels in the past decade, with values ranging from +3.49 feet per year (ft/yr) and -3.12 ft/yr. The Project falls within the interior of the mapped Picacho subsidence feature, with survey fissures within a quarter-mile of the site, however the Project is not expected to contribute or accelerate subsidence or fissures. Satellite imagery from ADWR maps subsidence at the site between 2 and 6 inches from May 2010 to May 2026. Existing fissure hazards remain a construction and design consideration for Project infrastructure and should be addressed through geotechnical investigation and siting.

### *Effects of the Proposed Water Supply*

Effects of the proposed water supply were evaluated using the ADWR 2019 Pinal AMA groundwater flow model, updated with ADWR publicly available data for a historical and pre-predictive period through 2032 and a 100-year predictive period for 2032 through 2131. Three

model scenarios were prepared: a Base Model representing existing and permitted conditions, a Continued Agriculture Model withdrawing historic amounts of 1,230 AFY and a Project Model with 300 AFY of withdrawal from four wells.

Simulated water levels decrease over the predictive period under all three modeled scenarios. Using the ADWR recharge model package, this decrease is an expected result and the Project is reported as the difference between simulations at the same point in time. Relative to the Continued Agriculture model that has an incremental drawdown of 10.8 feet over 100 years, simulated water levels in the Project model only decline 3.6 feet in the Upper Alluvial Unit. The net effect of comparing the Project model to the Continued Agricultural model is an overall increase in water levels for the area.

***Groundwater Availability Assessment***

Availability is addressed through the combined hydrogeologic characterization of the study area and the model results. The modeling indicates groundwater remains physically available at the Project throughout the 100-year planning horizon in the Project scenario. Drawdown due to the proposed demand for the Site is a maximum of approximately 3.6 feet over the 100-year predictive period, and a projected depth to water of approximately 210 feet below land surface. The Project's supply is native groundwater withdrawn under irrigation grandfathered right No. 58-104163.0000. Consistency with the management goal rests on the reduction in withdrawal at the wellfield, the modeled effect of that reduction on the aquifer, and compliance with the conservation and reporting standards of the ADWR Pinal AMA 5$^{th}$ Management Plan. Given the minimal incremental effect, the reduction in withdrawal at the Project relative to documented historic use, and the consistency of the withdrawal with the management goal, no active mitigation measures are identified as warranted.

# EXHIBIT B-1
# AIR PERMIT APPLICATION

# PREVENTION OF SIGNIFICANT DETERIORATION (PSD) APPLICATION

## PCAQCD Class I Permit Application

**Steele Energy Center, LLC**
**Steele Energy Center / Pinal County, AZ**

**Prepared By:**

**TRINITY CONSULTANTS**
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Project 260301.0030

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# 1. EXECUTIVE SUMMARY

Steele Energy Center, LLC (Steele) is proposing to construct and operate a new power generation facility, the Steele Energy Center (the SEC or the Facility), approximately 7 miles southeast of Coolidge in Pinal County, Arizona, within the jurisdiction of the Pinal County Air Quality Control District (PCAQCD), an area of Pinal County that is currently designated as attainment or unclassifiable for all national ambient air quality standards (NAAQS)[1]. The Project is strategically sited near existing natural gas (NG) infrastructure and will provide power to the regional electric grid. The SEC is being developed to help meet growing electricity demand and support the reliability and stability of the local and regional power system, which is facing increasing strain from unprecedented load growth, more frequent extreme weather events, and the continued expansion of intermittent renewable energy resources.

In addition to the combined cycle NG-fired combustion turbines (CCGTs) proposed, emissions sources at the SEC will include auxiliary equipment such as NG-fired auxiliary boilers, diesel-fired emergency generator engines, diesel-fired emergency firewater pump engines, NG-fired dew point heaters, and fugitive emission sources, including natural gas equipment components, lube oil tank vents, and circuit breakers.

The SEC's potential-to-emit (PTE) regulated air pollutants are estimated based on the maximum expected throughput, considering anticipated operating conditions and onsite power generation, and is presented in **Table 1-1**. Since the proposed turbines are fossil-fuel-fired steam electric plants with a heat input capacity greater than 250 million British thermal units per hour (MMBtu/hr), the Facility is in a listed source category, and Prevention of Significant Deterioration (PSD) review therefore applies if the Facility PTE triggers the 100 tons per year (tpy) major source threshold (MST) of any regulated NSR pollutant. The SEC triggers PSD review for particulate matter (PM), particulate matter of aerodynamic diameter of 10 microns or less ($PM_{10}$), particulate matter of aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$), nitrogen oxides ($NO_X$), carbon monoxide (CO), sulfur dioxide ($SO_2$), volatile organic compounds (VOC), sulfuric acid ($H_2SO_4$) mist, and greenhouse gases (GHG) as the Project will have a PTE greater than the corresponding MST, and/or Significant Emission Rate (SER)[2]. Additionally, the SEC will be classified as an area source of hazardous air pollutants (HAPs) because the HAP PTE will remain less than the major source HAP thresholds. The SEC will be a PSD major source per the Pinal County Code of Regulations (CoR) §1-3-140.80.

Based upon the foregoing regulatory analysis, a Class I application is required. The enclosed permit application includes PCAQCD's Class I permit standard application form, responds to the filing instructions in CoR §3-1-050 and CoR §3-1-055 for a Class I Permit, and demonstrates how the proposed Project will comply with all applicable requirements. A modeling report addressing the required Air Quality Impact Analyses (AQIA) per CoR §3-3-260 will be submitted by Steele under separate cover.

[1] Per Arizona Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants, Green Book, Environmental Protection Agency (EPA).

[2] See CoR §1-3-140.122.

## Table 1-1. Steele Energy Center – Summary of Site-Wide Emissions

| Source Description | No. of Units | Total PM (tpy) | $PM_{10}$ (tpy) | $PM_{2.5}$ (tpy) | $NO_X$ (tpy) | CO (tpy) | VOC (tpy) | $SO_2$ (tpy) | $H_2SO_4$ Mist (tpy) | Max HAP - Formaldehyde (tpy) | Total HAP (tpy) | $CO_{2e}$ (tpy) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Two (2) 1x1 Natural Gas Combined Cycle Combustion Turbine (CCCT) Trains with Duct Burners and Simple Cycle Operational Mode Capability, 5,181 MMBtu/hr each | 2 | 148.59 | 148.59 | 148.59 | 363.01 | 240.21 | 69.67 | 106.54 | 74.90 | 9.55 | 16.55 | 6,057,406.71 |
| Auxiliary Boilers | 2 | 1.33 | 1.33 | 1.33 | 1.98 | 6.66 | 0.97 | 0.25 | 0.019 | 5.80E-02 | 1.46 | 23,185.29 |
| Dew Point Heaters | 2 | 0.72 | 0.72 | 0.72 | 1.13 | 8.44 | 0.51 | 0.14 | 1.10E-02 | 7.54E-03 | 0.19 | 13,201.70 |
| Emergency Engines | 2 | 0.22 | 0.22 | 0.22 | 6.70 | 3.86 | 0.35 | 0.01 | 0.001 | 3.70E-04 | 0.007 | 844.26 |
| Fire Pump Engine | 1 | 0.03 | 0.03 | 0.03 | 0.48 | 0.44 | 0.03 | 0.001 | 0.0003 | 6.30E-04 | 2.07E-03 | 96.05 |
| Natural Gas Equipment Components | 690 | - | - | - | - | - | 0.68 | - | | - | - | 945.90 |
| $SF_6$ from Circuit Breakers | 11 | - | - | - | - | - | - | - | - | - | - | 1,027.54 |
| Lube Oil Vents | 4 | 0.88 | 0.88 | 0.88 | - | - | 0.88 | - | - | - | - | - |
| **Major NSR Evaluation** | | | | | | | | | | | | |
| Pollutant Attainment Status | | -- | Attainment | Attainment | Attainment | Attainment | Attainment | Attainment | -- | -- | -- | -- |
| Potentially Applicable Major NSR Program | | PSD | PSD | PSD | PSD | PSD | PSD | PSD | -- | -- | -- | -- |
| Project PSD Emissions Increase | | 151.76 | 151.76 | 151.76 | 373.29 | 259.61 | 73.09 | 106.95 | 74.93 | 9.61 | 18.21 | 6,096,707 |
| *PSD Major Source Thresholds [1]* | | *100* | *100* | *100* | *100* | *100* | *100* | *100* | -- | -- | -- | *N/A* |
| *Does Project Exceed PSD Major Source Thresholds?* | | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | No | **Yes** | -- | -- | -- | N/A |
| *PSD (significant emission rate) SER Thresholds [1]* | | *25* | *15* | *10* | *40* | *100* | *40* | *40* | *7* | -- | -- | **75,000** |
| *Does Project Exceed PSD SER Thresholds?* | | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | -- | -- | **Yes** |
| **Title V Evaluation** | | | | | | | | | | | | |
| Project Potential Emissions | | 151.76 | 151.76 | 151.76 | 373.29 | 259.61 | 73.09 | 106.95 | 74.93 | 9.61 | 18.21 | 6,096,707 |
| *Title V Major Source Threshold [2]* | | *100* | *100* | *100* | *100* | *100* | *100* | *100* | -- | *10* | *25* | *100,000* |
| *Does the Post-Project PTE Exceed Title V Major Source Thresholds?* | | | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | No | **Yes** | -- | No | No |

[1] Per the "major source" definition in PCAQCD Code of Regulations (CoR)§3-3-203. The proposed facility is a categorical source under the "Fossil fuel-fired steam electric plants > 250million BTUs per hour heat input" category, therefore, the NSR major source thresholds are 100 tpy. Once the threshold is exceeded for one pollutant, the remaining emissions of other regulated pollutants must be compared against the Significant Emission Rates (SERs) contained in CoR § 3-3-140.122 ("Significant"). The filterable PM thresholds are conservatively applied to total PM emissions.

[2] Per CoR § 1-3-140.80 pursuant to 40 CFR § 70.2 (Definition of Major Source).

# 2. CLASS I APPLICATION FORM

# Pinal County Air Quality Control District

P.O. Box 987 – Florence, AZ 85132 P-(520) 866-6929 F-(520) 866-6967

PINAL COUNTY
WIDE OPEN OPPORTUNITY

## Permit Application

(As required by A.R.S. §49-480, and Chapter 3, Article I, Pinal County Air Quality Control District Code of Regulations)

1. Permit to be issued to:
   Steele Energy Center, LLC
   (Name and legal status (e.g. corporation or proprietorship) or organization that is to receive permit)

2. Mailing Address:
   3610 North 44th Street, Suite 250
   City: Phoenix State: Arizona Zip: 85018
   Billing Address (if different from above):
   City: State: Zip:

3. Plant Name (if different from above): Steele Energy Center

4. Name(s) of Owner or Operator: Steele Energy Center, LLC
   Phone: (602) 808-2004

5. Plant/Site Manager: Dennis Loria Phone: (602) 808-2004 Fax:

6. Contact Person: Dennis Loria Phone: (602) 808-2004 Fax:
   Email Address: dloria@mmrgrp.com

7. Equipment/Plant Location or Proposed Location Address: Steele Road, Pinal County, Arizona
   City: Coolidge Zip: 85128 Parcel #: 40001009C
   Section/Township/Range: Section 19 / Township 6 / Range 9
   Latitude/Longitude: 32°52'49.81"N / 111°27'26.97"W Elevation: 1,532 ft

8. General Nature of Business: Electric Power Generation Facility
   North American Industry Classification System: 221112

9. Type of Organization
   - ☐ Corporation — State of Incorporation: Deleware
   - ☐ Arizona Limited Liability
   - ☐ Government Entity — Government Facility Code:
   - ☐ Individual Owner
   - ☐ Partnership
   - ☑ Other (Specify): Limited Liability Company

10. Permit Application Basis: (Check all that apply)

- [x] New Source
- [ ] Permit Revision
- [ ] Administrative Change
- [ ] Renewal of Existing Permit
- [ ] Portable Source
- [ ] General Permit
- [ ] Permit Transfer

For renewal or modification, include existing permit number: N/A

Date of Commencement of Construction or Modification: TBD

Is any of the equipment to be leased to another individual or entity? [ ] Yes [x] No

11. If necessary to preserve this source's status as a less-than-major source, the undersigned agrees that the permit or this source ***SHOULD*** [ ] ***SHOULD NOT*** [ ] include Federally Enforceable Provisions in accord with Code §3-1-084.

12. The undersigned states and certifies that, based on information and belief formed after reasonable inquiry, the statements and information in this document and supporting materials are true, accurate and complete. To the extent that this application pertains to an assignment of an existing permit, the undersigned further agrees to comply with and accept each and every obligation associated with that existing permit. *Knowingly presenting a false certification constitutes a criminal offense under A.R.S. §13-2704.*

13. The undersigned applicant states that he/she currently has, or at the time construction and/or operation begins will have, legal authority to enter upon and use the premises upon which this source will be operated.

14. Attach a description of the process to be permitted or revised including a list of equipment, capacities, MSDS sheets and anticipated production or throughput.

15. For new sources, an application filing deposit fee must be included with the application.

Signature of Responsible Official of Organization

Dennis Loria

Typed or Printed Name of Signer

Manager of Project Development

Official Title of Signer

September 24, 2026

Date

# 3. APPLICATION COMPLETENESS

**Table 3-1** provides a list of the permit application items required by CoR §3-1-050, CoR §3-1-055, CoR §3-3-205 and **Appendix A** for a Class I permit application along with a reference to where the information is located in this application.

**Table 3-1. Application Completeness Summary**

| CoR | Information Required | Included in Application? | | Application Packet Section |
|---|---|---|---|---|
| | | Yes | No | |
| 3-1-050.B | Application Form | X | | 2 |
| 3-1-055.B.2 | Applicability Assessment of Article 3 (Chapter 3) | X | | 8.1 |
| 3-1-055.B.3 | Applicability Assessment of Chapter 7 | X | | 8 |
| 3-1-050.E | Insignificant Activities | X | | 9 |
| 3-3-205.A.1 | Description of Facility proposed compliance with the more stringent of the applicable Chapter 6 new source performance standards or Arizona SIP limits applicable to Pinal County | X | | 8 |
| 3-3-205.A.2 | Description of Facility proposed compliance with visibility protection requirements contained in §3-3-280 | X | | 8 |
| 3-3-205.A.3 | Description of Facility proposed compliance with fugitive emission limitations | X | | 8 |
| 3-3-205.A.4 | Description of Facility proposed compliance with any emissions limitation, design, equipment, work practice or operational standard | X | | 8, 12 |
| 3-3-205.A.5 | Description of Facility proposed compliance with applicable Chapter 7 standards for hazardous air pollutants (HAPs) | X | | 8.4 |
| 3-3-205.A.6 | Stationary source that will emit 5 or more tons of lead per year will not violate the ambient air quality standards for lead | | X [a] | N/A |
| 3-3-205.B | Air Impact Analysis considering the geographical area located within a fifty (50) kilometer radius from the point of greatest emissions for the new major source | | X [b] | Will be submitted under a separate cover. |
| Appendix A.1 | Description of Process | X | | 6 |

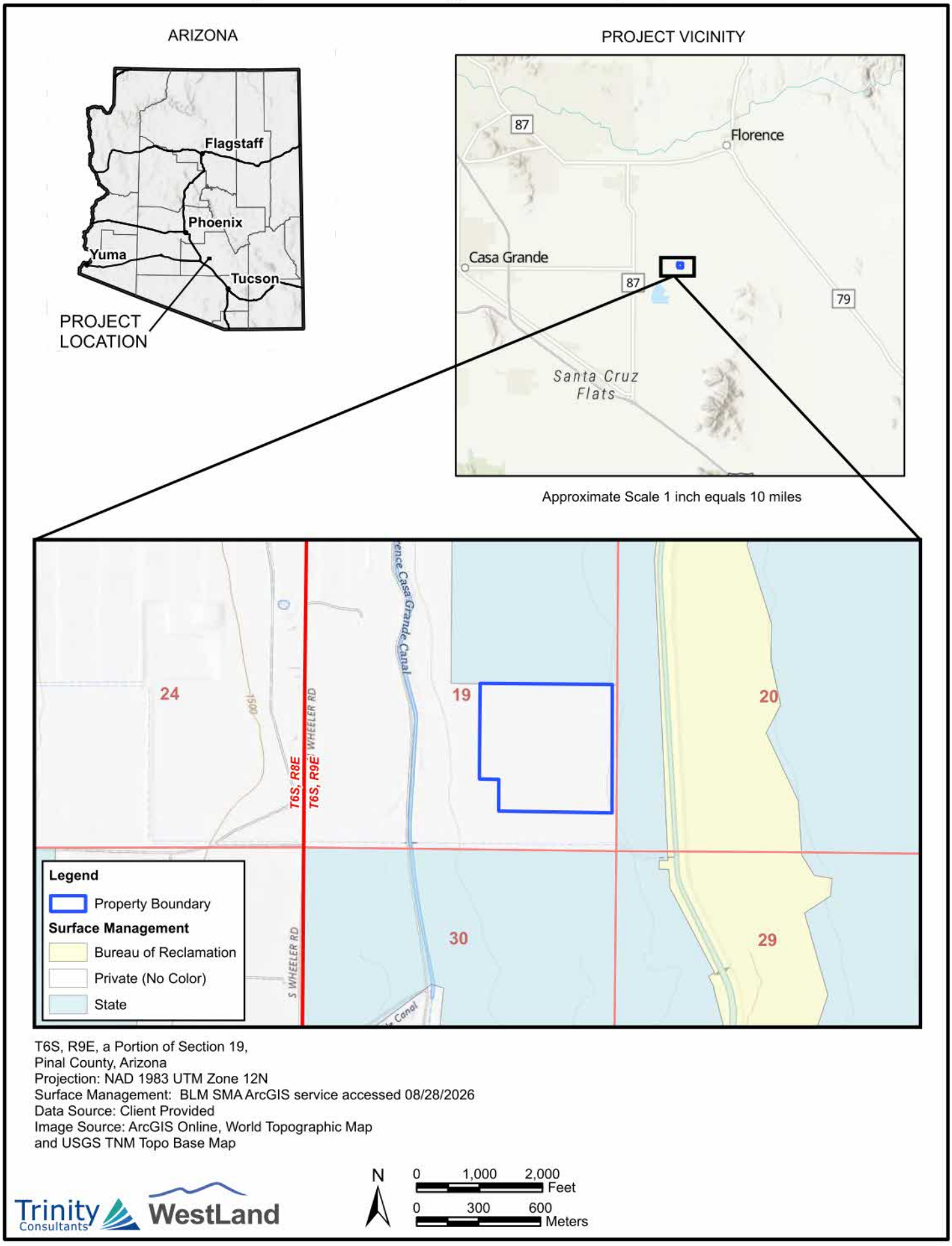
| CoR | Information Required | Included in Application? | | Application Packet Section |
|---|---|---|---|---|
| | | Yes | No | |
| Appendix A.2 | Description of Product | X | | 6 |
| Appendix A.3 | Description of Alternate Operating Scenarios | | X | N/A |
| Appendix A.5 | Flow Diagram of All Processes | X | | 5 |
| Appendix A.7 | Emissions Related Information | X | | Appendix A |
| Appendix A.8 | Citation and description of all applicable requirements | X | | 8 |
| Appendix A.10 | Information to Determine/Regulate Emissions | X | | Appendix A, 12 |
| Appendix A.11 | Process and Control Equipment | X | | 10 |
| Appendix A.12 | Stack Information | | X [c] | |
| Appendix A.13 | Site Diagram | X | | 4 |
| Appendix A.14 | Air Pollution Control Information | X | | 12, Appendix A |
| Appendix A.15 | Equipment Manufacturer's Bulletins and Shop Drawings, as Appropriate | | X [d] | |
| Appendix A.16, 17 | Compliance Demonstration, Compliance Certification | X | | 2, 8 |
| Appendix A.18.b.i | Major Source Classification | X | | 8 |
| Appendix A.18.b.ii | Best Available Control Technology | X | | 12 |
| Appendix A.18.b.iii | PSD Air Impact Analysis | | X [e] | |
| Appendix A.20 | Emission Calculations | X | | Appendix A |

[a] The proposed Facility will not emit 5 or more tons of lead per year.
[b] A modeling report addressing the required AQIA will be submitted by Steele under separate cover.
[c] Stack information will be provided in the modeling report that will be submitted by Steele under separate cover.
[d] Steele is currently in the process of evaluating and selecting the equipment vendors for the Facility and therefore bulletins and shop drawings are not yet available.
[e] A modeling report addressing the required AQIA will be submitted by Steele under separate cover.

# 4. SITE DIAGRAM

This section includes a vicinity map depicting the Facility's property boundary in **Figure 4-1** and a map depicting the Facility layout in **Figure 4-2.**

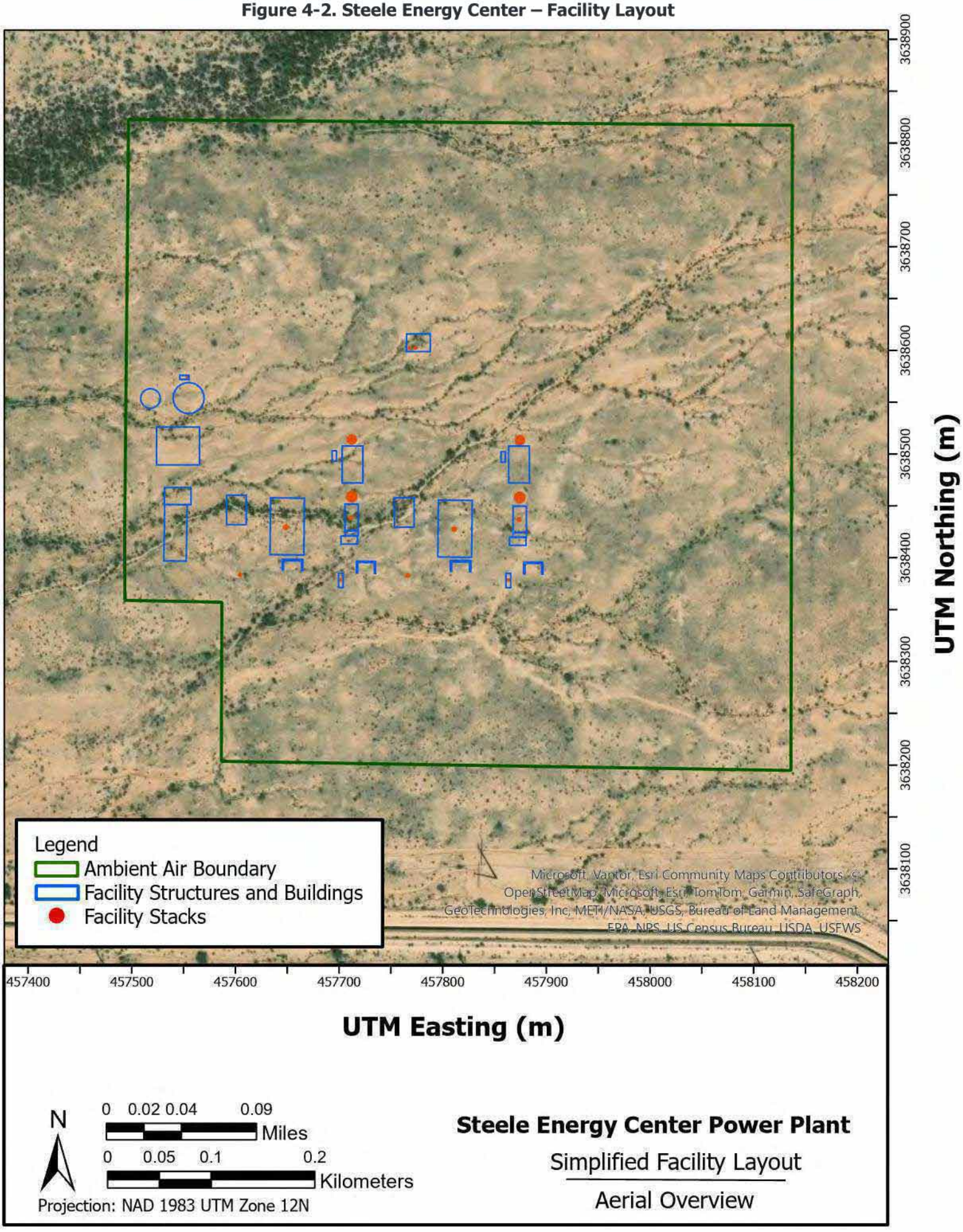
## Figure 4-1. Steele Energy Center – Vicinity Map




T6S, R9E, a Portion of Section 19,
Pinal County, Arizona
Projection: NAD 1983 UTM Zone 12N
Surface Management: BLM SMA ArcGIS service accessed 08/28/2026
Data Source: Client Provided
Image Source: ArcGIS Online, World Topographic Map
and USGS TNM Topo Base Map

Trinity Consultants WestLand

**Figure 4-2. Steele Energy Center – Facility Layout**

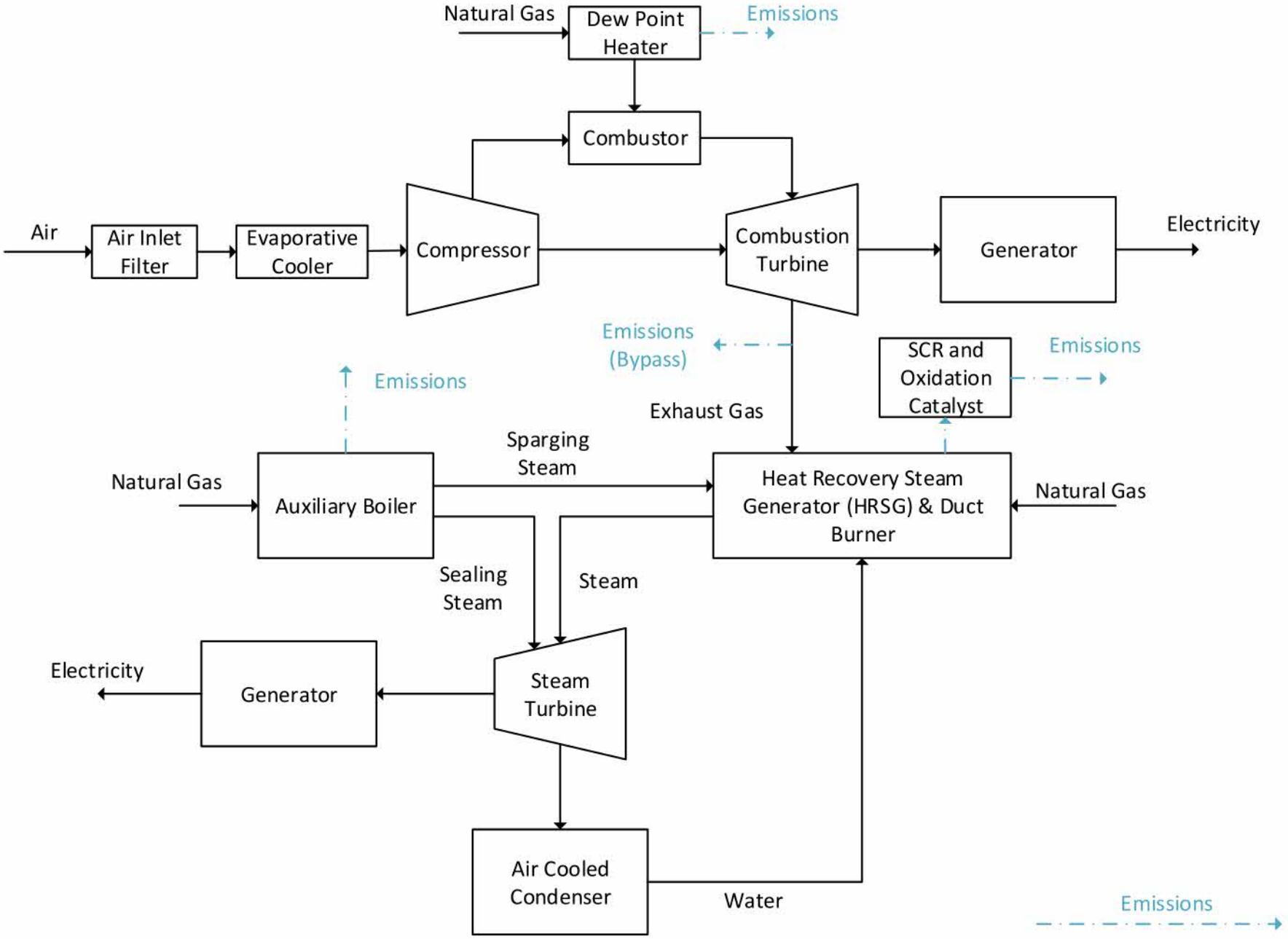


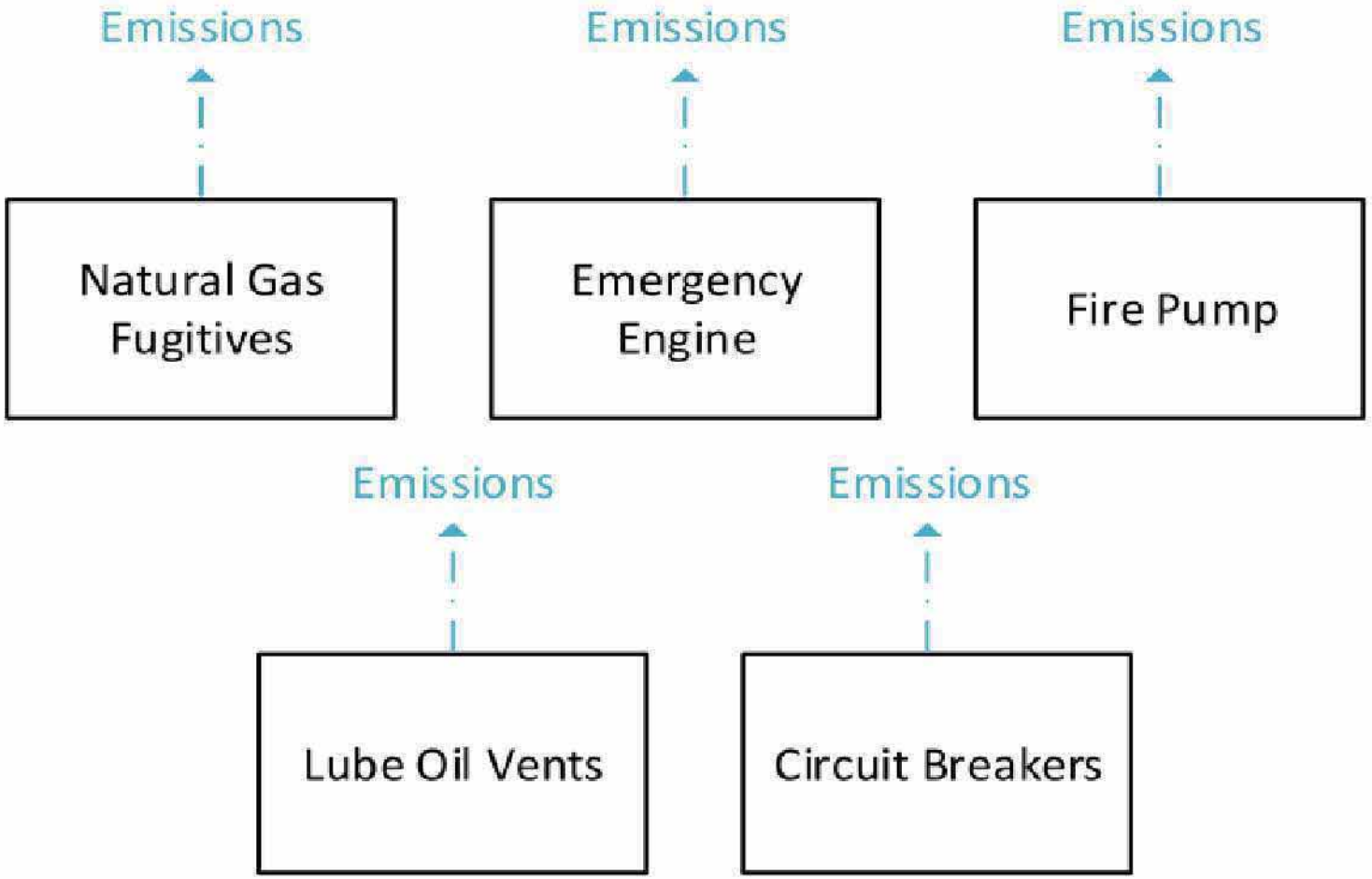
# 5. PROCESS FLOW DIAGRAMS

This section contains the process flow diagram (PFD) depicting proposed operations associated at the Steele Energy Center in **Figure 5-1**.

**Figure 5-1. Steele Energy Center – Process Flow Diagrams**

# 1x1 Power Block






Trinity Consultants

# 6. PROJECT DESCRIPTION

## 6.1 Proposed Operations

Steele is proposing to construct and operate a greenfield NG-fired electric generating facility, the SEC, approximately 7 miles southeast of Coolidge, Pinal County, Arizona (the Project). The SEC is being proposed to address growing electricity demand required to support stability of the local and regional grid, which is strained due to unprecedented load growth, increasingly frequent extreme weather events, and greater reliance on intermittent resources. In addition, the SEC will be in a strategic location, near existing and planned natural gas and electrical transmission corridors, making it well suited for development as a reliable energy resource.

The equipment proposed as part of the Project is summarized below.

- Two (2) GE Vernova 7HA.03 CCGT power blocks, each consisting of one (1) combustion gas turbine (CT), exhausting into one (1) Heat Recovery Steam Generator (HRSG), designed for supplementary steam production via the use of one (1) integral duct burner (DB). The steam produced is routed to one (1) steam turbine (ST), augmenting the cycle power production. Each CCGT unit will also have the capability to operate in emergency simple cycle mode, described in Section 6.1.1, allowing CT operation independent of steam cycle availability. The gas turbine and steam turbine for each power block are arranged in a 1x1 configuration. The maximum gross power design rating for both power blocks will total approximately 1,452 megawatts (MW). Each power block consists of one CT with a maximum heat input of 4,298 MMBtu/hr (high heating value (HHV)) and one DB with a maximum heat input of 927 MMBtu/hr (HHV). The maximum combined heat input per power block is 5,181 MMBtu/hr (HHV).

Additionally, the Project will include auxiliary equipment to support operations at the SEC. As described in the following sections, additional emission sources will include NG-fired auxiliary boilers, diesel-fired emergency generator engines, diesel-fired emergency fire pump engines, NG-fired dew point heaters, and fugitive emission sources, including NG piping components, lube oil tank vents, and circuit breakers.

### 6.1.1 Combustion Turbines

#### *6.1.1.1 Combined Cycle Combustion Turbines*

Steele is proposing to construct and operate two (2) CCGT power blocks (1x1 GE 7HA.03 units). Each power block consists of one (1) CT exhausting to a HRSG equipped with one (1) NG-fired DB, with steam generated by the HRSG routed to a ST.

These CCGTs can operate in two (2) modes, primary combined cycle mode and emergency simple cycle mode, described in the sections below.

The CCGTs are proposed to operate a maximum of 8,760 hours per year. Within those hours, the CCGTs may operate for up to 100 hours in emergency simple cycle mode, with the balance in annual hours occurring in primary combined cycle mode. The CCGTs will be capable of operating the full 8,760 hours in primary combined cycle mode. For each emitted pollutant, the higher annual emission value from the two scenarios was selected as the CCGT PTE.

#### 6.1.1.1.1 Primary Combined Cycle Mode

The CT is the main component of a CCGT system. As illustrated in Section 5, in a combined cycle process, ambient air is drawn into the compressor section of the CT through an inlet air filtration system. Inlet evaporative cooling may take place during periods of warm ambient temperatures and low relative humidity (RH) to further enhance the overall production capability of the turbine. After the evaporative cooler (EC) section, air enters the compressor section where it is compressed and channeled to the fuel/mix combustion section of the turbine. Hot exhaust gases from the combustion chamber are expanded through a multi-stage power turbine, producing mechanical energy to drive both the compressor and the electric generator, which converts this mechanical energy into electricity. The hot exhaust gas exiting the CTs is ducted to a HRSG, which produces steam. DBs located within the HRSGs are available for supplementary firing of NG only to increase steam output. Steele proposes up to 2,000 hours of DB firing for each CCGT to meet the operational needs of each power block.

The steam produced in the HRSG is used in the ST to produce additional electrical power. The ST will be driven by high-pressure steam and will not produce emissions. As such, the STs themselves are not considered to be emission units. Once mechanical work from the steam is converted to electricity, the steam is exhausted from the ST and condensed in a vacuum within an air-cooled condenser (ACC). The condensate is collected in the condenser hotwell and reused as feed water to the HRSG, creating a closed-loop system. Water losses in the steam cycle are limited to small water purges from the boiler drums (blowdown) to reduce the concentration of dissolved solids in the feedwater and steam, to maintain the performance and life cycle of the steam turbine.

The proposed CCGT units are designed for continuous operation but will undergo occasional startup and shutdown (SUSD) events. When operating at steady-state, the CTs will be capable of operating between a nominal minimum emissions compliance load (MECL) and 100-percent load. MECL is defined as the minimum steady-state load at which the combustion turbine can operate at any given ambient condition and maintain compliance with all emission limits.

The CCGT will utilize Selective Catalytic Reduction (SCR) to control the emissions of $NO_X$. The SCR will inject aqueous ammonia downstream of the CT and DBs at the appropriate temperature zone in the HRSG to allow for the $NO_X$ reduction reactions. The SCR system will consist of aqueous ammonia storage and handling equipment, ammonia injection grids, and catalyst beds.

In addition, CO and VOCs will be controlled through the use of oxidation catalysts. Each oxidation catalyst system will be comprised of catalyst bed modules and be installed in a location where exhaust temperatures optimize CO reduction reactions.

Also, it should be noted that the combustion turbine systems will be equipped with continuous emissions monitoring system (CEMS) for measuring $NO_X$ and CO emissions. Steele proposes to operate each CCGT in primary combined cycle mode for up to 8,760 hours per year.

Proposed Permit Limit

Steele proposes to limit DB operation per CCGT to 2,000 hours annually.

#### 6.1.1.1.2 Emergency Simple Cycle Mode

Steele is proposing to have the option to bypass the HRSGs when the HRSG is down to provide operational flexibility and maintain power generation in the event of maintenance, malfunction, startup and commissioning activities, and other circumstances requiring rapid generation response to support grid reliability. When the

CCGTs operate in emergency simple cycle mode, exhaust will be diverted through a damper to a bypass stack that is separate from the primary combined-cycle stack. This allows each CT to operate independently of the steam cycle in a manner similar to simple cycle operation. Because the SCR and oxidation catalyst systems are located within the HRSG exhaust path, these emissions controls will not be operational during emergency simple cycle mode operation. Emergency simple cycle mode operation is expected to occur infrequently and is not intended for routine operation.

Steele proposes to operate each CT in emergency simple cycle mode for up to 100 hours per year.

### 6.1.2 Natural Gas Fired Auxiliary Boilers

The Project includes two (2) NG-fired auxiliary boilers with an individual maximum heat input of 90 MMBtu/hr, one (1) per power block at the SEC. The auxiliary boilers will generate steam for the following uses:

- CCGT starts under warm or cold start conditions. The auxiliary boiler steam will provide sparging steam to the HRSG and condenser as well as seal steam for the ST to reduce the startup time and startup emissions. After the CCGT is up and running, auxiliary steam is furnished by the HRSG (cold reheat), and the auxiliary boiler can be taken out of service.
- HRSG cold weather protection (generally required with the CCGT off-line in cold weather conditions).

Steele proposes to operate the auxiliary boilers for up to 2,000 hours per year, in order to support SUSD operations.

### 6.1.3 Emergency Generators with Diesel-Fired Engines

Emergency generators powered by diesel engines will provide electric power to essential services during periods of interrupted power supply at the SEC. Two (2) diesel-fired emergency generator engines with an individual rated capacity of up to 2,681 brake horsepower (bhp) are proposed.

The proposed units are not black-start generators. Ultra-low sulfur diesel (ULSD) fuel with a maximum sulfur content of 0.0015 percent by weight (or 15 ppm) will be used in the engines. Potential emissions for each engine are based on a maximum of 250 annual hours of operation, although there are no hourly limits on an emergency engine when operating for emergency purposes. The generator engines may run up to 100 non-emergency hours a year for the purpose of reliability and maintenance testing, in accordance with 40 CFR Part 60, Subpart IIII.

### 6.1.4 Emergency Diesel-Fired Fire Pump Engines

Steele is also proposing to install and operate one (1) diesel-fired engine with an individual rated capacity of up to 305 brake bhp at the facility. The firewater pump engine would typically be used at times of emergency when firewater is needed throughout the facility. Similar to the emergency generator engines, ULSD will be used to fuel the engines. Potential emissions are based on a maximum of 500 annual hours of operation in accordance with the Environmental Protection Agency (EPA) guidance[3], although no hourly limits on emergency usage will apply to the fire pump engine. Like the emergency diesel generators, the fire pump engine may run up to 100 non-emergency hours a year for the purpose of reliability and maintenance testing, in accordance with 40 CFR Part 60, Subpart IIII.

[3] Ibid.

### 6.1.5 NG Dew Point Heaters

Steele proposes to construct and operate NG-fired dew point heaters to heat the pipeline quality NG that will be introduced to the CTs at the SEC. The following equipment is proposed:

- Two (2) NG-fired dew point heaters with an individual maximum heat input of 11.7 MMBtu/hr, one (1) per CT.

Steele proposes to operate each unit for up to 8,760 hours annually.

### 6.1.6 Natural Gas Fugitives

NG will be delivered to the site via existing pipelines. Steele will be constructing piping components to connect to the NG pipeline to provide the requisite fuel for all NG-fired units at the facility. The construction of the piping will include the installation of various equipment leak components which will be potential sources of natural gas, leading to fugitive emissions of methane ($CH_4$), VOC, and carbon dioxide ($CO_2$).

### 6.1.7 Lube Oil Vents

The turbines and auxiliary boilers will utilize lube oil to operate, which serves multiple functions including lubricating and cooling bearings and gear systems, as well as acting as a hydraulic control fluid for servo-valves and servomechanisms. Each CT and steam turbine will be equipped with an internal lube oil storage and distribution system. The following equipment is proposed:

- Four (4) lube oil vents, one (1) per turbine.

A small quantity of the lube oil present in the system will be vaporized and emitted via lube oil tank vents in the form of small droplets due to the high operating temperatures inside the turbine systems, potentially resulting in VOC and particulate emissions from the lube oil systems. Emissions from lube oil will be minimized by use of demister vents.

### 6.1.8 Circuit Breakers

Steele proposes to install and operate eleven (11) 500 kilovolt (kV) circuit breakers, each containing a specified quantity of sulfur hexafluoride ($SF_6$) liquid. The circuit breakers are designed to be self-contained with no emissions to atmosphere; however, an annual leak rate of $SF_6$ gas is conservatively assumed to calculate potential GHG emissions. At this stage of the facility design, the circuit breakers are the only equipment identified that contain $SF_6$ or other fluorinated GHGs.

# 7. EMISSION CALCULATION METHODOLOGY

The proposed operations at the SEC are expected to generate emissions of the following regulated pollutants:

- PM;
- $PM_{10}$;
- $PM_{2.5}$;
- $NO_X$;
- CO;
- VOCs;
- $SO_2$;
- $H_2SO_4$;
- GHGs; and
- HAPs.

The following sections contain a detailed description of the methodologies used to calculate emissions for the Project emission sources. Detailed emission calculations are included in **Appendix A**. The PTE summary for the Project is provided in **Table 1-1**.

## 7.1 Natural Gas Combined Cycle Turbines

The following subsections present the methodologies used to calculate CCGT combined cycle primary mode and emergency simple cycle mode emissions for the Project. The sections present maximum hourly emissions during steady-state and SUSD events, as well as maximum annual emissions. For each pollutant emitted by the CCGTs, the annual PTE is based on the higher of the following emission cases:

- **Primary Combined-Cycle Mode**
  - Assumes each CCGT operates up to 8,760 hours annually in combined-cycle mode. Within these operating hours, up to 2,000 hours of DB operation are assumed.
  - The worst-case hourly steady-state emissions rate between all varying load conditions for each pollutant was used in the PTE.
- **Emergency Simple Cycle Mode** – Assumes each CT in the CCGTs operates up to 100 hours annually, with operation during all remaining hours occurring in combined-cycle mode, including up to 2,000 annual hours of DB operation.

### 7.1.1 Emissions from Steady-State Operations

Normal or steady-state operation of a turbine is characterized as continuous operation at loads generally in the 35% to 100% range (over the range at which emissions compliance is achieved) and does not include start-up and shutdown (SUSD) events.

#### *7.1.1.1 $NO_X$, CO, VOC, PM, $SO_2$, $H_2SO_4$, and Formaldehyde Emissions*

As documented in **Appendix A**, maximum hourly emissions of $NO_X$, CO, VOC, PM, $PM_{10}$, $PM_{2.5}$, $SO_2$, $H_2SO_4$, and formaldehyde for each of the CCGTs rely on the turbine original equipment manufacturer (OEM) operational data, consistent with proposed BACT emission limits (NSR pollutants only). Where hourly emission rate information in pounds per hour (lb/hr) for each CT/HSRG was not available from the OEM, maximum

hourly emissions were determined using the methods described further in this section. For PTE calculations, the maximum hourly emissions based on different operational conditions were used. Maximum hourly emissions are summarized in **Table 7-1.** Turbines – Steady-State Maximum Pollutant Emissions Rates below. Available OEM emissions data is provided in **Appendix B**.

**Table 7-1. Turbines – Steady-State Maximum Pollutant Emissions Rates**

| Pollutant | Primary Combined Cycle Mode Per CT/HRSG | | Emergency Simple Cycle Mode Per CT |
|---|---|---|---|
| | Maximum Emission Rate With DB On (lb/hr) | Maximum Emission Rate With DB Off (lb/hr) | Maximum Emission Rate (lb/hr) |
| $NO_X$ | 38.7 | 31.6 | 225.8 |
| CO | 23.60 | 19.2 | 55.9 |
| VOC | 13.50 | 5.5 | 5.5 |
| $PM/PM_{10}/PM_{2.5}$ | 25.40 | 14.8 | 10.3 |
| $SO_2$ | 8.10 | 6.6 | 6.30 |
| $H_2SO_4$ | 5.80 | 4.5 | 0.50 |
| Formaldehyde | 1.15 | 1.15 | 0.89 |

The turbines will comply with these emission rates irrespective of ambient weather conditions at all loads above minimum emissions compliance load (MECL). Emissions resulting from SUSD operations are described in Section 7.1.1.2. Information regarding inherent and add-on controls used in the turbines/HRSG system was provided in Section 6.1.1.

### *7.1.1.2 HAP Emissions*

HAP emissions other than formaldehyde (described in Section 7.1.1.1) during steady-state operation are calculated based on the emission factors contained in U.S. EPA's AP-42 Table 3.1-3 (Emission Factors For HAPs From Natural Gas-Fired Stationary Gas Turbines), representing uncontrolled operations. A 50% conservative control efficiency is applied during primary combined cycle mode operation based on expected VOC control from oxidation catalyst control, in accordance with EPA's HAP Emission Control Technology for New Stationary Combustion Turbines memorandum, dated August 21, 2001, which states that the use of oxidation catalyst systems on gas combustion turbines achieving 90-plus percent reduction of CO results in similar emission reductions on other HAP pollutants (85 to 90 percent control)[4]. These HAPs are 1,3-butadiene, acetaldehyde, acrolein, benzene, ethylbenzene, propylene oxide, toluene, xylenes, naphthalene, and polycyclic organic matter (POM, as polycyclic aromatic hydrocarbon compounds [PAHs]).

### *7.1.1.3 GHG Emissions*

GHG emissions during steady-state operation are estimated based on proposed equipment specifications (i.e., maximum heat input, inclusive of duct burners and based on the fuel high heating value [HHV]) as provided by the vendor, alongside appropriate emission factors. The $CO_2$ emission factor is based on vendor operational data, provided in **Appendix B**. The default emission factors in the U.S. EPA's

[4] Accessed at https://www.mdeq.ms.gov/wp-content/uploads/2017/06/CT_HAP.pdf.

Greenhouse Gas Reporting Program (40 CFR 98, Subpart C, Tables C-1 and C-2 for natural gas) were used for $CH_4$ and $N_2O$. According to 40 CFR §52.21(b)(49)(ii), GHG emissions for PSD applicability must show carbon dioxide equivalent ($CO_2e$) emissions calculated by multiplying the mass of each of the GHGs by their associated global warming potential (GWP), which are specified in Table A-1 to Subpart A of 40 CFR Part 98, dated January 1, 2025.

### 7.1.2 Emissions from SUSD Events

For emission calculation purposes, startup represents the period required for the CT/HRSG to achieve the maximum expected continuous load (MECL) following ignition, while shutdown represents the period required for the CT/HRSG to transition from MECL to fuel cutoff. The OEM assumed that the emission control systems are not active, in whole or in part, for the entire SUSD period.

#### *7.1.2.1 $NO_X$, CO, VOC, and PM Emissions*

SUSD event emissions and duration parameters were provided by the OEM and are included in **Appendix B**. The OEM-provided SUSD emissions data is limited to $NO_x$, CO, VOC, and PM, which are the pollutants for which emissions may differ significantly from steady-state operation. The OEM did not provide SUSD emission estimates for $SO_2$ and $H_2SO_4$ because emissions of these pollutants are primarily dependent on fuel sulfur content and are expected to remain consistent with the steady-state emissions profile. Accordingly, $SO_2$ and $H_2SO_4$ emissions during SUSD events were assumed to occur at the corresponding steady-state emission rates. A summary of SUSD event emissions are provided in **Table 7-2**.

**Table 7-2. Turbines – SUSD Event Emissions**

| Pollutant | Combined Cycle Primary Mode Per CT/HRSG | | | | Simple Cycle Mode Per CT | |
|---|---|---|---|---|---|---|
| | Cold Start (lb/event) | Warm Start (lb/event) | Hot Start (lb/event) | Shutdown (lb/event) | Cold Start (lb/event) | Shutdown (lb/event) |
| $NO_x$ | 310 | 180 | 90 | 20 | 84 | 87 |
| CO | 245 | 160 | 140 | 100 | 151 | 317 |
| VOC | 14 | 12 | 10 | 46 | 9 | 46 |
| PM/ $PM_{10}$/$PM_{2.5}$ [1] | 14 | 14 | 7 | 3 | - | - |

[1] No particulate emission rate was provided by the OEM for simple cycle mode SUSD events. Therefore, the steady-state particulate emission rate was conservatively assumed during SUSD events.

Hourly CT/HRSG emission rates inclusive of SUSD events were calculated by summing the OEM-provided emissions associated with the SUSD event and the steady-state emissions corresponding to the remaining portion of the 60-minute period. For example, to calculate the maximum hourly $NO_x$ emissions inclusive of a shutdown event in primary combined cycle mode, which lasts 12 minutes, the calculation methodology yields the following:

$$NOx\ emissions\ \left(\frac{lb}{hr}\right) = \ SD\ event\ emissions\ \left(\frac{lb}{12\ min\ event}\right) + \ steady\ state\ hourly\ emissions\ \left(\frac{lb}{hr}\right) x\ \left(\frac{60 - 12\ min}{60\ min\ per\ hour}\right)$$

$$NOx\ emissions\ \left(\frac{lb}{hr}\right) = \ 20\ \left(\frac{lb}{12\ min\ event}\right) + \ 38.7\ \left(\frac{lb}{hr}\right) x\ \left(\frac{60 - 12\ min}{60\ min\ per\ hour}\right) = \ 50.96\ \frac{lbs}{hr}$$

The following assumptions were provided by Steele to calculate annual emissions including SUSD events, based on Steele's expected Facility operational needs and CCGT dispatch profile.

- During primary combined cycle mode, the following assumptions apply per CT/HRSG.

- Cold Start (CS) is preceded by over 72 hours of shutdown (or any warming events). The maximum expected annual CS events = **16** events/yr
- Warm Start (WS) or Hot Start (HS) is preceded by a shutdown (or any warming events) between 8 and 72 hours. The maximum expected annual WS or HS events = **350** events/yr. The PTE is based on the worst-case emissions factors between warm and hot starts to allow for the substitution of either type of startup.
- Shutdown (SD) occurs for 12 minutes, and the maximum number of events is the sum of all start events = **366** events/yr.

► During emergency simple cycle mode, the following assumptions apply per CT.
- The maximum expected annual CS events = **25** events/yr
- The maximum number of SD events is the sum of all start events = **25** events/yr.

#### *7.1.2.2 HAP Emissions*

HAP emissions from SUSD events are calculated based on the uncontrolled emissions factors contained in U.S. EPA's AP-42 Table 3.1-3 (Emission Factors For HAPs From Natural Gas-Fired Stationary Gas Turbines).

#### *7.1.2.3 GHG Emissions*

GHG emissions from SUSD events are estimated based on proposed equipment specifications (i.e., maximum heat input, inclusive of duct burners and based on the fuel high heating value (HHV)) and the default emission factors in the U.S. EPA's Greenhouse Gas Reporting Program (40 CFR 98, Subpart C, Tables C-1 and C-2 for natural gas) for $CO_2$, $CH_4$ and $N_2O$. According to 40 CFR §52.21(b)(49)(ii), GHG emissions for PSD applicability must show carbon dioxide equivalent ($CO_2e$) emissions calculated by multiplying the mass of each of the GHGs by their associated global warming potential (GWP), which are specified in Table A-1 to Subpart A of 40 CFR Part 98, dated January 1, 2025.

## 7.2 Auxiliary Boilers and Dew Point Heaters

The proposed NG-fired auxiliary boilers and dew point heaters have the potential to emit criteria pollutants, $H_2SO_4$, GHGs, and HAPs. Emissions are calculated based on appropriate emission factors, heat input capacity or natural gas heating value based on Steele's design specifications, and annual hours of operation. Criteria pollutant emission factors are based on the proposed BACT emission limits. For $NO_x$, CO, PM, and VOC, these are the applicable BACT emission rates expressed in lb/MMBtu, as shown in Table 12.4.3.1 and Table 12.4.3.2. $SO_2$ and $H_2SO_4$ emissions are estimated based on the BACT limit of 0.5 gr sulfur/100 scf limit and additional factors to account for chemical conversion. For $SO_2$, 100% conversion from sulfur to $SO_2$ was conservatively assumed. Actual $SO_2$ emissions are expected to be lower because a portion of the sulfur is further oxidized to $SO_3$, which may subsequently react with water vapor to form $H_2SO_4$. For $H_2SO_4$, 5% conversion of $SO_2$ to $SO_3$ and 100% conversion of $SO_3$ to $H_2SO_4$ were conservatively assumed. This methodology is summarized in the following formulas:

$$SO_2\ Emission\ Factor\ \left(\frac{lb}{MMscf}\right) = \frac{0.5\ gr\ S}{100\ scf} \times \frac{1\ lb}{7000\ gr} \times \frac{64.06\ lb\ SO_2}{1\ lbmol} \times \frac{1\ lbmol}{32.02\ lb\ S} \times \frac{10^6\ scf}{1\ MMscf}$$

$$H_2SO_4\ Emission\ Factor\ \left(\frac{lb}{MMscf}\right) = 1.427\ \frac{lb\ SO_2}{MMscf} \times \frac{98.079\ lb\ H_2SO_4}{lbmol} \times \frac{lbmol}{64.06\ lb\ SO_2} \times 5\% \times 100\%$$

HAP pollutant emission factors were obtained from U.S. EPA AP-42 Section 1.4 Tables 1.4-3 and 1.4-4. Potential GHG emissions are calculated using 40 CFR Part 98, Subpart C, Tables C-1 and C-2 emission

factors for natural gas along with global warming potentials from Table A-1 of Part 98, dated January 1, 2025.

$$SO_2\ Emission\ Factor\ \left(\frac{lb}{MMscf}\right) = \frac{0.5\ gr\ S}{100\ scf} \times \frac{1\ lb}{7000\ gr} \times \frac{64.06\ lb\ SO_2}{1\ lbmol} \times \frac{1\ lbmol}{32.02\ lb\ S} \times \frac{10^6\ scf}{1\ MMscf}$$

$$H_2SO_4\ Emission\ Factor\ \left(\frac{lb}{MMscf}\right) = 1.427\frac{lb\ SO_2}{MMscf} \times \frac{98.079\ lb\ H_2SO_4}{lbmol} \times \frac{lbmol}{64.06\ lb\ SO_2} \times 5\% \times 100\%$$

Steele proposes to operate the auxiliary boilers for up to 2,000 hours per year. Steele proposes to operate the dew point heaters for up to 8,760 hours per year.

## 7.3 Diesel-Fired Emergency Engines and Fire Pumps

Emissions from emergency engines are calculated based on each unit's horsepower rating, hours of operation, and appropriate emission factors. The diesel-fired emergency generator engines and fire pump engines will meet the applicable emissions standards specified in the New Source Performance Standard (NSPS) for Stationary Compression Ignition Internal Combustion Engines (40 CFR Part 60, Subpart IIII) for $NO_X$, CO, VOC (as non-methane hydrocarbons (NMHC)), and PM (conservatively assumed to be equal to $PM_{10}$ and $PM_{2.5}$), consistent with the proposed BACT limits. For all emergency engines, the $SO_2$ and $H_2SO_4$ emission factors were calculated based on the proposed BACT emission limit of ≤15 ppm sulfur by weight for the use of ULSD, the anticipated fuel consumption (17 gal/hr) based on the brake-specific fuel consumption in U.S. AP-42 Table 3.3-1 and the engine rated horsepower, and the density of diesel (7.1 lb/gal) per U.S. AP-42 Table 7.1-2. For $SO_2$, 100% conversion from sulfur to $SO_2$ was conservatively assumed. Actual $SO_2$ emissions are expected to be lower because a portion of the sulfur is further oxidized to $SO_3$, which may subsequently react with water vapor to form $H_2SO_4$. $H_2SO_4$, 10% conversion of $SO_2$ to $SO_3$ and 100% conversion of $SO_3$ to $H_2SO_4$ were conservatively assumed. This methodology is summarized in the following formulas:

$$SO_2\ Emission\ Factor\ \left(\frac{lb}{hr}\right) = \frac{15\ ppmw}{10^6} \times \frac{17\ gal}{hr} \times \frac{64.06\ lb\ SO_2}{1\ lbmol} \times \frac{1\ lbmol}{32.02\ lb\ S} \times \frac{7.1\ lb}{gal}$$

$$H_2SO_4\ Emission\ Factor\ \left(\frac{lb}{hr}\right) = 0.0046\frac{lb\ SO_2}{hr} \times \frac{lbmol}{64.06\ lb\ SO_2} \times \frac{98.079\ lb\ H_2SO_4}{lbmol} \times 10\% \times 100\%$$

Emergency diesel generator engine emissions are based on up 250 hours of operation, while emergency diesel fire pump engine emissions are based on up 500 hours of operation.

## 7.4 Natural Gas Piping Fugitives

Fugitive emissions of $CH_4$ and VOCs in natural gas service are addressed through the piping components (such as valves, flanges, and other connections) and multiplying these component counts by the specific emission (leak) factors based on the component type provided by the June 2018 TCEQ Air Permit Technical Guidance for Chemical Sources Fugitive Guidance. The Synthetic Organic Chemical Manufacturing Industry (SOCMI) factors for sources without ethylene were used, and the process was assumed to be uncontrolled. Steele will only use natural gas with up to 2 weight percent (wt %) VOC content.

GHG emission calculations for natural gas piping component fugitive emissions are based on the Global Warming Potential of $CH_4$. The global warming potential factor used to calculate $CO_2e$ emissions is per 40 CFR 98, Subpart A, Table A-1.

## 7.5 Lube Oil Vents

A potential source of PM, $PM_{10}$, $PM_{2.5}$, and VOC emissions is the lube oil system used for each CT and ST. Each CT and ST will be equipped with one (1) lubricating oil vent which includes demisters for lubricating oil mist control. Emissions of PM and VOC were calculated with the emission factors for this type of emission unit (in lb/hr) contained in the Texas Commission on Environmental Quality (TCEQ) Readily Available Permit (RAP) for Simple Cycle Turbines: TCEQ 20858, Version 3.3. While TCEQ's emission factors were historically developed for simple cycle turbines, they are adequate for combined cycle systems, as the emissions generation mechanism is consistent. $PM_{10}$ and $PM_{2.5}$ emissions were conservatively assumed to be equal to PM emissions. Emissions for each lube oil vent are based on up to 8,760 annual hours.

## 7.6 Circuit Breakers

The circuit breakers may occasionally leak $SF_6$ to the atmosphere, where the pollutant acts as a greenhouse gas. Annual $CO_{2e}$ emissions from $SF_6$ leaking from the circuit breakers have been calculated based on the $SF_6$ charge amount in each circuit breaker, the quantity of circuit breakers, a 0.5% leak rate per year[5] (consistent with the proposed BACT limit), and a GWP of 23,500.

[5] From EPA's technical paper titled, "SF6 Leak Rates from High Voltage Circuit Breakers - U.S. EPA Investigates Potential Greenhouse Gas Emission Source - by J. Blackman, Program Manager, U.S. EPA and M. Averyt, ICF Consulting, and Z. Taylor, ICF Consulting". Used the worst-case estimate of 0.5% per year.

# 8. REGULATORY APPLICABILITY

The following sections identify the regulatory requirements that are potentially applicable to the Project.

## 8.1 Federal Major New Source Review (NSR) Applicability

Two distinct major NSR permitting programs potentially apply depending on whether a source is in an "attainment/unclassifiable" or "nonattainment" area for a particular regulated NSR pollutant. The PSD program provisions govern potential major NSR actions in areas which are designated to be in attainment or unclassifiable status. The Nonattainment NSR (NA-NSR) program governs potential major NSR actions in areas which are nonattainment for one or more regulated pollutants.

The Facility will be located in an area of Pinal County, Arizona, that is currently designated as attainment or unclassified for all criteria pollutants. As a result, for the purposes of federal major NSR applicability, all regulated NSR pollutants are evaluated for applicability under the PSD program.

PCAQCD has the authority to issue PSD permits under CoR §3-3-250. PSD application requirements contained in the PCAQCD CoR §3-3-250 apply to each new major source, or major modification at an existing major source. A major source is any categorical stationary source[6] which has the potential to emit 100 tpy or more of any regulated NSR pollutant other than GHGs, or any stationary source which has the potential to emit 250 tpy or more of any regulated NSR criteria pollutant other than GHGs. The Facility will be a fossil-fuel-fired steam electric plant with a heat input capacity greater than 250 MMBtu/hr, and therefore a categorical source with a 100 tpy MST. The PTE of each regulated NSR criteria pollutant associated with the Project was compared against the PSD major source threshold of 100 tpy (inclusive of fugitive emissions), pursuant to CoR §1-3-140.80(c)(i). The PTE for CO, $NO_x$, PM, $PM_{10}$, $PM_{2.5}$, and $SO_2$ exceeds the 100 tpy MST. The Project is therefore considered a new "major source" of regulated NSR pollutants and is subject to PSD requirements for those pollutants.

Additionally, since the applicable MST for at least one regulated NSR criteria pollutant was exceeded, the PTE for other regulated NSR pollutants was compared against the applicable SERs in CoR §1-3-140.122(a). If the SER is exceeded for a regulated NSR pollutant, PSD is triggered for that pollutant. The Project PTE exceeds the SERs for VOC and $H_2SO_4$ mist and is therefore subject to PSD requirements for those pollutants as well.

Per 40 CFR 52.21(b)(49)(iv), GHGs are a regulated NSR pollutant if the stationary source is a major source for a regulated NSR pollutant which is not GHGs and will also have the potential to emit 75,000 tpy $CO_2e$ or more. The Project GHG PTE exceeds this threshold and is therefore also subject to PSD requirements for GHGs.

PSD requirements that apply to the Project as a new major source, for those pollutants exceeding the abovementioned thresholds, are further described in Section 8.

## 8.2 Title V Operating Permit Program Applicability

PCAQCD is the permitting authority for the federal Title V operating permit program approved under 40 CFR Part 70. The Facility is in an area of Pinal County, Arizona, that is classified as attainment or unclassified for

[6] As defined in PCAQCD CoR §1-3-140.25.

all criteria pollutants. Therefore, the major source threshold applicable for all criteria pollutants is 100 tpy; 10 tpy of any single HAP; and 25 tpy of any combination of HAPs.

As noted in **Table 1-1,** the PTE for CO, $NO_x$, PM, $PM_{10}$, $PM_{2.5}$, and $SO_2$, inclusive of fugitive emissions [7], exceeds the corresponding Title V MSTs. As such, the Facility will be subject to Title V program requirements and must obtain a PCAQCD Class I permit. Steele is applying for a Title V permit from PCAQCD as part of this application for a Class I permit, per CoR §3-1-040.B(1)(a).

## 8.3 New Source Performance Standards

40 CFR 60 consists of technology-based standards developed by EPA that are applicable to certain types of equipment ("affected facilities") which are newly constructed, modified, or reconstructed after a given applicability date. The federal NSPS are also implemented through Chapter 6 of the PCAQCD CoR. This section evaluates the applicability of potentially relevant NSPS Subparts to the Project. **Table 8-1** summarizes NSPS applicability.

**Table 8-1. Project NSPS Applicability Summary**

| Equipment | Potentially Applicable NSPS Subparts | Applicable? |
|---|---|---|
| **CCGT Combustion Turbines (including associated HRSG DBs, where applicable)** | 40 CFR 60 Subpart D – Fossil-Fuel-Fired Steam Generators | **N** |
| | 40 CFR 60 Subpart Da – Electric Utility Steam Generating Units | **N** |
| | 40 CFR 60 Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units | **N** |
| | 40 CFR 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units | **N** |
| | 40 CFR 60 Subpart GG – Standards of Performance for Stationary Gas Turbines | **N** |
| | 40 CFR 60 Subpart KKKK – Standards of Performance for Stationary Combustion Turbines | **N** |
| | 40 CFR 60 Subpart KKKKa – Standards of Performance for Stationary Combustion Turbines | **Y** |
| | 40 CFR 60 Subpart TTTTa – Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units | **Y** |
| **Auxiliary Boilers** | 40 CFR 60 Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units | **N** |
| | 40 CFR 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units | **Y** |
| **Dew Point Heaters** | 40 CFR 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units | **Y** |

[7] The proposed facility is a categorical source in the "Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input" category, per the major stationary source definition contained in 40 CFR §52.21(b)(1)(i)(A) and as described in CoR §1-3-140.25.

| Equipment | Potentially Applicable NSPS Subparts | Applicable? |
|---|---|---|
| **Emergency Engines and Fire Pump Engines** | 40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines | **Y** |
| | 40 CFR 60 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines | **N** |
| **Diesel and Lube Oil Storage Tanks** | 40 CFR 60 Subpart Kc – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After October 4, 2023 | **N** |

Y = Applicable; N = Not Applicable;

### 8.3.1 40 CFR 60, Subpart A – General Provisions

All affected facilities subject to an NSPS are also subject to the applicable General Provisions of NSPS Subpart A unless specifically excluded by a specific NSPS Subpart. For example, NSPS Subpart A addresses the following for affected facilities subject to a specific NSPS Subpart:

- Initial construction/reconstruction notification;
- Initial startup notification;
- Performance tests;
- Performance test date initial notification;
- General monitoring requirements;
- General recordkeeping requirements; and
- Semi-annual monitoring system and/or excess emission reports.

Because the Project will include affected facilities subject to a specific NSPS Subpart, the NSPS Subpart A General Provisions will apply.

### 8.3.2 40 CFR 60, Subpart D – Standards of Performance for Fossil-Fuel-Fired Steam Generators

40 CFR 60, Subpart D, *Standards of Performance for Fossil-Fuel-Fired Steam Generators,* applies to each fossil fuel-fired steam generating unit with a heat input capacity greater than 250 MMBtu/hr that commenced construction or modification after August 17, 1971. Per 40 CFR § 60.41, a fossil-fuel-fired steam generating unit is defined as "*a furnace or boiler used in the process of burning fossil fuel for the purpose of producing steam by heat transfer.*"

Applicability is evaluated below.

- The CT for each of the two (2) proposed CCGTs does not meet the Subpart's definition of fossil-fuel-fired steam generating unit. Therefore, the two (2) CTs are not affected facilities under this Subpart. The two (2) HRSGs equipped with a NG-fired DB, one for each CT, will be subject to NSPS Subpart KKKKa; as such, the two (2) HRSGs are not subject to NSPS Subpart D[8]. Additionally, the two (2) proposed auxiliary boilers will have an individual heat input capacity of 90 MMBtu/hr, which is below the 250 MMBtu/hr threshold. Therefore, the auxiliary boilers are not affected facilities under this Subpart.

[8] See §60.4305a(c).

Accordingly, NSPS Subpart D does not apply to any proposed Project emission units.

### 8.3.3 40 CFR 60, Subpart Da – Standards of Performance for Electric Utility Steam Generating Units

40 CFR 60, Subpart Da, *Standards of Performance for Electric Utility Steam Generating Units,* applies to each electric utility steam generating unit with heat input capacity greater than 250 MMBtu/hr of fossil fuel (either alone or in combination with any other fuel) for which the construction, modification, or reconstruction commenced after September 18, 1978.

The term "electric utility steam-generating unit" is defined in § 60.41Da as:

> *Any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW net-electrical output to any utility power distribution system for sale...*

The term "steam generating unit" is defined in § 60.41Da under this regulation as:

*For facilities constructed, reconstructed, or modified before May 4, 2011, means any furnace, boiler, or other device used for combusting fuel for the purpose of producing steam (including fossil-fuel-fired steam generators associated with combined cycle gas turbines; nuclear steam generators are not included). For units constructed, reconstructed, or modified after May 3, 2011, steam generating unit means any furnace, boiler, or other device used for combusting fuel for the purpose of producing steam (including fossil-fuel-fired steam generators associated with combined cycle gas turbines; nuclear steam generators are not included) plus any integrated combustion turbines and fuel cells.*

CTs do not meet the Subpart definition of electric utility steam generating unit, and therefore the CTs associated with the two (2) proposed CCGT units are not affected facilities under this Subpart. The proposed HRSGs equipped with a DB associated with the CCGTs are classified as steam generating units under this Subpart and will have an individual heat input capacity greater than 250 MMBtu/hr, however, they will be subject to NSPS KKKKa and are therefore exempt from NSPS Subpart Da pursuant to § 60.4305a(c). The proposed auxiliary boilers will have an individual heat input capacity below the 250 MMBtu/hr threshold and are implicitly not subject to this Subpart.

Accordingly, NSPS Subpart Da does not apply to any proposed Project emission units.

### 8.3.4 40 CFR 60, Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

40 CFR 60, Subpart Db – *Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units,* applies to steam generating units with heat input capacities greater than 100 MMBtu/hr for which the construction, modification, or reconstruction commenced after June 19, 1984. Per 40 CFR § 60.41b, a *steam generating unit* is defined as "*a device that combusts any fuel or byproduct/waste and produces steam or heats water or heats any heat transfer medium. This term includes any municipal-type solid waste incinerator with a heat recovery steam generating unit or any steam generating unit that combusts fuel and is part of a cogeneration system or a combined cycle system. This term does not include process heaters as they are defined in this subpart.*"

CTs do not meet the Subpart definition of steam generating unit, and therefore the CTs associated with the two (2) proposed CCGT units are not affected facilities under this Subpart. The HRSGs DBs associated with

the Project meet the definition of steam generating units because they are part of a combined-cycle system, and each will have an individual heat input capacity greater than 100 MMBtu/hr. However, per 40 CFR § 60.4305a(c), HRSG DBs are regulated under NSPS Subpart KKKKa and are therefore exempt from NSPS Subpart Db (see also § 60.40b(i)).

Auxiliary boilers and dew point heaters meet the Subpart definition of steam generating unit and the applicability date, so applicability is further evaluated based on size.

- The proposed dew point heaters and auxiliary boilers will have an individual heat input capacity below the 100 MMBtu/hr threshold and are therefore not subject to this Subpart.

### 8.3.5 40 CFR 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial Steam Generating Units

40 CFR 60, Subpart Dc – *Standards of Performance for Small Industrial-Commercial Steam Generating Units*, applies to each steam generating unit for which the construction, modification, or reconstruction commenced after June 9, 1989, and for which the maximum design heat input capacity is 100 MMBtu/hr or less, but greater than or equal to 10 MMBtu/hr. Per 40 CFR § 60.41c, a *steam generating unit* is defined as "*a device that combusts any fuel and produces steam or heats water or heats any heat transfer medium. This term includes any duct burner that combusts fuel and is part of a combined cycle system. This term does not include process heaters as defined in this subpart.*"

CTs do not meet the Subpart definition of steam generating unit, and therefore the CTs associated with the two (2) proposed CCGT units are not affected facilities under this Subpart. The HRSGs DBs associated with the Project meet the Subpart definition of steam generating units because they are part of a combined-cycle system, but each will have an individual heat input capacity greater than 100 MMBtu/hr. Furthermore, the HRSGs DBs associated with the Project are regulated under NSPS Subpart KKKKa and therefore exempt from NSPS Subpart Dc per § 60.4305a(c). Thus, the HRSG DBs are not affected facilities under NSPS Subpart Dc.

Auxiliary boilers and dew point heaters meet the Subpart definition of steam generating unit and the applicability date, so applicability is further evaluated based on size.

- The two (2) auxiliary boilers, each rated at 90 MMBtu/hr, will fall within the applicable heat input capacity range and therefore be affected facilities under NSPS Subpart Dc. The two (2) dew point heaters are fuel gas heaters individually rated at 11.7 MMBtu/hr, also within the applicable heat input capacity range. Therefore, the dew point heaters are affected facilities under NSPS Subpart Dc.

The auxiliary boilers and the dew point heaters subject to Subpart Dc will only fire natural gas and are not subject to the $SO_2$ or PM emission limits, testing, or continuous monitoring requirements of the Subpart, except for the requirement to monitor natural gas consumption monthly. Steele will comply with the notification requirements under § 60.48c(a) and the recordkeeping requirements under § 60.48c(g).

### 8.3.1 40 CFR 60, Subpart GG – Standards of Performance for Stationary Gas Turbines

40 CFR 60, Subpart GG, *Standards of Performance for Stationary Gas Turbines*, applies to all stationary gas turbines with a heat input at peak load equal to or greater than 10 MMBtu/hr, based on the low heating value (LHV) of the fuel fired, that are constructed, modified, or reconstructed after October 3, 1977. The term "stationary gas turbine" is further defined in § 60.331(a) as, "*any simple cycle gas turbine, regenerative cycle*

*gas turbine, or any gas turbine portion of a combined cycle steam/electric generating system that is not self-propelled.*"

The CTs for each CCGT unit meet the definition of stationary gas turbine and the applicability date of the Subpart. However, pursuant to § 60.330(d), stationary combustion turbines subject to NSPS Subpart KKKKa are exempt from the requirements of NSPS Subpart GG. The CTs are subject to NSPS Subpart KKKKa and therefore are not affected facilities under NSPS Subpart GG.

### 8.3.2 40 CFR 60, Subpart Kc – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After October 4, 2023

40 CFR 60, Subpart Kc, *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After October 4, 2023*, applies to each storage vessel with a capacity greater than or equal to 20,000 gallons that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after October 4, 2023. Per §60.111c a *storage vessel* and *volatile organic liquids* are defined as "*each tank, reservoir, or container used for the storage of volatile organic liquids but does not include 1) Frames, housing, auxiliary supports, or other components that are not directly involved in the containment of liquids or vapors; 2) Subsurface caverns or porous rock reservoirs; or 3) process tanks*" and "*any organic liquid which can emit volatile organic compounds (as defined in 40 CFR 51.100) into the atmosphere*," respectively.

The proposed VOL storage tanks, summarized below, have capacities below the 20,000-gallon applicability threshold and are therefore not subject to 40 CFR 60 Subpart Kc:

- One (1) 300-gallon emergency fire pump diesel storage tanks;
- Two (2) 3,700-gallon emergency generator diesel storage tanks;
- Four (4) 11,750-gallon turbine lube oil / hydraulic oil tanks.

### 8.3.3 40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

40 CFR 60, Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*, applies to owners or operators of stationary compression ignition (CI) internal combustion engines (ICE) manufactured after April 1, 2006 that are not fire pump engines, and fire pump engines manufactured after July 1, 2006, that commence construction after July 11, 2005. The proposed diesel-fired emergency generator engines and diesel-fired fire pump engine are affected facilities under this Subpart.

- The proposed diesel emergency generator engines are individually rated at approximately at 2,681 bhp and have a cylinder displacement < 10 liters/cylinder. Therefore, per §60.4205(b), the emission standards under § 60.4202 for a 2007 model year and later emergency stationary CI ICE with a displacement < 30 liters/cylinder apply. Per §60.4202(a)(2), for a 2007 model year and later emergency stationary CI ICE with a maximum engine power < 3,000 hp, and a displacement < 10 liters/cylinder, the following emission standards and smoke standards apply.
  - Pursuant 40 CFR Appendix I to Part 1039, the following emission standards apply for rated power > 560 kW with a Tier 2 rating:
    - $NO_x$ + NMHC = 6.4 g/kW-hr
    - CO = 3.5 g/kW-hr

- PM = 0.2 g/kW-hr
- Pursuant to 40 CFR §1039.105(b), the following limits apply for smoke from the emergency engines:
  - 20% during the acceleration mode
  - 15% during the lugging mode
  - 50% during the peaks in either acceleration or lugging modes

- The proposed diesel fire pump engine is rated approximately at 305 bhp with a cylinder displacement of less than 30 liters/cylinder, and as such must meet the emission standards as specified under § 60.4205(c), summarized below.
  - Pursuant to Table 4 to the Subpart, the following Tier 3 emission standards apply for manufacture for years 2009+ with a rated power of 300 ≤ hp < 600:
    - $NO_x$ + NMHC = 3.0 g/bhp-hr
    - CO = 2.6 g/bhp-hr
    - PM = 0.15 g/bhp-hr

### 8.3.4 40 CFR 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

40 CFR Part 60 Subpart JJJJ, *Standards of Performance for Stationary Spark Ignition Internal Combustion Engines*, establishes requirements for owners/operators that commenced construction of, modified, or reconstructed stationary spark ignition (SI) reciprocating internal combustion engines (RICE) after June 12, 2006. The proposed diesel emergency generator engines and diesel fire pump engine are CI ICE, not SI RICE; therefore, 40 CFR Part 60, Subpart JJJJ does not apply.

### 8.3.5 40 CFR 60, Subpart KKKK – Standards of Performance for Stationary Combustion Turbines

40 CFR 60, Subpart KKKK, *Standards of Performance for Stationary Combustion Turbines*, establishes emission standards and compliance schedules for the control of emissions from stationary combustion turbines that commence construction, modification or reconstruction after February 18, 2005.

The CTs for each CCGT unit meet the definition of stationary combustion turbine under the Subpart. However, per §60.4305a(b), stationary combustion turbines regulated under NSPS Subpart KKKKa are exempt from the requirements of NSPS Subpart KKKK. The CTs for each CCGT unit are NSPS Subpart KKKKa affected facilities, and therefore NSPS Subpart KKKK does not apply.

### 8.3.6 40 CFR 60, Subpart KKKKa – Standards of Performance for Stationary Combustion Turbines

40 CFR 60, Subpart KKKKa, *Standards of Performance for Stationary Combustion Turbines*, establishes $NO_X$ and $SO_2$ emissions limits for each stationary combustion turbine that commenced construction, modification, or reconstruction after December 13, 2024. §60.4305a specifies applicability to *"a stationary combustion turbine that commenced construction, modification, or reconstruction after December 13, 2024, and that has a base load rating equal to or greater than 10.7 gigajoules per hour (GJ/h) (10 million British thermal units per hour (MMBtu/h)). Any additional heat input from duct burners used with heat recovery steam generating (HRSG) units or fuel preheaters is not included in the heat input value used to determine the applicability of this subpart to a given stationary combustion turbine. However, this subpart does apply to emissions from any associated HRSG and duct burner(s) that are associated with a combustion turbine subject to this subpart."* The final rule was promulgated on January 15, 2026, with a technical correction published in July 2026, effective August 17, 2026.

The CTs for each CCGT unit will commence construction after December 13, 2024, and have base load ratings well above 10 MMBtu/hr; therefore, they are affected facilities under Subpart KKKKa. The associated HRSG DBs are also covered under NSPS Subpart KKKKa. The dew point heaters (fuel preheaters) are not affected facilities under NSPS Subpart KKKKa.

#### *8.3.6.1 $NO_X$ Emission Limits and Compliance Demonstration Requirements*

NSPS Subpart KKKKa establishes size-based subcategories for determining applicable $NO_X$ emission standards: large (base load rating >850 MMBtu/hr), medium (>50 MMBtu/hr and ≤850 MMBtu/hr), and small (≤50 MMBtu/hr). The two (2) CCGTs fall under the large turbine subcategory.

Per Table 1 to Subpart KKKKa, the $NO_x$ emission limit for a new combustion turbine is dependent on the type of fuel combusted, heat input at peak load (HHV), and, for large and medium turbines, the utilization rate.

- The CCGTs include large CTs firing natural gas with a base load rating greater than 850 MMBtu/hr. Operating at a high utilization rate (12-month capacity factor greater than 45%), which will be the case of the CTs, the applicable $NO_X$ limit is 5 ppm at 15% $O_2$ or 0.018 lb/MMBtu (4-hour rolling average basis), or as an output-based standard, 0.12 lb/MWh (30-operating-day average basis). This $NO_X$ limit applies to the two (2) CCGTs when operating in primary combined cycle mode.
- When the two (2) CCGTs are operating in emergency simple cycle mode, the applicable category per NSPS Subpart KKKKa would be "New, firing natural gas, either offshore turbines, turbines bypassing the heat recovery unit," which has a $NO_X$ emission standard of 25 ppm at 15% $O_2$.

Per § 60.4335a(c), Steele will demonstrate compliance using a continuous emissions monitoring system (CEMS) for measuring $NO_X$ emissions according to the provisions in §60.4345a and §60.4350a. Because the applicable $NO_x$ emission standard to the CCGTs varies by operating mode and is determined on an hourly basis, Steele will comply with the highest applicable emission standard for each hour, consistent with § 60.4320a(b)(1). Accordingly, if a CCGT operates in both combined cycle and simple cycle modes during the same hour, the 25 ppmvd at 15% $O_2$ $NO_x$ limit applicable to simple cycle operation would apply for that hour.

#### *8.3.6.2 $SO_2$ Emission Limits and Compliance Demonstration Requirements*

Per § 60.4330a(a), $SO_2$ emissions from combustion turbines must not exceed 0.90 lb/MWh gross output or 0.060 lb $SO_2$/MMBtu heat input. Per § 60.4372a(b), Steele will use pipeline-quality NG with low sulfur content to comply with the 0.060 lb $SO_2$/MMBtu heat input.

Steele proposes to demonstrate compliance with the $SO_2$ standard pursuant to § 60.4372a(e), via representative fuel sampling data following the procedures specified in section 2.3.1.4 or 2.3.2.4 of 40 CFR 75, Appendix D, documenting that the fuel is pipeline quality NG under Part 75. Steele understands that compliance via § 60.4372a(e) may be used in place of formal $SO_2$ initial performance testing (using EPA Methods 6, 6C, 8 or 20).

### 8.3.7 40 CFR 60, Subpart TTTTa – Standards of Performance for Greenhouse Gas Emissions for Modified Coal-Fired Steam Electric Generating Units and New Construction and Reconstruction Stationary Combustion Turbine Electric Generating Units

40 CFR 60, Subpart TTTTa – Standards of Performance for Greenhouse Gas Emissions for Modified Coal-Fired Steam Electric Generating Units and New Construction and Reconstruction Stationary Combustion Turbine

Electric Generating Units, is applicable to a stationary combustion turbine that commences construction or reconstruction after May 23, 2023, and meets the relevant applicability conditions in § 60.5509a(1) and (2). On June 27, 2025, EPA proposed to repeal all GHG emissions standards for fossil fuel-fired power plants. The proposed combustion turbines will be subject to the base load emission requirements of NSPS Subpart TTTTa. If Subpart TTTTa is vacated or repealed, the applicable NSPS Subpart will be Subpart TTTT, which imposes a $CO_2$ emission standard of 1,000 lb/MWh-gross or 1,030 lb/MWh-net. If both Subparts TTTTa and TTTT are repealed, neither Subpart will apply to the CCGTs. Steele is aware of the compliance requirements under NSPS Subpart TTTTa and will comply if the rule is not repealed.

On September 14, 2026, USEPA finalized the revised (i.e., partial repeal) of NSPS Subparts TTTT and TTTTa and proposed a supplemental rulemaking to rescind all GHG emissions requirements for fossil fuel-fired EGUs. If finalized, the proposal would repeal NSPS Subparts TTTT and TTTTa entirely and these federal requirements would no longer apply to the SEC CCGTs. While there is considerable regulatory uncertainty, it is expected that the most likely scenario is a full repeal of NSPS Subparts TTTT and TTTTa prior to the date at which the facility would be required to make an initial compliance determination.

## 8.4 National Emission Standards for Hazardous Air Pollutants

National Emission Standards for Hazardous Air Pollutants (NESHAPs) have been established in 40 CFR Part 61 and Part 63 to control emissions of HAPs from stationary sources. None of the standards in Part 61 are expected to apply to the project. Under Part 63, a facility that is a major source of HAPs is defined as having PTE emissions greater than 25 tpy of total HAPs and/or 10 tpy of a single HAP. Facilities with the potential to emit HAPs at an amount less than these major source thresholds are considered an "area source".

Part 63 NESHAP emission limits are established based on maximum achievable control technology (MACT) or generally available control technology (GACT), depending on the source category and whether the standards apply to major or area sources of HAPs. The NESHAP applies to sources in specifically regulated industrial source categories (Clean Air Act [CAA] §112(d)) or on a case-by-case basis (CAA §112(g)) for facilities not regulated as a specific industrial source type.

The Facility will be classified as an area source of HAPs because the HAP PTE will remain less than the major source HAP thresholds. The federal NESHAP are also implemented through Chapter 7 of the PCAQCD CoR. This section evaluates the applicability of potentially relevant NESHAP Subparts to the Project. **Table 8-2** summarizes NESHAP applicability.

**Table 8-2. Project NESHAP Applicability Summary**

| Equipment | Potentially Applicable Subparts | Applicable? |
|---|---|---|
| **Combustion Turbines** | 40 CFR 63 Subpart YYYY – National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines | **N** |
| **HRSG Duct Burners** | 40 CFR 63 Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters | **N** |
| | 40 CFR 63 Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources | **N** |

| | | |
|---|---|---|
| **Auxiliary Boilers** | 40 CFR 63 Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters | **N** |
| | 40 CFR 63 Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources | **N** |
| **Dew Point Heaters** | 40 CFR 63 Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters | **N** |
| | 40 CFR 63 Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources | **N** |
| **Emergency Engines and Fire Pump Engines** | 40 CFR 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines | **Y** |

Y = Applicable; N = Not Applicable

### 8.4.1 40 CFR 63, Subpart A

All "affected sources" subject to a NESHAP Subpart are also subject to the applicable General Provisions of NESHAP Subpart A unless specifically excluded by a specific NESHAP Subpart. 40 CFR 63, Subpart A includes the following requirements for affected sources subject to a specific NESHAP Subpart:

- Initial construction/reconstruction notification;
- Initial startup notification;
- Performance tests;
- Performance test date initial notification;
- General monitoring requirements;
- General recordkeeping requirements; and
- Semi-annual monitoring system and/or excess emission reports.

Because the proposed Facility will include an affected source subject to a specific NESHAP Subpart, NESHAP Subpart A general provisions will apply.

### 8.4.2 40 CFR 63, Subpart YYYY – National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines

40 CFR 63, Subpart YYYY, *National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines,* establishes national emission limitations and operating limitations for HAP emissions from stationary combustion turbines located at major sources of HAP emissions. The CTs for each CCGT unit meet the definition of stationary gas turbine. The Facility will be an area source of HAPs and therefore, NESHAP Subpart YYYY does not apply to the CTs.

### 8.4.3 40 CFR 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

40 CFR 63, Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, establishes national emission limitations and operating limitations for HAP emitted from stationary reciprocating internal combustion engines (RICE) located at major and area

sources of HAP emissions. Pursuant to 40 CFR § 63.6585, Subpart ZZZZ applies to the proposed emergency generator engines and fire pump engines.

The proposed emergency generator engines and fire pump engines are new stationary compression ignition (CI) RICE. Since the Facility is a HAP area source, the criteria under § 63.6590(c)(1) are met, and Steele will demonstrate compliance with Subpart ZZZZ by complying with the applicable requirements in NSPS Subpart IIII for compression ignition engines; no further requirements apply under Part 63 for these engines.

### 8.4.4 40 CFR 63, Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

40 CFR 63, Subpart DDDDD – *National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters*, applies to owners or operators of industrial, commercial, or institutional boilers or process heaters as defined in § 63.7575 that are located at a major source of HAP, except as specified in § 63.7491.

Per § 63.7575 waste heat boiler means a device, also referred to as HRSG, that recovers normally unused energy and converts it to usable heat, and is also referred to as a heat recovery steam generator. The HRSG DBs are used to increase the temperature of the incoming hot exhaust gas and therefore are considered waste heat boilers. Waste heat boilers are excluded from the definition of boiler; therefore, this subpart does not apply to the HRSG DBs. Auxiliary boilers and dew point heaters meet the Subpart definition of boilers and process heaters, respectively. The Facility will be classified as an area source of HAPs as it will have potential HAP emissions less than the major source thresholds and, as such, Subpart DDDDD will not be applicable to the Facility.

### 8.4.5 40 CFR 63, Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

40 CFR 63, Subpart JJJJJJ, *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*, applies to operators of industrial, commercial, and institutional boilers located at area sources of HAPs. The term "boiler" is defined in § 63.11237 as, "*an enclosed device using controlled flame combustion in which water is heated to recover thermal energy in the form of steam and/or hot water.*" Auxiliary boilers meet the Subpart definition of boilers. Dew point heaters do not meet the Subpart definition of boilers; therefore, NESHAP Subpart JJJJJJ does not apply to these units. The HRSG DBs meet the definition of a waste heat boiler in § 63.11237, which is excluded from the Subpart definition of a boiler. Therefore, Subpart JJJJJJ is not applicable to the HRSG DBs.

The Facility is an area source of HAPs, and therefore, the auxiliary boilers are potentially covered by NESHAP Subpart JJJJJJ. However, the auxiliary boilers will only fire only pipeline-quality NG, and therefore the exemption under § 63.11195(e) for gas-fired boilers applies. As such, the auxiliary boilers are not subject to NESHAP Subpart JJJJJJ.

## 8.5 Acid Rain Applicability

To reduce acid rain in the United States and Canada, Title IV (40 CFR 72 *et seq.*) of the CAA Amendments of 1990 established the Acid Rain Program (ARP) to reduce $SO_2$ and $NO_X$ emissions from electric utility plants. PCAQCD is the permitting authority implementing ARP requirements and has incorporated the requirements

of 40 CFR 72 and accompanying appendices by reference in CoR §3-6-565. Per 40 CFR §72.6, new utility units serving a generator with a nameplate capacity greater than 25 MWe after November 15, 1990, are subject to ARP requirements. A "utility unit" is defined in §72.2 as a unit owned or operated by a utility that serves a generator in any State that produces electricity for sale. The proposed combined cycle gas combustion turbines will have a nameplate capacity greater than 25 MWe and will be operated by a person that sells electricity. Therefore, the combustion turbines will be affected sources subject to ARP requirements. The combustion turbines will be subject to the requirements of 40 CFR 72 (permits), 40 CFR 73 ($SO_2$), and 40 CFR 75 (monitoring); however, they will not be subject to the $NO_X$ provisions (40 CFR 76) of the ARP regulations because these affected sources will not have the capability to burn coal. Per CoR §3-1-040.B(1)(d), affected sources under the ARP require a Class I permit. Per 40 CFR §72.30(b)(2)(ii), ARP affected sources must submit an acid rain permit application at least 24 months before the start of operations. Steele will submit an acid rain permit application to PCAQCD under separate cover at least two years prior to commencing operation of the affected CCGTs.

The ARP does not apply to any other fossil fuel-fired combustion device at the Steele Energy Center either because the device does not generate electricity, or the electricity generated is not sold (e.g., emergency generators).

## 8.6 Cross-State Air Pollution Rule

The Clean Air Act's (CAA's) "good neighbor" provision in CAA §110(a)(2)(D)(i)(I) requires each state in its State Implementation Plan (SIP) to prohibit emissions that will significantly contribute to nonattainment of a NAAQS, or interfere with maintenance of a NAAQS, in a downwind state. The CAA requires EPA to promulgate Federal Implementation Plans (FIPs) if a state fails to submit, or EPA disapproves of good neighbor SIPs. On January 30, 2026, EPA proposed to approve SIP submissions for eight upwind states, including Arizona, finding that their interstate ozone precursor emissions did not significantly contribute to nonattainment or interfere with maintenance of the 2015 8-hour ozone NAAQS in other states. Currently, electric generating units (EGU) in Arizona are not subject to CSAPR requirements. Therefore, the Facility is not subject to the CSAPR.

## 8.7 40 CFR 64, Compliance Assurance Monitoring

The Compliance Assurance Monitoring (CAM) Rule under 40 CFR Part 64 establishes monitoring procedures to provide reasonable assurance of compliance for pollutant-specific emission units (PSEUs) at Title V major sources that meet the applicability criteria. 40 CFR Part 64 requirements apply to each pollutant specific emission unit (PSEU) that satisfies all the following criteria:

1. Is subject to an emission limitation or standard for the applicable regulated air pollutant;
2. Uses a control device to achieve compliance with any such emission limitation or standard;
3. Has potential pre-control emissions of Title V air pollutants that are equal to or greater than the applicable major source threshold; and
4. Is not otherwise exempt.

As defined in 40 CFR Part 64.1, control device means equipment, other than inherent process equipment, that is used to destroy or remove air pollutant(s) prior to discharge to the atmosphere. This does not include passive methods such as lids, seals, or inherent process equipment provided for safety or material recovery.

For the initial Title V permit, only units with post-control emissions above the major source threshold (100 tpy for criteria pollutants) may be subject to CAM. Since emissions are only controlled during primary combined

cycle mode steady-state operation and are not controlled during startup and shutdown and emergency simple cycle operation, CAM applicability is evaluated based on primary combined cycle mode steady-state operation.

The only units with post-control PTE above 100 tpy each are each CT/HRSG train in the CCGT units, for emissions of CO and $NO_X$. Each CT/HRSG train includes SCR control for $NO_X$ and CO catalyst control for CO in primary combined cycle mode operation. However, the units will be equipped with CEMS for CO and $NO_X$, which are a continuous compliance determination method as defined in 40 CFR §64.1. This qualifies as an exemption under §64.2(b)(1)(vi).

The remaining emission units proposed for the Facility were also evaluated and have potential pre-controlled emissions of regulated pollutants less than the major source threshold, and none of the sources will be equipped with an add-on control device. Therefore, CAM will not apply to any units at the site for this initial Title V permit. Applicability will need to be re-evaluated during the first renewal for any pollutants where pre-control potential emissions are above the major source threshold.

## 8.8 Chemical Accident Prevention

Subpart B of 40 CFR Part 68 outlines requirements for risk management prevention (RMP) plans pursuant to CAA Section 112(r). The applicability of this subpart is determined based on the type and quantity of the chemicals stored at a facility.

This list of regulated substances does not include ultra-low sulfur diesel fuel, hydraulic oil, or lube oil, which will be stored on-site. The Facility will also store aqueous ammonia at a concentration below the regulated 20% concentration for aqueous ammonia by the RMP rule.

Steele will not store any RMP chemicals in quantities greater than the RMP trigger thresholds. Therefore, the Chemical Accident Prevention provisions of 40 CFR Part 68 are not applicable to Steele. However, the facility will be subject to the provisions of the CAA General Duty Clause, Section 112(r)(1), as it pertains to accidental releases of hazardous materials.

## 8.9 Stratospheric Ozone Protection Regulations

The requirements originating from Title VI of the Clean Air Act, *Protection of Stratospheric Ozone*, are contained in 40 CFR Part 82. Subparts A through E, Subpart G, Subpart H, and Subpart I of 40 CFR Part 82 will not be applicable to Steele.

## 8.10 40 CFR Part 82

Subpart F, *Recycling and Emissions Reduction*, potentially applies if the facility maintains, repairs, services, or disposes of appliances that utilize Class I or Class II ozone depleting substances (ODS), as well as their non-exempt substitutes, such as hydrofluorocarbons (HFCs). Subpart F generally requires people completing the repairs, service, or disposal to be properly certified. An appropriately certified technician will complete all repairs, service, and disposal of ODS from covered equipment at the SEC.

## 8.11 PCAQCD Code of Regulations

**Table 8-3** summarize PCAQCD regulations set forth in the CoR that the potentially apply to the Facility (other than those already addressed elsewhere in Section 8).

**Table 8-3. Potentially Applicable PCAQCD CoR Requirements**

| Affected Emission Source [1] | Potentially Applicable Rule or Article Name | CoR Citation | Applicability Determination |
|---|---|---|---|
| General Facility-wide | Voluntarily Accepted Federally Enforceable Emissions Limitations | §3-1-084 | Steele proposes the following voluntary limits in the permit pursuant to §3-1-084:<br>► CCGTs: A limit on DB operation per HRSG to 2,000 hours annually.<br>► Emergency generator diesel-fired engines: A limit on individual annual hours of 250 hours per year.<br>► NG-fired auxiliary boilers: A limit on individual annual hours of 2,000 hours per year. |
| | Permit posting | §3-1-100 | Steele will post the permit in a location that is clearly visible and accessible and will always keep it readily available on the operating premises. |
| | Annual emissions inventory questionnaire and emissions statement | §3-1-103 | Steele will prepare and submit an annual emission inventory questionnaire and emission statement as required by this rule. |
| | Fees | §3-7 | Steele will pay the nonrefundable application filing deposit fee for a new Class I source required under §3-7-580, which will be credited against the permit processing fee. Steele will pay the applicable permit processing fee per §3-7-590.A and Appendix B, Section B to the CoR, based on the actual time PCAQCD spends processing the application, following the final invoice by PCAQCD per §3-7-640. Per CoR §3-7-590.B, following permit issuance, Steele will pay the appropriate annual administrative fee and emission-based fee in accordance with 0, Section C to the CoR, with the initial payment due on the anniversary of the permit issuance date. |
| | Open Burning | §3-8 | Steele does not propose to conduct any outdoor fires as part of the facility operation, and therefore, the regulations in this Article of Chapter 3 are not applicable. |
| | Portable Sources | §3-9 | Steele does not propose operating any portable equipment at the Facility during normal operations, and therefore, the requirements in this Article of Chapter 3 are not applicable. |
| ► Dew point heaters<br>► Emergency fire pump diesel storage tanks | Visibility Limiting Standard | §2-8-300.B | Per CoR §2-8-300.A, performance standards under this rule apply to the following:<br>► Sources not subject to a standard under Chapter 6 of the CoR (i.e., non-NSPS sources), |

| Affected Emission Source [1] | Potentially Applicable Rule or Article Name | CoR Citation | Applicability Determination |
|---|---|---|---|
| ► Emergency generator diesel storage tanks<br>► Turbine lube oil tanks | | | ► Which are also point sources, and<br>► Which are also stationary sources.<br>Steele will therefore comply with the 20% opacity limit in CoR §2-8-300.B(3) as determined by EPA Reference Method 9 for the identified Project sources. Steele will not apply for an alternative opacity standard. |
| Facility-wide Project Sources | Emission standards and limitations | §3-1-082 | If different standards or limitations apply to a source for the same item, Steele will comply with the most stringent applicable emission standards or limitations. |
| | Stack height limitation | §3-1-177 | Steele will comply with applicable stack height limitations for all stacks at the Facility. |
| | Permit & Permit Revision Requirements for Sources Located In Attainment & Unclassified Areas | §3-3-250 | Per §3-3-250.A(1), Steele is submitting a BACT analysis in Section 12 of this application for each NSR pollutant triggering PSD review identified in Section 8.1.<br><br>Per §3-3-250.A(5), Steele is submitting a modeling report under separate cover that addresses the relevant air quality impact analyses (AQIA) for each NSR pollutant triggering PSD review identified in Section 8.1, except VOC, for compliance demonstration purposes. |
| | Innovative control technology | §3-3-270 | Steele is not proposing any innovative control technology in lieu of BACT. |
| | Air Quality Impact Analysis and Monitoring Requirements | §3-3-260 | Steele is submitting a modeling report under separate cover that addresses PSD modeling requirements for the Project. |
| | Visibility protection | §3-3-280 | |
| CCGTs | Federal Acid Rain Program | §3-6-565 | Refer to Section 8.5 of this application. |
| Facility-wide Fugitive Dust Sources | Fugitive Dust | §4-2 | Steele will not engage in any of the activities listed in §4-2-040(A)-(K) without taking reasonable precautions to prevent particulate matter from becoming airborne. |
| Construction Fugitive Dust Sources | Construction Sites – Fugitive Dust | §4-3 | Steele will comply with applicable provisions of this rule during the construction phase for the Facility. Additionally, Steele's construction contractor will obtain a general construction fugitive dust area permit per §4-3-180 prior to the start of construction. |

| Affected Emission Source [1] | Potentially Applicable Rule or Article Name | CoR Citation | Applicability Determination |
|---|---|---|---|
| ► CCGTs<br>► Emergency Generator Engines<br>► Emergency Fire Pump Engines | Stationary Rotating Machinery | §5-23 | Steele will comply with the applicable provisions of the rule for covered emission sources, including:<br>► The PM limit in CoR §5-23-1010.A(2) for each CCGT, and the PM limit in CoR §5-23-1010.A(1) for the emergency engines; and<br>► §5-23-1010.C – Limit such that opacity from each source does not exceed 40% for longer than 10 consecutive seconds.<br>► The engines do not qualify for the §5-23-1015 exemption (the emergency generator engines exceed 325 hp, and the fire pump engine operates more than 72 hours per year). As only natural gas (turbines) and ultra-low sulfur diesel (engines) are fired, the high-sulfur-oil provisions are not applicable. |
| ► Auxiliary Boilers<br>► HRSG DBs<br>► Dew Point Heaters | Fossil Fuel Fired Industrial and Commercial Equipment Particulate Emission Standard | §5-21-930 | Fossil Fuel Fired Industrial and Commercial Equipment is defined in the Rule as, *"installations in which fuel is burned for the primary purpose of producing steam, hot water, hot air or other liquids, gases or solids and in the course of doing so the products of combustion do not come into direct contact with process materials."* The auxiliary boilers (produce steam) and heaters (heat natural gas above dew point) are indirect-fired and therefore meet applicability criteria. The combustion products from HRSGs with DB come into contact with the gas turbine exhaust, but do not come into contact with the steam generated, and therefore also meet applicability criteria. Steele will comply with the particulate emission limit contained in CoR §5-21-930.C(1) for covered sources. |
| ► Auxiliary Boilers<br>► HRSGs DBs | Fossil Fuel Fired Steam Generator Sulfur Dioxide Emission Limitation | §5-22-960 | The Rule does not define "fossil fuel-fired steam generator". However, NSPS Subpart D states in 40 CFR §60.41, "*Fossil-fuel-fired steam generating unit means a furnace or boiler used in the process of burning fossil fuel for the purpose of producing steam by heat transfer.*" Therefore, both the auxiliary boilers and HRSGs with DB meet applicability criteria.<br><br>Steele will only use pipeline quality NG in the auxiliary boilers and HRSGs DBs, and therefore the fuel oil and coal $SO_2$ limits do not apply to covered sources. |
| | Fossil Fuel Fired Steam Generator Nitrogen Oxide Emission Limitation | §5-22-970 | The 0.2 lb $NO_X$ (calculated as $NO_2$)/MMBtu limit on a maximum 2-hour average under §5-22-970.A applies to covered sources. This limit applies to the auxiliary boilers and HRSGs with duct burners. However, since auxiliary boilers and HRSGs with DB are subject to $NO_X$ BACT limits, Steele proposes to demonstrate |

| Affected Emission Source [1] | Potentially Applicable Rule or Article Name | CoR Citation | Applicability Determination |
|---|---|---|---|
| | | | compliance with this provision for each emission source with the more stringent $NO_X$ BACT limits identified in Section 12. |
| Pumps and Compressors | Standards of Performance for New Storage Vessels for Petroleum Liquids | §5-24-1055<br>§6-1-040.B(3) | Steele will equip mechanical seals or other equipment of equal efficiency on all pumps and compressors to comply with the Rule. |
| Abrasive Blasting Operations | Sandblasting or Abrasive Blasting | §5-4 | Steele currently does not plan to conduct any outdoor abrasive blasting. Steele will comply with the applicable performance standards in the Rule for any outdoor abrasive or sandblasting operations that occur at the Facility. |
| Architectural Coatings | Architectural Coating Operations | §5-12 | Steele will comply with the applicable requirements of this Rule when applying or using any architectural coatings. |
| ► Emergency fire pump diesel storage tanks<br>► Emergency generator diesel storage tanks<br>► Turbine lube oil tanks | Storage of Organic Liquids | §5-18-740.A<br>§5-18-742 | All proposed storage tanks will have a capacity below 40,000 gallons and are not subject to this provision. |
| | | §5-18-740.B | The Facility will not include any gasoline tanks and therefore, these provisions do not apply. |
| | Standards of Performance for New Storage Vessels for Petroleum Liquids | §6-1-040.B(1) | The proposed storage tanks will be equipped with a submerged filling device or acceptable equivalent as determined by the PCAQCD. |
| | Miscellaneous and Unclassified Source Requirements | §5-24 | The proposed storage tanks are not covered by any other Article under Chapter 5 of the CoR and are therefore subject to the performance standards for unclassified sources. The proposed storage tanks only have the potential to emit VOCs and HAPs, and therefore the following provisions apply:<br>► §5-24-1030.D – Steele will ensure that the Facility does not emit visible or gaseous materials at such a concentration as to cause air pollution.<br>► §5-24-1030.F – Steele will process, store, use, and transport any materials including solvents or other volatile compounds, paints, acids, alkalis, pesticides, fertilizers in such a manner and by such means that they will not evaporate, leak, escape or be otherwise discharged into the ambient air.<br>► §5-24-1030.G – Steele will comply with abatement equipment installation requirements outlined by PCAQCD for any stack, vent or other outlet. |

| Affected Emission Source [1] | Potentially Applicable Rule or Article Name | CoR Citation | Applicability Determination |
|---|---|---|---|
| | | | ► §5-24-1030.H – Steele will not emit hydrogen sulfide ($H_2S$) in such a manner as to cause the ambient air concentration at any occupied place beyond the premises to exceed 0.03 ppmv for any averaging period of 30 minutes or more. |
| NSPS Affected Facilities | Performance standards | §6-1-030 | The federal NSPS (40 CFR Part 60) are adopted by reference in Chapter 6 of the CoR. Refer to Section 8.3 of this application. |
| NESHAP New Affected Sources | Performance standards for federally listed hazardous air pollutants | §7-1-030 | The federal NESHAP (40 CFR Part 63) are adopted by reference in Chapter 7 of the CoR. Refer to Section 8.4 of this application. |

[1] Applicability is evaluated for the specified types of emission sources, unless otherwise specified for each regulation.

# 9. LIST OF INSIGNIFICANT ACTIVITIES

The Pinal County Air Quality Control District (PCAQCD) Code of Regulations (CoR) §1-3-140.75a defines an insignificant activity as an emission unit that is not otherwise subject to any applicable requirement, and which meets one of the applicable categories of the rule. CoR §1-3-140.15 defines "applicable requirement" as any federal applicable requirement and any other requirement established pursuant to this Code or A.R.S. Title 49, Chapter 3. For the purposes of this application, "other requirement established pursuant to this Code" is interpreted as source-specific Stationary Source Performance Standards in Chapter 5 of the CoR. Therefore, emission sources that are only subject to CoR §5-24 (Miscellaneous and Unclassified Source Requirements), can qualify as insignificant activities if they qualify under one of the listed categories in CoR §1-3-140.75a.

Pursuant to CoR §3-1-05.E, permit applications do not need to include emissions data regarding insignificant activities, but these need to be listed in Class I permit applications. Therefore, this section provides a summary of insignificant activities associated with the Project that would occur at the Facility.

**Table 9-1. List of Insignificant Activities**

| Insignificant Activity Category | CoR §1-3-140.75a Citation | Equipment/Activity Description | Capacity | Maximum Quantity |
|---|---|---|---|---|
| The activity accounts for less than 1% of the source's total existing emissions of conventional air pollutants or less than 200 pounds per year of regulated air pollutants, whichever is less. | a | 19% Aqueous Ammonia Storage Tank [1] | 40,000 gallons | 4 |
| | | 19% Aqueous Ammonia Tote [1] | TBD | TBD |
| Normal landscaping, building maintenance, or janitorial activities. | b(i) | As described by the rule | N/A | N/A |
| Diesel and fuel oil storage tanks with a capacity of 40,000 gallons or less. | b(iii) | Turbines Lube Oil / Hydraulic Oil Tank | 11,750 gallons | 4 |
| | | Emergency Generator Diesel Tanks | 3,700 gallons | 2 |
| | | Emergency Fire Pump Diesel Tanks | 300 gallons | 1 |
| Hand-held or manually operated equipment used for aerosol can spray painting, buffing, polishing, carving, cutting, drilling, machining, routing, sanding, sawing, surface grinding or turning of ceramic artwork, precision parts, leather, metals, plastics, fiber board, masonry, carbon, glass or wood, but not including sand blasting. | b(vi) | The maintenance warehouse will have some of these tools. | TBD | TBD |
| Internal combustion (IC) engine driven compressors, IC engine driven electrical generator sets and IC driven water pumps of less than 325 brake horsepower, used only for emergency replacement or | b(viii) | TBD | TBD | TBD |

| Insignificant Activity Category | CoR §1-3-140.75a Citation | Equipment/Activity Description | Capacity | Maximum Quantity |
|---|---|---|---|---|
| standby service and whose annual operating hours never exceed 72. | | | | |
| Lab equipment used exclusively for chemical and physical analyses. | b(ix) | Water treatment onsite for process control | TBD | TBD |

[1] No emissions of regulated pollutants nor conventional pollutants as defined in CoR §§1-3-140.113 and 33, respectively, are expected from this equipment.

# 10. LIST OF EQUIPMENT

Steele is currently in the process of evaluating and selecting the vendors for the CCGTs and auxiliary equipment for the Facility, and final purchasing will not be made until further in the project development process. Steele is currently evaluating the make and model turbines outlined in this application. However, due to the ever-growing demand for the power to support communities and next-generation computing combined with international competition for advanced class turbines, if the make and model represented in this application are not able to be secured in an economic and timely manner to meet the offtake commitments and project objectives, Steele will install equivalent equipment. Steele would identify alternate generating units with output ratings, equipment specifications, and emissions performance that are comparably efficient and essentially equivalent to those represented in this application except for marginal differences. Any equivalent equipment will also represent BACT for combustion turbines addressed in Section 12.

Steele proposes the following emission source equipment at the Facility.

**Table 10-1. Equipment List**

| Type of Equipment | Capacity | Make | Model | Fuel | Serial Number | Date of Manufacture | Quantity |
|---|---|---|---|---|---|---|---|
| Combustion Turbine | 5,181 MMBtu/hr (Inclusive of Duct Burners) | General Electric Vernova | 7HA.03 or equivalent | Natural Gas | TBD | TBD | 2 |
| Heat Recovery Steam Generator with Duct Burner | 927.5 MMBtu/hr | TBD | TBD | Natural Gas | TBD | TBD | 2 |
| Auxiliary Boiler | 90 MMBtu/hr | TBD | TBD | Natural Gas | TBD | TBD | 2 |
| Emergency Generator Engine | 2,681 bhp | TBD | TBD | Diesel | TBD | TBD | 2 |
| Fire Pump Engine | 305 bhp | TBD | TBD | Diesel | TBD | TBD | 1 |
| Dew Point Heater | 11.7 MMBtu/hr | TBD | TBD | Natural Gas | TBD | TBD | 2 |
| Turbine Lube Oil Vents | N/A | TBD | TBD | N/A | TBD | TBD | 4 |
| Circuit Breaker | 500 kV | TBD | TBD | N/A | TBD | TBD | 11 |
| Facility Piping Components | N/A | N/A | N/A | N/A | N/A | N/A | 690 |

# 11. PERMIT PROCESSING FEES[9]

Steele agrees to pay the $500 to $4,000 new Class I permit fee as well as the $111.05 per hour processing fee required based on the total actual time spent by PCAQCD staff on processing this application. Steele also agrees to pay any fees associated with public notice.

[9] PCAQCD Fee Schedule Industrial-Fee-Schedule--PDF

# 12. BEST AVAILABLE CONTROL TECHNOLOGY EVALUATION

As described in Section 8 of this application, a BACT analysis is required for all emission units associated with the Project for the following NSR pollutants:

- PM, $PM_{10}$, and $PM_{2.5}$;
- $NO_X$;
- CO;
- VOC;
- $SO_2$;
- $H_2SO_4$; and
- GHG.

## 12.1 BACT Methodology

BACT is defined in CoR §1-3-140.20 as follows:

> ***Best available control technology*** *means an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under the Clean Air Act (1990) which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. Under no circumstances shall BACT be determined to be less stringent than the emission control required by the most restrictive applicable provision of District, State or federal laws or regulations. If the Control Officer determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard or combination thereof may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results.*

The primary BACT definition can be best understood by breaking it apart into its separate components.

### 12.1.1 Emission Limitation

*"…an emissions limitation (including a visible emission standard)…"*

First and foremost, BACT is an emission limit. While BACT is prefaced upon the application of technologies to achieve that limit, the final result of BACT is a limit. In general, this limit would be an emission rate limit of a pollutant (e.g., lb/MMBtu or ppmvd).[10]

[10] Emission limits can be broadly differentiated as "rate-based" or "mass-based." For a boiler, a rate-based limit would typically be in units of lb/MMBtu (mass emissions per heat input). In contrast, a typical mass-based limit would be in units of lb/hr (mass emissions per time).

### 12.1.2 Case-by-case basis

*"…on a case-by-case basis, taking into account energy, environmental and economic impacts and other costs…"*

Unlike other CAA programs, the PSD program's BACT evaluation is case-by-case. As noted by U.S. EPA,

The case-by-case analysis is far more complex than merely pointing to a lower emissions limit or higher control efficiency elsewhere in a permit or a permit application. The BACT determination must take into account all of the factors affecting the facility, such as the choice of [fuel]… The BACT analysis, therefore, involves judgment and balancing.[11]

To assist applicants and regulators with the case-by-case process, the EPA stated its preference for a "top-down" BACT analysis in a memorandum dated December 1, 1987.[12] After determining if any NSPS is applicable, the first step in this approach is to determine, for the emission unit in question, the most stringent control available for a similar or identical source or source category. If it can be shown that this level of control is technically, environmentally, or economically infeasible for the unit in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections. Per EPA guidance, if the most effective control technology is deemed BACT, no further analysis is required for that pollutant.

Presented below are the five basic steps of a top-down BACT review procedure according to the *New Source Review Workshop Manual (Draft)*. [13]

#### *12.1.2.1 Step 1 – Identify All Control Options*

In this step, available control technologies with the practical potential for application to the emission unit and regulated air pollutant in question are identified. The following resources are typically consulted when identifying potential technologies for criteria pollutants.

1) EPA's Reasonably Available Control Technology (RACT)/BACT/Lowest Achievable Emission Reduction (LAER) Clearinghouse (RBLC) database [14];
2) Determinations of PSD BACT by regulatory agencies for other similar emission points or air permits and permit files from federal or state agencies;
3) Applicable NSPS and local regulations;
4) Information provided by air pollution control equipment vendors with significant market share in the industry; and/or,
5) Review of literature from industrial, technical, government, academic and trade organizations.

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[11] U.S. EPA Responses to Public Comments on the Proposed PSD Permit for the Desert Rock Energy Facility, July 31, 2008, p.41-42.

[12] U.S. EPA, Office of Air and Radiation. Memorandum from J.C. Potter to the Regional Administrators. Washington, D.C. December 1, 1987.

[13] U.S. EPA, *New Source Review Workshop Manual (Draft)*: *Prevention of Significant Deterioration and Nonattainment Area Permitting,* October 1990.

[14] LAER entries in the RBLC were not addressed in this BACT analysis because the Steele Energy Center will be located in an area that is attainment or unclassified for all criteria pollutants.

This BACT analysis does not consider processes or designs that would fundamentally redefine the proposed source, such as solar, battery energy storage systems (BESS), or BESS plus solar.

#### *12.1.2.2 Step 2 – Eliminate Technically Infeasible Options*

In this step, "technically infeasible" control options from the list of "potentially available" control options are eliminated. Per EPA's 2022 *BACT Evaluation Clarification*, a control option is "technically feasible" if it has been "demonstrated" (i.e., operated and shown to be effective at full production scale) or if it is both "available" (i.e., on the market at a commercial scale) and "applicable" (i.e., could reasonably be applied to the source).

#### *12.1.2.3 Step 3 – Rank Remaining Control Options*

All remaining technically feasible control options are ranked based on their overall control effectiveness for the pollutant under review. If there is only one remaining option or if all of the remaining technologies could achieve equivalent control efficiencies, ranking based on control efficiency is not required. Collateral effects are usually not considered until step four of the five-step top-down BACT evaluation.

#### *12.1.2.4 Step 4 – Evaluation of Most Effective Control Option*

After identifying and ranking available and technically feasible control technologies, the economic, environmental, and energy impacts are evaluated to select the best control option. In the judgment of the permitting agency, if inappropriate economic, environmental, or energy impacts are associated with the top control option, the next most stringent option is evaluated. This process continues until a control technology is identified. This step validates the suitability of the top identified control option or provides a clear justification as to why the top option should not be selected as BACT.

#### *12.1.2.5 Step 5 – Select BACT*

In the final step, the BACT emission limit is determined for each emission unit under review based on evaluations from the previous step.

Although the first four steps of the top-down BACT process involve technical and economic evaluations of potential control options (i.e., defining the appropriate technology), the selection of BACT in the fifth step involves an evaluation of emission rates achievable with the selected control technology.

The most effective control alternative not eliminated in Step 4 is selected as BACT with a corresponding emission limit established. BACT is a numeric emissions limit unless technological or economic limitations of the measurement methodology would make the imposition of a numeric emissions standard infeasible, in which case a work practice or operating standard can be imposed.

### 12.1.3 Achievable

"*…based on the maximum degree of reduction …[that PCAQCD] … determines is achievable … through application of production processes or available methods, systems and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques…*"

BACT is to be set at the lowest value that is achievable. However, there is an important distinction between emission rates achieved at a specific time on a specific unit, and an emission limitation that a unit must be able to meet continuously over its operating life.

As discussed by the DC Circuit Court of Appeals:

*In National Lime Ass'n v. EPA, 627 F.2d 416, 431 n.46 (D.C. Cir. 1980), we said that where a statute requires that a standard be "achievable," it must be achievable "under most adverse circumstances which can reasonably be expected to recur."*[15]

The EPA has reached similar conclusions in prior determinations for PSD permits:

*Agency guidance and our prior decisions recognize a distinction between, on the one hand, measured 'emissions rates,' which are necessarily data obtained from a particular facility at a specific time, and on the other hand, the 'emissions limitation' determined to be BACT and set forth in the permit, which the facility is required to continuously meet throughout the facility's life. Stated simply, if there is uncontrollable fluctuation or variability in the measured emission rate, then the lowest measured emission rate will necessarily be more stringent than the "emissions limitation" that is "achievable" for that pollution control method over the life of the facility. Accordingly, because the "emissions limitation" is applicable for the facility's life, it is wholly appropriate for the permit issuer to consider, as part of the BACT analysis, the extent to which the available data demonstrate whether the emissions rate at issue has been achieved by other facilities over a long term.*[16]

Thus, BACT must be set at the lowest feasible emission rate recognizing that the facility must be in compliance with that limit for the lifetime of the facility on a continuous basis. Therefore, while viewing individual unit performance can be instructive in evaluating what BACT might be, any actual performance data must be viewed carefully, as rarely will the data be adequate to truly assess the performance that a unit will achieve during its entire operating life. While statistical variability of actual performance can be used to infer what is "achievable," such testing requires a detailed test plan akin to what teams in U.S. EPA use to develop MACT standards over a several year period and is far beyond what is reasonable to expect of an individual source. In contrast to limited snapshots of actual performance data, emission limits from similar sources can reasonably be used to infer what is "achievable."[17]

To assist in meeting the BACT limit, the source must consider production processes or available methods, systems or techniques, as long as those considerations do not redefine the source (see Section 12.2).

### 12.1.4 Floor

*"…under no circumstances shall BACT be determined to be less stringent than the emission control required by the most restrictive applicable provision of District, State or federal laws or regulations."*

The least stringent emission rate allowable for BACT is any applicable limit under 40 CFR Part 60 (NSPS) and Chapter 5 of the PCAQCD CoR (Stationary Source Performance Standards). Although 40 CFR Parts 61 and 63 (NESHAP) may apply to certain Project emission units, those standards regulate HAP emissions rather than

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[15] As quoted in Sierra Club v. EPA (97-1686).

[16] EPA Environmental Appeals Board decision, *In re: Newmont Nevada Energy Investment L.L.C.* PSD Appeal No. 05-04, decided December 21, 2005. Environmental Administrative Decisions, Volume 12, Page 442.

[17] Emission limits must be used with care in assessing what is "achievable." Limits established for facilities which were never built must be viewed with care, as they have never been demonstrated and that company never took a significant liability in having to meet that limit. Likewise, permitted units which have not yet commenced construction must also be viewed with special care for similar reasons.

the regulated NSR pollutant emissions triggering PSD review for the Project. Therefore, applicable NESHAP standards are not discussed in Section 12.4 as the BACT floor.

## 12.2 Redefining

Historical practice, as well as recent court rulings, has been clear that a key foundation of the process is that BACT applies to the type of source proposed by the applicant, and that redefining the source is not appropriate in a BACT determination.

On page B.13 of the 1990 draft NSR Workshop Manual, EPA states the following.

> *Historically, EPA has not considered the BACT requirement as a means to redefine the design of the source when considering available control alternatives.*

Given that some parts of the project are not open for review under BACT, U.S. EPA then discusses that it is the permit reviewer's burden to define the boundary. Based on precedent set in multiple prior U.S. EPA rulings (e.g., Pennsauken County Resource Recovery [1988], Old Dominion Electric Coop [1992], Spokane Regional Waste to Energy [1989], U.S. EPA states the following in Prairie State.

> *For these reasons, we conclude that the permit issuer appropriately looks to how the applicant, in proposing the facility, defines the goals, objectives, purpose, or basic design for the proposed facility. Thus, the permit issuer must be mindful that BACT, in most cases, should not be applied to regulate the applicant's objective or purpose for the proposed facility, and therefore, the permit issuer must discern which design elements are inherent to that purpose, articulated for reasons independent of air quality permitting, and which design elements may be changed to achieve pollutant emissions reductions without disrupting the applicant's basic business purpose for the proposed facility.* [18]

The EPA's opinion in Prairie State was upheld on appeal to the Seventh Circuit Court of Appeals, where the court affirmed the substantial deference due the permitting authority on defining the demarcation point.[19]

Taken as a whole, the permitting agency is tasked with determining which controls are appropriate, but the discretion of the agency does not extend to a point requiring the applicant to redefine the source.

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[18] EPA Environmental Appeals Board decision, *In re: Prairie State Generating Company*. PSD Appeal No. 05-05, decided August 24, 2006, Page 30. See also EPA Environmental Appeals Board decision, *In re: Desert Rock Energy Company LLC*. PSD Appeal Nos. 08-03, 08-04, 08-05 & 08-06, decided Sept. 24, 2009, page 64 ("The Board articulated the proper test to be used to [assess whether a technology redefines the source] in *Prairie State*.").

[19] *Sierra Club v. EPA and Prairie State Generating Company LLC*, Seventh Circuit Court of Appeals, No. 06-3907, August 24, 2007. Rehearing denied October 11, 2007.

## 12.3 BACT Summary

**Table 12-1. BACT Selection Summary Table**

| Equipment | Pollutant | Control Technology | Emission Rate (per Unit) | Averaging Period |
|---|---|---|---|---|
| CCGTs in Primary Combined Cycle Mode (Limits per CT/HRSG Train) | $PM/PM_{10}/PM_{2.5}$ | Pipeline quality NG, inlet air filters, and good combustion and operating practices (GCOP) | 0.0082 lb/MMBtu | Average of three 1-hr periods[20] |
| | $NO_X$ | Dry Low $NO_X$ combustion technology, selective catalytic reduction, and GCOP | 2 ppmvd @ 15% $O_2$ | 24-hr rolling average during steady state operations[20] |
| | CO | Oxidation catalyst and GCOP | 2 ppmvd, corrected to 15% $O_2$ | 24-hr rolling average during steady state operations[20] |
| | VOC | Oxidation catalyst and GCOP | 1 ppmvd at 15% $O_2$ (as methane) without DB and 2 ppmvd at 15% $O_2$ (as methane) with DB | Average of three 1-hr periods[20] |
| | $SO_2$ and $H_2SO_4$ | Pipeline quality NG and GCOP | 0.5 gr S/100 scf fuel sulfur | N/A |
| | GHG | Energy efficient CCGT design, pipeline quality NG, and GCOP | 3,028,703 tons/year/turbine | 12-month rolling average |
| CCGTs in Emergency Simple-Cycle Mode (Limits per CT) | $PM/PM_{10}/PM_{2.5}$ | Same as combined cycle mode | 0.0082 lb/MMBtu | Average of 3-1-hr periods[21] |
| | $NO_X$ | Dry low $NO_X$ burners and GCOP | 15 ppmvd at 15% $O_2$ | 1-hour averaging basis[21] |
| | CO | Dry low $NO_X$ burners and GCOP | 10 ppmvd at 15% $O_2$ | 1-hour averaging basis |
| | VOC | Dry low $NO_X$ burners and GCOP | 2 ppmvd at 15% $O_2$ | 1-hour averaging basis[21] |
| | $SO_2$ and $H_2SO_4$ | Same as combined cycle mode | 0.5 gr S/100 scf fuel sulfur | N/A |
| | GHG | Pipeline quality natural gas and GCOP | 24,881 tons/year/turbine | 12-month rolling average |
| Auxiliary Boilers | $PM/PM_{10}/PM_{2.5}$ | Pipeline quality natural gas and GCOP | 0.0074 lb PM/MMBtu | Annual average during normal operations |
| | $NO_X$ | Low- $NO_X$ burners and GCOP | 0.011 lb $NO_X$/ MMBtu | Annual average |

[20] Averaging period excludes periods of non-steady state operation such as but not limited to SUSD, transient conditions, tuning events, and commissioning activities.

[21] Excludes periods of SUSD.

| Equipment | Pollutant | Control Technology | Emission Rate (per Unit) | Averaging Period |
|---|---|---|---|---|
| | | | | during normal operations |
| | CO | Pipeline quality NG and GCOP | 0.037 lb CO/ MMBtu | Annual average during normal operations |
| | VOC | Pipeline quality NG and GCOP | 0.0054 lb VOC/MMBtu | Annual average during normal operations |
| | $SO_2$ | Pipeline quality NG and GCOP | 0.5 gr/100 scf fuel sulfur | N/A |
| | $H_2SO_4$ | Pipeline quality NG and GCOP | | |
| | GHG | Pipeline quality NG fuel and GCOP | 11,593 tons/year/boiler | 12-month rolling total |
| Dew Point Heaters | $PM/PM_{10}/PM_{2.5}$ | Pipeline quality NG fuel and GCOP | 0.0070 lb PM/ MMBtu | Annual average during normal operations |
| | $NO_X$ | Low $NO_x$ burners and GCOP | 0.011 lb $NO_X$/MMBtu | Annual average during normal operations |
| | CO | Pipeline quality NG and GCOP | 0.08 lb CO/MMBtu | Annual average during normal operations |
| | VOC | Pipeline quality NG and GCOP | 0.005 lb VOC/MMBtu | Annual average during normal operations |
| | $SO_2$ | Pipeline quality NG and GCOP | 0.5 gr/100 scf fuel sulfur | N/A |
| | $H_2SO_4$ | Pipeline quality NG and GCOP | | |
| | GHG | Pipeline quality NG and GCOP | 6,601 tons/year/heater | 12-month rolling average |
| Emergency Engines | $PM/PM_{10}/PM_{2.5}$ | NSPS Subpart IIII compliance and GCOP | Tier certified or Tier compliant, operation in accordance with the manufacturer's operation and maintenance instructions | N/A |
| | $NO_X$ | | | |
| | CO | | | |
| | VOC | | | |
| | $SO_2$ | Ultra-low sulfur diesel and NSPS Subpart IIII compliance | 15 ppm of sulfur (0.0015 percent) by weight in fuel | |
| | $H_2SO_4$ | | | |
| | GHG | GCOP | ► Fire Pump Engine: 96 tons/year/engine<br>► Emergency Generator engine: 422 tons/year/engine | 12-month rolling average |
| Circuit Breakers | GHG | Installation of circuit breakers with a guaranteed maximum leak rate of 0.5% by weight per year or less, in | 0.5 | Percent (%) $SF_6$ leak rate per year |

| Equipment | Pollutant | Control Technology | Emission Rate (per Unit) | Averaging Period |
|---|---|---|---|---|
| | | combination with good maintenance and leak monitoring practices | | |
| Lube Oil Vents | PM/$PM_{10}$/ $PM_{2.5}$ | Use of the manufacturer-supplied demister inherent to the unit, combined with good operating and maintenance practices to ensure proper function and efficiency. Routine inspection and maintenance of the demister system help prevent equipment degradation and maintain effective oil capture performance. | | |
| | VOC | | | |
| Natural Gas Fugitives | PM/$PM_{10}$/ $PM_{2.5}$ | AVO inspections as work practice, high-quality natural gas components, and natural gas fugitive best management practices (BMPs). | | |
| | VOC | | | |

## 12.4 BACT Analyses

The top-down BACT analyses for each emission unit and respective pollutants are presented in the following subsections [22]. All RBLC results are provided in **0**of this application.

### 12.4.1 Combined Cycle Gas Turbines – Primary Combined-Cycle Mode

This section addresses the CCGTs when operating in primary combined cycle mode, at a baseload capacity factor.

As part of the Project, Steele proposes to operate two (2) 1x1 GE 7HA.03 NG-fired CCGTs, each with a site-specific maximum gross power output of approximately 726 MW and 5,181.2 MMBtu/hr maximum heat input, inclusive of duct burners, during primary combined-cycle mode operation. The CCGTs may operate up to 8,760 hours/year in primary combined-cycle mode. Each CCGT includes one (1) power train with one (1) CT and one (1) HRSG equipped with a NG-fired DB. Each CCGT is designed such that the exhaust for each CT/HRSG train is routed to SCR and oxidation catalyst systems for $NO_X$ control and CO as well as VOC control, respectively.

#### *12.4.1.1 BACT Floor*

- **Summary of Applicable Limits from NSPS:** The CCGTs will be subject to NSPS Subpart KKKKa and NSPS Subpart TTTTa. If Subpart TTTTa is vacated or repealed, the applicable NSPS will be Subpart TTTT. If both Subparts TTTTa and TTTT are repealed, neither subpart will apply to the CCGTs. The emission limitations for all three Subparts that apply to the primary combined-cycle mode of operation are listed below.
  - NSPS Subpart KKKKa: $SO_2$ emissions not to exceed 0.9 lb/MMBtu gross output or 0.06 lb/MMBtu heat input. $NO_X$ emissions not to exceed 5 ppm at 15% $O_2$, 0.018 lb/MMBtu (4-hour rolling average), or 0.12 lb/MWh (30-operating day average basis).
  - NSPS Subpart TTTT: $CO_2$ emissions not to exceed 1,000 lb/MWh of gross energy output or 1,030 lb/MWh of net energy output.
  - NSPS Subpart TTTTa: $CO_2$ emissions not to exceed the ranges of 800 to 1,250 lb $CO_2$/MWh of gross energy output or 820 to 1,280 lb $CO_2$/MWh of net energy output.

[22] There are several emission soures that qualify as insignificant activities per CoR §1-3-140.75a, including emergency engines diesel storage tanks, boiler feed pumps lube oil tanks, and turbine lube oil tanks. Steele has not completed top-down BACT analyses for these sources, since any add-on control technology would be economically infeasible. As such, the storage tanks and lube oil vents are not included in this section of the Application.

- **Summary of Applicable Limit from State Rules:** The CCGTs will be subject to certain local PCAQCD Stationary Source Performance Standards during combined-cycle primary mode of operation.
  - CoR §5-23 – Stationary Rotating Machinery: Sets an allowable PM emission limit for each CT/HRSG train, calculated as 684 lb/hr based on the formula contained in CoR §5-23-1010.A(1).

The proposed BACT limits are at least as stringent as the applicable NSPS and state rules.

### *12.4.1.2 $NO_X$ BACT Evaluation*

#### 12.4.1.2.1 Step 1 – Identification of Potential Control Technologies

$NO_X$ emissions can be reduced by two general methodologies: combustion control techniques and post-combustion control methods. Combustion control techniques incorporate fuel or air staging that affect the kinetics of $NO_X$ formation (reducing peak flame temperature) or introduce inerts (combustion products, for example) that limit initial $NO_X$ formation, or both. Post-combustion control technologies use various strategies to chemically reduce $NO_X$ to $N_2$ with or without the use of a catalyst.

The control technologies listed in the following subsections were obtained from the RBLC database for large, combined cycle gas turbines in the size ranges of 2,377 MMBtu/hr to 6,180 MMBtu/hr heat input. Detailed tables of BACT determinations from the RBLC database are provided in **Appendix C**. In addition to the RBLC research, Steele reviewed the PSD BACT determinations for similar sized units in recently issued permits, technical literature, the preamble to NSPS Subpart KKKKa, and the Texas Commission on Environmental Quality (TCEQ) turbine BACT repository, to identify potentially applicable $NO_X$ control technologies for NG-fired turbines.

Potentially applicable combustion control options include:
- Water or Steam Injection;
- Dry Low-$NO_X$ (DLN) Combustion Technology (Base Case);
- Good Combustion Practices (Base Case); and
- Catalytic Combustion.

Potentially applicable post-combustion add-on control options include:
- Multi-Pollutant Catalysts (EM$_X$™/SCONO$_X$™/ METEOR™);
- Selective Catalytic Reduction (SCR); and
- Selective Non-Catalytic Reduction (SNCR).

Each control technology is described in detail below.

##### DLN Combustors

DLN combustor technology is used during NG combustion. DLN combustors premix air and a lean fuel mixture prior to injection into the combustion turbine which significantly reduces peak flame temperature and thermal $NO_X$ formation from NG combustion. Conventional combustors are diffusion controlled where fuel and air are injected separately.

##### Good Combustion and Operating Practices (GCOP)

GCOP allow the equipment to operate as efficiently as possible. The air-to-fuel ratio is one of the primary indicators of efficient combustion. Good combustion practices involve the monitoring of the air to fuel ratio to ensure the most efficient combustion. Modern turbine control systems enhance combustion efficiency by automatically adjusting operating parameters through computer-based technology.

### EMX™ / SCONOX™/METEOR™

$EM_X$™ (the second-generation of the $SCONO_X$ $NO_X$ Absorber Technology) is a multi-pollutant control technology that utilizes a coated oxidation catalyst to remove both $NO_X$, CO, and VOC without a reagent, such as $NH_3$. The $SCONO_X$ system consists of a platinum-based catalyst coated with potassium carbonate [$K_2(CO_3)$] to oxidize $NO_X$ (to potassium nitrate [$K(NO_3)$]), CO (to $CO_2$), and VOC.[23] Hydrogen ($H_2$) is then used as the basis for the catalyst regeneration process where $K(NO_3)$ is reacted to reform the $K_2(CO_3)$ catalyst and release nitrogen gas and water.[24] The catalyst is installed in the flue gas with a temperature range between 300°F to 700°F. These catalysts are susceptible to fouling by sulfur if the sulfur content of the flue gas is high.[25] METEOR™ is a multi-pollutant post-combustion control technology originally developed and patented by Siemens Energy Inc. and optimized by Cormetech.

Estimates of control efficiency for a $SCONO_X$ system vary depending on the pollutant controlled. California Energy Commission reports a CE of 78% for $NO_X$ reductions down to 2 ppm, and even higher $NO_X$ reductions down to 1 ppm for some designs.[26] It should be noted that there are no RBLC entries for comparable combined cycle combustion turbine facilities with BACT limits below 2 ppm, and those facilities with limits of 2 ppm are all equipped with SCR, suggesting that $SCONO_X$ is, at best, no more effective at reducing $NO_X$ emissions than SCR systems.

The METEOR™ catalyst is similar to standard SCR systems, using ammonia to reduce $NO_X$ emissions. An equivalent level of control to standard SCR is achieved.[27]

### Catalytic Combustion

Catalytic combustion technology utilizes a catalyst to promote fuel oxidation at temperatures lower than those required for conventional flame-based combustion. The catalyst facilitates surface reactions that release heat and reactive intermediates into the boundary layer above the surface, eventually inducing gas-phase (non-catalytic) reactions. Lower combustion temperatures in turn minimize the formation of thermal $NO_X$.

### SCR

SCR systems are used extensively in power generation applications including coal, oil, and combined cycle power plants. SCR is a post-combustion emissions control technique whereby aqueous ammonia is vaporized and injected into the combustion exhaust gases before they pass through a catalyst bed. In the presence of the catalyst, $NO_2$ and NO react with oxygen and ammonia to produce diatomic nitrogen and water.

The basic chemical reactions are as follows:

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[23] Georgia EPD, *Prevention of Significant Air Quality Deterioration Review Preliminary Determination – Dahlberg Combustion Turbine Electric Generating Facility*, October 2009. https://epd.georgia.gov/air/sites/epd.georgia.gov.air/files/related_files/document/1570034pd.pdf

[24] Ibid.

[25] California Energy Commission, *Evaluation of Best Available Control Technology*, Appendix 8.1E, pages 8.1E-9 and 8.1E-10.

[26] California Energy Commission, *Evaluation of Best Available Control Technology*, Appendix 8.1E, page 8.1E-6.

[27] Application No. 17040013, *Project Summary for a Construction Permit Application from Jackson Generation, LLC, for an Electrical Generating Facility in Elwood, Illinois*, issued by the Illinois EPA for the public comment period beginning on September 21, 2018. Discussion related to selection of BACT for emissions of $NO_X$, Attachment B pages 15-16.

$$2\ NO + 2\ NH_3 + \tfrac{1}{2}\ O_2 \rightarrow 2\ N_2 + 3\ H_2O$$
$$2\ NO_2 + 4\ NH_3 + O_2 \rightarrow 3\ N_2 + 6\ H_2O$$

Small amounts of ammonia that are not consumed in the reaction result in low levels of ammonia stack emissions, known as ammonia slip. The performance of an SCR system depends primarily on the temperature of the exhaust gas as it passes through the catalyst. Although catalyst formulations have provided a continuum of temperature ranges, these are typically described by three temperature ranges for optimal $NO_X$ reduction. A "normal" catalyst operates well at approximately 650°F, a "mid-range" catalyst operates well between 800 and 900°F, and a "hot" catalyst (generally zeolite based) can operate above a temperature of 1,100°F, although the effectiveness of $NO_X$ removal declines as a function of the exhaust gas temperature. Conventional vanadium/titanium catalysts are commonly used in SCR applications and have an optimal operating temperature in the 600 to 750°F range. The application of SCR on the combined cycle units can utilize a conventional catalyst which is located downstream of the GT itself, within the tube banks at an appropriate temperature region, near the 600-700°F range.

The catalyst used is typically stacked vertically with gas flow horizontally through the catalyst face. The catalyst has a much smaller pitch due to the limited particulate and plugging concerns and does not deactivate as rapidly due to minimal catalyst poisons in the flue gas.

#### SNCR

SNCR is a post-combustion $NO_X$ control technology based on the reaction of urea or ammonia with $NO_X$. In the SNCR chemical reaction, urea [$CO(NH_2)_2$] or ammonia is injected into the combustion gas path to reduce the $NO_X$ to nitrogen and water. The overall reaction schemes for both urea and ammonia systems can be expressed as follows:

$$CO(NH_2)_2 + 2\ NO + \tfrac{1}{2}\ O_2 \rightarrow 2\ N_2 + CO_2 + 2\ H_2O$$
$$4\ NH_3 + 6\ NO \rightarrow 5\ N_2 + 6\ H_2O$$

Typical removal efficiencies for SNCR range from 30 to 50 percent and higher when coupled with combustion controls.[28] An important consideration for implementing SNCR is the operating temperature range. The optimum temperature range is approximately 1,600 to 2,000°F. Operation at temperatures below this range results in ammonia slip. Operation above this range results in oxidation of ammonia, forming additional $NO_X$.

### 12.4.1.2.2 Step 2 – Elimination of Technically Infeasible Control Options

After the identification of potential control options, the second step in the BACT assessment is to eliminate technically infeasible options. A control option is eliminated from consideration if there are process-specific conditions that would prohibit the implementation of the control or if the highest control efficiency of the option would result in an emission level that is higher than any applicable regulatory limits.

#### Water or Steam Injection Feasibility

Combustion control using water or steam lowers combustion temperatures, which reduces thermal $NO_X$ formation. Although uncontrolled emission levels vary widely, the range of achievable controlled emission

[28] U.S. EPA, Clean Air Technology Center, *Air Pollution Control Technology Fact Sheet: Selective Non -Catalytic Reduction (SNCR)*, EPA-452/F-03-031.

levels using water or steam injection is relatively small. Controlled $NO_X$ emission levels range from 25 to 42 ppm for NG fuel.[29]

There are several operational and emissions drawbacks associated with water/steam injection, including increased fuel consumption, reduced turbine efficiency, increased maintenance needs, and the generation of additional particulate matter from water/steam carryover. Water and steam injection require a significant external supply of high-purity water and associated treatment infrastructure, which adds operational complexity. Additionally, water or steam injection cannot be used in conjunction with DLN because it leads to unstable combustion and increases CO emissions.[30] The base design for the CCGTs utilizes proprietary DLN combustors for NG combustion that reduce $NO_X$ emissions further than water or steam injection would. Therefore, water or steam injection is considered technically infeasible for the CCGTs.

### DLN Combustion Technology Feasibility

DLN combustion technology is a $NO_X$ control technology that is integral to the CTs of each CCGT and therefore determined to be technically feasible.

### Good Combustion and Operating Practices Feasibility

GCOP are technically feasible for the CCGTs.

### EMX™ / SCONOX™/METEOR™ Technology Feasibility

As summarized by Illinois EPA in their project summary for the Jackson Energy Center PSD permit, the $EM_X$™/$SCONO_X$™ catalyst system has operated successfully on several smaller, NG-fired combined cycle units, but there are engineering challenges with scaling up this technology for use on large gas turbines.[31,32] Therefore, $EM_X$™/$SCONO_X$™ is determined to be technically infeasible.

The METEOR™ catalyst technology, developed and patented by Siemens Energy Inc., is currently only in use on one 320 MW Siemens/Westinghouse 501G combustion turbine installed in November 2015.[33,34] A review of the RBLC database for turbines similar to the proposed units did not return any units that use the METEOR™ catalyst technology. As there is limited commercial operating experience with the METEOR™ catalyst and it does not achieve greater reduction than SCR, the METEOR™ technology option is considered technically infeasible for the CCGTs.

### Catalytic Combustion Feasibility

Steele's research yielded no determinations of catalytic combustors as BACT for similar size and configuration

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[29] Alternative Control Techniques Document— $NO_X$ Emissions from Stationary Gas Turbines

[30] *Ibid.*

[31] Application No. 17040013, *Project Summary for a Construction Permit Application from Jackson Generation, LLC, for an Electrical Generating Facility in Elwood, Illinois*, issued by the Illinois EPA for the public comment period beginning on September 21, 2018. Discussion related to selection of BACT for emissions of $NO_X$, Attachment B pages 14.

[32] National Energy Technology Laboratory, *8.7. Nitrogen Oxides ($NO_x$) Emissions*. Available online at https://www.netl.doe.gov/research/Coal/energy-systems/gasification/gasifipedia/nitrogen-oxides. Accessed August 15, 2024.

[33] Application No. 17040013, *Project Summary for a Construction Permit Application from Jackson Generation, LLC, for an Electrical Generating Facility in Elwood, Illinois*, issued by the Illinois EPA for the public comment period beginning on September 21, 2018. Discussion related to selection of BACT for emissions of $NO_X$, Attachment B page 16.

[34] Siemens Energy and Cormetech, *Capital and O&M Benefits of Advanced Multi-Function Catalyst Technology for Combustion Turbine Power Plants,* Power Gen 2015, page 2.

units. The only known industrial applications of catalytic combustion technology, via the Xonon Cool Combustion system, occurred more than 20 years ago in gas turbines that are significantly smaller than those proposed at the Facility, and not for utility-scale power generation purposes. Applications included a 1.5 MWe Kawasaki M1A-13A gas turbine, started up in October 1998, at the 60 MWe Gianera Generating Station of Silicon Valley Power, and a retrofitted 1.4 MW Kawasaki M1A-13D turbine at the Sonoma Developmental Center in Eldridge, California, which began operation in 1990. These applications are not comparable to the SEC, as the proposed CCGTs have an individual maximum gross power output of 726 MW. Furthermore, the turbine OEMs evaluated for the SEC do not currently offer catalytic combustion systems for CCGTs. The proposed CCGT model includes burners with integral, proprietary design by the OEM, and substitution of the OEM combustors with a third-party unit would fundamentally redesign the CCGTs and jeopardize the emission guarantees provided to Steele by the OEMs.

In summary, catalytic combustion has not achieved commercial implementation in large utility-scale natural gas combined-cycle combustion turbines.[35] EPA's NSR Workshop Manual (Pg B.11): states that, *"technologies which have not yet been applied to (or permitted for) full scale operations need not be considered available [in Step 1 of the BACT analysis]…".* Steele has determined that catalytic combustion is technically infeasible for the CCGTs.

SCR Feasibility

The optimal catalyst temperature for the operation of SCR is in the range of 480°F to 800°F, but with recent advances in catalyst materials and design, the temperature can be as high as 1,100°F.[36] SCR is regularly used on combined cycle units, since the exhaust has had heat removed, and the normal temperature is within the effective range for SCR. The exhaust for each CT/HRSG train will be in the required temperature range for SCR when the CCGTs are operating in in the primary combined cycle mode. Thus, SCR is technically feasible for the CCGTs when in the primary combined cycle mode.

SNCR Feasibility

The temperature range required for effective operation of this technology is 1,600 to 2,000°F. This is above the peak exhaust temperature for each CT/HRSG train associated with the CCGTs.[37] Thus, SNCR is technically infeasible for the CCGTs.

#### 12.4.1.2.3 Step 3 – Rank Remaining Control Technologies

The potentially feasible control technologies include SCR, DLN combustors, and GCOP. **Table 12-2** shows the rank for each of these control technologies.

[35] See Department of Energy (DOE)/National Energy Technology Laboratory (NETL) Gas Turbine Handbook – Section 3.2.2, "Catalytic Combustion", accessed at https://www.netl.doe.gov/sites/default/files/gas-turbine-handbook/3-2-2.pdf.

[36] Mitsubishi Hitachi Power Systems, *Overview of SCR Technology and Retrofitting of SCR's to Comply with Upcoming $NO_x$ BARCT Standards for Electric Power Generating Units*, Robert McGinty, presentation for SCAQMD AWMA Annual Regional Meeting, ca. 2017.

[37] U.S. EPA, Clean Air Technology Center, Air Pollution Control Technology Fact Sheet: Selective Non-Catalytic Reduction (SNCR), EPA-452/F-03-031.

**Table 12-2. Rank Remaining $NO_X$ Control Technologies – CCGT**

| Control Technology | Technically Feasible | Estimated Efficiency |
|---|---|---|
| SCR | Yes | 70-90% [38] |
| DLN Combustion Technology | Yes | Base Case |
| GCOP | Yes | Base Case |

#### 12.4.1.2.4 Step 4 – Evaluation of Most Stringent Control Technologies

SCR is the highest ranking potentially feasible control technology for the CCGTs when operating in primary combined cycle mode. As summarized in Step 5, Steele is proposing use of SCR with DLN and GCOP as $NO_X$ PSD BACT (as feasible for operating load). No additional evaluation of emission control is needed.

#### 12.4.1.2.5 Step 5 – Selection of BACT

The RBLC data has been examined for the last ten years for combined cycle combustion turbines. Steele's review of RBLC determinations for similar sized combined cycle turbines operating in combined cycle mode consistently identified $NO_X$ PSD BACT for each CT/HRSG train as a 2 ppmvd @ 15% $O_2$ limit based on DLN burners, GCOP, and SCR. This includes the 2026 $NO_X$ PSD BACT determinations for the 4,200 MMBtu/hr Maple Creek Energy LLC (RBLC ID IN-0407) and the NRG Jewett Energy Center (RBLC ID TX-1007). While the RBLC identifies these BACT determinations as being in the draft stage, the final permits for these projects have been issued.[39,40]

In addition, the following $NO_X$ PSD BACT limits associated with recently issued permits not yet entered into the RBLC established a 2 ppmvd @ 15% $O_2$ limit for the combined cycle combustion turbines associated with those projects, based on NG fuel firing.

- The Cheyenne Power Hub Plant (Wyoming Department of Environmental Quality [WDEQ] PSD permit No. P0040709, issued July 2, 2026).
  - This permit action authorized two (2) 664 MW Mitsubishi Heavy Industries (MHI) M501JAC NG-fired combined cycle turbines with the capability of operating in primary combined cycle mode and backup simple cycle mode. The 2 ppmvd $NO_X$ @ 15% $O_2$ limit applies during primary combined cycle mode operation.
- The Georgia Power Company Wansley Combined-Cycle Facility (Georgia Environmental Protection Division [EPD] Permit No. 4911-149-0014-P-01-0 issued on March 3, 2026).
  - This permit action authorized two (2) CCGTs on a 1x1 configuration capable of firing NG.
- The Bowen Steam-Electric Generating Plant (Georgia EPD Permit No. 4911-015-0011-V-05-1 issued on January 29, 2026).
  - This permit authorized the four (4) CCGTs on a 1x1 configuration capable of firing NG with an individual gross power of 780.5 MW.

[38] SCR Air Pollution Control Technology Fact Sheet, EPA-452/F-03-032.

[39] The NRG Jewett Energy Center combined cycle turbines (IDs JEC-CT1, JEC-CT2, JEC-CT3, and JEC-CT4) are authorized by TCEQ NSR permit No. 180096, issued on 01/15/2026.

[40] The Maple Creek Energy LLC combined cycle turbine (CTG-01) is authorized by the Indiana Department of Environmental Management (IDEM) PSD permit 153-49550-00056, issued on 05/13/2026.

- The Smarr Combined Cycle Energy Facility (Georgia EPD Permit No. 4911-207-0042-P-01-0 issued on November 6, 2025).
  - This permit authorized a new natural gas-fired combined cycle facility, including two (2) CCGTs on a 1x1 configuration capable of firing NG producing a nominal power output of 1,425 MW.

In addition to the RBLC research and review of recently issued PSD permits authorizing combined cycle combustion turbines, TCEQ's combustion turbine guidelines containing $NO_X$ BACT determinations for NG-fired turbine projects that generate 20 MW or greater electric output was reviewed. A summary of CCGT PSD $NO_X$ BACT for issued permits and CCGT PSD $NO_X$ BACT for permits in progress is provided in **Table 12-3** and **Table** 12-4 below. TCEQ's turbine list consistently identifies DLN burner technology and SCR as CCGT $NO_X$ PSD BACT with a limit of 2 ppmvd @ 15% $O_2$ for each CT/HRSG train.

**Table 12-3. Summary of TCEQ $NO_X$ BACT for Permitted CCGTs**

| Permit No. | PSD No. | Issue Date | Company Name | County | Turbine Model | MW per CT | $NO_X$ BACT Limit (ppmvd @ 15% $O_2$) | Control Method [1,2] |
|---|---|---|---|---|---|---|---|---|
| **175017** | 1632 | 6/9/2026 | Motiva Enterprises LLC | Jefferson | GE Model 7F.04 | 201 | 2 | DLN + SCR + CO |
| **177380** | 1650 | 10/29/2025 | SL Energy Power Plant I, LLC | Lee | SGT6-9000HL | 620.1 | 2 | DLN + SCR + CO |
| **180096** | 1668 | 1/15/2026 | NRG Jewett Energy Center LLC | Freestone | GE 7HA.02 | 628 | 2 | DLN + SCR + CO |
| **176191** | 1638 | 4/24/2025 | Entergy Texas, Inc. | Jefferson | Mitsubishi MHI501JAC | 750 | 2 | DLN + SCR + CO |
| **166032** | 1598 | 3/13/2023 | Entergy Texas Inc | Orange | Mitsubishi M501JAC | 427.9 | 2 | DLN+SCR+CO |
| **160538** | 1582 | 3/17/2021 | NRG Cedar Bayou 5 LLC | Chambers | Mitsubishi MHI501JAC | 689 | 2 | DLN + SCR + CO |
| **143912** | 1510 | 3/27/2018 | Entergy Texas Inc | Montgomery | Mitsubishi M501GAC | 276 | 2 | DLN + SCR + CO |

[1] Abbreviations are defined as follows: D or DLN = Dry Low $NO_X$, SCR = Selective Catalytic Reduction, CO = CO Catalyst.

[2] CO catalyst control represents PSD BACT for CO emissions and is grouped with $NO_X$ controls for summary purposes in TCEQ's turbine list.

**Table 12-4. Summary of TCEQ $NO_X$ BACT for CCGTs with Pending Air Permits**

| Permit No. | PSD No. | Received | Company Name | Turbine Model | MW per CT | $NO_X$ BACT Limit (ppmvd @ 15% $O_2$) | Control Method [1,2] |
|---|---|---|---|---|---|---|---|
| **183570** | 1706 | 3/31/26 | NRG Prairie Energy Center, LLC | GE 7HA.02 | 632 | 2 | SCR + DLN + CO |
| **182795** | 1696 | 1/22/26 | Big Hill Energy, LLC | Doosan DGT6-300H S2 | N/A | 2 | DLN + SCR + CO |
| **181059** | 1676 | 8/7/25 | NRG Wolf Bone Energy Center LLC | GE 7HA.02 | 601 | 2 | DLN + SCR + CO |

[1] Abbreviations are defined as follows: D or DLN = Dry Low $NO_X$, SCR = Selective Catalytic Reduction, CO = CO Catalyst.
[2] CO catalyst control represents PSD BACT for CO emissions and is grouped with $NO_X$ controls for summary purposes in TCEQ's turbine list.

Finally, Steele conducted a review of emission rates achieved in practice based on the publicly available EPA Clean Air Markets Program Data (CAMPD). The review focused on January 1, 2024 through March 31, 2026 operational data from GE and Siemens large-frame combined cycle turbines. The data is summarized in **Table 12-5**.

**Table 12-5. EPA CAMPD $NO_X$ Emissions Data Summary for CCGTs**

| CAMPD Facility[1] | State[1] | CAMD Facility ID[1] | Units Included[1] | Configuration[1] | Likely Turbine[2] | Maximum Heat Consumption[1] (MMBtu/hr) | $NO_X$ Controls[1] | Average $NO_X$ Rate (ppmvd @ 15% $O_2$)[1,3] |
|---|---|---|---|---|---|---|---|---|
| Magnolia Power Generating Station Unit 1 | LA | 67005 | CCGT1 | 1x1 | GE 7HA.03 | 5081 | DLNB + SCR | 10.89 |
| Barry | AL | 3 | 8 | 1x1 | MHI M501JAC | 4883 | DLNB + SCR | 1.31 |
| Charles R Lowman | AL | 56 | CC1 | 1x1 | MHI M501JAC | N/A | Ammonia Injection + DLNB + SCR | 6.79 |
| Guernsey Power Station | OH | 62949 | P001 | 1x1 | GE 7HA.02 | N/A | DLNB + SCR | 1.49 |
| | | | P002 | 1x1 | GE 7HA.02 | N/A | DLNB + SCR | 1.43 |
| | | | P003 | 1x1 | GE 7HA.02 | N/A | DLNB + SCR | 1.44 |
| Hill Top Energy Center | PA | 62565 | 01 | 1x1 | GE 7HA.02 | N/A | DLNB + SCR | 1.14 |
| CPV Three Rivers Energy Center | IL | 63931 | 1 | 1x1 | GE 7HA.02 | N/A | SCR | 1.55 |
| | | | 2 | 1x1 | GE 7HA.02 | N/A | SCR | 1.43 |
| Jackson Generation, LLC | IL | 62926 | CTG-01 | 1x1 | GE 7HA.02 | N/A | DLNB + SCR | 1.89 |
| | | | CTG-02 | 1x1 | GE 7HA.02 | N/A | DLNB + SCR | 1.66 |
| South Field Energy, LLC | OH | 60356 | 1 | 1x1 | MHI M501JAC | N/A | DLNB + SCR | 1.63 |
| | | | 2 | 1x1 | MHI M501JAC | N/A | DLNB + SCR | 1.64 |
| Bridgeport Harbor Station | CT | 568 | BHB5 | 1x1 | Siemens SGT6-8000H | N/A | DLNB + Water Injection + SCR | 1.71 |

| CAMPD Facility[1] | State[1] | CAMD Facility ID[1] | Units Included[1] | Configuration[1] | Likely Turbine[2] | Maximum Heat Consumption[1] (MMBtu/hr) | $NO_X$ Controls[1] | Average $NO_X$ Rate (ppmvd @ 15% $O_2$)[1,3] |
|---|---|---|---|---|---|---|---|---|
| R D Morrow Senior Generating Plant | MS | 6061 | 3 | 1x1 | MHI M501JAC | N/A | DLNB + SCR | 5.12 |
| Intermountain | UT | 6481 | 3SGA | 1x1 | MHI M501JAC | N/A | DLNB + SCR | 2.15 |
| | | | 4SGA | 1x1 | MHI M501JAC | N/A | DLNB + SCR | 1.79 |
| Long Ridge Energy Generation | OH | 61322 | CC1 | 1x1 | GE 7HA.02 | N/A | DLNB + SCR | 1.48 |
| Lauderdale | FL | 613 | PFL7A | 2x1 | GE 7HA.03 | 4254 | DLNB + SCR | 1.94 |
| | | | PFL7B | | GE 7HA.03 | 4254 | DLNB + SCR | 1.95 |
| Blue Water Energy Center | MI | 62192 | 11 | 2x1 | GE 7HA.02 | N/A | DLNB + SCR | 2.01 |
| | | | 12 | | GE 7HA.02 | N/A | DLNB + SCR | 2.07 |
| Big Bend | FL | 645 | BB05 | 2x1 | GE 7HA.02 | N/A | SCR + DLNB | 11.64 |
| | | | BB06 | | GE 7HA.02 | N/A | SCR + DLNB | 11.53 |
| CPV Fairview, LLC | PA | 60589 | CT-1 | 2x1 | GE 7HA.02 | N/A | DLNB + SCR | 1.65 |
| | | | CT-2 | | GE 7HA.02 | N/A | DLNB + SCR | 1.53 |
| Seminole (136) | FL | 136 | CT1 | 2x1 | MHI M501JAC | N/A | DLNB + SCR | 4.02 |
| | | | CT2 | | MHI M501JAC | N/A | DLNB + SCR | 4.02 |
| Indeck-Niles Energy Center | MI | 55460 | EUCT1 | 2x1 | GE 7HA.02 | 3722 | DLNB + SCR | 1.43 |
| | | | EUCT2 | | GE 7HA.02 | 3722 | DLNB + SCR | 0.93 |

[1] Data was retrieved from EPA CAMPD services endpoint /emissions/apportioned/hourly (Part 75 CEMS reported data). Date/Hr are as reported by CAMPD (local clock time at the unit).

[2] This ID could not be confirmed against permits/public reporting.

[3] Emissions were converted to units of ppmvd @ 15% $O_2$ from lb/MMBtu using the following equation:

$$C(ppm) = \frac{H\left(\frac{lb}{MMBtu}\right) \times 10^6 \times V_M}{MW \times \left(\frac{O_{2_{ambient}}(\%)}{O_{2_{ambient}}(\%) - O_{2_{reference}}(\%)}\right) \times F_d}$$

Where

H = emission value (lb/MMBtu)

$NO_X$ (assumed to be $NO_2$) MW = 46.006 lb/lbmol
Vm = Molar volume of an ideal gas at standard conditions = 385.1 dscf/lbmol
$F_d$ (products of combustion) = 8710 dscf/MMBtu per natural gas EPA Method 19 Table 19.2.
$O_2$ ambient, conservatively assumed = 20.9% volume
$O_2$ reference = emission factor = 25% volume

The CAMPD review indicates that average $NO_X$ emission rates for the period evaluated are generally clustered around 1 - 2 ppmvd at 15% $O_2$ during the reviewed period. While individual CTs were able to achieve emission rates below 1 ppmvd at 15% $O_2$ on an hourly basis, these emission rates were not sustained on a continuous basis and are not representative of emission rates that would be considered achievable for other facilities. The selected BACT emission limit for CCGTs should account for normal variability associated with equipment operation, including but not limited to ambient conditions, fuel characteristics, catalyst performance, and measurement uncertainty, that can reasonably be expected to occur during the life of the facility.

Therefore, Steele proposes BACT for the CCGTs during primary combined cycle operating mode as the use of SCR technology, DLN burners, and GCOP. For each CT/HRSG train in the CCGTs, Steele proposes a BACT limit for $NO_X$ of 2 ppmvd, corrected to 15% $O_2$ on a 24-hour rolling average basis, excluding periods of non-steady state operation such as but not limited to SUSD, transient conditions, tuning events, and commissioning activities. Steele has determined the proposed level of control is equivalent to the most stringent emission limit achieved in practice.

### *12.4.1.3 CO BACT Evaluation*

#### 12.4.1.3.1 Step 1 – Identification of Potential Control Technologies

CO emissions from the CCGTs result from incomplete combustion. Factors contributing to incomplete combustion include insufficient oxygen availability, fuel-air mixing conditions, lower combustion temperatures, reduced combustion gas residence time, and load reductions. In addition, combustion modifications taken to ensure $NO_X$ emissions remain low may result in increased CO emissions.

The control technologies listed in the following subsections were obtained from the RBLC database for large, combined cycle gas turbines in the size ranges of 2,377 MMBtu/hr to 6,180 MMBtu/hr heat input. Detailed tables of BACT determinations from the RBLC database are provided in **Appendix C**. In addition to the RBLC research, Steele reviewed the PSD BACT determinations for similar sized units in recently issued permits, technical literature, and the TCEQ turbine BACT repository, to identify potentially applicable CO control technologies for NG-fired turbines.

Potentially applicable control options include the following.

- Oxidation Catalyst;
- Multi-Pollutant Catalysts ($EM_X$™/$SCONO_X$™/ METEOR™);
- Combustion Process Design and GCOP (Base Case);
- Regenerative Thermal Oxidizer; and
- Recuperative Thermal Oxidizer.

Each control technology is described in detail below.

Oxidation Catalyst

An oxidation catalyst is a post-combustion control technology that utilizes a catalyst to oxidize CO at lower temperatures. The addition of a catalyst to the basic thermal oxidation process accelerates the rate of

oxidation by adsorbing oxygen from the air stream and CO in the waste stream onto the catalyst surface to react to form $CO_2$ and $H_2O$. The basic chemical reactions in the exhaust stream resulting from application of an oxidation catalyst are as follows:

$$CO + ½\ O_2 \rightarrow CO_2$$
$$C_nH_m + (n + m/4)\ O_2 \rightarrow n\ CO_2 + (m/2)\ H_2O$$
$$C_nH_mO + (n + m/4 - 0.5)\ O_2 \rightarrow n\ CO_2 + (m/2)\ H_2O$$
$$2H_2 + O_2 \rightarrow 2H_2O$$

The oxidation catalysts are formulated with precious metals (e.g., platinum group metals) and are coated on flow-through metal monoliths for minimum backpressure and compact design. Multiple catalyst formulations allow the flexibility to target specific conversion requirements, exhaust temperatures, and low $SO_2$ to $SO_3$ and NO to $NO_2$ conversions. Oxidation catalysts can provide greater than 90% destruction of CO, VOCs, formaldehyde, and other toxic compounds.[41]

#### EMX™ / SCONOX™/METEOR™

This control technology is described in Section 12.4.1.2.1.

Given that these systems use an oxidation catalyst that provides an equivalent level of control for CO emissions to other oxidation catalysts, they do not need to separately be carried to the remaining steps of the CO BACT analysis for the proposed turbines.

#### Good Combustion and Operating Practices

To minimize incomplete combustion and the resulting formation of CO, GCOP includes proper equipment design, proper operation, and good combustion practices. Proper equipment design is important in minimizing incomplete combustion by allowing for sufficient residence time at high temperature as well as turbulence to mitigate incomplete mixing. Generally, the effect of combustion zone temperature and residence time on CO emissions is the opposite of their effect on $NO_X$ emissions. Accordingly, it is critical to optimize oxygen availability with input air, while controlling temperature to minimize $NO_X$ formation.

#### Regenerative Thermal Oxidizer

A regenerative thermal oxidizer (RTO) is a post-combustion control technology that reduces CO emissions by routing turbine exhaust gas through a high-temperature oxidation chamber where CO is converted to $CO_2$. The system utilizes ceramic heat-exchange media to capture and recover heat from the treated exhaust stream, which is then used to preheat the incoming gas stream. By maintaining elevated temperatures and sufficient residence time in the presence of oxygen, the RTO promotes near-complete oxidation of CO and other combustible compounds while minimizing supplemental fuel requirements through regenerative heat recovery.

#### Recuperative Thermal Oxidizer

A recuperative thermal oxidizer is a post-combustion oxidation technology that reduces CO emissions by exposing turbine exhaust gases to elevated temperatures sufficient to oxidize CO to $CO_2$. The system utilizes a metallic or ceramic heat exchanger to recover heat from the treated exhaust stream and preheat incoming exhaust gases, thereby improving thermal efficiency and reducing auxiliary fuel requirements while maintaining the temperature and residence time needed for effective CO control.

[41] https://www.jmsec.com/fileadmin/user_upload/pdf/brochures/jmsec_gas_turbine_oxidation_catalyst.pdf

#### 12.4.1.3.2 Step 2 – Elimination of Technically Infeasible Control Options

After the identification of potential control options, the second step in the BACT assessment is to eliminate technically infeasible options. A control option is eliminated from consideration if there are process-specific conditions that would prohibit the implementation of the control or if the highest control efficiency of the option would result in an emission level that is higher than any applicable regulatory limits.

##### Oxidation Catalyst Feasibility

Oxidation catalysts typically operate within a temperature range between 600 to 800°F.[42] In combined cycle operation, the presence of a HRSG to recover useful thermal output from the turbine exhaust gas lowers the gas temperature into the oxidation catalyst's operating range. As the proposed CCGTs will only fire NG and have a predictable emissions profile, an oxidation catalyst is technically feasible for the proposed CCGTs during primary combined cycle operating mode.

##### Good Combustion and Operating Practices Feasibility

This represents the base case for design and operation of the CCGTs.

##### Regenerative Thermal Oxidizer Feasibility

RTO post-combustion control technology is designed primarily for treatment of relatively exhaust streams of relatively low-flow around 5,000 standard cubic feet per minute (scfm) containing combustible pollutants.[43] In contrast, the proposed CCGTs generate extremely large exhaust gas flow rates that may exceed 1,000,000 scfm per CT/HRSG train in the primary combined cycle mode. Effective CO control would require heating the entire turbine exhaust stream to temperatures of approximately 1,400 to 1,500°F, which is outside the temperature range for each CT/HRSG train for the CCGTs in the primary combined cycle mode. Furthermore, the relatively low CO concentrations present in combustion turbine exhaust would be expected to require the use of a catalyst to promote CO control.[44] The application of an RTO would therefore increase operational complexity and energy consumption while not representing a demonstrated or practical CO control technology for utility-scale combined cycle combustion turbines. Finally, oxidizers are not recommended for controlling gases with sulfur containing compounds because of the formation of highly corrosive acid gases.[45] Therefore, RTO technology is considered technically infeasible for the proposed CCGTs.

##### Recuperative Thermal Oxidizer Feasibility

The feasibility discussion for RTO post-combustion control technology under this section also applies to recuperative thermal oxidizer post-combustion control technology.[46] Therefore, recuperative thermal oxidizer technology is considered technically infeasible for the proposed CCGTs.

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[42] U.S. EPA, *CATC Fact Sheet for Catalytic Incineration*, EPA-452/F-03-018. Available at: www.epa.gov/ttn/catc/dir1/fcataly.pdf

[43] U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Regenerative Incinerator)," EPA-452/F-03-021.

[44] Ibid.

[45] U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Thermal Incinerator)," EPA-452/F-03-022.

[46] U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Recuperative Incinerator)," EPA-452/F-03-020.

#### 12.4.1.3.3 Step 3 – Rank Remaining Control Technologies

As detailed in Step 2, the only add-on control technically feasible to reduce emissions below the base case (Combustion Process Design and GCOP) is oxidation catalyst. As a technically feasible control option, it must be evaluated further in the BACT process.

#### 12.4.1.3.4 Step 4 – Evaluation of Most Stringent Control Technologies

Oxidation catalyst is the highest ranking potentially feasible control technology for the CCGTs operating in primary combined cycle mode. Installation of oxidation catalysts, along with good combustion design and GCOP is proposed as the most effective CO control options for the proposed turbines. Since the top control option is being proposed for controlling CO emissions from the proposed CT units, no further evaluation of the energy, environmental, and economic impacts of the control option is required.

#### 12.4.1.3.5 Step 5 – Selection of BACT

The RBLC data has been examined for the last ten years for combined cycle combustion turbines. A significant number of RBLC entries identified CO PSD BACT for each CT/HRSG train as a 2 ppmvd @ 15% $O_2$ limit based on oxidation catalyst and GCOP. Reviewed RBLC entries with CO PSD BACT limits lower than 2 ppmvd @ 15% $O_2$ are summarized in **Table 12-6**. The lowest CO emission limits presented for comparable units below 2 ppmvd range from 0.9 to 1.8 ppmvd without DB and 1.5 to 1.8 ppmvd with DB. However, the Virginia and Pennsylvania RBLC entries correspond to facilities located in the Ozone Transport Region (OTR), which is nonattainment for ozone and thus involves implementation of NNSR LAER rather than PSD BACT for $NO_X$ and VOC. LAER requires the most stringent emission limit without considering factors such as cost, energy consumption, or environmental impact. Since oxidation catalyst is used to achieve the VOC LAER requirements and is also used to achieve CO emissions reduction, the CO emission limits for these sites were established to comply with LAER requirements and are more stringent than BACT. The proposed SEC facility will be located in an area that is classified as attainment for ozone. Therefore, the CO RBLC entries associated with facilities located in ozone nonattainment areas not appropriate to consider for the SEC CCGTs. The remaining facilities in **Table 12-6,** the Lincoln Land Energy Center and the Nemadji Trail Energy Center, have not been constructed[47,48] and have therefore not demonstrated compliance with their CCGT CO BACT limits. For this reason, it is not appropriate to consider these BACT limits for the proposed SEC CCGTs.

**Table 12-6. RBLC CCGT CO BACT Limits Below 2 $PPM_{vd}$ @ 15% $O_2$**

| Process | RBLC ID | Facility | Permit Date (from RBLC) | Permitted CO Limit w/ DB (ppmvd @ 15% $O_2$) | Permitted CO Limit w/o DB (ppmvd @ 15% $O_2$) | Averaging Period | Control |
|---|---|---|---|---|---|---|---|
| Combined-Cycle Combustion Turbines | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 1.8 | 1.5 | 3-hour for Turbine Loads ≥ 60% with DB / 3-hour Turbine Load ≥ | OC + GCP |

[47] https://www.illinoistimes.com/news/data-center-development-linked-to-power-plant-construction/.

[48] https://www.wpr.org/news/minnesota-utility-nemadji-trail-energy-center-wisconsin.

| Process | RBLC ID | Facility | Permit Date (from RBLC) | Permitted CO Limit w/ DB (ppmvd @ 15% $O_2$) | Permitted CO Limit w/o DB (ppmvd @ 15% $O_2$) | Averaging Period | Control |
|---|---|---|---|---|---|---|---|
| | | | | | | 60% without DB | |
| COMBUSTION TURBINE w DUCT BURNER #2 (Natural Gas) | PA-0334 | RENOVO ENERGY CENTER LLC/RENOVO PLT | 4/29/2021 | 1.5 | 0.9 | 1-hour | OC + GCP |
| COMBUSTION TURBINE w DUCT BURNER #1 (Natural Gas) | PA-0334 | RENOVO ENERGY CENTER LLC/RENOVO PLT | 4/29/2021 | 1.5 | 0.9 | 1-hour | OC + GCP |
| Siemens Combustion Turbine - Option 2 - Normal Operation | VA-0328 | C4GT, LLC | 4/26/2018 | 1.8 | 1.8 | 3-hour | OC + GCP |
| GE Combustion Turbine - Option 1 - Normal Operation | VA-0328 | C4GT, LLC | 4/26/2018 | 1.6 | 1 | 3-hour | OC + GCP |
| Three (3) Mitsubishi Hitachi Power Systems combustion turbine generators | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | - | 1 | 3-hour | OC + GCP |
| Natural-Gas-Fired Combined-Cycle Turbine (P01) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 1.5 | 1.5 | 168-hour rolling average | OC + GCP |

OC = Oxidation catalyst; GCP = Good Combustion Practices

The recently issued PSD permits evaluated under the $NO_X$ BACT analysis also established CO limits for the CCGTs in the project. These permits consistently identified CO PSD BACT as 2 ppmvd $NO_X$ @ 15% $O_2$ when firing NG and operating in combined cycle mode, based on oxidation catalyst and GCOP. The selected averaging periods ranged from 1-hour to 24-hour for compliance demonstration purposes. These limits are consistent with the lowest PSD BACT emission limits achieved in practice.

Finally, TCEQ's combustion turbine guidelines also publish CO PSD BACT determinations for NG-fired turbine projects that generate 20 MW or greater electric output. The CCGT PSD CO BACT entries for issued permits and CCGT PSD CO BACT entries for permits in progress were reviewed and are summarized in **Table 12-7** and **Table** 12-8 below. TCEQ's turbine list consistently identifies oxidation catalyst and GCOP as CCGT CO BACT with limits ranging between 2 – 4 ppmvd @ 15% $O_2$ for each CT/HRSG train.

**Table 12-7. Summary of TCEQ CO BACT for Permitted CCGTs**

| Permit No. | PSD No. | Issue Date | Company Name | County | Turbine Model | MW per CT | CO BACT Limit (ppmvd @ 15% $O_2$) | Control Method [1,2] |
|---|---|---|---|---|---|---|---|---|
| **175017** | 1632 | 6/9/2026 | Motiva Enterprises LLC | Jefferson | GE Model 7F.04 | 201 | 4 | DLN + SCR + CO |
| **177380** | 1650 | 10/29/2025 | SL Energy Power Plant I, LLC | Lee | SGT6-9000HL | 620.1 | 2 | DLN + SCR + CO |
| **180096** | 1668 | 1/15/2026 | NRG Jewett Energy Center LLC | Freestone | GE 7HA.02 | 628 | 2 | DLN + SCR + CO |
| **176191** | 1638 | 4/24/2025 | Entergy Texas, Inc. | Jefferson | Mitsubishi MHI501JAC | 750 | 2 | DLN + SCR + CO |
| **166032** | 1598 | 3/13/2023 | Entergy Texas Inc | Orange | Mitsubishi M501JAC | 427.9 | 2 | DLN+SCR+CO |
| **160538** | 1582 | 3/17/2021 | NRG Cedar Bayou 5 LLC | Chambers | Mitsubishi MHI501JAC | 689 | 4 | DLN + SCR + CO |
| **143912** | 1510 | 3/27/2018 | Entergy Texas Inc | Montgomery | Mitsubishi M501GAC | 276 | 2 | DLN + SCR + CO |

[1] Abbreviations are defined as follows: D or DLN = Dry Low $NO_X$, SCR = Selective Catalytic Reduction, CO = CO Catalyst.

[2] CO catalyst control represents PSD BACT for CO emissions and is grouped with $NO_X$ controls for summary purposes in TCEQ's turbine list.

**Table 12-8. Summary of TCEQ CO BACT for CCGTs with Pending Air Permits**

| Permit No. | PSD No. | Received | Company Name | Turbine Model | MW per CT | CO BACT Limit (ppmvd @ 15% $O_2$) | Control Method [1,2] |
|---|---|---|---|---|---|---|---|
| **183570** | 1706 | 3/31/26 | NRG Prairie Energy Center, LLC | GE 7HA.02 | 632 | 2 | SCR + DLN + CO |
| **182795** | 1696 | 1/22/26 | Big Hill Energy, LLC | Doosan DGT6-300H S2 | N/A | 2 | DLN + SCR + CO |
| **181059** | 1676 | 8/7/25 | NRG Wolf Bone Energy Center LLC | GE 7HA.02 | 601 | 2 | DLN + SCR + CO |

[1] Abbreviations are defined as follows: D or DLN = Dry Low $NO_X$, SCR = Selective Catalytic Reduction, CO = CO Catalyst.

[2] CO catalyst control represents PSD BACT for CO emissions and is grouped with $NO_X$ controls for summary purposes in TCEQ's turbine list.

Steele is proposing BACT for the CCGTs, with or without DBs, as the use of oxidation catalyst technology and GCOP during primary combined cycle mode operation. Steele proposes a BACT limit for CO of 2 ppmvd, corrected to 15% $O_2$, for each CT/HRSG train, on a 24-hour rolling average basis, excluding periods of non-steady state operation such as but not limited to SUSD, transient conditions, tuning events, and commissioning activities. The proposed limit is equivalent to multiple recently approved CCGT BACT limits.

### *12.4.1.4 VOC BACT Evaluation*

#### 12.4.1.4.1 Step 1 – Identification of Potential Control Technologies

VOC emissions from the CCGTs result from incomplete combustion. Conditions leading to incomplete combustion can include insufficient oxygen availability, poor fuel/air mixing, reduced combustion-temperature, reduced combustion gas residence time, and load reduction.

The control technologies listed in the following subsections were obtained from the RBLC database for large, combined cycle gas turbines in the size ranges of 2,377 MMBtu/hr to 6,180 MMBtu/hr heat input. Detailed tables of BACT determinations from the RBLC database are provided in **Appendix C**. In addition to the RBLC research, Steele reviewed the PSD BACT determinations for similar sized units in recently issued permits, and technical literature, to identify potentially applicable VOC control technologies for NG-fired turbines.

Potentially applicable control options include the following.

- Oxidation Catalyst;
- Multi-Pollutant Catalysts (EMx™/SCONOx™/ METEOR™);
- GCOP (Base Case);
- Regenerative Thermal Oxidizer; and
- Recuperative Thermal Oxidizer.

Each control technology is described in detail below.

##### Oxidation Catalyst

As described in prior sections, oxidation catalyst is a post-combustion control technology wherein the products of combustion are introduced to a catalytic bed prompting the VOC to react with oxygen present in the exhaust stream, converting to carbon dioxide and water vapor. The overall control efficiency of such systems on VOC constituents is dependent on the individual VOC components and whether they are saturated or unsaturated. For example, research completed by U.S. EPA as part of MACT rulemakings found that control of formaldehyde emissions typically exceeds 90%, but other pollutants such as benzene may not see any beneficial reductions. Hence, the overall range of VOC control can vary substantially.[49]

##### EMX™ / SCONOX™/METEOR™

This control technology is described in Section 12.4.1.2.1, and also reduces VOC emissions in addition to $NO_X$ and CO.

As described in prior sections, these systems use an oxidation catalyst that provides an equivalent level of control for VOC emissions to other oxidation catalysts, and therefore, they do not separately need to be carried to the remaining steps of the turbine BACT analysis.

##### Combustion Process Design and Good Combustion Practices

To minimize incomplete combustion and the resulting formation of VOC, this control technology includes proper equipment design, proper operation, and good combustion practices. Proper equipment design is important in minimizing incomplete combustion by allowing for sufficient residence time at high temperature as well as turbulence to mitigate incomplete mixing. Proper operation and good combustion practices provide

[49] U.S. EPA Office of Air Quality Planning and Standards Memorandum, *Hazardous Air Pollutant (HAP) Emission Control Technology for New Stationary Combustion Turbines,* August 21, 2001.

additional VOC control via the use of gaseous fuels for good mixing and proper combustion techniques such as optimizing the air to fuel ratio.

#### Regenerative Thermal Oxidizer

A regenerative thermal oxidizer (RTO) is a post-combustion control technology that reduces VOC emissions by routing turbine exhaust gas through a high-temperature oxidation chamber where VOC is converted to $CO_2$. The system utilizes ceramic heat-exchange media to capture and recover heat from the treated exhaust stream, which is then used to preheat the incoming gas stream. By maintaining elevated temperatures and sufficient residence time in the presence of oxygen, the RTO promotes near-complete oxidation of VOC and other combustible compounds while minimizing supplemental fuel requirements through regenerative heat recovery.

#### Recuperative Thermal Oxidizer

A recuperative thermal oxidizer is a post-combustion oxidation technology that reduces VOC emissions by exposing turbine exhaust gases to elevated temperatures sufficient to oxidize VOC to $CO_2$. The system utilizes a metallic or ceramic heat exchanger to recover heat from the treated exhaust stream and preheat incoming exhaust gases, thereby improving thermal efficiency and reducing auxiliary fuel requirements while maintaining the temperature and residence time needed for effective VOC control.

### 12.4.1.4.2 Step 2 – Elimination of Technically Infeasible Control Options

After the identification of potential control options, the second step in the BACT assessment is to eliminate technically infeasible options. A control option is eliminated from consideration if there are process-specific conditions that would prohibit the implementation of the control or if the highest control efficiency of the option would result in an emission level that is higher than any applicable regulatory limits.

#### Oxidation Catalyst Feasibility

Oxidation catalysts typically operate within a temperature range between 600 to 800°F.[50] In combined cycle operation, the presence of a HRSG to recover useful thermal output from the turbine exhaust gas lowers the gas temperature into the oxidation catalyst's operating range. As the proposed CCGTs will only fire NG and have a predictable emissions profile, an oxidation catalyst is technically feasible for the proposed CCGTs during primary combined cycle operating mode.

#### Good Combustion and Operating Practices Feasibility

This represents the base case for design and operation of the CCGTs.

#### Regenerative Thermal Oxidizer Feasibility

This control technology is described in Section 12.4.1.3.1. Emissions reductions for VOC are achieved in a consistent manner as CO.

#### Recuperative Thermal Oxidizer

This control technology is described in Section 12.4.1.3.1. Emissions reductions for VOC are achieved in a consistent manner as CO.

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[50] U.S. EPA, *CATC Fact Sheet for Catalytic Incineration*, EPA-452/F-03-018. Available at: www.epa.gov/ttn/catc/dir1/fcataly.pdf

#### 12.4.1.4.3 Step 3 – Rank Remaining Control Technologies

As detailed in Step 2, the only add-on control technically feasible to reduce emissions below the base case (Combustion Process Design and GCOP) is oxidation catalyst. As a technically feasible control option, it must be evaluated further in the BACT process.

#### 12.4.1.4.4 Step 4 – Evaluation of Most Stringent Control Technologies

Oxidation catalyst is the highest ranking potentially feasible control technology for the CCGTs when operating in primary combined cycle mode. Installation of oxidation catalysts, along with good combustion design and GCOP is proposed as the most effective VOC control options for the proposed turbines. Since the top control option is being proposed for controlling VOC emissions from the proposed CT units, no further evaluation of the energy, environmental, and economic impacts of the control option is required. However, consideration of those impacts could result in a different BACT determination for other sources or projects subject to another standard that requires use of oxidation catalyst.

#### 12.4.1.4.5 Step 5 – Selection of BACT

The RBLC data has been examined for the last ten years for combined cycle combustion turbines. Relevant RBLC entries reviewed ranged between 1 to 4 ppmvd @ 15% $O_2$ with duct burner and between 0.7 to 2.3[51] ppmvd @ 15% $O_2$ with no duct burner. Within those ranges, 11 out of 20 steady-state operation entries for CCGTs configured with a DB established a VOC BACT limit of 2 ppmvd @ 15% $O_2$ with duct burner, while 14 out of 23 steady-state operation entries established a VOC BACT limit of 1 ppmvd @ 15% $O_2$ without duct burner. Reviewed RBLC entries with VOC PSD BACT limits lower than 2 ppmvd @ 15% $O_2$ with duct burner are summarized in **Table 12-9.**

**Table 12-9. RBLC CCGT VOC BACT Limits Below 2 ppmvd @ 15% $O_2$**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Permitted CO Limit w/o DB (ppmvd @ 15% $O_2$) [1] | Permitted CO Limit w/ DB (ppmvd @ 15% $O_2$) [1] | Averaging Period | Control |
|---|---|---|---|---|---|---|---|
| Gas Turbines | LA-0412 | Entergy Louisiana, LLC - Franklin Farms Power Station | 12/23/2025 | 1.5 | 1.5 | 0 | OC and energy efficiency/waste heat recovery |
| Combined-Cycle Combustion Turbines | IL-0133 | Lincoln Land Energy Center | 7/29/2022 | 1 | 1.1 | 3-hour, rolling | OC + GCP |

[51] Corresponds to the Plant Barry Unit 8, when converted from the Alabama Department of Environmental Management (ADEQM) permit No. 503-1001-X014 limit value of 0.003 lb/MMBtu to units of ppmvd @ 15% $O_2$.

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Permitted CO Limit w/o DB (ppmvd @ 15% $O_2$) [1] | Permitted CO Limit w/ DB (ppmvd @ 15% $O_2$) [1] | Averaging Period | Control |
|---|---|---|---|---|---|---|---|
| FG-TURB/DB1-3 (3 Combined Cycle Units) | MI-0432 | New Covert Generating Facility | 7/30/2018 | 1 | 1 | 1-hour | OC + GCP |
| COMBINED CYCLE TURBINE | TX-0915 | NRG Cedar Bayou 5 LLC - Unit 5 | 3/17/2021 | 1 | 1 | 3-hour, rolling | OC |
| GE Combustion Turbine - Option 1 - Normal Operation | VA-0328 | C4GT, LLC | 4/26/2018 | 0.7 | 1.4 | 3-hour | OC + GCP |
| Two (2) Siemens model SGT6-5000F5 Combined Cycle Gas Turbines | VA-0335 | Panda Stonewall, LLC | 12/18/2020 | 1 | 1.5 | 3-hour | OC + GCP |

The lowest VOC emission limits presented for comparable units below 2 ppmvd @ 15% $O_2$ range from 0.7 to 1.5 ppmvd without DB and 1 to 1.5 ppmvd with DB. However, most permits issued to CCGTs units with VOC emissions limits that are more stringent than 2 ppmvd with duct burner are associated with projects that have not been constructed and operated (Franklin Farms Power Station with RBLC ID LA-0412, Lincoln Land Energy Center with RBLC ID IL-0133[52] , and NRG Cedar Bayou 5 LLC with RBLC ID TX-0915[53]), are located in the OTR which requires LAER levels of control rather than PSD BACT levels of control (Panda Stonewall, LLC with RBLC ID), or were cancelled and never built (C4GT, LLC with RBLC ID VA-0328). In addition, the New Covert Generating Facility existing CCGTs that comply with a 1 ppmvd @ 15% $O_2$ VOC BACT limit are Mitsubishi Heavy Industries (MHI) 501G turbines equipped with SCR and oxidation catalyst control. These are F-class turbines with different combustor design and operational parameters than the proposed GE 7HA CCGTs . The latter are H-class turbines with proprietary combustor design integral to each CCGT model. The emission guarantees provided to Steele by the OEM are based on the specific combustor design for GE 7HA turbines. As stated in Section 12.2, BACT is not a means to redefine the design of the source when considering available control alternatives. Therefore, it is not appropriate to consider a VOC limit of 1 ppmvd @ 15% $O_2$ with duct burner based on 501G turbine performance for the proposed CCGTs at the SEC.

As stated previously, the majority of VOC PSD BACT limits for operation without DB are 1 ppmvd @ 15% $O_2$ for each CT/HRSG train. This includes existing facilities that are operating CCGTs of the same make and model

[52] https://www.illinoistimes.com/news/data-center-development-linked-to-power-plant-construction/.

[53] Facility is not expected to be commercially operational until May 2028 per facility filing with https://interchange.puc.texas.gov/Documents/59141_371_1593888.PDF.

as the proposed CCGTs, including but not limited to the Dania Beach Energy Center with RBLC ID FL-0363 and Seminole Generating Station with RBLC ID FL-0364.

In addition to the RBLC entries reviewed, recently issued PSD permits evaluated under the $NO_X$ BACT analysis also established VOC limits for the CCGTs in the project. When firing NG and operating in combined cycle mode, these permits consistently identified turbine VOC PSD BACT as 2 ppmvd @ 15% $O_2$ with duct burner and 1 ppmvd VOC @ 15% $O_2$ without duct burner, based on oxidation catalyst and GCOP.

Therefore, Steele proposes VOC BACT for the CCGTs during primary combined cycle mode operation as 1 ppmvd at 15% $O_2$ (as methane) without DB and 2 ppmvd (as methane) at 15% $O_2$ (as methane) with DB for each CT/HRSG train. These limits are based on the use of oxidation catalyst and GCOP, and both based on a 3-hour average basis, excluding periods of non-steady state operation such as but not limited to SUSD, transient conditions, tuning events, and commissioning activities. The proposed limits are consistent with the lowest PSD BACT emission limits achieved in practice by comparable emission units.

### *12.4.1.5 $PM/PM_{10}/PM_{2.5}$ BACT Evaluation*

#### 12.4.1.5.1 Step 1 – Identification of Potential Control Technologies

$PM/PM_{10}/PM_{2.5}$ emissions from gas combustion result primarily from incomplete combustion and also ash and sulfur in the fuel.[54] Combustion of NG generates low PM emissions in comparison to other fuels due to the low ash and sulfur contents of this fuel. Regardless of the type of fuel combusted, filterable PM generally includes airborne PM which passes through the inlet air filters, inert solids in the fuel supply, and metallic rust or oxidation products.[55]

In contrast to filterable particulate, condensable particulate is the portion of PM emissions that exhausts from the stack in gaseous form but condenses to form particulate matter once mixed with the cooler ambient air. Condensable particulate results from sulfur in the fuel being oxidized and combining with moisture to form $H_2SO_4$, $NO_X$ being oxidized to nitric acid ($HNO_3$), unreacted ammonia from the SCR combining with sulfur compounds to form ammonium sulfate, and high molecular weight organics. A combustion turbine operating without an SCR will have lower condensable PM emissions than a similar unit operating with an SCR. As noted above, operation of SCR systems lead to increased PM emissions, primarily in the form of secondary (condensable) PM, despite effective $NO_x$ reduction. SCR systems require injection of ammonia to reduce $NO_x$ over the catalyst, and under normal operating conditions a small degree of ammonia slip may occur. Slipped ammonia can react with sulfuric acid or sulfur trioxide ($SO_3$) present in the exhaust to form ammonium bisulfate and ammonium sulfate, which condense as fine particulate matter as exhaust gases cool downstream of the SCR and through the heat recovery steam generator. In addition, SCR catalysts can promote limited oxidation of $SO_2$ to $SO_3$, increasing the availability of sulfate precursors and further contributing to sulfate-based condensable PM formation. These secondary PM formation mechanisms are a recognized consequence of SCR operation on combustion turbines and represent an inherent tradeoff associated with achieving high levels of $NO_x$ control. Proper SCR design and operation, including catalyst selection, temperature management, and ammonia injection control, are generally implemented to minimize ammonia slip and associated particulate formation to the extent practicable.

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[54] AP-42, Chapter 3, Section 1, *Stationary Gas Turbines*, April 2000.

[55] Wien S, Beres J, Richani B, General Electric Company. *Air Emissions Terms, Definitions and General Information.*; 2005. https://www.gevernova.com/content/dam/gepower-new/global/en_US/downloads/gas-new-site/resources/reference/ger-4249-air-emissions-terms-definitions-general-information.pdf

The control technologies listed in the following subsections were obtained from the RBLC database for large, combined cycle gas turbines in the size ranges of 2,377 MMBtu/hr to 6,180 MMBtu/hr heat input. Detailed tables of BACT determinations from the RBLC database are provided in **Appendix C**. In addition to the RBLC research, Steele reviewed the PSD BACT determinations for similar sized units in recently issued permits, and technical literature, to identify potentially applicable PM/$PM_{10}$/$PM_{2.5}$control technologies for NG-fired turbines.

The following are controls that reduce PM/$PM_{10}$/$PM_{2.5}$:

- Multicyclone;
- Wet Scrubber;
- Electrostatic Precipitator (ESP);
- Baghouse;
- Inlet air filters (Base Case);
- Low-sulfur fuel (Base Case); and
- GCOP (Base Case).

Each control technology is described in detail below.

### Multicyclone

Multicyclones consist of several small cyclones operating in parallel. The cyclone creates a double vortex inside its shell, conveying centrifugal force on the inlet exhaust stream. The exhaust stream is then forced to move circularly through the cyclone, and the particulate matter in the stream is pushed to the cyclone walls. While this is effective for larger particles, smaller particles tend to be overtaken by the fluid drag force of the air stream and will depart the cyclones with the exiting air stream. The particulate removal in cyclones can be improved by having more complex gas flow patterns. The control efficiency range for high efficiency single cyclones is 30 - 90% for $PM_{10}$ and 20 - 70% for $PM_{2.5}$. The use of multicyclones leads to greater PM control efficiency than from a single cyclone, resulting in control efficiencies in the range of 80-95% for particles greater than 5 microns in diameter ($PM_5$). Multicyclones in parallel can typically handle a higher flowrate when compared to a single cyclone unit, up to approximately 106,000 standard cubic feet per minute (scfm). The allowable inlet gas temperature for a cyclone is limited by the type of construction material but can be as high as 540°C (1,000°F). Cyclones are generally used as preclears for final control devices such as fabric filters/baghouses or ESPs due to the lower control efficiency of smaller particles from a cyclone.[56]

### Wet Scrubber

Wet (in particular, venturi) scrubbers intercept dust particles using droplets of liquid (usually water). The larger particle-enclosing water droplets are separated from the remaining droplets by gravity. The solid particulates are then separated from the water. The PM collection efficiencies of Venturi scrubbers range from 70% to greater than 99%, depending on the application. Collection efficiencies are generally higher for PM with aerodynamic diameters of approximately 0.5 µm ($PM_{0.5}$) to 5 µm ($PM_5$). Inlet gas temperatures for wet scrubbers usually range from 4 to 400°C (40 to 750°F), with typical gas flowrates for single-throat scrubbers ranging from 500 to 100,000 scfm.[57]

[56] U.S. EPA, Clean Air Technology Center, Air Pollution Control Technology Fact Sheet: Cyclones, EPA-452/F-03-005

[57] U.S. EPA, Clean Air Technology Center, Air Pollution Control Technology Fact Sheet: Venturi Scrubbers, EPA-452/F-03-017.

### ESP

An ESP removes particles from an air stream by electrically charging the particles then passing them through a force field that causes them to migrate to an oppositely charged collector plate. After the particles are collected, the plates are knocked ("rapped"), and the accumulated particles fall into a collection hopper at the bottom of the ESP. The collection efficiency of an ESP depends on particle diameter, electrical field strength, gas flow rate, gas temperature, and plate dimensions. An ESP can be designed for either dry or wet applications.[58] An ESP can generally achieve approximately 99-99.9% reduction efficiency for PM emissions. Typical ESPs can handle approximately 1,000 to 100,000 scfm, at high temperatures up to 700°C (1,300°F).[59]

### Baghouse (Fabric Filter)

A baghouse consists of several fabric filters, typically configured in long, vertically suspended sock-like configurations. Particulate laden gas enters from one side, often from the outside of the bag, passing through the filter media and forming a particulate cake. The cake is removed by shaking or pulsing the fabric, which loosens the cake from the filter, allowing it to fall into a bin at the bottom of the baghouse. The air cleaning process stops once the pressure drop across the filter reaches an economically unacceptable level. Typically, the trade-off to frequent cleaning and maintaining lower pressure drops is the wear and tear on the bags suffered in the cleaning process.[60] Typically, gas temperatures up to 260°C (500°F) can be accommodated routinely in a baghouse. The fabric filters have relatively high maintenance requirements (for example, periodic bag replacement), and elevated temperatures above the designed temperature can shorten the fabric life. Additionally, a baghouse/fabric filter cannot be operated in moist environments where the condensation of moisture could cause the filter to be plugged, reducing efficiency. Under the proper operating conditions, a baghouse can generally achieve approximately 99-99.9% reduction efficiency for PM emissions.[61]

### Inlet Air Filters

Inlet air filters reduce the amount of solid particulate matter entering the turbine combustion chamber. Given that a portion of the PM/$PM_{10}$/$PM_{2.5}$ emissions from the turbine are generated from solids entrained in the combustion air, the use of inlet air filters can reduce PM/$PM_{10}$/$PM_{2.5}$. As inlet air filters are standard equipment for combustion turbines, the use of inlet air filters is considered part of the base case for the CCGTs.

### Low-Sulfur Fuels

Combusting pipeline-quality NG with an inherently low sulfur content reduces particulate emissions compared to other available fuels as there is less potential to form solid sulfates and other sulfur byproducts.

### GCOP

Good combustion and operating practices will minimize the formation of PM/$PM_{10}$/$PM_{2.5}$ emissions due to incomplete combustion. Good operating practices typically consist of controlling parameters such as fuel feed rates and air/fuel ratios and periodic tuning.

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[58] Kitto, J.B. *Air Pollution Control for Industrial Boiler Systems.* Barberton, OH: Babcock & Wilcox. November 1996.

[59] U.S. EPA, Clean Air Technology Center, Air Pollution Control Technology Fact Sheet: Dry Electrostatic Precipitator (ESP) – Wire-Pipe Type, EPA-452/F-03-027.

[60] Kitto, J.B. *Air Pollution Control for Industrial Boiler Systems.* Barberton, OH: Babcock & Wilcox. November 1996.

[61] U.S. EPA, Clean Air Technology Center, Air Pollution Control Technology Fact Sheet: Fabric Filter – Pulse-Jet Cleaned Type, EPA-452/F-03-025.

#### 12.4.1.5.2 Step 2 – Elimination of Technically Infeasible Control Options

##### Multicyclone/Wet Scrubber/ESP/Baghouse Feasibility

Multicyclones, wet scrubbers, ESPs, and baghouses are all available control technologies for the reduction of $PM/PM_{10}/PM_{2.5}$. However, none of these technologies have ever been installed on a commercial combustion turbine. In addition, turbines operate with a significant amount of excess air, which generates large exhaust flow rates. The low level of particulate emissions combined with the large exhaust gas volume results in very low concentrations of particulate. Due to the low particulate concentration in the exhaust gas, add-on filterable particulate controls would not provide any significant degree of emission reduction for the combustion turbines, have not been demonstrated on commercial combustion turbines.[62] Therefore, these technologies are determined technically infeasible for the proposed CCGT application at the SEC and are not evaluated further in the BACT analyses.

##### Inlet Air Filters Feasibility

As inlet air filters are standard equipment for combustion turbines, the use of inlet air filters is considered part of the base case for the CCGTs.

##### Low-Sulfur Fuels

Steele plans to combust only pipeline-quality NG with an inherently low sulfur content at the SEC and therefore this is part of the base case for the CCGTs.

##### GCOP

This represents the base case for design and operation of the CCGTs.

#### 12.4.1.5.3 Step 3 – Rank Remaining Control Technologies

Of the control technologies available for $PM/PM_{10}/PM_{2.5}$ emissions, the options technically feasible for each unit are shown in **Table 12-10**.

**Table 12-10. Remaining CCGT $PM/PM_{10}/PM_{2.5}$ Control Technologies**

| Control Technology | Estimated Control Efficiency |
|---|---|
| Inlet Air Filters | Reduction Varies |
| Low Sulfur Fuel | Reduction Varies |
| Good Combustion and Operating Practices | Reduction Varies |

#### 12.4.1.5.4 Step 4 – Evaluation of Most Stringent Control Technologies

GCOP, use of pipeline quality NG, along with inlet air filters, are the most stringent $PM/PM_{10}/PM_{2.5}$ controls that are technically feasible options. Steele is proposing to use pipeline quality NG, inlet air filters, and GCOP, as the most effective means for reducing $PM/PM_{10}/PM_{2.5}$ emissions from the CCGTs.

#### 12.4.1.5.5 Step 5 – Selection of BACT

The RBLC data has been examined for the last ten years for combined cycle combustion turbines. Reviewed $PM/PM_{10}/PM_{2.5}$ BACT emission limits from CCGTs firing NG in the RBLC range from 0.0026 lb/MMBtu to 0.01

[62] Application No. 17040013, *Project Summary for a Construction Permit Application from Jackson Generation, LLC, for an Electrical Generating Facility in Elwood, Illinois*, issued by the Illinois EPA for the public comment period beginning on September 21, 2018. Discussion related to selection of BACT for emissions of particulates, page 43.

lb/MMBtu. While a number of the numerical limits identified in the RBLC search are lower than the proposed limits for the SEC CCGTs, it is difficult to make comparisons of numerical BACT emission limits for $PM/PM_{10}/PM_{2.5}$. $PM/PM_{10}/PM_{2.5}$ emissions from CTs are dependent primarily on the sulfur content of the fuel and the use of a post-combustion SCR and/or oxidation catalyst control systems. Sulfur in the fuel is converted to sulfates during the combustion process, and these sulfates add to the condensable portion of the total $PM_{10}/PM_{2.5}$ emissions. Inclusion of an SCR to control $NO_X$ emissions and oxidation catalyst to control CO and VOC emissions promotes oxidation of sulfur into $SO_3$ and $H_2SO_4$, also resulting in an increased condensable portion of $PM_{10}$ and $PM_{2.5}$ emissions.

In addition to the RBLC entries reviewed, recently issued PSD permits evaluated under the $NO_X$ BACT analysis also established $PM/PM_{10}/PM_{2.5}$ limits for the CCGTs in the project. When firing NG and operating in combined cycle mode, these permits consistently identified turbine $PM/PM_{10}/PM_{2.5}$ PSD BACT limits with and without duct burner within the range identified in the RBLC database.

Steele is proposing a BACT limit of 0.0082 lb/MMBtu for $PM/PM_{10}/PM_{2.5}$. This limit will apply to the CCGTs at all times during primary combined cycle mode operation, excluding periods of non-steady state operation such as but not limited to SUSD, transient conditions, tuning events, and commissioning activities. The proposed BACT limit is based on the OEM emissions information in **Appendix B** and a maximum inlet sulfur content of 0.5 gr/100 scf.

### *12.4.1.6 $SO_2$ and $H_2SO_4$ BACT Evaluation*

#### 12.4.1.6.1 Step 1 – Identification of Potential Control Technologies

$SO_2$ emissions are a function of only the sulfur content in the fuel. During the combustion process, essentially all the sulfur in the fuel is oxidized to $SO_2$.

A portion of this $SO_2$ can further oxidize in the hot turbine exhaust to sulfur trioxide, which combines with water vapor to form sulfuric acid ($H_2SO_4$) in the flue gas. This process is temperature-dependent and is promoted by the presence of metal catalysts in the turbine and exhaust path.

The control technologies listed in the following subsections were obtained from the RBLC database for large, combined cycle gas turbines in the size ranges of 2,377 MMBtu/hr to 6,180 MMBtu/hr heat input. Detailed tables of BACT determinations from the RBLC database are provided in **Appendix C**. In addition to the RBLC research, Steele reviewed the PSD BACT determinations for similar sized units in recently issued permits, and technical literature, to identify potentially applicable $SO_2$ and $H_2SO_4$ control technologies for NG-fired turbines.

Steele identified the following $SO_2$ and $H_2SO_4$ control options:

- Flue Gas Desulfurization (FGD) Scrubber;
- Dry Sorbent Injection (DSI);
- Low-Sulfur Fuel (Base Case); and
- GCOP (Base Case).

Each control technology is described in detail below.

FGD

This is a post-combustion, add-on control technology that has historically been applied to reduce $SO_2$ emissions from combustion sources firing higher-sulfur fuels, such as coal-fired or residual/heavy fuel oil-fired

boilers. FGD operates by bringing the flue gas into contact with an alkaline reagent, which reacts with and neutralizes the acidic $SO_2$ present in the exhaust stream to form a neutral salt. Two general configurations are used: wet FGD systems, which employ an aqueous reagent slurry sprayed through packed or spray towers and typically generate a wastewater or slurry byproduct stream requiring further handling, treatment, or beneficial reuse; and dry FGD systems, which inject a dry alkaline sorbent directly into the exhaust stream, allowing the spent reagent and reaction byproducts to remain entrained in the gas stream and be captured downstream by particulate control equipment. Because FGD removes $SO_2$ directly from the flue gas before it can undergo further oxidation, its use also reduces the downstream conversion of $SO_2$ to $SO_3$ and, correspondingly, the formation of $H_2SO_4$. [63]

#### DSI

This is a post-combustion, add-on control technology in which a calcium- or sodium-based alkaline sorbent is injected directly into the exhaust gas stream. Upon injection, the sorbent absorbs, neutralizes, or oxidizes the $SO_2$ and $SO_3$ present in the exhaust, forming solid calcium- or sodium-sulfate compounds. These solids, along with any unreacted sorbent, are subsequently removed from the gas stream by downstream particulate control equipment. Because DSI does not require the recirculation systems, absorber towers, or wastewater handling infrastructure associated with wet FGD, it is generally regarded as a lower-complexity, lower-capital-cost add-on control alternative; however, it is also generally understood to achieve lower removal efficiencies than wet FGD, with performance sensitive to sorbent type, injection rate, and flue gas temperature at the point of injection.

#### Low-Sulfur Fuel

The use of low-sulfur fuels in the CCGT decreases the amount of sulfur in the system which ultimately decreases emissions of sulfur compounds including $SO_2$, $SO_3$ and $H_2SO_4$ mist. Steele will use pipeline quality NG containing a maximum sulfur content of 0.5 gr S/100 scf.

#### GCOP

Operation and maintenance of the equipment in accordance with good air pollution control practices and with good combustion practices results in efficient combustion of fuel, which in turn results in reduced usage of fuel and associated emissions of $H_2SO_4$ mist.

### 12.4.1.6.2 Step 2 – Elimination of Technically Infeasible Control Options

#### FGD Feasibility

FGD has been developed for and demonstrated only on combustion sources firing high-sulfur solid or liquid fuels, such as coal- and residual oil-fired boilers, where $SO_2$ loading is significantly higher than that generated by combustion of pipeline-quality NG. FGD systems also depend on downstream particulate control equipment (e.g., a baghouse or electrostatic precipitator) to capture spent reagent and reaction byproducts; combustion turbines are not equipped with, and do not require, this type of particulate control, as the inherently low ash and sulfur content of natural gas already results in filterable PM emissions well below the level at which such controls would be effective. Finally, this technology has never been installed on a commercial combustion turbine. Accordingly, FGD is considered technically infeasible for the proposed.

#### DSI Feasibility

Similar to FGD, DSI has been developed for and demonstrated only on combustion sources with high $SO_2$ loading, unlike combustion turbines firing pipeline-quality NG, and its effectiveness depends on adequate

[63] U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Flue Gas Desulfurization)," EPA-452/F-03-034.

residence time and gas temperature for sorbent-pollutant reaction. In addition, similar to FGD, this technology requires the presence of downstream particulate control equipment to capture the spent sorbent and reaction solids. Finally, this technology has never been installed on a commercial combustion turbine. Accordingly, DSI is considered technically infeasible for the proposed CCGTs.

Low-Sulfur Fuel Feasibility

This represents the base case for design and operation of the CCGTs.

GCOP Feasibility

This represents the base case for design and operation of the CCGTs.

#### 12.4.1.6.3 Step 3 – Rank Remaining Control Technologies

The remaining control technologies are the use of low-sulfur fuel and GCOP, the base case for BACT.

#### 12.4.1.6.4 Step 4 – Evaluation of Most Stringent Control Technologies

Steele will implement both low-sulfur fuels and good combustion practices to reduce $SO_2$ and $H_2SO_4$ emissions from the CCGTs.

#### 12.4.1.6.5 Step 5 – Selection of BACT

The RBLC data has been examined for the last ten years for combined cycle combustion turbines. Relevant RBLC entries (see **Appendix C**) and recently issued permits for similar sized power plants showed sulfur limits on the NG ranged between 0.2 to 5 gr S/100 scf NG. The RBLC shows no add-on controls are required for CCGT generating units to control $SO_2$ or $H_2SO_4$ emissions.

Steele proposes the use of low-sulfur fuel (pipeline quality NG) and GCOP as BACT for $SO_2$ and $H_2SO_4$ emissions. NG combusted in the CCGTs will contain no more than 0.5 gr S/100 scf.

### *12.4.1.7 GHG BACT Evaluation*

GHG emissions form as products of the combustion reaction in turbines. $CO_2$ forms from carbon in the fuel source when combined with oxygen. Methane ($CH_4$) is formed from excess carbon in the fuel that does not convert to $CO_2$; it is also released as uncombusted fuel. Nitrous Oxide ($N_2O$) is a side product of the combustion reaction and is minimized when combustion temperatures are higher and excess oxygen is low. Emissions of $CH_4$ and $N_2O$ are trivial relative to $CO_2$ and thus are not discussed separately herein.

#### 12.4.1.7.1 Step 1 – Identification of Potential Control Technologies

Steele reviewed the body of information on GHG emissions from combustion turbines compiled from various rulemakings, such as the NSPS Subpart TTTTa preamble. The RBLC lists technologies and corresponding emission limits that have been approved by regulatory agencies in permit actions and EPA's 2022 White Paper (the White Paper) titled, "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from Combustion Turbine Electric Generating Units". These results are included in **Appendix C**, detailing emission levels proposed for similar types of emissions units. Based on the RBLC search, no add-on control methods for GHGs have been deemed BACT for any facility. Many of the RBLC entries list a variant of good combustion practice, efficient operation, state-of-the-art technology, and/or low emitting fuels (e.g., natural gas).

Steele identified the following potential $CO_2$ control strategies as part of this BACT analysis:

- Carbon Capture and Storage (CCS);
- Selection of Efficient CCGT;
- Potential Efficiency Gains in the Bottoming Cycle.
- Fuel Selection; and
- Good Combustion Practices.

Each control technology is described in detail below.

**Table 12-11. GHG Control Measures for Turbines**

| Unit/Process | Control Option | Description |
|---|---|---|
| CCGT | Carbon Capture and Storage | Carbon capture and storage (CCS) is an integrated set of technologies with the potential to work together to capture (separate and purify) $CO_2$ from stationary source emissions, compress and transport it to a suitable location, and then pump it into deep underground geologic formations for permanent storage. For CCS to be technically feasible, each individual step in the process (capture and compression, transportation, and storage) must be technically feasible. |
| CCGT | Selection of Efficient CCGT | GHG emissions from fuel combustion are minimized through energy efficient CCGT design and construction. Advanced lightweight materials, rotor shape and configuration optimization, digital control systems, higher pressure ratios, increased firing temperatures, advanced thermal barrier coatings, and the utilization of exhaust gas heat to generate additional energy are all features that increase the units of energy generated per units of fuel burned. One aspect of the HRSG design to maximize waste heat recovery is the use of insulation on all gas path surfaces exposed to ambient air. Insulation minimizes heat loss to the ambient air, thereby improving the overall efficiency of the HRSG. Finally, the proposed units will also be equipped with evaporative cooling, which reduces the power required to compress the inlet air before it is used in combustion, thus increasing overall efficiency during certain operating conditions, especially on hot days. |
| CCGT | Potential Efficiency Gains Using Supercritical Steam Conditions | EPA notes in the White Paper that CCGTs designed to use supercritical in lieu of conventional subcritical steam conditions or organic working fluids have the potential to increase the efficiency of combined cycle EGUs and thus result in reductions of GHG emissions. |
| CCGT | Fuel Selection | The carbon intensity of fuels can vary significantly across available fossil fuels commonly used in industry. Fuels with low carbon intensity have lower GHG emissions than fuels with high carbon intensity. Therefore, GHG BACT considerations involve the evaluation of low carbon intensity fuel options. By selecting a low carbon fuel (pipeline quality natural gas), GHG emissions are minimized. |
| CCGT | Good Combustion Practices | GHG emissions from fuel combustion are minimized through energy efficient operation and maintenance (O&M) of the CCGTs |

| | | |
|---|---|---|
| | | according to the manufacturer's emissions related instructions or a facility-developed O&M plan. Energy efficient O&M practices include fuel-oxygen mixture monitoring, burner tuning, washing away compressor fouling, lubrication of moving parts, the replacement of worn parts, and inlet/outlet inspections for blockages and build-up. |

#### 12.4.1.7.2 Step 2 – Elimination of Technically Infeasible Control Options

The second step in the BACT analysis is to eliminate any technically infeasible control technologies. Any control technology that is not feasible based on physical, chemical, and engineering principles is eliminated. The control technologies and their technical feasibilities are summarized below.

**Table 12-12. GHG Technical Feasibility Analysis for Turbines**

| Unit/Process | Control Option | Technically Feasible? | Overall Control Efficiency |
|---|---|---|---|
| CCGT | Carbon Capture and Storage | N | - |
| CCGT | Selection of Efficient CCGT | Y | This represents the base case for design and operation of the emission units. |
| CCGT | Potential Efficiency Gains in the Bottoming Cycle | N | - |
| CCGT | Fuel Selection | Y | This represents the base case for design and operation of the emission units. |
| CCGT | Good Combustion Practices | Y | This represents the base case for design and operation of the emission units. |

Carbon Capture and Storage (CCS)

CCS, also known as $CO_2$ sequestration, involves cooling, separation and capture of $CO_2$ emissions from the flue gas prior to being emitted from the stack, compression of the captured $CO_2$, transportation of the compressed $CO_2$ via pipeline, and finally injection and long-term geologic storage of the captured $CO_2$. For CCS to be technically feasible, all three components needed for CCS must be technically feasible; carbon capture and compression, transport, and storage.

The first phase in CCS is to separate and capture the $CO_2$ gas from the exhaust stream, and then to compress the $CO_2$ to a supercritical condition.[64] Since most storage locations for $CO_2$ are greater than 800 meters deep, where the natural temperatures and pressures are greater than the critical point for $CO_2$, to inject $CO_2$ to those depths requires pressurizing the captured $CO_2$ to a supercritical state.

[64] Supercritical means that the $CO_2$ has properties of both a liquid and a gas. Supercritical $CO_2$ is dense like a liquid but has a viscosity like a gas. For additional details see https://www.netl.doe.gov/coal/carbon-storage/faqs/carbon-storage-faqs

$CO_2$ capture can be performed via four main methods: absorption, adsorption, membranes, and cryogenic separation. The choice of the precise process varies with the properties of the exhaust stream. $CO_2$ separation has been well demonstrated in the oil and gas industries, but the characteristics of those streams are very different from a turbine system exhaust. Most combustion tests and projects have been on exhaust streams from coal combustion, which has more highly concentrated $CO_2$ than exhaust from natural gas combustion, or on natural gas combined-cycle systems. Existing $CO_2$ capture technologies have not been demonstrated in the context of capturing $CO_2$ from combustion turbines, regardless of industry use, as they have higher exit gas temperatures, lower exhaust gas $CO_2$ concentrations, and lower cycle efficiencies, which negatively affects the ability of the CCS systems to control $CO_2$ emissions.[65]

Once separated, $CO_2$ must be compressed to supercritical conditions for transport and storage. There are no technical challenges with compressing $CO_2$ to those levels, but specialized technologies with high operating energy requirements are necessary. The $CO_2$ could be compressed to supercritical either before or after transport.

For phase two, $CO_2$ would be transported to a repository. Transport options could include pipeline or truck. Specialized designs may be required for $CO_2$ pipelines, particularly if supercritical $CO_2$ is being transported. Transport of $CO_2$ by pipeline is a demonstrated technology; however, development of new pipeline infrastructure may require securing transportation corridors and obtaining rights-of-way, which can present logistical and regulatory challenges depending on the project location.

Various $CO_2$ storage methods have been proposed, though only geologic storage is achievable currently. Geologic storage involves injecting $CO_2$ into deep subsurface formations for long-term storage. Typical storage locations would be deep saline aquifers as well as depleted or un-mineable coal seams. Captured $CO_2$ could also potentially be used for enhanced oil recovery via injection into oil fields.

Carbon Capture

In the Interagency Task Force report on CCS technologies, a number of pre- and post-combustion CCS projects are discussed in detail; however, many of these projects are in formative stages of development and are predominantly power plant demonstration projects (and mainly slip stream projects).[66] Currently, only two options appear to be feasible for capture of $CO_2$ from the flue gas from the turbine systems: Post-Combustion Solvent Capture and Stripping and Post-Combustion Membranes. In one 2009 M.I.T. study conducted for the Clean Air Task Force, it was noted that "To date, all commercial post-combustion $CO_2$ capture plants use chemical absorption processes with monoethanolamine (MEA)-based solvents."[67]

A review of the U.S. Department of Energy's (DoE) National Energy Technology Laboratory's (NETL) research and development awards related to post-combustion capture of $CO_2$ indicates that moving from pilot scale tests at coal-fired power plants to large-scale commercial operations remains a focus; however, the existence of several Front End Engineering Design (FEED) studies indicates that commercial implementation is beginning

[65] *Carbon Capture Opportunities for Natural Gas Fired Power Systems*, US Department of Energy. Carbon Capture Opportunities for Natural Gas Fired Power Systems.pdf

[66] *Report of the Interagency Task Force on Carbon Capture and Storage*, August 2010, Section III, pages. 27-52. https://www.energy.gov/sites/prod/files/2013/04/f0/CCSTaskForceReport2010_0.pdf

[67] Herzog, Meldon, Hatton, Advanced Post-Combustion $CO_2$ Capture, April 2009, page 7. https://sequestration.mit.edu/pdf/Advanced_Post_Combustion_CO2_Capture.pdf

to move forward.[68] For example, a FEED study is underway for a commercial-scale carbon capture facility retrofitted at the Delta Energy Center in Pittsburg, California, capable of capturing 2.4 million tons of $CO_2$ per year.[69] Another FEED study is underway for a 1.7 million tons per year $CO_2$ capture project at Louisville Gas And Electric Kentucky Utilities Cane Run #7.[70]

Although FEED studies indicate heightened interest in exploring potential implementation opportunities for CCS, Steele Power is aware of only one successful CCS deployment on a combined-cycle combustion turbine facility. The Bellingham Energy Center captured $CO_2$ from a slipstream (i.e., a portion of the turbine exhaust stream) for use in the food industry and operated from 1991 to 2005.[71] Additionally, a planned 2,000 MW natural-gas combined-cycle power plant with CCS is in development, but construction is not expected to start until Q1 of 2027.[72]

Presuming carbon capture is feasible, prior to sending the $CO_2$ stream to the appropriate storage site, it is necessary to compress the $CO_2$ from near atmospheric pressure to pipeline pressure (around 2,000 psia). The compression of the $CO_2$ would require a large auxiliary power load, resulting in additional fuel (and $CO_2$ emissions) to generate that power.[73] The auxiliary power load could be handled by installation of a separate system to solely support $CO_2$ compression, or alternatively be supported by reducing the available energy for sale, relying on the energy generating systems to instead meet the power needs of the compression system. This is often referred to as an "energy penalty" for operation of the $CO_2$ compression system, and in effect can reduce the net $CO_2$ reduction of the CCS system.

Carbon Transport

The next step in CCS is the transport of the captured and compressed $CO_2$ to a suitable location for storage. This would typically be via pipeline. Pipeline transport is an available and demonstrated, although costly, technology. Short $CO_2$ pipelines have been constructed from power plants to proposed injection wells. However, these pipelines are dedicated use for the power plants and are unavailable for other industrial sites.

Since there are no other $CO_2$ pipelines in the area, Steele would need to construct a $CO_2$ pipeline to a storage location if it were to pursue carbon sequestration as a $CO_2$ control option.[74] While it may be technically feasible to construct a $CO_2$ pipeline, considerations regarding the land use and availability need to be made. For the

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[68] National Energy Technology Laboratory Website reviewed June 2024: https://netl.doe.gov/node/2476?list=Post-Combustion%20Capture

[69] *Front-End Engineering Design for a CO2 Capture System at Calpine's Delta Energy Center,* U.S. Department of Energy, National Energy Technology Laboratory, Project Review Meeting Presentation for Project Number FE0032149, start date February 1, 2022.

[70] *CO2 Capture at Louisville Gas & Electric Cane Run Natural Gas Combined Cycle Power Plant,* U.S. Department of Energy, National Energy Technology Laborator, Project Review Meeting Presentation for Project Number FE0032223, start date December 22, 2022.

[71] *Greenhouse Gas Mitigation Measures: Carbon Capture and Storage for Combustion Turbines Technical Support Document,* U.S. Environmental Protection Agency, Office of Air and Radiation, May 23, 2023. (pp. 23)

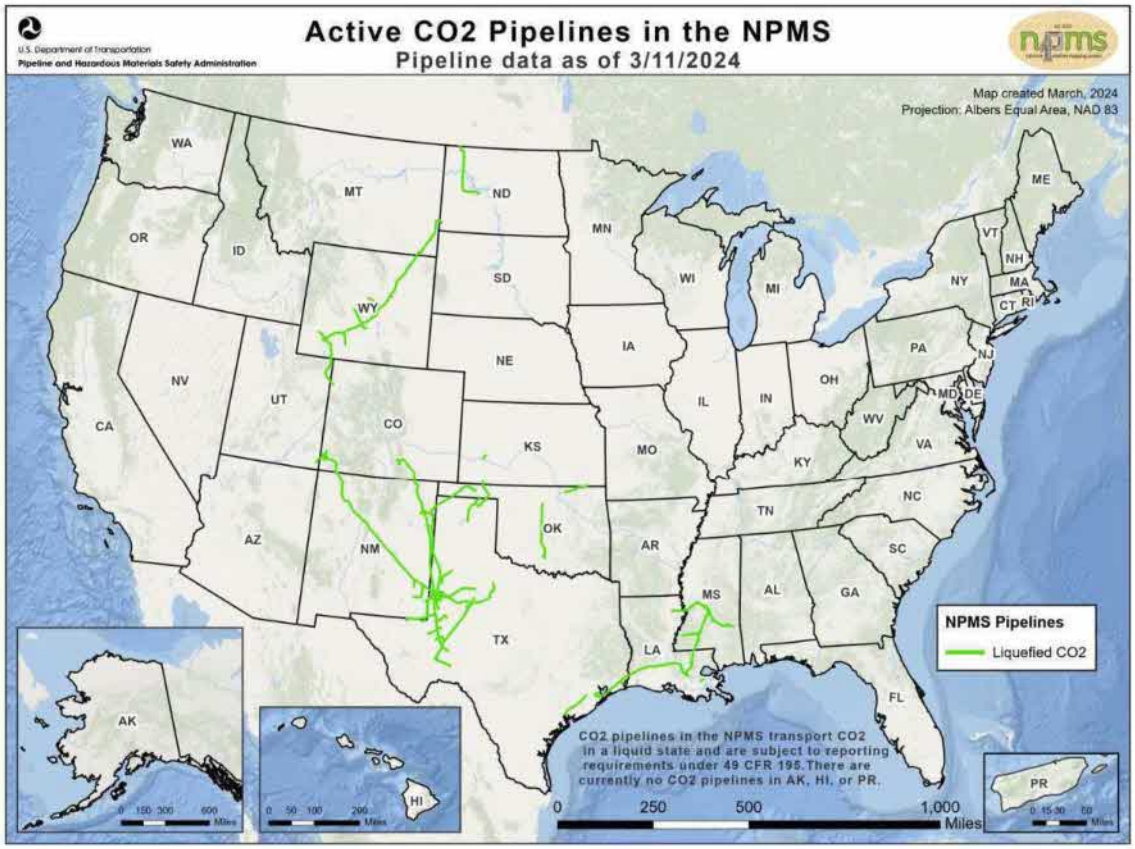
[72] *CPV Shay Energy Center,* Competitive Power Ventures. https://www.cpv.com/our-fleet/cpv-shay-energy-center/

[73] *Report of the Interagency Task Force on Carbon Capture and Storage*, August 2010, page 29. https://www.energy.gov/sites/prod/files/2013/04/f0/CCSTaskForceReport2010_0.pdf

[74] *Active CO2 Pipelines in the NPMS,* U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration National Pipeline Mapping System, March 11, 2024. https://www.npms.phmsa.dot.gov/Documents/NPMS_CO2_Pipelines_Map.pdf

purposes of this analysis, it is conservatively assumed that a shortest distance pipeline can be built from a potential sequestration site to a potential carbon storage location. Realistically, a longer pipeline would be required to address land use and right-of-way considerations. Figure 12-1 illustrates the limited geographic distribution of existing National Pipeline Mapping System (NPMS) active $CO_2$ pipelines nationwide.

**Figure 12-1. NPMS Active $CO_2$ Pipelines[75]**




Carbon Storage

Capture of the $CO_2$ stream and transport are not sufficient control technologies by themselves but require the additional step of permanent storage. After separation and transport, storage could involve sequestering the $CO_2$ through various means such as enhanced oil recovery, injection into saline aquifers, and sequestration in un-minable coal seams, each of which are discussed as follows:

- Enhanced Oil Recovery (EOR): EOR involves injecting $CO_2$ into a depleted oil field underground, which increases the reservoir pressure, dissolves the $CO_2$ in the crude oil (thus reducing its viscosity) and enables the oil to flow more freely through the formation with the decreased viscosity and increased pressure. A portion of the injected $CO_2$ would flow to the surface with the oil and be captured, separated, and then re-injected. At the end of EOR, the $CO_2$ would be stored in the depleted oil field.

[75] *Active CO2 Pipelines in the NPMS,* U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration National Pipeline Mapping System, March 11, 2024. https://www.npms.phmsa.dot.gov/Documents/NPMS_CO2_Pipelines_Map.pdf

- Saline Aquifers: Deep saline aquifers have the potential to store post-capture $CO_2$ deep underground below impermeable cap rock.
- Un-Mineable Coal Seams: Additional storage is possible by injecting the $CO_2$ into un-mineable coal seams. This has been used successfully to recover coal bed methane. Recovering methane is enhanced by injecting $CO_2$ or nitrogen into the coal bed, which adsorbs onto the coal surface thereby releasing methane.

There are additional methods of sequestration such as direct ocean injection of $CO_2$ and algae capture and sequestration (and subsequent conversion to fuel); however, these methods are not as widely documented in the literature for industrial scale applications. As such, while capture-only technologies may be technologically available at a small-scale, the limiting factor is the availability of a mechanism for IPC to permanently store the captured $CO_2$.

Elimination of CCS as Technically Infeasible

Steele concluded that CCS technology is not technically feasible based on the following key considerations:

- The two CCS systems currently installed and operational at commercial power plants in North America: the Boundary Dam project in Saskatchewan, Canada, and the Petra Nova project in Texas are for coal-fired steam units. Both have experienced significant technical and operational hurdles that have prevented continuous successful operation as would be required for a typical power plant. Thus, none of the existing CCS projects at combined cycle units have yet progressed to a complete detailed design or full deployment and thus cannot be the basis of a BACT determination.
- There are no existing or planned $CO_2$ pipelines within a reasonable distance from the proposed project.
- There are no existing or planned commercially available sequestration sites within a reasonable distance from the proposed project.
- Since no commercial scale systems are available for off the-shelf purchase, Steele would be required to research, design, and build a proprietary CCS system. Such an undertaking would cause the project to experience extensive delays and cost increases. According to the U.S. EPA an "applicant is generally not required to undergo extensive delays and expense to research and test unproven technologies as part of the BACT process.

### Potential Efficiency Gains Using Supercritical Steam Conditions

EPA notes in the White Paper that CCGTs designed to use supercritical in lieu of conventional subcritical steam conditions or organic working fluids have the potential to increase the efficiency of combined cycle EGUs and thus result in reductions of GHG emissions. Additionally, the White Paper mentions the use of thermoelectric materials to further improve the energy efficiency of the Rankine cycle of combined cycle units, also thus resulting in reductions of GHG emissions. However, EPA expressly characterizes these technologies as being under development and not yet commercially demonstrated for CCGT applications. EPA's NSR Workshop Manual (Pg B.11) states, "Technologies which have not yet been applied to (or permitted for) full scale operations need not be considered available [in Step 1 of the BACT analysis]…" Accordingly, these technologies are not considered further in this assessment.

### Fuel Selection

The combustion of low-carbon fuels other than natural gas could significantly change the emission profile for other pollutants emitted from the CCGTs like $NO_X$, and those emitted by other emission sources associated with the Project. Moreover, the use of other "low carbon" fuels, such as hydrogen, ammonia, and biofuels would change the design and purpose of the CCGT's use within this Project. Hydrogen firing is an emerging,

technology. However, for purposes of a BACT determination, low-GHG hydrogen is not technically feasible because it is neither "available" nor "applicable" as defined by EPA.[76]

#### 12.4.1.7.3 Step 3 – Rank Remaining Control Technologies

The third step in the BACT analysis is to rank remaining control technologies by control effectiveness. All remaining control technologies will be implemented for the turbines. Hence, they do not need to be ranked. The remaining control technologies are the selection of efficient CCGT, use of low-carbon fuels and GCP, the base cases for BACT.

#### 12.4.1.7.4 Step 4 – Evaluation of Most Stringent Control Technologies

The fourth step in a BACT analysis is to complete the top-down analysis of the applicable control technologies and document the results. The control technologies are evaluated on the basis of economic and environmental considerations. As described above, pre-existing pipeline infrastructure is not in close proximity to the project, and installing a pipeline to accommodate a CCS injection site near SEC is considered impractical, due to the significant costs and inconsistent operating profile of the proposed CCGTs. CCS was therefore ruled out in Step 2 of the BACT analysis. Note that in every RBLC entry reviewed for the project, CCS has been ruled out as not cost-effective, and there is no reason to suggest this project would be any different As stated above all remaining control methods will be implemented on the units and hence a cost effectiveness analysis is not needed. Steele will select efficiently designed CCGTs, implement both a low-carbon fuel and good combustion practices to reduce GHG emissions from the turbines.

#### 12.4.1.7.5 Step 5 – Selection of BACT

From the definition of BACT, if a facility is subject to an NSPS standard, the selected BACT must never result in an emission limit that is less stringent than any applicable NSPS standard. Currently, combustion turbines which commence construction after May 23, 2023, are subject to 40 CFR 60 Subpart TTTTa which became effective on July 8, 2024, was revised on September 17, 2026 (i.e., partially repealed), and is currently subject to litigation. USEPA also proposed on September 17, 2026, to rescind both NSPS Subparts TTTT and TTTTa in their entirety.

Because of this regulatory uncertainty, Steele is proposing BACT based on energy-efficient CCGT design, pipeline quality natural gas fuel and GCOP. The $CO_2$ BACT is the use of pipeline quality NG and GCOP such that $CO_2e$ emissions will be limited to 3,028,703 tons/year/turbine on a 12-month rolling average. Steele proposes that this BACT limit be demonstrated using the $CO_2$ emissions reported under 40 CFR Part 98. If NSPS Subpart TTTTa applies following the commencement of commercial operation, then Steele is proposing that the $CO_2$ BACT be compliance with the applicable requirements of NSPS Subpart TTTTa.

### 12.4.2 Combined Cycle Gas Turbines – Emergency Simple Cycle Mode

This evaluation addresses the CCGTs when operating in emergency simple cycle mode. When the CCGTs operate in simple cycle mode, only the CT will be operated, independent of the steam cycle, and exhaust will be diverted through a damper to a simple cycle stack that is separate from the primary combined-cycle stack.

Steele proposes to operate the two (2) 1x1 GE 7HA.03 NG-fired CCGTs up to 100 hours/year in emergency simple-cycle mode. Simple-cycle mode operation is intended for emergency purposes in the event the HRSG is brought offline for planned maintenance or to address a malfunction. Steele's primary goal is to ensure a

[76] NSR Workshop Manual (DRAFT October 1990).

continuous supply of power is available. HRSG maintenance activities include, but are not limited to, ultrasonic and borescope inspection of pressure parts such as superheater, reheater, evaporator, and economizer tubes; inspection and cleaning of duct burners and associated fuel trains; and examination of expansion joints, casing seals, and stack components for signs of wear or heat-related damage. As part of maintaining the HRSG, the ancillary systems—such as feedwater and condensate pumps, attemperators, relief valves, and control instrumentation—are also serviced and recalibrated as part of the outage scope.

It should be noted that bypassing a HRSG is not equivalent to the operation of an inherently simple cycle turbine. Although both configurations may produce comparable gross power output, a bypass-equipped combined-cycle unit requires a damper system to redirect turbine exhaust around the HRSG and through a bypass stack, whereas a simple cycle turbine is designed without an HRSG. Accordingly, the research conducted for this analysis focused on combined cycle turbines specifically designed to operate in both combined-cycle and simple cycle modes, rather than simple cycle-only units.

### *12.4.2.1 BACT Floor*

- **Summary of Applicable Limits from NSPS:** The CCGTs will be subject to NSPS Subpart KKKKa and NSPS Subpart TTTTa. If Subpart TTTTa is vacated or repealed, the applicable NSPS will be Subpart TTTT. If both Subparts TTTTa and TTTT are repealed, neither NSPS Subpart will apply to the CCGTs. The emission limitations for all three Subparts that apply to the combined-cycle primary mode of operation are listed below.
  - NSPS Subpart KKKKa: $SO_2$ emissions not to exceed 0.9 lb/MMBtu gross output or 0.06 lb/MMBtu heat input at all times. $NO_X$ emissions not to exceed 25 ppm at 15% $O_2$ during emergency simple cycle mode.
  - NSPS Subpart TTTT: $CO_2$ emissions not to exceed 1,000 lb/MWh of gross energy output or 1,030 lb/MWh of net energy output.
  - NSPS Subpart TTTTa: $CO_2$ emissions not to exceed the ranges of 800 to 1,250 lb $CO_2$/MWh of gross energy output or 820 to 1,280 lb $CO_2$/MWh of net energy output.

- **Summary of Applicable Limit from State Rules:** The CCGTs will be subject to certain local PCAQCD Stationary Source Performance Standards during combined-cycle primary mode of operation.
  - CoR §5-23 – Stationary Rotating Machinery: Sets an allowable PM emission limit for each CT/HRSG train, calculated as 616 lb/hr based on the formula contained in CoR §5-23-1010.A(1).

### *12.4.2.2 $NO_X$ BACT Evaluation*

#### 12.4.2.2.1 Step 1 – Identification of Potential Control Technologies

As stated in the CCGT primary combined-cycle mode BACT analysis, in NG-fired equipment, $NO_X$ emissions are primarily formed through the thermal $NO_x$ mechanism-driven by flame temperature, oxygen level, and residence time—since fuel $NO_X$ is minimal.

Steele reviewed RBLC entries and issued permits from the most recent 10 years for CCGTs with potential to operate in a "bypass" simple-cycle mode. Only three equivalent units were identified from this research, and these are summarized in **Table 12-13**. This summary excludes CCGTs identified to be authorized for alternative operating scenarios which include turbine tuning and washing maintenance, as these modes of operation do not involve operation of the CTs in simple-cycle mode and bypassing the main HRSG stack. Facilities excluded from review include the Dominion Energy – Brunswick Power Station (RBLC ID VA-0334), the Dominion Energy - Greensville County Power Station, and C4GT, LLC (RBLC ID VA-0328).

Only the technologies determined to be technically feasible for the combined-cycle mode of operation were evaluated in simple cycle mode:

- DLN Combustion Technology (Base Case);
- GCOP (Base Case); and
- SCR.

Each control technology is already described in Section 12.4.1.2.1. Additional description is specifically provided for SCR implementation in turbines that operate in simple cycle mode.

In simple-cycle configurations, the SCR system is typically installed in the turbine exhaust duct downstream of the turbine exhaust diffuser, where flue gas temperatures can exceed 1,000 °F under full-load conditions.[77] These temperatures are significantly higher than the ideal range for conventional SCR catalysts, which generally perform optimally between approximately 480 °F and 800 °F.[78] To achieve effective $NO_X$ reduction under these conditions, simple-cycle systems must incorporate design features that either reduce or tolerate the elevated exhaust temperatures. One approach is to introduce dilution or tempering air, often extracted from the turbine's compressor discharge or an auxiliary fan, to cool the flue gas to within the catalyst's active range before it enters the SCR reactor. [79] Alternatively, some systems employ specialized high-temperature catalysts, which maintain catalytic activity and structural integrity at temperatures more consistent with simple-cycle operation. While these high-temperature catalysts are more thermally robust, they often exhibit narrower effective operating windows and reduced long-term activity compared to base-metal formulations, particularly under transient load conditions common to peaking operations.

In contrast, combined-cycle configurations integrate the SCR reactor within the HRSG, where exhaust gas temperatures are naturally moderated as heat is transferred to produce steam. The SCR reactor is typically located in the HRSG convective section downstream of the superheater and upstream of the economizer, where temperatures are generally within the ideal range for base-metal catalysts. This placement allows for more stable temperature control, improved catalyst life, and consistent $NO_x$ reduction performance across a wide range of operating conditions. Because simple-cycle turbines lack a HRSG to provide this controlled thermal environment, the exhaust gas temperatures remain too high for conventional SCR catalysts and cannot be effectively moderated without major system redesign. For this reason, the combined-cycle SCR configuration is not technically transferable to simple-cycle applications.

[77] Evaluation of Design Alternatives for an SCR System Downstream of a Simple-Cycle Combustion Gas Turbine, Published by Riley Power Inc. 2011

[78] SCR Air Pollution Control Technology Fact Sheet, EPA-452/F-03-032

[79] Evaluation of Design Alternatives for an SCR System Downstream of a Simple-Cycle Combustion Gas Turbine, Published by Riley Power Inc. 2011

**Table 12-13. CCGT – Simple Cycle Mode Operation Research Summary for $NO_X$**

| Facility | Permit Number | Date | Location | Hours of Bypass Operation per Year | Turbine Size | $NO_X$ [1] | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Limit | Control | |
| **From RBLC Research** | | | | | | | | |
| TH Wharton Electric Generating Station | 170969 | 11/10/2022 | Houston, Texas | 300 per CT | 196 MW | 0.38 lb/MWh, when operating at ≥ 80% of peak load | None | This permit allowed for two phases of operation. The first was operation during construction and the units were limited to 300 hours per year with the cited emission rates. Language hints at being operated in simple cycle mode. $NO_X$ emission rate applied at 80% and great of the rated load.<br><br>This project did not trigger PSD. They did request an extension to the construction timeline such that construction must begin by 12/5/2025. |
| **From Issued Permit Research** | | | | | | | | |
| Lansing Board of Water and Light - Erickson Power Station | 74-18D | 12/20/2022 | Lansing, Michigan | 2,000 per CT | 667 MMBtu/hr | 25 ppmvd @15% $O_2$, 4-hour rollingaverage,except duringoperation < 75% of peak load60 lb/hr, 24-hour rollingaverage | None | This permit authorized the construction of two (2) nominally rated 667 MMBtu/hr natural gas-fired CTs, each coupled with a 204 MMBtu/hr HRSG DB to provide heat for additional steam production. The CT is capable of operating in combined-cycle mode where the exhaust is routed to the HRSG or operated in simple-cycle mode where the HRSG is bypassed. The HRSG is not capable of operating independently from the CT. |

| Facility | Permit Number | Date | Location | Hours of Bypass Operation per Year | Turbine Size | $NO_X$ [1] | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Limit | Control | |
| Cheyenne Power Hub | P0040709 | 7/2/2026 | Laramie County, Wyoming | 1,000 (total for two CTs) | 3306 MMBtu/hr | 15 ppmvd @15% $O_2$, on a 1-hour averaging basis | DLN burners + GCOP | This permit authorized the construction of a power facility that includes two (2) MHI M501JA CCGTs with the capability of bypassing the HRSG for operation in simple cycle mode for a combined maximum 1,000 hours. The project underwent PSD review and included BACT limits for the simple cycle mode of operation. |

[1] Limits do not apply during SUSD.

#### 12.4.2.2.2 Step 2 – Elimination of Technically Infeasible Control Options

DLN Feasibility

This represents the base case for design and operation of the CCGTs.

GCOP Feasibility

This represents the base case for design and operation of the CCGTs.

SCR Feasibility

The design of the combined-cycle configuration relies on the flow of exhaust gases through the HRSG to enable proper function of downstream control equipment. Attempting to isolate or bypass the HRSG would interrupt this flow path and render the associated emission controls inoperable.

Additionally, to install a bypass stack which truly isolates the HRSG, a damper system is necessary to ensure that no hot exhaust enters the HRSG when maintenance or inspection activities are required. The damper isolates the HRSG from the hot exhaust gases produced by the turbine, allowing the unit to cool completely which creates a safe environment for personnel to work inside. Without proper damper isolation, residual heat could remain in the HRSG, posing serious safety risks such as burns or heat stress for workers and potentially damaging equipment. Therefore, the damper system is a critical safety feature that enables safe access to the HRSG during shutdown or maintenance periods.

As a result, in order for an add on control to be technically feasible, a damper system design which is compatible with downstream controls also needs to be technically feasible. Accordingly, this evaluation focuses on the configuration and feasibility of incorporating both a damper system and a unique SCR system optimized for simple-cycle operation. If either component is technically infeasible then the reduction of emissions is considered technically infeasible.

Designing a damper system which appropriately introduces cooling air to adjust the temperature and velocity such that it is readily compatible an SCR system presents significant engineering challenges. High exhaust flow rates and elevated temperatures must be carefully managed to maintain system reliability and ensure effective pollutant reduction.

The complexity and technical challenges associated with designing a damper system and independent control train for simple-cycle operation are particularly significant for a turbine of this size. According to the turbine vendor, the integrated design required to accommodate both combined-cycle and simple-cycle modes represents a first-of-its-kind system, reflecting the innovative engineering needed to maintain reliable operation under variable conditions. The large exhaust flow, high thermal energy, and rapid load changes inherent to a turbine of this capacity further magnify the difficulties of achieving consistent temperature control, stable draft management, and safe operation across all modes. Scaling these systems to accommodate the mass flow and thermal stresses of a high-capacity unit increases mechanical and control challenges compared to smaller turbines, making this dual-mode configuration technically unprecedented and unproven in practice.

While high-temperature catalysts and exhaust tempering could, in theory, enable $NO_X$ reduction under simple-cycle conditions, such a system would introduce additional complexity and operational challenges that have not been proven at this scale.

#### 12.4.2.2.3 Step 3 – Rank Remaining Control Technologies

All control technologies are evaluated in Step 4.

#### 12.4.2.2.4 Step 4 – Evaluation of Most Stringent Control Technologies

While this use of a first-of-its-kind damper system to facilitate the implementation of an SCR system does not meet the definition of BACT, a cost analysis was conservatively prepared to document the estimated economic implications and provide a comprehensive evaluation.

The cost evaluation was conducted on a $NO_X$ basis using EPA's recommended control cost methodology, supplemented with estimates based on Steele's experience these systems, and publicly available permit data. This assessment accounted for total capital investment—including equipment, installation, and eventual replacement costs—as well as ongoing operating expenses, as seen in in **Table 12-14**. Steele proposes that a cost per ton removed of $214,029 is economically infeasible. This is consistent with the recent determination by the Wyoming Department of Environmental Quality (WDEQ) in its application analysis for the Cheyenne Power Hub Power Plant (PSD permit No. P0040709, issued July 2, 2026), which deemed a cost of $57,836 per ton of $NO_X$ removed economically infeasible for installation of SCR on the bypass exhaust path for the simple cycle mode operation of CCGTs.

**Table 12-14. CCGT – Simple Cycle Mode SCR Cost Analysis**

| Parameter | Value | Units | Notes |
|---|---|---|---|
| **General Information** | | | |
| $NO_X$ Emission Rate per CT | 226 | lb/hr | Simple cycle without SCR |
| | 38.7 | lb/hr | Combined cycle with SCR |
| Equipment Life Expectancy | 30 | yrs | |
| Hours Per Year Operating Without SCR | 100 | hrs/yr | Proposed limit per CT |
| Lifespan of the Catalyst | 5 | yrs | The standard lifespan of a catalyst is assumed to be 5 years of full time operation (8760 hr/yr) |
| Annual Emission Rate | 11.29 | tpy | Without SCR |
| | 1.935 | tpy | With SCR |
| Ammonia Slip Rate | 5 | ppm | OEM Guarantee for Combined Cycle mode with SCR |
| Reagent Cost | 1.24 | $/gallon | Per publicly available copy of the Cheyenne Power Hub Power Plant (PSD permit No. P0040709) air permit application. |
| Catalyst Cost | 227 | $/cubic foot | This is the standard assumption in the SCR Cost Manual Spreadsheet. U.S. Environmental Protection Agency (EPA). Documentation for EPA's Power Sector Modeling Platform v6 Using the Integrated Planning Model. Office of Air and Radiation. May 2018. |
| Operator Labor Rate | 39 | $ | Arizona Office of Economic Opportunity (OEO). 2025 Occupational Employment and Wage Statistics. Pinal County, Arizona. Occupation: Industrial Machinery Mechanics (SOC 49-9041). Available at: https://oeo.az.gov/labor-market/occupation-employment. |

| Parameter | Value | Units | Notes |
|---|---|---|---|
| Consumer Price Index Adjustment | 1.95 | - | https://www.bls.gov/data/inflation_calculator.htm |
| Interest Rate | 6.75% | % | Bank prime date (August 2026) as recommended in EPA's EPA control-cost spreadsheets: https://www.bankrate.com/rates/interest-rates/wall-street-prime-rate/. |
| Capital Recovery Factor | 0.03 | - | Cost Control Manual Chapter 2, Cost Estimation Concepts and Methodology, Equation 2.8a |
| **Capital Investment** | | | |
| SCR Capital Cost | 50,000,000 | $ | Per publicly available copy of the Cheyenne Power Hub Power Plant (PSD permit No. P0040709) air permit application. |
| Annualized Capital Cost | 1,684,161 | $ | |
| **Annual Operating Costs** | | | |
| **Maintenance** | | | |
| Operator and Supervisory Labor for Full Time Operation | 4 | hrs/day | Cost Control Manual for SCR, Estimated operator time per day |
| | 56940 | $/yr | Daily hours multiplied by the labor rate |
| Maintenance | 250000 | $/yr | Estimated to be 0.5% of the Total Capital Investment per the Cost Control Manual for SCR (Equation 2.57) |
| **Reagent** | | | |
| Mass Flow Rate of Reagent | 72.72 | lb/hr | Cost Control Manual for SCR, Equation 2.35 |
| Adjustment for 19% Ammonia | 382.71 | lb/hr | Adjusted for 19% Ammonia, Equation 2.36 |
| Density of Ammonia | 7.51 | lb/gal | Online available SDS sheet |
| Volumetric Flow Rate of 19% Reagent | 50.99 | gal/hr | |
| Total Reagent Cost | 6,322 | $/yr | |
| **Catalyst** | | | |
| Volume of Catalyst | 239.63 | $ft^3$ | Cost Control Manual for SCR, Equation 2.22 |
| Catalyst Replacement Cost | 54,396 | $/Replacement | |
| Function of Future Worth for full time Operation | 0.0020 | - | Assuming the catalyst has the capacity to be in use 8760 hr/yr for 5 years (Equation 2.65 & 2.66) |
| Annual Catalyst Replacement Cost for full time Operation | 106.78 | $/yr | Assuming the catalyst has the capacity to be in use 8760 hr/yr for 5 years |
| **Other** | | | |
| Administrative Charges | 4708.2 | $/yr | Cost Control Manual for SCR, Equation 2.69 |
| **Conclusion** | | | |
| Total Costs | 2,002,238 | $/yr | |
| Total TPY Removed in Years 1-2 | 9.355 | tpy | |
| Average Cost Per Ton Removed | **214,029** | $ per ton removed | |

#### 12.4.2.2.5 Step 5 – Selection of BACT

Steele is proposing the use of GCOP in combination with DLN burners as $NO_X$ PSD BACT for the CCGTs when operating in emergency simple cycle mode, with an emission limit of 15 ppmvd at 15% $O_2$ for $NO_X$, on a 1-

hour averaging basis based on the OEM guarantee that is driven by proprietary CT burner design. The proposed limit does not apply during SUSD.

### *12.4.2.3 CO and VOC BACT Evaluation*

#### 12.4.2.3.1 Step 1 – Identification of Potential Control Technologies

Steele reviewed RBLC entries and issued permits from the most recent 10 years for CCGTs with potential to operate in a "bypass" simple-cycle mode. Only three equivalent units were identified from this research, and these are summarized in **Table 12-13**. This summary excludes CCGTs identified to be authorized for alternative operating scenarios which include turbine tuning and washing maintenance, as these modes of operation do not involve operation of the CTs in simple-cycle mode and bypassing the main HRSG stack. Facilities excluded from review include the Dominion Energy – Brunswick Power Station (RBLC ID VA-0334), the Dominion Energy - Greensville County Power Station, and C4GT, LLC (RBLC ID VA-0328).

Only the technologies determined to be technically feasible for the combined-cycle mode of operation were evaluated in simple cycle mode:

- DLN Combustion Technology (Base Case);
- GCOP (Base Case); and
- Oxidation Catalyst.

Each control technology is already described in Section 12.4.1.3.1.

**Table 12-15. CCGT – Simple Cycle Mode Operation Research Summary for CO**

| Facility | Permit Number | Date | Location | Hours of Bypass Operation per Year | Turbine Size | CO [1] | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Limit | Control | |
| **From RBLC Research** | | | | | | | | |
| TH Wharton Electric Generating Station | 170969 | 11/10/2022 | Houston, Texas | 300 per CT | 196 MW | N/A | N/A | This permit allowed for two phases of operation. The first was operation during construction and the units were limited to 300 hours per year with the cited emission rates. Language hints at being operated in simple cycle mode. $NO_X$ emission rate applied at 80% and great of the rated load.<br><br>This project did not trigger PSD. They did request an extension to the construction timeline such that construction must begin by 12/5/2025. |
| **From Issued Permit Research** | | | | | | | | |
| Lansing Board of Water and Light - Erickson Power Station | 74-18D | 12/20/2022 | Lansing, Michigan | 2,000 per CT | 667 MMBtu/hr | 9 lb/hr, on a 1-hour basis | None | This permit authorized the construction of two (2) nominally rated 667 MMBtu/hr natural gas-fired CTs, each coupled with a 204 MMBtu/hr HRSG DB to provide heat for additional steam production. The CT is capable of operating in combined-cycle mode where the exhaust is routed to the HRSG or operated in simple-cycle mode where the HRSG is bypassed. The HRSG is not capable of operating independently from the CT. |

| Facility | Permit Number | Date | Location | Hours of Bypass Operation per Year | Turbine Size | CO [1] | | Notes |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Limit | Control | |
| Cheyenne Power Hub | P0040709 | 7/2/2026 | Laramie County, Wyoming | 1,000 (total for two CTs) | 3306 MMBtu/hr | 10 ppmvd @15% $O_2$, on a 1-hour averaging basis | DLN burners + GCOP | This permit authorized the construction of a power facility that includes two (2) MHI M501JA CCGTs with the capability of bypassing the HRSG for operation in simple cycle mode for a combined maximum 1,000 hours. The project underwent PSD review and included BACT limits for the simple cycle mode of operation. |

[1] Limits do not apply during SUSD.

#### 12.4.2.3.2 Step 2 – Elimination of Technically Infeasible Control Options

DLN Feasibility

This represents the base case for design and operation of the CCGTs.

GCOP Feasibility

This represents the base case for design and operation of the CCGTs.

Oxidation Catalyst

Because the emission control systems are integrated within the HRSG exhaust path, it is not technically feasible to completely bypass the HRSG while maintaining operation of those controls. The design of the combined-cycle configuration relies on the flow of exhaust gases through the HRSG to enable proper function of downstream control equipment. Attempting to isolate or bypass the HRSG would interrupt this flow path and render the associated emission controls inoperable.

Accordingly, this evaluation focuses on the configuration and feasibility of incorporating both a damper system and a unique catalytic oxidation system optimized for simple-cycle operation. If either component is technically infeasible then the reduction of emissions is considered technically infeasible.

Based on engineering knowledge of the equipment, Steele understands catalytic oxidation systems for turbines are rarely, if ever, sold independent of an SCR system as these controls have been designed as interdependent systems in which the use of SCR optimizes the temperature and flow characteristics for catalytic oxidation.

Designing a damper system capable of managing exhaust temperature and flow which is compatible with a catalytic oxidation system presents substantial engineering challenges, as discussed within the $NO_X$ BACT. As no documented examples demonstrate successful use of such a dual-mode catalytic oxidation system, this configuration cannot be considered demonstrated in practice and therefore does not meet the definition of BACT. Oxidation catalyst is considered technically infeasible.

#### 12.4.2.3.3 Steps 3-4 – Evaluation of Economic Feasibility

While the use of a first-of-its-kind damper system to enable installation of a catalytic oxidation unit for CO control does not meet the definition of BACT, a qualitative cost evaluation was completed to assess its feasibility. Because CO control would represent an additional incremental cost that could not be separated from—and would only exceed—the costs required for implementation of the SCR system, a separate cost analysis was not prepared. Therefore, the minimum cost per ton of pollutant removed is assumed to be at least equivalent to the previously cited SCR cost of $214,029 per ton reduction, which is considered economically infeasible.

#### 12.4.2.3.4 Step 5 – Selection of BACT

Steele is proposing the use of GCOP in combination with DLN burners as CO and VOC PSD BACT for the CCGTs when operating in emergency simple-cycle mode, with the emission limits below.

- 10 ppmvd at 15% $O_2$ for CO, on a 1-hour averaging basis.
- 2 ppmvd at 15% $O_2$ for VOC, on a 1-hour averaging basis.

The proposed limits above do not apply during SUSD.

#### *12.4.2.4 $PM/PM_{10}/PM_{2.5}$ BACT Evaluation*

Steele proposes for the selected PSD BACT and associated emission limit identified for combined cycle mode operation of the CCGTs apply to each CT during emergency simple-cycle mode, except during SUSD.

#### *12.4.2.5 $SO_2$ and $H_2SO_4$ BACT Evaluation*

Steele proposes for the selected PSD BACT and associated emission limit identified for combined cycle mode operation of the CCGTs apply to each CT during emergency simple-cycle mode, even during SUSD.

#### *12.4.2.6 GHG BACT Evaluation*

##### 12.4.2.6.1 Step 1 – Identification of Potential Control Technologies

Steele identified the following potential $CO_2$ control strategies as part of this BACT analysis:

- Carbon Capture and Storage (CCS);
- Fuel Selection; and
- Good Combustion Practices.

Each control technology is described in detail below.

**Table 12-16. GHG Control Measures for Turbines**

| Unit/Process | Control Option | Description |
|---|---|---|
| CT During Simple-Cycle Mode | Carbon Capture and Storage | Carbon capture and storage (CCS) is an integrated set of technologies with the potential to work together to capture (separate and purify) $CO_2$ from stationary source emissions, compress and transport it to a suitable location, and then pump it into deep underground geologic formations for permanent storage. For CCS to be technically feasible, each individual step in the process (capture and compression, transportation, and storage) must be technically feasible. |
| CT During Simple-Cycle Mode | Fuel Selection | The carbon intensity of fuels can vary significantly across available fossil fuels commonly used in industry. Fuels with low carbon intensity have lower GHG emissions than fuels with high carbon intensity. Therefore, GHG BACT considerations involve the evaluation of low carbon intensity fuel options. By selecting a low carbon fuel (pipeline quality natural gas), GHG emissions are minimized. |
| CT During Simple-Cycle Mode | Good Combustion Practices | GHG emissions from fuel combustion are minimized through energy efficient operation and maintenance (O&M) of the CCGTs according to the manufacturer's emissions related instructions or a facility-developed O&M plan. Energy efficient O&M practices include fuel-oxygen mixture monitoring, burner tuning, washing away compressor fouling, lubrication of moving parts, the replacement of worn parts, and inlet/outlet inspections for blockages and build-up. |

#### 12.4.2.6.2 Step 2 – Elimination of Technically Infeasible Control Options

The second step in the BACT analysis is to eliminate any technically infeasible control technologies. Any control technology that is not feasible based on physical, chemical, and engineering principles is eliminated. The control technologies and their technical feasibilities are summarized below.

**Table 12-17. GHG Technical Feasibility Analysis for Turbines**

| Unit/Process | Control Option | Technically Feasible? | Overall Control Efficiency |
|---|---|---|---|
| CCGT | Carbon Capture and Storage | N | - |
| CCGT | Fuel Selection | Y | This represents the base case for design and operation of the emission units. |
| CCGT | Good Combustion Practices | Y | This represents the base case for design and operation of the emission units. |

Carbon Capture and Storage (CCS)

EPA classifies CCS as a pollution control technology that may be available for facilities emitting high purity streams of $CO_2$ in large amounts. The capture scenario is challenging because the low pressure and dilute concentration means a high volume of gas needs to be treated.

Additionally, impurities in the gas stream inhibit $CO_2$ capture, unless one of the following processes were performed: absorption, adsorption, membranes, and cryogenic separation. Following capture, compression of the $CO_2$ would require a large auxiliary power load, resulting in additional fuel (and $CO_2$ emissions) to generate the same amount of power. As discussed in Section 12.4.1.7, following capture and compression, transport would be required, with pipeline being the preferred method. Since there are no $CO_2$ pipelines in the area, Steele would need to construct a $CO_2$ pipeline to a storage location if it were to pursue carbon sequestration as a $CO_2$ control option, which would generate additional emissions. Permanent storage would need to be achieved via sequestration, and the nearest sequestration sites are located in Colorado and New Mexico.

Elimination of CCS as Technically Infeasible

Steele concluded that CCS technology is not technically feasible based on the following key considerations:

- The two CCS systems currently installed and operational at commercial power plants in North America: the Boundary Dam project in Saskatchewan, Canada, and the Petra Nova project in Texas are for coal-fired steam units. Both have experienced significant technical and operational hurdles that have prevented continuous successful operation as would be required for a typical power plant.
- There are no existing or planned $CO_2$ pipelines within a reasonable distance from the proposed project.
- There are no existing or planned commercially available sequestration sites within a reasonable distance from the proposed project.
- Since no commercial scale systems are available for off the-shelf purchase, Steele would be required to research, design, and build a proprietary CCS system. Such an undertaking would cause the project to experience extensive delays and cost increases. According to the U.S. EPA an "applicant is generally not

required to undergo extensive delays and expense to research and test unproven technologies as part of the BACT process.

#### 12.4.2.6.3 Step 3 – Rank Remaining Control Technologies

The third step in the BACT analysis is to rank remaining control technologies by control effectiveness. All remaining control technologies will be implemented for the turbines. Hence, they do not need to be ranked. The remaining control technologies are the selection of low-carbon fuels and GCP, the base cases for BACT.

#### 12.4.2.6.4 Step 4 – Evaluation of Most Stringent Control Technologies

The fourth step in a BACT analysis is to complete the top-down analysis of the applicable control technologies and document the results. The control technologies are evaluated on the basis of economic and environmental considerations. As stated above all remaining control methods will be implemented on the units and hence a cost effectiveness analysis is not needed. Steele will implement both low-carbon fuel and good combustion practices to reduce GHG emissions from the turbines.

#### 12.4.2.6.5 Step 5 – Selection of BACT

From the definition of BACT, if a facility is subject to an NSPS standard, the selected BACT must never result in an emission limit that is less stringent than any applicable NSPS standard. Currently, combustion turbines which commence construction after May 23, 2023, are subject to 40 CFR 60 Subpart TTTTa which became effective on July 8, 2024, was revised on September 17, 2026 (i.e., partially repealed), and is currently subject to litigation. USEPA also proposed on September 17, 2026, to rescind both NSPS Subparts TTTT and TTTTa in their entirety.

NSPS Subpart TTTTa does not include a clear distinction on whether the capacity factor is defined by the operating mode of a CT (i.e., simple cycle or combined cycle). Because the final rule allows for an owner or operator to switch between subcategories (i.e., low load, intermediate load, base load), the rule may be interpreted as the capacity factor being defined by the operating mode. The ambiguous distinction results in an obscure interpretation of the rule and appropriate $CO_2$ standards for facilities with a combined cycle system that utilize a bypass stack. In the rulemaking, EPA did not explicitly consider the difference in technical feasibility and economic reasonableness for CTs that are (or were) designed to specifically have a simple cycle mode and combined cycle mode.

Because of this regulatory uncertainty, Steele is proposing BACT based on pipeline quality NG fuel and GCOP. The $CO_2$ BACT is the use of pipeline quality NG and GCOP such that $CO_2e$ emissions will be limited to 24,881 tons/year/turbine during SC mode on a 12-month rolling average. Steele proposes that this BACT limit be demonstrated using the $CO_2$ emissions reported under 40 CFR Part 98. If NSPS Subpart TTTTa applies following the commencement of commercial operation, then Steele is proposing that the $CO_2$ BACT be compliance with the applicable requirements of NSPS Subpart TTTTa.

Remaining BACT analyses for auxiliary equipment are provided in tabular format.

### 12.4.3 Auxiliary Boilers

As part of the Project, Steele is proposing to install two (2) NG-fired auxiliary boiler with an individual heat input capacity up to 90 MMBtu/hr and operational schedule of up to 2,000 hours/year. The control technologies listed in the following subsections were obtained from the RBLC database for gas-fired boilers in the size range of 70 – 100 MMBtu/hr, research of emerging technologies, and principles of the control technology and engineering experience for general combustion units.

- **Summary of Applicable Limits from NSPS/State Rules:** The auxiliary boilers will be subject to NSPS Subpart Dc, but this rule does not include any pollutant emission limits for NG-fired units. Additionally, the proposed boilers will be subject to certain local PCAQCD Stationary Source Performance Standards which set the floor for allowable BACT limits.
  - CoR §5-21 – Fossil Fuel-fired Industrial and Commercial Equipment: Sets an allowable PM emission limit for the combined boiler emissions calculated as 55.32 lb/hr based on the formula contained in CoR §5-21-930.C(1).
  - CoR §5-22 – Fossil Fuel-fired Steam Generators: Sets 0.20 lb $NO_2$ (as surrogate for $NO_X$)/MMBtu limit on a maximum 2-hour average per §5-22-970.A.

The proposed BACT is at least as stringent as applicable NSPS and state rules.

## Table 12.4.3-1. Top-Down BACT Analysis for Auxiliary Boilers - PM/PM10/PM2.5

| Process | Pollutant |
|---|---|
| Auxiliary Boilers | $PM/PM_{10}/PM_{2.5}$ |

| | | Control Technology | Baghouse / Fabric Filter [a] | Electrostatic Precipitator (ESP) [b,c,d] | Wet Scrubber [e] | Cyclone [f] | Fuel Specifications | Good Combustion Practices |
|---|---|---|---|---|---|---|---|---|
| | | **Control Technology Description** | Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies. | Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems. | A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator. | Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit. | Combusting only natural gas, which has an inherently low sulfur content, rather than higher sulfur content fuels alone or in combination with natural gas. | Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices. |
| | | **Typical Operating Temperature** | Up to 500 °F (Typical) | Up to 1,300 °F (dry)<br>Lower than 170 - 190 °F (wet) | 40 to 750 °F | Up to 1,000 °F | N/A | N/A |
| ***Step 1.*** | **IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES** | **Typical Waste Stream Inlet Flow Rate** | 100 - 100,000 scfm (Standard)<br>100,000 - 1,000,000 scfm (Custom) | 1,000 - 100,000 scfm (Wire-Pipe)<br>100,000 - 1,000,000 scfm (Wire-Plate) | 500 - 100,000 scfm<br>(units in parallel can operate at greater flow rates) | 1.1 - 63,500 scfm (single)<br>Up to 106,000 scfm (in parallel) | N/A | N/A |
| | | **Typical Waste Stream Inlet Pollutant Concentration** | 0.5 - 10 gr/dscf (Typical)<br>0.05 - 100 gr/dscf (Achievable) | 0.5 - 5 gr/dscf (Wire-Pipe)<br>1 - 50 gr/dscf (Wire-Plate) | 0.1 - 50 gr/dscf | 0.44 - 7,000 gr/dscf | N/A | N/A |
| | | **Other Considerations** | Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards. | Dry ESP efficiency varies significantly with dust resistivity. Air leakage and acid condensation may cause corrosion. ESPs are not generally suitable for highly variable processes. Equipment footprint is often substantial. | Effluent wastewater stream may require treatment. Sludge disposal may be costly. Wet scrubbers are particularly susceptible to corrosion. | Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. | N/A | N/A |
| ***Step 2.*** | **ELIMINATE TECHNICALLY INFEASIBLE OPTIONS** | **RBLC Database Information** | Not included in RBLC for control of PM emissions from auxiliary boilers. | Not included in RBLC for control of PM emissions from auxiliary boilers. | Not included in RBLC for control of PM emissions from auxiliary boilers. | Not included in RBLC for control of PM emissions from auxiliary boilers. | Included in RBLC for the control of PM emissions from auxiliary boilers. | Included in RBLC for the control of PM emissions from auxiliary boilers. |
| | | **Feasibility Discussion** | Technically Infeasible. Natural-gas fired boilers generate low PM emissions, resulting in very low concentrations of PM. Add-on control devices would not provide any measurable emission reduction. | Technically Infeasible. Natural-gas fired boilers generate low PM emissions, resulting in very low concentrations of PM. Add-on control devices would not provide any measurable emission reduction. | Technically Infeasible. Natural-gas fired boilers generate low PM emissions, resulting in very low concentrations of PM. Add-on control devices would not provide any measurable emission reduction. | Technically Infeasible. Natural-gas fired boilers generate low PM emissions, resulting in very low concentrations of PM. Add-on control devices would not provide any measurable emission reduction. | Feasible | Feasible |
| ***Step 3.*** | **RANK REMAINING CONTROL TECHNOLOGIES** | **Overall Control Efficiency** | | | | | Base Case | Base Case |
| ***Step 4.*** | **EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS** | **Cost Effectiveness ($/ton)** | Not evaluated as feasible controls have been selected. | | | | | |
| ***Step 5.*** | **SELECT BACT** | | | | | | **BACT:**<br>**Pipeline quality natural gas as fuel** | **BACT Limit:**<br>**0.0074 lb PM /MMBtu [g]** |

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.
g. RBLC TPM limits for boilers of a similar size to those proposed at the SEC ranged from 0.000938 lb/MMBtu to 0.01 lb/MMBtu. However, the majority of boiler RBLC TPM limits below 0.0075 lb/MMBtu correspond to facilities with different boiler applications that require continuous operation during the year (i.e. are process boilers/non-auxiliary boilers), unlike the auxiliary boilers at the SEC which would operate for a maximum 2,000 annual hours each, and facilities that were never built or that have yet to demonstrate compliance with their listed BACT limit. The majority of RBLC entries for boilers with similar applications are in the range of 0.0074 to 0.008 lb/MMBtu between 2022 and 2026. As such, the proposed TPM limit is consistent with the relevant range of limits entered in the RBLC and represents the SEC site-specific conditions, fuel specifications, and expected performance of the control technologies determined to be BACT.

## Table 12.4.3-2. Top-Down BACT Analysis for Auxiliary Boilers - NOx

| Process | Pollutant |
|---|---|
| Auxiliary Boilers | $NO_x$ |

| | | Control Technology | Selective Catalytic Reduction (SCR) [a] | Flue Gas Recirculation | Good Combustion Practices | Low-$NO_x$ Burners |
|---|---|---|---|---|---|---|
| ***Step 1.*** | **IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES** | **Control Technology Description** | A nitrogen-based reagent (e.g., ammonia, urea) is injected into the exhaust stream downstream of the combustion unit. The reagent reacts selectively with $NO_x$ to produce molecular $N_2$ and water in a reactor vessel containing a metallic or ceramic catalyst. | A portion of the flue gas is recycled from the stack to the burner windbox. The recirculated gas acts as a diluent to reduce combustion temperatures, thus suppressing the thermal $NO_x$ mechanism. FGR also reduces $NO_x$ formation by lowering the oxygen concentration in the primary flame zone. | Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices. | Low-$NO_x$ burners are designed to control fuel and air mixing in order to create larger and more branched flames. The improved flame structure also reduces the amount of oxygen available in the flame, improving burner efficiency. Some of the burner designs produce a low-pressure zone at the burner center by injecting fuel at high velocities along the burner edges. Such a low-pressure zone tends to recirculate hot combustion gas which is retrieved through an internal reverse flow zone around the extension of the burner centerline. The recirculated combustion gas is deficient in oxygen, thus producing the effect of flue gas recirculation. Reducing the oxygen content of the primary air creates a fuel-rich combustion zone that then generates a reducing atmosphere for combustion.<br><br>Due to fuel-rich conditions and lack of available oxygen, formation of thermal $NO_x$ and fuel $NO_x$ are minimized. Based on the RBLC information, this technology typically allows for an emission rate between 0.01 and 0.05 lb/MMBtu. |
| | | **Typical Operating Temperature** | 480 - 800 °F<br>(variations of ± 200 °F) | N/A | N/A | N/A |
| | | **Typical Waste Stream Inlet Flow Rate** | N/A | N/A | N/A | N/A |
| | | **Typical Waste Stream Inlet Pollutant Concentration** | As low as 20 ppm (efficiency improves with increased concentration up to 150 ppm) | N/A | N/A | N/A |
| | | **Other Considerations** | Unreacted reagent may form ammonium sulfates which may plug or corrode downstream equipment. Particulate-laden streams may blind the catalyst and may necessitate the application of a sootblower. | N/A | N/A | N/A |

**Table 12.4.3-2. Top-Down BACT Analysis for Auxiliary Boilers - NOx**

| | | | | | | |
|---|---|---|---|---|---|---|
| ***Step 2.*** | **ELIMINATE TECHNICALLY INFEASIBLE OPTIONS** | **RBLC Database Information** | Not included in RBLC for control of $NO_x$ emissions from boilers smaller than 100 MMBtu/hr. | Included in RBLC for the control of $NO_x$ emissions from auxiliary boilers. | Included in RBLC for the control of $NO_x$ emissions from auxiliary boilers. | Included in RBLC for the control of $NO_x$ emissions from auxiliary boilers. |
| | | **Feasibility Discussion** | Feasible | Not feasible for smaller boilers without CO emission control, since the addition of FGR may also reduce combustion efficiency, resulting in higher CO emissions. | Feasible | Feasible |
| ***Step 3.*** | **RANK REMAINING CONTROL TECHNOLOGIES** | **Overall Control Efficiency** [b] | 70-90% | 60-90% | Base Case | 40-85%, Base Case |
| ***Step 4.*** | **EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS** | **Cost Effectiveness ($/ton)** | $127,512 per ton of $NO_x$ removed in 2026 dollars for a 90 MMBtu/hr auxiliary boiler based on the methodology in the June 2019 USEPA Air Pollution Control Cost Estimation Spreadsheet for SCR. | | | |
| ***Step 5.*** | **SELECT BACT** | | | | **BACT: Good Combustion Practices** | **BACT: Low-$NO_x$ Burners** |
| | **Numerical Limit, as appropriate** | | | | | **BACT Limit: 0.011 lb $NO_x$/MMBtu** [c] |

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Selective Catalytic Reduction (SCR))," EPA-452/F-03-032.

b. The control efficiencies identified in the table represent typical control efficiency ranges for these control technologies and were used for ranking purposes only. The percent reductions from SCR are general ranges expected from utility boilers which have higher inlet $NO_x$ emissions.

c. This emission limit of 0.011 lb/MMBtu is consistent with the emission limits provided in the RBLC database. The SEC can achieve the same emission rates without using SCR.

## Table 12.4.3-3. Top-Down BACT Analysis for Auxiliary Boilers - CO and VOC

| Process | Pollutant |
|---|---|
| Auxiliary Boilers | CO and VOC |

| | | | | | |
|---|---|---|---|---|---|
| ***Step 1.*** | **IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES** | **Control Technology** | **Oxidation Catalyst [a]** | **Fuel Specifications** | **Good Combustion Practices** |
| | | **Control Technology Description** | Hot flue gases pass through a catalyst bed that increases the oxidation rate more quickly and at lower temperatures. | Combusting only natural gas with a low carbon content that results in less CO and VOC emissions. | Continued operation of the auxiliary boilers at the appropriate oxygen range and temperature to promote complete combustion and minimize CO and VOC formation. |
| | | **Typical Operating Temperature** | 600 - 800 °F<br>(not to exceed 1,250 °F) | N/A | N/A |
| | | **Typical Waste Stream Inlet Flow Rate** | 700 - 50,000 scfm | N/A | N/A |
| | | **Typical Waste Stream Inlet Pollutant Concentration** | As low as 1 ppmv | N/A | N/A |
| | | **Other Considerations** | Oxidation efficiency depends on exhaust flow rate and composition. Residence time required for oxidation to take place at the active sites of the catalyst may not be achieved if exhaust flow rates exceed design specifications. Also, sulfur and other compounds may foul the catalyst, leading to decreased efficiency. | N/A | N/A |
| ***Step 2.*** | **ELIMINATE TECHNICALLY INFEASIBLE OPTIONS** | **RBLC Database Information** | Not included in RBLC for the control of VOC or CO emissions from boilers < 100 MMBtu/hr. | Included in RBLC for the control of CO and VOC emissions from auxiliary boilers. | Included in RBLC for the control of CO and VOC emissions from auxiliary boilers. |
| | | **Feasibility Discussion** | Feasible | Feasible | Feasible |
| ***Step 3.*** | **RANK REMAINING CONTROL TECHNOLOGIES** | **Overall Control Efficiency** | 50-90% for CO<br>50-60% for VOC | Base Case | Base Case |
| ***Step 4.*** | **EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS** | **Cost Effectiveness ($/ton)** | Not evaluated as feasible controls have been selected. | | |
| ***Step 5.*** | **SELECT BACT** | | | **BACT:**<br>**Pipeline quality natural gas as fuel** | **BACT Limit:**<br>**0.037 lb CO /MMBtu [b]**<br>**0.0054 lb VOC /MMBtu [c]** |

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Catalytic Incinerator)," EPA-452/F-03-018.

b. RBLC CO limits for boilers of a similar size and application to those proposed at the SEC ranged from 0.0037 lb/MMBtu to 0.2788 lb/MMBtu. However, the boiler RBLC CO limits that are below 0.037 lb/MMBtu apply to facilities that have yet to demonstrate compliance with their listed BACT limit or were never built (Nemadji Trail Energy Center [RBLC ID WI-0300] and Harrison Power [RBLC ID OH-0377] respectively). The proposed auxiliary boilers at the SEC will primarily operate during startup events, each up to 2,000 hours per year. As such, the proposed CO limit is consistent with the relevant range of limits entered in the RBLC and represents the SEC site-specific conditions, fuel specifications, and expected performance of the control technologies determined to be BACT.

c. RBLC VOC limits for boilers of a similar size to those proposed at the SEC ranged from 0.0015 lb/MMBtu to 0.1422 lb/MMBtu, with most limits being greater than or equal to 0.0054 lb/MMBtu. The majority of boiler RBLC TPM limits below 0.0054 lb/MMBtu correspond to facilities with different boiler applications that require continuous operation during the year (i.e. are process boilers/non-auxiliary boilers), unlike the auxiliary boilers at the SEC which would operate for a maximum 2,000 annual hours each, and facilities that were never built or that have yet to demonstrate compliance with their listed BACT limit. The only other power-application RBLC entry below 0.0054 lb/MMBtu which has demonstrated compliance with their BACT limit of 0.004 lb/MMBtu is the Plant Barry 90.5 MMBtu/hr boiler (RBLC ID AL-0328). However, this boiler was permitted for up to 8,760 hours of operation which is not comparable to the intermittent use proposed for the boilers at the SEC. As such, the proposed VOC limit is consistent with the relevant range of limits entered in the RBLC and represents the SEC site-specific conditions, fuel specifications, and expected performance of the control technologies determined to be BACT.

## Table 12.4.3-4. Top-Down BACT Analysis for Auxiliary Boilers - SO2 and H2SO4

| Process | Pollutant |
|---|---|
| Auxiliary Boilers | $SO_2$ and $H_2SO_4$ |

| | | Control Technology | Flue Gas Desulfurization [a] | Dry Sorbent Injection [a] | Fuel Specifications | Good Combustion Practices |
|---|---|---|---|---|---|---|
| ***Step 1.*** | **IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES** | **Control Technology Description** | Absorption of $SO_2$ is accomplished by the contact between the exhaust and an alkaline reagent, which results in the formation of neutral salts. Wet systems employ reagents using packed or spray towers and generate wastewater streams, while dry systems inject slurry reagent into the exhaust stream to react, dry and be removed downstream by particulate control equipment. | A post-combustion technology in which a calcium or sodium-based sorbent is injected into the exhaust gas. The sorbent absorbs, neutralizes, or oxidizes the $SO_2$ and $SO_3$ in the exhaust, forming solid compounds, either calcium or sodium sulfates. The solids are then removed downstream by particulate control equipment. | Combusting only natural gas, which has an inherently low sulfur content, rather than higher sulfur content fuels alone or in combination with natural gas. | Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices. |
| | | **Typical Operating Temperature** | 300 - 700 °F (wet)<br>300 - 1,830 °F (dry) | N/A | N/A | N/A |
| | | **Typical Waste Stream Inlet Flow Rate** | N/A | N/A | N/A | N/A |
| | | **Typical Waste Stream Inlet Pollutant Concentration** | 2,000 ppmv | N/A | N/A | N/A |
| | | **Other Considerations** | Chlorine emissions can result in salt deposition within the absorber and in downstream equipment. Wet systems may require flue gas re-heating downstream of the absorber to prevent corrosive condensation. Inlet streams for dry systems must be cooled as appropriate, and dry systems require use of particulate controls to collect the solid natural salts. | Requires use of particulate controls to collect the reaction solids. | N/A | N/A |
| ***Step 2.*** | **ELIMINATE TECHNICALLY INFEASIBLE OPTIONS** | **RBLC Database Information** | Not included in RBLC for the control of $SO_2$ nor $H_2SO_4$ emissions from auxiliary boilers. | Not included in RBLC for the control of $SO_2$ nor $H_2SO_4$ emissions from auxiliary boilers. | Widely accepted as BACT in RBLC for the control of $SO_2$ and $H_2SO_4$ emissions from auxiliary boilers. | Widely accepted as BACT in RBLC for the control of $SO_2$ and $H_2SO_4$ emissions from auxiliary boilers. |
| | | **Feasibility Discussion** | Technically infeasible. Technology has not been applied to natural gas boilers due to very low $SO_2$ and $H_2SO_4$ emissions. Controls would not provide any measurable emission reduction. | Technically infeasible. Technology has not been applied to natural gas boilers due to very low $SO_2$ and $H_2SO_4$ emissions. Controls would not provide any measurable emission reduction. | Feasible | Feasible |
| ***Step 3.*** | **RANK REMAINING CONTROL TECHNOLOGIES** | **Overall Control Efficiency** | | | Base Case | Base Case |
| ***Step 4.*** | **EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS** | **Cost Effectiveness ($/ton)** | Not evaluated as feasible controls have been selected. | | | |
| ***Step 5.*** | **SELECT BACT** | | | | **BACT Limit: 0.5 gr/100 scf fuel sulfur** | **BACT: Good Combustion Practices** |

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Flue Gas Desulfurization)," EPA-452/F-03-034.

### 12.4.4 Dew Point Heaters

As part of the Project, Steele is proposing to install two (2) dew point heaters for warming the natural gas fuel, with an individual heat input capacity up to 11.7 MMBtu/hr and operational schedule of up to 8,760 hours/year. The control technologies listed in the following subsections were obtained from the RBLC database for gas-fired heaters in the size range of 3 – 21 MMBtu/hr, research of emerging technologies, and principles of the control technology and engineering experience for general combustion units.

- **Summary of Applicable Limits from NSPS/State Rules:** The dew point heaters will be subject to NSPS Subpart Dc, but this rule does not include any pollutant emission limits for NG-fired units. Additionally, the proposed dew point heaters will be subject to certain local PCAQCD Stationary Source Performance Standards which set the floor for allowable BACT limits.
  - CoR §5-21 – Fossil Fuel-fired Industrial and Commercial Equipment: Sets an allowable PM emission limit for the combined heater emissions calculated as 11.52 lb/hr based on the formula contained in CoR §5-21-930.C(1).

The proposed BACT is at least as stringent as applicable NSPS and state rules.

**Table 12.4.4-1. Top-Down BACT Analysis for Dew Point Heaters - PM/PM10/PM2.5**

| Process | Pollutant |
|---|---|
| Dew Point Heaters | $PM/PM_{10}/PM_{2.5}$ |

| | | Control Technology | Baghouse / Fabric Filter [a] | Electrostatic Precipitator (ESP) [b,c,d] | Wet Scrubber [e] | Cyclone [f] | Fuel Specifications | Good Combustion Practices |
|---|---|---|---|---|---|---|---|---|
| ***Step 1.*** | **IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES** | **Control Technology Description** | Process exhaust gas passes through a tightly woven or felted fabric arranged in sheets, cartridges, or bags that collect PM via sieving and other mechanisms. The dust cake that accumulates on the filters increases collection efficiency. Various cleaning techniques include pulse-jet, reverse-air, and shaker technologies. | Electrodes stimulate the waste gas and induce an electrical charge in the entrained particles. The resulting electrical field forces the charged particles to the collector walls from which the material may be mechanically dislodged and collected in dry systems or washed with a water deluge in wet systems. | A scrubbing liquid introduced into the gas stream captures and collects entrained particles. In the case of a venturi scrubber, the turbulent airflow atomizes the scrubbing liquid to increase droplet-particle interaction. The droplets containing particles are typically separated from the exhaust gas in a downstream cyclonic separator. | Centrifugal forces drive particles in the gas stream toward the cyclone walls as the waste gas flows through the conical unit. The captured particles are collected in a material hopper below the unit. | Combusting only natural gas, which has an inherently low sulfur content, rather than higher sulfur content fuels alone or in combination with natural gas. | Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices. |
| | | **Typical Operating Temperature** | Up to 500 °F (Typical) | Up to 1,300 °F (dry)<br>Lower than 170 - 190 °F (wet) | 40 to 750 °F | Up to 1,000 °F | N/A | N/A |
| | | **Typical Waste Stream Inlet Flow Rate** | 100 - 100,000 scfm (Standard)<br>100,000 - 1,000,000 scfm (Custom) | 1,000 - 100,000 scfm (Wire-Pipe)<br>100,000 - 1,000,000 scfm (Wire-Plate) | 500 - 100,000 scfm<br>(units in parallel can operate at greater flow rates) | 1.1 - 63,500 scfm (single)<br>Up to 106,000 scfm (in parallel) | N/A | N/A |
| | | **Typical Waste Stream Inlet Pollutant Concentration** | 0.5 - 10 gr/dscf (Typical)<br>0.05 - 100 gr/dscf (Achievable) | 0.5 - 5 gr/dscf (Wire-Pipe)<br>1 - 50 gr/dscf (Wire-Plate) | 0.1 - 50 gr/dscf | 0.44 - 7,000 gr/dscf | N/A | N/A |
| | | **Other Considerations** | Fabric filters are susceptible to corrosion and blinding by moisture. Appropriate fabrics must be selected for specific process conditions. Accumulations of dust may present fire or explosion hazards. | Dry ESP efficiency varies significantly with dust resistivity. Air leakage and acid condensation may cause corrosion. ESPs are not generally suitable for highly variable processes. Equipment footprint is often substantial. | Effluent wastewater stream may require treatment. Sludge disposal may be costly. Wet scrubbers are particularly susceptible to corrosion. | Cyclones typically exhibit lower efficiencies when collecting smaller particles. High-efficiency units may require substantial pressure drop. | N/A | N/A |
| ***Step 2.*** | **ELIMINATE TECHNICALLY INFEASIBLE OPTIONS** | **RBLC Database Information** | Not included in RBLC for control of PM emissions from heaters. | Not included in RBLC for control of PM emissions from heaters. | Not included in RBLC for control of PM emissions from heaters. | Not included in RBLC for control of PM emissions from heaters. | Included in RBLC for the control of PM emissions from heaters. | Included in RBLC for the control of PM emissions from heaters. |
| | | **Feasibility Discussion** | Technically Infeasible. Natural-gas fired heaters generate low PM emissions, resulting in very low concentrations of PM. Add-on control devices would not provide any measurable emission reduction. | Technically Infeasible. Natural-gas fired heaters generate low PM emissions, resulting in very low concentrations of PM. Add-on control devices would not provide any measurable emission reduction. | Technically Infeasible. Natural-gas fired heaters generate low PM emissions, resulting in very low concentrations of PM. Add-on control devices would not provide any measurable emission reduction for the particle sizes typically generated by natural gas combustion. | Technically Infeasible. Natural-gas fired heaters generate low PM emissions, resulting in very low concentrations of PM. Add-on control devices would not provide any measurable emission reduction for the particle sizes typically generated by natural gas combustion. | Feasible | Feasible |
| ***Step 3.*** | **RANK REMAINING CONTROL TECHNOLOGIES** | **Overall Control Efficiency** | | | | | Base Case | Base Case |
| ***Step 4.*** | **EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS** | **Cost Effectiveness ($/ton)** | Not evaluated as feasible controls have been selected. | | | | | |
| ***Step 5.*** | **SELECT BACT** | | | | | | **BACT:<br>Pipeline quality natural gas as fuel** | **BACT Limit:<br>0.0070 lb PM /MMBtu [g]** |

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Fabric Filter - Pulse-Jet Cleaned Type)," EPA-452/F-03-025.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Pipe Type)," EPA-452/F-03-027.
c. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Dry Electrostatic Precipitator (ESP) - Wire-Plate Type)," EPA-452/F-03-028.
d. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Wet Electrostatic Precipitator(ESP) - Wire-Pipe Type)," EPA-452/F-03-029.
e. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Venturi Scrubber)," EPA-452/F-03-017.
f. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Cyclone)," EPA-452/F-03-005.
g. RBLC TPM limits for dew point heaters of a similar size to those proposed at SEC ranged from 0.0019 lb/MMBtu to 0.01 lb/MMBtu. However, the majority of dew point heater RBLC TPM limits that are below 0.0070 lb/MMBtu apply to facilities that were never built and facilities that have yet to demonstrate compliance with their listed BACT limit. As such, the proposed TPM limit is consistent with the relevant range of limits entered in the RBLC and represents the SEC site-specific conditions, fuel specifications, and expected performance of the control technologies determined to be BACT.

## Table 12.4.4-2. Top-Down BACT Analysis for Dew Point Heaters - NOx

| Process | Pollutant |
|---|---|
| Dew Point Heaters | $NO_x$ |

| | | Control Technology | Selective Catalytic Reduction (SCR) [a] | Flue Gas Recirculation [b] | Good Combustion Practices | Low-$NO_x$ Burners |
|---|---|---|---|---|---|---|
| ***Step 1.*** | **IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES** | **Control Technology Description** | A nitrogen-based reagent (e.g., ammonia, urea) is injected into the exhaust stream downstream of the combustion unit. The reagent reacts selectively with $NO_x$ to produce molecular $N_2$ and water in a reactor vessel containing a metallic or ceramic catalyst. | A portion of the flue gas is recycled from the stack to the burner windbox. The recirculated gas acts as a diluent to reduce combustion temperatures, thus suppressing the thermal $NO_x$ mechanism. FGR also reduces $NO_x$ formation by lowering the oxygen concentration in the primary flame zone. | Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices. | Low $NO_x$ burners reduce $NO_x$ by accomplishing the combustion process in stages. Staging partially delays the combustion process, resulting in a cooler flame which suppresses thermal $NO_x$ formation.<br><br>Based on RBLC information for similar sized heaters used in the same proposed application as the SEC, this technology typically allows for an emission rate generally between 0.01 and 0.098 lb/MMBtu via low-$NO_x$ burners. |
| | | **Typical Operating Temperature** | 480 - 800 °F<br>(variations of ± 200 °F) | N/A | | N/A |
| | | **Typical Waste Stream Inlet Flow Rate** | N/A | N/A | | N/A |
| | | **Typical Waste Stream Inlet Pollutant Concentration** | As low as 20 ppm (efficiency improves with increased concentration up to 150 ppm) | N/A | | N/A |
| | | **Other Considerations** | Unreacted reagent may form ammonium sulfates which may plug or corrode downstream equipment. Particulate-laden streams may blind the catalyst and may necessitate the application of a sootblower. | N/A | | N/A |
| ***Step 2.*** | **ELIMINATE TECHNICALLY INFEASIBLE OPTIONS** | **RBLC Database Information** | Not included in the RBLC for similar sized heaters as those proposed by SEC. Included in RBLC for the control of $NO_x$ emissions from large heaters (90 MMBtu/hr). | Not included in the RBLC for similar sized heaters as those proposed by the SEC. | Included in RBLC for the control of $NO_x$ emissions from heaters. | Included in RBLC for the control of $NO_x$ emissions from heaters. |
| | | **Feasibility Discussion** | Not feasible for smaller heaters with heat capacity less than 10 MMBtu/hr. | Not feasible for smaller heaters without CO emission control, since the addition of FGR may also reduce combustion efficiency, resulting in higher CO emissions. | Feasible | Feasible |
| ***Step 3.*** | **RANK REMAINING CONTROL TECHNOLOGIES** | **Overall Control Efficiency** | 70-90% | 60-90% | Base Case | 38%-63% |
| ***Step 4.*** | **EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS** | **Cost Effectiveness ($/ton)** | Not evaluated as feasible controls have been selected. | | | |
| ***Step 5.*** | **SELECT BACT [d]** | | | | **BACT: Good Combustion Practices** | **BACT: Low-$NO_x$ Burners** |
| | **Numerical Limit, as appropriate** | | | | | **BACT Limit: 0.011 lb $NO_x$/MMBtu** |

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Selective Catalytic Reduction (SCR))," EPA-452/F-03-032.
b. U.S. EPA, AP-42 Section 1.4, "Natural Gas Combustion"
c. The RBLC database emission limit entries associated with similar small, NG-fired combustion units, do not require compliance demonstration through source testing, and in most cases are not designed to allow for direct measurement of emissions. Therefore, little data is available to prove that units with lower limits comply with these limits. Given the relatively low emissions from small, NG-fired combustion units, and the uncertainty with respect to the performance of these units, the SEC's proposed emission limits represent BACT-level control.

## Table 12.4.4-3. Top-Down BACT Analysis for Dew Point Heaters - CO and VOC

| Process | Pollutant |
|---|---|
| Dew Point Heaters | CO and VOC |

| | | | | | |
|---|---|---|---|---|---|
| ***Step 1.*** | **IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES** | **Control Technology** | **Oxidation Catalyst [a]** | **Fuel Specifications** | **Good Combustion Practices** |
| | | **Control Technology Description** | Hot flue gases pass through a catalyst bed that increases the oxidation rate more quickly and at lower temperatures. | Combusting only natural gas that results in less CO and VOC emissions. | Continued operation of the heaters at the appropriate oxygen range and temperature to promote complete combustion and minimize CO and VOC formation. |
| | | **Typical Operating Temperature** | 600 - 800 °F (not to exceed 1,250 °F) | N/A | N/A |
| | | **Typical Waste Stream Inlet Flow Rate** | 700 - 50,000 scfm | N/A | N/A |
| | | **Typical Waste Stream Inlet Pollutant Concentration** | As low as 1 ppmv | N/A | N/A |
| | | **Other Considerations** | Oxidation efficiency depends on exhaust flow rate and composition. Residence time required for oxidation to take place at the active sites of the catalyst may not be achieved if exhaust flow rates exceed design specifications. Also, sulfur and other compounds may foul the catalyst, leading to decreased efficiency. | N/A | N/A |
| ***Step 2.*** | **ELIMINATE TECHNICALLY INFEASIBLE OPTIONS** | **RBLC Database Information** | Not included in RBLC for control of CO and VOC emissions from heaters. | Included in RBLC for the control of CO emissions from heaters. | Widely accepted BACT in RBLC for the control of CO and VOC emissions from heaters. |
| | | **Feasibility Discussion** | SEC is not aware of any heaters that have demonstrated the use of such a system and therefore does not consider this technology to meet the "applicable" requirement. For this reason, oxidation catalyst is not technically feasible. | Feasible | Feasible |
| ***Step 3.*** | **RANK REMAINING CONTROL TECHNOLOGIES** | **Overall Control Efficiency** | | Base Case | Base Case |
| ***Step 4.*** | **EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS** | **Cost Effectiveness ($/ton)** | Not evaluated as feasible controls have been selected. | | |
| ***Step 5.*** | **SELECT BACT** | | | **BACT: Pipeline quality natural gas as fuel** | **BACT Limit: 0.08 lb CO /MMBtu [b] 0.005 lb VOC /MMBtu** |

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Catalytic Incinerator)," EPA-452/F-03-018.
b. RBLC CO limits for dew point heaters of a similar size to those proposed at the SEC ranged from 0.037 lb/MMBtu to 0.188 lb/MMBtu. However, the majority of fuel heater RBLC CO limits that are below 0.08 lb/MMBtu apply to facilities that were never built and facilities that have yet to demonstrate compliance with their listed BACT limit. As such, the proposed CO limit is consistent with the relevant range of limits entered in the RBLC and represents the SEC site-specific conditions, fuel specifications, and expected performance of the control technologies determined to be BACT.

**Table 12.4.4-4. Top-Down BACT Analysis for Dew Point Heaters - SO2 and H2SO4**

| Process | Pollutant |
|---|---|
| Dew Point Heaters | $SO_2$ and $H_2SO_4$ |

| | | Control Technology | Flue Gas Desulfurization [a] | Dry Sorbent Injection [a] | Fuel Specifications | Good Combustion Practices |
|---|---|---|---|---|---|---|
| ***Step 1.*** | **IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES** | **Control Technology Description** | Absorption of $SO_2$ is accomplished by the contact between the exhaust and an alkaline reagent, which results in the formation of neutral salts. Wet systems employ reagents using packed or spray towers and generate wastewater streams, while dry systems inject slurry reagent into the exhaust stream to react, dry and be removed downstream by particulate control equipment. | A post-combustion technology in which a calcium or sodium-based sorbent is injected into the exhaust gas. The sorbent absorbs, neutralizes, or oxidizes the $SO_2$ and $SO_3$ in the exhaust, forming solid compounds, either calcium or sodium sulfates. The solids are then removed downstream by particulate control equipment. | Combusting only natural gas, which has an inherently low sulfur content, rather than higher sulfur content fuels alone or in combination with natural gas. | Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices. |
| | | **Typical Operating Temperature** | 300 - 700 °F (wet)<br>300 - 1,830 °F (dry) | N/A | N/A | N/A |
| | | **Typical Waste Stream Inlet Flow Rate** | N/A | N/A | N/A | N/A |
| | | **Typical Waste Stream Inlet Pollutant Concentration** | 2,000 ppmv | N/A | N/A | N/A |
| | | **Other Considerations** | Chlorine emissions can result in salt deposition within the absorber and in downstream equipment. Wet systems may require flue gas re-heating downstream of the absorber to prevent corrosive condensation. Inlet streams for dry systems must be cooled as appropriate, and dry systems require use of particulate controls to collect the solid natural salts. | Requires use of particulate controls to collect the reaction solids. | N/A | N/A |
| ***Step 2.*** | **ELIMINATE TECHNICALLY INFEASIBLE OPTIONS** | **RBLC Database Information** | Not included in RBLC for the control of $SO_2$ nor $H_2SO_4$ emissions from heaters. | Not included in RBLC for the control of $SO_2$ nor $H_2SO_4$ emissions from heaters. | Widely accepted as BACT for control of $SO_2$ and $H_2SO_4$ emissions from similar sized heaters. | Widely accepted as BACT for control of $SO_2$ and $H_2SO_4$ emissions from similar sized heaters. |
| | | **Feasibility Discussion** | Technically infeasible. Technology has not been applied to natural gas heaters due to very low $SO_2$ and $H_2SO_4$ emissions. Controls would not provide any measurable emission reduction. | Technically infeasible. Technology has not been applied to natural gas heaters due to very low $SO_2$ and $H_2SO_4$ emissions. Controls would not provide any measurable emission reduction. | Feasible | Feasible |
| ***Step 3.*** | **RANK REMAINING CONTROL TECHNOLOGIES** | **Overall Control Efficiency** | | | Base Case | Base Case |
| ***Step 4.*** | **EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS** | **Cost Effectiveness ($/ton)** | Not evaluated as feasible controls have been selected. | | | |
| ***Step 5.*** | **SELECT BACT** | | | | **BACT Limit:<br>Pipeline quality natural gas as fuel<br>0.5 gr/100 scf fuel sulfur** | **BACT:<br>Good Combustion Practices** |

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Flue Gas Desulfurization)," EPA-452/F-03-034.

### 12.4.5 Emergency Generator Engines

As part of the Project, Steele is proposing to install two (2) diesel emergency generator engines with an individual rated capacity of up to 2,681 bhp, and one (1) diesel fire pump engine with an individual rated capacity of up to 305 bhp. Emergency diesel generator engine emissions are based on up 250 hours of operation, while emergency diesel fire pump engine emissions are based on up 500 hours of operation.
The control technologies listed in the following subsections were obtained from the RBLC database, research of emerging technologies, and principles of the control technology and engineering experience for general combustion units. The RBLC was queried for units with a rated capacity of 2,206 – 3,131 hp for the generator engines, and for units with a rated capacity of 225 – 402 hp for the fire pump engines. Additionally, emerging technologies and principles of the control technology and engineering experience for general combustion units were addressed in the top-down analysis for these sources.

- **Summary of Applicable Limits from NSPS/State Rules:** The fire pump engines and emergency generator engines will both be subject to NSPS IIII, which include the following applicable emission standards that set the floor for allowable BACT limits.
  - Emergency generator engines: Pursuant 40 CFR Appendix I to Part 1039, the following emission standards apply for rated power > 560 kW with a Tier 2 rating:
    - $NO_X$ + NMHC = 6.4 g/kW-hr
    - CO = 3.5 g/kW-hr
    - PM = 0.2 g/kW-hr
  - Emergency fire pump engines: Pursuant to Table 4 to the Subpart, the following Tier 3 emission standards apply for manufacture for years 2009+ with a rated power of 300 ≤ hp < 600:
    - $NO_X$ + NMHC = 3.0 g/hp-hr
    - CO = 2.6 g/hp-hr
    - PM = 0.15 g/hp-hr

The proposed BACT is at least as stringent as applicable NSPS and state rules.

## Table 12.4.5-1. Top-Down BACT Analysis for Diesel Emergency Generator Engines - PM/PM10/PM2.5

| Process | Pollutant |
|---|---|
| Diesel Emergency Generator Engines and Emergency Fire Pump Engines | $PM/PM_{10}/PM_{2.5}$ |

| | | Control Technology | Catalyzed Diesel Particulate Filter (CDPF) [a] | Good Combustion Practices | NSPS Subpart IIII Compliance |
|---|---|---|---|---|---|
| ***Step 1.*** | **IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES** | **Control Technology Description** | Exhaust gas is routed through a ceramic filter comprised of cells that are closed at one end, forcing the gas to pass through the substrate walls. PM is trapped and oxidized by a catalytic coating (e.g. a precious metal or a base) on the filter and the heat of the exhaust. Oxidized compounds are then able to diffuse through the filter wall and be exhausted. | Organic PM emissions are caused through incomplete combustion. When fuel and air are not well mixed in the combustion zone, low oxygen regions form in the fuel injection plume that cause unburned fuel to pyrolyze at the high engine temperature and form soot. Soot formation can be minimized by improving the fuel air mixing through enhanced fuel injection systems, air management systems, combustion system designs, and pre-mixed diesel combustion. | The SEC will purchase CI ICE that are Tier-certified or Tier compliant based on the applicable NSPS Subpart IIII PM limit. Additionally, NSPS Subpart IIII limits PM emissions by restricting annual hours of operation for each ICE for the purposes of maintenance checks and testing (per recommendations from the government, manufacturer/vendor, or insurance). |
| | | **Typical Operating Temperature** | 480 - 570°F | N/A | N/A |
| | | **Typical Waste Stream Inlet Flow Rate** | N/A | N/A | N/A |
| | | **Typical Waste Stream Inlet Pollutant Concentration** | N/A | N/A | N/A |
| | | **Other Considerations** | Exhaust gas temperature must be high enough over an extended period of time to allow for filter regeneration. | N/A | N/A |
| ***Step 2.*** | **ELIMINATE TECHNICALLY INFEASIBLE OPTIONS** | **RBLC Database Information** | Not included in the RBLC for the control of PM emissions from emergency generator and fire pump engines of similar size as the Facility units. | Included in the RBLC for the control of PM emissions from emergency generator and fire pump engines of similar size as the Facility units. | Included in the RBLC for the control of PM emissions from emergency generator and fire pump engines of similar size as the Facility units. |
| | | **Feasibility Discussion** | Feasible | Feasible | Feasible |
| ***Step 3.*** | **RANK REMAINING CONTROL TECHNOLOGIES** | **Overall Control Efficiency [b]** | >90% | Base Case | Base Case |
| ***Step 4.*** | **EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS** | **Cost Effectiveness ($/ton)** | EPA determined in the development of NSPS IIII that add-on controls are economically infeasible for emergency ICE [c]. | | |
| ***Step 5.*** | **SELECT BACT** | | | **BACT: Good Combustion Practices by operating engines in accordance with the manufacturer's operation and maintenance instructions or per a facility-developed plan (in a manner consistent with good air pollution control practices for minimizing emissions).** | **BACT Limit: Fire Pump Engine: 0.15 g/hp-hr for PM and comply with operating hour restrictions in NSPS IIII**<br><br>**Emergency Generator Engine: 0.149 g/hp-hr for PM and comply with operating hour restrictions in NSPS IIII** |

a. U.S. EPA, Office of Air Quality Planning and Standards, "Alternative Control Techniques Document: Stationary Diesel Engines," http://www.epa.gov/ttn/atw/rice/diesel_eng_act.pdf
b. Memo from Ms. Tanya Parise, Alpha Gamma Technologies, Inc. to Mr. Sims Roy, U.S. EPA OAQPS ESD Combustion Group. Cost per Ton for NSPS for Stationary CI ICE. June 9, 2005.
c. Preamble to the proposed NSPS Subpart IIII, Federal Register Volume 70 No. 131, July 11, 2005, pg. 39874.

**Table 12.4.5-2. Top-Down BACT Analysis for Diesel Emergency Generator Engines and Emergency Fire Pump Engines - NOx**

| Process | Pollutant |
|---|---|
| Diesel Emergency Generator Engines and Emergency Fire Pump Engines | $NO_x$ |

| | | Control Technology | Selective Catalytic Reduction (SCR) [a] | Selective Non-Catalytic Reduction (SNCR) [b] | Good Combustion Practices | NSPS Subpart IIII Compliance |
|---|---|---|---|---|---|---|
| ***Step 1.*** | **IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES** | **Control Technology Description** | A nitrogen-based reagent (e.g., ammonia, urea) is injected into the exhaust stream downstream of the combustion unit. The reagent reacts selectively with $NO_x$ to produce molecular $N_2$ and water in a reactor vessel containing a metallic or ceramic catalyst. | A nitrogen-based reagent (e.g., ammonia, urea) is injected into the exhaust stream and reacts selectively with $NO_x$ to produce molecular $N_2$ and water within the combustion unit. | $NO_x$ emissions are caused by oxidation of nitrogen gas in the combustion air during fuel combustion. This occurs due to high combustion temperatures and insufficiently mixed air and fuel in the cylinder where pockets of excess oxygen occur. These effects can be minimized through air-to-fuel ratio control, ignition timing reduction, and exhaust gas recirculation. | SEC will purchase CI ICE that are Tier-certified or Tier compliant based on the applicable NSPS Subpart IIII $NO_x$ limit in the form of a combined limit for $NO_x$ + NMHC. Additionally, NSPS Subpart IIII limits $NO_x$ emissions by restricting annual hours of operation for each ICE for the purposes of maintenance checks and testing (per recommendations from the government, manufacturer/vendor, or insurance). |
| | | **Typical Operating Temperature** | 480 - 800 °F (variations of ± 200 °F) | 1,600 - 2,100 °F (chemical additives can lower reaction temp.) | N/A | N/A |
| | | **Typical Waste Stream Inlet Flow Rate** | N/A | N/A | N/A | N/A |
| | | **Typical Waste Stream Inlet Pollutant Concentration** | As low as 20 ppm (efficiency improves with increased concentration up to 150 ppm) | 200 - 400 ppm | N/A | N/A |
| | | **Other Considerations** | SCR systems require fairly constant exhaust gas temperatures, and operation outside of the ideal range can result in increased emissions of $NO_x$ and $NH_3$ due to ammonia slip. SCR may be difficult to use for sources that operate for short periods of time and that experience frequent starts/stops since it can take time for the exhaust stream to reach the required operating temperature range. | Applying SNCR to the fire pump may be challenging from an operations standpoint due to the varying conditions of the exhaust. The $NO_x$ emission rate from the fire pump will vary during startup and depend upon the operating conditions of the engine. Under these conditions, an SNCR unit would not be capable of achieving steady-state operation and would pose adverse environmental impacts due to ammonia slip or urea release. | N/A | N/A |
| ***Step 2.*** | **ELIMINATE TECHNICALLY INFEASIBLE OPTIONS** | **RBLC Database Information** | Not included in the RBLC for the control of $NO_x$ emissions from emergency generator and fire pump engines of similar size as the Facility units. | Not included in the RBLC for the control of $NO_x$ emissions from emergency generator and fire pump engines of similar size as the Facility units. | Included in the RBLC for the control of $NO_x$ emissions from emergency generator and fire pump engines of similar size as the Facility units. | Included in the RBLC for the control of $NO_x$ emissions from emergency generator and fire pump engines of similar size as the Facility units. |
| | | **Feasibility Discussion** | Feasible | Feasible | Feasible | Feasible |
| ***Step 3.*** | **RANK REMAINING CONTROL TECHNOLOGIES** | **Overall Control Efficiency [b]** | 70-90% | Up to 60% | Base Case | Base Case |
| ***Step 4.*** | **EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS** | **Cost Effectiveness ($/ton)** | $84,062 per ton of $NO_x$ removed in 2026 dollars for a 2,681 horsepower emergency generator engine per vendor SCR quote and U.S. EPA Cost *Control Manual Section 1, Chapter 2 Cost Estimation: Concepts and Methodology*.<br><br>EPA determined in the development of NSPS Subpart IIII that add-on controls are economically infeasible for emergency ICE [c]. | EPA determined in the development of NSPS Subpart IIII that add-on controls are economically infeasible for emergency ICE [c]. | | |
| ***Step 5.*** | **SELECT BACT** | | | | **BACT:**<br>**Good Combustion Practices by operating engines in accordance with the manufacturer's operation and maintenance instructions or per a facility-developed plan (in a manner consistent with good air pollution control practices for minimizing emissions).** | **BACT Limit:**<br>**Fire Pump Engine: 3.0 g/hp-hr for $NO_x$ + NMHC [d] and comply with operating hour restrictions in NSPS IIII**<br><br>**Emergency Generator Engine: 4.8 g/hp-hr for $NO_x$ + NMHC [d] and comply with operating hour restrictions in NSPS IIII** |

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Selective Catalytic Reduction (SCR))," EPA-452/F-03-032.
b. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Selective Non-Catalytic Reduction (SNCR))," EPA-452/F-03-031.
c. Preamble to the proposed NSPS Subpart IIII, Federal Register Volume 70 No. 131, July 11, 2005, pg. 39874.
d. Assumes 95% of the combined $NO_x$ + NMHC Emission Factor is $NO_x$, and the remaining 5% is NMHC (VOC), per CARB, 2004, https://www.baaqmd.gov/~/media/files/engineering/policy_and_procedures/engines/emissionfactorsfordieselengines.pdf

**Table 12.4.5-3. Top-Down BACT Analysis for Diesel Emergency Generator Engines and Emergency Fire Pump Engines - CO and VOC**

| Process | Pollutant |
|---|---|
| Diesel Emergency Generator Engines and Emergency Fire Pump Engines | CO and VOC |

| | | Control Technology | Catalytic/Thermal Oxidation [a] | Good Combustion Practices | NSPS Subpart IIII Compliance |
|---|---|---|---|---|---|
| ***Step 1.*** | **IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES** | **Control Technology Description** | Hot flue gases pass through a catalyst bed that increases the oxidation rate more quickly and at lower temperatures. | CO emissions are caused through incomplete combustion. When fuel and air are not well mixed in the combustion zone, low oxygen regions form where fuel will partially combust, resulting in CO and unburned hydrocarbons that exit with the exhaust. CO and VOC formation can be minimized by improving the fuel air mixing through enhanced fuel injection systems, air management systems, combustion system designs, and pre-mixed diesel combustion. | SEC will purchase CI ICE that are Tier-certified or Tier compliant based on the applicable NSPS Subpart IIII CO limit and VOC limit (in the form of a combined limit for $NO_x$ + NMHC). Additionally, NSPS Subpart IIII limits CO and VOC emissions by restricting annual hours of operation for each ICE for the purposes of maintenance checks and testing (per recommendations from the government, manufacturer/vendor, or insurance). |
| | | **Typical Operating Temperature** | 600 - 800 °F<br>(not to exceed 1,250 °F) | N/A | N/A |
| | | **Typical Waste Stream Inlet Flow Rate** | 700 - 50,000 scfm | N/A | N/A |
| | | **Typical Waste Stream Inlet Pollutant Concentration** | As low as 1 ppmv | N/A | N/A |
| | | **Other Considerations** | Oxidation efficiency is associated with CO generation and depends on exhaust flow rate and composition. Residence time required for oxidation to take place at the active sites of the catalyst may not be achieved if exhaust flow rates exceed design specifications.<br><br>Catalyst can be deactivated by certain catalyst poisons or other fouling contaminants such as silicone, sulfur, heavy hydrocarbons, and particulates, which may impact control efficiency for VOC. | N/A | N/A |
| ***Step 2.*** | **ELIMINATE TECHNICALLY INFEASIBLE OPTIONS** | **RBLC Database Information** | Not included in the RBLC for the control of CO and VOC emissions from emergency generator and fire pump engines of similar size as the Facility units. | Included in the RBLC for the control of CO and VOC emissions from emergency generator and fire pump engines of similar size as the Facility units. | Included in the RBLC for the control of CO and VOC emissions from emergency generator and fire pump engines of similar size as the Facility units. |
| | | **Feasibility Discussion** | Feasible | Feasible | Feasible |
| ***Step 3.*** | **RANK REMAINING CONTROL TECHNOLOGIES** | **Overall Control Efficiency** | 50-90% for CO<br>50-60% for VOC | Base Case | Base Case |
| ***Step 4.*** | **EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS** | **Cost Effectiveness ($/ton)** | EPA determined in the development of NSPS IIII that add-on controls are economically infeasible for emergency ICE. [b] | | |
| ***Step 5.*** | **SELECT BACT** | | | **BACT:**<br>**Good Combustion Practices by operating engines in accordance with the manufacturer's operation and maintenance instructions or per a facility-developed plan (in a manner consistent with good air pollution control practices for minimizing emissions).** | **BACT Limit:**<br>**Fire Pump Engine: 2.6 g/hp-hr for CO, 3.0 g/hp-hr for $NO_x$ + NMHC [c], and comply with operating hour restrictions in NSPS IIII**<br><br>**Emergency Generator Engine: 2.6 g/hp-hr for CO, 4.8 g/hp-hr for $NO_x$ + NMHC [c], and comply with operating hour restrictions in NSPS IIII** |

a. U.S. EPA, Office of Air Quality Planning and Standards, "Air Pollution Control Technology Fact Sheet (Catalytic Incinerator)," EPA-452/F-03-018.
b. Preamble to the proposed NSPS Subpart IIII, Federal Register Volume 70 No. 131, July 11, 2005, pg. 39874.
c. Assumes 95% of the combined $NO_x$ + NMHC Emission Factor is $NO_x$, and the remaining 5% is NMHC (VOC), per CARB, 2004, https://www.baaqmd.gov/~/media/files/engineering/policy_and_procedures/engines/emissionfactorsfordieselengines.pdf

**Table 12.4.5-4. Top-Down BACT Analysis for Diesel Emergency Generator Engines and Emergency Fire Pump Engines - SO2 and H2SO4**

| Process | Pollutant |
|---|---|
| Diesel Emergency Generator Engines and Emergency Fire Pump Engines | $SO_2$ and $H_2SO_4$ |

| | | | | |
|---|---|---|---|---|
| ***Step 1.*** | **IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES** | **Control Technology** | **Good Combustion Practices** | **Fuel Specifications** |
| | | **Control Technology Description** | Operate and maintain the equipment in accordance with good air pollution control practices and with good combustion practices. Additionally, NSPS Subpart IIII limits CO and VOC emissions by restricting annual hours of operation for each ICE for the purposes of maintenance checks and testing (per recommendations from the government, manufacturer/vendor, or insurance). | Combusting only ultra-low sulfur diesel (ULSD), rather than higher sulfur content fuels alone or in combination with ULSD. |
| | | **Typical Operating Temperature** | N/A | N/A |
| | | **Typical Waste Stream Inlet Flow Rate** | N/A | N/A |
| | | **Typical Waste Stream Inlet Pollutant Concentration** | N/A | N/A |
| | | **Other Considerations** | N/A | N/A |
| ***Step 2.*** | **ELIMINATE TECHNICALLY INFEASIBLE OPTIONS** | **RBLC Database Information** | Included in the RBLC for the control of $SO_2$ and $H_2SO_4$ emissions from emergency generator and fire pump engines of similar size as the Facility units. | Included in the RBLC for the control of $SO_2$ and $H_2SO_4$ emissions from emergency generator and fire pump engines of similar size as the Facility units. |
| | | **Feasibility Discussion** | Feasible | Feasible |
| ***Step 3.*** | **RANK REMAINING CONTROL TECHNOLOGIES** | **Overall Control Efficiency** | Base Case | Base Case |
| ***Step 4.*** | **EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS** | **Cost Effectiveness ($/ton)** | | |
| ***Step 5.*** | **SELECT BACT** | | **BACT:**<br>**Compliance with NSPS Subpart IIII and operating engines in accordance with the manufacturer's operation and maintenance instructions or per a facility-developed plan.** | **BACT:**<br>**ULSD as fuel**<br><br>**BACT Limit**<br>**15 ppm of sulfur (0.0015 percent) by weight in fuel** |

### 12.4.6 Lube Oil Vents

Each of the two (2) combined cycle units will include one (1) gas turbine and one (1) steam turbine, and each turbine will be equipped with one (1) lube oil vent, for a total of four (4) lube oil vents at the Steele Energy Center. The annual potential emission rate from the demister vents is 0.88 tpy of VOC and particulates (PM, $PM_{10}$, and $PM_{2.5}$).

There are no applicable NSPS or local regulations to provide a baseline for the BACT analysis. Based on a review of permits available through the EPA RBLC and other state permitting databases for similar turbine installations, the only control option identified for minimizing lube oil vent emissions is the use of a demister. No add-on control technologies have been identified as technically feasible or economically justified for these sources. Therefore, BACT is defined as the use of the manufacturer-supplied demister inherent to the unit, combined with good operating and maintenance practices to ensure proper function and efficiency. Routine inspection and maintenance of the demister system help prevent equipment degradation and maintain effective oil capture performance.

### 12.4.7 Circuit Breakers

The Steele Energy Center will install eleven sulfur hexafluoride circuit breakers that will generate GHG emissions. Based on a review of available permits cited in general RBLC searches and other state permitting databases,
the only control option identified for GHG emissions from circuit breakers containing $SF_6$ is the use of enclosed-pressure equipment equipped with low manufacturer-guaranteed leak rates that is equipped with leakage detection systems and alarms. No add-on control technologies are identified as technically feasible for these sources. Therefore, BACT is defined as the installation of circuit breakers with a guaranteed maximum leak rate of 0.5% by weight per year or less, in combination with good maintenance and leak monitoring practices.

### 12.4.8 Natural Gas Fugitives

As part of the Project, Steele is proposing to install natural gas transfer components including piping, valves, and flanges to feed the proposed combined cycle turbines and auxiliary boilers. The control technologies listed in the following subsections were obtained from the RBLC database for natural gas transfer components used in the electric services sector (SIC code 4911), research of emerging technologies, and principles of the control technology and engineering experience for units emitting greenhouse gas fugitives. There are no applicable NSPS or local regulations to provide a baseline for the BACT analysis.

The proposed BACT is at least as stringent as applicable NSPS and state rules.

## Table 12.4.8-1. Top-Down BACT Analysis for Natural Gas Fugitives - VOC

| Process | Pollutant |
|---|---|
| Natural Gas Fugitives | VOC |

| | | | | | |
|---|---|---|---|---|---|
| ***Step 1.*** | **IDENTIFY AIR POLLUTION CONTROL TECHNOLOGIES** | **Control Technology** | **Leak inspections** | **High Quality Components** | **Best Management Practices** |
| | | **Control Technology Description** | Implement leak detection protocols such as Audio, Visual, and Olfactory (AVO) inspections and instrument-based inspections on a regular basis. AVO inspections provide a simplified method of leak detection through visual scanning for signs of leaks, listening for unusual sounds, and smelling for any NG odor.<br><br>Several RBLC entries determined BACT to be Leak Detection and Repair (LDAR) in line with the requirements found in NSPS Subpart OOOOb (40 CFR §60.5397b). Compliance with NSPS Subpart VVb (40 CFR §60.480b) and NESHAP Subparts H (40 CFR §63.160), TT (40 CFR §63.1000), and UU (40 CFR §63.1019) were also determined to be BACT for several of the chemical production facility RBLC entries. The SEC power plant will not be subject to NSPS Subparts OOOOb or VVb. The SEC power plant will also not be subject to NESHAP Subparts H, TT, or UU. | Use leak-proof or otherwise high-quality natural gas piping and pump components. | Employ measures to prevent natural gas leaks and promptly repair leaks when they are discovered. |
| | | **Typical Operating Temperature** | N/A | N/A | N/A |
| | | **Typical Waste Stream Inlet Flow Rate** | N/A | N/A | N/A |
| | | **Typical Waste Stream Inlet Pollutant Concentration** | N/A | N/A | N/A |
| | | **Other Considerations** | RBLC records show that certain facilities include natural gas fugitive emission limits. The emission limits are based on the number of piping components and therefore, are not appropriate to apply to the SEC power plant. | | |
| ***Step 2.*** | **ELIMINATE TECHNICALLY INFEASIBLE OPTIONS** | **RBLC Database Information** | Included in RBLC for the control of natural gas fugitive emissions from natural gas piping. | Included in RBLC for the control of natural gas fugitive emissions from natural gas piping. | Included in RBLC for the control of natural gas fugitive emissions from natural gas piping. |
| | | **Feasibility Discussion** | Feasible | Feasible | Feasible |
| ***Step 3.*** | **RANK REMAINING CONTROL TECHNOLOGIES** | **Overall Control Efficiency** | Base Case | Base Case | Base Case |
| ***Step 4.*** | **EVALUATE AND DOCUMENT MOST EFFECTIVE CONTROLS** | **Cost Effectiveness ($/ton)** | Not evaluated as feasible controls with highest control efficiency have been selected. | | |
| ***Step 5.*** | **SELECT BACT** | | **BACT: AVO inspections as a work practice** | **BACT: High quality natural gas components** | **BACT: Natural gas fugitive best management practices (BMPs)** |

## 12.4.9 Auxiliary Equipment GHG BACT

The Steele Energy Center includes multiple emission sources in addition to the turbines that will emit greenhouse gases:

- Natural Gas-Fired Boiler and Heaters
- Diesel-fired Emergency Engines and Fire Pump Engines
- Natural Gas Equipment Components
- Circuit Breakers

### *12.4.9.1 GHG BACT for Boilers*

GHG emissions form as products of the combustion reaction which occurs in the boilers. $CO_2$ forms from carbon in the fuel source when combined with oxygen. Methane ($CH_4$) is formed from excess carbon in the fuel that does not convert to $CO_2$; it is also released as uncombusted fuel. Nitrous Oxide ($N_2O$) is a side product of the combustion reaction and is minimized when combustion temperatures are higher and excess oxygen is low. Emissions of methane and nitrous oxide are trivial relative to $CO_2$ and thus are not discussed separately herein.

#### 12.4.9.1.1 Step 1 – Identification of Potential Control Technologies

The $CO_2$ is by far the dominant GHG from the boilers. $CH_4$ and $N_2O$ are present only in very small amounts, are incidental to combustion, and trend with the $CO_2$ emissions. This BACT analysis focused on $CO_2$ as a surrogate for all GHG emissions. A review of the RBLC did not identify any comparable facilities or processes utilizing add-on control devices for GHG reduction. This observation supports the conclusion that BACT for these units should be based on achievable emission limits/practices without assuming the use of additional control technologies.

Steele identified the following GHG control options:

- Carbon Capture and Storage (CCS);
- Alternative Fuels / Co-firing
- Fuel Specifications (Base Case); and
- Good Combustion Practices (GCP) (Base Case).

Each control technology is described per unit/process in the table below.

**Table 12-18. GHG Control Measures for Boilers**

| Unit/Process | Control Option | Description |
|---|---|---|
| Boilers | Carbon Capture and Storage | Carbon capture and sequestration is a geo-engineering technique used to capture $CO_2$ from an exhaust stream and store it permanently in underground reservoirs or similar geological features. $CO_2$ is captured and transported via pipelines to a site where it is injected underground. CCS requires significant infrastructure and footprint, with additional environmental impacts. |
| Boilers | Alternative Fuels-Biomass/Co-firing | The potential on-site reduction in $CO_2$ emissions that may be realized by switching from a traditional fossil |

| | | |
|---|---|---|
| | | fuel to a biomass fuel is based on the specific emission factor for the fuel as related to its caloric value. Gas co-firing involves modification of the combustion system to accommodate the introduction of natural gas or biomass-derived gas. |
| Boilers | Fuel Specifications | The carbon intensity of fuels can vary significantly across available fossil fuels commonly used in industry. Fuels with low carbon intensity have lower GHG emissions than fuels with high carbon intensity. Therefore, GHG BACT considerations involve the evaluation of low carbon intensity fuel options. By selecting a low carbon fuel (pipeline quality natural gas), GHG emissions are minimized. |
| Boilers | Good Combustion Practices | Good combustion design includes proper burner and unit design for the proposed units. Good operating practices include good burner maintenance and operation and good air to fuel mixing to promote complete combustion. By operating a combustion unit as efficiently as possible, GHG emissions are minimized.<br><br>Because GHG emissions result from the combustion of fuel, GHG emissions can be minimized by energy efficient operation and maintenance (O&M) of auxiliary boilers according to the manufacturer's emission-related instructions or per a facility-developed maintenance plan (in a manner consistent with safety and good air pollution control practices for minimizing emissions). |

#### 12.4.9.1.2 Step 2 – Elimination of Technically Infeasible Control Options

The second step in the BACT analysis is to eliminate any technically infeasible control technologies. Any control technology that is not feasible based on physical, chemical, and engineering principles is eliminated. The control technologies and their technical feasibilities are summarized below.

**Table 12-19. GHG Technical Feasibility Analysis for Boilers**

| Unit/Process | Control Option | Technically Feasible? | Overall Control Efficiency |
|---|---|---|---|
| Boilers | Carbon Capture and Storage | N | - |
| Boilers | Alternative Fuels-Biomass/Co-firing | N | - |
| Boilers | Fuel Specifications | Y | This represents the base case for design and operation of the emission units. |
| Boilers | Good Combustion Practices | Y | This represents the base case for design and operation of the emission units. |

### Carbon Capture and Storage (CCS)

EPA classifies CCS as a pollution control technology that may be available for facilities emitting high purity streams of $CO_2$ in large amounts. $CO_2$ is exhausted from boilers in the flue gas at atmospheric pressure and a low concentration. The capture scenario is challenging because the low pressure and dilute concentration means a high volume of gas needs to be treated.

Additionally, impurities in the gas stream inhibit $CO_2$ capture, unless one of the following processes were performed: absorption, adsorption, membranes, and cryogenic separation. Following capture, compression of the $CO_2$ would require a large auxiliary power load, resulting in additional fuel (and $CO_2$ emissions) to generate the same amount of power. As discussed in Section 12.4.1.7, following capture and compression, transport would be required, with pipeline being the preferred method. Since there are no $CO_2$ pipelines in the area, Steele would need to construct a $CO_2$ pipeline to a storage location if it were to pursue carbon sequestration as a $CO_2$ control option, which would generate additional emissions. Permanent storage would need to be achieved via sequestration, and the nearest sequestration sites are located in Colorado and New Mexico.

CCS has not been demonstrated on a commercial scale for natural gas-fired boilers of a similar size listed in the RBLC database. At this point, there are not readily available market options for carbon transport and storage. Any company that has installed or is planning to install such a system is using a proprietary design and has invested millions of dollars to implement the project. According to the U.S. EPA an "applicant is generally not required to undergo extensive delays and expense to research and test unproven technologies as part of the BACT process." Further, the agency has held that "technologies in the pilot scale testing stages of development would not be considered available for BACT review." Based on the findings, CCS is deemed technically infeasible for the boilers.

### Alternative Fuels-Biomass/Co-firing

The potential on-site reduction in $CO_2$ emissions that may be realized by switching from a traditional fossil fuel to a biomass fuel is based on the specific emission factor for the fuel as related to its caloric value. Pure biomass fuels include animal meal, waste wood products and sawdust, and sewage sludge. It may also be possible to use biomass materials that are specifically cultivated for fuel use, such as wood, grasses, green algae, and other quick growing species. Gas co-firing involves modification of the combustion system to accommodate the introduction of natural gas or biomass-derived gas. The co-fired fuel is injected directly into the combustion zone. While co-firing of natural gas or biofuels does not present any technical issues which cannot be addressed through appropriate design, availability of gaseous biomass-based fuels is limited such that a consistent supply of such fuels cannot be assured over the life of the boilers. Additionally, the combustion of biomass-based fuels can affect compliance with BACT limits for other pollutants, such as $NO_X$ and CO. Based on the findings, alternative fuels/co-firing are not technically feasible based on the considerations discussed above.

#### 12.4.9.1.3 Step 3 – Rank Remaining Control Technologies

The third step in the BACT analysis is to rank remaining control technologies by control effectiveness. All remaining control technologies will be implemented for the auxiliary equipment. Hence, they do not need to be ranked. The remaining control technologies are the use of low-carbon fuels and GCP, the base cases for BACT.

#### 12.4.9.1.4 Step 4 – Evaluation of Most Stringent Control Technologies

The fourth step in a BACT analysis is to complete the top-down analysis of the applicable control technologies and document the results. The control technologies are evaluated on the basis of economic and environmental considerations. As stated above all remaining control methods will be implemented on the units and hence a cost effectiveness analysis is not needed. Steele will implement both a low-carbon fuel and good combustion practices to reduce GHG emissions from the boilers.

#### 12.4.9.1.5 Step 5 – Selection of BACT

The fifth step in a BACT analysis is to select BACT based on the most stringent option not eliminated as technically, environmentally, or economically infeasible. Steele proposes pipeline quality natural gas fuel, and good combustion practices as BACT for GHG emissions from the boilers. It has become typical for BACT determinations for fuel-fired sources to include an annual emission limit for GHGs even when no add-on controls are deemed to be BACT. Steele proposes a $CO_2e$ emissions limit from these sources at the site as follows:

**Table 12-20. Proposed GHG Emissions Limit**

| Unit/Process | $CO_2e$ Emission Rate |
|---|---|
| Boiler | 11,593 tons/year/boiler (12 month rolling average) |

### *12.4.9.2 GHG BACT for Heaters*

GHG emissions form as products of the combustion reaction which occurs in the heaters. $CO_2$ forms from carbon in the fuel source when combined with oxygen. Methane is formed from excess carbon in the fuel that does not convert to $CO_2$; it is also released as uncombusted fuel. Nitrous Oxide is a side product of the combustion reaction and is minimized when combustion temperatures are higher and excess oxygen is low. Emissions of methane and nitrous oxide are trivial relative to $CO_2$ and thus are not discussed separately herein.

#### 12.4.9.2.1 Step 1 – Identification of Potential Control Technologies

The $CO_2$ is by far the dominant GHG from the heaters. $CH_4$ and $N_2O$ are present only in very small amounts, are incidental to combustion, and trend with the $CO_2$ emissions. This BACT analysis focused on $CO_2$ as a surrogate for all GHG emissions. A review of the RBLC did not identify any comparable facilities or processes utilizing add-on control devices for GHG reduction. This observation supports the conclusion that BACT for these units should be based on achievable emission limits/practices without assuming the use of additional control technologies.

Steele identified the following GHG control options:

- Alternative Fuels / Co-firing
- Fuel Specifications (Base Case); and
- Good Combustion Practices (GCP) (Base Case).

Each control technology is described per unit/process in the table below.

**Table 12-21. GHG Control Measures for Heaters**

| Unit/Process | Control Option | Description |
|---|---|---|
| Heaters | Alternative Fuels-Biomass/Co-firing | The potential on-site reduction in $CO_2$ emissions that may be realized by switching from a traditional fossil fuel to a biomass fuel is based on the specific emission factor for the fuel as related to its caloric value. Gas co-firing involves modification of the combustion system to accommodate the introduction of natural gas or biomass-derived gas. |
| Heaters | Fuel Specifications | The carbon intensity of fuels can vary significantly across available fossil fuels commonly used in industry. Fuels with low carbon intensity have lower GHG emissions than fuels with high carbon intensity. Therefore, GHG BACT considerations involve the evaluation of low carbon intensity fuel options. By selecting a low carbon fuel (pipeline quality natural gas), GHG emissions are minimized. |
| Heaters | Good Combustion Practices | Good combustion design includes proper burner and unit design for the proposed units. Good operating practices include good burner maintenance and operation and good air to fuel mixing to promote complete combustion. By operating a combustion unit as efficiently as possible, GHG emissions are minimized. |

#### 12.4.9.2.2 Step 2 – Elimination of Technically Infeasible Control Options

The second step in the BACT analysis is to eliminate any technically infeasible control technologies. Any control technology that is not feasible based on physical, chemical, and engineering principles is eliminated. The control technologies and their technical feasibilities are summarized below.

**Table 12-22. GHG Technical Feasibility Analysis for Heaters**

| Unit/Process | Control Option | Technically Feasible? | Overall Control Efficiency |
|---|---|---|---|
| Heaters | Alternative Fuels-Biomass/Co-firing | N | - |
| Heaters | Fuel Specifications | Y | This represents the base case for design and operation of the emission units. |
| Heaters | Good Combustion Practices | Y | This represents the base case for design and operation of the emission units. |

Alternative Fuels-Biomass/Co-firing

The potential on-site reduction in $CO_2$ emissions that may be realized by switching from a traditional fossil fuel to a biomass fuel is based on the specific emission factor for the fuel as related to its caloric value. Pure biomass fuels include animal meal, waste wood products and sawdust, and sewage sludge. It may also be

possible to use biomass materials that are specifically cultivated for fuel use, such as wood, grasses, green algae, and other quick growing species. Gas co-firing involves modification of the combustion system to accommodate the introduction of natural gas or biomass-derived gas. The co-fired fuel is injected directly into the combustion zone. While co-firing of natural gas or biofuels does not present any technical issues which cannot be addressed through appropriate design, availability of gaseous biomass-based fuels is limited such that a consistent supply of such fuels cannot be assured over the life of the heaters. Additionally, the combustion of biomass-based fuels can affect compliance with BACT limits for other pollutants, such as $NO_X$ and CO. Based on the findings, alternative fuels/co-firing are not technically feasible based on the considerations discussed above.

#### 12.4.9.2.3 Step 3 – Rank Remaining Control Technologies

The third step in the BACT analysis is to rank remaining control technologies by control effectiveness. All remaining control technologies will be implemented for the heaters. Hence, they do not need to be ranked. The remaining control technologies are the use of low-carbon fuels and GCP, the base cases for BACT.

#### 12.4.9.2.4 Step 4 – Evaluation of Most Stringent Control Technologies

The fourth step in a BACT analysis is to complete the top-down analysis of the applicable control technologies and document the results. The control technologies are evaluated on the basis of economic and environmental considerations. As stated above all remaining control methods will be implemented on the units and hence a cost effectiveness analysis is not needed. Steele will implement both a low-carbon fuel and good combustion practices to reduce GHG emissions from the heaters.

#### 12.4.9.2.5 Step 5 – Selection of BACT

The fifth step in a BACT analysis is to select BACT based on the most stringent option not eliminated as technically, environmentally, or economically infeasible. Steele proposes pipeline quality natural gas fuel and good combustion practices as BACT for GHG emissions from the heaters. It has become typical for BACT determinations for fuel-fired sources to include an annual emission limit for GHGs even when no add-on controls are deemed to be BACT. Steele proposes a $CO_2e$ emissions limit from these sources at the site as follows:

**Table 12-23. Proposed GHG Emissions Limit**

| Unit/Process | $CO_2e$ Emission Rate |
|---|---|
| Heater | 6,601 tons/year/heater (12 month rolling average) |

### *12.4.9.3 GHG BACT for Engines*

GHG emissions form as products of the combustion reaction which occurs in the emergency engine and fire pump engine. $CO_2$ forms from carbon in the fuel source when combined with oxygen. Methane is formed from excess carbon in the fuel that does not convert to $CO_2$; it is also released as uncombusted fuel. Nitrous Oxide is a side product of the combustion reaction and is minimized when combustion temperatures are higher and excess oxygen is low. Emissions of methane and nitrous oxide are trivial relative to $CO_2$ and thus are not discussed separately herein.

#### 12.4.9.3.1 Step 1 – Identification of Potential Control Technologies

The $CO_2$ is by far the dominant GHG from the engines. $CH_4$ and $N_2O$ are present only in very small amounts, are incidental to combustion, and trend with the $CO_2$ emissions. This BACT analysis focused on $CO_2$ as a surrogate for all GHG emissions. A review of the RBLC did not identify any comparable facilities or processes

utilizing add-on control devices for GHG reduction. This observation supports the conclusion that BACT for these units should be based on achievable emission limits/practices without assuming the use of additional control technologies.

Steele identified the following GHG control option:

- Good Combustion Practices (GCP) (Base Case).

Each control technology is described per unit/process in the table below.

**Table 12-24. GHG Control Measures for Engines**

| Unit/Process | Control Option | Description |
|---|---|---|
| Engines | Good Combustion Practices | Good design and operating practices for controlling GHG emissions from diesel-fired engines include minimizing startup and idling time, in addition to good air to fuel mixing to promote complete combustion for energy efficiency. By operating a combustion unit as efficiently as possible, GHG emissions are minimized. This is achieved in normal practice for emergency-use engines that, by design, only operate for maintenance purposes, readiness testing, and during emergency events. |

#### 12.4.9.3.2 Step 2 – Elimination of Technically Infeasible Control Options

The second step in the BACT analysis is to eliminate any technically infeasible control technologies. Any control technology that is not feasible based on physical, chemical, and engineering principles is eliminated. The control technologies and their technical feasibilities are summarized below.

**Table 12-25. GHG Technical Feasibility Analysis for Engines**

| Unit/Process | Control Option | Technically Feasible? | Overall Control Efficiency |
|---|---|---|---|
| Engines | Good Combustion Practices | Y | This represents the base case for design and operation of the emission units. |

#### 12.4.9.3.3 Step 3 – Rank Remaining Control Technologies

The third step in the BACT analysis is to rank remaining control technologies by control effectiveness. The only control technology evaluated is the implementation of good combustion practices.

#### 12.4.9.3.4 Step 4 – Evaluation of Most Stringent Control Technologies

The fourth step in a BACT analysis is to complete the top-down analysis of the applicable control technologies and document the results. The control technologies are evaluated on the basis of economic and environmental considerations. As stated above the only control method reviewed will be implemented on the units and hence a cost effectiveness analysis is not needed. Steele will implement good combustion practices to reduce GHG emissions from the engines.

#### 12.4.9.3.5 Step 5 – Selection of BACT

The fifth step in a BACT analysis is to select BACT based on the most stringent option not eliminated as technically, environmentally, or economically infeasible. Steele proposes good combustion practices as BACT for GHG emissions from the engines. It has become typical for BACT determinations for fuel-fired sources to include an annual emission limit for GHGs even when no add-on controls are deemed to be BACT. Steele proposes a $CO_2e$ emissions limit from these sources at the site as follows:

**Table 12-26. Proposed GHG Emissions Limits**

| Unit/Process | $CO_2e$ Emission Rate |
|---|---|
| Fire Pump Engine | 96 tons/year/engine (12 month rolling average) |
| Emergency Generator Engine | 422 tons/year/engine (12 month rolling average) |

### *12.4.9.4 GHG BACT for Natural Gas Components and Circuit Breakers*

GHG emissions from natural gas components are a result of methane (constituent of natural gas) and $CO_2$ (present in raw/associated gas at varying concentrations depending on the source formation). GHG emissions are emitted from the process fluid itself escaping through component wear, imperfect seals, valves, and connectors. In circuit breakers, $SF_6$ is used as the dielectric/arc-quenching insulating medium inside gas-insulated circuit breakers. The $SF_6$ itself doesn't degrade or react; the emissions are pure fugitive/vented losses of the insulating gas.

#### 12.4.9.4.1 Step 1 – Identification of Potential Control Technologies

Steele identified the following GHG control options:

- Leak Inspections (Base Case);
- High-Quality Components (Base Case);
- Best Management Practices (Base Case); and
- $SF_6$-Free Circuit Breaker Technology

Each control technology is described per unit/process in the table below.

**Table 12-27. GHG Control Measures for Natural Gas Components and Circuit Breakers**

| Unit/Process | Control Option | Description |
|---|---|---|
| Natural Gas Components | Leak Inspections | Implement leak detection protocols such as Audio, Visual, and Olfactory (AVO) inspections and instrument based-inspections on a regular basis to minimize fugitive GHG losses. AVO inspections provide a simplified method of leak detection through visual scanning for signs of leaks, listening for unusual sounds, and smelling for any NG odor. |
| Natural Gas Components | High-Quality Components | Use leak-proof or otherwise high-quality natural gas piping and pump components to minimize GHG emissions. |

| | | |
|---|---|---|
| Natural Gas Components | Best Management Practices | Employ measures to prevent natural gas leaks and promptly repair leaks when they are discovered to minimize GHG emissions. |
| Circuit Breakers | $SF_6$-Free Circuit Breaker Technology | $SF_6$-free circuit breaker technology includes the use of alternate substances to $SF_6$ to fulfill dielectric requirements and arc interruption strength, perform at ambient and low temperatures, and perform at necessary voltages and short-circuit currents required for circuit breaker operation. $SF_6$-free circuit breaker technologies[80] include the following:<br>• Dry air/vacuum (referred to as vacuum circuit breakers [VCBs]), and<br>• $CO_2$ and $O_2$ based mixtures with fluorinated gases. |

#### 12.4.9.4.2 Step 2 – Elimination of Technically Infeasible Control Options

The second step in the BACT analysis is to eliminate any technically infeasible control technologies. Any control technology that is not feasible based on physical, chemical, and engineering principles is eliminated. The control technologies and their technical feasibilities are summarized below.

**Table 12-28. GHG Technical Feasibility Analysis for Auxiliary Equipment**

| Unit/Process | Control Option | Technically Feasible? | Overall Control Efficiency |
|---|---|---|---|
| Natural Gas Components | Leak Inspections | Y | This represents the base case for design and operation of the emission units. |
| Natural Gas Components | High-Quality Components | Y | This represents the base case for design and operation of the emission units. |
| Natural Gas Components | Best Management Practices | Y | This represents the base case for design and operation of the emission units. |
| Circuit Breakers | $SF_6$-Free Circuit Breaker Technology | N | - |

$SF_6$-Free Circuit Breaker Technology

As noted by EPA's Electric Power Systems Partnership October 2020 report (430-R-20-007), the [commercial] availability of $SF_6$-free circuit breaker technologies varies depending on the size of the unit.[81] Based on Steele's facility design and anticipated operational needs, eleven (11) 500 kV circuit breakers are proposed for the project.

[80] Per EPA's Electric Power Systems Partnership October 2020 report (430-R-20-007), accessed at https://www.epa.gov/sites/default/files/2020-09/documents/sf6_partnership_moving_toward_sf6-free_high_voltage_circuit_breakers.pdf.

[81] Ibid.

The 500 kV units are classified as extra-high voltage units (greater than 230 kV but less than 1,000 kV)[82],[83]. However, voltage alone does not determine suitability for generator service and compatibility with the proposed application must be verified. The proposed 500 kV circuit breakers are intended for switchyard/transmission service to connect, disconnect, isolate, and protect transmission lines, transformers, and other grid equipment to maintain reliability of the interconnected electric grid. As stated in the EPA's Electric Power Systems Partnership October 2020 report, $SF_6$-free circuit breakers have long been available for low to medium voltage applications, but high voltage equipment is at the early stages of commercial availability. Based on the report, several OEMs note that costs for $SF_6$-free circuit breakers can range from 10% - 50%, or more than that of a comparative $SF_6$-containing unit. EPA also suggests that Operational and Maintenance Costs for $SF_6$-free circuit breakers are expected to be higher at this early commercial stage, especially due to employee trainings on maintenance procedures and sensitivities of the equipment. Finally, EPA also notes that while footprint of medium voltage VCBs is generally consistent with that of circuit $SF_6$-containing circuit breakers. However, for high voltage VCBs, footprint is expected to exceed that of $SF_6$-containing circuit breakers.

#### 12.4.9.4.3 Step 3 – Rank Remaining Control Technologies

The third step in the BACT analysis is to rank remaining control technologies by control effectiveness. All remaining control technologies will be implemented for the natural gas components and circuit breakers. Hence, they do not need to be ranked. The remaining control technology is the use of leak inspections, high-quality components, and BMPs, the base case for BACT.

#### 12.4.9.4.4 Step 4 – Evaluation of Most Stringent Control Technologies

As stated in Step 2, high voltage $SF_6$-free circuit breakers are in the early stages of commercial deployment and there are very few OEMs offering solutions in the 500-kV voltage class. The limited supplier base introduces concerns regarding long-term equipment support, spare parts availability, and access to specialized operations and maintenance expertise. Furthermore, none of the 500 kV $SF_6$-free circuit breakers available are VCBs, and only $CO_2/O_2$ or $C_4$-FN mixture containing products are available. VCBs would be the preferred alternative since it would eliminate the potential to emit GHG emissions. While FN-based gas mixtures substantially reduce global warming potential relative to $SF_6$, they do not completely eliminate the possibility of GHG emissions from equipment leakage or maintenance activities. The use of fluorinated gases may also introduce additional environmental and regulatory considerations associated with the potential release, management, and future regulation of PFAS-related compounds. Therefore, due to anticipated environmental, operational, and economic impacts associated with GHG-containing gas $SF_6$ alternatives, the technology is eliminated from consideration for the proposed 500-kV circuit breakers.

#### 12.4.9.4.5 Step 5 – Selection of BACT

The fifth step in a BACT analysis is to select BACT based on the most stringent option not eliminated as technically, environmentally, or economically infeasible. Steele proposes AVO inspections, high quality natural gas components, and BMPs as the GHG BACT for the natural gas components. Steele has also concluded that GHG PSD BACT for the proposed 500 kV circuit breaker is enclosed and pressurized circuit breakers with certified leak rate < 0.5% per year, and good maintenance and leak monitoring practices, consistent with the determination in Section 12.4.7.

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[82] Ibid.

[83] Per ANSI C84.1-2020 (R2025) Electric Power Systems and Equipment - Voltage Ratings (60 Hz).

# APPENDIX A. EMISSION CALCULATIONS

**Table 1a-1. Auxiliary Boiler Parameters**

| Parameter | Value | Units | Footnote |
|---|---|---|---|
| Rated Capacity, HHV | 90 | MMBtu/hr | 2 |
| Fuel | Natural Gas | - | 1 |
| Number of Boilers | 2 | - | 2 |
| Annual Operating Hours | 2,000 | hr/yr | 1 |

[1] Provided by the Steele Energy Center (SEC) on 4/27/2026. These values represent design parameters based on anticipated operational needs. Equipment vendors and specific models have not yet been selected at this stage.

[2] Provided by SEC on 7/15/2026. These values represent design parameters based on anticipated operational needs. Equipment vendors and specific models have not yet been selected at this stage.

**Table 1a-2. Emergency Diesel Engine Parameters**

| Parameter | Value | Units | Footnote |
|---|---|---|---|
| Engine Power Capacity | 2,681 | bhp | 1 |
| Fuel | ULSD | - | 1 |
| Sulfur Content | 15 | ppm | 1 |
| Fuel Usage | 138 | gal/hr | 1 |
| Number of Emergency Engines | 2 | # | 1 |
| Annual Operating Hours | 250 | hr/yr | 2 |
| EPA Tier Certified | 2 | - | 1 |

[1] Provided by SEC on 4/27/2026. These values represent design parameters based on anticipated operational needs. Equipment vendors and specific models have not yet been selected at this stage.

[2] Provided by SEC on 7/27/2026 based on anticipated operational needs.

**Table 1a-3. Diesel Fire Pump Engine Parameters**

| Parameter | Value | Units | Footnote |
|---|---|---|---|
| Power Capacity | 305 | bhp | 1 |
| Fuel Usage | 17.0 | gal/hr | 1 |
| Number of Fire Pumps | 1 | - | 2 |
| Fuel | ULSD | - | 1 |
| Sulfur Content | 15 | ppm | 1 |
| Annual Operating Hours | 500 | hr/yr | 3 |
| EPA Tier Certified | 3 | - | 1 |

[1] Provided by SEC on 4/27/2026. These values represent design parameters based on anticipated operational needs. Equipment vendors and specific models have not yet been selected at this stage.

[2] Confirmed by SEC via 5/27/2026 conference call.

[3] Consistent with EPA guidance, Calculating Potential to Emit (PTE) for Emergency Generators Memorandum, dated 9/6/1995.

**Table 1a-4. Dew Point Heater Parameters**

| Parameter | Value | Units | Footnote |
|---|---|---|---|
| Dew Point Heater Capacity | 11.7 | MMBtu/hr | 1 |
| Fuel | Natural Gas | MMBtu/hr | 1 |
| Dew Point Heater Quantity | 2 | - | 1 |
| Annual Operating Hours | 8,760 | hr/yr | 1 |

[1] Provided by SEC on 7/13/2026. These values represent design parameters based on anticipated operational needs. Equipment vendors and specific models have not yet been selected at this stage.

**Table 1a-5. Lube Oil Vents Parameters**

| Parameter | Value | Units | Footnote |
|---|---|---|---|
| Number of lube oil vents per turbine | 1 | # | 1 |
| Total number of lube oil vents | 4 | # | 2 |

[1] Conservatively assumed based on turbine design parameters.

[2] Based on two (2) power blocks, each in a 1 x 1 configuration.

**Table 1a-6. Circuit Breakers Parameters**

| Parameter | Value | Units | Footnote |
|---|---|---|---|
| Number of circuit breakers - 500 kV | 11 | # | 1 |
| Quantity of $SF_6$ per circuit breaker - 500 kV | 1,590 | lbs | 1, 2 |
| Leak Rate | 0.5 | % | 1 |

[1] Provided by SEC on 4/27/2026. These values represent design parameters based on anticipated operational needs. Equipment vendors and specific models have not yet been selected at this stage.

[2] $SF_6$ quantities confirmed by SEC via 5/27/2026 conference call.

**Table 1b-1. Turbine Input Parameters - Combined Cycle Mode**

| Parameter | Value | Units | Footnote |
|---|---|---|---|
| Combustion Turbine (CT) Make | GE Vernova | - | 1 |
| CT Model | 7HA.03 | - | 1 |
| Total Number of CTs | 2 | - | 1 |
| Combined Cycle Configuration | 1 x 1 | - | 1 |
| Total Number of Power Blocks | 2 | - | 1 |
| Total Number of heat recovery steam generators (HRSG) | 2 | - | 1 |
| Total Number of Duct Burners (DBs) | 2 | - | 1 |
| Total Number of Steam Turbines (STs) | 2 | - | 1 |
| Fuel | Natural Gas | - | 1 |
| Combined Cycle Primary Mode Annual Operating Hours with 100 hrs/yr HRSG Bypass | 8660 | hr/yr | 2 |
| Maximum Combined Cycle Primary Mode Annual Operating Hours | 8760 | hr/yr | 3 |
| Number of Cold Start-ups/year | 16 | - | 1 |
| Number of Warm Start-ups/year | 350 | - | 1 |
| Number of Hot Start-ups/year | 0 | - | 1 |
| Number of Shutdown scenarios/year | 366 | - | 1 |
| Maximum Power Output/Gross Generation per Power Block | 725.53 | MW | 4 |
| Maximum Heat Input per CT, HHV | 4,298.80 | MMBtu/hr | 1 |
| Maximum Heat Input per Duct Burner, HHV | 927.50 | MMBtu/hr | 1 |
| Heat Input Capacity per Power Block, HHV | 5,181.20 | MMBtu/hr | 1 |

[1] Provided by SEC on 4/27/2026 based on vendor data. Each combined cycle unit includes one (1) CT, one (1) HRSG powered by one (1) DB, and one ST.

[2] Provided by SEC on 7/27/2026 based on anticipated operational needs.

[3] This is the most conservative assumption for combined cycle mode based on anticipated operational needs.

[4] Provided by SEC on 5/18/2026.

**Table 1b-2. Turbine Input Parameters - HRSG Bypass Mode**

| Parameter | Value | Units | Footnote |
|---|---|---|---|
| CT Make | GE Vernova | - | 1 |
| CT Model | 7HA.03 | - | 1 |
| Total Number of CTs | 2 | - | 1 |
| Total Number of Power Blocks | 2 | - | 1 |
| Fuel | Natural Gas | - | 1 |
| Total Annual Operating Hours | 100 | hr/yr | 2,3 |
| Number of start-ups/year | 25 | - | 4 |
| Number of Shutdown scenarios/year | 25 | - | 4 |
| Maximum Power Output/Gross Generation per CT | 435.46 | MW | 5 |
| Heat Input Capacity per CT, HHV | 4,136.20 | MMBtu/hr | 1 |

[1] Provided by SEC on 4/27/2026 based on vendor data.

[2] SEC proposes to operate each combustion turbine in HRSG bypass mode for up to 100 hours per year. During HRSG bypass mode operation, the CT exhaust will bypass the ductwork to the HRSG and controls, and exit into the atmosphere through a separate stack.

[3] Provided by SEC via conference call on 5/6/2026.

[4] Provided by SEC via conference call on 5/27/2026.

[5] Provided by SEC on 7/8/2026.

**Table 2a-1. Turbine Emission Factors**

| Operating Scenario | Pollutant | Combined Cycle Mode Value [1,2,3] | Simple Cycle / HRSG Bypass Mode Value [1,3,4] | Units |
|---|---|---|---|---|
| Normal Operation with Duct Firing | $NO_X$ | 38.70 | | lb/hr |
| | CO | 23.60 | | lb/hr |
| | VOC | 13.50 | | lb/hr |
| | Total PM | 25.40 | | lb/hr |
| | $PM_{10}$ | 25.40 | | lb/hr |
| | $PM_{2.5}$ | 25.40 | | lb/hr |
| | $SO_2$ | 8.10 | | lb/hr |
| | $H_2SO_4$ | 5.80 | | lb/hr |
| | Formaldehyde | 1.15 | | lb/hr |
| | $CO_2$ | 628,000 | | lb/hr |
| Normal Operation without Duct Firing | $NO_X$ | 31.6 | 225.80 | lb/hr |
| | CO | 19.2 | 55.90 | lb/hr |
| | VOC | 5.50 | 5.50 | lb/hr |
| | Total PM | 14.8 | 10.30 | lb/hr |
| | $PM_{10}$ | 14.8 | 10.30 | lb/hr |
| | $PM_{2.5}$ | 14.8 | 10.30 | lb/hr |
| | $SO_2$ | 6.6 | 6.30 | lb/hr |
| | $H_2SO_4$ | 4.5 | 0.50 | lb/hr |
| | Formaldehyde | 1.15 | 0.89 | lb/hr |
| | $CO_2$ | 514,000 | 490,000 | lb/hr |
| Cold Startup | Duration | 60 | 20 | minutes |
| | $NO_X$ | 310 | 84 | lb/event |
| | CO | 245 | 151 | lb/event |
| | VOC | 14 | 9 | lb/event |
| | Total PM | 14 | - | lb/event |
| | $PM_{10}$ | 14 | - | lb/event |
| | $PM_{2.5}$ | 14 | - | lb/event |
| | $SO_2$ | - | - | - |
| | $H_2SO_4$ | - | - | - |
| | Formaldehyde | 91 | - | ppbvd @ 15%$O_2$ |
| | $CO_2$ | - | 63,579 | lb/event |
| Warm Startup | Duration | 60 | - | minutes |
| | $NO_X$ | 180 | - | lb/event |
| | CO | 160 | - | lb/event |
| | VOC | 12 | - | lb/event |
| | Total PM | 14 | - | lb/event |
| | $PM_{10}$ | 14 | - | lb/event |
| | $PM_{2.5}$ | 14 | - | lb/event |
| | $SO_2$ | - | - | - |
| | Formaldehyde | 91 | - | ppbvd @ 15%$O_2$ |
| | $H_2SO_4$ | - | - | - |
| Hot Startup | Duration | 30 | - | minutes |
| | $NO_X$ | 90 | - | lb/event |
| | CO | 140 | - | lb/event |
| | VOC | 10 | - | lb/event |
| | Total PM | 7 | - | lb/event |
| | $PM_{10}$ | 7 | - | lb/event |
| | $PM_{2.5}$ | 7 | - | lb/event |
| | $SO_2$ | - | - | - |
| | Formaldehyde | 91 | - | ppbvd @ 15%$O_2$ |
| | $H_2SO_4$ | - | - | - |
| Shutdown | Duration | 12 | 12 | minutes |
| | $NO_X$ | 20 | 87 | lb/event |
| | CO | 100 | 317 | lb/event |
| | VOC | 46 | 46 | lb/event |
| | Total PM | 3 | - | lb/event |
| | $PM_{10}$ | 3 | - | lb/event |
| | $PM_{2.5}$ | 3 | - | lb/event |
| | $SO_2$ | - | - | - |
| | $H_2SO_4$ | - | - | - |
| | Formaldehyde | 91 | - | ppbvd @ 15%$O_2$ |
| | $CO_2$ | - | 58,389 | lb/event |

[1] Normal operations emissions for NSR pollutants per proposed BACT limits, consistent with SEC vendor information provided on 4/27/2026.

[2] CC mode SUSD emissions data provided by SEC on 8/21/2026.

[3] Formaldehyde emissions for CC and HRSG bypass modes per SEC vendor information provided on 5/26/2026.

[4] Vendor SC mode SUSD emissions data provided by SEC on 5/20/2026. The vendor data did not classify start up events as cold/warm/hot. The data was applied to the cold start category, conservatively.

**Steele Energy Center - Pinal County, AZ**
**Potential to Emit Calculations**

**Table 3a-1. Annual Emissions Summary**

| Source Description | No. of Units | Total PM (tpy) | $PM_{10}$ (tpy) | $PM_{2.5}$ (tpy) | $NO_X$ (tpy) | CO (tpy) | VOC (tpy) | $SO_2$ (tpy) | $H_2SO_4$ Mist (tpy) | Max HAP - Formaldehyde (tpy) | Total HAP (tpy) | $CO_{2e}$ (tpy) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Two (2) 1x1 Natural Gas Combined Cycle Combustion Turbine (CCCT) Trains with Duct Burners and Simple Cycle Operational Mode Capability, 5,181 MMBtu/hr each | 2 | 148.59 | 148.59 | 148.59 | 363.01 | 240.21 | 69.67 | 106.54 | 74.90 | 9.55 | 16.55 | 6,057,406.71 |
| Auxiliary Boilers | 2 | 1.33 | 1.33 | 1.33 | 1.98 | 6.66 | 0.97 | 0.25 | 0.019 | 5.80E-02 | 1.46 | 23,185.29 |
| Dew Point Heaters | 2 | 0.72 | 0.72 | 0.72 | 1.13 | 8.44 | 0.51 | 0.14 | 1.10E-02 | 7.54E-03 | 0.19 | 13,201.70 |
| Emergency Engines | 2 | 0.22 | 0.22 | 0.22 | 6.70 | 3.86 | 0.35 | 0.01 | 0.001 | 3.70E-04 | 0.007 | 844.26 |
| Fire Pump Engine | 1 | 0.03 | 0.03 | 0.03 | 0.48 | 0.44 | 0.03 | 0.001 | 0.0003 | 6.30E-04 | 2.07E-03 | 96.05 |
| Natural Gas Equipment Components | 690 | - | - | - | - | - | 0.68 | - | | - | - | 945.90 |
| $SF_6$ from Circuit Breakers | 11 | - | - | - | - | - | - | - | - | - | - | 1,027.54 |
| Lube Oil Vents | 4 | 0.88 | 0.88 | 0.88 | - | - | 0.88 | - | - | - | - | - |
| **Major NSR Evaluation** | | | | | | | | | | | | |
| Pollutant Attainment Status | | -- | Attainment | Attainment | Attainment | Attainment | Attainment | Attainment | -- | -- | -- | -- |
| Potentially Applicable Major NSR Program | | PSD | PSD | PSD | PSD | PSD | PSD | PSD | -- | -- | -- | -- |
| Project PSD Emissions Increase | | 151.76 | 151.76 | 151.76 | 373.29 | 259.61 | 73.09 | 106.95 | 74.93 | 9.61 | 18.21 | 6,096,707 |
| ***PSD Major Source Thresholds*** [1] | | ***100*** | ***100*** | ***100*** | ***100*** | ***100*** | ***100*** | ***100*** | -- | -- | -- | ***N/A*** |
| ***Does Project Exceed PSD Major Source Thresholds?*** | | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | No | **Yes** | -- | -- | -- | N/A |
| ***PSD (significant emission rate) SER Thresholds*** [1] | | ***25*** | ***15*** | ***10*** | ***40*** | ***100*** | ***40*** | ***40*** | ***7*** | ***--*** | ***--*** | ***75,000*** |
| ***Does Project Exceed PSD SER Thresholds?*** | | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | -- | -- | **Yes** |
| **Title V Evaluation** | | | | | | | | | | | | |
| Project Potential Emissions | | 151.76 | 151.76 | 151.76 | 373.29 | 259.61 | 73.09 | 106.95 | 74.93 | 9.61 | 18.21 | 6,096,707 |
| ***Title V Major Source Threshold*** [2] | | ***100*** | ***100*** | ***100*** | ***100*** | ***100*** | ***100*** | ***100*** | ***--*** | ***10*** | ***25*** | ***100,000*** |
| ***Does the Post-Project PTE Exceed Title V Major Source Thresholds?*** | | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | No | **Yes** | -- | No | No | **Yes** |

[1] Per the "major source" definition in PCAQCD Code of Regulations (CoR)§3-3-203. The proposed facility is a categorical source under the "Fossil fuel-fired steam electric plants > 250million BTUs per hour heat input" category, therefore, the NSR major source thresholds are 100 tpy. Once the threshold is exceeded for one pollutant, the remaining emissions of other regulated pollutants must be compared against the Significant Emission Rates (SERs) contained in CoR § 3-3-140.122 ("Significant"). The filterable PM thresholds are conservatively applied to total PM emissions.

[2] Per CoR § 1-3-140.80 pursuant to 40 CFR § 70.2 (Definition of Major Source).

**Table 4a-1. Combustion Turbine Power Blocks - Input Parameters**

| | Combined Cycle (CC) Mode | Simple Cycle (SC) / HRSG Bypass Mode |
|---|---|---|
| Turbine Make | GE Vernova | GE Vernova |
| Turbine Model | 7HA.03 | 7HA.03 |
| Combined Cycle Primary Mode Annual Operating Hours with 100 hrs/yr HRSG Bypass | 8,660 | 100 |
| Maximum Combined Cycle Primary Mode Annual Operating Hours | 8,760 | - |
| Total # of CT Power Blocks | 2 | 2 |
| Maximum Heat Input During Normal Operation, HHV per Turbine System (MMBtu/hr) | 5,181.20 | 4,136.20 |
| Number of Cold Startups/year | 16 | 25 |
| Number of Warm or Hot Startups/year [1,2] | 350 | - |
| Number of Shutdown scenarios/year | 366 | 25 |
| Maximum Heat Input During Cold Startup, HHV per Turbine (MMBtu/hr) [3] | 1,513 | - |
| Maximum Heat Input During Warm Startup, HHV per Turbine (MMBtu/hr) [3] | 1,463 | - |
| Maximum Heat Input During Hot Startup, HHV per Turbine (MMBtu/hr) [3] | 1,286 | - |
| Maximum Heat Input During Shutdown, HHV per Turbine (MMBtu/hr) [3] | 809 | - |
| Steady State Annual Hours for 8,660 Annual Operating Hours in CC Primary Mode | 8,046 | 86 |
| Cold Startup Hours per year | 16 | 9 |
| Warm Startup Hours per year | 350 | - |
| Hot Startup Hours per year | 175 | - |
| Shutdown Hours per Year | 73 | 5 |
| Maximum Heat Input per Duct Burner, HHV | 927.50 | N/A |
| Maximum Annual Duct Firing Hours for 8,660 Annual Operating Hours in CC Primary Mode [4] | 2,000 | N/A |
| Maximum Annual Duct Firing Hours for 8,760 Annual Operating Hours in CC Primary Mode [4] | 2,000 | N/A |

[1] SEC estimates up to 350 warm or hot startup events annually. Therefore, the annual PTE takes into account the maximum hourly emissions from either warm or hot start-up.

[2] No classification of SC start-ups by vendor as cold/warm/hot. The data was applied to the cold start category, conservatively.

[3] Based on the vendor-provided heat consumption for each SUSD event in units of MMBtu/event (LHV basis), converted to MMBtu/hr using the event duration and converted to HHV basis using the gross heat rate of the turbines.

[4] Maximum annual duct firing hours were specified by SEC on 7/27/2026 based on anticipated operational needs.

**Table 4a-2. Maximum Hourly Emissions Scenarios - Per Turbine Power Block in CC Mode**

| Pollutant | Hourly Steady State Emissions with Duct Firing (lb/hr) | Hourly Steady State Emissions without Duct Firing (lb/hr) | Hourly Emissions Including Cold Start-up Emissions (lb/hr) [1] | Hourly Emissions Including Warm Start-up Emissions (lb/hr) [1] | Hourly Emissions Including Hot Start-up Emissions (lb/hr) [1] | Hourly Emissions Including Shut Down Emissions (lb/hr) [1] |
|---|---|---|---|---|---|---|
| Total PM | 25.40 | 14.80 | 14.00 | 14.00 | 19.70 | 23.32 |
| Filterable PM | 25.40 | 14.80 | 14.00 | 14.00 | 19.70 | 23.32 |
| $PM_{10}$ | 25.40 | 14.80 | 14.00 | 14.00 | 19.70 | 23.32 |
| $PM_{2.5}$ | 25.40 | 14.80 | 14.00 | 14.00 | 19.70 | 23.32 |
| $NO_X$ | 38.70 | 31.60 | 310.00 | 180.00 | 109.35 | 50.96 |
| CO | 23.60 | 19.20 | 245.00 | 160.00 | 151.80 | 118.88 |
| VOC | 13.50 | 5.50 | 14.00 | 12.00 | 16.75 | 56.80 |
| $SO_2$ | 8.10 | 6.60 | - | - | - | - |
| $H_2SO_4$ | 5.8 | 4.5 | - | - | - | - |

[1] Startup/shutdown emission rates are calculated using lbs/event or lb/hr emission rates and startup/shutdown durations and assuming the remaining time is spent at steady state emissions (with duct firing, conservatively). Example calculation: hot start emissions (lb/hr) = emissions (lb/event) + steady state hourly emissions (lb/hr) x ((60 - 30 minute hot start event duration) / 60 minutes per hour)

**Table 4a-3. Maximum Hourly Emissions Scenarios - Per Turbine Power Block in SC / HRSG Bypass Mode**

| Pollutant | Hourly Steady State Emissions (lb/hr) | Hourly Emissions Including Start-up Emissions (lb/hr) [1] | Hourly Emissions Including Shut Down Emissions (lb/hr) [1] |
|---|---|---|---|
| Total PM | 10.30 | - | - |
| Filterable PM | 10.30 | - | - |
| $PM_{10}$ | 10.30 | - | - |
| $PM_{2.5}$ | 10.30 | - | - |
| $NO_X$ | 225.80 | 234.53 | 267.64 |
| CO | 55.90 | 188.27 | 361.72 |
| VOC | 5.50 | 12.67 | 50.40 |
| $SO_2$ | 6.30 | - | - |
| $H_2SO_4$ | 0.50 | - | - |

[1] Startup/shutdown emission rates are calculated using lbs/event or lb/hr emission rates and startup/shutdown durations and assuming the remaining time is spent at steady state emissions. Example calculation: Start up emissions (lb/hr) = emissions (lb/event) + steady state hourly emissions (lb/hr) x ((60 - 20 minute start up event duration) / 60 minutes per hour)

**Table 4a-4. Turbine Criteria Pollutant Emissions**

| Pollutant | Annual Emissions for 8,760 Annual Operating Hours in CC Primary Mode | | Annual Emissions for 8,660 Annual Operating Hours in CC Primary Mode and up to 100 Annual Operating Hours in Simple Cycle Mode | | | | Maximum Annual Emissions | |
|---|---|---|---|---|---|---|---|---|
| | Total - Per CT Power Block [1] | Total - All CT Power Blocks | Per CT Power Block in CC Mode [1] | Per CT Power Block in SC Mode | Total - Per CT Power Block | Total - All CT Power Blocks | Total - Per CT Power Block | Total - All CT Power Blocks |
| | (tpy) | (tpy) | (tpy) | (tpy) | (tpy) | (tpy) | (tpy) | (tpy) |
| Total PM | 74.29 | 148.59 | 73.55 | 0.52 | 74.07 | 148.14 | 74.29 | 148.59 |
| Filterable PM | 74.29 | 148.59 | 73.55 | 0.52 | 74.07 | 148.14 | 74.29 | 148.59 |
| $PM_{10}$ | 74.29 | 148.59 | 73.55 | 0.52 | 74.07 | 148.14 | 74.29 | 148.59 |
| $PM_{2.5}$ | 74.29 | 148.59 | 73.55 | 0.52 | 74.07 | 148.14 | 74.29 | 148.59 |
| $NO_X$ | 171.65 | 343.30 | 170.07 | 11.43 | 181.50 | 363.01 | 181.50 | 363.01 |
| CO | 116.91 | 233.82 | 115.95 | 4.16 | 120.11 | 240.21 | 120.11 | 240.21 |
| VOC | 34.69 | 69.38 | 34.42 | 0.42 | 34.84 | 69.67 | 34.84 | 69.67 |
| $SO_2$ | 53.27 | 106.54 | 30.08 | 0.32 | 30.39 | 60.79 | 53.27 | 106.54 |
| $H_2SO_4$ | 37.45 | 74.90 | 20.79 | 0.03 | 20.81 | 41.62 | 37.45 | 74.90 |

[1] Emissions including startups/shutdown are calculated using uncontrolled hours of operation and startup/shutdown emission rates, summed with steady state operation emissions. Pollutants for which no SUSD data was provided, assumed the maximum hourly emissions during steady state operation for the hourly scenarios addressing SUSD.

**Table 4a-5. Turbine HAP Emissions**

| HAP | CC Mode - Uncontrolled Emission Factors [1,3] | Units | CC Mode - Controlled Emission Factors [2] | Units | SC Mode - Uncontrolled Emission Factors [1] | Units | Annual Emissions for 8,760 Annual Operating Hours in CC Primary Mode | | Annual Emissions for 8,660 Annual Operating Hours in CC Primary Mode and up to 100 Annual Operating Hours in Simple Cycle Mode | | | | Maximum Annual Emissions | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Total - Per CT Power Block [4] | Total - All CT Power Blocks | Per CT Power Block in CC Mode [4] | Per CT Power Block in SC Mode | Total - Per CT Power Block | Total - All CT Power Blocks | Total - Per CT Power Block | Total - All CT Power Blocks |
| | | | | | | | (tpy) | (tpy) | (tpy) | (tpy) | (tpy) | (tpy) | (tpy) | (tpy) |
| 1,3-Butadiene | 4.30E-07 | lb/MMBtu | 2.15E-07 | lb/MMBtu | 4.30E-07 | lb/MMBtu | 4.71E-03 | 9.43E-03 | 4.66E-03 | 8.89E-05 | 4.75E-03 | 9.49E-03 | 4.75E-03 | 9.49E-03 |
| Acetaldehyde | 4.00E-05 | lb/MMBtu | 2.00E-05 | lb/MMBtu | 4.00E-05 | lb/MMBtu | 4.38E-01 | 8.77E-01 | 4.33E-01 | 8.27E-03 | 4.42E-01 | 8.83E-01 | 4.42E-01 | 8.83E-01 |
| Acrolein | 6.40E-06 | lb/MMBtu | 3.20E-06 | lb/MMBtu | 6.40E-06 | lb/MMBtu | 7.02E-02 | 1.40E-01 | 6.93E-02 | 1.32E-03 | 7.06E-02 | 1.41E-01 | 7.06E-02 | 1.41E-01 |
| Benzene | 1.20E-05 | lb/MMBtu | 6.00E-06 | lb/MMBtu | 1.20E-05 | lb/MMBtu | 1.32E-01 | 2.63E-01 | 1.30E-01 | 2.48E-03 | 1.32E-01 | 2.65E-01 | 1.32E-01 | 2.65E-01 |
| Ethylbenzene | 3.20E-05 | lb/MMBtu | 1.60E-05 | lb/MMBtu | 3.20E-05 | lb/MMBtu | 3.51E-01 | 7.02E-01 | 3.47E-01 | 6.62E-03 | 3.53E-01 | 7.06E-01 | 3.53E-01 | 7.06E-01 |
| Formaldehyde | 2.19E-04 | lb/MMBtu | 1.15E+00 | lb/hr | 8.90E-01 | lb/hr | 4.77E+00 | 9.55E+00 | 4.72E+00 | 4.45E-02 | 4.76E+00 | 9.52E+00 | 4.77E+00 | 9.55E+00 |
| Naphthalene | 1.30E-06 | lb/MMBtu | 6.50E-07 | lb/MMBtu | 1.30E-06 | lb/MMBtu | 1.42E-02 | 2.85E-02 | 1.41E-02 | 2.69E-04 | 1.44E-02 | 2.87E-02 | 1.44E-02 | 2.87E-02 |
| Propylene Oxide | 2.90E-05 | lb/MMBtu | 1.45E-05 | lb/MMBtu | 2.90E-05 | lb/MMBtu | 3.18E-01 | 6.36E-01 | 3.14E-01 | 6.00E-03 | 3.20E-01 | 6.40E-01 | 3.20E-01 | 6.40E-01 |
| Toluene | 1.30E-04 | lb/MMBtu | 6.50E-05 | lb/MMBtu | 1.30E-04 | lb/MMBtu | 1.42E+00 | 2.85E+00 | 1.41E+00 | 2.69E-02 | 1.44E+00 | 2.87E+00 | 1.44E+00 | 2.87E+00 |
| Xylenes | 6.40E-05 | lb/MMBtu | 3.20E-05 | lb/MMBtu | 6.40E-05 | lb/MMBtu | 7.02E-01 | 1.40E+00 | 6.93E-01 | 1.32E-02 | 7.06E-01 | 1.41E+00 | 7.06E-01 | 1.41E+00 |
| Total PAH (as POM) | 2.20E-06 | lb/MMBtu | 1.10E-06 | lb/MMBtu | 2.20E-06 | lb/MMBtu | 2.41E-02 | 4.82E-02 | 2.38E-02 | 4.55E-04 | 2.43E-02 | 4.86E-02 | 2.43E-02 | 4.86E-02 |
| | | | | | | **Total** | **8.25** | **16.50** | **8.15** | **0.11** | **8.26** | **16.53** | **8.28** | **16.55** |

[1] Emission factors for all HAPs except formaldehyde per EPA AP-42, Chapter 3.1, Table 3.1-3 (April 2000).

[2] A control efficiency of 50% was applied to the uncontrolled emission factors for 1,3- Butadiene, Ethylbenzene, Propylene Oxide, Toluene, Xylenes, Naphthalene and PAH based on expected volatile organic material control efficiency from CO catalyst.

[3] Per vendor, the turbine model achieves 91 ppbvd @ 15% $O_2$ without CO catalyst operation. The emission factor was converted to lb/MMBtu using the equation below.

$$EF\left(\frac{lb}{MMBtu}\right) = C \times \frac{1}{10^9} \times MW \times \frac{1}{M_V} \times F_d \times \frac{O_{2_{ambient}}(\%)}{O_{2_{ambient}}(\%) - O_{2_{reference}}(\%)}$$

Where

C = emission factor in ppbvd

| | | |
|---|---|---|
| MW (formaldehyde) = | 30.03 lb/lbmol | |
| $M_V$ = Molar volume of an ideal gas at standard conditions = | 385.3 dscf/lbmol, as determined by EPA in 40 CFR § 63.1513(a). See "$M_v$". | |
| $F_d$ (products of combustion) | 8710 dscf/MMBtu | per natural gas EPA Method 19 Table 19.2 |
| $O_2$ ambient, conservatively assumed | 20.9 % volume | |
| $O_2$ reference = emission factor = | 15 % volume | |

[4] Annual emissions including Startups/Shutdown are calculated using annual hours of operation and uncontrolled emission rates, summed with steady state annual hours of operation and controlled emission rates.

**Table 4a-6. Greenhouse Gas Turbine Emissions**

| GHG | CC Mode - Emission Factor Value [1] | SC Mode - Emission Factor Value [1] | Emission Factor Units | Global Warming Potential (GWP) [2] | Annual Emissions for 8,760 Annual Operating Hours in CC Primary Mode | | Annual Emissions for 8,660 Annual Operating Hours in CC Primary Mode and up to 100 Annual Operating Hours in Simple Cycle Mode | | | | Maximum Annual Emissions | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Total - Per CT Power Block [3] | Total - All CT Power Blocks | Per CT Power Block in CC Mode | Per CT Power Block in SC Mode [3] | Total - Per CT Power Block | Total - All CT Power Blocks | Total - Per CT Power Block | Total - All CT Power Blocks |
| | | | | | (tpy) | (tpy) | (tpy) | (tpy) | (tpy) | (tpy) | (tpy) | (tpy) |
| $CO_2$ | 628,000 | 490,000 | lb/hr | 1 | 2,750,640 | 5,501,280 | 2,719,240 | 22,595 | 2,741,835 | 5,483,669 | 2,750,640 | 5,501,280 |
| $CH_4$ | 0.001 | 0.001 | kg/MMBtu | 28 | 50.0 | 100.1 | 49.5 | 0.5 | 49.9 | 99.8 | 50.0 | 100.1 |
| $N_2O$ | 0.0001 | 0.0001 | kg/MMBtu | 265 | 5.0 | 10.0 | 4.95 | 0.05 | 5.0 | 10.0 | 5.0 | 10.0 |
| $CO_2e$ | - | - | | - | 3,028,703 | 6,057,407 | 2,994,129 | 24,881 | 3,019,011 | 6,038,021 | 3,028,703 | 6,057,407 |

[1] $CO_2$ per maximum hourly emissions from design vendor, provided by SEC on 4/27/2026, and evaluated for different operational configurations. Other emission factors per 40 CFR Part 98, Table C-1 and C-2 to Subpart C.

[2] Per 40 CFR Part 98, Table A-1 to Subpart A.

[3] $CO_2e$ emissions per the proposed BACT limit.

**Table 5a-1. Auxiliary Boiler Parameters**

| Parameter | Value | Units |
|---|---|---|
| **Quantity** | 2 | - |
| **Heat Input Capacity** | 90.00 | MMBtu/hr |
| **Fuel** | Natural Gas | - |
| **Sulfur Content** | 0.5 | gr/100 scf |
| **Fuel Input Capacity** [1] | 0.09 | MMscf/hr |
| **Annual Operating Hours** | 2,000 | hr/yr |

[1] Assuming heating value of MMBtu/MMscf 1,020 per AP-42 Chapter 1.4

**Table 5a-2. Auxiliary Boiler Criteria Pollutant Emission Factors**

| Pollutant | Emission Factors | | Footnote | Per Boiler | | Total | |
|---|---|---|---|---|---|---|---|
| | Value | Units | | Hourly Emissions (lb/hr) | Annual Emissions (tpy) | Hourly Emissions (lb/hr) | Annual Emissions (tpy) |
| Total PM | 0.0074 | lb/MMBtu | 1 | 0.67 | 0.67 | 1.33 | 1.33 |
| $PM_{10}$ | 0.0074 | lb/MMBtu | 1 | 0.67 | 0.67 | 1.33 | 1.33 |
| $PM_{2.5}$ | 0.0074 | lb/MMBtu | 1 | 0.67 | 0.67 | 1.33 | 1.33 |
| $NO_X$ | 0.0110 | lb/MMBtu | 1 | 0.99 | 0.99 | 1.98 | 1.98 |
| CO | 0.0370 | lb/MMBtu | 1 | 3.33 | 3.33 | 6.66 | 6.66 |
| VOC | 0.0054 | lb/MMBtu | 1 | 0.49 | 0.49 | 0.97 | 0.97 |
| $SO_2$ | 1.4272 | lb/MMscf | 2 | 0.13 | 0.13 | 0.25 | 0.25 |
| $H_2SO_4$ | 0.1093 | lb/MMscf | 2 | 9.64E-03 | 9.64E-03 | 1.93E-02 | 1.93E-02 |

[1] Emission factors per EPA AP-42 Section 1.4, Tables 1.4-1 and 1.4-2 (4/26) for low-$NO_x$ burners and BACT determinations.

[2] $SO_2$ and $H_2SO_4$ emission factors are calculated based on the assumed maximum sulfur content for the inlet natural gas of 0.5 gr/100 scf, using the following formulas.

$$SO_2 \text{ Emission Factor (lb/MMscf)} = \frac{0.5 \text{ gr S}}{100 \text{ scf}} \times \frac{\text{lb}}{7{,}000 \text{ gr}} \times \frac{64.06 \text{ lb } SO_2}{1 \text{ lb-mole } SO_2} \times \frac{1 \text{ lb-mole S}}{32.06 \text{ lb S}} \times \frac{10\text{^6 scf}}{\text{MMscf}}$$

$$H_2SO_4 \text{ Emission Factor (lb/MMscf)} = \frac{1.427 \text{ lb SO2}}{\text{MMscf}} \times \frac{98.079 \text{ lb}}{\text{lb-mol } H_2SO_4} \times \frac{1 \text{ lb-mole } SO_2}{64.06 \text{ lb } SO_2} \times \text{x 5\% x 100\%}$$

Assumes 5% conversion of $SO_2$ to $SO_3$ and 100% conversion of $SO_3$ to $H_2SO_4$

**Table 5a-3. Auxiliary Boiler HAP Emissions**

| Pollutant | CAS No. | Emission Factors [1] (lb/MMscf) | Per Auxiliary Boiler | | Total | |
|---|---|---|---|---|---|---|
| | | | Hourly Emissions (lb/hr) | Annual Emissions (tpy) | Hourly Emissions (lb/hr) | Annual Emissions (tpy) |
| 2-Methylnaphthalene | 91-57-6 | 2.40E-05 | 2.12E-06 | 9.28E-06 | 4.24E-06 | 1.86E-05 |
| 3-Methylcholanthrene | 56-49-5 | 1.80E-06 | 1.59E-07 | 6.96E-07 | 3.18E-07 | 1.39E-06 |
| 7,12-Dimethylbenz(a)anthracene | 57-97-6 | 1.60E-05 | 1.41E-06 | 6.18E-06 | 2.82E-06 | 1.24E-05 |
| Acenaphthene | 83-32-9 | 1.80E-06 | 1.59E-07 | 6.96E-07 | 3.18E-07 | 1.39E-06 |
| Acenaphthylene | 203-96-8 | 1.80E-06 | 1.59E-07 | 6.96E-07 | 3.18E-07 | 1.39E-06 |
| Anthracene | 120-12-7 | 2.40E-06 | 2.12E-07 | 9.28E-07 | 4.24E-07 | 1.86E-06 |
| Benz(a)anthracene | 56-55-3 | 1.80E-06 | 1.59E-07 | 6.96E-07 | 3.18E-07 | 1.39E-06 |
| Benzene | 71-43-2 | 2.10E-03 | 1.85E-04 | 8.12E-04 | 3.71E-04 | 1.62E-03 |
| Benzo(a)pyrene | 50-32-8 | 1.20E-06 | 1.06E-07 | 4.64E-07 | 2.12E-07 | 9.28E-07 |
| Benzo(b)fluoranthene | 205-99-2 | 1.80E-06 | 1.59E-07 | 6.96E-07 | 3.18E-07 | 1.39E-06 |
| Benzo(g,h,i)perylene | 191-24-2 | 1.20E-06 | 1.06E-07 | 4.64E-07 | 2.12E-07 | 9.28E-07 |
| Benzo(k)fluoranthene | 207-08-9 | 1.80E-06 | 1.59E-07 | 6.96E-07 | 3.18E-07 | 1.39E-06 |
| Chrysene | 218-01-9 | 1.80E-06 | 1.59E-07 | 6.96E-07 | 3.18E-07 | 1.39E-06 |
| Dibenzo(a,h)anthracene | 53-70-3 | 1.20E-06 | 1.06E-07 | 4.64E-07 | 2.12E-07 | 9.28E-07 |
| Dichlorobenzene | 25321-22-6 | 1.20E-03 | 1.06E-04 | 4.64E-04 | 2.12E-04 | 9.28E-04 |
| Fluoranthene | 206-44-0 | 3.00E-06 | 2.65E-07 | 1.16E-06 | 5.29E-07 | 2.32E-06 |
| Fluorene | 86-73-7 | 2.80E-06 | 2.47E-07 | 1.08E-06 | 4.94E-07 | 2.16E-06 |
| Formaldehyde | 50-00-0 | 7.50E-02 | 6.62E-03 | 2.90E-02 | 1.32E-02 | 5.80E-02 |
| Hexane | 110-54-3 | 1.80E+00 | 1.59E-01 | 6.96E-01 | 3.18E-01 | 1.39E+00 |
| Indeno(1,2,3-cd)pyrene | 193-39-5 | 1.80E-06 | 1.59E-07 | 6.96E-07 | 3.18E-07 | 1.39E-06 |
| Naphthalene | 91-20-3 | 6.10E-04 | 5.38E-05 | 2.36E-04 | 1.08E-04 | 4.71E-04 |
| Phenanthrene | 85-01-8 | 1.70E-05 | 1.50E-06 | 6.57E-06 | 3.00E-06 | 1.31E-05 |
| Pyrene | 129-00-0 | 5.00E-06 | 4.41E-07 | 1.93E-06 | 8.82E-07 | 3.86E-06 |
| Toluene | 108-88-3 | 3.40E-03 | 3.00E-04 | 1.31E-03 | 6.00E-04 | 2.63E-03 |
| Arsenic | 7440-38-2 | 2.00E-04 | 1.76E-05 | 7.73E-05 | 3.53E-05 | 1.55E-04 |
| Beryllium | 7440-41-7 | 1.20E-05 | 1.06E-06 | 4.64E-06 | 2.12E-06 | 9.28E-06 |
| Cadmium | 7440-43-9 | 1.10E-03 | 9.71E-05 | 4.25E-04 | 1.94E-04 | 8.50E-04 |
| Chromium | 7440-47-3 | 1.40E-03 | 1.24E-04 | 5.41E-04 | 2.47E-04 | 1.08E-03 |
| Cobalt | 7440-48-4 | 8.40E-05 | 7.41E-06 | 3.25E-05 | 1.48E-05 | 6.49E-05 |
| Manganese | 7439-96-5 | 3.80E-04 | 3.35E-05 | 1.47E-04 | 6.71E-05 | 2.94E-04 |
| Mercury | 7439-97-6 | 2.60E-04 | 2.29E-05 | 1.00E-04 | 4.59E-05 | 2.01E-04 |
| Nickel | 7440-02-0 | 2.10E-03 | 1.85E-04 | 8.12E-04 | 3.71E-04 | 1.62E-03 |
| Selenium | 7782-49-2 | 2.40E-05 | 2.12E-06 | 9.28E-06 | 4.24E-06 | 1.86E-05 |
| Polycyclic Organic Matter (POM) | - | 8.82E-05 | 7.78E-06 | 3.41E-05 | 1.56E-05 | 6.82E-05 |
| **Total** | | | 1.67E-01 | 7.30E-01 | 3.33E-01 | 1.46E+00 |

[1] Emission factors based on AP-42 Section 1.4 Tables 1.4-3 & 1.4-4.

**Table 5a-4. Auxiliary Boiler GHG Emissions**

| Pollutant | Emission Factors [1] (lb/MMBtu) | Global Warming Potentials (GWP) [2] | Per Auxiliary Boiler | Total |
|---|---|---|---|---|
| | | | Annual Emissions [3] (tpy) | Annual Emissions (tpy) |
| $CO_2$ | 117 | 1 | 10,528 | 21,056 |
| $CH_4$ | 0.0022 | 28 | 0.20 | 0.40 |
| $N_2O$ | 0.0002 | 265 | 0.020 | 0.04 |
| $CO_2e$ | -- | -- | 11,593 | 23,185 |

[1] Emission factors based on 40 CFR Part 98, Tables C–1 and C–2 to Subpart C.

[2] Per 40 CFR Part 98, Table A-1 to Subpart A.

[3] $CO_2e$ emissions per the proposed BACT limit.

**Table 6a-1. Dew Point Heater Inputs**

| Parameter | Value | Units |
|---|---|---|
| Quantity | 2 | - |
| Heat Input Capacity | 11.7 | MMBtu/hr |
| Fuel | Natural Gas | - |
| Fuel Input Capacity [1] | 0.01 | MMscf/hr |
| Hours of Operation | 8,760 | hr/yr |

[1] Assuming heating value of MMBtu/MMscf 1,020 per AP-42 Chapter 1.4

**Table 6a-2. Dew Point Heater Criteria Pollutant Emissions**

| Pollutant | Emission Factor [1] | | Footnote | Per Unit | | Total | |
|---|---|---|---|---|---|---|---|
| | Value | Units | | Hourly Emissions (lb/hr) | Annual Emissions (tpy) | Hourly Emissions (lb/hr) | Annual Emissions (tpy) |
| Total PM | 0.0070 | lb/MMBtu | 1 | 0.08 | 0.36 | 0.16 | 0.72 |
| $PM_{10}$ | 0.0070 | lb/MMBtu | 1 | 0.08 | 0.36 | 0.16 | 0.72 |
| $PM_{2.5}$ | 0.0070 | lb/MMBtu | 1 | 0.08 | 0.36 | 0.16 | 0.72 |
| $NO_X$ | 0.011 | lb/MMBtu | 1 | 0.13 | 0.56 | 0.26 | 1.13 |
| CO | 0.08 | lb/MMBtu | 1 | 0.96 | 4.22 | 1.93 | 8.44 |
| VOC | 0.01 | lb/MMBtu | 1 | 0.06 | 0.26 | 0.12 | 0.51 |
| $SO_2$ | 1.43 | lb/MMscf | 2 | 0.0164 | 0.07 | 0.03 | 0.14 |
| $H_2SO_4$ | 0.109 | lb/MMscf | 2 | 1.25E-03 | 5.49E-03 | 2.51E-03 | 1.10E-02 |

[1] Emission factors per EPA AP-42 Section 1.4, Tables 1.4-1 and 1.4-2 (4/26) for low-$NO_x$ burners and BACT determinations.

[2] $SO_2$ and $H_2SO_4$ emission factors are calculated based on the proposed BACT limit max sulfur content for the inlet natural gas of 0.5 gr/100 scf, using the following formulas.

$$SO_2 \text{ Emission Factor (lb/MMscf)} = \frac{0.5 \text{ gr S}}{100 \text{ scf}} \times \frac{\text{lb}}{7{,}000 \text{ gr}} \times \frac{64.06 \text{ lb } SO_2}{1 \text{ lb-mole S}} \times \frac{10\text{^6 scf}}{\text{MMscf}}$$

$$H_2SO_4 \text{ Emission Factor (lb/MMscf)} = \frac{1.43 \text{ lb SO2}}{\text{MMscf}} \times \frac{98.079 \text{ lb}}{\text{lb-mol } H_2SO_4} \times \frac{1 \text{ lb-mole } SO_2}{64.06 \text{ lb } SO_2} \times 5\% \times 100\%$$

Assumes 5% conversion of $SO_2$ to $SO_3$ and 100% conversion of $SO_3$ to $H_2SO_4$

**Table 6a-3. Dew Point Heater HAP Emissions**

| Pollutant | CAS No. | Emission Factors [1] (lb/MMscf) | Per Unit | | Total | |
|---|---|---|---|---|---|---|
| | | | Hourly Emissions (lb/hr) | Annual Emissions (tpy) | Hourly Emissions (lb/hr) | Annual Emissions (tpy) |
| 2-Methylnaphthalene | 91-57-6 | 2.40E-05 | 2.75E-07 | 1.21E-06 | 5.51E-07 | 2.41E-06 |
| 3-Methylcholanthrene | 56-49-5 | 1.80E-06 | 2.06E-08 | 9.04E-08 | 4.13E-08 | 1.81E-07 |
| 7,12- Dimethylbenz(a)anthracene | 57-97-6 | 1.60E-05 | 1.84E-07 | 8.04E-07 | 3.67E-07 | 1.61E-06 |
| Acenaphthene | 83-32-9 | 1.80E-06 | 2.06E-08 | 9.04E-08 | 4.13E-08 | 1.81E-07 |
| Acenaphthylene | 203-96-8 | 1.80E-06 | 2.06E-08 | 9.04E-08 | 4.13E-08 | 1.81E-07 |
| Anthracene | 120-12-7 | 2.40E-06 | 2.75E-08 | 1.21E-07 | 5.51E-08 | 2.41E-07 |
| Benz(a)anthracene | 56-55-3 | 1.80E-06 | 2.06E-08 | 9.04E-08 | 4.13E-08 | 1.81E-07 |
| Benzene | 71-43-2 | 2.10E-03 | 2.41E-05 | 1.06E-04 | 4.82E-05 | 2.11E-04 |
| Benzo(a)pyrene | 50-32-8 | 1.20E-06 | 1.38E-08 | 6.03E-08 | 2.75E-08 | 1.21E-07 |
| Benzo(b)fluoranthene | 205-99-2 | 1.80E-06 | 2.06E-08 | 9.04E-08 | 4.13E-08 | 1.81E-07 |
| Benzo(g,h,i)perylene | 191-24-2 | 1.20E-06 | 1.38E-08 | 6.03E-08 | 2.75E-08 | 1.21E-07 |
| Benzo(k)fluoranthene | 207-08-9 | 1.80E-06 | 2.06E-08 | 9.04E-08 | 4.13E-08 | 1.81E-07 |
| Chrysene | 218-01-9 | 1.80E-06 | 2.06E-08 | 9.04E-08 | 4.13E-08 | 1.81E-07 |
| Dibenzo(a,h)anthracene | 53-70-3 | 1.20E-06 | 1.38E-08 | 6.03E-08 | 2.75E-08 | 1.21E-07 |
| Dichlorobenzene | 25321-22-6 | 1.20E-03 | 1.38E-05 | 6.03E-05 | 2.75E-05 | 1.21E-04 |
| Fluoranthene | 206-44-0 | 3.00E-06 | 3.44E-08 | 1.51E-07 | 6.88E-08 | 3.01E-07 |
| Fluorene | 86-73-7 | 2.80E-06 | 3.21E-08 | 1.41E-07 | 6.42E-08 | 2.81E-07 |
| Formaldehyde | 50-00-0 | 7.50E-02 | 8.60E-04 | 3.77E-03 | 1.72E-03 | 7.54E-03 |
| Hexane | 110-54-3 | 1.80E+00 | 2.06E-02 | 9.04E-02 | 4.13E-02 | 1.81E-01 |
| Indeno(1,2,3-cd)pyrene | 193-39-5 | 1.80E-06 | 2.06E-08 | 9.04E-08 | 4.13E-08 | 1.81E-07 |
| Naphthalene | 91-20-3 | 6.10E-04 | 7.00E-06 | 3.06E-05 | 1.40E-05 | 6.13E-05 |
| Phenanthrene | 85-01-8 | 1.70E-05 | 1.95E-07 | 8.54E-07 | 3.90E-07 | 1.71E-06 |
| Pyrene | 129-00-0 | 5.00E-06 | 5.74E-08 | 2.51E-07 | 1.15E-07 | 5.02E-07 |
| Toluene | 108-88-3 | 3.40E-03 | 3.90E-05 | 1.71E-04 | 7.80E-05 | 3.42E-04 |
| Arsenic | 7440-38-2 | 2.00E-04 | 2.29E-06 | 1.00E-05 | 4.59E-06 | 2.01E-05 |
| Beryllium | 7440-41-7 | 1.20E-05 | 1.38E-07 | 6.03E-07 | 2.75E-07 | 1.21E-06 |
| Cadmium | 7440-43-9 | 1.10E-03 | 1.26E-05 | 5.53E-05 | 2.52E-05 | 1.11E-04 |
| Chromium | 7440-47-3 | 1.40E-03 | 1.61E-05 | 7.03E-05 | 3.21E-05 | 1.41E-04 |
| Cobalt | 7440-48-4 | 8.40E-05 | 9.64E-07 | 4.22E-06 | 1.93E-06 | 8.44E-06 |
| Manganese | 7439-96-5 | 3.80E-04 | 4.36E-06 | 1.91E-05 | 8.72E-06 | 3.82E-05 |
| Mercury | 7439-97-6 | 2.60E-04 | 2.98E-06 | 1.31E-05 | 5.96E-06 | 2.61E-05 |
| Nickel | 7440-02-0 | 2.10E-03 | 2.41E-05 | 1.06E-04 | 4.82E-05 | 2.11E-04 |
| Selenium | 7782-49-2 | 2.40E-05 | 2.75E-07 | 1.21E-06 | 5.51E-07 | 2.41E-06 |
| Polycyclic Organic Matter (POM) | - | 8.82E-05 | 1.01E-06 | 4.43E-06 | 2.02E-06 | 8.86E-06 |
| | | **Total** | 2.17E-02 | 9.49E-02 | 4.33E-02 | 1.90E-01 |

[1] Emission factors based on AP-42 Section 1.4 Table 3 & 4.

**Table 6a-4. Dew Point Heater GHG Emissions**

| Pollutant | Emission Factors [1] (lb/MMBtu) | Global Warming Potentials (GWP) [2] | Per Unit | Total |
|---|---|---|---|---|
| | | | Annual Emissions [3] (tpy) | Annual Emissions (tpy) |
| $CO_2$ | 117 | 1 | 5,994.62 | 11,989.24 |
| $CH_4$ | 0.0022 | 28 | 0.11 | 0.23 |
| $N_2O$ | 0.0002 | 265 | 1.13E-02 | 0.02 |
| $CO_2e$ | -- | -- | 6,601 | 13,201.70 |

[1] Emission factors based on 40 CFR Part 98, Tables C–1 and C–2 to Subpart C.

[2] Per 40 CFR Part 98, Table A-1 to Subpart A.

[3] $CO_2e$ emissions per the proposed BACT limit.

**Table 7a-1. Emergency Engine Inputs**

| Parameter | Value | Units |
|---|---|---|
| EPA Certification Tier | 2 | - |
| Quantity | 2 | - |
| Fuel | ULSD | - |
| Sulfur Content | 0.0015% | - |
| Engine Rated Capacity | 2,681 | bhp |
| | 1,999 | kWe |
| Fuel Usage [1] | 138 | gal/hr |
| | 34,500 | gal/yr |
| | 19 | MMBtu/hr |
| | 4,692 | MMBtu/yr |
| Fuel Density [2] | 7.1 | lb/gal |
| Annual Operating Hours | 250 | hr/yr |

[1] Average brake-specific fuel consumption (BSFC) per AP-42 Table 3.3-1, dated 4/2025 7,000 Btu/hp-hr

[2] Per AP-42 Table 7.1-2, dated 9/2025, diesel fuel density.

**Table 7a-2. Emergency Engine Criteria Pollutant Emissions**

| Pollutant | Emission Factors | | Footnote | Per Unit | | Total | |
|---|---|---|---|---|---|---|---|
| | Value | Units | | Hourly Emissions (lb/hr) | Annual Emissions (tpy) | Hourly Emissions (lb/hr) | Annual Emissions (tpy) |
| Total PM | 0.149 | g/bhp-hr | 1,2 | 0.88 | 0.11 | 1.76 | 0.22 |
| $PM_{10}$ | 0.149 | g/bhp-hr | 1,2 | 0.88 | 0.11 | 1.76 | 0.22 |
| $PM_{2.5}$ | 0.149 | g/bhp-hr | 1,2 | 0.88 | 0.11 | 1.76 | 0.22 |
| $NO_X$ | 4.53 | g/bhp-hr | 1 | 26.80 | 3.35 | 53.59 | 6.70 |
| CO | 2.61 | g/bhp-hr | 1 | 15.43 | 1.93 | 30.85 | 3.86 |
| VOC | 0.24 | g/bhp-hr | 1 | 1.41 | 0.18 | 2.82 | 0.35 |
| $SO_2$ | 0.029 | lb/hr | 3 | 0.0294 | 3.67E-03 | 0.06 | 7.34E-03 |
| $H_2SO_4$ | 0.004 | lb/hr | 3 | 0.00450 | 5.62E-04 | 0.01 | 1.12E-03 |

[1] Tier 2 emission standards per 40 CFR Appendix I to Part 1039(b). Assumes 95% of the combined NMHC+$NO_x$ Emission Factor is NOx, and the remaining 5% is NMHC (VOC), per CARB, 2004: Bay Area Air Quality Management District (BAAQMD) guidance

[2] Conservatively assumed that PM = $PM_{10}$ = $PM_{2.5}$.

[3] $SO_2$ and $H_2SO_4$ emissions per the 15 ppmw maximum sulfur content.

$SO_2$ Emission Factor (lb/hr) = 15 ppmw / 1,000,000 × 138 gal / hr × 64.06 lb $SO_2$ / 1 lb-mole $SO_2$ × 1 lb-mole S / 32.06 lb S × 7.1 lb / gal

$H_2SO_4$ Emission Factor (lb/hr) = 0.0046 lb $SO_2$ / hr × 1 lb-mole $SO_2$ / 64.06 lb $SO_2$ × 98.079 lb / lb-mol $H_2SO_4$ × 10%

Conservatively assumes 100% conversion of sulfur to $SO_2$, 10% conversion of $SO_2$ to $SO_3$, and that $SO_3$ will react to form $H_2SO_4$.

**Table 7a-3. Emergency Engine HAP Emissions**

| Pollutant | CAS No. | Emission Factors [1] (lb/MMBtu) | Per Unit | | Total | |
|---|---|---|---|---|---|---|
| | | | Hourly Emissions (lb/hr) | Annual Emissions (tpy) | Hourly Emissions (lb/hr) | Annual Emissions (tpy) |
| Benzene | 71-43-2 | 7.76E-04 | 1.46E-02 | 1.82E-03 | 2.91E-02 | 3.64E-03 |
| Toluene | 108-88-3 | 2.81E-04 | 5.27E-03 | 6.59E-04 | 1.05E-02 | 1.32E-03 |
| Xylenes | 1330-20-7 | 1.93E-04 | 3.62E-03 | 4.53E-04 | 7.24E-03 | 9.05E-04 |
| Formaldehyde | 50-00-0 | 7.89E-05 | 1.48E-03 | 1.85E-04 | 2.96E-03 | 3.70E-04 |
| Acetaldehyde | 75-07-0 | 2.52E-05 | 4.73E-04 | 5.91E-05 | 9.46E-04 | 1.18E-04 |
| Acrolein | 107-02-8 | 7.88E-06 | 1.48E-04 | 1.85E-05 | 2.96E-04 | 3.70E-05 |
| Naphthalene | 91-20-3 | 1.30E-04 | 2.44E-03 | 3.05E-04 | 4.88E-03 | 6.10E-04 |
| Polycyclic Organic Matter (POM) | - | 8.20E-05 | 1.54E-03 | 1.92E-04 | 3.08E-03 | 3.85E-04 |
| | | **Total** | 2.95E-02 | 3.69E-03 | 5.91E-02 | 7.38E-03 |

[1] Per EPA AP-42 Section 3.4, Tables 3.4-3 and 3.4-4 (4/25). The emission factor for PAH (which are HAPs because they are POMs) is the value for "Total PAH" listed in AP-42 minus the value listed for naphthalene, as it is speciated here.

**Table 7a-4. Emergency Engine GHG Emissions**

| Pollutant | Emission Factors [1] (kg $CO_2$/MMBtu) | Global Warming Potentials (GWP) [2] | Per Unit | Total |
|---|---|---|---|---|
| | | | Annual Emissions [3] (tpy) | Annual Emissions (tpy) |
| $CO_2$ | 73.96 | 1 | 382.50 | 765.00 |
| $CH_4$ | 0.003 | 28 | 1.55E-02 | 3.10E-02 |
| $N_2O$ | 0.0006 | 265 | 3.10E-03 | 6.21E-03 |
| $CO_2e$ | -- | -- | 422 | 844.26 |

[1] Emission factors based on 40 CFR Part 98, Subpart C, Table C-1 and C-2 for Distillate Fuel Oil No. 2 (diesel)

[2] Per 40 CFR Part 98, Table A-1 to Subpart A.

[3] $CO_2e$ emissions per the proposed BACT limit.

**Table 8a-1. Fire Pump Engine Inputs**

| Parameter | Value | Units |
|---|---|---|
| EPA Certification | Tier 3 | - |
| Quantity | 1 | - |
| Fuel | ULSD | - |
| Sulfur Content | 0.0015% | - |
| Engine Rated Capacity | 305 | bhp |
| | 227 | kWm |
| Fuel Usage [1] | 17 | gal/hr |
| | 8,500 | gal/yr |
| | 2.14 | MMBtu/hr |
| | 1,068 | MMBtu/yr |
| Fuel Density [2] | 7.1 | lb/gal |
| Annual Operating Hours | 500 | hr/yr |

[1] Average brake-specific fuel consumption (BSFC) per AP-42 Table 3.3-1, dated 4/2025 — 7,000 Btu/hp-hr

[2] Per AP-42 Table 7.1-2, dated 9/2025, diesel fuel density.

**Table 8a-2. Fire Pump Engine Criteria Pollutant Emissions**

| Pollutant | Emission Factors | | Footnote | Emissions | |
|---|---|---|---|---|---|
| | Value | Units | | Hourly (lb/hr) | Annual (tpy) |
| Total PM | 0.15 | g/bhp-hr | 1,2 | 0.10 | 0.025 |
| $PM_{10}$ | 0.15 | g/bhp-hr | 1,2 | 0.10 | 0.025 |
| $PM_{2.5}$ | 0.15 | g/bhp-hr | 1,2 | 0.10 | 0.025 |
| $NO_X$ | 2.85 | g/bhp-hr | 1 | 1.92 | 0.48 |
| CO | 2.60 | g/bhp-hr | 1 | 1.75 | 0.44 |
| VOC | 0.150 | g/bhp-hr | 1 | 0.10 | 0.025 |
| $SO_2$ | 0.0036 | lb/hr | 3 | 0.004 | 9.04E-04 |
| $H_2SO_4$ | 0.00055 | lb/hr | 3 | 0.001 | 2.96E-04 |

[1] Tier 3 emission standards per Table 4 to Subpart IIII of Part 60 (see 300≤HP<600 for years 2009+). Assumes 95% of the combined NMHC+$NO_x$ Emission Factor is NOx, and the remaining 5% is NMHC (VOC), per CARB, 2004: Bay Area Air Quality Management District (BAAQMD) guidance

[2] Conservatively assumed that PM = $PM_{10}$ = $PM_{2.5}$.

[3] $SO_2$ and $H_2SO_4$ emissions per 15 ppmw maximum sulfur content in ULSD.

$SO_2$ Emission Factor (lb/hr) = $\frac{15 \text{ ppmw}}{1{,}000{,}000} \times \frac{17 \text{ gal}}{\text{hr}} \times \frac{64.06 \text{ lb } SO_2}{1 \text{ lbmol}} \times \frac{1 \text{ lbmol}}{32.06 \text{ lb S}} \times \frac{7.1 \text{ lb}}{\text{gal}}$

$H_2SO_4$ Emission Factor (lb/hr) = $\frac{0.0046 \text{ lb } SO_2}{\text{hr}} \times \frac{1 \text{ lbmol}}{64.06 \text{ lb } SO_2} \times \frac{98.079 \text{ lb}}{1 \text{ lbmol}} \times 10\% \times 100\%$

Conservatively assumes 100% conversion of sulfur to $SO_2$, 10% conversion of $SO_2$ to $SO_3$, and that $SO_3$ will react to form $H_2SO_4$.

**Table 8a-3. Fire Pump Engine HAP Emissions**

| Pollutant | CAS No. | Emission Factors [1] (lb/MMBtu) | Emissions | |
|---|---|---|---|---|
| | | | Hourly (lb/hr) | Annual (tpy) |
| Benzene | 71-43-2 | 9.33E-04 | 1.99E-03 | 4.98E-04 |
| Toluene | 108-88-3 | 4.09E-04 | 8.73E-04 | 2.18E-04 |
| Xylenes | 1330-20-7 | 2.85E-04 | 6.08E-04 | 1.52E-04 |
| 1,3-Butadiene | 106-99-0 | 3.91E-05 | 8.35E-05 | 2.09E-05 |
| Formaldehyde | 50-00-0 | 1.18E-03 | 2.52E-03 | 6.30E-04 |
| Acetaldehyde | 75-07-0 | 7.67E-04 | 1.64E-03 | 4.09E-04 |
| Acrolein | 107-02-8 | 9.25E-05 | 1.97E-04 | 4.94E-05 |
| Naphthalene | 91-20-3 | 8.48E-05 | 1.81E-04 | 4.53E-05 |
| Polycyclic Organic Matter (POM) | - | 8.32E-05 | 1.78E-04 | 4.44E-05 |
| | | **Total** | 8.27E-03 | 2.07E-03 |

[1] AP-42 Section 3.3 Table 3.3-2 Speciated Organic Compound Emission Factors for Uncontrolled Diesel Engines (< 600 HP) dated April 2025. The emission factor for PAH (which are HAPs because they are POMs) is the value for "Total PAH" listed in AP-42 minus the value listed for naphthalene, as it is speciated here.

**Table 8a-4. Fire Pump Engine GHG Emissions**

| Pollutant | Emission Factors [1] (kg/MMBtu) | Global Warming Potentials (GWP) [2] | Per Unit | Total |
|---|---|---|---|---|
| | | | Annual Emissions [3] (tpy) | Annual Emissions (tpy) |
| $CO_2$ | 73.96 | 1 | 87.03 | 87.03 |
| $CH_4$ | 0.003 | 28 | 3.53E-03 | 0.00 |
| $N_2O$ | 0.0006 | 265 | 7.06E-04 | 0.00 |
| $CO_2e$ | -- | -- | 96 | 96.05 |

[1] Emission factors based on 40 CFR Part 98, Subpart C, Table C-1 and C-2 for Distillate Fuel Oil No. 2 (diesel)

[2] Per 40 CFR Part 98, Table A-1 to Subpart A.

[3] $CO_2e$ emissions per the proposed BACT limit.

**Table 9a-1. Natural Gas Fugitive Emissions**

| Equipment Type | $CH_4$ Emission Factor (lb/hr/component) [1] | Component Count | Control Efficiency [1] | Hourly $CH_4$ Emissions (lb/hr) | Hourly VOC Emissions (lb/hr) [2] | Annual $CH_4$ Emissions (tpy) [3] | Annual VOC Emissions (tpy) [3] | Annual $CO_2e$ Emissions [2,4] |
|---|---|---|---|---|---|---|---|---|
| Valves - Gas/Vapor | 8.90E-03 | 550 | 0% | 4.90 | 0.10 | 21.44 | 0.43 | 600.32 |
| Valves - Light Liquid | 3.50E-03 | 8 | 0% | 0.03 | 0.00 | 0.12 | 0.00 | 3.43 |
| Flanges/Connectors - Gas/Vapor | 2.90E-03 | 72 | 0% | 0.21 | 0.004 | 0.91 | 0.018 | 25.61 |
| Flanges/Connectors - Light Liquid | 5.00E-04 | 8 | 0% | 0.004 | 8.00E-05 | 0.02 | 0.0004 | 0.49 |
| Pressure Relief Valves | 2.29E-01 | 10 | 0% | 2.29 | 0.05 | 10.04 | 0.20 | 281.21 |
| Open-Ended Lines | 4.00E-03 | 38 | 0% | 0.15 | 0.00 | 0.67 | 0.01 | 18.64 |
| Sampling Connections | 3.30E-02 | 4 | 0% | 0.13 | 0.00 | 0.58 | 0.01 | 16.19 |

[1] Emission factors are taken from the Texas Commission on Environmental Quality (TCEQ) Air Permit Technical Guidance for Chemical Sources, Fugitive Guicance (APDG 6422v2, Revised 6/2018). SOCMI factors for sources without ethylene were used to estimate the fugitive emissions of methane for this site. Emission calculations do not account for any control.

[2] SEC will only use natural gas with up to 2 wt % VOC content.

[3] Annual hours of operation: 8,760

[4] Global Warming Potential of $CH_4$ = 28 per 40 CFR Part 98, Subpart A, Table A-1.

**Table 10a-1. Lube Oil Vent Emissions**

| Number of Vents Per Turbine | Lube Oil Vent Quantity | VOC Emission Factor [1] | $PM/PM_{10}/PM_{2.5}$ Emission Factor [1,2] | VOC Hourly Emissions Per Vent | $PM/PM_{10}/PM_{2.5}$ Hourly Emissions Per Vent | VOC Annual Emissions [3] | $PM/PM_{10}/PM_{2.5}$ Annual Emissions [3] |
|---|---|---|---|---|---|---|---|
| | | (lb/hr) | (lb/hr) | (lb/hr) | (lb/hr) | (tpy) | (tpy) |
| 1 | 4 | 0.05 | 0.05 | 0.05 | 0.05 | 0.88 | 0.88 |

[1] Emission factors per the Texas Commission on Environmental Quality (TCEQ) Readily Available Permit (RAP) for Simple Cycle Turbines: TCEQ 20858, Version 3.3.

[2] Particulate emissions are conservatively assumed to be equal to VOC.

[3] Annual hours of operation conservatively assumed: 8,760

**Table 11a-1. SF6 Emission Calculations for Circuit Breakers**

| Breaker Description | Number of Circuit Breakers - 500 kV | Quantity of $SF_6$ per circuit breaker - 500 kV | $SF_6$ Leak Rate | Annual $SF_6$ Emission Rate [1] | Annual $CO_2e$ Emission Rate [2,3] |
|---|---|---|---|---|---|
| | | lbs | (%/yr) | tpy | tpy |
| Siemens 2000A | 11 | 1,590 | 0.50 | 0.04 | 1.03E+03 |

[1] Annual Emission Rate (tpy) = Number of Circuit Breakers * Amount of $SF_6$ in Full Charge (lb) * $SF_6$ Leak Rate (%/yr) * 1/2,000 (ton/lb)

[2] Global Warming Potential (GWP) of $SF_6$ = 23,500 per 40 CFR Part 98, Subpart A, Table A-1

[3] To be consistent with the reporting format in GHG Mandatory Reporting Rule, the $CO_2e$ emissions are rounded to nearest digit.

# APPENDIX B. OEM EMISSIONS DATA

**Combined Cycle Mode Emissions Estimates: Steele Energy Center**

| Operating Point | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Case Description | | 1GT Gas fuel, 1 ST @ 100% nor. | 1GT Gas fuel, 1 ST @ 75% load | 1GT, Gas fuel, 1 ST @ 75% load | 1GT Gas fuel, 1 ST @ 100% nor. | 1GT Gas fuel, 1 ST @ 100% load | 1GT, Gas fuel, 1 ST @ 100% load | 1GT Gas fuel, 1 ST @ 75% load | 1GT Gas fuel, 1 ST @ 50% load | 1GT, Gas fuel, 1 ST @ 100% nor. | 1GT Gas fuel, 1 ST @ 100% load | 1GT, Gas fuel, 1 ST @ 50% load | 1GT, Gas fuel, 1 ST @ 100% load | 1GT, Gas fuel, 1 ST @ 75% load | 1GT, Gas fuel, 1 ST @ 50% load | 1GT Gas fuel, 1 ST @ 100% nor. | 1GT Gas fuel, 1 ST @ 100% load | 1GT, Gas fuel, 1 ST @ 75% load | 1GT, Gas fuel, 1 ST @ 50% load | 1GT Gas fuel, 1 ST @ 100% nor. | 1GT Gas fuel, 1 ST @ 100% load | 1GT, Gas fuel, 1 ST @ 75% load | 1GT, Gas fuel, 1 ST @ 50% load | 1GT Gas fuel, 1 ST @ 100% nor. | 1GT Gas fuel, 1 ST @ 100% load | 1GT, Gas fuel, 1 ST @ 75% load | 1GT, Gas fuel, 1 ST @ 50% load | 1GT Gas fuel, 1 ST @ 100% nor. | 1GT Gas fuel, 1 ST @ 100% load | 1GT, Gas fuel, 1 ST @ 75% load | 1GT, Gas fuel, 1 ST @ 50% load |
| **Ambient Conditions** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ambient Temperature | °F | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 59.0 | 59.0 | 59.0 | 59.0 | 59.0 | 59.0 | 71.0 | 71.0 | 71.0 | 71.0 | 71.0 | 71.0 | 106.0 | 106.0 | 106.0 | 106.0 | 106.0 | 106.0 | 106.0 |
| Ambient Pressure | psia | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 |
| Ambient Relative Humidity | % | 44 | 44 | 44 | 44 | 44 | 58 | 58 | 58 | 58 | 60 | 60 | 60 | 60 | 60 | 60 | 28 | 28 | 28 | 28 | 28 | 28 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| **Gas Turbine** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GT Fuel Type | | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas |
| Number of Gas Turbines operating per Block | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| GT load fraction | - | 1 | 0.75 | 0.51 | 1 | 1 | 1 | 0.75 | 0.5 | 1 | 1 | 1 | 0.75 | 0.5 | 1 | 1 | 1 | 1 | 0.75 | 0.5 | 1 | 1 | 1 | 0.75 | 0.25 | 1 | 1 | 1 | 1 |
| Evap Cooler status | | off | on | off | off | on | off | off | off | off | off | On | off | off | off | On | off | On | off | off | On | On | On | off | off | off | On | On | off |
| Gas turbine water injection flow rate | lb/h | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Abatement Status** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CO Catalyst Operating status | | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating |
| SCR Operating status | | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating | Operating |
| **GT Fuel** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gas Turbine fuel LHV | Btu/lb | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 |
| Gas Turbine fuel HHV | Btu/lb | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 |
| Gas Turbine gas fuel molecular weight | lb/lbmole | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 |
| Gas Turbine sulfur ppm (by mass) | ppm | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 |
| **Duct Burner** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Duct Burner fuel LHV | Btu/lb | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 |
| Duct Burner fuel HHV | Btu/lb | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 | 22730 |
| Duct Burner fuel molecular weight | lb/lbmole | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 |
| Duct Burner fuel sulfur content (by mass) | ppm | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 |
| Duct Burner status | | Off | Off | Off | Operating | Operating | Off | Off | Off | Operating | Off | Off | Off | Off | Operating | Operating | Off | Off | Off | Off | Operating | Operating | Off | Off | Off | Off | Operating | Operating | Operating |
| Duct Burner gas fuel flow | lb/h | 0.0 | 0.0 | 0.0 | 38960.2 | 40790.0 | 0.0 | 0.0 | 0.0 | 40790.0 | 0.0 | 0.0 | 0.0 | 0.0 | 39810.7 | 38207.4 | 0.0 | 0.0 | 0.0 | 0.0 | 36800.8 | 37952.8 | 0.0 | 0.0 | 0.0 | 0.0 | 38258.0 | 36738.8 | 40790.0 |
| Duct Burner load fraction | % | 0.0 | 0.0 | 0.0 | 95.4 | 100.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 98.4 | 93.8 | 0.0 | 0.0 | 0.0 | 0.0 | 90.6 | 93.0 | 0.0 | 0.0 | 0.0 | 0.0 | 72.0 | 90.1 | 100.0 |
| **Heat Consumption for permitting (per unit)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GT Heat Cons (HHV) with permitting margin | MMBtu/h | 1236.8 | 1088.1 | 1019.6 | 1236.8 | 1288.6 | 1150.4 | 1029.3 | 1004.8 | 1158.7 | 1117.0 | 1185.8 | 1058.5 | 1497.0 | 1110.4 | 1161.8 | 1030.1 | 1166.3 | 1047.1 | 1167.0 | 1031.6 | 1141.1 | 1088.6 | 1029.9 | 1042.8 | 1406.7 | 1097.5 | 1027.9 | 1088.1 |
| DB Heat Cons (HHV) | MMBtu/h | 0.0 | 0.0 | 0.0 | 886.6 | 962.7 | 0.0 | 0.0 | 0.0 | 927.9 | 0.0 | 0.0 | 0.0 | 0.0 | 853.8 | 870.1 | 0.0 | 0.0 | 0.0 | 0.0 | 686.9 | 863.0 | 0.0 | 0.0 | 0.0 | 0.0 | 733.1 | 835.4 | 962.7 |
| **HRSG Exit Exhaust gas (per unit)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stack N2 mole fraction | - | 0.7445 | 0.7453 | 0.759 | 0.7395 | 0.7436 | 0.7497 | 0.7497 | 0.7500 | 0.7347 | 0.7374 | 0.7354 | 0.7482 | 0.7498 | 0.7395 | 0.7329 | 0.7401 | 0.7509 | 0.7414 | 0.7487 | 0.7551 | 0.7277 | 0.7736 | 0.7776 | 0.7492 | 0.7493 | 0.7505 | 0.7713 | 0.737 |
| Stack O2 mole fraction | - | 0.1397 | 0.1417 | 0.1505 | 0.08747 | 0.1004 | 0.1161 | 0.1184 | 0.1316 | 0.0903 | 0.1008 | 0.1005 | 0.1144 | 0.1316 | 0.08454 | 0.06197 | 0.1084 | 0.1407 | 0.1121 | 0.1031 | 0.08080 | 0.05422 | 0.1113 | 0.1106 | 0.1473 | 0.1222 | 0.09548 | 0.06554 | 0.1085 |
| Stack AR mole fraction | - | 0.00899 | 0.008973 | 0.009592 | 0.00977 | 0.00885 | 0.009041 | 0.008947 | 0.008939 | 0.009748 | 0.008770 | 0.008754 | 0.009794 | 0.008980 | 0.009083 | 0.008930 | 0.00887 | 0.009752 | 0.009027 | 0.009914 | 0.009715 | 0.009852 | 0.008785 | 0.009073 | 0.009912 | 0.008873 | 0.009092 | 0.008588 | 0.009079 |
| Stack H2O mole fraction | - | 0.0910 | 0.08093 | 0.07178 | 0.1105 | 0.0933 | 0.08252 | 0.09179 | 0.07286 | 0.1153 | 0.1003 | 0.1021 | 0.09593 | 0.07297 | 0.1233 | 0.1223 | 0.09629 | 0.1022 | 0.1025 | 0.07425 | 0.1164 | 0.1223 | 0.09729 | 0.1105 | 0.09148 | 0.07907 | 0.1167 | 0.123 | 0.09976 |
| Stack CO2 mole fraction | - | 0.04677 | 0.04538 | 0.03667 | 0.05857 | 0.0478 | 0.04685 | 0.04576 | 0.03856 | 0.05586 | 0.04689 | 0.04713 | 0.04519 | 0.03529 | 0.05127 | 0.05113 | 0.04634 | 0.04708 | 0.04454 | 0.03497 | 0.05578 | 0.05638 | 0.04468 | 0.04667 | 0.04153 | 0.03487 | 0.05465 | 0.05538 | 0.04584 |
| Stack Molecular Weight | lb/lbmole | 28.39 | 28.40 | 28.61 | 28.27 | 28.37 | 28.36 | 28.37 | 28.46 | 28.27 | 28.29 | 28.26 | 28.31 | 28.43 | 28.16 | 28.11 | 28.33 | 28.06 | 28.35 | 28.46 | 28.40 | 28.17 | 28.30 | 28.17 | 28.37 | 28.40 | 28.19 | 28.05 | 28.28 |
| Stack Temperature | °F | 197.8 | 177.4 | 174.9 | 192.8 | 191.2 | 184.9 | 175.8 | 172.9 | 189.9 | 187.9 | 188.8 | 179.7 | 172.8 | 180.4 | 181.8 | 187.2 | 188.7 | 179.8 | 172.4 | 174.4 | 166.1 | 187.5 | 186.9 | 178.4 | 169.2 | 183.5 | 185.0 | |
| Stack Mass flow, including Permitting Margin, per stack | lb/h | 1083700 | 973300 | 3339700 | 7125600 | 7058200 | 6912600 | 5540600 | 3240300 | 6957500 | 5742700 | 6812000 | 5542500 | 3287600 | 6786300 | 6354700 | 5857900 | 6794600 | 5505300 | 3254400 | 6730800 | 6331400 | 5697300 | 6737500 | 4954300 | 3116700 | 5727200 | 6777900 | 5986200 |
| Margin for exhaust vol flow (incl. permitting margin) | MW/h | 124.85 | 98.599 | 56.832 | 124.27 | 134.8 | 121.41 | 96.218 | 55.202 | 121.01 | 18.46 | 119.87 | 96.471 | 55.756 | 118.36 | 119.85 | 117.2 | 119.59 | 96.777 | 55.46 | 117.05 | 123.35 | 99.896 | 120.27 | 86.83 | 51.741 | 99.81 | 119.29 | 99.64 |
| **HRSG Exit Emissions (per unit)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NOx volume fraction, dry, at 15 % O2 | ppm | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| NOx mass flow rate, as NO2 | lb/h | 31.8 | 24.8 | 11.6 | 38.7 | 32.4 | 30.6 | 24.2 | 11.0 | 35.1 | 30.3 | 30.8 | 23.9 | 10.3 | 37.6 | 37.8 | 29.6 | 30.6 | 23.4 | 10.8 | 36.8 | 37.5 | 24.3 | 23.6 | 19.8 | 10.3 | 30.1 | 36.3 | 25.0 |
| CO volume fraction, dry, at 15 % O2 | ppm | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| CO mass flow rate | lb/h | 14.2 | 10.1 | 7.1 | 23.8 | 19.7 | 18.6 | 14.7 | 6.7 | 21.2 | 18.4 | 18.7 | 14.6 | 6.4 | 22.8 | 23.0 | 18.0 | 18.7 | 14.3 | 6.6 | 22.4 | 22.9 | 14.8 | 14.5 | 12.0 | 6.3 | 18.4 | 22.1 | 15.2 |
| VOC volume fraction, dry, at 15 % O2 | ppm | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| VOC mass flow rate (as methane) | lb/h | 5.5 | 4.8 | 2.0 | 13.5 | 11.8 | 6.8 | 5.2 | 1.9 | 13.1 | 6.0 | 6.4 | 4.8 | 1.8 | 13.1 | 13.2 | 6.2 | 6.3 | 4.7 | 1.9 | 12.8 | 13.1 | 4.2 | 8.2 | 4.1 | 1.8 | 10.6 | 12.7 | 8.7 |
| NH3 volume fraction, dry, at 15 % O2 | ppm | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| NH3 mass flow rate | lb/h | 29.3 | 22.9 | 10.7 | 35.9 | 29.9 | 28.3 | 22.6 | 10.2 | 32.5 | 28.0 | 28.5 | 22.1 | 10.1 | 34.7 | 35.0 | 27.4 | 28.4 | 21.7 | 10.0 | 34.0 | 34.8 | 22.5 | 21.9 | 18.2 | 9.6 | 27.9 | 33.6 | 23.1 |
| SOx mass flow rate (as SO2) | lb/h | 5.6 | 5.2 | 7.4 | 5.1 | 6.8 | 6.4 | 5.1 | 2.3 | 7.0 | 6.3 | 6.4 | 5.0 | 2.3 | 7.8 | 7.9 | 6.2 | 6.4 | 4.9 | 2.3 | 7.7 | 7.9 | 5.1 | 6.7 | 4.1 | 2.2 | 6.3 | 7.6 | 5.2 |
| CH2O volume fraction, dry, at 15 % O2 | PPB | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 |
| CH2O mass flow rate | lb/h | 0.94 | 0.74 | 0.34 | 1.15 | 0.96 | 0.94 | 0.72 | 0.33 | 1.10 | 0.90 | 0.91 | 0.71 | 0.33 | 1.11 | 1.12 | 0.88 | 0.91 | 0.70 | 0.32 | 1.09 | 1.12 | 0.72 | 0.70 | 0.58 | 0.31 | 0.90 | 1.08 | 0.74 |
| Total Particulates | lb/h | 14.0 | 10.7 | 11.0 | 25.1 | 24.5 | 14.0 | 13.8 | 11.5 | 25.4 | 14.8 | 14.6 | 13.6 | 11.5 | 25 | 24.9 | 14.5 | 14.0 | 13.5 | 11.5 | 24.0 | 24.7 | 13.6 | 14.0 | 12.9 | 11.4 | 22.5 | 24.2 | 23.2 |
| Sulfur Mist as H2SO4 | lb/h | 4.5 | 3.5 | 1.8 | 5.8 | 4.8 | 4.6 | 3.4 | 1.6 | 5.7 | 4.3 | 4.3 | 3.4 | 1.5 | 5.6 | 5.7 | 4.2 | 4.3 | 3.3 | 1.5 | 5.5 | 5.8 | 3.4 | 4.2 | 2.8 | 1.5 | 4.5 | 5.5 | 3.8 |
| Stack CO2 mass flow rate, including Permitting margin | lb/h | 510000 | 405000 | 180000 | 520000 | 525000 | 497000 | 390000 | 180000 | 617000 | 492000 | 530000 | 389000 | 179000 | 607000 | 612000 | 482000 | 488000 | 381000 | 175000 | 596000 | 606000 | 394000 | 481000 | 325000 | 169000 | 489000 | 599000 | 406000 |

**Simple Cycle Mode Emissions Estimates: Steele Energy Center**

| Operating Point | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Case Description | | 18°F, Gas fuel, 1 | 18°F, Gas fuel, 1 | 34°F, Gas fuel, 1 | 34°F, Gas fuel, 1 | 34°F, Gas fuel, 1 | 59°F, Gas fuel, 1 | 59°F, Gas fuel, 1 | 59°F, Gas fuel, 1 | 59°F, Gas fuel, 1 | 71°F, Gas fuel, 1 | 71°F, Gas fuel, 1 | 71°F, Gas fuel, 1 | 71°F, Gas fuel, 1 | 106°F, Gas fuel, 1 | 106°F, Gas fuel, 1 | 106°F, Gas fuel, 1 | 106°F, Gas fuel, 1 |
| **Ambient Conditions** | | | | | | | | | | | | | | | | | | |
| Ambient Temperature | °F | 18.0 | 18.0 | 34.0 | 34.0 | 34.0 | 59.0 | 59.0 | 59.0 | 59.0 | 71.0 | 71.0 | 71.0 | 71.0 | 106.0 | 106.0 | 106.0 | 106.0 |
| Ambient Pressure | psia | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 | 13.984 |
| Ambient Relative Humidity | % | 44 | 44 | 58 | 58 | 58 | 60 | 60 | 60 | 60 | 28 | 28 | 28 | 28 | 15 | 15 | 15 | 15 |
| **Gas Turbine** | | | | | | | | | | | | | | | | | | |
| GT Fuel Type | | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas | Gas |
| Number of Gas Turbines operating per Block | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| GT load fraction | - | 1 | 0.7515 | 1 | 0.75 | 0.6327 | 1 | 1 | 0.75 | 0.5901 | 1 | 1 | 0.75 | 0.6049 | 1 | 1 | 0.75 | 0.7439 |
| Evap Cooler status | | off | off | off | off | off | on | off | off | off | on | off | off | off | on | off | off | off |
| Gas turbine water injection flow rate | lb/s | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Abatement Status** | | | | | | | | | | | | | | | | | | |
| CO Catalyst Operating status | | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present |
| SCR Operating status | | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present | Not present |
| **GT Fuel** | | | | | | | | | | | | | | | | | | |
| Gas Turbine fuel LHV | Btu/lb | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 | 20516 |
| Gas Turbine fuel HHV | Btu/lb | 22752 | 22752 | 22752 | 22752 | 22752 | 22752 | 22752 | 22752 | 22752 | 22752 | 22752 | 22752 | 22752 | 22752 | 22752 | 22752 | 22752 |
| Gas Turbine gas fuel molecular weight | lb/lbmole | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 | 17.07 |
| Gas Turbine sulfur ppm (by mass) | ppm | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 |
| **Duct Burner** | | | | | | | | | | | | | | | | | | |
| Duct Burner fuel LHV | Btu/lb | 20439 | 20439 | 20439 | 20439 | 20439 | 20439 | 20439 | 20439 | 20439 | 20439 | 20439 | 20439 | 20439 | 20439 | 20439 | 20439 | 20439 |
| Duct Burner fuel HHV | Btu/lb | 22665 | 22665 | 22665 | 22665 | 22665 | 22665 | 22665 | 22665 | 22665 | 22665 | 22665 | 22665 | 22665 | 22665 | 22665 | 22665 | 22665 |
| Duct Burner fuel molecular weight | lb/lbmole | 16.74 | 16.74 | 16.74 | 16.74 | 16.74 | 16.74 | 16.74 | 16.74 | 16.74 | 16.74 | 16.74 | 16.74 | 16.74 | 16.74 | 16.74 | 16.74 | 16.74 |
| Duct Burner fuel sulfur content (by mass) | ppm | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 | 15.9 |
| Duct Burner status | | Off | Off | Off | Off | Off | Off | Off | Off | Off | Off | Off | Off | Off | Off | Off | Off | Off |
| Duct Burner gas fuel flow | klb/h | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Duct Burner load fraction | % | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Heat Consumption for permitting (per unit)** | | | | | | | | | | | | | | | | | | |
| GT Heat Cons (HHV), with permitting margin | MMBtu/h | 4136.2 | 3292.9 | 4082.7 | 3235.6 | 2878.7 | 4009.3 | 4009.3 | 3181.2 | 2695.7 | 4055.2 | 3927.9 | 3118.4 | 2689.0 | 3987.6 | 3310.6 | 2691.8 | 2677.1 |
| DB Heat Cons (HHV) | MMBtu/h | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **HRSG Exit Exhaust gas (per unit)** | | | | | | | | | | | | | | | | | | |
| Stack N2 mole fraction | - | 0.7451 | 0.7452 | 0.7435 | 0.7432 | 0.744 | 0.7389 | 0.7389 | 0.7384 | 0.74 | 0.7365 | 0.7416 | 0.7412 | 0.7426 | 0.7289 | 0.7383 | 0.7398 | 0.7398 |
| Stack O2 mole fraction | - | 0.1111 | 0.1115 | 0.1116 | 0.1105 | 0.1127 | 0.1112 | 0.1112 | 0.1097 | 0.1142 | 0.1102 | 0.1128 | 0.1115 | 0.1156 | 0.1091 | 0.1124 | 0.1166 | 0.1167 |
| Stack AR mole fraction | - | 0.008799 | 0.008899 | 0.008899 | 0.008799 | 0.008799 | 0.008799 | 0.008799 | 0.008799 | 0.008799 | 0.008699 | 0.008899 | 0.008799 | 0.008799 | 0.008699 | 0.008799 | 0.008799 | 0.008799 |
| Stack H2O mole fraction | - | 0.08919 | 0.08879 | 0.09069 | 0.09169 | 0.08969 | 0.09619 | 0.09619 | 0.09749 | 0.09349 | 0.09949 | 0.09229 | 0.09349 | 0.08989 | 0.1087 | 0.09629 | 0.09259 | 0.09249 |
| Stack CO2 mole fraction | - | 0.0457 | 0.0455 | 0.0452 | 0.0457 | 0.0447 | 0.0448 | 0.0448 | 0.0455 | 0.0434 | 0.045 | 0.0443 | 0.0449 | 0.043 | 0.0445 | 0.0441 | 0.0421 | 0.0421 |
| Stack Molecular Weight | lb/lbmole | 28.40 | 28.40 | 28.38 | 28.37 | 28.39 | 28.32 | 28.32 | 28.31 | 28.33 | 28.28 | 28.35 | 28.35 | 28.37 | 28.18 | 28.31 | 28.33 | 28.33 |
| Stack Temperature | °F | 1176.8 | 1216.6 | 1186.5 | 1240.0 | 1252.0 | 1193.7 | 1193.7 | 1252.0 | 1252.0 | 1193.2 | 1196.2 | 1252.0 | 1252.0 | 1201.3 | 1244.1 | 1252.0 | 1252.0 |
| Stack Mass flow, including Permitting Margin, per stack | lb/h | 6917000 | 5529400 | 6891600 | 5400000 | 4920700 | 6820100 | 6820100 | 5327400 | 4736800 | 6860800 | 6762200 | 5296100 | 4769100 | 6793400 | 5721900 | 4870800 | 4852200 |
| Margined exhaust vol flow (incl. permitting margin) | Mft3/h | 305.87 | 250.43 | 306.78 | 248.25 | 227.72 | 305.61 | 305.61 | 247.21 | 219.61 | 307.73 | 303.06 | 245.43 | 220.84 | 307.32 | 264.29 | 225.84 | 224.97 |
| **HRSG Exit Emissions (per unit)** | | | | | | | | | | | | | | | | | | |
| NOx Volume fraction, dry, at 15 % O2 | ppm | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| NOx mass flow rate (as NO2) | lb/h | 225.8 | 179.8 | 222.8 | 176.6 | 157.3 | 218.9 | 218.9 | 173.7 | 147.2 | 221.3 | 214.5 | 170.4 | 146.7 | 217.7 | 180.8 | 146.9 | 146.2 |
| CO Volume fraction, dry, at 15 % O2 | ppm | 6.1 | 6.13 | 6.15 | 6.08 | 6.23 | 6.18 | 6.18 | 6.07 | 6.4 | 6.13 | 6.27 | 6.17 | 6.48 | 6.13 | 6.27 | 6.6 | 6.6 |
| CO mass flow rate | lb/h | 55.9 | 44.7 | 55.7 | 43.6 | 39.8 | 54.9 | 54.9 | 42.8 | 38.2 | 55.1 | 54.6 | 42.7 | 38.6 | 54.2 | 46.0 | 39.3 | 39.2 |
| VOC Volume fraction, dry, at 15 % O2 | ppm | 1.04 | 1.05 | 1.05 | 1.04 | 1.06 | 1.06 | 1.06 | 1.05 | 1.1 | 1.06 | 1.07 | 1.06 | 1.11 | 1.07 | 1.08 | 1.13 | 1.13 |
| VOC mass flow rate (as methane) | lb/h | 5.5 | 4.4 | 5.5 | 4.3 | 3.9 | 5.4 | 5.4 | 4.2 | 3.8 | 5.4 | 5.4 | 4.2 | 3.8 | 5.4 | 4.5 | 3.9 | 3.8 |
| NH3 Volume fraction, dry, at 15 % O2 | ppm | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| NH3 mass flow rate | lb/h | 27.9 | 22.2 | 27.5 | 21.8 | 19.4 | 27.0 | 27.0 | 21.4 | 18.2 | 27.3 | 26.5 | 21.0 | 18.1 | 26.9 | 22.3 | 18.1 | 18.0 |
| SOx mass flow rate (as SO2) | lb/h | 6.3 | 5.0 | 6.3 | 5.0 | 4.4 | 6.1 | 6.1 | 4.9 | 4.1 | 6.2 | 6.0 | 4.8 | 4.1 | 6.1 | 5.1 | 4.1 | 4.1 |
| CH2O Volume fraction, dry, at 15 % O2 | PPB | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 | 91.0 |
| CH2O mass flow rate | lb/h | 0.89 | 0.71 | 0.88 | 0.70 | 0.62 | 0.87 | 0.87 | 0.69 | 0.58 | 0.88 | 0.85 | 0.67 | 0.58 | 0.86 | 0.72 | 0.58 | 0.58 |
| Sulfur Mist as H2SO4 | lb/h | 0.5 | 0.4 | 0.5 | 0.4 | 0.3 | 0.5 | 0.5 | 0.4 | 0.3 | 0.5 | 0.5 | 0.4 | 0.3 | 0.5 | 0.4 | 0.3 | 0.3 |
| Stack CO2 mass flow rate, including Permitting margin | lb/h | 490000 | 390000 | 483000 | 383000 | 341000 | 475000 | 475000 | 377000 | 319000 | 480000 | 465000 | 369000 | 318000 | 472000 | 392000 | 319000 | 317000 |
| Total Particulates | lb/h | 10.3 | 10.2 | 10.3 | 10.2 | 10.2 | 10.3 | 10.3 | 10.2 | 10.2 | 10.3 | 10.3 | 10.2 | 10.2 | 10.3 | 10.2 | 10.2 | 10.2 |

**7HA.03 Combined Cycle Startup/Shutdown Emissions for MMR Steele Station**
**Rapid Response Lite**
**August 2026**

| Per GT/HRSG Stack | NOx | CO | VOC as Methane | Total PM[NOTE 4] | Heat Consumption | Duration | Power Generated |
|---|---|---|---|---|---|---|---|
| Cold Start (Table Note 1) | 310 | 245 | 14 | 14 | 1365 | 60 | 85 |
| Warm Start (48 hrs median) **See Below Table Note 2** | 180 | 160 | 12 | 14 | 1320 | 60 | 87 |
| Hot Start (Table Note 1) | 90 | 140 | 10 | 7 | 580 | 30 | 37 |
| Shutdown | 20 | 100 | 46 | 3 | 146 | 12 | 10 |
| | Pounds [lb] per Event | | | | MMBtu, LHV | Minutes | MWh |

**Table 1: 7HA.03, Natural Gas Fuel**

Table Notes:

(1) Hot starts are defined as taking place within 8 hours of the previous shutdown. Cold starts are preceded by over 72 hours of shutdown. Cold Start and Hot Start values can be used for both typical estimates and not-to-exceed permit limits.

(2) **WARM START PERMITTING NOTE** – Warm Start cool down duration ranges from >8 to <72 hours after shutdown. The Warm Start emissions will vary depending on duration of the cool down period ranging between the Hot Start and Cold Start values. Warm Start values in Table 1 are based on a 48 hours cool down period as a median point. Warm Starts with less than a 48 hours cool down period will have lower emissions and Warm Starts with a greater than 48 hours cool down period will have higher emissions. For Warm Start emission estimates, the 48 hours median value should be used. For Warm Start not-to-exceed permit limits, the Cold Start values should be used.

**Basis**

1. The table above represents the estimated emissions during startup and shutdown events at ISO conditions utilizing HP drum warming prior to and during the startup.
2. Start emissions include inherent variability due to the transient nature of the plant operation. The values contained represent typical expected emissions during a start event.
3. Emissions assume no contribution from pollutants present in the GT inlet air.
4. Emissions assume methane as the fuel and gas only combustors.
5. Particulates emissions account for sulfates resulting from 15 ppmw total fuel sulfur content (Natural gas, MW=16.94). Higher fuel sulfur content will increase particulate emissions.
6. The GT is kept at MECL load level until stack compliance is achieved.


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# APPENDIX C. RBLC SEARCH RESULTS

**Table C-1a. Large Combined Cycle Gas Turbines Recent Permit Limitations and Determinations of BACT for CO During Normal Operations from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput (No Duct Burning) | Throughput (With Duct Burning) | Throughput Unit | Permitted CO Limit (w/o DB) | Permitted CO Limit (w/ DB) [4] | Limit Unit | Averaging | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Combined Cycle Turbine CTGA | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 3800 | - | MMBtu/hr | 2 | - | PPMVD @15% O2 | BASED ON A 3-HR AVERAGE | Oxidation catalyst | 5 |
| Combined Cycle Combustion Turbine | *IN-0409 | MAPLE CREEK ENERGY II LLC | 5/26/2026 | 4253 | - | MMBtu/hr | 2 | - | @ 15% O2 | BASED ON 3-HR AVG, EXCL PERIODS OF SU/SD | CTG-02 shall combust pipeline-quality natural gas. The CO emissions from CTG-02 shall be controlled using good combustion practices and an oxidation catalyst. | 5 |
| Gas Turbines | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 4122 | 4985.3 | MMBtu/hr | 2 | 2 | PPM | - | Oxidation catalyst and energy efficiency/waste heat recovery. | 5,8 |
| FGCTGHRSG | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 3421 | 4161 | MMBtu/hr | 4 | 4 | PPM @15% O2 | 24HR ROLL AVG EXCEPT SS | Oxidation catalyst technology and good combustion practices. | 7 |
| Combustion Turbine without Duct Burner | *PA-0315 | HILLTOP ENERGY CENTER, LLC | 4/12/2017 | 3509 | 4490.4 | MMBtu/hr | 2 | - | PPMDV @15% O2 | - | Oxidation Catalyst | 9 |
| Combined Cycle and Cogenenration Unit | *TX-0983 | CPV BASIN RANCH ENERGY CENTER | 11/24/2024 | 4100 | 4950 | MMBtu/hr | 2 | 2 | OOMVD @15% O2 | - | Good combustion practices and an oxidation catalyst system which converts the CO to CO2. MSS: minimizing the duration of MSS activities, minimizing the amount of time the turbine is outside the performance mode where the controls can be used, and operating the facility in accordance with best management practices and good air pollution control practices. | 5,7 |
| COMBINED CYCLE GAS TURBINES | *TX-0994 | SL ENERGY POWER PLANT I | 10/29/2025 | 3758 | 4106 | MMBtu/hr | 2 | 2 | PPMVD @15% O2 | - | An oxidation catalyst and good combustion practices | 5,10 |
| Combined-Cycle Combustion Turbines | *TX-1007 | NRG JEWETT ENERGY CENTER | 1/15/2026 | 3366.8 | 4141.8 | MMBtu/hr | 2 | 2 | PPMVD @15% O2 | 24-HR AVG | Oxidation catalyst and good operating procedures directed at the most efficient levels of operation, i.e., good combustion practices that include controlled fuel/air mixing and sufficient temperature and gas residence time. MSS: Minimize duration and frequency of MSS activities and engaging the pollution control equipment (i.e., the SCR and oxidation catalyst systems) as soon as practicable, based on vendor recommendations. | 5,7 |
| GE 7HA.02 Turbine | *WV-0029 | HARRISON COUNTY POWER PLANT | 3/27/2018 | 3496.2 | 4497.2 | MMBtu/hr | 2 | 2 | PPM | - | Oxidation Catalyst, Good Combustion Practices | 5,11 |
| Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2) | *WV-0033 | MAIDSVILLE | 1/5/2022 | 3875 | 4461 | MMBtu/hr | - | 2 | PPMDV @ 15% O2 | 3-HOUR BLOCK AVERAGE | Good Combustion Practices and OxCat | 7 |
| Two 744 MW Combined Cycle Units | AL-0328 | PLANT BARRY | 11/9/2020 | 3987 | 4904 | MMBtu/hr | 0.005 | 0.005 | LB/MMBTU | 3 HOUR AVG | Oxidation Catalyst | 12 |
| 2-on-1 combined cycle unit (GE 7HA) | FL-0363 | DANIA BEACH ENERGY CENTER | 12/4/2017 | 4015.4 | - | MMBtu/hr | 4.3 | - | PPMVD@15% O2 | AT LOADS > 90% | Clean burning fuel with lean pre-mix turbines | 13 |
| Combined-Cycle Combustion Turbines | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 3612 | 3647 | MMBtu/hr | 1.5 | 1.8 | PPMV @ 15% O2 | TURBINE LOAD > OR = 60% W/O DUCT BURNERS / TURBINE LOAD > OR= 60% WITH DUCT BURNERS | Oxidation catalyst and good combustion practices | 5,7 |
| Combined-Cycle Combustion Turbines | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 3612 | 3647 | MMBtu/hr | 2 | 2 | PPMV @ 15% O2 | 3-HOUR ROLLING AVERAGE, TURBINE LOAD < 60% | Oxidation catalyst and good combustion practices | 5,7 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Combustion Turbines (6A and 6B) | IN-0382 | DUKE ENERGY INDIANA, INC.-CAYUGA GENERATING STATION | 2/14/2025 | 4254 | 5184 | MMBtu/hr | 2 | 2 | PPMVD@15% O2 | 3-HOUR ROLLING AVERAGE EXCL. SU/SD | Oxidation Catalyst and good combustion practices | 5,14 |
| Combined Cycle Gas Turbine w/ Duct Burners and HRSG | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 5081 | 5907.1 | MMBtu/hr | 2 | 2 | PPMVD | 24-HR ROLLING AVG BASED ON 1-HR AVG | Catalytic oxidation and good combustion practices. | 15 |
| FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2) | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 3658 | 4458 | MMBtu/hr | 0.0045 | 0.0045 | LB/MMBTU | EACH UNIT; 24-H ROLL AVG; NOT S.S. | Oxidation catalyst technology and good combustion practices. | 7 |
| EUCTGHRSG1 | MI-0455 | MIDLAND COGENERATION VENTURE LIMITED PARTNERSHIP | 2/1/2023 | 4197.6 | 4620.6 | MMBtu/hr | 2 | 2 | PPM @15% O2 | 24-HR ROLL AVG EXC SU/SD | Oxidation catalyst | 16 |
| Combined Cycle Combustion Turbines (3, identical) (P001 to P003) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 3516 | 4513 | MMBtu/hr | - | 2 | PPM BY VOLUME, DRY @15% O2 | - | oxidation catalyst and good combustion practices as recommended by the manufacturer | 7 |
| Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008) | OH-0377 | HARRISON POWER | 4/19/2018 | 3231 | 3537 | MMBtu/hr | - | 2 | PPM BY VOLUME, DRY @15% O2 | - | Good combustion practices and oxidation catalyst | 6,7 |
| General Electric (GE) Combustion Turbines (P005 & P006) | OH-0377 | HARRISON POWER | 4/19/2018 | 3459.6 | 4030.05 | MMBtu/hr | - | 2 | PPM BY VOLUME, DRY @15% O2 | - | Good combustion practices and oxidation catalyst | 6,7 |
| COMBUSTION TURBINE/DUCT BURNER | PA-0333 | ESC TIOGA COUNTY POWER LLC/ELEC PWR GEN FAC | 8/20/2019 | - | 4469 | MMBtu/hr | - | 1.5 | PPMVD @15% O2 | 1 HR | - | 6 |
| COMBINED CYCLE TURBINE | TX-0915 | UNIT 5 | 3/17/2021 | 3886 | 4619 | MMBtu/hr | 3.5 | 4 | PPMVD | 3-HR ROLLING | OXIDATION CATALYST | 5,17 |
| GE Combustion Turbine - Option 1 - Normal Operation | VA-0328 | C4GT, LLC | 4/26/2018 | 3482 | 3957 | MMBtu/hr | 1 | 1.6 | PPMVD@ 15% O2 | 3 HR AV/WITHOUT DB | Oxidation catalyst and good combustion practices | 6,7 |
| Natural-Gas-Fired Combined-Cycle Turbine (P01) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 3665 | 4671 | MMBtu/hr | 1.5 | 1.5 | PPM AT 15% O2 | 168-HR ROLLING AVG., NATURAL GAS | Oxidation Catalyst and good combustion controls | 5,18 |

[1] The RBLC query was performed using terbic IDs 11.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/16/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| RBLCID | Manually removed the following RBLC IDs due to the associated projects featuring only simple cycle gas turbines or four stroke natural gas engines: *LA-0365, *OK-0188, *LA-0415, MN-0095, PA-0344, IN-0385, TX-0786, TX-0790, TX-0816, TX-0833, TX-0960, TX-0969, TX-1008, TX-1009, TX-1010, VA-0336, NY-0106, and AL-0337 |
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Non-natural gas-fired combined cycle turbine processes such as boilers, circuit breakers, heaters, lube oil vents, and simple cycle turbines were manually removed |
| PRIMARY_FUEL | Manually removed pollutant limits associated with diesel firing |
| THROUGHPUT | ≥ 3136 MMBtu/hr and ≤ 5136 MMBtu/hr without duct firing or ≥ 4181 MMBtu/hr and ≤ 6181 MMBtu/hr during duct firing. Units with throughputs outside both of these ranges were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Unless otherwise specified, the limit in the "w/ DB" column applies to all duct firing modes for a given RBLC entry.

[5] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[6] Facility or emission unit was never constructed due to project cancellation or dormancy.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted unit throughputs per application associated with Louisiana Department of Environmental Quality permit PSD-LA-862.

[9] Permitted unit throughput with duct burner per Commonwealth of Pennsylvania Department of Environmental Protection Air Quality Program memo "Review of Plan Approval Application Hill Top Energy Center, LLC Natural Gas-Fired Combined Cycle Power Plant Cumberland Township, Greene County APS 936200 Auth 1174569 PF 805163".

[10] Permitted unit throughput per draft Construction Permit Source Analysis & Technical Review document associated with Texas Commission of Environmental Quality permit 177380.

[11] Permitted unit throughput with duct burner per West Virginia Department of Environmental Protection Permit to Construct R14-0036.

[12] Permitted unit throughputs per application associated with Alabama Department of Environmental Management permit 503-1001.

[13] Permitted unit throughputs per Florida Department of Environmental Protection air construction permit 0110037-017-AC (PSD-FL-442).

[14] Permitted unit throughput with duct burner per Indiana Department of Environmental Management permit number 165-47430-00001.

[15] Permitted unit throughput with duct burner per application associated with Louisiana Department of Environmental Quality permit PSD-LA-839.

[16] Permitted unit throughput with duct burner per Michigan Department of Environment, Great Lakes, and Energy Air Quality Division air permit 10-23.

[17] Permitted unit throughputs per response to deficiency letter associated with Texas Commission of Environmental Quality permit 160538.

[18] Permitted unit throughputs per application associated with Wisconsin Department of Natural Resources Environmental Management Division permit 18-MMC-168.

**Table C-1a-2. Large Combined Cycle Gas Turbines Recent Permit Limitations and Determinations of BACT for CO During Startup and Shutdown from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput (No Duct Burning) | Throughput (With Duct Burning) | Throughput Unit | Permitted CO Limit (w/o DB) | Permitted CO Limit (w/ DB) [4] | Limit Unit | Averaging | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Combined Cycle Turbine CTGA SU/SD | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 3800 | - | MMBtu/hr | - | 1724 | LB PER EVENT | - | - | 5 |
| Combined Cycle Combustion Turbine | *IN-0409 | MAPLE CREEK ENERGY II LLC | 5/26/2026 | 4253 | - | MMBtu/hr | - | 52.2 | Tons per consecutive 12 month period | 12 month period | CTG-02 shall combust pipeline-quality natural gas. The CO emissions from CTG-02 shall be controlled using good combustion practices and an oxidation catalyst. | 5,8 |
| FGCTGHRSG | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 3421 | 4161 | MMBtu/hr | - | 3537 | lb/h | operating hour during startup or shutdown | Oxidation catalyst technology and good combustion practices. | 7,8 |
| Combined-Cycle Combustion Turbines | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 3612 | 3647 | MMBtu/hr | - | 923 | Pounds/hour | operating hour during cold start/shake down | Oxidation catalyst and good combustion practices | 5,8 |
| Combustion Turbines (6A and 6B) | IN-0382 | DUKE ENERGY INDIANA, INC.-CAYUGA GENERATING STATION | 2/14/2025 | 4254 | 5184 | MMBtu/hr | - | 4579.75 | lb/hr | operating hour during any startup and shutdown events | Oxidation Catalyst and good combustion practices | 5,8,9 |
| Combined Cycle Gas Turbine Startup and Shutdown | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 5081 | 5907.1 | MMBtu/hr | - | 1620 | LB/HR | - | Good combustion practices. | 10 |
| FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2)--Startup & Shutdown | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 3658 | 4458 | MMBtu/hr | - | 791.5 | LB/H | EACH UNIT; OPERATING HOUR DURING S.S. | Oxidation catalyst technology and good combustion practices. | 7 |
| EUCTGHRSG1 | MI-0455 | MIDLAND COGENERATION VENTURE LIMITED PARTNERSHIP | 2/1/2023 | 4197.6 | 4620.6 | MMBtu/hr | - | 1486 | lb/hr | during SU/SD | Oxidation catalyst | 8,11 |
| Combined Cycle Combustion Turbines (3, identical) (P001 to P003) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 3516 | 4513 | MMBtu/hr | - | 791.6 | lb/cold startup | cold startup | oxidation catalyst and good combustion practices as recommended by the manufacturer | 7,8 |
| Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008) | OH-0377 | HARRISON POWER | 4/19/2018 | 3231 | 3537 | MMBtu/hr | - | 35.4 | Tons per rolling 12 month period for startup and shutdown periods | rolling 12 month period | Good combustion practices and oxidation catalyst | 6,7,8 |
| General Electric (GE) Combustion Turbines (P005 & P006) | OH-0377 | HARRISON POWER | 4/19/2018 | 3459.6 | 4030.05 | MMBtu/hr | - | 35.85 | Tons per rolling 12 month period for startup and shutdown periods | rolling 12 month period | Good combustion practices and oxidation catalyst | 6,7,8 |
| GE Combustion Turbine - Startup and Shutdown | VA-0328 | C4GT, LLC | 4/26/2018 | 3482 | 3957 | MMBtu/hr | - | 840 | LB/TURBINE/EVENT | COLD START 60 MIN OR LESS | Oxidation catalyst and good combustion practice | 6,7 |
| Natural Gas-Fired Combined-Cycle Turbine (P01) Start-up and Shutdown (Natural Gas) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 3665 | 4671 | MMBtu/hr | - | 11066 | LB/START-UP | - | - | 5,12 |

[1] The RBLC query was performed using terbic IDs 11.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/16/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| RBLCID | Manually removed the following RBLC IDs due to featuring only simple cycle gas turbines or having their gas turbines cancelled: *LA-0365, TX-0786 |
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Non-natural gas-fired combined cycle turbine processes such as boilers, circuit breakers, heaters, lube oil vents, simple cycle turbines, and dual fuel turbines were manually removed |
| PRIMARY_FUEL | Manually removed pollutant limits associated with diesel firing |
| THROUGHPUT | ≥ 3136 MMBtu/hr and ≤ 5136 MMBtu/hr without duct firing or ≥ 4181 MMBtu/hr and ≤ 6181 MMBtu/hr during duct firing. Units with throughputs outside both of these ranges were removed |
| PROCESS_NOTES | Simple cycle turbines and dual fuel turbines were manually removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Unless otherwise specified, the limit in the "w/ DB" column applies to all duct firing modes for a given RBLC entry.

[5] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[6] Facility or emission unit was never constructed due to project cancellation or dormancy.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted pollutant emission limit(s) and pollutant emission limit unit(s) per RBLC entry's pollutant compliance notes.

[9] Permitted unit throughput with duct burner per Indiana Department of Environmental Management permit number 165-47430-00001.

[10] Permitted unit throughput with duct burner per application associated with Louisiana Department of Environmental Quality permit PSD-LA-839.

[11] Permitted unit throughput with duct burner per Michigan Department of Environment, Great Lakes, and Energy Air Quality Division air permit 10-23.

[12] Permitted unit throughputs per application associated with Wisconsin Department of Natural Resources Environmental Management Division permit 18-MMC-168.

**Table C-1b. Large Combined Cycle Gas Turbines Recent Permit Limitations and Determinations of BACT for $NO_X$ During Normal Operations from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput (No Duct Burning) | Throughput (With Duct Burning) | Throughput Unit | Permitted $NO_x$ Limit (w/o DB) | Permitted $NO_x$ Limit (w/ DB) [4] | Limit Unit | Averaging | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Combined Cycle Turbine CTGA | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 3800 | - | Mmbtu/hr | 2 | - | PPMVD @15% O2 | 3-HR AVERAGE | Selective catalytic reduction system and dry-low-NOx combustors | 5 |
| Combined Cycle Combustion Turbine | *IN-0409 | MAPLE CREEK ENERGY II LLC | 5/26/2026 | 4253 | - | Mmbtu/hr | 2 | - | PPMVD @ 15% O2 | BASED ON A 3-HOUR AVG, EXCL SU/SD | CTG-02 shall combust pipeline-quality natural gas. The NOx emissions from CTG-02 shall be controlled by a Selective Catalytic Reduction system, good combustion practices, and dry-low-NOx combustors. | 5 |
| Gas Turbines | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 4122 | 4985.3 | Mmbtu/hr | 2 | 2 | PPM | - | Dry low-NOx burners, selective catalytic reduction (SCR), and energy efficiency/waste heat recovery. | 5,8 |
| FGCTGHRSG | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 3421 | 4161 | Mmbtu/hr | 2 | 2 | PPM @15% O2 | 24HR ROLL AVG EXCEPT SS | SCR with DLNB (Selective Catalytic Reduction with Dry Low NOx Burners) | 7 |
| Combined Cycle and Cogenenration Unit | *TX-0983 | CPV BASIN RANCH ENERGY CENTER | 11/24/2024 | 4100 | 4950 | Mmbtu/hr | 2 | 2 | PPMVD @15% O2 | 1-HR | Dry low-NOx (DLN) combustors in conjunction with selective catalytic reduction (SCR) that uses ammonia as the reducing agent to convert NOx into nitrogen and water. MSS: minimizing the duration of MSS activities, minimizing the amount of time the turbine is outside the performance mode where the controls can be used, and operating the facility in accordance with best management practices and good air pollution control practices. | 5,7 |
| COMBINED CYCLE GAS TURBINES | *TX-0994 | SL ENERGY POWER PLANT I | 10/29/2025 | 3758 | 4106 | Mmbtu/hr | 2 | 2 | PPMVD @15% O2 | - | with or without duct burner firing. Dry Low-NOx (DLN) burners, an ammonia-based Selective catalytic reduction (SCR) system, and good combustion practices are used to achieve this concentration limit | 5,9 |
| Combined-Cycle Combustion Turbines | *TX-1007 | NRG JEWETT ENERGY CENTER | 1/15/2026 | 3366.8 | 4141.8 | Mmbtu/hr | 2 | 2 | PPMVD @15% O2 | 24-HR AVG | Dry low-NOx (DLN) combustors and an aqueous ammonia-based SCR system. MSS: Minimize duration and frequency of MSS activities and engaging the pollution control equipment (i.e., the SCR and oxidation catalyst systems) as soon as practicable, based on vendor recommendations. CEMS required. | 5,7 |
| GE 7HA.02 Turbine | *WV-0029 | HARRISON COUNTY POWER PLANT | 3/27/2018 | 3496.2 | 4497.2 | Mmbtu/hr | 2 | 2 | PPM | - | Dry-Low NOx Burners, SCR | 5,10 |
| Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2) | *WV-0033 | MAIDSVILLE | 1/5/2022 | 3875 | 4461 | Mmbtu/hr | - | 2 | PPMDV @ 15% O2 | 3-HOUR ROLLING AVERAGE | Dry Low NOx Combustion w/ SCR | 7 |
| Two 744 MW Combined Cycle Units | AL-0328 | PLANT BARRY | 11/9/2020 | 3987 | 4904 | Mmbtu/hr | 2 | 2 | PPM @15% O2 | 3 HOUR AVG | SCR | 11 |
| Combined-Cycle Combustion Turbines | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 3612 | 3647 | Mmbtu/hr | 2 | 2 | PPMV @ 15% O2 | SEE NOTES | Dry low-NOx combustion with ultra-low NOx combustors; low-NOx duct burners; and selective catalytic reduction (SCR) | 5,7 |
| Combined Cycle Gas Turbine w/ Duct Burners and HRSG | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 5081 | 5907.1 | Mmbtu/hr | 2 | 2 | PPMVD | 24-HR ROLLING AVG BASED ON 1-HR AVG | Dry low-NOx combustor design, selective catalytic reduction (SCR), and good combustion practices. | 12 |
| FGCTGHRSG (2 Combined Cycle CTG with HRSGs) | MI-0431 | INDECK NILES LLC | 6/26/2018 | 3421 | 4161 | Mmbtu/hr | 2 | 2 | PPM @15% O2 | 24-HR ROLL AVG | SCR with DLNB (Selective Catalytic Reduction with Dry Low NOx Burners) | 7 |
| FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2) | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 3658 | 4458 | Mmbtu/hr | 2 | 2 | PPMVD @15% O2 | 24-H ROLL AVG; EACH UNIT; | SCR with DLNB (Selective catalytic reduction with dry low NOx burners). | 7 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EUCTGHRSG1 | MI-0455 | MIDLAND COGENERATION VENTURE LIMITED PARTNERSHIP | 2/1/2023 | 4197.6 | 4620.6 | Mmbtu/hr | 2 | 2 | PPM @15% O2 | 24-HR ROLL AVG EXC SU/SD | Selective catalytic regeneration | 13 |
| Combined Cycle Combustion Turbines (3, identical) (P001 to P003) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 3516 | 4513 | Mmbtu/hr | - | 2 | LB/H BY VOLUME DRY @15% O2 | - | dry low NOx burners and SCR | 7 |
| Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008) | OH-0377 | HARRISON POWER | 4/19/2018 | 3231 | 3537 | Mmbtu/hr | - | 2 | LB/H BY VOLUME DRY @15% O2 | - | dry low NOx burners and an SCR system | 6,7 |
| General Electric (GE) Combustion Turbines (P005 & P006) | OH-0377 | HARRISON POWER | 4/19/2018 | 3459.6 | 4030.05 | Mmbtu/hr | - | 2 | LB/H BY VOLUME DRY @15% O2 | - | dry low NOx burners and an SCR system | 6,7 |
| COMBUSTION TURBINE/DUCT BURNER | PA-0333 | ESC TIOGA COUNTY POWER LLC/ELEC PWR GEN FAC | 8/20/2019 | - | 4469 | Mmbtu/hr | - | 2 | PPMVD @15% O2 | 1 HR | SCR, Catalytic Oxidizer | 6 |
| GE Combustion Turbine - Option 1 - Normal Operation | VA-0328 | C4GT, LLC | 4/26/2018 | 3482 | 3957 | Mmbtu/hr | 2 | 2 | PPMVD @ 15% O2 | 1 H AV | dry, low NOx burners and selective catalytic reduction | 6,7 |
| Natural-Gas-Fired Combined-Cycle Turbine (P01) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 3665 | 4671 | Mmbtu/hr | 2 | 2 | PPM AT 15% O2 | 24-HR ROLLING AVG., NATURAL GAS | Selective Catalytic Reduction (SCR), low-NOx burners, Water injection when firing diesel fuel oil. | 5,14 |

[1] The RBLC query was performed using terbic IDs 11.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/16/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| RBLCID | Manually removed the following RBLC IDs due to the associated projects featuring only simple cycle gas turbines or four stroke natural gas engines: *LA-0365, *OK-0188, *LA-0415, MN-0095, PA-0344, IN-0385, TX-0786, TX-0790, TX-0816, TX-0833, TX-0960, TX-0969, TX-1008, TX-1009, TX-1010, VA-0336, NY-0106, and AL-0337 |
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Non-natural gas-fired combined cycle turbine processes such as boilers, circuit breakers, heaters, lube oil vents, and simple cycle turbines were manually removed |
| PRIMARY_FUEL | Manually removed pollutant limits associated with diesel firing |
| THROUGHPUT | ≥ 3136 MMBtu/hr and ≤ 5136 MMBtu/hr without duct firing or ≥ 4181 MMBtu/hr and ≤ 6181 MMBtu/hr during duct firing. Units with throughputs outside both of these ranges were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Unless otherwise specified, the limit in the "w/ DB" column applies to all duct firing modes for a given RBLC entry.

[5] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[6] Facility or emission unit was never constructed due to project cancellation or dormancy.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted unit throughputs per application associated with Louisiana Department of Environmental Quality permit PSD-LA-862.

[9] Permitted unit throughput per draft Construction Permit Source Analysis & Technical Review document associated with Texas Commission of Environmental Quality permit 177380.

[10] Permitted unit throughput with duct burner per West Virginia Department of Environmental Protection Permit to Construct R14-0036.

[11] Permitted unit throughputs per application associated with Alabama Department of Environmental Management permit 503-1001.

[12] Permitted unit throughput with duct burner per application associated with Louisiana Department of Environmental Quality permit PSD-LA-839.

[13] Permitted unit throughput with duct burner per Michigan Department of Environment, Great Lakes, and Energy Air Quality Division air permit 10-23.

[14] Permitted unit throughputs per application associated with Wisconsin Department of Natural Resources Environmental Management Division permit 18-MMC-168.

**Table C-1b-2. Large Combined Cycle Gas Turbines Recent Permit Limitations and Determinations of BACT for $NO_x$ During Startup and Shutdown from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput (No Duct Burning) | Throughput (With Duct Burning) | Throughput Unit | Permitted $NO_x$ Limit (w/o DB) | Permitted $NO_x$ Limit (w/ DB) [4] | Limit Unit | Averaging | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Combined Cycle Turbine CTGA SU/SD | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 3800 | - | MMBtu/hr | 20.7 | - | TONS PER YEAR | FOR DURATION OF THE COMBINED SU/SD EVENT | - | 5 |
| Combined Cycle Turbine CTGB SU/SD | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 4200 | - | MMBtu/hr | 35.8 | - | TONS YEAR | FOR DURATION OF COMBINED SU/SD EVENTS | - | 5 |
| Combustion Turbine | *IN-0407 | MAPLE CREEK ENERGY LLC | 5/13/2026 | 4200 | - | MMBtu/hr | 35.8 | - | Tons per 12 month consecutive period | 12 month period | Selective Catalytic Reduction system, dry-low-NOx combustors, and good combustion practices. | 5,8 |
| Combined Cycle Combustion Turbine | *IN-0409 | MAPLE CREEK ENERGY II LLC | 5/26/2026 | 4253 | - | MMBtu/hr | 35.8 | - | Tons per 12 month consecutive period | 12 month period | CTG-02 shall combust pipeline-quality natural gas. The NOx emissions from CTG-02 shall be controlled by a Selective Catalytic Reduction system, good combustion practices, and dry-low-NOx combustors. | 5,8 |
| FGCTGHRSG | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 3421 | 4161 | MMBtu/hr | - | 286 | lb/h | operating hour during startup or shutdown | SCR with DLNB (Selective Catalytic Reduction with Dry Low NOx Burners) | 7,8 |
| Combined-Cycle Combustion Turbines | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 3612 | 3647 | MMBtu/hr | - | 130 | pounds/hour | cold start/shakedown | Dry low-NOx combustion with ultra-low NOx combustors; low-NOx duct burners; and selective catalytic reduction (SCR) | 5,7,8 |
| Combined Cycle Gas Turbine Startup and Shutdown | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 5081 | 5907.1 | MMBtu/hr | - | 260 | LB/HR | - | Good combustion practices. | 9 |
| FGCTGHRSG (2 Combined Cycle CTG with HRSGs) | MI-0431 | INDECK NILES LLC | 6/26/2018 | 3421 | 4161 | MMBtu/hr | - | 286 | lb/hour | for each operating hour during startup or shutdown | SCR with DLNB (Selective Catalytic Reduction with Dry Low NOx Burners) | 8 |
| FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2)--Startup & Shutdown | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 3658 | 4458 | MMBtu/hr | - | 262.4 | LB/H | EACH UNIT; OPERATING HOUR DURING S.S. | SCR with DLNB (Selective catalytic reduction with dry low NOx burners). | 7 |
| EUCTGHRSG1 | MI-0455 | MIDLAND COGENERATION VENTURE LIMITED PARTNERSHIP | 2/1/2023 | 4197.6 | 4620.6 | MMBtu/hr | - | 851.2 | lb/hr | during SUSD | Selective catalytic regeneration | 7 |
| Combined Cycle Combustion Turbines (3, identical) (P001 to P003) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 3516 | 4513 | MMBtu/hr | - | 266.7 | lb/cold startup | cold startup | dry low NOx burners and SCR | 7,8 |
| Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008) | OH-0377 | HARRISON POWER | 4/19/2018 | 3231 | 3537 | MMBtu/hr | - | 3.22 | tons per rolling 12 month period for startup and shutdown periods | 12 month period | dry low NOx burners and an SCR system | 6,7,8 |
| General Electric (GE) Combustion Turbines (P005 & P006) | OH-0377 | HARRISON POWER | 4/19/2018 | 3459.6 | 4030.05 | MMBtu/hr | - | 12.99 | tons per rolling 12 month period for startup and shutdown periods | 12 month period | dry low NOx burners and an SCR system | 6,7,8 |
| GE Combustion Turbine - Startup and Shutdown | VA-0328 | C4GT, LLC | 4/26/2018 | 3482 | 3957 | MMBtu/hr | - | 273 | LB/TURBINE/EVENT | COLD START 60 MIN OR LESS | Dry, low NOx burners and SCR | 6,7 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Natural Gas-Fired Combined-Cycle Turbine (P01) Start-up and Shutdown (Natural Gas) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 3665 | 4671 | MMBtu/hr | - | 335 | LB/START-UP | - | - | 5,10 |

[1] The RBLC query was performed using terbic IDs 11.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/16/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| RBLCID | Manually removed the following RBLC IDs due to the associated projects featuring only simple cycle gas turbines or four stroke natural gas engines: *LA-0365, *OK-0188, *LA-0415, MN-0095, PA-0344, IN-0385, TX-0786, TX-0790, TX-0816, TX-0833, TX-0960, TX-0969, TX-1008, TX-1009, TX-1010, VA-0336, NY-0106, and AL-0337 |
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Non-natural gas-fired combined cycle turbine processes such as boilers, circuit breakers, heaters, lube oil vents, and simple cycle turbines were manually removed |
| PRIMARY_FUEL | Manually removed pollutant limits associated with diesel firing |
| THROUGHPUT | ≥ 3136 MMBtu/hr and ≤ 5136 MMBtu/hr without duct firing or ≥ 4181 MMBtu/hr and ≤ 6181 MMBtu/hr during duct firing. Units with throughputs outside both of these ranges were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Unless otherwise specified, the limit in the "w/ DB" column applies to all duct firing modes for a given RBLC entry.

[5] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[6] Facility or emission unit was never constructed due to project cancellation or dormancy.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted pollutant emission limit(s) and pollutant emission limit unit(s) per RBLC entry's pollutant compliance notes.

[9] Permitted unit throughput with duct burner per application associated with Louisiana Department of Environmental Quality permit PSD-LA-839.

[10] Permitted unit throughputs per application associated with Wisconsin Department of Natural Resources Environmental Management Division permit 18-MMC-168.

**Table C-1c. Large Combined Cycle Gas Turbines Recent Permit Limitations and Determinations of BACT for $SO_2$ During Normal Operations from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput (No Duct Burning) | Throughput (With Duct Burning) | Throughput Unit | Permitted $SO_2$ Limit (w/o DB) | Permitted $SO_2$ Limit (w/ DB) [4] | Limit Unit | Averaging | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Combined Cycle Turbine CTGA | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 3800 | - | MMBtu/hr | 0.0017 | - | POUND PER MMBTU | 3-HR AVERAGE | - | 5 |
| Combined Cycle Combustion Turbine | *IN-0409 | MAPLE CREEK ENERGY II LLC | 5/26/2026 | 4253 | - | MMBtu/hr | 0.0019 | - | LB/MMBTU | BASED ON 3-HR AVERAGE | SO2 and H2SO4 from CTG-02 shall be controlled through the use of pipeline-quality natural gas. | 5 |
| Gas Turbines | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 4122 | 4985.3 | MMBtu/hr | - | 1 | GR/100 SCF | - | Use of natural gas fuel and energy efficiency and waste heat recovery. | 5,8 |
| FGCTGHRSG | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 3421 | 4161 | MMBtu/hr | - | 11.7 | LB/H | HOURLY; EACH CTGHRSG | Good combustion practices, inlet air conditioning and the use of pipeline quality natural gas. | 7 |
| Combined Cycle and Cogenenration Unit | *TX-0983 | CPV BASIN RANCH ENERGY CENTER | 11/24/2024 | 4100 | 4950 | MMBtu/hr | - | - | - | - | Assumption of 100% molar conversion of natural gas sulfur to SO2 (conservative since SO2 and H2SO4 emissions are double counted), good combustion practices, units fire only pipeline quality natural gas with no more than 0.5 grains sulfur/100 dscf fuel. | 5,7 |
| COMBINED CYCLE GAS TURBINES | *TX-0994 | SL ENERGY POWER PLANT I | 10/29/2025 | 3758 | 4106 | MMBtu/hr | - | - | - | - | Each turbine, including the duct burners, is limited to firing pipeline quality natural gas with a sulfur content of up to 0.5 grains per 100 dry standard cubic feet (gr S/100 dscf). To estimate emissions of SO2, it is assumed that there is 100% conversion of the sulfur in the fuel to SO2 | 5,9 |
| Combined-Cycle Combustion Turbines | *TX-1007 | NRG JEWETT ENERGY CENTER | 1/15/2026 | 3366.8 | 4141.8 | MMBtu/hr | - | 1 | GR/100 DSCF | HOURLY | Good combustion practices, units fire only pipeline quality sweet natural gas with no more than 1.0 grains sulfur/100 dscf fuel on a short-term maximum hourly basis and 0.5 grains sulfur/100 dscf on an annual average basis, assumption of 100% molar conversion of natural gas sulfur to SO2 (conservative since SO2 and H2SO4 emissions are double counted).<br><br>MSS: Minimize duration and frequency of MSS activities and engaging the pollution control equipment (i.e., the SCR and oxidation catalyst systems) as soon as practicable, based on vendor recommendations. | 5,7 |
| Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2) | *WV-0033 | MAIDSVILLE | 1/5/2022 | 3875 | 4461 | MMBtu/hr | - | 0.4 | GR-S/100 SCF | SEE APPENDIX D OF 40CFR75 | Low Sulfur Fuel | 7 |
| Two 744 MW Combined Cycle Units | AL-0328 | PLANT BARRY | 11/9/2020 | 3987 | 4904 | MMBtu/hr | - | 0.6 | GR S/100 SCF FUEL | - | - | 10 |
| Combined-Cycle Combustion Turbines | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 3612 | 3647 | MMBtu/hr | - | 5.5 | POUNDS/HOUR | ROLLING 3-OPERATING HOUR | Good combustion practices and use of natural gas with a sulfur content of no more than 0.5 grains (gr)/100 standard cubic feet (scf). | 5,7 |
| Combined Cycle Combustion Turbines (two, identical) (P001 and P002) | OH-0370 | TRUMBULL ENERGY CENTER | 9/7/2017 | 3025 | 3262 | MMBtu/hr | - | 5.1 | LB/H | WITH DUCT BURNER. SEE NOTES. | Low sulfur fuel | 7 |
| Combined Cycle Combustion Turbines (two, identical) (P001 and P002) | OH-0372 | OREGON ENERGY CENTER | 9/27/2017 | 3055 | 3276.3 | MMBtu/hr | - | 5.1 | LB/H | WITH DUCT BURNER. SEE NOTES. | low sulfur fuel | 7 |
| Combined Cycle Combustion Turbines (3, identical) (P001 to P003) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 3516 | 4513 | MMBtu/hr | - | 0.0015 | LB/MMBTU | SEE NOTES. | pipeline quality natural gas with a maximum sulfur content not exceed 0.50 grain/100 scf | 7 |
| General Electric (GE) Combustion Turbines (P005 & P006) | OH-0377 | HARRISON POWER | 4/19/2018 | 3459.6 | 4030.05 | MMBtu/hr | - | 0.0017 | LB/MMBTU | SEE NOTES. | Good combustion practices and pipeline quality natural gas | 6,7 |
| Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008) | OH-0377 | HARRISON POWER | 4/19/2018 | 3231 | 3537 | MMBtu/hr | - | 0.0021 | LB/MMBTU | - | Good combustion practices and pipeline quality natural gas | 6,7 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GE Combustion Turbine - Option 1 - Normal Operation | VA-0328 | C4GT, LLC | 4/26/2018 | 3482 | 3957 | MMBtu/hr | - | 0.0011 | LB/MMBTU | 3 HR AVG | use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-month rolling average. | 6,7 |
| Natural-Gas-Fired Combined-Cycle Turbine (P01) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 3665 | 4671 | MMBtu/hr | - | - | - | - | Only use pipeline quality natural gas and diesel fuel, and use good combustion control | 5,11 |

[1] The RBLC query was performed using terbic IDs 11.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between and 6/9/2026 and 7/16/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| RBLCID | Manually removed the following RBLC IDs due to the associated projects featuring only simple cycle gas turbines or four stroke natural gas engines: *LA-0365, *OK-0188, *LA-0415, MN-0095, PA-0344, IN-0385, TX-0786, TX-0790, TX-0816, TX-0833, TX-0960, TX-0969, TX-1008, TX-1009, TX-1010, VA-0336, NY-0106, and AL-0337 |
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Non-natural gas-fired combined cycle turbine processes such as boilers, circuit breakers, heaters, lube oil vents, and simple cycle turbines were manually removed |
| PRIMARY_FUEL | Manually removed pollutant limits associated with diesel firing |
| THROUGHPUT | ≥ 3136 MMBtu/hr and ≤ 5136 MMBtu/hr without duct firing or ≥ 4181 MMBtu/hr and ≤ 6181 MMBtu/hr during duct firing. Units with throughputs outside both of these ranges were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Unless otherwise specified, the limit in the "w/ DB" column applies to all duct firing modes for a given RBLC entry.

[5] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[6] Facility or emission unit was never constructed due to project cancellation or dormancy.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted unit throughputs per application associated with Louisiana Department of Environmental Quality permit PSD-LA-862.

[9] Permitted unit throughput per draft Construction Permit Source Analysis & Technical Review document associated with Texas Commission of Environmental Quality permit 177380.

[10] Permitted unit throughputs per application associated with Alabama Department of Environmental Management permit 503-1001.

[11] Permitted unit throughputs per application associated with Wisconsin Department of Natural Resources Environmental Management Division permit 18-MMC-168.

**Table C-1d. Large Combined Cycle Gas Turbines Recent Permit Limitations and Determinations of BACT for TPM During Normal Operations from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput (No Duct Burning) | Throughput (With Duct Burning) | Throughput Unit | RBLC Particulate Matter Type [4] | Permitted TPM Limit (w/o DB) | Permitted TPM Limit (w/ DB) [4] | Limit Unit | Permitted TPM Limit in LB/MMBTU (w/o DB) | Permitted TPM Limit in LB/MMBTU (w/ DB) | Averaging | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Combined Cycle Turbine CTGA | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 3800 | - | MMBtu/hr | Particulate matter, total (TPM) | 0.0049 | - | POUND PER MMBTU | 0.0049 | - | - | - | 5 |
| Combined Cycle Turbine CTGA | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 3800 | - | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0049 | - | LB PER MMBTU | 0.0049 | - | - | - | 5 |
| Combined Cycle Turbine CTGA | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 3800 | - | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0049 | - | LB PER MMBTU | 0.0049 | - | - | - | 5 |
| Combined Cycle Combustion Turbine | *IN-0409 | MAPLE CREEK ENERGY II LLC | 5/26/2026 | 4253 | - | MMBtu/hr | Particulate matter, total (TPM) | 0.0058 | - | LB/MMBTU | 0.0058 | - | EXCLUDING PERIODS OF STARTUP & SHUTDOWN | CTG-02 shall combust pipeline-quality natural gas.<br>PM, PM10, and PM2.5 emissions from CTG-02 shall be limited through the use of good combustion practices. | 5 |
| Combined Cycle Combustion Turbine | *IN-0409 | MAPLE CREEK ENERGY II LLC | 5/26/2026 | 4253 | - | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0058 | - | LB/MMBTU | 0.0058 | - | EXCLUDING PERIODS OF STARTUP & SHUTDOWN | CTG-02 shall combust pipeline-quality natural gas.<br>PM, PM10, and PM2.5 emissions from CTG-02 shall be limited through the use of good combustion practices. | 5 |
| Gas Turbines | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 4122 | 4985.3 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | - | 0.01 | LB/MM BTU | - | 0.01 | - | Good combustion practices, energy efficiency and waste heat recovery, and use of natural gas as fuel. | 5,9 |
| Gas Turbines | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 4122 | 4985.3 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | - | 0.01 | LB/MM BTU | - | 0.01 | - | Good combustion practices, energy efficiency and waste heat recovery, and use of natural gas as fuel. | 5,9 |
| FGCTGHRSG | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 3421 | 4161 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | - | 19.8 | LB/H | - | 0.0048 | HOURLY; EACH CTGHRSG | Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas. | 7 |
| FGCTGHRSG | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 3421 | 4161 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | - | 19.8 | LB/H | - | 0.0048 | HOURLY; EACH CTGHRSG | Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas. | 7 |
| Combustion Turbine without Duct Burner | *PA-0315 | HILLTOP ENERGY CENTER, LLC | 4/12/2017 | 3509 | 4490.4 | MMBtu/hr | Particulate matter, total (TPM) | - | 0.0072 | LB | - | 0.0072 | - | - | 10 |
| Combustion Turbine without Duct Burner | *PA-0315 | HILLTOP ENERGY CENTER, LLC | 4/12/2017 | 3509 | 4490.4 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | - | 0.0072 | LB | - | 0.0072 | - | - | 10 |
| Combustion Turbine without Duct Burner | *PA-0315 | HILLTOP ENERGY CENTER, LLC | 4/12/2017 | 3509 | 4490.4 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | - | 0.0072 | LB | - | 0.0072 | - | - | 10 |
| GE 7HA.02 Turbine | *WV-0029 | HARRISON COUNTY POWER PLANT | 3/27/2018 | 3496.2 | 4497.2 | MMBtu/hr | Particulate matter, total (TPM) | - | 18.2 | LB/HR | - | 0.0040 | - | Air Filter, Use of Natural Gas, Good Combustion Practices | 5,11 |
| Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2) | *WV-0033 | MAIDSVILLE | 1/5/2022 | 3875 | 4461 | MMBtu/hr | Particulate matter, total (TPM) | - | 0.006 | LB/MMBTU | - | 0.006 | AVG OF 3 4-HR TEST RUNS | Clean Fuels and Good Combustion Practice | 7 |
| Two 744 MW Combined Cycle Units | AL-0328 | PLANT BARRY | 11/9/2020 | 3987 | 4904 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | - | 0.004 | LB/MMBTU | - | 0.004 | 3 HOUR AVG | - | 12 |
| 2-on-1 combined cycle unit (GE 7HA) | FL-0363 | DANIA BEACH ENERGY CENTER | 12/4/2017 | 4015.4 | - | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | - | - | - | - | - | - | Clean fuels | 13 |
| 2-on-1 combined cycle unit (GE 7HA) | FL-0363 | DANIA BEACH ENERGY CENTER | 12/4/2017 | 4015.4 | - | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | - | - | - | - | - | - | Clean fuels | 13 |
| Combined-Cycle Combustion Turbines | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 3612 | 3647 | MMBtu/hr | Particulate matter, total (TPM) | 0.0031 | 0.0032 | POUNDS/MM BTU | 0.0031 | 0.0032 | ROLLING 3-OPERATING HOUR | Good combustion practices | 5,7 |
| Combined-Cycle Combustion Turbines | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 3612 | 3647 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | - | 0.0041 | POUNDS/MM BTU | - | 0.0041 | ROLLING 3-OPERATING HOUR | Good combustion practices. | 5,7 |
| Combustion Turbines (6A and 6B) | IN-0382 | DUKE ENERGY INDIANA, INC.-CAYUGA GENERATING STATION | 2/14/2025 | 4254 | 5184 | MMBtu/hr | Particulate matter, total (TPM) | - | 0.0042 | LB/MMBTU | - | 0.0042 | 3-HOUR AVERAGE EXCL. SU/SD | Good Combustion Practices and combusting pipeline-quality natural gas | 5,14 |
| Combined Cycle Gas Turbine w/ Duct Burners and HRSG | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 5081 | 5907.1 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | - | 0.008 | LB/MM BTU | - | 0.008 | 3 ONE-HOUR TEST AVERAGE | Use of gaseous fuel (pipeline-quality natural gas) and good combustion practices. | 15 |
| Combined Cycle Gas Turbine w/ Duct Burners and HRSG | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 5081 | 5907.1 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | - | 0.008 | LB/MM BTU | - | 0.008 | 3 ONE-HOUR TEST AVERAGE | Use of gaseous fuel (pipeline-quality natural gas) and good combustion practices. | 15 |
| FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2) | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 3658 | 4458 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | - | 16 | LB/H | - | 0.0036 | HOURLY; EACH UNIT | Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas. | 7 |
| FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2) | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 3658 | 4458 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | - | 16 | LB/H | - | 0.0036 | HOURLY; EACH UNIT | Good combustion practices, inlet air conditioning and the use of pipeline quality natural gas. | 7 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EUCTGHRSG1 | MI-0455 | MIDLAND COGENERATION VENTURE LIMITED PARTNERSHIP | 2/1/2023 | 4197.6 | 4620.6 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | - | 34.4 | LB/H | - | 0.0074 | HOURLY | Use of pipeline quality natural gas and good combustion practices. | 16 |
| EUCTGHRSG1 | MI-0455 | MIDLAND COGENERATION VENTURE LIMITED PARTNERSHIP | 2/1/2023 | 4197.6 | 4620.6 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | - | 34.4 | LB/H | - | 0.0074 | HOURLY | Use of pipeline quality natural gas and good combustion practices. | 16 |
| Combined Cycle Combustion Turbines (3, identical) (P001 to P003) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 3516 | 4513 | MMBtu/hr | Particulate matter, total (TPM) | 0.0073 | 0.0073 | LB/MMBTU | 0.0073 | 0.0073 | - | pipeline quality natural gas | 7,8 |
| Combined Cycle Combustion Turbines (3, identical) (P001 to P003) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 3516 | 4513 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0073 | 0.0073 | LB/MMBTU | 0.0073 | 0.0073 | - | pipeline quality natural gas | 7,8 |
| Combined Cycle Combustion Turbines (3, identical) (P001 to P003) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 3516 | 4513 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0073 | 0.0073 | LB/MMBTU | 0.0073 | 0.0073 | - | pipeline quality natural gas | 7,8 |
| Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008) | OH-0377 | HARRISON POWER | 4/19/2018 | 3231 | 3537 | MMBtu/hr | Particulate matter, total (TPM) | 0.00444 | 0.005 | LB/MMBTU | 0.00444 | 0.005 | - | Good combustion practices and pipeline quality natural gas | 6,7,8 |
| Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008) | OH-0377 | HARRISON POWER | 4/19/2018 | 3231 | 3537 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.00444 | 0.005 | LB/MMBTU | 0.00444 | 0.005 | - | Good combustion practices and pipeline quality natural gas | 6,7,8 |
| Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008) | OH-0377 | HARRISON POWER | 4/19/2018 | 3231 | 3537 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.00444 | 0.005 | LB/MMBTU | 0.00444 | 0.005 | - | Good combustion practices and pipeline quality natural gas | 6,7,8 |
| General Electric (GE) Combustion Turbines (P005 & P006) | OH-0377 | HARRISON POWER | 4/19/2018 | 3459.6 | 4030.05 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.00735 | 0.0052 | LB/MMBTU | 0.00735 | 0.0052 | - | Good combustion practices and pipeline quality natural gas | 6,7,8 |
| General Electric (GE) Combustion Turbines (P005 & P006) | OH-0377 | HARRISON POWER | 4/19/2018 | 3459.6 | 4030.05 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.00735 | 0.0052 | LB/MMBTU | 0.00735 | 0.0052 | - | Good combustion practices and pipeline quality natural gas | 6,7,8 |
| General Electric (GE) Combustion Turbines (P005 & P006) | OH-0377 | HARRISON POWER | 4/19/2018 | 3459.6 | 4030.05 | MMBtu/hr | Particulate matter, total (TPM) | 0.00735 | 0.0052 | LB/MMBTU | 0.00735 | 0.0052 | - | Good combustion practices and pipeline quality natural gas | 6,7,8 |
| GE Combustion Turbine - Option 1 - Normal Operation | VA-0328 | C4GT, LLC | 4/26/2018 | 3482 | 3957 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0049 | 0.0069 | LB/MMBTU | 0.0049 | 0.0069 | AV OF 3 TEST RUNS | good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-month rolling average. | 6,7 |
| GE Combustion Turbine - Option 1 - Normal Operation | VA-0328 | C4GT, LLC | 4/26/2018 | 3482 | 3957 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0049 | 0.0069 | LB/MMBTU | 0.0049 | 0.0069 | AV OF 3 TEST RUNS | good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-month rolling average. | 6,7 |
| Natural-Gas-Fired Combined-Cycle Turbine (P01) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 3665 | 4671 | MMBtu/hr | Particulate matter, total (TPM) | 21.8 | 36.3 | LB/H | 0.0059 | 0.0078 | NATURAL GAS, WITH AND WITHOUT DUCT FIRING RESPECTIVELY | Only combust pipeline quality natural gas and diesel fuel oil and use good combustion control according to the manufacturerâ€™s recommendations. | 5,17 |
| Natural-Gas-Fired Combined-Cycle Turbine (P01) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 3665 | 4671 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 21.8 | 36.3 | LB/H | 0.0059 | 0.0078 | NATURAL GAS, WITH AND WITHOUT DUCT FIRING RESPECTIVELY | Only pipeline quality natural gas and diesel fuel oil may be combusted and use good combustion control according to the manufacturerâ€™s recommendations. | 5,17 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Natural-Gas-Fired Combined-Cycle Turbine (P01) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 3665 | 4671 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 21.8 | 36.3 | LB/H | 0.0059 | 0.0078 | NATURAL GAS, WITH AND WITHOUT DUCT FIRING RESPECTIVELY | Only combust pipeline quality natural gas and diesel fuel oil and use good combustion control according to the manufacturerâ€™s recommendations. | 5,17 |

[1] The RBLC query was performed using terbic IDs 11.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/16/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| RBLCID | Manually removed the following RBLC IDs due to the associated projects featuring only simple cycle gas turbines or four stroke natural gas engines: *LA-0365, *OK-0188, *LA-0415, MN-0095, PA-0344, IN-0385, TX-0786, TX-0790, TX-0816, TX-0833, TX-0960, TX-0969, TX-1008, TX-1009, TX-1010, VA-0336, NY-0106, and AL-0337 |
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Non-natural gas-fired combined cycle turbine processes such as boilers, circuit breakers, heaters, lube oil vents, and simple cycle turbines were manually removed |
| PRIMARY_FUEL | Manually removed pollutant limits associated with diesel firing |
| THROUGHPUT | ≥ 3136 MMBtu/hr and ≤ 5136 MMBtu/hr without duct firing or ≥ 4181 MMBtu/hr and ≤ 6181 MMBtu/hr during duct firing. Units with throughputs outside both of these ranges were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Unless otherwise specified, the limit in the "w/ DB" column applies to all duct firing modes for a given RBLC entry.

[5] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[6] Facility or emission unit was never constructed due to project cancellation or dormancy.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted pollutant emission limit(s) and pollutant emission limit unit(s) per RBLC entry's pollutant compliance notes.

[9] Permitted unit throughputs per application associated with Louisiana Department of Environmental Quality permit PSD-LA-862.

[10] Permitted unit throughput with duct burner per Commonwealth of Pennsylvania Department of Environmental Protection Air Quality Program memo "Review of Plan Approval Application Hill Top Energy Center, LLC Natural Gas-Fired Combined Cycle Power Plant Cumberland Township, Greene County APS 936200 Auth 1174569 PF 805163".

[11] Permitted unit throughput with duct burner per West Virginia Department of Environmental Protection Permit to Construct R14-0036.

[12] Permitted unit throughputs per application associated with Alabama Department of Environmental Management permit 503-1001.

[13] Permitted unit throughputs per Florida Department of Environmental Protection air construction permit 0110037-017-AC (PSD-FL-442).

[14] Permitted unit throughput with duct burner per Indiana Department of Environmental Management permit number 165-47430-00001.

[15] Permitted unit throughput with duct burner per application associated with Louisiana Department of Environmental Quality permit PSD-LA-839.

[16] Permitted unit throughput with duct burner per Michigan Department of Environment, Great Lakes, and Energy Air Quality Division air permit 10-23.

[17] Permitted unit throughputs per application associated with Wisconsin Department of Natural Resources Environmental Management Division permit 18-MMC-168.

**Table C-1d-2. Large Combined Cycle Gas Turbines Recent Permit Limitations and Determinations of BACT for TPM During Startup and Shutdown from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput (No Duct Burning) | Throughput (With Duct Burning) | Throughput Unit | Particulate Matter Type | Permitted TPM Limit (w/o DB) | Permitted TPM Limit (w/ DB) [4] | Limit Unit | Averaging | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Combined Cycle Turbine CTGA SU/SD | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 3800 | - | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 5.3 | - | LB/EVENT | - | - | 5 |
| Combined Cycle Turbine CTGA SU/SD | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 3800 | - | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 5.3 | - | LB/EVENT | - | - | 5 |
| Combined Cycle Combustion Turbine | *IN-0409 | MAPLE CREEK ENERGY II LLC | 5/26/2026 | 4253 | - | MMBtu/hr | Particulate matter, total (TPM) | 1.9 | - | tons per rolling 12 month period for startup and shutdown periods | 12 month period | CTG-02 shall combust pipeline-quality natural gas. PM, PM10, and PM2.5 emissions from CTG-02 shall be limited through the use of good combustion practices. | 5,8 |
| Combined Cycle Combustion Turbine | *IN-0409 | MAPLE CREEK ENERGY II LLC | 5/26/2026 | 4253 | - | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 1.9 | - | tons per rolling 12 month period for startup and shutdown periods | 12 month period | CTG-02 shall combust pipeline-quality natural gas. PM, PM10, and PM2.5 emissions from CTG-02 shall be limited through the use of good combustion practices. | 5,8 |
| Combined Cycle Gas Turbine Startup and Shutdown | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 5081 | 5907.1 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | - | 18 | LB/HR | - | Good combustion practices. | 9 |
| Combined Cycle Gas Turbine Startup and Shutdown | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 5081 | 5907.1 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | - | 18 | LB/HR | - | Good combustion practices | 9 |
| Combined Cycle Combustion Turbines (3, identical) (P001 to P003) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 3516 | 4513 | MMBtu/hr | Particulate matter, total (TPM) | - | 290.39 | tons per 12 month rolling period | total, for all 3 turbines | pipeline quality natural gas | 7,8 |
| Combined Cycle Combustion Turbines (3, identical) (P001 to P003) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 3516 | 4513 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | - | 290.39 | tons per 12 month rolling period | total, for all 3 turbines | pipeline quality natural gas | 7,8 |
| Combined Cycle Combustion Turbines (3, identical) (P001 to P003) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 3516 | 4513 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | - | 290.39 | tons per 12 month rolling period | total, for all 3 turbines | pipeline quality natural gas | 7,8 |
| Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008) | OH-0377 | HARRISON POWER | 4/19/2018 | 3231 | 3537 | MMBtu/hr | Particulate matter, total (TPM) | - | 77.5 | tons per 12 month period | all operating modes | Good combustion practices and pipeline quality natural gas | 6,7,8 |
| Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008) | OH-0377 | HARRISON POWER | 4/19/2018 | 3231 | 3537 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | - | 77.5 | tons per 12 month period | all operating modes | Good combustion practices and pipeline quality natural gas | 6,7,8 |
| Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008) | OH-0377 | HARRISON POWER | 4/19/2018 | 3231 | 3537 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | - | 77.5 | tons per 12 month period | all operating modes | Good combustion practices and pipeline quality natural gas | 6,7,8 |
| General Electric (GE) Combustion Turbines (P005 & P006) | OH-0377 | HARRISON POWER | 4/19/2018 | 3459.6 | 4030.05 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | - | 80.2 | tons per 12 month rolling period | all operating modes | Good combustion practices and pipeline quality natural gas | 6,7,8 |
| General Electric (GE) Combustion Turbines (P005 & P006) | OH-0377 | HARRISON POWER | 4/19/2018 | 3459.6 | 4030.05 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | - | 80.2 | tons per 12 month rolling period | all operating modes | Good combustion practices and pipeline quality natural gas | 6,7,8 |
| General Electric (GE) Combustion Turbines (P005 & P006) | OH-0377 | HARRISON POWER | 4/19/2018 | 3459.6 | 4030.05 | MMBtu/hr | Particulate matter, total (TPM) | - | 80.2 | tons per 12 month rolling period | all operating modes | Good combustion practices and pipeline quality natural gas | 6,7,8 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Natural Gas-Fired Combined-Cycle Turbine (P01) Start-up and Shutdown (Natural Gas) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 3665 | 4671 | MMBtu/hr | Particulate matter, total (TPM) | - | 43.6 | LB/START-UP | - | - | 5,10 |
| Natural Gas-Fired Combined-Cycle Turbine (P01) Start-up and Shutdown (Natural Gas) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 3665 | 4671 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | - | 43.6 | LB/START-UP | - | - | 5,10 |
| Natural Gas-Fired Combined-Cycle Turbine (P01) Start-up and Shutdown (Natural Gas) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 3665 | 4671 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | - | 43.6 | LB/START-UP | - | - | 5,10 |

[1] The RBLC query was performed using terbic IDs 11.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/16/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| RBLCID | Manually removed the following RBLC IDs due to the associated projects featuring only simple cycle gas turbines or four stroke natural gas engines: *LA-0365, *OK-0188, *LA-0415, MN-0095, PA-0344, IN-0385, TX-0786, TX-0790, TX-0816, TX-0833, TX-0960, TX-0969, TX-1008, TX-1009, TX-1010, VA-0336, NY-0106, and AL-0337 |
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Non-natural gas-fired combined cycle turbine processes such as boilers, circuit breakers, heaters, lube oil vents, and simple cycle turbines were manually removed |
| PRIMARY_FUEL | Manually removed pollutant limits associated with diesel firing |
| THROUGHPUT | ≥ 3136 MMBtu/hr and ≤ 5136 MMBtu/hr without duct firing or ≥ 4181 MMBtu/hr and ≤ 6181 MMBtu/hr during duct firing. Units with throughputs outside both of these ranges were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Unless otherwise specified, the limit in the "w/ DB" column applies to all duct firing modes for a given RBLC entry.

[5] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[6] Facility or emission unit was never constructed due to project cancellation or dormancy.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted pollutant emission limit(s) and pollutant emission limit unit(s) per RBLC entry's pollutant compliance notes.

[9] Permitted unit throughput with duct burner per application associated with Louisiana Department of Environmental Quality permit PSD-LA-839.

[10] Permitted unit throughputs per application associated with Wisconsin Department of Natural Resources Environmental Management Division permit 18-MMC-168.

**Table C-1e. Large Combined Cycle Gas Turbines Recent Permit Limitations and Determinations of BACT for VOC During Normal Operations from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput (No Duct Burning) | Throughput (With Duct Burning) | Throughput Unit | Permitted VOC Limit (w/o DB) | Permitted VOC Limit (w/ DB) [4] | Limit Unit | Averaging | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Combined Cycle Turbine CTGA | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 3800 | - | MMBtu/hr | 1 | - | PPMVD @15% O2 | BASED ON A 3 HR AVERAGE | Oxidation catalyst | 5 |
| Combined Cycle Combustion Turbine | *IN-0409 | MAPLE CREEK ENERGY II LLC | 5/26/2026 | 4253 | - | MMBtu/hr | 1 | - | PPMVD @ 15 O2 | BASED ON 3-HR AVG, EXCLUDING SU&SD | CTG-02 shall combust pipeline-quality natural gas.<br>The VOC emissions from CTG-02 shall be controlled by catalytic oxidation and good combustion practices. | 5 |
| Gas Turbines | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 4122 | 4985.3 | MMBtu/hr | 1.5 | 1.5 | PPM | - | Oxidation catalyst and energy efficiency/waste heat recovery. | 5,9 |
| FGCTGHRSG | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 3421 | 4161 | MMBtu/hr | 4 | 4 | PPM | PPMVD@15%O2, HOURLY; EACH | Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas. | 7 |
| Combined Cycle and Cogenenration Unit | *TX-0983 | CPV BASIN RANCH ENERGY CENTER | 11/24/2024 | 4100 | 4950 | MMBtu/hr | 1 | 2 | PPMVD | 15% O2 WITH DUCT FIRING | Good combustion practices and an oxidation catalyst system which oxidizes the VOC to form CO2 and water.<br><br>MSS: minimizing the duration of MSS activities, minimizing the amount of time the turbine is outside the performance mode where the controls can be used, and operating the facility in accordance with best management practices and good air pollution control practices. | 5,7 |
| COMBINED CYCLE GAS TURBINES | *TX-0994 | SL ENERGY POWER PLANT I | 10/29/2025 | 3758 | 4106 | MMBtu/hr | 2 | 2 | PPMVD | 15% O2 | An oxidation catalyst and good combustion practices | 5,10 |
| Combined Cycle & Cogeneration (>25 MW), Natural Gas (includes propane & liquified petroleum gas) | *TX-1007 | NRG JEWETT ENERGY CENTER | 1/15/2026 | 3366.8 | 4141.8 | MMBtu/hr | 2 | 2 | PPMVD | 15% O2 24-HR AVG | Oxidation catalyst and good combustion practices.<br><br>MSS: Minimize duration and frequency of MSS activities and engaging the pollution control equipment (i.e., the SCR and oxidation catalyst systems) as soon as practicable, based on vendor recommendations. | 5,7 |
| GE 7HA.02 Turbine | *WV-0029 | HARRISON COUNTY POWER PLANT | 3/27/2018 | 3496.2 | 4497.2 | MMBtu/hr | 1 | 2 | ppm | 3-hour block average | Oxidation Catalyst, Good Combustion Practices | 5,8,11 |
| Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2) | *WV-0033 | MAIDSVILLE | 1/5/2022 | 3875 | 4461 | MMBtu/hr | 1 | 2 | PPMDV @ 15% O2 | AVG OF 3 1-HR TEST RUNS | good combustion practices and oxidation catalyst | 7 |
| Two 744 MW Combined Cycle Units | AL-0328 | PLANT BARRY | 11/9/2020 | 3987 | 4904 | MMBtu/hr | 0.003 | 0.003 | LB/MMBTU | 3 HOUR AVG | Oxidation Catalyst | 12 |
| 2-on-1 combined cycle unit (GE 7HA) | FL-0363 | DANIA BEACH ENERGY CENTER | 12/4/2017 | 4015.4 | - | MMBtu/hr | 1 | - | PPMVD@15% O2 | FOR NATURAL GAS OPERATION | Clean fuels | 13 |
| 2-on-1 natural gas combined-cycle unit (GE 7HA.02) | FL-0364 | SEMINOLE GENERATING STATION | 3/21/2018 | 3514 | 3764 | MMBtu/hr | 1 | 2 | PPMVD@15% O2 | without and with duct burners respectively | Oxidation catalyst | 14 |
| Combined-Cycle Combustion Turbines | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 3612 | 3647 | MMBtu/hr | 1 | 1.1 | PPMV, ADJ. TO 15% O2 | ROLLING 3-OPERATING HOUR | Oxidation catalyst and good combustion practices. | 5,7 |
| Combustion Turbines (6A and 6B) | IN-0382 | DUKE ENERGY INDIANA, INC.-CAYUGA GENERATING STATION | 2/14/2025 | 4254 | 5184 | MMBtu/hr | 1 | 2 | PPMVD@15% O2 | without and with duct burners respectively | Oxidation Catalyst and Good Combustion Practices | 5,15 |
| Combined Cycle Gas Turbine w/ Duct Burners and HRSG | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 5081 | 5907.1 | MMBtu/hr | 1 | 2 | PPMVD | 3 1-HR TEST AVERAGE | Catalytic oxidation and good combustion practices. | 16 |
| FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2) | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 3658 | 4458 | MMBtu/hr | 0.0013 | 0.0026 | LB/MMBTU | EACH UNIT; HOURLY EXCEPT S.S. | Oxidation catalyst technology and good combustion practices. | 7 |
| EUCTGHRSG1 | MI-0455 | MIDLAND COGENERATION VENTURE LIMITED PARTNERSHIP | 2/1/2023 | 4197.6 | 4620.6 | MMBtu/hr | - | 2.4 | PPM | PPMVD AT 15%O2; HOURLY EXC SU/SD | Oxidation catalyst | 17 |
| Combined Cycle Combustion Turbines (3, identical) (P001 to P003) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 3516 | 4513 | MMBtu/hr | 1 | 2 | PPM @15% O2 | - | oxidation catalyst and good combustion practices as recommended by the manufacturer | 7,8 |
| Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008) | OH-0377 | HARRISON POWER | 4/19/2018 | 3231 | 3537 | MMBtu/hr | 1 | 2 | PPM @15% O2 | - | Good combustion practices and oxidation catalyst | 6,7,8 |
| General Electric (GE) Combustion Turbines (P005 & P006) | OH-0377 | HARRISON POWER | 4/19/2018 | 3459.6 | 4030.05 | MMBtu/hr | 1 | 2 | PPM @15% O2 | - | Good combustion practices and oxidation catalyst | 6,7,8 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COMBINED CYCLE TURBINE | TX-0915 | UNIT 5 | 3/17/2021 | 3886 | 4619 | MMBtu/hr | 1 | 1 | PPMVD | 3-HR ROLLING | OXIDATION CATALYST | 5,18 |
| GE Combustion Turbine - Option 1 - Normal Operation | VA-0328 | C4GT, LLC | 4/26/2018 | 3482 | 3957 | MMBtu/hr | 0.7 | 1.4 | PPMVD @ 15% O2 | 3 H AV | Oxidation catalyst and good combustion practices | 6,7 |
| Natural-Gas-Fired Combined-Cycle Turbine (P01) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 3665 | 4671 | MMBtu/hr | 0.6 | 2.7 | PPM AT 15% O2 | 168-HR AVG., NAT. GAS, W/O DUCT FIRING and 168-HR AVG., NAT. GAS, DUCT FIRING respectively | Oxidation Catalyst, good combustion control | 5,19 |

[1] The RBLC query was performed using terbic IDs 11.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/16/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| RBLCID | Manually removed the following RBLC IDs due to the associated projects featuring only simple cycle gas turbines or four stroke natural gas engines: *LA-0365, *OK-0188, *LA-0415, MN-0095, PA-0344, IN-0385, TX-0786, TX-0790, TX-0816, TX-0833, TX-0960, TX-0969, TX-1008, TX-1009, TX-1010, VA-0336, NY-0106, and AL-0337 |
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Non-natural gas-fired combined cycle turbine processes such as boilers, circuit breakers, heaters, lube oil vents, and simple cycle turbines were manually removed |
| PRIMARY_FUEL | Manually removed pollutant limits associated with diesel firing |
| THROUGHPUT | ≥ 3136 MMBtu/hr and ≤ 5136 MMBtu/hr without duct firing or ≥ 4181 MMBtu/hr and ≤ 6181 MMBtu/hr during duct firing. Units with throughputs outside both of these ranges were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Unless otherwise specified, the limit in the "w/ DB" column applies to all duct firing modes for a given RBLC entry.

[5] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[6] Facility or emission unit was never constructed due to project cancellation or dormancy.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted pollutant emission limit(s) and pollutant emission limit unit(s) per RBLC entry's pollutant compliance notes.

[9] Permitted unit throughputs per application associated with Louisiana Department of Environmental Quality permit PSD-LA-862.

[10] Permitted unit throughput per draft Construction Permit Source Analysis & Technical Review document associated with Texas Commission of Environmental Quality permit 177380.

[11] Permitted unit throughput with duct burner per West Virginia Department of Environmental Protection Permit to Construct R14-0036.

[12] Permitted unit throughputs per application associated with Alabama Department of Environmental Management permit 503-1001.

[13] Permitted unit throughputs per Florida Department of Environmental Protection air construction permit 0110037-017-AC (PSD-FL-442).

[14] Permitted unit throughput with duct burner per Florida Department of Environmental Protection air construction permit 1070025-028-AC (PSD-FL-443).

[15] Permitted unit throughput with duct burner per Indiana Department of Environmental Management permit number 165-47430-00001.

[16] Permitted unit throughput with duct burner per application associated with Louisiana Department of Environmental Quality permit PSD-LA-839.

[17] Permitted unit throughput with duct burner per Michigan Department of Environment, Great Lakes, and Energy Air Quality Division air permit 10-23.

[18] Permitted unit throughputs per response to deficiency letter associated with Texas Commission of Environmental Quality permit 160538.

[19] Permitted unit throughputs per application associated with Wisconsin Department of Natural Resources Environmental Management Division permit 18-MMC-168.

**Table C-1e-2. Large Combined Cycle Gas Turbines Recent Permit Limitations and Determinations of BACT for VOC During Startup and Shutdown from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput (No Duct Burning) | Throughput (With Duct Burning) | Throughput Unit | Permitted VOC Limit (w/o DB) | Permitted VOC Limit (w/ DB) [4] | Limit Unit | Averaging | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Combined Cycle Turbine CTGB SU/SD | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 4200 | - | MMBtu/hr | 18.8 | - | TONS PER YEAR | FOR DURATION OF COMBINED SU/SD EVENTS | - | 5 |
| Combined Cycle Turbine CTGA SU/SD | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 3800 | - | MMBtu/hr | 29.3 | - | TONS PER YEAR | FOR DURATION OF COMBINED SU/SD EVENTS | - | 5 |
| Combustion Turbine | *IN-0407 | MAPLE CREEK ENERGY LLC | 5/13/2026 | 4200 | - | MMBtu/hr | 18.8 | - | tons per 12 month period | for the duration of combined startup and shutdown events | Catalytic oxidation and good combustion practices | 5,8 |
| Combined Cycle Combustion Turbine | *IN-0409 | MAPLE CREEK ENERGY II LLC | 5/26/2026 | 4253 | - | MMBtu/hr | 18.8 | - | tons per 12 month period | for the duration of combined startup and shutdown events | CTG-02 shall combust pipeline-quality natural gas.<br>The VOC emissions from CTG-02 shall be controlled by catalytic oxidation and good combustion practices. | 5,8 |
| Combined-Cycle Combustion Turbines | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 3612 | 3647 | MMBtu/hr | - | 56 | pounds/hour | cold start | Oxidation catalyst and good combustion practices. | 5,7,8 |
| Combustion Turbines (6A and 6B) | IN-0382 | DUKE ENERGY INDIANA, INC.-CAYUGA GENERATING STATION | 2/14/2025 | 4254 | 5184 | MMBtu/hr | - | 46 | tons per 12 month consecutive period | 12 consecutive month period | Oxidation Catalyst and Good Combustion Practices | 5,8,9 |
| Combined Cycle Gas Turbine Startup and Shutdown | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 5081 | 5907.1 | MMBtu/hr | - | 520 | LB/HR | - | Good combustion practices. | 10 |
| Combined Cycle Combustion Turbines (3, identical) (P001 to P003) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 3516 | 4513 | MMBtu/hr | - | 55.9 | lb/cold startup | - | oxidation catalyst and good combustion practices as recommended by the manufacturer | 7,8 |
| Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008) | OH-0377 | HARRISON POWER | 4/19/2018 | 3231 | 3537 | MMBtu/hr | - | 42.5 | tons per 12 month rolling period | for all startup and shutdown periods | Good combustion practices and oxidation catalyst | 6,7,8 |
| General Electric (GE) Combustion Turbines (P005 & P006) | OH-0377 | HARRISON POWER | 4/19/2018 | 3459.6 | 4030.05 | MMBtu/hr | - | 4.81 | tons per 12 month rolling period | for all startup and shutdown periods | Good combustion practices and oxidation catalyst | 6,7,8 |
| GE Combustion Turbine - Startup and Shutdown | VA-0328 | C4GT, LLC | 4/26/2018 | 3482 | 3957 | MMBtu/hr | - | 60 | LB/TURBINE/ EVENT | COLD START 60 MIN OR LESS | Oxidation catalyst and good combustion practices | 6,7 |
| Natural Gas-Fired Combined-Cycle Turbine (P01) Start-up and Shutdown (Natural Gas) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 3665 | 4671 | MMBtu/hr | - | 950 | LB/START-UP | - | - | 5,11 |

[1] The RBLC query was performed using terbic IDs 11.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/16/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| RBLCID | Manually removed the following RBLC IDs due to the associated projects featuring only simple cycle gas turbines or four stroke natural gas engines: *LA-0365, *OK-0188, *LA-0415, MN-0095, PA-0344, IN-0385, TX-0786, TX-0790, TX-0816, TX-0833, TX-0960, TX-0969, TX-1008, TX-1009, TX-1010, VA-0336, NY-0106, and AL-0337 |
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Non-natural gas-fired combined cycle turbine processes such as boilers, circuit breakers, heaters, lube oil vents, and simple cycle turbines were manually removed |
| PRIMARY_FUEL | Manually removed pollutant limits associated with diesel firing |
| THROUGHPUT | ≥ 3136 MMBtu/hr and ≤ 5136 MMBtu/hr without duct firing or ≥ 4181 MMBtu/hr and ≤ 6181 MMBtu/hr during duct firing. Units with throughputs outside both of these ranges were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Unless otherwise specified, the limit in the "w/ DB" column applies to all duct firing modes for a given RBLC entry.

[5] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[6] Facility or emission unit was never constructed due to project cancellation or dormancy.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted pollutant emission limit(s) and pollutant emission limit unit(s) per RBLC entry's pollutant compliance notes.

[9] Permitted unit throughput with duct burner per Indiana Department of Environmental Management permit number 165-47430-00001.

[10] Permitted unit throughput with duct burner per application associated with Louisiana Department of Environmental Quality permit PSD-LA-839.

[11] Permitted unit throughputs per application associated with Wisconsin Department of Natural Resources Environmental Management Division permit 18-MMC-168.

**Table C-1f. Large Combined Cycle Gas Turbines Recent Permit Limitations and Determinations of BACT for GHG During Normal Operations from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput (No Duct Burning) | Throughput (With Duct Burning) | Throughput Unit | Permitted GHG Limit ($CO_2e$) (w/o DB) | Permitted GHG Limit ($CO_2e$) (w/ DB) [4] | Limit Unit | Averaging | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Combined Cycle Turbine CTGA | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 3800 | - | MMBtu/hr | 726 | - | LB/MW-HR (GROSS) CORRECTED TO ISO CONDITIONS | - | - | 5 |
| Combined Cycle Combustion Turbine Generator | *IN-0409 | MAPLE CREEK ENERGY II LLC | 5/26/2026 | 4253 | - | MMBtu/hr | 800 | - | LB/MW-HR (GROSS) CORRECTED TO ISO CONDITIONS | - | CO2e emissions from CTG-02 shall be limited through the use of low-carbon fuel (natural gas) with high-efficiency, combined cycle generation. | 5 |
| Gas Turbines | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 4122 | 4985.3 | MMBtu/hr | - | 2596711 | T/YR | - | Good combustion practices, proper O&M practices, use of natural gas, energy efficiency and waste heat recovery. | 5,9 |
| FGCTGHRSG | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 3421 | 4161 | MMBtu/hr | - | 1911481 | T/YR | 12-MO ROLLING TIME PERIOD; EACH CTGHRSG | Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas. | 7 |
| Combustion Turbine without Duct Burner | *PA-0315 | HILLTOP ENERGY CENTER, LLC | 4/12/2017 | 3509 | 4490.4 | MMBtu/hr | - | 879 | LB/MWH (GROSS) | - | - | 10 |
| Combined Cycle and Cogenenration Unit | *TX-0983 | CPV BASIN RANCH ENERGY CENTER | 11/24/2024 | 4100 | 4950 | MMBtu/hr | - | 925 | lb CO2/MW-hr | - | Firing natural gas fuel and a carbon capture system (CCS) as an option to reduce greenhouse gas (GHG) emissions to comply with NSPS Subpart TTTTa as applicable.<br>If NSPS Subpart TTTTa does not apply, then 925 lb CO2/MW-hr (gross) firing natural gas fuel during steady state full load conditions.<br>If NSPS Subpart TTTTa applies, then compliance with NSPS Subpart TTTTa limits: 800 lb CO2/MWh gross (12-month rolling) or as specified in 40 CFR 60 Subpart TTTTa prior to January 1, 2032 and 100 lb CO2/MWh-gross (12-month rolling) or as specified in 40 CFR 60 Subpart TTTTa starting on January 1, 2032. | 5,7,8 |
| COMBINED CYCLE GAS TURBINES | *TX-0994 | SL ENERGY POWER PLANT I | 10/29/2025 | 3758 | 4106 | MMBtu/hr | - | 800 | LB/MWH | - | Each turbine will comply with 40 CFR NSPS TTTTa requirements and operate as base load units (annual capacity factor greater than 40%). Therefore, the gross power-output based GHG emissions for each unit are limited to 800 lb CO2/MWh on a 12-month operating month average during all operation, as specified at 40 CFR 60.5580(a) and Table 1 of NSPS Subpart TTTTa. Effective January 1, 2032 however, the gas turbine will be subject to a 100 lb CO2/MWh gross power-output based GHG emission limit instead, according to NSPS TTTTa. | 5,11 |
| Combined Cycle & Cogeneration (>25 MW), Natural Gas (includes propane & liquified petroleum gas) | *TX-1007 | NRG JEWETT ENERGY CENTER | 1/15/2026 | 3366.8 | 4141.8 | MMBtu/hr | - | - | - | - | Combined cycle operation and firing only pipeline quality natural gas and comply with 40 CFR 60 Subpart TTTTa limits as applicable. | 5,7 |
| GE 7HA.02 Turbine | *WV-0029 | HARRISON COUNTY POWER PLANT | 3/27/2018 | 3496.2 | 4497.2 | MMBtu/hr | - | 528543 | LB/HR | - | Use of Natural Gas, Model GE7HA | 12 |
| Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2) | *WV-0033 | MAIDSVILLE | 1/5/2022 | 3875 | 4461 | MMBtu/hr | - | 852 | LB/MWH GROSS | 12 MONTH ROLLING AVG | Thermal efficiency/combustion air cooling and use of lower carbon fuels. | 7 |
| Two 744 MW Combined Cycle Units | AL-0328 | PLANT BARRY | 11/9/2020 | 3987 | 4904 | MMBtu/hr | - | 1000 | LB/MWH | - | Efficient Design | 13 |
| 2-on-1 combined cycle unit (GE 7HA) | FL-0363 | DANIA BEACH ENERGY CENTER | 12/4/2017 | 4015.4 | - | MMBtu/hr | 850 | - | LB/MWH | FOR GAS OPERATION, 12-MO ROLLING | Low-emitting fuels | 14 |
| Combined-Cycle Combustion Turbines | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 3612 | 3647 | MMBtu/hr | - | 850 | LB/MW-HR (GROSS) | 12 CONSECUTIVE OPERATING MONTHS | Inherently lower-polluting design, good combustion practices and operational energy efficiency | 5,7 |
| Combustion Turbines (6A and 6B) | IN-0382 | DUKE ENERGY INDIANA, INC. CAYUGA GENERATING STATION | 2/14/2025 | 4254 | 5184 | MMBtu/hr | - | 850 | LB/MW-HR | PER TWELVE (12) CONSECUTIVE MONTH PERIOD | good combustion practices and efficient turbine design | 5,15 |
| Combined Cycle Gas Turbine w/ Duct Burners and HRSG | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 5081 | 5907.1 | MMBtu/hr | - | 875 | LB/MW-H | ANNUAL AVERAGE | Use of gaseous fuel (pipeline-quality natural gas), thermally efficient turbines, and good combustion practices. | 16 |
| FGCTGHRSG (2 Combined Cycle CTGs with HRSGs) | MI-0423 | INDECK NILES, LLC | 1/4/2017 | 3421 | 4161 | MMBtu/hr | - | 2097001 | T/YR | 12-MONTH ROLLING TIME PERIOD | Energy efficiency measures and the use of a low carbon fuel (pipeline quality natural gas). | 7 |
| FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2) | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 3658 | 4458 | MMBtu/hr | - | 2042773 | T/YR | 12-MO ROLLING TIME PERIOD; EACH UNIT | Energy efficiency measures | 7 |
| EUCTGHRSG1 | MI-0455 | MIDLAND COGENERATION VENTURE LIMITED PARTNERSHIP | 2/1/2023 | 4197.6 | 4620.6 | MMBtu/hr | - | 2375313 | T/YR | 12-MO ROLLING TIME PERIOD | Low carbon fuel, good combustion practices, energy efficiency measures. | 17 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Combined Cycle Combustion Turbines (3, identical) (P001 to P003) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 3516 | 4513 | MMBtu/hr | 846 | 1000 | LB/MW-H | without and with duct burners respectively | high efficiency combustion practices as recommended by the manufacturer | 7 |
| Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008) | OH-0377 | HARRISON POWER | 4/19/2018 | 3231 | 3537 | MMBtu/hr | 976 | 1000 | LB/MW-H | without and with duct burners respectively | High efficient combustion technology | 6,7 |
| General Electric (GE) Combustion Turbines (P005 & P006) | OH-0377 | HARRISON POWER | 4/19/2018 | 3459.6 | 4030.05 | MMBtu/hr | 1012.4 | 1000 | LB/MW-H | without and with duct burners respectively | High efficient combustion technology | 6,7 |
| COMBINED CYCLE TURBINE | TX-0915 | UNIT 5 | 3/17/2021 | 3886 | 4619 | MMBtu/hr | - | - | - | - | Low sulfur natural gas fuel | 5,18 |
| GE Combustion Turbine - Option 1 - Normal Operation | VA-0328 | C4GT, LLC | 4/26/2018 | 3482 | 3957 | MMBtu/hr | - | 883 | LB CO2E/MW-H | 12 MO ROLLING TOTAL | Energy efficient combustion practices and low GHG fuels | 6,7 |
| Natural-Gas-Fired Combined-Cycle Turbine (P01) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 3665 | 4671 | MMBtu/hr | - | 850 | LB CO2/MW-H | 12-MO ROLLING AVG., NATURAL GAS | Efficient turbine design, only combust pipeline quality natural gas and diesel fuel oil, Oxidation Catalyst | 5,19 |

[1] The RBLC query was performed using terbic IDs 11.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/16/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| RBLCID | Manually removed the following RBLC IDs due to the associated projects featuring only simple cycle gas turbines or four stroke natural gas engines: *LA-0365, *OK-0188, *LA-0415, MN-0095, PA-0344, IN-0385, TX-0786, TX-0790, TX-0816, TX-0833, TX-0960, TX-0969, TX-1008, TX-1009, TX-1010, VA-0336, NY-0106, and AL-0337 |
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Non-natural gas-fired combined cycle turbine processes such as boilers, circuit breakers, heaters, lube oil vents, and simple cycle turbines were manually removed |
| PRIMARY_FUEL | Manually removed limits associated with diesel firing |
| THROUGHPUT | ≥ 3136 MMBtu/hr and ≤ 5136 MMBtu/hr without duct firing or ≥ 4181 MMBtu/hr and ≤ 6181 MMBtu/hr during duct firing. Units with throughputs outside both of these ranges were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Unless otherwise specified, the limit in the "w/ DB" column applies to all duct firing modes for a given RBLC entry.

[5] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[6] Facility or emission unit was never constructed due to project cancellation or dormancy.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted limit and limit unit per RBLC entry's pollutant compliance notes.

[9] Permitted unit throughputs per application associated with Louisiana Department of Environmental Quality permit PSD-LA-862.

[10] Permitted unit throughput with duct burner per Commonwealth of Pennsylvania Department of Environmental Protection Air Quality Program memo "Review of Plan Approval Application Hill Top Energy Center, LLC Natural Gas-Fired Combined Cycle Power Plant Cumberland Township, Greene County APS 936200 Auth 1174569 PF 805163".

[11] Permitted unit throughput per draft Construction Permit Source Analysis & Technical Review document associated with Texas Commission of Environmental Quality permit 177380.

[12] Permitted unit throughput with duct burner per West Virginia Department of Environmental Protection Permit to Construct R14-0036.

[13] Permitted unit throughputs per application associated with Alabama Department of Environmental Management permit 503-1001.

[14] Permitted unit throughputs per Florida Department of Environmental Protection air construction permit 0110037-017-AC (PSD-FL-442).

[15] Permitted unit throughput with duct burner per Indiana Department of Environmental Management permit number 165-47430-00001.

[16] Permitted unit throughput with duct burner per application associated with Louisiana Department of Environmental Quality permit PSD-LA-839.

[17] Permitted unit throughput with duct burner per Michigan Department of Environment, Great Lakes, and Energy Air Quality Division air permit 10-23.

[18] Permitted unit throughputs per response to deficiency letter associated with Texas Commission of Environmental Quality permit 160538.

[19] Permitted unit throughputs per application associated with Wisconsin Department of Natural Resources Environmental Management Division permit 18-MMC-168.

**Table C-1f-2. Large Combined Cycle Gas Turbines Recent Permit Limitations and Determinations of BACT for GHG During Startup and Shutdown from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput (No Duct Burning) | Throughput (With Duct Burning) | Throughput Unit | Permitted GHG Limit ($CO_2e$) (w/o DB) | Permitted GHG Limit ($CO_2e$) (w/ DB) [4] | Limit Unit | Averaging | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Combined Cycle Gas Turbine Startup and Shutdown | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 5081 | 5907.1 | MMBtu/hr | - | 2,528,349 | T/YR | - | Good combustion practices. | 6 |
| Natural Gas-Fired Combined-Cycle Turbine (P01) Start-up and Shutdown (Natural Gas) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 3665 | 4671 | MMBtu/hr | - | 939,573 | LB/START-UP | - | - | 5,7 |

[1] The RBLC query was performed using terbic IDs 11.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/16/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| RBLCID | Manually removed the following RBLC IDs due to the associated projects featuring only simple cycle gas turbines or four stroke natural gas engines: *LA-0365, *OK-0188, *LA-0415, MN-0095, PA-0344, IN-0385, TX-0786, TX-0790, TX-0816, TX-0833, TX-0960, TX-0969, TX-1008, TX-1009, TX-1010, VA-0336, NY-0106, and AL-0337 |
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Non-natural gas-fired combined cycle turbine processes such as boilers, circuit breakers, heaters, lube oil vents, and simple cycle turbines were manually removed |
| PRIMARY_FUEL | Manually removed limits associated with diesel firing |
| THROUGHPUT | ≥ 3136 MMBtu/hr and ≤ 5136 MMBtu/hr without duct firing or ≥ 4181 MMBtu/hr and ≤ 6181 MMBtu/hr during duct firing. Units with throughputs outside both of these ranges were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Unless otherwise specified, the limit in the "w/ DB" column applies to all duct firing modes for a given RBLC entry.

[5] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[6] Permitted unit throughput with duct burner per application associated with Louisiana Department of Environmental Quality permit PSD-LA-839.

[7] Permitted unit throughputs per application associated with Wisconsin Department of Natural Resources Environmental Management Division permit 18-MMC-168.

**Table C-1g. Large Combined Cycle Gas Turbines Recent Permit Limitations and Determinations of BACT for $H_2SO_4$ During Normal Operations from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput (No Duct Burning) | Throughput (With Duct Burning) | Throughput Unit | Permitted $H_2SO_4$ Limit (w/o DB) | Permitted $H_2SO_4$ Limit (w/ DB) [4] | Limit Unit | Averaging | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Combined Cycle Turbine CTGA | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 3800 | - | MMBtu/hr | 0.0004 | - | POUND PER MMBTU | - | - | 5 |
| Combined Cycle Combustion Turbine | *IN-0409 | MAPLE CREEK ENERGY II LLC | 5/26/2026 | 4253 | - | MMBtu/hr | 0.0013 | - | LB/MMBTU | - | SO2 and H2SO4 from CTG-02 shall be controlled through the use of pipeline-quality natural gas. | 5 |
| Gas Turbines | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 4122 | 4985.3 | MMBtu/hr | - | 0.0043 | LB/MM BTU | - | Use of natural gas fuel and energy efficiency and waste heat recovery. | 5,8 |
| FGCTGHRSG | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 3421 | 4161 | MMBtu/hr | - | 4.6 | LB/H | HOURLY; EACH CTGHRSG | Good combustion practices and the use of pipeline quality natural gas. | 7 |
| Combined-Cycle Combustion Turbines | *TX-1007 | NRG JEWETT ENERGY CENTER | 1/15/2026 | 3366.8 | 4141.8 | MMBtu/hr | - | - | - | - | Good combustion practices, units fire only pipeline quality sweet natural gas with no more than 1.0 grains sulfur/100 dscf fuel on a short-term maximum hourly basis and 0.5 grains sulfur/100 dscf on an annual average basis, assumption that 5% molar conversion of SO2 emissions oxidize to SO3 in the combustion turbine,10% molar conversion of SO2 oxidizes to SO3 in the duct burner, 40% molar conversion of SO2 oxidizes to SO3 across the catalyst beds, and 100 percent of SO3 converts to H2SO4.<br><br>MSS: Minimize duration and frequency of MSS activities and engaging the pollution control equipment (i.e., the SCR and oxidation catalyst systems) as soon as practicable, based on vendor recommendations. | 5,7 |
| GE 7HA.02 Turbine | *WV-0029 | HARRISON COUNTY POWER PLANT | 3/27/2018 | 3496.2 | 4497.2 | MMBtu/hr | - | 3.8 | LB/HR | - | Use of Natural Gas | 5,9 |
| Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2) | *WV-0033 | MAIDSVILLE | 1/5/2022 | 3875 | 4461 | MMBtu/hr | - | 0.4 | GR-S/100 SCF | SEE APPENDIX D OF 40CFR75 | Low Sulfur Fuel | 7 |
| 2-on-1 combined cycle unit (GE 7HA) | FL-0363 | DANIA BEACH ENERGY CENTER | 12/4/2017 | 4015.4 | - | MMBtu/hr | - | - | - | - | Clean fuels | 10 |
| Combined-Cycle Combustion Turbines | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 3612 | 3647 | MMBtu/hr | - | 2 | POUNDS/MM BTU | ROLLING 3-OPERATING HOUR | Good combustion practices and use of only natural gas with a sulfur content no greater than 0.5 grains (gr)/100 standard cubic feet (scf). | 5,7 |
| Combined Cycle Gas Turbine w/ Duct Burners and HRSG | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 5081 | 5907.1 | MMBtu/hr | - | 0.0062 | GR/DSCF | - | Use of gaseous fuel (pipeline-quality natural gas) and good combustion practices. | 11 |
| FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2) | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 3658 | 4458 | MMBtu/hr | - | 0.0013 | LB/MMBTU | HOURLY; EACH UNIT | Good combustion practices and the use of pipeline quality natural gas. | 7 |
| Combined Cycle Combustion Turbines (3, identical) (P001 to P003) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 3516 | 4513 | MMBtu/hr | - | 0.0011 | LB/MMBTU | SEE NOTES. | pipeline quality natural gas with a maximum sulfur content not exceed 0.50 grain/100 scf | 7 |
| General Electric (GE) Combustion Turbines (P005 & P006) | OH-0377 | HARRISON POWER | 4/19/2018 | 3459.6 | 4030.05 | MMBtu/hr | - | 0.001 | LB/MMBTU | WITH DUCT BURNER. SEE NOTES. | Good combustion practices and pipeline quality natural gas | 6,7 |
| Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008) | OH-0377 | HARRISON POWER | 4/19/2018 | 3231 | 3537 | MMBtu/hr | - | 0.0022 | LB/MMBTU | - | Good combustion practices and pipeline quality natural gas | 6,7 |
| GE Combustion Turbine - Option 1 - Normal Operation | VA-0328 | C4GT, LLC | 4/26/2018 | 3482 | 3957 | MMBtu/hr | - | 2.5 | LB/H | 3 H AV/WITHOUT DUCT BURNING | use of natural gas with a sulfur content of no more than 0.4 gr/100scf, 12-mo rolling av | 6,7 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Natural-Gas-Fired Combined-Cycle Turbine (P01) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 3665 | 4671 | MMBtu/hr | 7.8 | 9.9 | LB/H | natural gas firing, without and with duct burners respectively | Only use pipeline quality natural gas and diesel fuel and use good combustion control. | 5,12 |

[1] The RBLC query was performed using terbic IDs 11.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/16/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| RBLCID | Manually removed the following RBLC IDs due to the associated projects featuring only simple cycle gas turbines or four stroke natural gas engines: *LA-0365, *OK-0188, *LA-0415, MN-0095, PA-0344, IN-0385, TX-0786, TX-0790, TX-0816, TX-0833, TX-0960, TX-0969, TX-1008, TX-1009, TX-1010, VA-0336, NY-0106, and AL-0337 |
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Non-natural gas-fired combined cycle turbine processes such as boilers, circuit breakers, heaters, lube oil vents, and simple cycle turbines were manually removed |
| PRIMARY_FUEL | Manually removed pollutant limits associated with diesel firing |
| THROUGHPUT | ≥ 3136 MMBtu/hr and ≤ 5136 MMBtu/hr without duct firing or ≥ 4181 MMBtu/hr and ≤ 6181 MMBtu/hr during duct firing. Units with throughputs outside both of these ranges were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Unless otherwise specified, the limit in the "w/ DB" column applies to all duct firing modes for a given RBLC entry.

[5] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[6] Facility or emission unit was never constructed due to project cancellation or dormancy.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted unit throughputs per application associated with Louisiana Department of Environmental Quality permit PSD-LA-862.

[9] Permitted unit throughput with duct burner per West Virginia Department of Environmental Protection Permit to Construct R14-0036.

[10] Permitted unit throughputs per Florida Department of Environmental Protection air construction permit 0110037-017-AC (PSD-FL-442).

[11] Permitted unit throughput with duct burner per Indiana Department of Environmental Management permit number 165-47430-00001.

[12] Permitted unit throughputs per application associated with Wisconsin Department of Natural Resources Environmental Management Division permit 18-MMC-168.

**Table C-1g-2. Large Combined Cycle Gas Turbines Recent Permit Limitations and Determinations of BACT for $H_2SO_4$ During Startup and Shutdown from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput (No Duct Burning) | Throughput (With Duct Burning) | Throughput Unit | Permitted $H_2SO_4$ Limit (w/o DB) | Permitted $H_2SO_4$ Limit (w/ DB) [4] | Limit Unit | Averaging | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Combined Cycle Gas Turbine | LA-0391 | MAGNOLIA POWER GENERATING | 6/3/2022 | 5081 | 5907.1 | MMBtu/hr | - | 2.28 | LB/HR | - | Good combustion practices. | 8 |
| Combined Cycle Combustion Turbines (3, identical) (P001 to P003) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 3516 | 4513 | MMBtu/hr | - | 65.17 | t/yr | per rolling 12 month period total for all 3 turbines | pipeline quality natural gas with a maximum sulfur content not exceed 0.50 grain/100 scf | 6,7 |
| General Electric (GE) Combustion Turbines (P005 & P006) | OH-0377 | HARRISON POWER | 4/19/2018 | 3459.6 | 4030.05 | MMBtu/hr | - | 17.55 | t/yr | per rolling 12 month period for all operating modes, including startup | Good combustion practices and pipeline quality natural gas | 5,6,7 |
| Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008) | OH-0377 | HARRISON POWER | 4/19/2018 | 3231 | 3537 | MMBtu/hr | - | 31.69 | t/yr | - | Good combustion practices and pipeline quality natural gas | 5,6,7 |
| Natural Gas-Fired Combined-Cycle Turbine (P01) Start-up and Shutdown (Natural Gas) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 3665 | 4671 | MMBtu/hr | - | 15.6 | LB/START-UP | - | - | 5,9 |
| Natural-Gas-Fired Combined-Cycle Turbine (P01) Start-Up and Shutdown (diesel) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 3665 | 4671 | MMBtu/hr | - | 14 | LB/START-UP | - | - | 5,9 |

[1] The RBLC query was performed using terbic IDs 11.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/16/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| RBLCID | Manually removed the following RBLC IDs due to the associated projects featuring only simple cycle gas turbines or four stroke natural gas engines: *LA-0365, *OK-0188, *LA-0415, MN-0095, PA-0344, IN-0385, TX-0786, TX-0790, TX-0816, TX-0833, TX-0960, TX-0969, TX-1008, TX-1009, TX-1010, VA-0336, NY-0106, and AL-0337 |
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Non-natural gas-fired combined cycle turbine processes such as boilers, circuit breakers, heaters, lube oil vents, and simple cycle turbines were manually removed |
| PRIMARY_FUEL | Manually removed pollutant limits associated with diesel firing |
| THROUGHPUT | ≥ 3136 MMBtu/hr and ≤ 5136 MMBtu/hr without duct firing or ≥ 4181 MMBtu/hr and ≤ 6181 MMBtu/hr during duct firing. Units with throughputs outside both of these ranges were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Unless otherwise specified, the limit in the "w/ DB" column applies to all duct firing modes for a given RBLC entry.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted unit throughput(s) per RBLC entry's process notes.

[7] Permitted pollutant emission limit(s) and pollutant emission limit unit(s) per RBLC entry's pollutant compliance notes.

[8] Permitted unit throughput with duct burner per application associated with Louisiana Department of Environmental Quality permit PSD-LA-839.

[9] Permitted unit throughputs per application associated with Wisconsin Department of Natural Resources Environmental Management Division permit 18-MMC-168.

**Table C-2a. Commercial-Institutional Size Natural Gas Boilers Recent Permit Limitations and Determinations of BACT for CO from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted CO Limit | Limit Unit | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|
| Auxiliary Boiler | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 96 | MMBtu/hr | 0.037 | LB PER MMBTU | - | 4 |
| Auxiliary Boiler | *IN-0407 | MAPLE CREEK ENERGY LLC | 5/13/2026 | 96 | MMBtu/hr | 0.037 | LB/MMBTU | Good combustion practices | 4 |
| Natural Gas-Fired Auxiliary Boiler | *IN-0409 | MAPLE CREEK ENERGY II LLC | 5/26/2026 | 96 | MMBtu/hr | 0.037 | LB/MMBTU | CO emissions from the auxiliary boiler (AUX-02) shall be controlled through the use of good combustion practices. | 4 |
| FG-AUXBOILERS-BR (Auxiliary boilers) | *MI-0461 | BELLE RIVER POWER PLANT | 7/9/2025 | 99.9 | MMBtu/hr | 0.037 | LB/MMBTU | - | |
| NATURAL GAS FIRED AUXILIARY BOILER | *PA-0319 | RENAISSANCE ENERGY CENTER | 7/19/2018 | 90 | MMBtu/hr | 0.055 | LB/MMBTU | Lo-NOx burners, Flue Gas Recirculation, good combustion practices, proper operation and maintainance. | 5 |
| AUXILLARY BOILER | *TX-0994 | SL ENERGY POWER PLANT I | 10/29/2025 | 84 | MMBtu/hr | 50 | PPMVD @ 3% O2 | Good combustion practices are used. | 4 |
| Auxiliary Boilers (â‰¤ 100 MMBtu/hr per unit) | *TX-1007 | NRG JEWETT ENERGY CENTER | 1/15/2026 | 89.1 | MMBtu/hr | 0.037 | LB/MMBTU | Proper operation and maintenance of the boiler. | 4 |
| Boiler; S02/B02 | *WI-0326 | NEMADJI TRAIL ENERGY CENTER | 9/19/2023 | 100 | MMBtu/hr | 0.0037 | LB/MMBTU | (a) An oxidation catalyst shall be used to control emissions from B02 while B02 is in operation.<br>(b) The permittee shall operate and maintain B02 according to the manufacturerâ€™s recommendations. | 4 |
| Boilers | *WI-0329 | CHS OILSEED PROCESSING LLC | 4/1/2025 | 99 | MMBtu/hr | 0.082 | LBS/MMBTU | Good combustion practices, pipeline quality natural gas | |
| Auxiliary Boiler | *WV-0029 | HARRISON COUNTY POWER PLANT | 3/27/2018 | 77.8 | MMBtu/hr | 0.037 | LB/MMBTU | Good Combustion Practices | 4 |
| 90.5 MMBtu/hr Aux Boiler | AL-0328 | PLANT BARRY | 11/9/2020 | 90.5 | MMBtu/hr | 0.037 | LB/MMBTU | - | |
| BOILER, VACUUM DEGASSER | AR-0155 | BIG RIVER STEEL LLC | 11/7/2018 | 88.7 | MMBtu/hr | 0.0824 | LB/MMBTU | COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE | |
| 99.8 MMBtu/hr auxiliary boiler | FL-0363 | DANIA BEACH ENERGY CENTER | 12/4/2017 | 99.8 | MMBtu/hr | 0.08 | LB/MMBTU | Clean fuel | |
| Auxiliary Boiler | IL-0129 | CPV THREE RIVERS ENERGY CENTER | 7/30/2018 | 96 | MMBtu/hr | 0.037 | LB/MMBTU | Good combustion practices | |
| Auxiliary Boiler | IL-0130 | JACKSON ENERGY CENTER | 12/31/2018 | 96 | MMBtu/hr | 0.037 | LB/MMBTU | Good combustion practice | |
| Auxiliary Boiler | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 80 | MMBtu/hr | 0.037 | POUNDS/MMBTU | Good burner design and good combustion practices. | 4 |
| PR Waste Heat Boiler | LA-0364 | FG LA COMPLEX | 1/6/2020 | 94 | MMBtu/hr | 0.2788 | LB/MMBTU | Good combustion practices and oxidation catalyst. | 6 |
| Auxiliary Boiler | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 80 | MMBtu/hr | 0.05 | LB/MM BTU | Good combustion practices; compliance with 40 CFR 63 Subpart DDDDD. | |
| EUAUXBOILER (Auxiliary boiler) | MI-0424 | HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET | 12/5/2016 | 83.5 | MMBtu/hr | 0.077 | LB/MMBTU | Good combustion practices. | |
| EUAUXBOILER: Auxiliary Boiler | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 99.9 | MMBtu/hr | 0.075 | LB/MMBTU | Good combustion practices | |
| EUAUXBOILER--natural gas fired auxiliary boiler rated at;= 99MMBTU/H | MI-0441 | LBWL--ERICKSON STATION | 12/21/2018 | 99 | MMBtu/hr | 50 | PPM @3%O2; HOURLY | Good combustion practices | |
| FGAUXBOILER | MI-0442 | THOMAS TOWNSHIP ENERGY, LLC | 8/21/2019 | 80 | MMBtu/hr | 0.037 | LB/MMBTU | Good combustion practices | 5 |
| Auxiliary Boiler (B002) | OH-0377 | HARRISON POWER | 4/19/2018 | 80 | MMBtu/hr | 0.031 | LB/MMBTU | Good combustion practices | 5 |
| Auxiliary Boiler | VA-0328 | C4GT, LLC | 4/26/2018 | 105 | MMBtu/hr | 0.037 | LB/MMBTU | good combustion practices and clean fuel | 5,7 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Two (2) Auxiliary Boilers | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 84 | MMBtu/hr | 0.037 | LB/MMBTU | Pollution Prevention/Add-on Control Equipment Description: good combustion practices, operator training, and proper emissions unit design, construction and maintenance. | 5,8 |

[1] The RBLC query was performed using terbic IDs 11.310, 12.310, 12.390, 13.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "boil". Manually removed reboilers |
| PRIMARY_FUEL | Natural gas. Manually removed boilers fired with ULSD, ethane, soybean hulls, and multiple fuels |
| THROUGHPUT | ≥ 70 MMBtu/hr and ≤ 110 MMBtu/hr. Units with throughputs outside of this range were removed |
| PROCESS_NOTES | Manually removed dual fuel boilers and process heaters |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted pollutant limit(s) converted from pounds per hour to pounds per MMBtu by dividing the permitted pounds per hour limit by the permitted MMBtu per hour throughput for the unit.

[7] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52588.

[8] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-2b. Commercial-Institutional Size Natural Gas Boilers Recent Permit Limitations and Determinations of BACT for $NO_X$ from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted $NO_X$ Limit | Limit Unit | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|
| Auxiliary Boiler | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 96 | MMBtu/hr | 0.037 | LB PER MMBTU | - | 4 |
| Auxiliary Boiler | *IN-0407 | MAPLE CREEK ENERGY LLC | 5/13/2026 | 96 | MMBtu/hr | 0.011 | LB/MMBTU | NOx emissions from the natural gas-fired auxiliary boiler (AUX) shall be controlled by an Ultra-Low NOx Burner. | 4 |
| Natural Gas-Fired Auxiliary Boiler | *IN-0409 | MAPLE CREEK ENERGY II LLC | 5/26/2026 | 96 | MMBtu/hr | 0.011 | LB/MMBTU | NOx emissions from the auxiliary boiler (AUX-02) shall be controlled by an ultra-low-NOx burner. | 4 |
| AUXILLARY BOILER | *TX-0994 | SL ENERGY POWER PLANT I | 10/29/2025 | 84 | MMBtu/hr | 0.01 | LB/MMBTU | Dry low NOx burners and good combustion practices are used | 4 |
| Auxiliary Boilers (â‰¤ 100 MMBtu/hr per unit) | *TX-1007 | NRG JEWETT ENERGY CENTER | 1/15/2026 | 89.1 | MMBtu/hr | 0.036 | LB/MMBTU | Low-NOx burners and proper operation and maintenance of the boiler and limited annual operation of up to 2,000 hours/year. | 4 |
| Boiler; S02/B02 | *WI-0326 | NEMADJI TRAIL ENERGY CENTER | 9/19/2023 | 100 | MMBtu/hr | 0.011 | LB/MMBTU | (a) B02 shall be equipped with ultra-low NOx burners and flue gas recirculation. (b) The permittee shall operate and maintain B02 according to the manufacturerâ€™s recommendations. | 4 |
| Auxiliary Boiler | *WV-0029 | HARRISON COUNTY POWER PLANT | 3/27/2018 | 77.8 | MMBtu/hr | 0.0011 | LB/MMBTU | LNB, FGR, Good Combustion Practices | 4 |
| 90.5 MMBtu/hr Aux Boiler | AL-0328 | PLANT BARRY | 11/9/2020 | 90.5 | MMBtu/hr | 0.011 | LB/MMBTU | - | |
| BOILER, VACUUM DEGASSER | AR-0155 | BIG RIVER STEEL LLC | 11/7/2018 | 88.7 | MMBtu/hr | 0.035 | LB/MMBTU | COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE LOW NOX BURNERS | |
| Auxiliary Boiler | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 80 | MMBtu/hr | 0.01 | POUNDS/MMBTU | Ultra low-NOx burners and flue gas recirculation, air preheater, automated combustion management system, with an oxygen trim system and an automated water blowdown system. | 4 |
| PR Waste Heat Boiler | LA-0364 | FG LA COMPLEX | 1/6/2020 | 94 | MMBtu/hr | 0.1533 | LB/MMBTU | SCR and LNB | 6 |
| Auxiliary Boiler | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 80 | MMBtu/hr | 0.01 | LB/MM BTU | Ultra-low NOx burners and good combustion practices. | |
| EUAUXBOILER (Auxiliary boiler) | MI-0424 | HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET | 12/5/2016 | 83.5 | MMBtu/hr | 0.05 | LB/MMBTU | Low NOx burners/Internal flue gas recirculation and good combustion practices. | |
| EUAUXBOILER: Auxiliary Boiler | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 99.9 | MMBtu/hr | 0.036 | LB/MMBTU | Low NOx burners/Flue gas recirculation. | |
| EUAUXBOILER--natural gas fired auxiliary boiler rated at;= 99MMBTU/H | MI-0441 | LBWL--ERICKSON STATION | 12/21/2018 | 99 | MMBtu/hr | 30 | PPM @3%O2; HOURLY | Low NOx burners (LNB) or flue gas recirculation along with good combustion practices. | |
| FGAUXBOILER | MI-0442 | THOMAS TOWNSHIP ENERGY, LLC | 8/21/2019 | 80 | MMBtu/hr | 0.036 | LB/MMBTU | Good combustion practices and low NOx burners. | 5 |
| Auxiliary Boiler (B002) | OH-0377 | HARRISON POWER | 4/19/2018 | 80 | MMBtu/hr | 0.027 | LB/MMBTU | Good combustion practices and low NOx burner | 5 |
| Auxiliary Boiler | VA-0328 | C4GT, LLC | 4/26/2018 | 105 | MMBtu/hr | 0.011 | LB/MMBTU | Low NOx burners | 5,7 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Two (2) Auxiliary Boilers | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 84 | MMBtu/hr | 0.011 | LB/MMBTU | Low NOx burners | 5,8 |

[1] The RBLC query was performed using terbic IDs 11.310, 12.310, 12.390, 13.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "boil". Manually removed reboilers |
| PRIMARY_FUEL | Natural gas. Manually removed boilers fired with ULSD, ethane, soybean hulls, and multiple fuels |
| THROUGHPUT | ≥ 70 MMBtu/hr and ≤ 110 MMBtu/hr. Units with throughputs outside of this range were removed |
| PROCESS_NOTES | Manually removed dual fuel boilers and process heaters |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted pollutant limit(s) converted from pounds per hour to pounds per MMBtu by dividing the permitted pounds per hour limit by the permitted MMBtu per hour throughput for the unit.

[7] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52588.

[8] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-2c. Commercial-Institutional Size Natural Gas Boilers Recent Permit Limitations and Determinations of BACT for $SO_2$ from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted $SO_2$ Limit | Limit Unit | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|
| AUXILLARY BOILER | *TX-0994 | SL ENERGY POWER PLANT I | 10/29/2025 | 84 | MMBtu/hr | - | - | fired exclusively with pipeline quality natural gas based on 0.5 gr S/100 dscf of natural gas supplied by the natural gas supplier. | 4 |
| Auxiliary Boilers (â‰¤ 100 MMBtu/hr per unit) | *TX-1007 | NRG JEWETT ENERGY CENTER | 1/15/2026 | 89.1 | MMBtu/hr | 1 | GR/100 DSCF | 100% molar conversion of natural gas sulfur to SO2.and using good combustion practices and firing pipeline quality sweet natural gas with no more than 1.0 grains sulfur/100 dscf fuel on a short-term maximum hourly basis and 0.5 grains sulfur/100 dscf on an annual average basis. | 4 |
| 90.5 MMBtu/hr Aux Boiler | AL-0328 | PLANT BARRY | 11/9/2020 | 90.5 | MMBtu/hr | 0.002 | LB/MMBTU | - | |
| BOILER, VACUUM DEGASSER | AR-0155 | BIG RIVER STEEL LLC | 11/7/2018 | 88.7 | MMBtu/hr | 5.88 | X10^-4 LB/MMBTU | COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE | |
| 99.8 MMBtu/hr auxiliary boiler | FL-0363 | DANIA BEACH ENERGY CENTER | 12/4/2017 | 99.8 | MMBtu/hr | - | - | Clean fuels | |
| Auxiliary Boiler | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 80 | MMBtu/hr | 0.0014 | POUNDS/MMBTU | Use of only natural gas with a sulfur content of no greater than 0.5 grains (gr)/100 standard cubic feet (scf). | 4 |
| PR Waste Heat Boiler | LA-0364 | FG LA COMPLEX | 1/6/2020 | 94 | MMBtu/hr | 0.0854 | LB/MMBTU | Use of pipeline quality natural gas or fuel gas. | 6 |
| Auxiliary Boiler (B002) | OH-0377 | HARRISON POWER | 4/19/2018 | 80 | MMBtu/hr | 0.0015 | LB/MMBTU | Pipeline quality natural gas | 5 |
| Auxiliary Boiler | VA-0328 | C4GT, LLC | 4/26/2018 | 105 | MMBtu/hr | 0.0012 | LB/MMBTU | The use of pipeline quality natural gas with a max sulfur content of 0.4 gr/100 scf on a 12 mo rolling av. | 5,7 |
| Two (2) Auxiliary Boilers | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 84 | MMBtu/hr | 0.0011 | LB/MMBTU | the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-month rolling average. | 5,8 |

[1] The RBLC query was performed using terbic IDs 11.310, 12.310, 12.390, 13.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "boil". Manually removed reboilers |
| PRIMARY_FUEL | Natural gas. Manually removed boilers fired with ULSD, ethane, soybean hulls, and multiple fuels |
| THROUGHPUT | ≥ 70 MMBtu/hr and ≤ 110 MMBtu/hr. Units with throughputs outside of this range were removed |
| PROCESS_NOTES | Manually removed dual fuel boilers and process heaters |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted pollutant limit(s) converted from pounds per hour to pounds per MMBtu by dividing the permitted pounds per hour limit by the permitted MMBtu per hour throughput for the unit.

[7] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52588.

[8] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-2d. Commercial-Institutional Size Natural Gas Boilers Recent Permit Limitations and Determinations of BACT for PM from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Particulate Matter Type | Permitted PM Limit | Limit Unit | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|
| Natural Gas Boiler B | *IA-0117 | SHELL ROCK SOY PROCESSING | 3/17/2021 | 82 | MMBtu/hr | Particulate matter, total (TPM) | 0.0032 | LB/MMBTU | Low NOx Burner and Flue Gas Recirculation | 7 |
| Auxiliary Boiler | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 96 | MMBtu/hr | Particulate matter, total (TPM) | 0.0075 | LB PER MMBTU | - | 4 |
| Auxiliary Boiler | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 96 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0075 | LB PER MMBTU | - | 4 |
| Auxiliary Boiler | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 96 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0075 | LB PER MMBTU | - | 4 |
| Auxiliary Boiler | *IN-0407 | MAPLE CREEK ENERGY LLC | 5/13/2026 | 96 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0075 | LB/MMBTU | emissions shall be controlled through the use of pipeline-quality natural gas and good combustion practices. | 4 |
| HLK37 - No. 1 Natural Gas Boiler (EQT0092) | *LA-0402 | DESTREHAN OIL PROCESSING FACILITY | 12/13/2023 | 99 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0051 | LB/MMBTU | good combustion practices & compliance with the required tune-up schedule in 40 CFR 63 Subpart DDDDD | 7 |
| HLK37 - No. 1 Natural Gas Boiler (EQT0092) | *LA-0402 | DESTREHAN OIL PROCESSING FACILITY | 12/13/2023 | 99 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0051 | LB/MMBTU | good combustion practices & compliance with the required tune-up schedule in 40 CFR 63 Subpart DDDDD | 7 |
| HLK38 - No. 2 Natural Gas Boiler (EQT0093) | *LA-0402 | DESTREHAN OIL PROCESSING FACILITY | 12/13/2023 | 99 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0051 | LB/MMBTU | good combustion practices & compliance with the required tune-up schedule in 40 CFR 63 Subpart DDDDD | 7 |
| HLK38 - No. 2 Natural Gas Boiler (EQT0093) | *LA-0402 | DESTREHAN OIL PROCESSING FACILITY | 12/13/2023 | 99 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0051 | LB/MMBTU | good combustion practices & compliance with the required tune-up schedule in 40 CFR 63 Subpart DDDDD | 7 |
| Boiler; S02/B02 | *WI-0326 | NEMADJI TRAIL ENERGY CENTER | 9/19/2023 | 100 | MMBtu/hr | Particulate matter, total (TPM) | 0.01 | LB/MMBTU | (a) Only pipeline quality natural gas may be combusted in B02.<br>(b) The permittee shall operate and maintain B02 according to the manufacturerâ€™s recommendations. | 4 |
| Boilers | *WI-0329 | CHS OILSEED PROCESSING LLC | 4/1/2025 | 99 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0075 | LBS/MMBTU | Good combustion practices, pipeline quality natural gas | |
| Auxiliary Boiler | *WV-0029 | HARRISON COUNTY POWER PLANT | 3/27/2018 | 77.8 | MMBtu/hr | Particulate matter, total (TPM) | 0.008 | LB/MMBTU | Use of Natural Gas, Good Combustion Practices | 4 |
| BOILER, VACUUM DEGASSER | AR-0155 | BIG RIVER STEEL LLC | 11/7/2018 | 88.7 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 9.38 | X10^-4 LB/MMBTU | COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE | |
| 99.8 MMBtu/hr auxiliary boiler | FL-0363 | DANIA BEACH ENERGY CENTER | 12/4/2017 | 99.8 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | - | - | Clean fuels | |
| 99.8 MMBtu/hr auxiliary boiler | FL-0363 | DANIA BEACH ENERGY CENTER | 12/4/2017 | 99.8 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | - | - | Clean fuels | |
| Auxiliary Boiler | IL-0129 | CPV THREE RIVERS ENERGY CENTER | 7/30/2018 | 96 | MMBtu/hr | Particulate matter, total (TPM) | 0.0075 | LB/MMBTU | Good combustion practices | |
| Auxiliary Boiler | IL-0130 | JACKSON ENERGY CENTER | 12/31/2018 | 96 | MMBtu/hr | Particulate matter, total (TPM) | 0.0075 | LB/MMBTU | Good combustion practice | |
| Auxiliary Boiler | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 80 | MMBtu/hr | Particulate matter, total (TPM) | 0.0019 | POUNDS/MMBTU | Good combustion practices. | 4 |
| Auxiliary Boiler | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 80 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0075 | POUNDS/MMBTU | Good combustion practices. | 4 |
| SPC Boiler #1 PS37 & SPC Boiler #2 PS38 | IN-0361 | C-PLANT (SPECIALTY SOYBEAN EXTRACTION) | 5/12/2023 | 73.6 | MMBtu/hr | Particulate matter, total (TPM) | 1.9 | LB/MMCF (EACH) | Good Combustion Practices | |
| SPC Boiler #1 PS37 & SPC Boiler #2 PS38 | IN-0361 | C-PLANT (SPECIALTY SOYBEAN EXTRACTION) | 5/12/2023 | 73.6 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 7.6 | LB/MMCF (EACH) | Good Combustion Practices | |
| SPC Boiler #1 PS37 & SPC Boiler #2 PS38 | IN-0361 | C-PLANT (SPECIALTY SOYBEAN EXTRACTION) | 5/12/2023 | 73.6 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 7.6 | LB/MMCF (EACH) | Good Combustion Practices | |
| PR Waste Heat Boiler | LA-0364 | FG LA COMPLEX | 1/6/2020 | 94 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0065 | LB/MMBTU | Use of pipeline quality natural gas or fuel gas and good combustion practices. | 7 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PR Waste Heat Boiler | LA-0364 | FG LA COMPLEX | 1/6/2020 | 94 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0065 | LB/MMBTU | Use of pipeline quality natural gas or fuel gas and good combustion practices. | 7 |
| Auxiliary Boiler | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 80 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0074 | LB/MM BTU | Exclusive combustion of natural gas and good combustion practices. | |
| Auxiliary Boiler | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 80 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0074 | LB/MM BTU | Combusts exclusively natural gas and good combustion practices. | |
| EUAUXBOILER (Auxiliary boiler) | MI-0424 | HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET | 12/5/2016 | 83.5 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.007 | LB/MMBTU | Good combustion practices. | |
| EUAUXBOILER (Auxiliary boiler) | MI-0424 | HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET | 12/5/2016 | 83.5 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.007 | LB/MMBTU | Good combustion practices. | |
| EUAUXBOILER: Auxiliary Boiler | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 99.9 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.007 | LB/MMBTU | Good combustion practices, low sulfur fuel | |
| EUAUXBOILER: Auxiliary Boiler | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 99.9 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.007 | LB/MMBTU | Good combustion practices, low sulfur fuel | |
| EUAUXBOILER--natural gas fired auxiliary boiler rated at;= 99MMBTU/H | MI-0441 | LBWL--ERICKSON STATION | 12/21/2018 | 99 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0075 | LB/MMBTU | Good combusion practices | 7 |
| EUAUXBOILER--natural gas fired auxiliary boiler rated at;= 99MMBTU/H | MI-0441 | LBWL--ERICKSON STATION | 12/21/2018 | 99 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0075 | LB/MMBTU | Good combustion practices | 7 |
| FGAUXBOILER | MI-0442 | THOMAS TOWNSHIP ENERGY, LLC | 8/21/2019 | 80 | MMBtu/hr | Particulate matter, total (TPM) | 1.9 | LB/MMSCF | Low sulfur fuel (natural gas) and good combustion practices (efficient combustion). | 5 |
| FGAUXBOILER | MI-0442 | THOMAS TOWNSHIP ENERGY, LLC | 8/21/2019 | 80 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 7.6 | LB/MMSCF | Low sulfur fuel (natural gas) and good combustion practices (efficient combustion). | 5 |
| FGAUXBOILER | MI-0442 | THOMAS TOWNSHIP ENERGY, LLC | 8/21/2019 | 80 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 7.6 | LB/MMSCF | Low sulfur fuel (natural gas) and good combustion practices (efficient combustion). | 5 |
| Boiler A | NE-0064 | NORFOLK CRUSH, LLC | 11/21/2022 | 84 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.00314 | LB/MMBTU | - | 6 |
| Boiler B | NE-0064 | NORFOLK CRUSH, LLC | 11/21/2022 | 84 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.00314 | LB/MMBTU | - | 6 |
| Auxiliary Boiler (B002) | OH-0377 | HARRISON POWER | 4/19/2018 | 80 | MMBtu/hr | Particulate matter, total (TPM) | 0.006 | LB/MMBTU | Pipeline quality natural gas | 5 |
| Auxiliary Boiler (B002) | OH-0377 | HARRISON POWER | 4/19/2018 | 80 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.006 | LB/MMBTU | Pipeline quality natural gas | 5 |
| Auxiliary Boiler (B002) | OH-0377 | HARRISON POWER | 4/19/2018 | 80 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.006 | LB/MMBTU | Pipeline quality natural gas | 5 |
| Boilers #1 and #2 - 122 MMBtu/hr (B001 and B002) | OH-0391 | VALENCIA PROJECT LLC | 10/27/2023 | 122 | MMBtu/hr | Particulate matter, total (TPM) | 0.0005 | LB/MMBTU | use of low-carbon natural gas fuel, good combustion practice | |
| Boilers #1 and #2 - 122 MMBtu/hr (B001 and B002) | OH-0391 | VALENCIA PROJECT LLC | 10/27/2023 | 122 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0005 | LB/MMBTU | use of low-carbon natural gas fuel, good combustion practice | |
| Boilers #1 and #2 - 122 MMBtu/hr (B001 and B002) | OH-0391 | VALENCIA PROJECT LLC | 10/27/2023 | 122 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0004 | LB/MMBTU | use of low-carbon natural gas fuel, good combustion practice | |
| Auxiliary Boiler | VA-0328 | C4GT, LLC | 4/26/2018 | 105 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0076 | LB/MMBTU | Good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-mo rolling av. | 5,7,8 |
| Auxiliary Boiler | VA-0328 | C4GT, LLC | 4/26/2018 | 105 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0076 | LB/MMBTU | Good combustion practices and the use of pipeline quality natural gas with a max sulfur content of 0.4 gr/100 scf on a 12-mo rolling av. | 5,7,8 |
| Two (2) Auxiliary Boilers | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 84 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0071 | LB/MMBTU | Good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-month rolling average. | 5,7,9 |
| Two (2) Auxiliary Boilers | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 84 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0071 | LB/MMBTU | Good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-month rolling average. | 5,7,9 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Three (3) boilers | VA-0333 | NORFOLK NAVAL SHIPYARD | 12/9/2020 | 76.6 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0078 | LB/MMBTU | - | |
| Three (3) boilers | VA-0333 | NORFOLK NAVAL SHIPYARD | 12/9/2020 | 76.6 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0078 | LB/MMBTU | - | |

[1] The RBLC query was performed using terbic IDs 11.310, 12.310, 12.390, 13.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "boil". Manually removed reboilers |
| PRIMARY_FUEL | Natural gas. Manually removed boilers fired with ULSD, ethane, soybean hulls, and multiple fuels |
| THROUGHPUT | ≥ 70 MMBtu/hr and ≤ 110 MMBtu/hr. Units with throughputs outside of this range were removed |
| PROCESS_NOTES | Manually removed dual fuel boilers and process heaters |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted pollutant limit(s) and limit unit(s) per RBLC entry's pollutant compliance notes.

[7] Permitted pollutant limit(s) converted from pounds per hour to pounds per MMBtu by dividing the permitted pounds per hour limit by the permitted MMBtu per hour throughput for the unit.

[8] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52588.

[9] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-2e. Commercial-Institutional Size Natural Gas Boilers Recent Permit Limitations and Determinations of BACT for VOC from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted VOC Limit | Limit Unit | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|
| Auxiliary Boiler | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 96 | MMBtu/hr | - | - | VOC emissions from the auxiliary boiler shall be controlled through the use of good combustion practices. | 4 |
| AUXILLARY BOILER | *TX-0994 | SL ENERGY POWER PLANT I | 10/29/2025 | 84 | MMBtu/hr | - | - | Good combustion practices are used. | 4 |
| Auxiliary Boilers (â‰¤ 100 MMBtu/hr per unit) | *TX-1007 | NRG JEWETT ENERGY CENTER | 1/15/2026 | 89.1 | MMBtu/hr | 0.0054 | LB/MMBTU | Good combustion practices and firing pipeline quality natural gas. | 4 |
| Boiler; S02/B02 | *WI-0326 | NEMADJI TRAIL ENERGY CENTER | 9/19/2023 | 100 | MMBtu/hr | 0.0027 | LB/MMBTU | (a) An oxidation catalyst shall be used to control emissions from B02 while B02 is in operation.<br>(b) The permittee shall operate and maintain B02 according to the manufacturerâ€™s recommendations. | 4 |
| Auxiliary Boiler | *WV-0029 | HARRISON COUNTY POWER PLANT | 3/27/2018 | 77.8 | MMBtu/hr | 0.008 | LB/MMBTU | Use of Natural Gas, Good Combustion Practices | 4 |
| 90.5 MMBtu/hr Aux Boiler | AL-0328 | PLANT BARRY | 11/9/2020 | 90.5 | MMBtu/hr | 0.004 | LB/MMBTU | - | |
| BOILER, VACUUM DEGASSER | AR-0155 | BIG RIVER STEEL LLC | 11/7/2018 | 88.7 | MMBtu/hr | 0.0054 | LB/MMBTU | COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE | |
| Auxiliary Boiler | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 80 | MMBtu/hr | 0.0015 | POUNDS/MMBTU | Good burner design and good combustion practices | 4 |
| Auxiliary Boiler | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 80 | MMBtu/hr | 0.0054 | LB/MM BTU | Good combustion practices; compliance with 40 CFR 63 Subpart DDDDD. | |
| EUAUXBOILER (Auxiliary boiler) | MI-0424 | HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET | 12/5/2016 | 83.5 | MMBtu/hr | 0.008 | LB/MMBTU | Good combustion practices. | |
| EUAUXBOILER: Auxiliary Boiler | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 99.9 | MMBtu/hr | 0.008 | LB/MMBTU | Good combustion practices | |
| EUAUXBOILER--natural gas fired auxiliary boiler rated at;= 99MMBTU/H | MI-0441 | LBWL--ERICKSON STATION | 12/21/2018 | 99 | MMBtu/hr | 0.0051 | LB/MMBTU | Good combustion practices. | 6 |
| FGAUXBOILER | MI-0442 | THOMAS TOWNSHIP ENERGY, LLC | 8/21/2019 | 80 | MMBtu/hr | 0.0054 | LB/MMBTU | Good combustion practices. | 5 |
| Auxiliary Boiler (B002) | OH-0377 | HARRISON POWER | 4/19/2018 | 80 | MMBtu/hr | 0.0031 | LB/MMBTU | Good combustion practices | 5 |
| Auxiliary Boiler | VA-0328 | C4GT, LLC | 4/26/2018 | 105 | MMBtu/hr | 0.005 | LB/MMBTU | good combustion practices. | 5,7 |
| Two (2) Auxiliary Boilers | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 84 | MMBtu/hr | 0.005 | LB/MMBTU | Pollution Prevention/Add-on Control Equipment Description: good combustion practices, operator training, and proper emissions unit design, construction and maintenance. | 5,8 |

[1] The RBLC query was performed using terbic IDs 11.310, 12.310, 12.390, 13.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "boil". Manually removed reboilers |
| PRIMARY_FUEL | Natural gas. Manually removed boilers fired with ULSD, ethane, soybean hulls, and multiple fuels |
| THROUGHPUT | ≥ 70 MMBtu/hr and ≤ 110 MMBtu/hr. Units with throughputs outside of this range were removed |
| PROCESS_NOTES | Manually removed dual fuel boilers and process heaters |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted pollutant limit(s) converted from pounds per hour to pounds per MMBtu by dividing the permitted pounds per hour limit by the permitted MMBtu per hour throughput for the unit.

[7] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52588.

[8] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-2f. Commercial-Institutional Size Natural Gas Boilers Recent Permit Limitations and Determinations of BACT for GHGs from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted GHG Limit | Limit Unit | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|
| Auxiliary Boiler | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 96 | MMBtu/hr | 11244 | TONS PER YEAR | - | 4 |
| Auxiliary Boiler | *IN-0407 | MAPLE CREEK ENERGY LLC | 5/13/2026 | 96 | MMBtu/hr | 11244 | TONS/YEAR | Good combustion practices | 4 |
| Natural Gas-Fired Auxiliary Boiler | *IN-0409 | MAPLE CREEK ENERGY II LLC | 5/26/2026 | 96 | MMBtu/hr | 11244 | TONS/YEAR | CO2e emissions from the auxiliary boiler (AUX-02) shall be controlled through the use of good combustion practices. | 4 |
| HLK37 - No. 1 Natural Gas Boiler (EQT0092) | *LA-0402 | DESTREHAN OIL PROCESSING FACILITY | 12/13/2023 | 99 | MMBtu/hr | 52151 | T/YR | good combustion practices & compliance with 40 CFR 63 Subpart DDDDD | |
| HLK38 - No. 2 Natural Gas Boiler (EQT0093) | *LA-0402 | DESTREHAN OIL PROCESSING FACILITY | 12/13/2023 | 99 | MMBtu/hr | 52151 | T/YR | good combustion practices & compliance with 40 CFR 63 Subpart DDDDD | |
| AUXILLARY BOILER | *TX-0994 | SL ENERGY POWER PLANT I | 10/29/2025 | 84 | MMBtu/hr | - | - | fired exclusively with pipeline quality natural gas | 4 |
| Auxiliary Boilers (â‰¤ 100 MMBtu/hr per unit) | *TX-1007 | NRG JEWETT ENERGY CENTER | 1/15/2026 | 89.1 | MMBtu/hr | - | - | Firing natural gas, which is the lowest carbon fuel available at the site. Therefore, CO2 formation from fuel combustion will be minimized. Good operating and maintenance practices for the boiler include following the manufacturerâ€™s recommended operating and maintenance procedures, maintaining good fuel mixing in the combustion zone, and maintaining the proper air/fuel ratio so that sufficient oxygen is provided to provide complete combustion of the fuel while at the same time preventing introduction of more air than is necessary into the boiler. The energy efficient design of the boiler includes insulation to retain heat within the boiler and computerized process control systems that will optimize the fuel/air mixture and limit excess air in the boilers. | 4 |
| Boiler; S02/B02 | *WI-0326 | NEMADJI TRAIL ENERGY CENTER | 9/19/2023 | 100 | MMBtu/hr | 160 | LBS OF CO2E | B02 shall be equipped with ultra-low NOx burners and flue gas recirculation.<br>The permittee shall operate and maintain B02 according to the manufacturerâ€™s recommendations.<br>Only pipeline quality natural gas may be combusted in B02. | 4 |
| Boilers | *WI-0329 | CHS OILSEED PROCESSING LLC | 4/1/2025 | 99 | MMBtu/hr | 118 | LBS/MMBTU | Good combustion practices, pipeline quality natural gas | |
| Auxiliary Boiler | *WV-0029 | HARRISON COUNTY POWER PLANT | 3/27/2018 | 77.8 | MMBtu/hr | 9107 | LB/HR | Use of Natural Gas | 4 |
| 90.5 MMBtu/hr Aux Boiler | AL-0328 | PLANT BARRY | 11/9/2020 | 90.5 | MMBtu/hr | 46416 | TPY | - | |
| BOILER, VACUUM DEGASSER | AR-0155 | BIG RIVER STEEL LLC | 11/7/2018 | 88.7 | MMBtu/hr | 117 | LB/MMBTU | GOOD OPERATING PRACTICES MINIMUM BOILER EFFICIENCY 75% | |
| Auxiliary Boiler | IL-0129 | CPV THREE RIVERS ENERGY CENTER | 7/30/2018 | 96 | MMBtu/hr | 22500 | TON/YR | Good combustion practice | |
| Auxiliary Boiler | IL-0130 | JACKSON ENERGY CENTER | 12/31/2018 | 96 | MMBtu/hr | 11250 | TONS/YEAR | Good combustion practice | |
| Auxiliary Boiler | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 80 | MMBtu/hr | 5059 | TONS/YEAR | Good combustion practices. | 4 |
| PR Waste Heat Boiler | LA-0364 | FG LA COMPLEX | 1/6/2020 | 94 | MMBtu/hr | 455475 | T/YR | Use of natural gas or fuel gas as fuel, energy-efficient design options, and operational/maintenance practices. | |
| Auxiliary Boiler | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 80 | MMBtu/hr | 117 | LB/MM BTU | Good combustion practices; compliance with 40 CFR 63 Subpart DDDDD. | |
| EUAUXBOILER (Auxiliary boiler) | MI-0424 | HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET | 12/5/2016 | 83.5 | MMBtu/hr | 43283 | T/YR | Good combustion practices. | |
| EUAUXBOILER: Auxiliary Boiler | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 99.9 | MMBtu/hr | 25623 | T/YR | Energy efficiency measures, use of natural gas. | |
| EUAUXBOILER--natural gas fired auxiliary boiler rated at;= 99MMBTU/H | MI-0441 | LBWL--ERICKSON STATION | 12/21/2018 | 99 | MMBtu/hr | 50776 | T/YR | Low carbon fuel (pipeline quality natural gas), good combustion practices and energy efficiency measures. | |
| FGAUXBOILER | MI-0442 | THOMAS TOWNSHIP ENERGY, LLC | 8/21/2019 | 80 | MMBtu/hr | 41031 | T/YR | Energy efficiency | 5 |
| Auxiliary Boiler (B002) | OH-0377 | HARRISON POWER | 4/19/2018 | 80 | MMBtu/hr | 5009.1 | T/YR | Good combustion practices and pipeline quality natural gas | 5 |
| Auxiliary Boiler | VA-0328 | C4GT, LLC | 4/26/2018 | 105 | MMBtu/hr | 53863 | T/YR | use of natural gas and high efficiency design and operation | 5,6 |
| Two (2) Auxiliary Boilers | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 84 | MMBtu/hr | 43827 | T/YR | use of natural gas and high efficiency design and operation | 5,7 |
| Three (3) boilers | VA-0333 | NORFOLK NAVAL SHIPYARD | 12/9/2020 | 76.6 | MMBtu/hr | 117.1 | LB/MMBTU | - | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Natural Gas Auxiliary Boiler (B22) | WI-0305 | WPL- RIVERSIDE ENERGY CENTER | 1/22/2021 | 83.5 | MMBtu/hr | 157 | LB CO2/MMBTU | Combust only pipeline quality natural gas. | |

[1] The RBLC query was performed using terbic IDs 11.310, 12.310, 12.390, 13.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "boil". Manually removed reboilers |
| PRIMARY_FUEL | Natural gas. Manually removed boilers fired with ULSD, ethane, soybean hulls, and multiple fuels |
| THROUGHPUT | ≥ 70 MMBtu/hr and ≤ 110 MMBtu/hr. Units with throughputs outside of this range were removed |
| PROCESS_NOTES | Manually removed dual fuel boilers and process heaters |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52588.

[7] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-2g. Commercial-Institutional Size Natural Gas Boilers Recent Permit Limitations and Determinations of BACT for $H_2SO_4$ from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted $H_2SO_4$ Limit | Limit Unit | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|
| Auxiliary Boiler | *IN-0365 | MAPLE CREEK ENERGY LLC | 6/19/2023 | 96 | MMBtu/hr | 0.0001 | LB PER MMBTU | - | 4 |
| Auxiliary Boiler | *IN-0407 | MAPLE CREEK ENERGY LLC | 5/13/2026 | 96 | MMBtu/hr | 0.0001 | LB/MMBTU | H2SO4 emissions from the natural gas-fired auxiliary boiler (AUX) shall be controlled through the use of only pipeline quality natural gas. | 4 |
| Natural Gas-Fired Auxiliary Boiler | *IN-0409 | MAPLE CREEK ENERGY II LLC | 5/26/2026 | 96 | MMBtu/hr | 0.0001 | LB/MMBTU | H2SO4 emissions from the auxiliary boiler shall be controlled through the use of only pipeline quality natural gas. | 4 |
| Auxiliary Boiler | *WV-0029 | HARRISON COUNTY POWER PLANT | 3/27/2018 | 77.8 | MMBtu/hr | 0.0002 | LB/MMBTU | Use of Natural Gas | 4 |
| 99.8 MMBtu/hr auxiliary boiler | FL-0363 | DANIA BEACH ENERGY CENTER | 12/4/2017 | 99.8 | MMBtu/hr | - | - | Clean fuels | |
| Auxiliary Boiler | IL-0129 | CPV THREE RIVERS ENERGY CENTER | 7/30/2018 | 96 | MMBtu/hr | 0.0010 | LB/HR | Good combustion practice | 6 |
| Auxiliary Boiler | IL-0130 | JACKSON ENERGY CENTER | 12/31/2018 | 96 | MMBtu/hr | 0.0010 | POUNDS/HOUR | Good combustion practice | 6 |
| Auxiliary Boiler | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 80 | MMBtu/hr | 0.02 | POUNDS/MMBTU | Use of only natural gas with a sulfur content of no greater than 0.5 grains (gr)/100 standard cubic feet (scf). | 4 |
| EUAUXBOILER: Auxiliary Boiler | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 99.9 | MMBtu/hr | 0.34 | GR S/100 SCF | Good combustion practices, low sulfur fuel | |
| Auxiliary Boiler (B002) | OH-0377 | HARRISON POWER | 4/19/2018 | 80 | MMBtu/hr | 2.2 | X10-4 LB/MMBTU | Pipeline quality natural gas | 5 |
| Auxiliary Boiler | VA-0328 | C4GT, LLC | 4/26/2018 | 105 | MMBtu/hr | - | - | The use of pipeline quality natural gas with a max sulfur content of 0.4 gr/100 scf on a 12 mo rolling av. | 5,7 |
| Natural Gas-Fired Auxiliary Boiler (B02) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 100 | MMBtu/hr | 0.0001 | LB/MMBTU | Only combust pipeline quality natural gas and operate and maintain to the manufacturerâ€™s recommendations. | 4,6 |

[1] The RBLC query was performed using terbic IDs 11.310, 12.310, 12.390, 13.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, and 16.210. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "boil". Manually removed reboilers |
| PRIMARY_FUEL | Natural gas. Manually removed boilers fired with ULSD, ethane, soybean hulls, and multiple fuels |
| THROUGHPUT | ≥ 70 MMBtu/hr and ≤ 110 MMBtu/hr. Units with throughputs outside of this range were removed |
| PROCESS_NOTES | Manually removed dual fuel boilers and process heaters |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted pollutant limit(s) converted from pounds per hour to pounds per MMBtu by dividing the permitted pounds per hour limit by the permitted MMBtu per hour throughput for the unit.

[7] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52588.

**Table C-3a. Large Fuel Oil Internal Combustion Engines Recent Permit Limitations and Determinations of BACT for CO from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted CO Limit | Limit Unit | Control | Notes | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Engines 2-19 and 3-19 (EQT0904 and EQT0905) | *LA-0381 | EUEG-5 UNIT - GEISMAR PLANT | 12/12/2019 | - | - | - | - | Comply with standards of 40 CFR 60 Subpart IIII | - | |
| 4C-6A - C/A Emergency Generator A | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | 3.5 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII. | - | |
| 4C-6B - C/A Emergency Generator B | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | 3.5 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4C-6C - C/A Emergency Generator C | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | 3.5 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4M-11A - VCM Emergency Generator A | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | 3.5 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4M-11B - VCM Emergency Generator B | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | 3.5 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4C-6 CAP - C/A Emergency Generators CAP | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | - | - | 2.02 | TONS/YEAR | Compliance with 40 CFR 60 Subpart IIII. | - | |
| 4M-11 CAP - VCM Emergency Generators | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | - | - | 1.52 | TONS/YEAR | Compliance with 40 CFR 60 Subpart IIII | - | |
| Emergency Generators | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 2923 | Horsepower | 0.6 | G/KW-H | Good combustion practices including compliance with 40 CFR 60 Subpart IIII. | - | 4 |
| EUEMENGINE (diesel fuel emergency engine) | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 2922 | Horsepower | 3.5 | G/KW-H | Good Combustion Practices and meeting NSPS Subpart IIII requirements | On average, an oxidation catalyst is greater than $88,000/ton for CO and VOC together. | 7 |
| Emergency Generator | *PA-0313 | FIRST QUALITY TISSUE LOCK HAVEN PLT | 7/27/2017 | 2500 | Horsepower | 3.5 | G/KW-H | - | - | |
| Emergency Generator Parking Garage | *PA-0326 | SHELL POLYMERS MONACA SITE | 2/18/2021 | - | - | 0.5 | G/HP-HR | The use of certified engines, design of engines to include turbocharger and an intercooler/aftercooler, good combustion practices and proper operation and maintenance including certification to applicable federal emission standards | - | |
| Emergency Generator Telecom Hut & Tower | *PA-0326 | SHELL POLYMERS MONACA SITE | 2/18/2021 | - | - | 0.67 | G/HP-HR | The use of certified engines, design of engines to include turbocharger and an intercooler/aftercooler, good combustion practices and proper operation and maintenance including certification to applicable federal emission standards | - | |
| Emergency generator EU-6006 | IN-0317 | RIVERVIEW ENERGY CORPORATION | 6/11/2019 | 2800 | Horsepower | 3.5 | G/KWH | Tier II diesel engine | Unit shall use good combustion practices and energy efficiency as defined in the permit.<br>40 CFR 60, subpart IIII<br>40 CFR 63, subpart ZZZZ | |
| Emergency Generator (CC-GEN1) | IN-0359 | NUCOR STEEL | 3/30/2023 | 3000 | Horsepower | 2.61 | G/HP-HR | oxidation catalyst and certified engine | - | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| EP 10-02 - North Water System Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | 2.61 | G/HP-HR | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-02, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |
| EP 10-01 - Caster Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | 2.61 | G/HP-HR | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-01, upon initial compliance demonstration but no later than 180 days aofter startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |

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|---|---|---|---|---|---|---|---|---|---|---|
| EP 10-03 - South Water System Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | 2.61 | G/HP-HR | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-03, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |
| Tunnel Furnace Emergency Generator (EP 08-06) | KY-0115 | NUCOR STEEL GALLATIN, LLC | 4/19/2021 | 2937 | Horsepower | 2.6 | G/B-HP-H | The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan | The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i. A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |

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|---|---|---|---|---|---|---|---|---|---|---|
| Caster B Emergency Generator (EP 08-07) | KY-0115 | NUCOR STEEL GALLATIN, LLC | 4/19/2021 | 2937 | Horsepower | 2.6 | G/B-HP-H | The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan | The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i. A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |
| Emergency Generator Engines (4 units) | LA-0317 | METHANEX - GEISMAR METHANOL PLANT | 12/22/2016 | 2346 | Horsepower | - | - | complying with 40 CFR 60 Subpart IIII and 40 CFR 63 Subpart ZZZZ | - | 7 |
| Emergency Diesel Fired IC Engines (EQT0454 - EQT0459) | LA-0339 | SHINTECH PLAQUEMINE PLANT 3 | 1/19/2021 | - | - | 3.5 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| emergency generators (3 units) EQT0039, EQT0040, EQT0041 | LA-0350 | BENTELER STEEL TUBE FACILITY | 3/28/2018 | - | - | - | - | Comply with 40 CFR 60 Subpart IIII | - | |
| Emergency Engines (EQT0014 - EQT0017) | LA-0382 | BIG LAKE FUELS METHANOL PLANT | 4/25/2019 | - | - | - | - | Comply with standards of 40 CFR 60 Subpart IIII | - | |
| Emergency Engines (EQT0011 - EQT0016) | LA-0383 | LAKE CHARLES LNG EXPORT TERMINAL | 9/3/2020 | - | - | - | - | Comply with 40 CFR 60 Subpart IIII | - | |
| Emergency Diesel Generator Engine | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 2937 | Horsepower | 2.6 | G/HP-HR | Compliance with 40 CFR 60 Subpart IIII, good combustion practices, and the use of ultra-low sulfur diesel fuel. | BACT limit is 2.6 g/BHP-hr. Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices, and the use of ultra-low sulfur diesel fuel. | |
| EUEMENGINE: Emergency engine | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 2682.04 | Horsepower | 3.5 | G/KW-H | State of the art combustion design. | - | 6 |
| EUEMGD--emergency engine | MI-0447 | LBWL--ERICKSON STATION | 1/7/2021 | 2206 | Horsepower | 3.5 | G/KW-H | Good combustion practices and will be NSPS compliant. | Catalytic oxidation was the control considered technically feasible. However, it was not considered economically feasible. | 7 |
| Emergency Generators (2 identical, P004 and P005) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 2206 | Horsepower | 2.6 | G/BHP-H | Certified to the meet the emissions standards in 40 CFR 89.112 and 89.113 pursuant to 40 CFR 60.4205(b) and 60.4202(a)(2). Good combustion practices per the manufacturerâ€™s operating manual. | CO Standard limit is 3.5 g/kW-hr (2.6 g/hp-hr). | |
| Emergency Diesel Generator Engine (P001) | OH-0375 | LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER | 11/7/2017 | 2206 | Horsepower | 2.6 | G/BHP-H | Good combustion design | CO Standard limit is 3.5 g/kW-hr (2.6 g/hp-hr). | |

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|---|---|---|---|---|---|---|---|---|---|---|
| Emergency diesel-fired generator (P007) | OH-0376 | IRONUNITS LLC - TOLEDO HBI | 2/9/2018 | 2682 | Horsepower | 2.6 | G/BHP-H | Comply with NSPS 40 CFR 60 Subpart IIII | CO Standard limit is 3.5 g/kW-hr (2.6 g/hp-hr). | |
| Emergency Generators (P005 and P006) | OH-0383 | PETMIN USA INCORPORATED | 7/17/2020 | 3131 | Horsepower | 2.6 | G/BHP-H | Tier IV engine<br>Good combustion practices | - | |
| Emergency Generator | SC-0182 | FIBER INDUSTRIES LLC | 10/31/2017 | - | - | 0.01 | LB/HP-HR | Use of low carbon/clean fuel (propane), good combustion, operation, and maintenance practices; compliance with NSPS Subpart JJJJ | - | |
| EMERGENCY DIESEL ENGINE | TX-0864 | EQUISTAR CHEMICALS CHANNELVIEW COMPLEX | 9/9/2019 | - | - | - | - | Tier 4 exhaust emission standards specified at 40 CFR Â§ 1039.101(b) | - | |
| Emergency Generators | TX-0872 | CONDENSATE SPLITTER FACILITY | 10/31/2019 | - | - | 0.6 | G/KW HR | Limiting duration and frequency of generator use to 100 hr/yr. Good combustion practices will be used to reduce VOC including maintaining proper air-to-fuel ratio. | NSPS IIII, MACT ZZZZ | |
| Emergency Generators | TX-0872 | CONDENSATE SPLITTER FACILITY | 10/31/2019 | - | - | 0.6 | G/KW HR | Limiting duration and frequency of generator use to 100 hr/yr. Good combustion practices will be used to reduce VOC including maintaining proper air-to-fuel ratio. | NSPS IIII, MACT ZZZZ | |
| EMERGENCY GENERATOR | TX-0873 | PORT ARTHUR REFINERY | 2/4/2020 | - | - | - | - | Good combustion practices including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent.<br>LIMIT OPERATION 100 HR/YR | - | |
| Emergency generator | TX-0876 | PORT ARTHUR ETHANE CRACKER UNIT | 2/6/2020 | - | - | - | - | Tier 4 exhaust emission standards specified in 40 CFR Â§ 1039.101, limited to 100 hours per year of non-emergency operation | NSPS IIII, MACT ZZZZ | |
| EMERGENCY GENERATOR | TX-0904 | MOTIVA POLYETHYLENE MANUFACTURING COMPLEX | 9/9/2020 | - | - | - | - | 100 HOURS OPERATIONS, Tier 4 exhaust emission standards specified in 40 CFR Â§ 1039.101 | - | |
| EMERGENCY GENERATOR | TX-0905 | DIAMOND GREEN DIESEL PORT ARTHUR FACILITY | 9/16/2020 | - | - | - | - | limited to 100 hours per year of non-emergency operation | - | |
| Emergency Generators | TX-0933 | NACERO PENWELL FACILITY | 11/17/2021 | - | - | - | - | limited to 100 hours per year of non-emergency operation. EPA Tier 2 (40 CFR Â§ 1039.101) exhaust emission standards | - | 5 |
| EMERGENCY GENERATOR | TX-0939 | ORANGE COUNTY ADVANCED POWER STATION | 3/13/2023 | 2922 | Horsepower | 0.006 | LB/HP HR | GOOD COMBUSTION PRACTICES, LIMITED TO 100 HR/YR | - | 8 |
| Diesel-Fired Emergency Generators | WI-0284 | SIO INTERNATIONAL WISCONSIN, INC. -ENERGY PLANT | 4/24/2018 | 2923.4236 | Horsepower | 0.6 | G/KWH | Good Combustion Practices | BACT is<br>Total hours of operation for each generator is 200 hours over a 12 month period. Good combustion practices are defined as maintaining the stationary compression ignition internal combustion engine according to each manufacturerâ€™s emission-related instructions. | 6 |

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|---|---|---|---|---|---|---|---|---|---|---|
| P42 -Diesel Fired Emergency Generator | WI-0286 | SIO INTERNATIONAL WISCONSIN, INC. -ENERGY PLANT | 4/24/2018 | 2346 | Horsepower | 0.6 | G/KWH | Good Combustion Practices | Good combustion practices are defined as maintaining the stationary compression ignition internal combustion engine according to the manufacturerâ€™s emission related written instructions. The total hours of operation of the emergency generator may not exceed 200 hours during each consecutive 12-month period. | 7 |

[1] The RBLC query was performed using terbic IDs 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, 17.110, 17.120, 17.210, and 19.900. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "emergency" but does not contain "pump" |
| PRIMARY_FUEL | Natural gas. Manually removed emergency engines fired with natural gas or propane |
| THROUGHPUT | ≥ 2181 horsepower and ≤ 3181 horsepower. Units with throughputs outside of this range were removed. RBLC entries where the emergency generator's power rating could not be determined were included for conservatism |
| PROCESS_NOTES | Does not contain "pump" |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted unit throughput converted from kilowatts into horsepower.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted unit throughput per special conditions section of Texas Commission of Environmental Quality permit 166032.

**Table C-3b. Large Fuel Oil Internal Combustion Engines Recent Permit Limitations and Determinations of BACT for $NO_X$ from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted $NO_X$ Limit | Limit Unit | Control | Notes | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Engines 2-19 and 3-19 (EQT0904 and EQT0905) | *LA-0381 | EUEG-5 UNIT - GEISMAR PLANT | 12/12/2019 | - | Horsepower | - | - | Comply with standards of 40 CFR 60 Subpart IIII | - | |
| 4C-6A - C/A Emergency Generator A | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | 6.4 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4C-6B - C/A Emergency Generator B | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | 6.4 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4C-6C - C/A Emergency Generator C | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | 6.4 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4M-11A - VCM Emergency Generator A | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | 6.4 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4M-11B - VCM Emergency Generator B | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | 6.4 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4C-6 CAP - C/A Emergency Generators CAP | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | - | - | 2.76 | TONS/YEAR | Compliance with 40 CFR 60 Subpart IIII. | - | |
| 4M-11 CAP - VCM Emergency Generators | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | - | - | 1.99 | TONS/YEAR | Compliance with 40 CFR 60 Subpart IIII | - | |
| Emergency Generators | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 2923 | Horsepower | 5.36 | G/KW-H | Good combustion practices including compliance with 40 CFR 60 Subpart IIII. | - | 4 |
| EUEMENGINE (diesel fuel emergency engine) | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 2922 | Horsepower | 6.4 | G/KW-H | Good Combustion Practices and meeting NSPS Subpart IIII requirements | The limit is actually in â€œNMHC+NOxâ€ (nonmethane hydrocarbon plus NOx), which is what is required in the NSPS. | 7 |
| EMERGENCY GENERATOR | *TX-1003 | PERMIAN BASIN STEAM ELECTRIC STATION | 9/24/2025 | - | - | - | - | EPA Tier 2 emission levels required by NSPS Subpart IIII | - | |
| Emergency generator EU-6006 | IN-0317 | RIVERVIEW ENERGY CORPORATION | 6/11/2019 | 2800 | Horsepower | 6.4 | G/KWH TIER II NOX + NMHC LIMIT | Tier II diesel engine | Unit shall use good combustion practices and energy efficiency as defined in the permit.<br>40 CFR 60, subpart IIII<br>40 CFR 63, subpart ZZZZ | |
| Emergency Generator (CC-GEN1) | IN-0359 | NUCOR STEEL | 3/30/2023 | 3000 | Horsepower | 4.8 | G/HP-HR | certified engine | - | |
| Emergency Generator (2000 kW) | IN-0371 | WABASH VALLEY RESOURCES, LLC | 1/11/2024 | 2682.04 | Horsepower | 3.81 | G/HP-HR | Good Combustion Practices and meeting NSPS Subpart IIII requirements. | - | 6 |
| EP 10-02 - North Water System Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | 4.77 | G/HP-HR NMHC + NOX | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-02, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |

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|---|---|---|---|---|---|---|---|---|---|---|
| EP 10-01 - Caster Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | 4.77 | G/HP-HR NMHC + NOX | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-01, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |
| EP 10-03 - South Water System Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | 4.77 | G/HP-HR NMHC + NOX | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-03, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |
| Tunnel Furnace Emergency Generator (EP 08-06) | KY-0115 | NUCOR STEEL GALLATIN, LLC | 4/19/2021 | 2937 | Horsepower | 4.8 | G/B-HP-H NMHC+NOX | The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan | The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i. A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |

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|---|---|---|---|---|---|---|---|---|---|---|
| Caster B Emergency Generator (EP 08-07) | KY-0115 | NUCOR STEEL GALLATIN, LLC | 4/19/2021 | 2937 | Horsepower | 4.8 | G/B-HP-H NMHC+NOX | The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan | The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i. A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |
| Emergency Generator Engines (4 units) | LA-0317 | METHANEX - GEISMAR METHANOL PLANT | 12/22/2016 | 2346 | Horsepower | - | - | complying with 40 CFR 60 Subpart IIII and 40 CFR 63 Subpart ZZZZ | BACT = LAER (Permit 0180-00210-V4, dated 12/22/2016) | 7 |
| Emergency Diesel Fired IC Engines (EQT0454 - EQT0459) | LA-0339 | SHINTECH PLAQUEMINE PLANT 3 | 1/19/2021 | - | - | 4 | G/KW-HR NMEHC + NOX | Compliance with 40 CFR 60 Subpart IIII | - | |
| emergency generators (3 units) EQT0039, EQT0040, EQT0041 | LA-0350 | BENTELER STEEL TUBE FACILITY | 3/28/2018 | - | - | - | - | Comply with 40 CFR 60 Subpart IIII | - | |
| Emergency Engines (EQT0014 - EQT0017) | LA-0382 | BIG LAKE FUELS METHANOL PLANT | 4/25/2019 | - | - | - | - | Comply with standards of 40 CFR 60 Subpart IIII | - | |
| Emergency Engines (EQT0011 - EQT0016) | LA-0383 | LAKE CHARLES LNG EXPORT TERMINAL | 9/3/2020 | - | - | - | - | Comply with 40 CFR 60 Subpart IIII | - | |
| Emergency Diesel Generator Engine | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 2937 | Horsepower | 4.8 | G/HP-HR | Compliance with 40 CFR 60 Subpart IIII, good combustion practices, and use of ultra-low sulfur diesel fuel. | BACT limit is 4.8 g/BHP-hr (NOx + NMHC). Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices, and the use of ultra-low sulfur diesel fuel. | |
| EUEMENGINE: Emergency engine | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 2682.04 | Horsepower | 6.4 | G/KW-H | State of the art combustion design. | The limit is actually in ‘‘NMHC+NOx‘‘ (nonmethane hydrocarbon plus NOx), which is what is required in the NSPS. | 6 |
| Emergency Generators (2 identical, P004 and P005) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 2206 | Horsepower | 4.77 | G/BHP-H NMHC+NOX. SEE NOTES. | Certified to the meet the emissions standards in 40 CFR 89.112 and 89.113 pursuant to 40 CFR 60.4205(b) and 60.4202(a)(2).<br>Good combustion practices per the manufacturerâ€™s operating manual. | Non-methane hydrocarbon plus nitrogen oxides (NMHC+NOx) emissions shall not exceed 6.40 g/kW-hour (4.77 G/BHP-H), 23.21 pounds per hour and 1.16 tons per rolling, 12-month period. | |
| Emergency Diesel Generator Engine (P001) | OH-0375 | LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER | 11/7/2017 | 2206 | Horsepower | 4.8 | G/BHP-H NMHC+NOX. SEE NOTES. | Good combustion design | Non-methane hydrocarbon plus nitrogen oxides (NMHC+NOx) emissions shall not exceed 6.40 g/kW-h (4.8 g/hp-h), 24.71 lb/h and 1.24 t/yr per rolling, 12-month period. | |
| Emergency diesel-fired generator (P007) | OH-0376 | IRONUNITS LLC - TOLEDO HBI | 2/9/2018 | 2682 | Horsepower | 4.8 | G/BHP-H | Comply with NSPS 40 CFR 60 Subpart IIII | NOx Standard limit is 6.4 g/kW-hr (4.8 g/hp-hr).<br><br>NSPS: Non-methane hydrocarbon (NMHC) + NOX emissions shall not exceed 6.4 g/kW-hr (4.8 g/hp-hr). | |
| Emergency Generators (P005 and P006) | OH-0379 | PETMIN USA INCORPORATED | 2/6/2019 | 3131 | Horsepower | 0.5 | G/BHP-H | Tier IV engine<br>Tier IV NSPS standards certified by engine manufacturer. | NSPS: 4.8 grams NOx + NMHC/bhp-hr | |
| Emergency Generator | SC-0182 | FIBER INDUSTRIES LLC | 10/31/2017 | - | - | 0.004 | LB/HP-HR | Use of low carbon/clean fuel (propane), good combustion, operation, and maintenance practices; compliance with NSPS Subpart JJJJ | - | |
| EMERGENCY DIESEL ENGINE | TX-0864 | EQUISTAR CHEMICALS CHANNELVIEW COMPLEX | 9/9/2019 | - | - | - | - | Tier 4 exhaust emission standards specified at 40 CFR Â§ 1039.101(b) | - | |
| EMERGENCY GENERATOR | TX-0873 | PORT ARTHUR REFINERY | 2/4/2020 | - | - | - | - | Good combustion practices including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent.<br>LIMIT OPERATION 100 HR/YR | - | |
| Emergency generator | TX-0876 | PORT ARTHUR ETHANE CRACKER UNIT | 2/6/2020 | - | - | - | - | Tier 4 exhaust emission standards specified in 40 CFR Â§ 1039.101, limited to 100 hours per year of non-emergency operation | NSPS IIII, MACT ZZZZ | |

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|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Firewater Engine | TX-0879 | MOTIVA PORT ARTHUR TERMINAL | 2/19/2020 | - | - | - | - | Meeting the requirements of 40 CFR Part 60, Subpart IIII. Firing ultra-low sulfur diesel fuel (no more than 15 ppm sulfur by weight). Limited to 100 hrs/yr of non-emergency operation. Have a non-resettable runtime meter. | NSPS IIII<br>MACT ZZZZ | |
| EMERGENCY GENERATOR | TX-0904 | MOTIVA POLYETHYLENE MANUFACTURING COMPLEX | 9/9/2020 | - | - | - | - | 100 HOURS OPERATIONS, Tier 4 exhaust emission standards specified in 40 CFR Â§ 1039.101 | - | |
| EMERGENCY GENERATOR | TX-0905 | DIAMOND GREEN DIESEL PORT ARTHUR FACILITY | 9/16/2020 | - | - | - | - | limited to 100 hours per year of non-emergency operation | - | |
| Emergency Generators | TX-0933 | NACERO PENWELL FACILITY | 11/17/2021 | - | - | - | - | limited to 100 hours per year of non-emergency operation. EPA Tier 2 (40 CFR Â§ 1039.101) exhaust emission standards | - | 5 |
| Diesel-Fired Emergency Generators | WI-0284 | SIO INTERNATIONAL WISCONSIN, INC. - ENERGY PLANT | 4/24/2018 | 2923.4236 | Horsepower | 5.36 | G/KWH | The Use of Ultra-Low Sulfur Fuel and Good Combustion Practices | BACT is<br>Total hours of operation for each generator is 200 hours over a 12 month period.<br>Ultra-low sulfur fuel contains less than 15 ppm sulfur. Good combustion practices are defined as maintaining the stationary compression ignition internal combustion engine according to each manufacturerâ€™s emission-related instructions. | 6 |
| P42 -Diesel Fired Emergency Generator | WI-0286 | SIO INTERNATIONAL WISCONSIN, INC. - ENERGY PLANT | 4/24/2018 | 2346 | Horsepower | 5.36 | G/KWH | Good Combustion Practices, The Use of an Engine Turbocharger and Aftercooler. | BACT is<br>Good combustion practices are defined as maintaining the stationary compression ignition internal combustion engine according to the manufacturerâ€™s emission-related written instructions. The total hours of operation of the emergency generator may not exceed 200 hours during each consecutive 12-month period. | 7 |

[1] The RBLC query was performed using terbic IDs 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, 17.110, 17.120, 17.210, and 19.900. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "emergency" but does not contain "pump" |
| PRIMARY_FUEL | Natural gas. Manually removed emergency engines fired with natural gas or propane |
| THROUGHPUT | ≥ 2181 horsepower and ≤ 3181 horsepower. Units with throughputs outside of this range were removed. RBLC entries where the emergency generator's power rating could not be determined were included for conservatism |
| PROCESS_NOTES | Does not contain "pump" |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted unit throughput converted from kilowatts into horsepower.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

**Table C-3c. Large Fuel Oil Internal Combustion Engines Recent Permit Limitations and Determinations of BACT for $SO_2$ from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted $SO_2$ Limit | Limit Unit | Control | Notes | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Generators | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 2923 | Horsepower | 0.0078 | LB/MM BTU | Use of ultra-low sulfur diesel as fuel. | - | 4 |
| EUEMENGINE (diesel fuel emergency engine) | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 2922 | Horsepower | 15 | PPM FUEL SUPPLIER CERT. RECORDS OR TEST DATA | Good Combustion Practices and meeting NSPS Subpart IIII requirements | The emission limit above is 15 ppm using fuel supplier certification records or fuel sample test data, for each delivery of diesel fuel oil.<br><br>The diesel material limit is 15 ppm of sulfur (0.0015 percent) by weight. | 7 |
| Emergency generator EU-6006 | IN-0317 | RIVERVIEW ENERGY CORPORATION | 6/11/2019 | 2800 | Horsepower | 15 | PPM FUEL SULFUR CONTENT (ULSD) | ULSD | Unit shall use good combustion practices and energy efficiency as defined in the permit.<br>40 CFR 60, subpart IIII<br>40 CFR 63, subpart ZZZZ | |
| Emergency Generator (CC-GEN1) | IN-0359 | NUCOR STEEL | 3/30/2023 | 3000 | Horsepower | - | - | ultra-low sulfur diesel fuel (0.0015%S) | - | |
| EP 10-02 - North Water System Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | - | - | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-02, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |
| EP 10-01 - Caster Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | - | - | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-01, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |

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| EP 10-03 - South Water System Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | - | - | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-03, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |
| emergency generators (3 units) EQT0039, EQT0040, EQT0041 | LA-0350 | BENTELER STEEL TUBE FACILITY | 3/28/2018 | - | - | - | - | Comply with 40 CFR 60 Subpart IIII | - | |
| Emergency Generators (2 identical, P004 and P005) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 2206 | Horsepower | 0.0015 | LB/MMBTU | ultra-low sulfur diesel (ULSD) fuel with a sulfur content of less than 15 ppm (0.0015 percent by weight) | 0.0011 t/yr per rolling 12 month period. | |
| EMERGENCY GENERATOR | TX-0873 | PORT ARTHUR REFINERY | 2/4/2020 | - | - | 15 | PPMW SULFUR FUEL CONTENT | LOW SULFUR FUEL | - | |
| Emergency generator | TX-0876 | PORT ARTHUR ETHANE CRACKER UNIT | 2/6/2020 | - | - | 15 | PPMW TOTAL SULFUR | Tier 4 exhaust emission standards specified in 40 CFR Â§ 1039.101, limited to 100 hours per year of non-emergency operation | - | |
| EMERGENCY GENERATOR | TX-0904 | MOTIVA POLYETHYLENE MANUFACTURING COMPLEX | 9/9/2020 | - | - | - | - | 100 HOURS OPERATIONS, Tier 4 exhaust emission standards specified in 40 CFR Â§ 1039.101 | - | |
| Emergency Generators | TX-0933 | NACERO PENWELL FACILITY | 11/17/2021 | - | - | - | - | limited to 100 hours per year of non-emergency operation. EPA Tier 2 (40 CFR Â§ 1039.101) exhaust emission standards | - | 5 |
| Diesel-Fired Emergency Generators | WI-0284 | SIO INTERNATIONAL WISCONSIN, INC. - ENERGY PLANT | 4/24/2018 | 2923.4236 | Horsepower | - | - | The Use of Ultra-Low Sulfur Fuel and Good Combustion Practices | BACT is<br>Total hours of operation for each generator is 200 hours over a 12 month period.<br>Ultra-low sulfur fuel contains less than 15 ppm sulfur. Good combustion practices are defined as maintaining the stationary compression ignition internal combustion engine according to each manufacturerâ€™s emission-related instructions. | 6 |
| P42 -Diesel Fired Emergency Generator | WI-0286 | SIO INTERNATIONAL WISCONSIN, INC. - ENERGY PLANT | 4/24/2018 | 2346 | Horsepower | - | - | Good Combustion Practices and The Use of Ultra-low Sulfur Fuel | BACT is<br>The use of ultra-low sulfur diesel fuel with a sulfur content of no more than 15 ppm. Good combustion practices are defined as maintaining the stationary compression ignition internal combustion engine according to the manufacturerâ€™s emission-related written instructions. The total hours of operation of the emergency generator may not exceed 200 hours during each consecutive 12-month period. | 7 |

[1] The RBLC query was performed using terbic IDs 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, 17.110, 17.120, 17.210, and 19.900. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "emergency" but does not contain "pump" |
| PRIMARY_FUEL | Natural gas. Manually removed emergency engines fired with natural gas or propane |
| THROUGHPUT | ≥ 2181 horsepower and ≤ 3181 horsepower. Units with throughputs outside of this range were removed. RBLC entries where the emergency generator's power rating could not be determined were included for conservatism |
| PROCESS_NOTES | Does not contain "pump" |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted unit throughput converted from kilowatts into horsepower.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

**Table C-3d. Large Fuel Oil Internal Combustion Engines Recent Permit Limitations and Determinations of BACT for PM from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Particulate Matter Type | Permitted PM Limit | Limit Unit | Control | Notes | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Engines 2-19 and 3-19 (EQT0904 and EQT0905) | *LA-0381 | EUEG-5 UNIT - GEISMAR PLANT | 12/12/2019 | - | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | - | - | Comply with standards of 40 CFR 60 Subpart IIII<br>Limit operation to <= 100 hrs/yr | - | |
| 4C-6A - C/A Emergency Generator A | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.2 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4C-6A - C/A Emergency Generator A | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.2 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4C-6B - C/A Emergency Generator B | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.2 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4C-6B - C/A Emergency Generator B | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.2 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4C-6C - C/A Emergency Generator C | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.2 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4C-6C - C/A Emergency Generator C | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.2 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4M-11A - VCM Emergency Generator A | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.2 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4M-11A - VCM Emergency Generator A | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.2 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4M-11B - VCM Emergency Generator B | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.2 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4M-11B - VCM Emergency Generator B | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.2 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4C-6 CAP - C/A Emergency Generators CAP | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | - | - | Particulate matter, total; 2.5 µm (TPM2.5) | 0.11 | TONS/YEAR | Compliance with 40 CFR 60 Subpart IIII. | - | |
| 4C-6 CAP - C/A Emergency Generators CAP | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | - | - | Particulate matter, total; 10 µm (TPM10) | 0.12 | TONS/YEAR | Compliance with 40 CFR 60 Subpart IIII. | - | |
| 4M-11 CAP - VCM Emergency Generators | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | - | - | Particulate matter, total; 2.5 µm (TPM2.5) | 0.09 | TONS/YEAR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4M-11 CAP - VCM Emergency Generators | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | - | - | Particulate matter, total; 10 µm (TPM10) | 0.09 | TONS/YEAR | Compliance with 40 CFR 60 Subpart IIII | - | |
| Emergency Generators | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 2923 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.17 | G/KW-H | Good combustion practices including compliance with 40 CFR 60 Subpart IIII. | - | 4 |
| Emergency Generators | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 2923 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.17 | G/KW-H | Good combustion practices including compliance with 40 CFR 60 Subpart IIII. | - | 4 |
| EUEMENGINE (diesel fuel emergency engine) | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 2922 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 1.58 | LB/H | Good combustion practices | - | 6 |
| EUEMENGINE (diesel fuel emergency engine) | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 2922 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 1.58 | LB/H | Good combustion practices | - | 6 |
| Emergency Generator | *PA-0313 | FIRST QUALITY TISSUE LOCK HAVEN PLT | 7/27/2017 | 2500 | Horsepower | Particulate matter, total (TPM) | 0.2 | G/HP-HR | - | - | |
| Emergency generator EU-6006 | IN-0317 | RIVERVIEW ENERGY CORPORATION | 6/11/2019 | 2800 | Horsepower | Particulate matter, total (TPM) | 0.2 | G/KWH | Tier II diesel engine | Opacity: Acceleration 20%, Lugging 15%, Peak 50%<br>Unit shall use good combustion practices and energy efficiency as defined in the permit.<br>40 CFR 60, subpart IIII<br>40 CFR 63, subpart ZZZZ | |
| Emergency generator EU-6006 | IN-0317 | RIVERVIEW ENERGY CORPORATION | 6/11/2019 | 2800 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.2 | G/KWH | Tier II diesel engine | Opacity: Acceleration 20%, Lugging 15%, Peak 50%<br>Unit shall use good combustion practices and energy efficiency as defined in the permit.<br>40 CFR 60, subpart IIII<br>40 CFR 63, subpart ZZZZ | |
| Emergency generator EU-6006 | IN-0317 | RIVERVIEW ENERGY CORPORATION | 6/11/2019 | 2800 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.2 | G/KWH | Tier II diesel engine | Opacity: Acceleration 20%, Lugging 15%, Peak 50%<br>Unit shall use good combustion practices and energy efficiency as defined in the permit.<br>40 CFR 60, subpart IIII<br>40 CFR 63, subpart ZZZZ | |

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| Emergency Generator (CC-GEN1) | IN-0359 | NUCOR STEEL | 3/30/2023 | 3000 | Horsepower | Particulate matter, total (TPM) | 0.15 | G/HP-H | certified engine | - | |
| Emergency Generator (CC-GEN1) | IN-0359 | NUCOR STEEL | 3/30/2023 | 3000 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.15 | G/HP-H | certified engine | - | |
| Emergency Generator (CC-GEN1) | IN-0359 | NUCOR STEEL | 3/30/2023 | 3000 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.15 | G/HP-H | certified engine | - | |
| EP 10-02 - North Water System Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.15 | G/HP-HR | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-02, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |
| EP 10-02 - North Water System Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.15 | G/HP-HR | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-02, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |

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| EP 10-01 - Caster Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.15 | G/HP-HR | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-01, upon initial compliance demonstration but no later than 180 days aofter startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |
| EP 10-01 - Caster Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.15 | G/HP-HR | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-01, upon initial compliance demonstration but no later than 180 days aofter startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |

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| EP 10-03 - South Water System Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.15 | G/HP-HR | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-03, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |
| EP 10-03 - South Water System Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.15 | G/HP-HR | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-03, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |

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| Tunnel Furnace Emergency Generator (EP 08-06) | KY-0115 | NUCOR STEEL GALLATIN, LLC | 4/19/2021 | 2937 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.15 | G/HP-HR | The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan | The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br><br>i. A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |
| Tunnel Furnace Emergency Generator (EP 08-06) | KY-0115 | NUCOR STEEL GALLATIN, LLC | 4/19/2021 | 2937 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.15 | G/HP-HR | The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan | The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br><br>i. A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Caster B Emergency Generator (EP 08-07) | KY-0115 | NUCOR STEEL GALLATIN, LLC | 4/19/2021 | 2937 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.15 | G/HP-HR | The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan | The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br><br>i. A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |
| Caster B Emergency Generator (EP 08-07) | KY-0115 | NUCOR STEEL GALLATIN, LLC | 4/19/2021 | 2937 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.15 | G/HP-HR | The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan | The permittee shall prepare a good combustion and operations practices (GCOP) plan that defines, measures, and verifies the use of operational and design practices determined as BACT for minimizing emissions. Any revisions to the GCOP plan requested by the Division shall be made and the revisions shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br><br>i. A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii. A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii. A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |
| Emergency Generator Engines (4 units) | LA-0317 | METHANEX - GEISMAR METHANOL PLANT | 12/22/2016 | 2346 | Horsepower | Particulate matter, total; 10 µm (TPM10) | - | - | complying with 40 CFR 60 Subpart IIII and 40 CFR 63 Subpart ZZZZ | - | 6 |
| Emergency Generator Engines (4 units) | LA-0317 | METHANEX - GEISMAR METHANOL PLANT | 12/22/2016 | 2346 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | - | - | complying with 40 CFR 60 Subpart IIII and 40 CFR 63 Subpart ZZZZ | - | 6 |
| emergency generators (3 units) EQT0039, EQT0040, EQT0041 | LA-0350 | BENTELER STEEL TUBE FACILITY | 3/28/2018 | - | - | Particulate matter, total; 10 µm (TPM10) | - | - | Comply with 40 CFR 60 Subpart IIII | - | |
| emergency generators (3 units) EQT0039, EQT0040, EQT0041 | LA-0350 | BENTELER STEEL TUBE FACILITY | 3/28/2018 | - | - | Particulate matter, total; 2.5 µm (TPM2.5) | - | - | Comply with 40 CFR 60 Subpart IIII | - | |
| Emergency Engines (EQT0014 - EQT0017) | LA-0382 | BIG LAKE FUELS METHANOL PLANT | 4/25/2019 | - | - | Particulate matter, total; 10 µm (TPM10) | - | - | Comply with standards of 40 CFR 60 Subpart IIII | - | |
| Emergency Engines (EQT0014 - EQT0017) | LA-0382 | BIG LAKE FUELS METHANOL PLANT | 4/25/2019 | - | - | Particulate matter, total; 2.5 µm (TPM2.5) | - | - | Comply with standards of 40 CFR 60 Subpart IIII | - | |
| Emergency Engines (EQT0011 - EQT0016) | LA-0383 | LAKE CHARLES LNG EXPORT TERMINAL | 9/3/2020 | - | - | Particulate matter, total; 10 µm (TPM10) | - | - | Comply with 40 CFR 60 Subpart IIII | - | |
| Emergency Engines (EQT0011 - EQT0016) | LA-0383 | LAKE CHARLES LNG EXPORT TERMINAL | 9/3/2020 | - | - | Particulate matter, total; 2.5 µm (TPM2.5) | - | - | Comply with 40 CFR 60 Subpart IIII | - | |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Diesel Generator Engine | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 2937 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.15 | G/HP-HR | Compliance with 40 CFR 60 Subpart IIII, good combustion practices, and use of ultra-low sulfur diesel fuel. | BACT limit is 0.15 g/BHP-hr. Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices, and the use of ultra-low sulfur diesel fuel. | |
| Emergency Diesel Generator Engine | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 2937 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.15 | G/HP-HR | Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices, and the use of ultra-low sulfur diesel fuel. | BACT limit is 0.15 g/BHP-hr. Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices, and the use of ultra-low sulfur diesel fuel. | |
| EUEMENGINE: Emergency engine | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 2682.04 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 1.18 | LB/H | State of the art combustion design | - | 5 |
| EUEMENGINE: Emergency engine | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 2682.04 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 1.18 | LB/H | State of the art combustion design. | - | 5 |
| EUEMGD--emergency engine | MI-0447 | LBWL--ERICKSON STATION | 1/7/2021 | 2206 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 1 | LB/H | Good combustion practices, burn ultra-low diesel fuel and be NSPS compliant. | The control considered technically feasible was burning ultra-low sulfur diesel fuel. | 6 |
| EUEMGD--emergency engine | MI-0447 | LBWL--ERICKSON STATION | 1/7/2021 | 2206 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 1 | LB/H | ultra-low sulfur diesel fuel | The control considered technically feasible was burning ultra-low sulfur diesel fuel. | 6 |
| Emergency Generators (2 identical, P004 and P005) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 2206 | Horsepower | Particulate matter, total (TPM) | 0.15 | G/BHP-H | Certified to the meet the emissions standards in 40 CFR 89.112 and 89.113 pursuant to 40 CFR 60.4205(b) and 60.4202(a)(2). Good combustion practices per the manufacturerâ€™s operating manual. | PM Standard limit is 0.20 g/kW-hr (0.15 g/hp-hr). | |
| Emergency Generators (2 identical, P004 and P005) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 2206 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.15 | G/BHP-H | Certified to the meet the emissions standards in 40 CFR 89.112 and 89.113 pursuant to 40 CFR 60.4205(b) and 60.4202(a)(2). Good combustion practices per the manufacturerâ€™s operating manual. | PM Standard limit is 0.20 g/kW-hr (0.15 g/hp-hr). | |
| Emergency Generators (2 identical, P004 and P005) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 2206 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.15 | G/BHP-H | Certified to the meet the emissions standards in 40 CFR 89.112 and 89.113 pursuant to 40 CFR 60.4205(b) and 60.4202(a)(2). Good combustion practices per the manufacturerâ€™s operating manual. | PM Standard limit is 0.20 g/kW-hr (0.15 g/hp-hr). | |
| Emergency Diesel Generator Engine (P001) | OH-0375 | LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER | 11/7/2017 | 2206 | Horsepower | Particulate matter, total (TPM) | 0.15 | G/BHP-H | Good combustion design | PM Standard limit is 0.20 g/kW-hr (0.15 g/hp-hr). | |
| Emergency Diesel Generator Engine (P001) | OH-0375 | LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER | 11/7/2017 | 2206 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.15 | G/BHP-H | Good combustion design | PM Standard limit is 0.20 g/kW-hr (0.15 g/hp-hr). | |
| Emergency Diesel Generator Engine (P001) | OH-0375 | LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER | 11/7/2017 | 2206 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.15 | G/BHP-H | Good combustion design | PM Standard limit is 0.20 g/kW-hr (0.15 g/hp-hr). | |
| Emergency diesel-fired generator (P007) | OH-0376 | IRONUNITS LLC - TOLEDO HBI | 2/9/2018 | 2682 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.17 | G/BHP-H | Comply with NSPS 40 CFR 60 Subpart IIII | PM Standard limit is 0.23 g/kW-hr (0.17 g/hp-hr). NSPS: 0.20 g/kW-hr (0.15 g/hp-hr). | |
| Emergency diesel-fired generator (P007) | OH-0376 | IRONUNITS LLC - TOLEDO HBI | 2/9/2018 | 2682 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.17 | G/BHP-H | Comply with NSPS 40 CFR 60 Subpart IIII | PM Standard limit is 0.23 g/kW-hr (0.17 g/hp-hr). NSPS: 0.20 g/kW-hr (0.15 g/hp-hr). | |
| Emergency Generator | SC-0182 | FIBER INDUSTRIES LLC | 10/31/2017 | - | - | Particulate matter, total (TPM) | 0.0007 | LB/HP-HR | Use of low-carbon/clean fuel (propane), good combustion, operation, and maintenance practices; compliance with NSPS Subpart JJJJ. | - | |
| Emergency Generator | SC-0182 | FIBER INDUSTRIES LLC | 10/31/2017 | - | - | Particulate matter, total; 10 µm (TPM10) | 0.0007 | LB/HP-HR | Use of low carbon/clean fuel (propane), good combustion, operation, and maintenance practices; compliance with NSPS Subpart JJJJ | - | |
| Emergency Generator | SC-0182 | FIBER INDUSTRIES LLC | 10/31/2017 | - | - | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0007 | LB/HP-HR | Use of low carbon/clean fuel (propane), good combustion, operation, and maintenance practices; compliance with NSPS Subpart JJJJ | - | |
| EMERGENCY DIESEL ENGINE | TX-0864 | EQUISTAR CHEMICALS CHANNELVIEW COMPLEX | 9/9/2019 | - | - | Particulate matter, total (TPM) | - | - | Tier 4 exhaust emission standards specified at 40 CFR Â§ 1039.101(b) | - | |
| EMERGENCY DIESEL ENGINE | TX-0864 | EQUISTAR CHEMICALS CHANNELVIEW COMPLEX | 9/9/2019 | - | - | Particulate matter, total; 10 µm (TPM10) | - | - | Tier 4 exhaust emission standards specified at 40 CFR Â§ 1039.101(b) | - | |
| EMERGENCY DIESEL ENGINE | TX-0864 | EQUISTAR CHEMICALS CHANNELVIEW COMPLEX | 9/9/2019 | - | - | Particulate matter, total; 2.5 µm (TPM2.5) | - | - | Tier 4 exhaust emission standards specified at 40 CFR Â§ 1039.101(b) | - | |
| EMERGENCY GENERATOR | TX-0873 | PORT ARTHUR REFINERY | 2/4/2020 | - | - | Particulate matter, total (TPM) | - | - | Good combustion practices including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent. LIMIT OPERATION 100 HR/YR | - | |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| EMERGENCY GENERATOR | TX-0873 | PORT ARTHUR REFINERY | 2/4/2020 | - | - | Particulate matter, total; 10 µm (TPM10) | - | - | Good combustion practices including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent. LIMIT OPERATION 100 HR/YR | - | |
| EMERGENCY GENERATOR | TX-0873 | PORT ARTHUR REFINERY | 2/4/2020 | - | - | Particulate matter, total; 2.5 µm (TPM2.5) | - | - | Good combustion practices including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent. LIMIT OPERATION 100 HR/YR | - | |
| One (1) emergency engine generator | VA-0333 | NORFOLK NAVAL SHIPYARD | 12/9/2020 | 2220 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 1.1 | LB/HR | - | - | |
| One (1) emergency engine generator | VA-0333 | NORFOLK NAVAL SHIPYARD | 12/9/2020 | 2220 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 1.1 | LB/HR | - | - | |
| Diesel-Fired Emergency Generators | WI-0284 | SIO INTERNATIONAL WISCONSIN, INC. -ENERGY PLANT | 4/24/2018 | 2923.4236 | Horsepower | Particulate matter, total (TPM) | 0.17 | G/KWH | The Use of Ultra-Low Sulfur Fuel and Good Combustion Practices | BACT is Total hours of operation for each generator is 200 hours over a 12 month period. Ultra-low sulfur fuel contains less than 15 ppm sulfur. Good combustion practices are defined as maintaining the stationary compression ignition internal combustion engine according to each manufacturerâ€™s emission-related instructions. | |
| Diesel-Fired Emergency Generators | WI-0284 | SIO INTERNATIONAL WISCONSIN, INC. -ENERGY PLANT | 4/24/2018 | 2923.4236 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.17 | G/KWH | The Use of Ultra-Low Sulfur Fuel and Good Combustion Practices | BACT is Total hours of operation for each generator is 200 hours over a 12 month period. Ultra-low sulfur fuel contains less than 15 ppm sulfur. Good combustion practices are defined as maintaining the stationary compression ignition internal combustion engine according to each manufacturerâ€™s emission-related instructions. | 5 |
| Diesel-Fired Emergency Generators | WI-0284 | SIO INTERNATIONAL WISCONSIN, INC. -ENERGY PLANT | 4/24/2018 | 2923.4236 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.17 | G/KWH | The Use of Ultra-Low Sulfur Fuel and Good Combustion Practices | BACT is Total hours of operation for each generator is 200 hours over a 12 month period. Ultra-low sulfur fuel contains less than 15 ppm sulfur. Good combustion practices are defined as maintaining the stationary compression ignition internal combustion engine according to each manufacturerâ€™s emission-related instructions. | 5 |
| P42 -Diesel Fired Emergency Generator | WI-0286 | SIO INTERNATIONAL WISCONSIN, INC. -ENERGY PLANT | 4/24/2018 | 2346 | Horsepower | Particulate matter, total (TPM) | 17 | G/KWH | Good Combustion Practices and The Use of Ultra-low Sulfur Fuel | BACT is The use of ultra-low sulfur diesel fuel with a sulfur content of no more than 15 ppm. Good combustion practices are defined as maintaining the stationary compression ignition internal combustion engine according to the manufacturerâ€™s emission-related written instructions. The total hours of operation of the emergency generator may not exceed 200 hours during each consecutive 12-month period. | 6 |
| P42 -Diesel Fired Emergency Generator | WI-0286 | SIO INTERNATIONAL WISCONSIN, INC. -ENERGY PLANT | 4/24/2018 | 2346 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.17 | G/KWH | Good Combustion Practices and The Use of Ultra-low Sulfur Fuel | BACT is The use of ultra-low sulfur diesel fuel with a sulfur content of no more than 15 ppm. Good combustion practices are defined as maintaining the stationary compression ignition internal combustion engine according to the manufacturerâ€™s emission-related written instructions. The total hours of operation of the emergency generator may not exceed 200 hours during each consecutive 12-month period. | 6 |

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| P42 -Diesel Fired Emergency Generator | WI-0286 | SIO INTERNATIONAL WISCONSIN, INC. -ENERGY PLANT | 4/24/2018 | 2346 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.17 | G/KWH | Good Combustion Practices and The Use of Ultra-low Sulfur Fuel | BACT is<br>The use of ultra-low sulfur diesel fuel with a sulfur content of no more than 15 ppm. Good combustion practices are defined as maintaining the stationary compression ignition internal combustion engine according to the manufacturerâ€™s emission-related written instructions. The total hours of operation of the emergency generator may not exceed 200 hours during each consecutive 12-month period. | 6 |

[1] The RBLC query was performed using terbic IDs 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, 17.110, 17.120, 17.210, and 19.900. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "emergency" but does not contain "pump" |
| PRIMARY_FUEL | Natural gas. Manually removed emergency engines fired with natural gas or propane |
| THROUGHPUT | ≥ 2181 horsepower and ≤ 3181 horsepower. Units with throughputs outside of this range were removed. RBLC entries where the emergency generator's power rating could not be determined were included for conservatism |
| PROCESS_NOTES | Does not contain "pump" |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Permitted unit throughput converted from kilowatts into horsepower.

[6] Permitted unit throughput(s) per RBLC entry's process notes.

**Table C-3e. Large Fuel Oil Internal Combustion Engines Recent Permit Limitations and Determinations of BACT for VOC from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted VOC Limit | Limit Unit | Control | Notes | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|
| 4C-6A - C/A Emergency Generator A | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | 6.4 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4C-6B - C/A Emergency Generator B | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | 6.4 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4C-6C - C/A Emergency Generator C | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | 6.4 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4M-11A - VCM Emergency Generator A | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | 6.4 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4M-11B - VCM Emergency Generator B | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | 6.4 | G/KW-HR | Compliance with 40 CFR 60 Subpart IIII | - | |
| 4C-6 CAP - C/A Emergency Generators CAP | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | - | - | 0.94 | TONS/YEAR | Compliance with 40 CFR 60 Subpart IIII. | - | |
| 4M-11 CAP - VCM Emergency Generators | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | - | - | 0.68 | TONS/YEAR | Compliance with 40 CFR 60 Subpart IIII | - | |
| Emergency Generators | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 2923 | Horsepower | 0.56 | G/KW-H | Good combustion practices including compliance with 40 CFR 60 Subpart IIII. | - | 4 |
| Emergency Generator | *PA-0313 | FIRST QUALITY TISSUE LOCK HAVEN PLT | 7/27/2017 | 2500 | Horsepower | 3.5 | G/KW-HR | - | - | |
| Emergency generator EU-6006 | IN-0317 | RIVERVIEW ENERGY CORPORATION | 6/11/2019 | 2800 | Horsepower | 6.4 | G/KWH TIER II NOX + NMHC LIMIT | Tier II diesel engine | Unit shall use good combustion practices and energy efficiency as defined in the permit.<br>40 CFR 60, subpart IIII<br>40 CFR 63, subpart ZZZZ | |
| Emergency Generator (CC-GEN1) | IN-0359 | NUCOR STEEL | 3/30/2023 | 3000 | Horsepower | 0.32 | G/HP-HR | certified engine | - | |
| EP 10-02 - North Water System Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | - | - | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-02, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |

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| EP 10-01 - Caster Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | - | - | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-01, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |
| EP 10-03 - South Water System Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | - | - | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-03, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |
| Emergency Diesel Fired IC Engines (EQT0454 - EQT0459) | LA-0339 | SHINTECH PLAQUEMINE PLANT 3 | 1/19/2021 | - | - | 4 | G/KW-HR NMEHC + NOX | Compliance with 40 CFR 60 Subpart IIII | - | |
| emergency generators (3 units) EQT0039, EQT0040, EQT0041 | LA-0350 | BENTELER STEEL TUBE FACILITY | 3/28/2018 | - | - | - | - | Comply with 40 CFR 60 Subpart IIII | - | |
| Emergency Engines (EQT0014 - EQT0017) | LA-0382 | BIG LAKE FUELS METHANOL PLANT | 4/25/2019 | - | - | - | - | Comply with standards of 40 CFR 60 Subpart IIII | - | |
| Emergency Engines (EQT0011 - EQT0016) | LA-0383 | LAKE CHARLES LNG EXPORT TERMINAL | 9/3/2020 | - | - | - | - | Comply with 40 CFR 60 Subpart IIII | - | |

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|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Diesel Generator Engine | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 2937 | Horsepower | 4.8 | G/HP-HR | Compliance with 40 CFR 60 Subpart IIII standards, good combustion practices, and the use of ultra-low sulfur diesel fuel. | BACT limit is 4.8 g/BHP-hr (NOx + NMHC). Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices, and the use of ultra-low sulfur diesel fuel. | |
| EUEMENGINE: Emergency engine | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 2682.04 | Horsepower | 1.89 | LB/H | State of the art combustion design. | - | 6 |
| Emergency Generators (2 identical, P004 and P005) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 2206 | Horsepower | 4.77 | G/BHP-H NMHC+NOX. SEE NOTES. | Certified to the meet the emissions standards in 40 CFR 89.112 and 89.113 pursuant to 40 CFR 60.4205(b) and 60.4202(a)(2). Good combustion practices per the manufacturerâ€™s operating manual. | Non-methane hydrocarbon plus nitrogen oxides (NMHC+NOx) emissions shall not exceed 6.40 g/kW-hour (4.77 G/BHP-H), 23.21 pounds per hour and 1.16 tons per rolling, 12-month period. | |
| Emergency Diesel Generator Engine (P001) | OH-0375 | LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER | 11/7/2017 | 2206 | Horsepower | 4.8 | G/BHP-H NMHC+NOX. SEE NOTES. | Good combustion design | Non-methane hydrocarbon plus nitrogen oxides (NMHC+NOx) emissions shall not exceed 6.40 g/kW-h (4.8 g/hp-h), 24.71 lb/h and 1.24 t/yr per rolling, 12-month period. | |
| Emergency Generator | SC-0182 | FIBER INDUSTRIES LLC | 10/31/2017 | - | - | 0.002 | LB/HP-HR | Use of low carbon/clean fuel (propane), good combustion, operation, and maintenance practices; compliance with NSPS Subpart JJJJ | - | |
| Emergency Generators | TX-0872 | CONDENSATE SPLITTER FACILITY | 10/31/2019 | - | - | 0.12 | G/KW HR | Limiting duration and frequency of generator use to 100 hr/yr. Good combustion practices will be used to reduce VOC including maintaining proper air-to-fuel ratio. | NSPS IIII, MACT ZZZZ | |
| Emergency Generators | TX-0872 | CONDENSATE SPLITTER FACILITY | 10/31/2019 | - | - | 0.12 | G/KW HR | Limiting duration and frequency of generator use to 100 hr/yr. Good combustion practices will be used to reduce VOC including maintaining proper air-to-fuel ratio. | NSPS IIII, MACT ZZZZ | |
| EMERGENCY GENERATOR | TX-0873 | PORT ARTHUR REFINERY | 2/4/2020 | - | - | - | - | Good combustion practices including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent. LIMIT OPERATION 100 HR/YR | - | |
| Emergency generator | TX-0876 | PORT ARTHUR ETHANE CRACKER UNIT | 2/6/2020 | - | - | - | - | Tier 4 exhaust emission standards specified in 40 CFR Â§ 1039.101, limited to 100 hours per year of non-emergency operation | NSPS IIII, MACT ZZZZ | |
| Emergency Firewater Engine | TX-0879 | MOTIVA PORT ARTHUR TERMINAL | 2/19/2020 | - | - | 0.1 | G/HP HR | Meeting the requirements of 40 CFR Part 60, Subpart IIII. Firing ultra-low sulfur diesel fuel (no more than 15 ppm sulfur by weight). Limited to 100 hrs/yr of non-emergency operation. Have a non-resettable runtime meter. | NSPS IIII MACT ZZZZ | |
| EMERGENCY GENERATOR | TX-0904 | MOTIVA POLYETHYLENE MANUFACTURING COMPLEX | 9/9/2020 | - | - | - | - | 100 HOURS OPERATIONS, Tier 4 exhaust emission standards specified in 40 CFR Â§ 1039.101 | - | |
| EMERGENCY GENERATOR | TX-0905 | DIAMOND GREEN DIESEL PORT ARTHUR FACILITY | 9/16/2020 | - | - | - | - | limited to 100 hours per year of non-emergency operation | - | |
| Emergency Generators | TX-0933 | NACERO PENWELL FACILITY | 11/17/2021 | - | - | - | - | limited to 100 hours per year of non-emergency operation. EPA Tier 2 (40 CFR Â§ 1039.101) exhaust emission standards | - | 5 |
| EMERGENCY GENERATOR | TX-0939 | ORANGE COUNTY ADVANCED POWER STATION | 3/13/2023 | 2922 | Horsepower | 0.001 | LB/HP HR | GOOD COMBUSTION PRACTICES, LIMITED TO 100 HR/YR | - | 8 |
| EMERGENCY ENGINES | TX-0962 | POINT COMFORT PLANT | 9/22/2023 | - | - | - | - | 601 hp and 100 hours of non-emergency operation per year. Good combustion practices. | - | |
| Diesel-Fired Emergency Generators | WI-0284 | SIO INTERNATIONAL WISCONSIN, INC. - ENERGY PLANT | 4/24/2018 | 2923.4236 | Horsepower | 0.56 | G/KWH | Good Combustion Practices | BACT is Total hours of operation for each generator is 200 hours over a 12 month period. Good combustion practices are defined as maintaining the stationary compression ignition internal combustion engine according to each manufacturerâ€™s emission-related instructions. | 6 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| P42 -Diesel Fired Emergency Generator | WI-0286 | SIO INTERNATIONAL WISCONSIN, INC. - ENERGY PLANT | 4/24/2018 | 2346 | Horsepower | 0.56 | G/KWH | Good Combustion Practices | Good combustion practices are defined as maintaining the stationary compression ignition internal combustion engine according to the manufacturerâ€™s emission-related written instructions. The total hours of operation of the emergency generator may not exceed 200 hours during each consecutive 12-month period. | 7 |

[1] The RBLC query was performed using terbic IDs 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, 17.110, 17.120, 17.210, and 19.900. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "emergency" but does not contain "pump" |
| PRIMARY_FUEL | Natural gas. Manually removed emergency engines fired with natural gas or propane |
| THROUGHPUT | ≥ 2181 horsepower and ≤ 3181 horsepower. Units with throughputs outside of this range were removed. RBLC entries where the emergency generator's power rating could not be determined were included for conservatism |
| PROCESS_NOTES | Does not contain "pump" |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted unit throughput converted from kilowatts into horsepower.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted unit throughput per special conditions section of Texas Commission of Environmental Quality permit 166032.

**Table C-3f. Large Fuel Oil Internal Combustion Engines Recent Permit Limitations and Determinations of BACT for GHGs from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted GHG Limit | Limit Unit | Control | Notes | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Engines 2-19 and 3-19 (EQT0904 and EQT0905) | *LA-0381 | EUEG-5 UNIT - GEISMAR PLANT | 12/12/2019 | - | Horsepower | - | - | Good engine design<br>Good work practices | - | |
| 4C-6A - C/A Emergency Generator A | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | - | - | BACT is determined to be the implementation of the following energy efficiency measures: Improved Combustion Measures, Insulation, and Minimization of Air Infiltration | - | |
| 4C-6B - C/A Emergency Generator B | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | - | - | BACT is determined to be the implementation of the following energy efficiency measures: Improved Combustion Measures, Insulation, and Minimization of Air Infiltration | - | |
| 4C-6C - C/A Emergency Generator C | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | 2346 | Horsepower | - | - | BACT is determined to be the implementation of the following energy efficiency measures: Improved Combustion Measures, Insulation, and Minimization of Air Infiltration | - | |
| 4C-6 CAP - C/A Emergency Generators CAP | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | - | - | 403 | TONS/YEAR | BACT is determined to be the implementation of the following energy efficiency measures: Improved Combustion Measures, Insulation, and Minimization of Air Infiltration | - | |
| 4M-11 CAP - VCM Emergency Generators | *LA-0403 | SHINTECH PLAQUEMINE PLANT 4 | 12/16/2024 | - | - | 303 | TONS/YEAR | BACT is determined to be the implementation of the following energy efficiency measures: Improved Combustion Measures, Insulation, and Minimization of Air Infiltration | - | |
| Emergency Generators | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 2923 | Horsepower | 180 | T/YR | Good combustion practices including compliance with 40 CFR 60 Subpart IIII. | - | 4 |
| EUEMENGINE (diesel fuel emergency engine) | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 2922 | Horsepower | 928 | T/YR | Good combustion practices | The emission limit above is 928 tons per year based upon a 12-month rolling time period as determined at the end of each calendar month. | 7 |
| Emergency generator EU-6006 | IN-0317 | RIVERVIEW ENERGY CORPORATION | 6/11/2019 | 2800 | Horsepower | 811 | TONS/12 CONSECUTIVE MONTHS | Tier II diesel engine | Unit shall use good combustion practices and energy efficiency as defined in the permit.<br>40 CFR 60, subpart IIII<br>40 CFR 63, subpart ZZZZ | |
| Emergency Generator (CC-GEN1) | IN-0359 | NUCOR STEEL | 3/30/2023 | 3000 | Horsepower | 163.6 | LB/MMBTU | Good engineering design and manufacturerâ€™s recommended operating and maintenance procedures. | - | |
| Emergency Generator (2000 kW) | IN-0371 | WABASH VALLEY RESOURCES, LLC | 1/11/2024 | 2682.04 | Horsepower | 778 | TONS/PER TWELVE (12) CONSECUTIVE MONTH PERIOD | Good Combustion Practices | - | 6 |
| EP 10-02 - North Water System Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | - | - | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-02, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| EP 10-01 - Caster Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | - | - | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-01, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |
| EP 10-03 - South Water System Emergency Generator | KY-0110 | NUCOR STEEL BRANDENBURG | 7/23/2020 | 2922 | Horsepower | - | - | This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan. | The permittee shall prepare and maintain for EP 10-03, upon initial compliance demonstration but no later than 180 days after startup, a good combustion and operation practices (GCOP) plan that defines, measures and verifies the use of operational and design practices determined as BACT for minimizing PM, PM10, PM2.5, NOx, CO, SO2, VOC, and GHG emissions. Any revisions to the GCOP plan requested by the Division shall be made and the plan shall be maintained on site. The permittee shall operate according to the provisions of this plan at all times, including periods of startup, shutdown, and malfunction. The plan shall be incorporated into the plant standard operating procedures (SOP) and shall be made available for the Divisionâ€™s inspection. The plan shall include, but not be limited to:<br>i.A list of combustion optimization practices and a means of verifying the practices have occurred.<br>ii.A list of combustion and operation practices to be used to lower energy consumption and a means of verifying the practices have occurred.<br>iii.A list of the design choices determined to be BACT and verification that designs were implemented in the final construction. | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Generator Engines (4 units) | LA-0317 | METHANEX - GEISMAR METHANOL PLANT | 12/22/2016 | 2346 | Horsepower | - | - | complying with 40 CFR 60 Subpart IIII and 40 CFR 63 Subpart ZZZZ | - | 7 |
| Emergency Diesel Fired IC Engines (EQT0454 - EQT0459) | LA-0339 | SHINTECH PLAQUEMINE PLANT 3 | 1/19/2021 | - | - | - | - | Energy efficiency measures to minimize the amount of fuel used | - | |
| Emergency Engines (EQT0011 - EQT0016) | LA-0383 | LAKE CHARLES LNG EXPORT TERMINAL | 9/3/2020 | - | - | - | - | Comply with 40 CFR 60 Subpart IIII | - | |
| Emergency Diesel Generator Engine | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 2937 | Horsepower | 74.21 | KG/MM BTU | Compliance with 40 CFR 60 Subpart IIII, good combustion practices, and the use of ultra-low sulfur diesel fuel. | BACT limit is 74.21 kg/MM BTU (163.61 lb/MM BTU). Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices, and the use of ultra-low sulfur diesel fuel. | |
| EUEMENGINE: Emergency engine | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 2682.04 | Horsepower | 161 | T/YR | Energy efficient design. | - | 6 |
| EUEMGD--emergency engine | MI-0447 | LBWL--ERICKSON STATION | 1/7/2021 | 2206 | Horsepower | 590 | T/YR | low carbon fuel (pipeline quality natural gas), good combustion practices, and energy efficiency measures. | Emission Limit 1 = 590 tons/year based upon a 12-month rolling time period as determined at the end of each calendar month.<br><br>Carbon capture and sequestration (CCS) would not be economically feasible based upon a qualitative assessment based upon the CTG/HRSG train analysis. | 7 |
| Emergency Generators (2 identical, P004 and P005) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 2206 | Horsepower | 120 | T/YR | good operating practices (proper maintenance and operation) | - | |
| Emergency Diesel Generator Engine (P001) | OH-0375 | LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER | 11/7/2017 | 2206 | Horsepower | 116.8 | T/YR | Efficient design | - | |
| Emergency diesel-fired generator (P007) | OH-0376 | IRONUNITS LLC - TOLEDO HBI | 2/9/2018 | 2682 | Horsepower | 163.6 | LB/MMBTU | Equipment design and maintenance requirements | - | |
| Emergency Generators (P005 and P006) | OH-0379 | PETMIN USA INCORPORATED | 2/6/2019 | 3131 | Horsepower | 526.6 | G/BHP-H | Tier IV engine<br>Good combustion practices | - | |
| Emergency Generator | SC-0182 | FIBER INDUSTRIES LLC | 10/31/2017 | - | - | 200 | OPERATING HR/YR | Use of low carbon/clean fuel (propane), good combustion, operation, and maintenance practices; compliance with NSPS Subpart JJJJ | - | |
| EMERGENCY DIESEL ENGINE | TX-0864 | EQUISTAR CHEMICALS CHANNELVIEW COMPLEX | 9/9/2019 | - | - | - | - | Tier 4 exhaust emission standards specified at 40 CFR Â§ 1039.101(b) | - | |
| Emergency Generators | TX-0872 | CONDENSATE SPLITTER FACILITY | 10/31/2019 | - | - | - | - | Limiting duration and frequency of generator use to 100 hr/yr. Good combustion practices will be used to reduce VOC including maintaining proper air-to-fuel ratio. | - | |
| Emergency Generators | TX-0872 | CONDENSATE SPLITTER FACILITY | 10/31/2019 | - | - | - | - | Limiting duration and frequency of generator use to 100 hr/yr. Good combustion practices will be used to reduce VOC including maintaining proper air-to-fuel ratio. | - | |
| EMERGENCY GENERATOR | TX-0873 | PORT ARTHUR REFINERY | 2/4/2020 | - | - | - | - | Good combustion practices including maintain proper air-to-fuel ratio, necessary residence time, temperature and turbulent.<br>LIMIT OPERATION 100 HR/YR | - | |
| Emergency generator | TX-0876 | PORT ARTHUR ETHANE CRACKER UNIT | 2/6/2020 | - | - | - | - | Tier 4 exhaust emission standards specified in 40 CFR Â§ 1039.101, limited to 100 hours per year of non-emergency operation | - | |
| EMERGENCY GENERATOR | TX-0905 | DIAMOND GREEN DIESEL PORT ARTHUR FACILITY | 9/16/2020 | - | - | - | - | limited to 100 hours per year of non-emergency operation | - | |
| Emergency Generators | TX-0933 | NACERO PENWELL FACILITY | 11/17/2021 | - | - | - | - | limited to 100 hours per year of non-emergency operation. EPA Tier 2 (40 CFR Â§ 1039.101) exhaust emission standards | - | 5 |
| EMERGENCY GENERATOR | TX-0939 | ORANGE COUNTY ADVANCED POWER STATION | 3/13/2023 | 2922 | Horsepower | - | - | GOOD COMBUSTION PRACTICES, LIMITED TO 100 HR/YR | - | 8 |
| One (1) emergency engine generator | VA-0333 | NORFOLK NAVAL SHIPYARD | 12/9/2020 | 2220 | Horsepower | 2.543 | LB/HR | - | - | |
| Diesel-Fired Emergency Generators | WI-0284 | SIO INTERNATIONAL WISCONSIN, INC. - ENERGY PLANT | 4/24/2018 | 2923.42 | Horsepower | - | - | The Use of Ultra-Low Sulfur Fuel and Good Combustion Practices | BACT is<br>Total hours of operation for each generator is 200 hours over a 12 month period. Ultra-low sulfur fuel contains less than 15 ppm sulfur. Good combustion practices are defined as maintaining the stationary compression ignition internal combustion engine according to each manufacturerâ€™s emission-related instructions. | 6 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| P42 -Diesel Fired Emergency Generator | WI-0286 | SIO INTERNATIONAL WISCONSIN, INC. - ENERGY PLANT | 4/24/2018 | 2346 | Horsepower | - | - | Good Combustion Practices and The Use of Ultra-low Sulfur Fuel | BACT is<br>The use of ultra-low sulfur diesel fuel with a sulfur content of no more than 15 ppm. Good combustion practices are defined as maintaining the stationary compression ignition internal combustion engine according to the manufacturerâ€™s emission-related written instructions. The total hours of operation of the emergency generator may not exceed 200 hours during each consecutive 12-month period. | 7 |

[1] The RBLC query was performed using terbic IDs 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, 17.110, 17.120, 17.210, and 19.900. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "emergency" but does not contain "pump" |
| PRIMARY_FUEL | Natural gas. Manually removed emergency engines fired with natural gas or propane |
| THROUGHPUT | ≥ 2181 horsepower and ≤ 3181 horsepower. Units with throughputs outside of this range were removed. RBLC entries where the emergency generator's power rating could not be determined were included for conservatism |
| PROCESS_NOTES | Does not contain "pump" |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted unit throughput converted from kilowatts into horsepower.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted unit throughput per special conditions section of Texas Commission of Environmental Quality permit 166032.

**Table C-3g. Large Fuel Oil Internal Combustion Engines Recent Permit Limitations and Determinations of BACT for $H_2SO_4$ from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted $H_2SO_4$ Limit | Limit Unit | Control | Notes | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|
| EUEMENGINE: Emergency engine | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 2682.04 | Horsepower | 15 | PPM FUEL SUPPLIER RECORDS OR TEST DATA | Good combustion practices, low sulfur fuel. | The diesel material limit is 15 ppm of sulfur (0.0015 percent) by weight. Fuel supplier certification records or fuel sample test data, for each delivery of diesel fuel oil. | 4 |
| Emergency Generators (2 identical, P004 and P005) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 2206 | Horsepower | 0.00023 | lb/MMBtu | ultra-low sulfur diesel (ULSD) fuel with a sulfur content of less than 15 ppm (0.0015 percent by weight) | 0.00023 lb/MMBtu | 5 |
| Emergency Diesel Generator Engine (P001) | OH-0375 | LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER | 11/7/2017 | 2206 | Horsepower | 0.00011 | lb/MMBtu | Low sulfur fuel | 0.00011 lb/MMBtu | 5 |

[1] The RBLC query was performed using terbic IDs 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, 17.110, 17.120, 17.210, and 19.900. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "emergency" but does not contain "pump" |
| PRIMARY_FUEL | Natural gas. Manually removed emergency engines fired with natural gas or propane |
| THROUGHPUT | ≥ 2181 horsepower and ≤ 3181 horsepower. Units with throughputs outside of this range were removed. RBLC entries where the emergency generator's power rating could not be determined were included for conservatism |
| PROCESS_NOTES | Does not contain "pump" |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Permitted unit throughput converted from kilowatts into horsepower.

[5] Permitted pollutant limit(s) and limit unit(s) per RBLC entry's pollutant compliance notes.

**Table C-4a. Small Fuel Oil Internal Combustion Engines Recent Permit Limitations and Determinations of BACT for CO from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted CO Limit | Limit Unit | Control | Note | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Water Pumps | *AR-0191 | HYBAR | 10/2/2025 | 376 | Horsepower | 3.03 | G/BHP-HR | Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII | - | 10 |
| Pump Engines DFP-16-1 (EQT036) | *LA-0306 | TOPCHEM POLLOCK, LLC | 12/20/2016 | 225 | Horsepower | 2.6 | g/hp-hr | Meet NSPS Subpart IIII Limitations and Good Combustion Practices | 2.6 g/hp-hr | 9 |
| Pump Engine DFP-16 2 (EQT037) | *LA-0306 | TOPCHEM POLLOCK, LLC | 12/20/2016 | 225 | Horsepower | 2.6 | g/hp-hr | Meet NSPS Subpart IIII Limitations and Good Combustion Practices | 2.6 g/hp-hr | 9 |
| FWP-03 - Firewater Pump Engine No. 3 | *LA-0401 | KOCH METHANOL (KME) FACILITY | 12/20/2023 | 237 | Horsepower | 0.5 | LB/HR | Compliance with the requirements of 40 CFR 60 Subpart IIII | - | |
| Fire Water Pumps | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 282 | Horsepower | 0.6 | G/KW-H | Good combustion practices including compliance with 40 CFR 60 Subpart IIII. | - | 4 |
| EUFPENGINE (Emergency engine-diesel fire pump | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 260 | Horsepower | 2.6 | G/BHP-H | Good Combustion Practices and meeting NSPS Subpart IIII requirements | On average, an oxidation catalyst is greater than $308,000/ton for CO and VOC together. | 6 |
| Fire Pump; S06/P06 â€" Emergency Diesel Fire Pump | *WI-0326 | NEMADJI TRAIL ENERGY CENTER | 9/19/2023 | 282 | Horsepower | 2.6 | G/HP-HR | Good combustion practices:<br>(a) P06 may not operate more than 500 hours per each 12 rolling calendar months.<br>(b) P06 shall be operated and maintained according to the manufacturerâ€™s recommendations.<br>(c) Carbon monoxide emission from P06 may not exceed 2.6 g/hp-hr. | - | 4 |
| P06 (Emergency Fire Pump) | *WI-0336 | WPL â€" SHEBOYGAN FALLS ENERGY FACILITY | 7/22/2025 | 350 | Horsepower | 2.08 | IB/HR | Good Combustion Practices | Inspecting and maintaining the fire pump as specified in item 4 in Table 2d to 40 CFR part 63, subpart ZZZZ.<br><br>Use low sulfur diesel fuel with sulfur content no greater than 15 ppm by weight.<br><br>Hours of operation may not exceed 52 hrs in any 12 consecutive month period. | 6 |
| Fire Water Pump | *WV-0033 | MAIDSVILLE | 1/5/2022 | 240 | Horsepower | 1.38 | LB/HR | Good Combustion Practices w/ OxCat. Applicant did not justify why an oxcat is infeasible for an emergency engine | Certified Engine | |
| Fire Pump Diesel Internal Combustion Engines | AK-0084 | DONLIN GOLD PROJECT | 6/30/2017 | 252 | Horsepower | 3.3 | G/KW-HR | Good Combustion Practices | NSPS Subpart IIII engines | |
| Three (3) Firewater Pump Engines and two (2) Emergency Diesel Generators | AK-0085 | GAS TREATMENT PLANT | 8/13/2020 | 335 | Horsepower | 3.3 | G/HP-HR | Good combustion practices, limit operation to 500 hours per year per engine | EUs 40 - 44 are required to achieve EPA Tier 3 emission status. 3.3 g/hp-hr limit includes a 25% not to exceed factor of safety. | 5,6 |
| Emergency Water Pumps | AR-0173 | BIG RIVER STEEL LLC | 1/31/2022 | 376 | Horsepower | 3.03 | G/BHP-HR | Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII | - | 11 |
| Emergency Water Pumps | AR-0180 | HYBAR LLC | 4/28/2023 | 376 | Horsepower | 3.03 | G/BHP-HR | Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII | - | 12 |
| Emergency Fire Pump Engine (347 HP) | FL-0367 | SHADY HILLS COMBINED CYCLE FACILITY | 7/27/2018 | 347 | Horsepower | 3.5 | G/KW-HOUR | Operate and maintain the engine according to the manufacturer's written instructions | Certified engine, no testing required | 7 |
| Emergency Fire Pump Engine (347 HP) | FL-0371 | SHADY HILLS COMBINED CYCLE FACILITY | 6/7/2021 | 347 | Horsepower | 3.5 | G/KW-HOUR | - | - | 7 |
| Fire Water Pump Engine | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 320 | Horsepower | 3.5 | GRAMS | - | Emission Limit 1 is consistent with the NSPS, 40 CFR 60 Subpart IIII. | 4 |
| Firewater Pump Engine | IL-0134 | CRONUS CHEMICALS | 12/21/2023 | 369 | Horsepower | 3.5 | G/KW-HR | - | Limit 1 is consistent with NSPS IIII | |

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|---|---|---|---|---|---|---|---|---|---|---|
| Emergency fire pump | IN-0382 | DUKE ENERGY INDIANA, INC.-CAYUGA GENERATING STATION | 2/14/2025 | 300 | Horsepower | - | - | good combustion practices | CO emissions from the diesel-fired emergency fire pump shall be controlled by good combustion practices.<br><br>The Permittee shall comply with the requirements of 40 CFR 60, Subpart IIII. | 4 |
| emergency fire water pump | IN-0384 | SYCAMORE RIVERSIDE ENERGY LLC | 3/31/2025 | 282 | Horsepower | 2.6 | G/HP-HR | Good Combustion practices, low sulfur fuel | - | 4 |
| Emergency Diesel Engine Pump P-39A | LA-0328 | PLAQUEMINES PLANT 1 | 5/2/2018 | 375 | Horsepower | 3.5 | g/kW-h | Compliance with 40 CFR 60 Subpart IIII | BACT Limit Units is g/kW-h. | 9 |
| Emergency Diesel Engine Pump P-39B | LA-0328 | PLAQUEMINES PLANT 1 | 5/2/2018 | 300 | Horsepower | 3.5 | g/kW-h | Compliance with 40 CFR 60 Subpart IIII | BACT limit units are g/kW-h. | 9 |
| Emergency Diesel Fired Water Pump Engine | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 355 | Horsepower | 2.6 | G/HP-HR | Compliance with 40 CFR 60 Subpart IIII, good combustion practices, and the use of ultra-low sulfur diesel fuel. | BACT limit is 2.6 g/BHP-hr. Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices, and the use of ultra low sulfur diesel fuel. | |
| EUFPENGINE (South Plant): Fire pump engine | MI-0433 | MEC NORTH, LLC AND MEC SOUTH LLC | 6/29/2018 | 300 | Horsepower | 2.6 | G/BPH-H | Good combustion practices and meeting NSPS Subpart IIII requirements. | An oxidation catalyst is $39,500/ton for PM10, CO and VOC together. | |
| EUFPENGINE (North Plant): Fire pump engine | MI-0433 | MEC NORTH, LLC AND MEC SOUTH LLC | 6/29/2018 | 300 | Horsepower | 2.6 | G/BHP-H | Good combustion practices and meeting NSPS Subpart IIII requirements. | An oxidation catalyst is $39,500/ton for PM10, CO and VOC together. | |
| EUFPENGINE: Fire pump engine | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 399 | Horsepower | 3.5 | G/KW-H | State of the art combustion design. | - | |
| EUFPENGINE (North Plant): Fire Pump Engine | MI-0451 | MEC NORTH, LLC | 6/23/2022 | 300 | Horsepower | 2.6 | G/B-HP-H | Good combustion practices and meeting NSPS Subpart IIII requirements | An oxidation catalyst is $39,500/ton for PM10, CO, and VOC together. | |
| EUFPENGINE (South Plant): Fire pump engine | MI-0452 | MEC SOUTH, LLC | 6/23/2022 | 300 | Horsepower | 2.6 | G/B-HP-H | Good Combustion Practices and meeting NSPS Subpart IIII requirements | An oxidation catalyst is $39,500/ton for PM10, CO, and VOC together. | |
| Emergency fire pump engine (P004) | OH-0367 | SOUTH FIELD ENERGY LLC | 9/23/2016 | 311 | Horsepower | 3.5 | g/kW-hr | State-of-the-art combustion design | Standard limit (metric) is 3.5 g/kW-hr. | 9 |
| Emergency fire pump engine (P004) | OH-0370 | TRUMBULL ENERGY CENTER | 9/7/2017 | 300 | Horsepower | 3.5 | g/kW-hr | State-of-the-art combustion design | Standard limit (metric) is 3.5 g/kW-hr. | 9 |
| Emergency fire pump engine (P004) | OH-0372 | OREGON ENERGY CENTER | 9/27/2017 | 300 | Horsepower | 2.6 | G/B-HP-H | state of the art combustion design | Standard limit is 3.5 g/kW-hr (2.6 g/hp-hr). | |
| Emergency diesel-fueled fire pump (P006) | OH-0376 | IRONUNITS LLC - TOLEDO HBI | 2/9/2018 | 250 | Horsepower | 2.6 | G/BHP-H | Comply with NSPS 40 CFR 60 Subpart IIII | CO Standard limit is 3.5 g/kW-hr (2.6 g/hp-hr). | |
| Emergency Fire Pump (P004) | OH-0377 | HARRISON POWER | 4/19/2018 | 320 | Horsepower | 2.6 | G/BHP-H | Good combustion practices (ULSD) and compliance with 40 CFR Part 60, Subpart IIII | NSPS CO Standard limit is 3.5 g/kW-hr (2.6 g/hp-hr). | 5 |
| Firewater Pumps (P005 and P006) | OH-0378 | PTTGCA PETROCHEMICAL COMPLEX | 12/21/2018 | 402 | Horsepower | 2.6 | G/BHP-H | Certified to the meet the emissions standards in Table 4 of 40 CFR Part 60, Subpart IIII and employ good combustion practices per the manufacturerâ€™s operating manual | CO Standard limit is 3.5 g/kW-hr (2.6 g/hp-hr). | |
| 275 hp (205 kW) Diesel-Fired Emergency Fire Pump Engine | OH-0387 | INTEL OHIO SITE | 9/20/2022 | 275 | Horsepower | 3.5 | G/KW-H | Certified to meet the standards in Table 4 of 40 CFR Part 60, Subpart IIII and good combustion practices | 0.5 tons per rolling, 12-month period | |
| Emergency Fire Pumps | SC-0182 | FIBER INDUSTRIES LLC | 10/31/2017 | - | - | 200 | OPERATING HR/YR | Use of Ultra Low Sulfur Diesel Fuel (15 ppm), good combustion, operation, and maintenance practices; compliance with NESHAP Subpart ZZZZ | - | |
| FIRE PUMP DIESEL ENGINE | TX-0846 | MOTOR VEHICLE ASSEMBLY PLANT | 9/23/2018 | 286.98 | Horsepower | 3.58 | G/KW-HR | Meets EPA Tier 4 requirements | - | 8 |
| Emergency firewater pumps | TX-0876 | PORT ARTHUR ETHANE CRACKER UNIT | 2/6/2020 | - | - | - | - | Tier 3 exhaust emission standards specified in 40 CFR Â§ 89.112, limited to 100 hours per year of non-emergency operation | - | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| EMERGENCY GENERATORS & FIRE WATER PUMP ENGINES | TX-0888 | ORANGE POLYETHYLENE PLANT | 4/23/2020 | - | - | - | - | well-designed and properly maintained engines and each limited to 100 hours per year of non-emergency use. | - | |
| Emergency Fire Water Pump | VA-0328 | C4GT, LLC | 4/26/2018 | 315 | Horsepower | 2.6 | G/HP HR | good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw. | - | 5 |
| Emegency Fire Water Pump | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 376 | Horsepower | 2.6 | G/HP-H | good combustion practices, high efficiency design, and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw. | - | 5,13 |
| Diesel-Fired Fire Pump Engine (P04) | WI-0302 | WPL- RIVERSIDE ENERGY CENTER | 2/28/2020 | 290 | Horsepower | 0.33 | LB/H | Good combustion practices | Good combustion practices are inspecting and maintaining the fire pump as follows: Comply with NESHAP Subpart ZZZZ; Inspect the air filter and fuel filter(s) at least annually and replace if needed. | |

[1] The RBLC query was performed using terbic IDs 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, 17.110, 17.120, 17.210, and 19.900. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "fire" or "pump". Manually removed diesel tank and piping fugitive entries |
| PRIMARY_FUEL | Natural gas. Manually removed emergency engines fired with natural gas or propane |
| THROUGHPUT | ≥ 205 horsepower and ≤ 405 horsepower. Units with throughputs outside of this range were removed. RBLC entries where the emergency generator's power rating could not be determined were included for conservatism |
| PROCESS_NOTES | Does not contain "well" |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted unit throughput(s) per RBLC entry's process notes.

[7] Permitted unit throughput(s) per RBLC entry's process name.

[8] Permitted unit throughput converted from kilowatts into horsepower.

[9] Permitted pollutant limit(s) and limit unit(s) per RBLC entry's pollutant compliance notes.

[10] Permitted unit throughput per Arkansas Department of Energy and Environment permit no. 2470-AOP-R2.

[11] Permitted unit throughput per Arkansas Department of Energy and Environment permit no. 2445-AOP-R0.

[12] Permitted unit throughput per Arkansas Department of Energy and Environment permit no. 2470-AOP-R0.

[13] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-4b. Small Fuel Oil Internal Combustion Engines Recent Permit Limitations and Determinations of BACT for $NO_X$ from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted $NO_X$ Limit | Limit Unit | Control | Notes | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Water Pumps | *AR-0191 | HYBAR | 10/2/2025 | 376 | Horsepower | 14.06 | G/BHP-HR | Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII | - | 10 |
| FWP-03 - Firewater Pump Engine No. 3 | *LA-0401 | KOCH METHANOL (KME) FACILITY | 12/20/2023 | 237 | Horsepower | 1.49 | LB/HR | Compliance with the requirements of 40 CFR 60 Subpart IIII | - | |
| Fire Water Pumps | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 282 | Horsepower | 3.31 | G/KW-H | Good combustion practices including compliance with 40 CFR 60 Subpart IIII. | - | 4 |
| EUFPENGINE (Emergency engine-diesel fire pump | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 260 | Horsepower | 3 | G/BHP-H | Good Combustion Practices and meeting NSPS Subpart IIII requirements | The limit is actually in â€œNMHC+NOxâ€ (nonmethane hydrocarbon plus NOx), which is what is required in the NSPS. | 6 |
| Fire Pump; S06/P06 â€" Emergency Diesel Fire Pump | *WI-0326 | NEMADJI TRAIL ENERGY CENTER | 9/19/2023 | 282 | Horsepower | 3 | G/HP-HR | Good combustion practices and combusting clean fuels:<br>(a) P06 may not operate more than 500 hours per each 12 rolling calendar months.<br>(b) P06 shall be operated and maintained according to the manufacturerâ€™s recommendations.<br>(c) NOx emissions from P06 may not exceed 3.0 g/hp-hr. | - | 4 |
| P06 (Emergency Fire Pump) | *WI-0336 | WPL â€" SHEBOYGAN FALLS ENERGY FACILITY | 7/22/2025 | 350 | Horsepower | 8.1 | IB/HR | Good combustion practices | Inspecting and maintaining the fire pump as specified in item 4 in Table 2d to 40 CFR part 63, subpart ZZZZ.<br><br>Use low sulfur diesel fuel with sulfur content no greater than 15 ppm by weight.<br><br>Hours of operation may not exceed 52 hrs in any 12 consecutive month period. | 6 |
| Fire Water Pump | *WV-0033 | MAIDSVILLE | 1/5/2022 | 240 | Horsepower | 4 | G/BKW NMHC+NOX | Combustion control (retarded timing and/or lean burn) | Certified Engine | |
| Fire Pump Diesel Internal Combustion Engines | AK-0084 | DONLIN GOLD PROJECT | 6/30/2017 | 252 | Horsepower | 3.7 | G/KW-HR | Good Combustion Practices | 83.70 g/kW-hr includes NOx and VOC emissions. NSPS Subpart IIII engines. | |
| Three (3) Firewater Pump Engines and two (2) Emergency Diesel Generators | AK-0085 | GAS TREATMENT PLANT | 8/13/2020 | 335 | Horsepower | 3.6 | G/HP-HR | Good combustion practices, limit operation to 500 hours per year per engine | EUs 40 - 44 are required to achieve EPA Tier 3 emission status. 3.6 g/hp-hr limit is 95% of the total for NMHC + NOx and includes a 25% not to exceed factor of safety. | 5,6 |
| Emergency Water Pumps | AR-0173 | BIG RIVER STEEL LLC | 1/31/2022 | 376 | Horsepower | 14.06 | G/BHP-HR | Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII | - | 11 |
| Emergency Water Pumps | AR-0180 | HYBAR LLC | 4/28/2023 | 376 | Horsepower | 14.06 | G/BHP-HR | Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII | - | 12 |
| Emergency Fire Pump Engine (347 HP) | FL-0367 | SHADY HILLS COMBINED CYCLE FACILITY | 7/27/2018 | 347 | Horsepower | 4 | G/KW-HR | Operate and maintain the engine according to the manufacturer's written instructions | Certified engine, no testing required. Limit is for NOx + NMHC | 7 |
| Emergency Fire Pump Engine (347 HP) | FL-0371 | SHADY HILLS COMBINED CYCLE FACILITY | 6/7/2021 | 347 | Horsepower | 4 | G/KW-HOUR NMHC + NOX STANDARD | - | - | 7 |
| Fire Water Pump Engine | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 320 | Horsepower | 4 | GRAMS/KILOWATT-HOUR | - | Limit 1 includes non-methane hydrocarbons (NMHC), i.e., NOx + NMHC, consistent with the NSPS, 40 CFR 60 Subpart IIII. | 4 |
| Firewater Pump Engine | IL-0134 | CRONUS CHEMICALS | 12/21/2023 | 369 | Horsepower | 4 | G/KW-HR | - | Limit 1 includes NMHC, i.e., NOx + NMHC, consistent with the NSPS, 40 CFR 60 Subpart IIII | |
| emergency fire water pump | IN-0384 | SYCAMORE RIVERSIDE ENERGY LLC | 3/31/2025 | 282 | Horsepower | 2.85 | G/HP-HR | Good combustion practices, low sulfur fuel | - | 4 |
| Emergency Diesel Engine Pump P-39A | LA-0328 | PLAQUEMINES PLANT 1 | 5/2/2018 | 375 | Horsepower | 4 | G/KW-H | Good combustion practices and NSPS IIII | BACT Limit in terms of non-methane hydrocarbon (NMHC) + NOx | |
| Emergency Diesel Engine Pump P-39B | LA-0328 | PLAQUEMINES PLANT 1 | 5/2/2018 | 300 | Horsepower | 4 | G/KW-H | Good combustion practices and NSPS Subpart IIII | BACT Limit in terms of non-methane hydrocarbon (NMHC) + NOx | |
| Emergency Diesel Fired Water Pump Engine | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 355 | Horsepower | 3 | G/HP-HR | Compliance with 40 CFR 60 Subpart IIII, good combustion practices, and use of ultra-low sulfur diesel fuel. | BACT limit is 3.0 g/BHP-hr (NOx + NMHC). Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices, and the use of ultra-low sulfur diesel fuel. | |
| EUFPENGINE (South Plant): Fire pump engine | MI-0433 | MEC NORTH, LLC AND MEC SOUTH LLC | 6/29/2018 | 300 | Horsepower | 3 | G/BHP-H | Good combustion practices and meeting NSPS Subpart IIII requirements. | The limit is actually in ‘‘NMHC + NOx‘‘ (nonmethane hydrocarbon plus NOx) which is what is required in the NSPS. | |

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|---|---|---|---|---|---|---|---|---|---|---|
| EUFPENGINE (North Plant): Fire pump engine | MI-0433 | MEC NORTH, LLC AND MEC SOUTH LLC | 6/29/2018 | 300 | Horsepower | 3 | G/BHP-H | Good combustion practices and meeting NSPS Subpart IIII requirements. | The limit is actually in ‘‘NMHC+NOx‘‘ (nonmethane hydrocarbon plus NOx), which is what is required in the NSPS. | |
| EUFIREPUMPENGS (2 emergency fire pump engines) | MI-0434 | FLAT ROCK ASSEMBLY PLANT | 3/22/2018 | 250 | Horsepower | 3 | G/B-HP-H | Good combustion practices. | Emission limit 1 above is actually in ‘‘NMHC+NOx‘‘ (nonmethane hydrocarbon plus NOx) and is 3.0 G/B-HP-H for each engine and is based upon NSPS IIII.<br><br>Emission limit 2 is actually a NOx limit and is 2.8 LB/H for each engine. | |
| EUFPENGINE: Fire pump engine | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 399 | Horsepower | 4 | G/KW-H | State of the art combustion design. | The limit is actually in ‘‘NMHC+ NOx‘‘ (nonmethane hydrocarbon plus NOx) which is what is required in the NSPS. | |
| EUFPENGINE (North Plant): Fire Pump Engine | MI-0451 | MEC NORTH, LLC | 6/23/2022 | 300 | Horsepower | 3 | G/B-HP-H | Good combustion practices and meeting NSPS Subpart IIII requirements. | The limit is actually in â€œNMHC+NOxâ€ (nonmethane hydrocarbon plus NOx), which is what is required in the NSPS. | |
| EUFPENGINE (South Plant): Fire pump engine | MI-0452 | MEC SOUTH, LLC | 6/23/2022 | 300 | Horsepower | 3 | G/B-HP-H | Good Combustion Practices and meeting NSPS Subpart IIII requirements | The limit is actually in â€œNMHC+NOxâ€ (nonmethane hydrocarbon plus NOx), which is what is required in the NSPS. | |
| Emergency fire pump engine (P004) | OH-0367 | SOUTH FIELD ENERGY LLC | 9/23/2016 | 311 | Horsepower | 3.5 | g/kW-hr | State-of-the-art combustion design | Standard limit (metric) is 3.5 g/kW-hr.<br><br>NSPS: Non-methane hydrocarbon (NMHC) + NOx emissions shall not exceed 4.0 g/kW-hr. | 9 |
| Emergency fire pump engine (P004) | OH-0370 | TRUMBULL ENERGY CENTER | 9/7/2017 | 300 | Horsepower | 4 | g/kW-hr | State-of-the-art combustion design | Standard limit (metric) is 4.0 g/kW-hr.<br>NSPS: Non-methane hydrocarbon (NMHC) + NOx emissions shall not exceed 4.0 g/kW-hr. | 9 |
| Emergency fire pump engine (P004) | OH-0372 | OREGON ENERGY CENTER | 9/27/2017 | 300 | Horsepower | 3 | G/B-HP-H | State-of-the-art combustion design | Standard limit is 4.0 g/kW-hr (3.0 g/hp-hr).<br><br>NSPS is Non-methane hydrocarbon (NMHC) + NOX emissions shall not exceed 4.0 g/kW-hr (3.0 g/hp-hr). | |
| Emergency diesel-fueled fire pump (P006) | OH-0376 | IRONUNITS LLC - TOLEDO HBI | 2/9/2018 | 250 | Horsepower | 3 | G/BHP-H | Comply with NSPS 40 CFR 60 Subpart IIII | NOx Standard limit is 4.0 g/kW-hr (3.0 g/hp-hr).<br><br>NSPS: Non-methane hydrocarbon (NMHC) + NOX emissions shall not exceed 4.0 g/kW-hr (3.0 g/hp-hr). | |
| Emergency Fire Pump (P004) | OH-0377 | HARRISON POWER | 4/19/2018 | 320 | Horsepower | 3 | G/BHP-H NMHC+NOX. SEE NOTES. | Good combustion practices (ULSD) and compliance with 40 CFR Part 60, Subpart IIII | All emissions limits are for Non-methane hydrocarbon (NMHC) + NOX emissions.<br><br>0.11 t/yr per rolling, 12-month period.<br><br>NSPS: Non-methane hydrocarbon (NMHC) + NOX emissions shall not exceed 4.0 g/kW-hr (3.0 g/hp-hr). | 5 |
| Firewater Pumps (P005 and P006) | OH-0378 | PTTGCA PETROCHEMICAL COMPLEX | 12/21/2018 | 402 | Horsepower | 3 | G/BHP-H | Certified to the meet the emissions standards in Table 4 of 40 CFR Part 60, Subpart IIII and employ good combustion practices per the manufacturerâ€™s operating manual | Emission limits are for non-methane hydrocarbon plus nitrogen oxides (NMHC + NOx). Non-methane hydrocarbon plus nitrogen oxides (NMHC + NOx) emissions shall not exceed 4.0 g/kW-hour (3.0 g/HP-hour), 2.64 pounds per hour and 0.13 ton per rolling, 12-month period. | |
| 275 hp (205 kW) Diesel-Fired Emergency Fire Pump Engine | OH-0387 | INTEL OHIO SITE | 9/20/2022 | 275 | Horsepower | 4 | 4.0 GRAMS NOX + NMHC/KW-HR | Certified to meet the standards in Table 4 of 40 CFR Part 60, Subpart IIII and good combustion practices | 2.1 tons per rolling, 12-month period | |
| Emergency Fire Pumps | SC-0182 | FIBER INDUSTRIES LLC | 10/31/2017 | - | Horsepower | 8.5 | LB/H | Use of Ultra Low Sulfur Diesel Fuel (15 ppm), good combustion, operation, and maintenance practices; compliance with NESHAP Subpart ZZZZ | - | |
| FIRE PUMP DIESEL ENGINE | TX-0846 | MOTOR VEHICLE ASSEMBLY PLANT | 9/23/2018 | 286.98 | Horsepower | 0.4 | G/KW | Meets EPA Tier 4 requirements | NSPS IIII, MACT ZZZZ | 8 |
| Emergency firewater pumps | TX-0876 | PORT ARTHUR ETHANE CRACKER UNIT | 2/6/2020 | - | - | - | - | Tier 3 exhaust emission standards specified in 40 CFR Â§ 89.112, limited to 100 hours per year of non-emergency operation | - | |
| EMERGENCY GENERATORS & FIRE WATER PUMP ENGINES | TX-0888 | ORANGE POLYETHYLENE PLANT | 4/23/2020 | - | - | - | - | well-designed and properly maintained engines and each limited to 100 hours per year of non-emergency use. | - | |
| Emergency Fire Water Pump | VA-0328 | C4GT, LLC | 4/26/2018 | 315 | Horsepower | 3 | G/HP-HR | Good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw. | - | 5 |
| Emegency Fire Water Pump | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 376 | Horsepower | 3 | G/HP-HR | good combustion practices, high efficiency design, and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw. | - | 5,13 |

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|---|---|---|---|---|---|---|---|---|---|---|
| Diesel-Fired Fire Pump Engine (P04) | WI-0302 | WPL- RIVERSIDE ENERGY CENTER | 2/28/2020 | 290 | Horsepower | 3.64 | LB/H | Only use diesel fuel oil with a sulfur content of no greater than 0.0015% by weight | - | |

[1] The RBLC query was performed using terbic IDs 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, 17.110, 17.120, 17.210, and 19.900. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "fire" or "pump". Manually removed diesel tank and piping fugitive entries |
| PRIMARY_FUEL | Natural gas. Manually removed emergency engines fired with natural gas or propane |
| THROUGHPUT | ≥ 205 horsepower and ≤ 405 horsepower. Units with throughputs outside of this range were removed. RBLC entries where the emergency generator's power rating could not be determined were included for conservatism |
| PROCESS_NOTES | Does not contain "well" |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted unit throughput(s) per RBLC entry's process notes.

[7] Permitted unit throughput(s) per RBLC entry's process name.

[8] Permitted unit throughput converted from kilowatts into horsepower.

[9] Permitted pollutant limit(s) and limit unit(s) per RBLC entry's pollutant compliance notes.

[10] Permitted unit throughput per Arkansas Department of Energy and Environment permit no. 2470-AOP-R2.

[11] Permitted unit throughput per Arkansas Department of Energy and Environment permit no. 2445-AOP-R0.

[12] Permitted unit throughput per Arkansas Department of Energy and Environment permit no. 2470-AOP-R0.

[13] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-4c. Small Fuel Oil Internal Combustion Engines Recent Permit Limitations and Determinations of BACT for $SO_2$ from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted $SO_2$ Limit | Limit Unit | Control | Notes | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Water Pumps | *AR-0191 | HYBAR | 10/2/2025 | 376 | Horsepower | 15 | PPM OR LESS S IN FUE | Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII | - | 8 |
| Fire Water Pumps | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 282 | Horsepower | 0.0078 | LB/MM BTU | - | - | 4 |
| EUFPENGINE (Emergency engine-diesel fire pump | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 260 | Horsepower | 15 | PPM | Good Combustion Practices and meeting NSPS Subpart IIII requirements | The emission limit above is 15 ppm using fuel supplier certification records or fuel sample test data, for each delivery of diesel fuel oil.<br><br>The diesel material limit is 15 ppm of sulfur (0.0015 percent) by weight. | 6 |
| Three (3) Firewater Pump Engines and two (2) Emergency Diesel Generators | AK-0085 | GAS TREATMENT PLANT | 8/13/2020 | 335 | Horsepower | 15 | PPMW SULFUR IN FUEL | Good combustion practices, ULSD, and limit operation to 500 hours per year. | EUs 40 - 44 are required to burn ULSD. | 5,6 |
| Emergency Water Pumps | AR-0173 | BIG RIVER STEEL LLC | 1/31/2022 | 376 | Horsepower | 15 | PPM SULFUR IN FUEL | Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII | - | 9 |
| Emergency Water Pumps | AR-0180 | HYBAR LLC | 4/28/2023 | 376 | Horsepower | 15 | PPM MAX FUEL CONTENT | Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII | - | 10 |
| Emergency Fire Pump Engine (347 HP) | FL-0367 | SHADY HILLS COMBINED CYCLE FACILITY | 7/27/2018 | 347 | Horsepower | 15 | PPM S IN FUEL | Clean fuel | ULSD fuel | 7 |
| Emergency Fire Pump Engine (347 HP) | FL-0371 | SHADY HILLS COMBINED CYCLE FACILITY | 6/7/2021 | 347 | Horsepower | 15 | PPM S IN FUEL | - | - | 7 |
| Fire Water Pump Engine | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 320 | Horsepower | - | - | Use of ultra-low sulfur diesel, with a sulfur content < 15 ppm sulfur. | Use of ultra-low sulfur diesel represents BACT. | 4 |
| EUFPENGINE (South Plant): Fire pump engine | MI-0433 | MEC NORTH, LLC AND MEC SOUTH LLC | 6/29/2018 | 300 | Horsepower | 15 | PPM | Good combustion practices and meeting NSPS Subpart IIII requirements. | The diesel material limit is 15 ppm of sulfur (0.0015 percent) by weight based on fuel supplier certification records or fuel sample test data, for each delivery of diesel fuel oil. | |
| EUFPENGINE (North Plant): Fire pump engine | MI-0433 | MEC NORTH, LLC AND MEC SOUTH LLC | 6/29/2018 | 300 | Horsepower | 15 | PPM | Good combustion practices and meeting NSPS Subpart IIII requirements. | The diesel material limit is 15 ppm of sulfur (0.0015 percent) by weight. | |
| EUFPENGINE (North Plant): Fire Pump Engine | MI-0451 | MEC NORTH, LLC | 6/23/2022 | 300 | Horsepower | 15 | PPM | Good combustion practices and meeting NSPS Subpart IIII requirements. | Emission Limit 1 above = 15 ppm (0.0015 percent) by weight based on fuel supplier certification records or fuel sample test data, for each delivery of diesel fuel oil. The applicable requirements are BACT, NAAQS PSD increment and NSPS IIII. | |
| EUFPENGINE (South Plant): Fire pump engine | MI-0452 | MEC SOUTH, LLC | 6/23/2022 | 300 | Horsepower | 15 | PPM | Good Combustion Practices and meeting NSPS Subpart IIII requirements | Emission limit 1 above is 15 ppm (0.0015 percent) by weight based on fuel supplier certification records or fuel sample test data, for each delivery of diesel fuel oil. | |
| Emergency fire pump engine (P004) | OH-0367 | SOUTH FIELD ENERGY LLC | 9/23/2016 | 311 | Horsepower | 0.004 | LB/H | Ultra low sulfur diesel fuel | - | |
| Emergency fire pump engine (P004) | OH-0370 | TRUMBULL ENERGY CENTER | 9/7/2017 | 300 | Horsepower | 3.2 | X10-3 LB/H | Ultra low sulfur diesel fuel | - | |
| Emergency fire pump engine (P004) | OH-0372 | OREGON ENERGY CENTER | 9/27/2017 | 300 | Horsepower | 3.2 | X10-3 LB/H | Ultra low sulfur diesel fuel | - | |
| Emergency Fire Pump (P004) | OH-0377 | HARRISON POWER | 4/19/2018 | 320 | Horsepower | 0.0015 | LB/MMBTU | ultra-low sulfur diesel (ULSD) fuel with a sulfur content of less than 15 ppm (0.0015 percent by weight) | 0.0002 t/yr per rolling, 12-month period. | 5 |
| Emergency firewater pumps | TX-0876 | PORT ARTHUR ETHANE CRACKER UNIT | 2/6/2020 | - | - | - | - | Tier 3 exhaust emission standards specified in 40 CFR Â§ 89.112, limited to 100 hours per year of non-emergency operation | - | |
| EMERGENCY GENERATORS & FIRE WATER PUMP ENGINES | TX-0888 | ORANGE POLYETHYLENE PLANT | 4/23/2020 | - | - | - | - | ultra-low sulfur diesel (15 ppmw sulfur content). | - | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Fire Water Pump | VA-0328 | C4GT, LLC | 4/26/2018 | 315 | Horsepower | - | - | good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw. | - | 5 |
| Emegency Fire Water Pump | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 376 | Horsepower | 0.0015 | LB/MMBTU | : good combustion practices, high efficiency design, and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw. | Certify fuel sulfur content | 5,11 |
| Diesel-Fired Fire Pump Engine (P04) | WI-0302 | WPL- RIVERSIDE ENERGY CENTER | 2/28/2020 | 290 | Horsepower | 0.36 | LB/H | Only use diesel fuel oil with a sulfur content of no greater than 0.0015% by weight. | - | |

[1] The RBLC query was performed using terbic IDs 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, 17.110, 17.120, 17.210, and 19.900. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "fire" or "pump". Manually removed diesel tank and piping fugitive entries |
| PRIMARY_FUEL | Natural gas. Manually removed emergency engines fired with natural gas or propane |
| THROUGHPUT | ≥ 205 horsepower and ≤ 405 horsepower. Units with throughputs outside of this range were removed. RBLC entries where the emergency generator's power rating could not be determined were included for conservatism |
| PROCESS_NOTES | Does not contain "well" |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted unit throughput(s) per RBLC entry's process notes.

[7] Permitted unit throughput(s) per RBLC entry's process name.

[8] Permitted unit throughput per Arkansas Department of Energy and Environment permit no. 2470-AOP-R2.

[9] Permitted unit throughput per Arkansas Department of Energy and Environment permit no. 2445-AOP-R0.

[10] Permitted unit throughput per Arkansas Department of Energy and Environment permit no. 2470-AOP-R0.

[11] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-4d. Small Fuel Oil Internal Combustion Engines Recent Permit Limitations and Determinations of BACT for PM from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Particulate Matter Type | Permitted PM Limit | Limit Unit | Control | Notes | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Water Pumps | *AR-0191 | HYBAR | 10/2/2025 | 376 | Horsepower | Particulate matter, total (TPM) | 1 | G/BHP-HR | Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII | - | 10 |
| Emergency Water Pumps | *AR-0191 | HYBAR | 10/2/2025 | 376 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 1 | G/BHP-HR | Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII | - | 10 |
| Emergency Water Pumps | *AR-0191 | HYBAR | 10/2/2025 | 376 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 1 | G/BHP-HR | Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII | - | 10 |
| Pump Engines DFP-16-1 (EQT036) | *LA-0306 | TOPCHEM POLLOCK, LLC | 12/20/2016 | 225 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.15 | g/hp-hr | Meet NSPS Subpart IIII Limitations and Good Combustion Practices | 0.15 g/hp-hr | 9 |
| Pump Engine DFP-16-2 (EQT037) | *LA-0306 | TOPCHEM POLLOCK, LLC | 12/20/2016 | 225 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.15 | g/hp-hr | Meet NSPS Subpart IIII Limitations and Good Combustion Practices | 0.15 g/hp-hr | 9 |
| FWP-03 - Firewater Pump Engine No. 3 | *LA-0401 | KOCH METHANOL (KME) FACILITY | 12/20/2023 | 237 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.06 | LB/HR | Compliance with the requirements of 40 CFR 60 Subpart IIII | - | |
| FWP-03 - Firewater Pump Engine No. 3 | *LA-0401 | KOCH METHANOL (KME) FACILITY | 12/20/2023 | 237 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.06 | LB/HR | Compliance with the requirements of 40 CFR 60 Subpart IIII | - | |
| Fire Water Pumps | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 282 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.1 | G/KW-H | Good combustion practices including compliance with 40 CFR 60 Subpart IIII. | - | 4 |
| Fire Water Pumps | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 282 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.1 | G/KW-H | Use of ultra-low sulfur diesel as fuel. | - | 4 |
| EUFPENGINE (Emergency engine-diesel fire pump | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 260 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.57 | LB/H | Good combustion practices | - | 6 |
| EUFPENGINE (Emergency engine-diesel fire pump | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 260 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.57 | LB/H | Good combustion practices | - | 6 |
| Fire Pump; S06/P06 â€" Emergency Diesel Fire Pump | *WI-0326 | NEMADJI TRAIL ENERGY CENTER | 9/19/2023 | 282 | Horsepower | Particulate matter, total (TPM) | 0.15 | G/HP-HR | Good combustion practices and clean fuels:<br>(a) P06 may not operate more than 500 hours per each 12 rolling calendar months.<br>(b) The sulfur content of the diesel fuel oil fired may not exceed 15 ppm.<br>(c) P06 shall be operated and maintained according to the manufacturerâ€™s recommendations. | No add-on controls were identified.<br>(d) PM emissions from P06 may not exceed 0.15 g/hp-hr.<br>(e) PM10 emissions from P06 may not exceed 0.15 g/hp-hr.<br>(f) PM2.5 emissions from P06 may not exceed 0.15 g/hp-hr. | 4 |
| P06 (Emergency Fire Pump) | *WI-0336 | WPL â€" SHEBOYGAN FALLS ENERGY FACILITY | 7/22/2025 | 350 | Horsepower | Particulate matter, total (TPM) | 0.77 | IB/HR | Good combustion practices | Inspecting and maintaining the fire pump as specified in item 4 in Table 2d to 40 CFR part 63, subpart ZZZZ.<br><br>Using diesel fuel with sulfur content no greater than 15 ppm by weight.<br><br>Hours of operation may not exceed 52 hrs in any 12 consecutive month period. | 6 |
| P06 (Emergency Fire Pump) | *WI-0336 | WPL â€" SHEBOYGAN FALLS ENERGY FACILITY | 7/22/2025 | 350 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.77 | LB/HR | Good combustion practices | Inspecting and maintaining the fire pump as specified in item 4 in Table 2d to 40 CFR part 63, subpart ZZZZ.<br><br>Using diesel fuel with sulfur content no greater than 15 ppm by weight.<br><br>Hours of operation may not exceed 52 hrs in any 12 consecutive month period. | 6 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P06 (Emergency Fire Pump) | *WI-0336 | WPL â€“ SHEBOYGAN FALLS ENERGY FACILITY | 7/22/2025 | 350 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.77 | LB/HR | Good combustion practices | Inspecting and maintaining the fire pump as specified in item 4 in Table 2d to 40 CFR part 63, subpart ZZZZ.<br><br>Using diesel fuel with sulfur content no greater than 15 ppm by weight.<br><br>Hours of operation may not exceed 52 hrs in any 12 consecutive month period. | 6 |
| Fire Water Pump | *WV-0033 | MAIDSVILLE | 1/5/2022 | 240 | Horsepower | Particulate matter, total (TPM) | 0.15 | G/BKW | Clean Fuels & Good Combustion Practices | Certified Engine. Assumed to be PM2.5 or less including condensables. | |
| Fire Pump Diesel Internal Combustion Engines | AK-0084 | DONLIN GOLD PROJECT | 6/30/2017 | 252 | Horsepower | Particulate matter, total (TPM) | 0.19 | G/KW-HR | Clean Fuel and Good Combustion Practices | NSPS Subpart IIII engines | |
| Fire Pump Diesel Internal Combustion Engines | AK-0084 | DONLIN GOLD PROJECT | 6/30/2017 | 252 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.19 | G/KW-HR | Clean Fuel and Good Combustion Practices | NSPS Subpart IIII engines | |
| Fire Pump Diesel Internal Combustion Engines | AK-0084 | DONLIN GOLD PROJECT | 6/30/2017 | 252 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.19 | G/KW-HR | Clean Fuel and Good Combustion Practices | NSPS Subpart IIII engines | |
| Three (3) Firewater Pump Engines and two (2) Emergency Diesel Generators | AK-0085 | GAS TREATMENT PLANT | 8/13/2020 | 335 | Horsepower | Particulate matter, total (TPM) | 0.19 | G/HP-HR | Good combustion practices, ULSD, and limit operation to 500 hours per year per engine | EUs 40 - 44 are required to achieve EPA Tier 3 emission status. The 0.19 g/hp-hr limit includes a 25% not to exceed factor of safety. | 5,6 |
| Three (3) Firewater Pump Engines and two (2) Emergency Diesel Generators | AK-0085 | GAS TREATMENT PLANT | 8/13/2020 | 335 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.19 | G/HP-HR | Good combustion practices, ULSD, and limit operation to 500 hours per year per engine | EUs 40 - 44 are required to achieve EPA Tier 3 emission status. The 0.19 g/hp-hr limit includes a 25% not to exceed factor of safety. | 5,6 |
| Three (3) Firewater Pump Engines and two (2) Emergency Diesel Generators | AK-0085 | GAS TREATMENT PLANT | 8/13/2020 | 335 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.19 | G/HP-HR | Good combustion practices, ULSD, and limit operation to 500 hours per year per engine | EUs 40 - 44 are required to achieve EPA Tier 3 emission status. The 0.19 g/hp-hr limit includes a 25% not to exceed factor of safety. | 5,6 |
| Emergency Water Pumps | AR-0173 | BIG RIVER STEEL LLC | 1/31/2022 | 376 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 1 | G/BHP-HR | Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII | - | 11 |
| Emergency Water Pumps | AR-0173 | BIG RIVER STEEL LLC | 1/31/2022 | 376 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 1 | G/BHP-HR | Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII | - | 11 |
| Emergency Water Pumps | AR-0180 | HYBAR LLC | 4/28/2023 | 376 | Horsepower | Particulate matter, total (TPM) | 1 | G/BHP-HR | Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII | - | 12 |
| Emergency Water Pumps | AR-0180 | HYBAR LLC | 4/28/2023 | 376 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 1 | G/BHP-HR | Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII | - | 12 |
| Emergency Water Pumps | AR-0180 | HYBAR LLC | 4/28/2023 | 376 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 1 | G/BHP-HR | Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII | - | 12 |
| Emergency Fire Pump Engine (347 HP) | FL-0371 | SHADY HILLS COMBINED CYCLE FACILITY | 6/7/2021 | 347 | Horsepower | Particulate matter, total (TPM) | 0.2 | G/KW-HOUR | - | - | 7 |
| Fire Water Pump Engine | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 320 | Horsepower | Particulate matter, total (TPM) | 0.2 | GRAMS/KILOWATT-HOUR | - | Emission Limit 1 includes PM10 and PM2.5, i.e., PM/PM10/PM2.5. | 4 |
| Firewater Pump Engine | IL-0134 | CRONUS CHEMICALS | 12/21/2023 | 369 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.2 | G/KW-HR | - | Limit 1 is consistent with NSPS IIII. NSPS PM limit serves as BACT for PM10/PM2.5 | |
| Firewater Pump Engine | IL-0134 | CRONUS CHEMICALS | 12/21/2023 | 369 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.2 | G/KW-HR | - | Limit 1 is consistent with NSPS IIII. NSPS PM limit serves as BACT for PM10/PM2.5 | |
| Emergency fire pump | IN-0382 | DUKE ENERGY INDIANA, INC.-CAYUGA GENERATING STATION | 2/14/2025 | 300 | Horsepower | Particulate matter, total (TPM) | 0.15 | G/HP-HR | good combustion practices | The Permittee shall comply with the requirements of 40 CFR 60, Subpart IIII | 4 |
| emergency fire water pump | IN-0384 | SYCAMORE RIVERSIDE ENERGY LLC | 3/31/2025 | 282 | Horsepower | Particulate matter, total (TPM) | 0.15 | G/HP-HR | Good combustion practice, low sulfur fuel | - | 4 |
| emergency fire water pump | IN-0384 | SYCAMORE RIVERSIDE ENERGY LLC | 3/31/2025 | 282 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.17 | G/HP-HR | Good combustion practice, low sulfur fuel | - | 4 |
| emergency fire water pump | IN-0384 | SYCAMORE RIVERSIDE ENERGY LLC | 3/31/2025 | 282 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.17 | G/HP-HR | Good combustion practices, low sulfur fuel | - | 4 |
| Emergency Diesel Engine Pump P-39A | LA-0328 | PLAQUEMINES PLANT 1 | 5/2/2018 | 375 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.2 | g/kW-hr | Compliance with 40 CFR 60 Subpart IIII. | Units are in g/kW-hr | |
| Emergency Diesel Engine Pump P-39A | LA-0328 | PLAQUEMINES PLANT 1 | 5/2/2018 | 375 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.2 | g/kW-hr | Compliance with 40 CFR 60 Subpart IIII | Units are in g/kW-hr. | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Diesel Engine Pump P-39B | LA-0328 | PLAQUEMINES PLANT 1 | 5/2/2018 | 300 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.2 | g/kW-hr | Compliance with 40 CFR 60 Subpart IIII | Units are in g/kW-hr | |
| Emergency Diesel Engine Pump P-39B | LA-0328 | PLAQUEMINES PLANT 1 | 5/2/2018 | 300 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.2 | g/kW-hr | Compliance with 40 CFR 60 Subpart III | Units are in g/kW-hr | |
| Emergency Diesel Fired Water Pump Engine | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 355 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.15 | G/HP-HR | Compliance with 40 CFR 60 Subpart IIII standards, good combustion practices, and the use of ultra-low sulfur diesel fuel. | BACT limit is 0.15 g/BHP-hr. Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices, and the use of ultra-low sulfur diesel fuel. | |
| Emergency Diesel Fired Water Pump Engine | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 355 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.15 | G/HP-HR | Compliance with 40 CFR 60 Subpart IIII, good combustion practices, and the use of ultra-low sulfur diesel fuel. | BACT limit is 0.15 g/BHP-hr. Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices, and the use of ultra-low sulfur diesel fuel. | |
| EUFPENGINE (South Plant): Fire pump engine | MI-0433 | MEC NORTH, LLC AND MEC SOUTH LLC | 6/29/2018 | 300 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.66 | LB/H | Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements. | An oxidation catalyst is $39,500/ton for PM10, CO and VOC together. | |
| EUFPENGINE (South Plant): Fire pump engine | MI-0433 | MEC NORTH, LLC AND MEC SOUTH LLC | 6/29/2018 | 300 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.66 | LB/H | Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements. | - | |
| EUFPENGINE (North Plant): Fire pump engine | MI-0433 | MEC NORTH, LLC AND MEC SOUTH LLC | 6/29/2018 | 300 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.66 | LB/H | Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements. | An oxidation catalyst is $39,500/ton for PM10, CO and VOC together. | |
| EUFPENGINE (North Plant): Fire pump engine | MI-0433 | MEC NORTH, LLC AND MEC SOUTH LLC | 6/29/2018 | 300 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.66 | LB/H | Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements. | - | |
| EUFPENGINE: Fire pump engine | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 399 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.13 | LB/H | State of the art combustion design. | - | |
| EUFPENGINE: Fire pump engine | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 399 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.13 | LB/H | State of the art combustion design. | - | |
| EUFPENGINE (North Plant): Fire Pump Engine | MI-0451 | MEC NORTH, LLC | 6/23/2022 | 300 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.66 | LB/H | Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements. | - | |
| EUFPENGINE (North Plant): Fire Pump Engine | MI-0451 | MEC NORTH, LLC | 6/23/2022 | 300 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.66 | LB/H | Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements. | An oxidation catalyst is $39,500/ton for PM10, CO, and VOC together. | |
| EUFPENGINE (South Plant): Fire pump engine | MI-0452 | MEC SOUTH, LLC | 6/23/2022 | 300 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.66 | LB/H | Diesel particulate filter, Good Combustion Practices and meeting NSPS Subpart IIII requirements | An oxidation catalyst is $39,500/ton for PM10, CO, and VOC together. | |
| EUFPENGINE (South Plant): Fire pump engine | MI-0452 | MEC SOUTH, LLC | 6/23/2022 | 300 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.66 | LB/H | Diesel particulate filter, Good Combustion Practices and meeting NSPS Subpart IIII requirements | - | |
| Emergency fire pump engine (P004) | OH-0367 | SOUTH FIELD ENERGY LLC | 9/23/2016 | 311 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.2 | g/kW-hr | State-of-the-art combustion design | Standard limit (metric) is 0.20 g/kW-hr. | 9 |
| Emergency fire pump engine (P004) | OH-0367 | SOUTH FIELD ENERGY LLC | 9/23/2016 | 311 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.2 | g/kW-hr | State-of-the-art combustion design | Standard limit (metric) is 0.20 g/kW-hr. | 9 |
| Emergency fire pump engine (P004) | OH-0370 | TRUMBULL ENERGY CENTER | 9/7/2017 | 300 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.2 | g/kW-hr | Ultra low sulfur diesel fuel | Standard limit (metric) is 0.20 g/kW-hr. | 9 |
| Emergency fire pump engine (P004) | OH-0370 | TRUMBULL ENERGY CENTER | 9/7/2017 | 300 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.2 | g/kW-hr | Ultra low sulfur diesel fuel | Standard limit (metric) is 0.20 g/kW-hr. | 9 |
| Emergency fire pump engine (P004) | OH-0372 | OREGON ENERGY CENTER | 9/27/2017 | 300 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.15 | G/B-HP-H | Ultra low sulfur diesel fuel | Standard limit is 0.20 g/kW-hr (0.15 g/hp-hr). | |
| Emergency fire pump engine (P004) | OH-0372 | OREGON ENERGY CENTER | 9/27/2017 | 300 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.15 | G/B-HP-H | Ultra low sulfur diesel fuel | Standard limit is 0.20 g/kW-hr (0.15 g/hp-hr). | |
| Emergency diesel-fueled fire pump (P006) | OH-0376 | IRONUNITS LLC - TOLEDO HBI | 2/9/2018 | 250 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.18 | G/BHP-H | Comply with NSPS 40 CFR 60 Subpart IIII | PM Standard limit is 0.24 g/kW-hr (0.18 g/hp-hr).<br><br>NSPS: 0.20 g/kW-hr (0.15 g/hp-hr). | |
| Emergency diesel-fueled fire pump (P006) | OH-0376 | IRONUNITS LLC - TOLEDO HBI | 2/9/2018 | 250 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.18 | G/BHP-H | Comply with NSPS 40 CFR 60 Subpart IIII | PM Standard limit is 0.24 g/kW-hr (0.18 g/hp-hr).<br><br>NSPS: 0.20 g/kW-hr (0.15 g/hp-hr). | |
| Emergency Fire Pump (P004) | OH-0377 | HARRISON POWER | 4/19/2018 | 320 | Horsepower | Particulate matter, total (TPM) | 0.15 | G/BHP-H | Good combustion practices (ULSD) and compliance with 40 CFR Part 60, Subpart IIII | NSPS PM Standard limit is 0.20 g/kW-hr (0.15 g/hp-hr). | 5 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Fire Pump (P004) | OH-0377 | HARRISON POWER | 4/19/2018 | 320 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.15 | G/BHP-H | Good combustion practices (ULSD) and compliance with 40 CFR Part 60, Subpart IIII | NSPS PM Standard limit is 0.20 g/kW-hr (0.15 g/hp-hr). | 5 |
| Emergency Fire Pump (P004) | OH-0377 | HARRISON POWER | 4/19/2018 | 320 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.015 | G/BHP-H | Good combustion practices (ULSD) and compliance with 40 CFR Part 60, Subpart IIII | NSPS PM Standard limit is 0.20 g/kW-hr (0.15 g/hp-hr). | 5 |
| Firewater Pumps (P005 and P006) | OH-0378 | PTTGCA PETROCHEMICAL COMPLEX | 12/21/2018 | 402 | Horsepower | Particulate matter, total (TPM) | 0.15 | G/BHP-H | Certified to the meet the emissions standards in Table 4 of 40 CFR Part 60, Subpart IIII and employ good combustion practices per the manufacturerâ€™s operating manual | PM Standard limit is 0.20 g/kW-hr (0.15 g/hp-hr). | |
| Firewater Pumps (P005 and P006) | OH-0378 | PTTGCA PETROCHEMICAL COMPLEX | 12/21/2018 | 402 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.15 | G/BHP-H | Certified to the meet the emissions standards in Table 4 of 40 CFR Part 60, Subpart IIII and employ good combustion practices per the manufacturerâ€™s operating manual | PM Standard limit is 0.20 g/kW-hr (0.15 g/hp-hr). | |
| Firewater Pumps (P005 and P006) | OH-0378 | PTTGCA PETROCHEMICAL COMPLEX | 12/21/2018 | 402 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.15 | G/BHP-H | Certified to the meet the emissions standards in Table 4 of 40 CFR Part 60, Subpart IIII and employ good combustion practices per the manufacturerâ€™s operating manual | PM Standard limit is 0.20 g/kW-hr (0.15 g/hp-hr). | |
| 275 hp (205 kW) Diesel-Fired Emergency Fire Pump Engine | OH-0387 | INTEL OHIO SITE | 9/20/2022 | 275 | Horsepower | Particulate matter, total (TPM) | 0.2 | G/KW-H | Certified to meet the standards in Table 4 of 40 CFR Part 60, Subpart IIII and good combustion practices | 0.2 tons per rolling, 12-month period | |
| 275 hp (205 kW) Diesel-Fired Emergency Fire Pump Engine | OH-0387 | INTEL OHIO SITE | 9/20/2022 | 275 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.6 | LB/H | Certified to meet the standards in Table 4 of 40 CFR Part 60, Subpart IIII and good combustion practices | - | |
| 275 hp (205 kW) Diesel-Fired Emergency Fire Pump Engine | OH-0387 | INTEL OHIO SITE | 9/20/2022 | 275 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.6 | LB/H | Certified to meet the standards in Table 4 of 40 CFR Part 60, Subpart IIII and good combustion practices | - | |
| Emergency Fire Pumps | SC-0182 | FIBER INDUSTRIES LLC | 10/31/2017 | - | - | Particulate matter, total (TPM) | 200 | OPERATING HR/YR | Use of Ultra Low Sulfur Diesel Fuel (15 ppm), good combustion, operation, and maintenance practices; compliance with NESHAP Subpart ZZZZ | - | |
| Emergency Fire Pumps | SC-0182 | FIBER INDUSTRIES LLC | 10/31/2017 | - | - | Particulate matter, total; 10 µm (TPM10) | 200 | OPERATING HR/YR | Use of Ultra Low Sulfur Diesel Fuel (15 ppm), good combustion, operation, and maintenance practices; compliance with NESHAP Subpart ZZZZ | - | |
| Emergency Fire Pumps | SC-0182 | FIBER INDUSTRIES LLC | 10/31/2017 | - | - | Particulate matter, total; 2.5 µm (TPM2.5) | 200 | OPERATING HR/YR | Use of Ultra Low Sulfur Diesel Fuel (15 ppm), good combustion, operation, and maintenance practices; compliance with NESHAP Subpart ZZZZ | - | |
| FIRE PUMP DIESEL ENGINE | TX-0846 | MOTOR VEHICLE ASSEMBLY PLANT | 9/23/2018 | 286.98 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.02 | G/KW-HR | Meets EPA Tier 4 requirements | - | 8 |
| FIRE PUMP DIESEL ENGINE | TX-0846 | MOTOR VEHICLE ASSEMBLY PLANT | 9/23/2018 | 286.98 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.02 | G/KW-HR | Meets EPA Tier 4 requirements | - | 8 |
| EMERGENCY GENERATORS & FIRE WATER PUMP ENGINES | TX-0888 | ORANGE POLYETHYLENE PLANT | 4/23/2020 | - | - | Particulate matter, total; 2.5 µm (TPM2.5) | - | - | well-designed and properly maintained engines and each limited to 100 hours per year of non-emergency use. | - | |
| Emergency Fire Water Pump | VA-0328 | C4GT, LLC | 4/26/2018 | 315 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.15 | G/HP HR | good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw. | - | 5 |
| Emergency Fire Water Pump | VA-0328 | C4GT, LLC | 4/26/2018 | 315 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.15 | G/HP HR | good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw. | - | 5 |
| Emegency Fire Water Pump | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 376 | Horsepower | Particulate matter, total; 2.5 µm (TPM2.5) | 0.15 | G/HP-HR | good combustion practices, high efficiency design, and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw. | - | 5,13 |
| Emegency Fire Water Pump | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 376 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.15 | G/HP-HR | good combustion practices, high efficiency design, and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw. | - | 5,13 |
| Diesel-Fired Fire Pump Engine (P04) | WI-0302 | WPL- RIVERSIDE ENERGY CENTER | 2/28/2020 | 290 | Horsepower | Particulate matter, total; 10 µm (TPM10) | 0.11 | LB/H | Good combustion practices, use diesel fuel oil with sulfur content of no greater than 0.0015% by weight. | Good combustion practices are inspecting and maintaining the fire pump as follows: Comply with permit conditions; Inspect the air filter and the fuel filter(s) at least annually and replace if needed. | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel-Fired Fire Pump Engine (P04) | WI-0302 | WPL- RIVERSIDE ENERGY CENTER | 2/28/2020 | 290 | Horsepower | Particulate matter, total (TPM) | 0.11 | LB/H | Good combustion practices, use diesel fuel oil with sulfur content of no greater than 0.0015% by weight | Good combustion practices are inspecting and maintaining the fire pump as follows: Comply with permit conditions; Inspect the air filter and the fuel filter(s) at least annually and replace if needed. | |

[1] The RBLC query was performed using terbic IDs 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, 17.110, 17.120, 17.210, and 19.900. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "fire" or "pump". Manually removed diesel tank and piping fugitive entries |
| PRIMARY_FUEL | Natural gas. Manually removed emergency engines fired with natural gas or propane |
| THROUGHPUT | ≥ 205 horsepower and ≤ 405 horsepower. Units with throughputs outside of this range were removed. RBLC entries where the emergency generator's power rating could not be determined were included for conservatism |
| PROCESS_NOTES | Does not contain "well" |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted unit throughput(s) per RBLC entry's process notes.

[7] Permitted unit throughput(s) per RBLC entry's process name.

[8] Permitted unit throughput converted from kilowatts into horsepower.

[9] Permitted pollutant limit(s) and limit unit(s) per RBLC entry's pollutant compliance notes.

[10] Permitted unit throughput per Arkansas Department of Energy and Environment permit no. 2470-AOP-R2.

[11] Permitted unit throughput per Arkansas Department of Energy and Environment permit no. 2445-AOP-R0.

[12] Permitted unit throughput per Arkansas Department of Energy and Environment permit no. 2470-AOP-R0.

[13] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-4e. Small Fuel Oil Internal Combustion Engines Recent Permit Limitations and Determinations of BACT for VOC from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted VOC Limit | Limit Unit | Control | Notes | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Fire Pump Engine | *AL-0336 | TWO RIVERS LUMBER-ALEXANDER CITY | 7/2/2024 | 321 | Horsepower | 500 | HOURS/YEAR | - | - | |
| 305 BHP Emeregency Water Pump Engine | *AL-0346 | BUCKS SAWMILL | 5/30/2024 | 305 | Horsepower | - | - | - | Certified engine and good combustion practices. Limited to operate no more than 500 hours/year | |
| Firewater Pump Engine (FIR) | *LA-0387 | TAYLOR SAWMILL | 4/12/2022 | 274 | Horsepower | 0.02 | TPY | Compliance with 40 CFR 60 Subpart IIII | - | |
| FWP-03 - Firewater Pump Engine No. 3 | *LA-0401 | KOCH METHANOL (KME) FACILITY | 12/20/2023 | 237 | Horsepower | 0.61 | LB/HR | Compliance with the requirements of 40 CFR 60 Subpart IIII | - | |
| Fire Water Pumps | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 282 | Horsepower | 0.11 | G/KW-H | Good combustion practices including compliance with 40 CFR 60 Subpart IIII. | - | 4 |
| Fire Pump; S06/P06 â€“ Emergency Diesel Fire Pump | *WI-0326 | NEMADJI TRAIL ENERGY CENTER | 9/19/2023 | 282 | Horsepower | 1.1 | G/HP-HR | Good combustion practices:<br>(a) P06 may not operate more than 500 hours per each 12 rolling calendar months.<br>(b) P06 shall be operated and maintained according to the manufacturerâ€™s recommendations.<br>(c) VOC emission from P06 may not exceed 1.1 g/hp-hr. | Combustion control and combusting clean fuels are considered baseline for the emergency diesel fire pump. | 4 |
| Fire Water Pump | *WV-0033 | MAIDSVILLE | 1/5/2022 | 240 | Horsepower | 4 | G/BKW NMHC+NOX | Good Combustion Practices w/ OxCat. Applicant did not justify why an oxcat is infeasible for an emergency engine | Certified Engine | |
| Three (3) Firewater Pump Engines and two (2) Emergency Diesel Generators | AK-0085 | GAS TREATMENT PLANT | 8/13/2020 | 335 | Horsepower | 0.19 | G/HP-HR | Good combustion practices, ULSD, and limit operation to 500 hours per year. | EUs 40 - 44 are required to achieve EPA Tier 3 emission status. The 0.19 g/hp-hr limit includes a 25% not to exceed factor of safety. | 5,6 |
| Emergency Water Pumps | AR-0173 | BIG RIVER STEEL LLC | 1/31/2022 | 376 | Horsepower | 1.12 | G/BHP-HR | Good Operating Practices, limited hours of operation, Compliance with NSPS Subpart IIII | - | 8 |
| Firewater Pump Engine | IL-0134 | CRONUS CHEMICALS | 12/21/2023 | 369 | Horsepower | 4 | G/KW-HR | - | Limit 1 includes NMHC, i.e., NOx + NMHC, consistent with the NSPS, 40 CFR 60 Subpart IIII | |
| Emergency fire pump | IN-0382 | DUKE ENERGY INDIANA, INC.- CAYUGA GENERATING STATION | 2/14/2025 | 300 | Horsepower | 4 | G/KW-HR | good combustion practices | The Permittee shall comply with the requirements of 40 CFR 60, Subpart IIII | 4 |
| emergency fire water pump | IN-0384 | SYCAMORE RIVERSIDE ENERGY LLC | 3/31/2025 | 282 | Horsepower | 0.15 | G/HP-HR | Good combustion practices, low sulfur fuel | - | 4 |
| Emergency Diesel Engine Pump P-39A | LA-0328 | PLAQUEMINES PLANT 1 | 5/2/2018 | 375 | Horsepower | 4 | G/KW-H | Good combustion practices and NSPS Subpart IIII | BACT Limit in terms of non-methane hydrocarbon (NMHC) + NOx | |
| Emergency Diesel Engine Pump P-39B | LA-0328 | PLAQUEMINES PLANT 1 | 5/2/2018 | 300 | Horsepower | 4 | G/KW-H | Good combustion practices and NSPS Subpart IIII | BACT Limit in terms of non-methane hydrocarbon (NMHC) + NOx | |
| Emergency Diesel Fired Water Pump Engine | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 355 | Horsepower | 3 | G/HP-HR | Compliance with 40 CFR 60 Subpart IIII, good combustion practices, and the use of ultra-low sulfur diesel fuel. | BACT limit is 3.0 g/BHP-hr (NOx + NMHC). Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices, and the use of ultra-low sulfur diesel fuel. | |
| EUFPENGINE (Emergency engine--diesel fire pump) | MI-0423 | INDECK NILES, LLC | 1/4/2017 | 260 | Horsepower | 0.64 | LB/H | Good combustion practices | On average, an oxidation catalyst is greater than $308,000/ton for CO and VOC together. | 6 |
| EUFPENGINE (South Plant): Fire pump engine | MI-0433 | MEC NORTH, LLC AND MEC SOUTH LLC | 6/29/2018 | 300 | Horsepower | 0.75 | LB/H | Good combustion practices. | An oxidation catalyst is $39,500/ton for PM10, CO and VOC together. | |
| EUFPENGINE (North Plant): Fire pump engine | MI-0433 | MEC NORTH, LLC AND MEC SOUTH LLC | 6/29/2018 | 300 | Horsepower | 0.75 | LB/H | Good combustion practices | An oxidation catalyst is $39,500/ton for PM10, CO and VOC together. | |
| EUFPENGINE: Fire pump engine | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 399 | Horsepower | 0.13 | LB/H | State of the art combustion design. | - | |
| EUFPENGINE (North Plant): Fire Pump Engine | MI-0451 | MEC NORTH, LLC | 6/23/2022 | 300 | Horsepower | 0.75 | LB/H | Good combustion practices. | An oxidation catalyst is $39,500/ton for PM10, CO, and VOC together. | |
| EUFPENGINE (South Plant): Fire pump engine | MI-0452 | MEC SOUTH, LLC | 6/23/2022 | 300 | Horsepower | 0.75 | LB/H | Good Combustion Practices | An oxidation catalyst is $39,500/ton for PM10, CO, and VOC together. | |
| Emergency fire pump engine (P004) | OH-0367 | SOUTH FIELD ENERGY LLC | 9/23/2016 | 311 | Horsepower | 0.25 | LB/H | State-of-the-art combustion design | Standard limit (metric) is 0.5 g/kW-hr.<br><br>Non-methane hydrocarbon (NMHC) + NOx emissions shall not exceed 4.0 g/kW-hr. | |
| Emergency fire pump engine (P004) | OH-0370 | TRUMBULL ENERGY CENTER | 9/7/2017 | 300 | Horsepower | 0.24 | LB/H | State-of-the-art combustion design | Standard limit (metric) is 0.5 g/kW-hr.<br>NSPS: Non-methane hydrocarbon (NMHC) + NOx emissions shall not exceed 4.0 g/kW-hr. | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Emergency fire pump engine (P004) | OH-0372 | OREGON ENERGY CENTER | 9/27/2017 | 300 | Horsepower | 0.37 | G/B-HP-H | State-of-the-art combustion design | Standard limit is 0.5 g/kW-hr (0.37 g/hp-hr).<br><br>NSPS: Non-methane hydrocarbon (NMHC) + NOX emissions shall not exceed 4.0 g/kW-hr (3.0 g/hp-hr). | |
| Emergency Fire Pump (P004) | OH-0377 | HARRISON POWER | 4/19/2018 | 320 | Horsepower | 3 | G/BHP-H NMHC+NOX. SEE NOTES. | Good combustion practices (ULSD) and compliance with 40 CFR Part 60, Subpart IIII | All emissions limits are for Non-methane hydrocarbon (NMHC) + NOX emissions.<br><br>0.11 t/yr per rolling, 12-month period.<br><br>NSPS: Non-methane hydrocarbon (NMHC) + NOX emissions shall not exceed 4.0 g/kW-hr (3.0 g/hp-hr). | 5 |
| Firewater Pumps (P005 and P006) | OH-0378 | PTTGCA PETROCHEMICAL COMPLEX | 12/21/2018 | 402 | Horsepower | 3 | G/BHP-H | Certified to the meet the emissions standards in Table 4 of 40 CFR Part 60, Subpart IIII and employ good combustion practices per the manufacturerâ€™s operating manual | Emission limits are for non-methane hydrocarbon plus nitrogen oxides (NMHC + NOx). Non-methane hydrocarbon plus nitrogen oxides (NMHC + NOx) emissions shall not exceed 4.0 g/kW-hour (3.0 g/HP-hour), 2.64 pounds per hour and 0.13 ton per rolling, 12-month period. | |
| 275 hp (205 kW) Diesel-Fired Emergency Fire Pump Engine | OH-0387 | INTEL OHIO SITE | 9/20/2022 | 275 | Horsepower | 0.7 | LB/H | Certified to meet the standards in Table 4 of 40 CFR Part 60, Subpart IIII and good combustion practices | - | |
| Emergency Fire Pumps | SC-0182 | FIBER INDUSTRIES LLC | 10/31/2017 | - | - | 200 | OPERATING HR/YR | Use of Ultra Low Sulfur Diesel Fuel (15 ppm), good combustion, operation, and maintenance practices; compliance with NESHAP Subpart ZZZZ | - | |
| FIRE PUMP DIESEL ENGINE | TX-0846 | MOTOR VEHICLE ASSEMBLY PLANT | 9/23/2018 | 286.98 | Horsepower | 0.19 | G/KW | Meets EPA Tier 4 requirements | NSPS IIII, MACT ZZZZ | 7 |
| Emergency firewater pumps | TX-0876 | PORT ARTHUR ETHANE CRACKER UNIT | 2/6/2020 | - | Horsepower | - | - | Tier 3 exhaust emission standards specified in 40 CFR Â§ 89.112, limited to 100 hours per year of non-emergency operation | - | |
| EMERGENCY GENERATORS & FIRE WATER PUMP ENGINES | TX-0888 | ORANGE POLYETHYLENE PLANT | 4/23/2020 | - | - | - | - | well-designed and properly maintained engines and each limited to 100 hours per year of non-emergency use. | - | |
| Emergency Fire Water Pump | VA-0328 | C4GT, LLC | 4/26/2018 | 315 | Horsepower | - | - | good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw. | Non-methane hydrocarbons are accounted for in the NOx+NMHC limit of 3.0 g/hp per hr. | 5 |
| Emegency Fire Water Pump | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 376 | Horsepower | 0.11 | G/HP-HR | good combustion practices, high efficiency design, and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw. | - | 5,9 |
| P37 Diesel-Fired Emergency Fire Pump | WI-0292 | GREEN BAY PACKAGING INC. â€"MILL DIVISION | 4/1/2019 | 350 | Horsepower | 200 | HOURS | Hours of Operation | - | 6 |
| Diesel-Fired Fire Pump Engine (P04) | WI-0302 | WPL- RIVERSIDE ENERGY CENTER | 2/28/2020 | 290 | Horsepower | 0.26 | LB/H | Good combustion practices | Good combustion practices are inspecting and maintaining the fire pump as follows: Comply with NESHAP Subpart ZZZZ; Inspect the air filter and fuel filter(s) at least annually and replace if needed. | |

[1] The RBLC query was performed using terbic IDs 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, 17.110, 17.120, 17.210, and 19.900. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "fire" or "pump". Manually removed diesel tank and piping fugitive entries |
| PRIMARY_FUEL | Natural gas. Manually removed emergency engines fired with natural gas or propane |
| THROUGHPUT | ≥ 205 horsepower and ≤ 405 horsepower. Units with throughputs outside of this range were removed. RBLC entries where the emergency generator's power rating could not be determined were included for conservatism |
| PROCESS_NOTES | Does not contain "well" |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted unit throughput(s) per RBLC entry's process notes.

[7] Permitted unit throughput converted from kilowatts into horsepower.

[8] Permitted unit throughput per Arkansas Department of Energy and Environment permit no. 2445-AOP-R0.

[9] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-4f. Small Fuel Oil Internal Combustion Engines Recent Permit Limitations and Determinations of BACT for GHGs from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted GHG Limit | Limit Unit | Control | Notes | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|
| 305 BHP Emeregency Water Pump Engine | *AL-0346 | BUCKS SAWMILL | 5/30/2024 | 305 | Horsepower | - | - | - | Certified engine and good combustion practices. Limited to operate no more than 500 hours/year | |
| Emergency Water Pumps | *AR-0191 | HYBAR | 10/2/2025 | 376 | Horsepower | 164 | LB/MMBTU | Good Combustion Practices | - | 8 |
| Pump Engines DFP-16-1 (EQT036) | *LA-0306 | TOPCHEM POLLOCK, LLC | 12/20/2016 | 225 | Horsepower | 13 | T/YR | Good Combustion Practices | 73.96 kg/MM BTU of CO2, 0.003 kg/MM BTU of CH4, and 0.0006 kg/MM BTU of N2O | |
| Pump Engine DFP-16-2 (EQT037) | *LA-0306 | TOPCHEM POLLOCK, LLC | 12/20/2016 | 225 | Horsepower | 13 | T/YR | Good Combustion Practices | 73.96 kg/MM BTU of CO2, 0.003 kg/MM BTU of CH4, and 0.0006 kg/MM BTU of N2O | |
| Fire Water Pumps | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 282 | Horsepower | 15 | T/YR | Good combustion practices including compliance with 40 CFR 60 Subpart IIII. | - | 4 |
| EUFPENGINE (Emergency engine-diesel fire pump | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 260 | Horsepower | 13.58 | T/YR | Good combustion practices | - | 6 |
| Fire Pump; S06/P06 â€" Emergency Diesel Fire Pump | *WI-0326 | NEMADJI TRAIL ENERGY CENTER | 9/19/2023 | 282 | Horsepower | 500 | HOURS | Selection of the most efficient reciprocating internal combustion engine and minimizing the hours of operation limits greenhouse gas emissions.<br>- EPA Tier 3 certified reciprocating internal combustion engine and<br>- limiting its hours of operation to 500 hours per each 12 consecutive calendar months.<br>- Part of ensuring efficient engine operation is properly maintaining the engine and the combustion of clean fuels. In this case, clean fuel is determined to be ultra-low sulfur diesel fuel (less than 15 ppm sulfur content). | These greenhouse gas controls are considered baseline. | 4 |
| Fire Pump Diesel Internal Combustion Engines | AK-0084 | DONLIN GOLD PROJECT | 6/30/2017 | 252 | Horsepower | 216 | TPY (COMBINED) | Good Combustion Practices | 216 tpy CO2e for EUs 35 - 37 combined. NSPS Subpart IIII engines | |
| Three (3) Firewater Pump Engines and two (2) Emergency Diesel Generators | AK-0085 | GAS TREATMENT PLANT | 8/13/2020 | 335 | Horsepower | 163.6 | LB/MMBTU | Good combustion practices and limit operation to 500 hours per year per engine | 163.6 lb/MMBtu is the CO2e emissions rates for burning diesel fuel in 40 CFR Part 98: Mandatory Greenhouse Gas Reporting. The total CO2e emissions rate is calculated with the equation CO2(1) + CH4(25) + N2O(298). | 5,6 |
| Emergency Water Pumps | AR-0173 | BIG RIVER STEEL LLC | 1/31/2022 | 376 | Horsepower | 164 | LB/MMBTU | Good Operating Practices | - | 9 |
| Emergency Water Pumps | AR-0180 | HYBAR LLC | 4/28/2023 | 376 | Horsepower | 164 | LB/MMBTU | Good combustion practices | - | 10 |
| Fire Water Pump Engine | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 320 | Horsepower | 92 | TONS/YEAR | - | - | 4 |
| Firewater Pump Engine | IL-0134 | CRONUS CHEMICALS | 12/21/2023 | 369 | Horsepower | 25 | TONS/YEAR | - | Operate and maintain the engine in accordance with NSPS IIII | |
| Emergency fire pump | IN-0382 | DUKE ENERGY INDIANA, INC.- CAYUGA GENERATING STATION | 2/14/2025 | 300 | Horsepower | - | - | good combustion practices | CO2e emissions from the emergency fire pump shall be controlled through the use of good combustion practices and the Permittee shall comply with the requirements of 40 CFR 60, Subpart IIII | 4 |
| emergency fire water pump | IN-0384 | SYCAMORE RIVERSIDE ENERGY LLC | 3/31/2025 | 282 | Horsepower | - | - | - | The CO2e emissions from the entire source shall not exceed 1,115,606 tons per twelve (12) consecutive month period with compliance determined at the end of each month. GHG emissions of the emergency fire water pump shall be controlled through the use of a good engineering design, fuel efficient design, and limited operating hours. | 4 |
| Emergency Diesel Engine Pump P-39A | LA-0328 | PLAQUEMINES PLANT 1 | 5/2/2018 | 375 | Horsepower | 28 | T/YR | Good Combustion Practices | Employ good combustion practices. | |
| Emergency Diesel Engine Pump P-39B | LA-0328 | PLAQUEMINES PLANT 1 | 5/2/2018 | 300 | Horsepower | 28 | T/YR | Good Combustion Practices | Employ good combustion practices. | |
| Emergency Diesel Fired Water Pump Engine | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | 355 | Horsepower | 74.21 | KG/MM BTU | Compliance with 40 CFR 60 Subpart IIII, good combustion practices, and the use of ultra-low sulfur diesel fuel. | BACT limit is 74.21 kg/MM BTU (163.61 lb/MM BTU). Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices, and the use of ultra-low sulfur diesel fuel. | |
| EUFPENGINE (South Plant): Fire pump engine | MI-0433 | MEC NORTH, LLC AND MEC SOUTH LLC | 6/29/2018 | 300 | Horsepower | 85.6 | T/YR | Good combustion practices. | - | |
| EUFPENGINE (North Plant): Fire pump engine | MI-0433 | MEC NORTH, LLC AND MEC SOUTH LLC | 6/29/2018 | 300 | Horsepower | 85.6 | T/YR | Good combustion practices. | - | |
| EUFPENGINE: Fire pump engine | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 399 | Horsepower | 86 | T/YR | Energy efficient design | - | |
| EUFPENGINE (North Plant): Fire Pump Engine | MI-0451 | MEC NORTH, LLC | 6/23/2022 | 300 | Horsepower | 85.6 | T/YR | Good combustion practices | - | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| EUFPENGINE (South Plant): Fire pump engine | MI-0452 | MEC SOUTH, LLC | 6/23/2022 | 300 | Horsepower | 85.6 | T/YR | Good combustion practices. | - | |
| Emergency fire pump engine (P004) | OH-0367 | SOUTH FIELD ENERGY LLC | 9/23/2016 | 311 | Horsepower | 90 | T/YR | Efficient design | - | |
| Emergency fire pump engine (P004) | OH-0370 | TRUMBULL ENERGY CENTER | 9/7/2017 | 300 | Horsepower | 87 | T/YR | Efficient design | - | |
| Emergency fire pump engine (P004) | OH-0372 | OREGON ENERGY CENTER | 9/27/2017 | 300 | Horsepower | 87 | T/YR | State-of-the-art combustion design | - | |
| Emergency diesel-fueled fire pump (P006) | OH-0376 | IRONUNITS LLC - TOLEDO HBI | 2/9/2018 | 250 | Horsepower | 163.6 | LB/MMBTU | Equipment design and maintenance requirements | - | |
| Emergency Fire Pump (P004) | OH-0377 | HARRISON POWER | 4/19/2018 | 320 | Horsepower | 18.67 | T/YR | Efficient design and proper maintenance and operation | - | 5 |
| Firewater Pumps (P005 and P006) | OH-0378 | PTTGCA PETROCHEMICAL COMPLEX | 12/21/2018 | 402 | Horsepower | 23 | T/YR | good operating practices (proper maintenance and operation) | - | |
| 275 hp (205 kW) Diesel-Fired Emergency Fire Pump Engine | OH-0387 | INTEL OHIO SITE | 9/20/2022 | 275 | Horsepower | 162.7 | LB/MMBTU | Good combustion practices and proper maintenance and operation | - | |
| Emergency Fire Pumps | SC-0182 | FIBER INDUSTRIES LLC | 10/31/2017 | - | Horsepower | 200 | OPERATING HR/YR | Use of Ultra Low Sulfur Diesel Fuel (15 ppm), good combustion, operation, and maintenance practices; compliance with NESHAP Subpart ZZZZ | - | |
| FIRE PUMP DIESEL ENGINE | TX-0846 | MOTOR VEHICLE ASSEMBLY PLANT | 9/23/2018 | 286.97828 | Horsepower | - | - | Meets EPA Tier 4 requirements . Fuels with a low carbon density, regular equipment maintenance, the use of efficient equipment and operation limited to less than 100 hr/yr | - | 7 |
| Emergency firewater pumps | TX-0876 | PORT ARTHUR ETHANE CRACKER UNIT | 2/6/2020 | - | Horsepower | - | - | Tier 3 exhaust emission standards specified in 40 CFR Â§ 89.112, limited to 100 hours per year of non-emergency operation | - | |
| EMERGENCY GENERATORS & FIRE WATER PUMP ENGINES | TX-0888 | ORANGE POLYETHYLENE PLANT | 4/23/2020 | - | Horsepower | - | - | well-designed and properly maintained engines and each limited to 100 hours per year of non-emergency use. | - | |
| Emergency Fire Water Pump | VA-0328 | C4GT, LLC | 4/26/2018 | 315 | Horsepower | 1040 | T/YR | good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw. | - | 5 |
| Emegency Fire Water Pump | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 376 | Horsepower | 106 | T/YR | good combustion practices, high efficiency design, and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw. | - | 5,11 |
| P37 Diesel-Fired Emergency Fire Pump | WI-0292 | GREEN BAY PACKAGING INC. â€"MILL DIVISION | 4/1/2019 | 350 | Horsepower | 200 | HOURS | Hours of Operation | - | 6 |

[1] The RBLC query was performed using terbic IDs 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, 17.110, 17.120, 17.210, and 19.900. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "fire" or "pump". Manually removed diesel tank and piping fugitive entries |
| PRIMARY_FUEL | Natural gas. Manually removed emergency engines fired with natural gas or propane |
| THROUGHPUT | ≥ 205 horsepower and ≤ 405 horsepower. Units with throughputs outside of this range were removed. RBLC entries where the emergency generator's power rating could not be determined were included for conservatism |
| PROCESS_NOTES | Does not contain "well" |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted unit throughput(s) per RBLC entry's process notes.

[7] Permitted unit throughput converted from kilowatts into horsepower.

[8] Permitted unit throughput per Arkansas Department of Energy and Environment permit no. 2470-AOP-R2.

[9] Permitted unit throughput per Arkansas Department of Energy and Environment permit no. 2445-AOP-R0.

[10] Permitted unit throughput per Arkansas Department of Energy and Environment permit no. 2470-AOP-R0.

[11] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-4g. Small Fuel Oil Internal Combustion Engines Recent Permit Limitations and Determinations of BACT for $H_2SO_4$ from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted $H_2SO_4$ Limit | Limit Unit | Control | Notes | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|
| Fire Water Pump Engine | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | 320 | Horsepower | - | - | Use of ultra-low sulfur diesel, with a sulfur content < 15 ppm sulfur. | Use of ultra-low sulfur diesel represents BACT. | 4 |
| EUFPENGINE: Fire pump engine | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 399 | Horsepower | 15 | PPM | Good combustion practices, low sulfur fuel. | The diesel material limit is 15 ppm of sulfur (0.0015 percent) by weight, using fuel supplier certification records or fuel sample test data, for each delivery of diesel fuel oil. | |
| Emergency fire pump engine (P004) | OH-0367 | SOUTH FIELD ENERGY LLC | 9/23/2016 | 311 | Horsepower | 6.7 | X10-5 LB/H | Ultra low sulfur diesel fuel | Standard limit (metric) is 1.32E-04 g/kW-hr. | |
| Emergency fire pump engine (P004) | OH-0370 | TRUMBULL ENERGY CENTER | 9/7/2017 | 300 | Horsepower | 6.5 | X10-5 LB/H | Ultra low sulfur diesel fuel | Standard limit (metric) is 1.32x10-04 g/kW-hr. | |
| Emergency fire pump engine (P004) | OH-0372 | OREGON ENERGY CENTER | 9/27/2017 | 300 | Horsepower | 6.5 | X10-5 LB/H | Ultra low sulfur diesel fuel | Standard limit is 1.3x10-4 g/kW-hr (9.6x10-5 g/hp-hr). | |
| Emergency Fire Pump (P004) | OH-0377 | HARRISON POWER | 4/19/2018 | 320 | Horsepower | 7.3 | X10-4 LB/MMBTU | ultra-low sulfur diesel (ULSD) fuel with a sulfur content of less than 15 ppm (0.0015 percent by weight) | 0.00003 t/yr per rolling, 12-month period. | 5 |
| Emergency Fire Water Pump | VA-0328 | C4GT, LLC | 4/26/2018 | 315 | Horsepower | - | - | good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw. | - | 5 |
| Emegency Fire Water Pump | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 376 | Horsepower | 0.0001 | LB/MMBTU | good combustion practices, high efficiency design, and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw. | Certify fuel sulfur content | 5,6 |
| Emergency Diesel Fire Pump (P06) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 282 | Horsepower | - | - | Operation limited to 500 hours/year, operate and maintain according to the manufacturerâ€™s recommendations, and sulfur content of the diesel fuel oil fired may not exceed 15 ppm. | - | |
| Diesel-Fired Fire Pump Engine (P04) | WI-0302 | WPL- RIVERSIDE ENERGY CENTER | 2/28/2020 | 290 | Horsepower | - | - | Only use diesel fuel oil with a sulfur content of no greater than 0.015% by weight | - | |

[1] The RBLC query was performed using terbic IDs 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, 17.110, 17.120, 17.210, and 19.900. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "fire" or "pump". Manually removed diesel tank and piping fugitive entries |
| PRIMARY_FUEL | Natural gas. Manually removed emergency engines fired with natural gas or propane |
| THROUGHPUT | ≥ 205 horsepower and ≤ 405 horsepower. Units with throughputs outside of this range were removed. RBLC entries where the emergency generator's power rating could not be determined were included for conservatism |
| PROCESS_NOTES | Does not contain "well" |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-5a. Natural Gas Fuel Heaters Recent Permit Limitations and Determinations of BACT for CO from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted CO Limit | Limit Unit | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|
| Dewpoint Heaters | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 4.54 | MMBtu/hr | 0.037 | LB/MM BTU | Good combustion practices. | 4 |
| FGFUELHTR (2 fuel pre-heaters) | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 13.5 | MMBtu/hr | 0.082 | LB/MMBTU | Good combustion practices | 6 |
| FG-FUELHEATERS-BR (Fuel heaters) | *MI-0461 | BELLE RIVER POWER PLANT | 7/9/2025 | 18.6 | MMBtu/hr | 0.188 | LB/MMBTU | - | |
| fuel heater | *TX-0983 | CPV BASIN RANCH ENERGY CENTER | 11/24/2024 | 16 | MMBtu/hr | 50 | PPMVD | Good combustion practices | 4 |
| FUEL WATER BATH HEATER | *TX-0994 | SL ENERGY POWER PLANT I | 10/29/2025 | 14 | MMBtu/hr | 50 | PPMVD | Good combustion practices | 4 |
| DEWPOINT HEATERS | *TX-1011 | GW RANCH | 1/16/2026 | 11.1 | MMBtu/hr | 50 | PPMVD | Exhaust concentration of 50 ppmvd at 3% O2, which is equivalent to an emission factor of 0.037 lb/MMBtu (HHV) based on vendor data achieved by proper operation and maintenance of the heater, which is considered TCEQ Tier I BACT for natural gas fired heaters less than 40 MMBtu/hr. The proposed CO emission factor is consistent with the applicantâ€™s RBLC searches for heaters. | 7 |
| FUEL GAS HEATER, 1 | *VA-0336 | DOMINION CHESTERFIELD POWER STATION | 12/19/2025 | 18.8 | MMBtu/hr | 0.037 | LB/MMBTU | Good combustion practices, operator training, proper emissions unit design, construction and maintenance | 4 |
| Heaters: S04/P04 and S05/P05 | *WI-0326 | NEMADJI TRAIL ENERGY CENTER | 9/19/2023 | 10 | MMBtu/hr | 0.08 | LB/MMBTU | (a) The permittee shall operate and maintain according to the manufacturerâ€™s recommendations.<br>(b) The permittee shall tune within 120 days of the initial operation, and within 24-months of each preceding tune-up.<br>(c) CO emissions may not exceed 0.08 lb/MMBtu.<br>(d) The permittee may only combust pipeline quality natural gas. | 4 |
| Three Gas Heaters | AL-0329 | COLBERT COMBUSTION TURBINE PLANT | 9/21/2021 | 10 | MMBtu/hr | 0.08 | LB/MMBTU | - | |
| Fuel Heater | IL-0129 | CPV THREE RIVERS ENERGY CENTER | 7/30/2018 | 12.8 | MMBtu/hr | 0.08 | LB/MMBTU | Good combustion practice | 9 |
| Fuel Heater | IL-0130 | JACKSON ENERGY CENTER | 12/31/2018 | 13 | MMBtu/hr | 0.08 | LB/MMBTU | Good combustion practice | |
| Turbine Fuel Heaters | IN-0382 | DUKE ENERGY INDIANA, INC.-CAYUGA GENERATING STATION | 2/14/2025 | 10 | MMBtu/hr | 0.08 | LB/MMBTU | good combustion practices | 4 |
| Dew Point Heater | IN-0384 | SYCAMORE RIVERSIDE ENERGY LLC | 3/31/2025 | 20 | MMBtu/hr | 84 | LB/MMCF | GOOD COMBUSTION PRACTICES | 4 |
| EUFUELHTR (Fuel pre-heater) | MI-0424 | HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET | 12/5/2016 | 3.7 | MMBtu/hr | 0.1108 | LB/MMBTU | Good combustion practices. | 6 |
| EUFUELHTR1: Natural gas fired fuel heater | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 20.8 | MMBtu/hr | 0.037 | LB/MMBTU | Good combustion controls. | 6 |
| EUFUELHTR2: Natural gas fired fuel heater | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 3.8 | MMBtu/hr | 0.037 | LB/MMBTU | Good combustion controls | 6 |
| Fuel Gas Heaters (2 identical, P007 and P008) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 15 | MMBtu/hr | 0.055 | LB/MMBTU | Combustion control | |
| Dew point heater 13.8 | PA-0310 | CPV FAIRVIEW ENERGY CENTER | 9/2/2016 | 13.8 | MMBtu/hr | 0.08 | LB/MMBTU | - | 8 |
| Dew point heater 3.2 | PA-0310 | CPV FAIRVIEW ENERGY CENTER | 9/2/2016 | 3.2 | MMBtu/hr | 0.08 | LB/MMBTU | - | |
| Dew Point Heater | VA-0328 | C4GT, LLC | 4/26/2018 | 16 | MMBtu/hr | 2.6 | T/YR | good combustion practices | 5,7 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Three (3) Fuel Gas Heaters | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 12 | MMBtu/hr | 0.037 | LB/MMBTU | good combustion practices, operator training, and proper emissions unit design, construction and maintenance. | 5,10 |

[1] The RBLC query was performed using terbic IDs 11.310, 13.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, and 19.600. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "heater". Manually removed process heaters |
| THROUGHPUT | ≥ 1.7 MMBtu/hr and ≤ 21.7 MMBtu/hr. Units with throughputs outside of this range were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted pollutant limit(s) converted from pounds per hour to pounds per MMBtu by dividing the permitted pounds per hour limit by the permitted MMBtu per hour throughput for the unit.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted unit throughput(s) per RBLC entry's process name.

[9] Permitted pollutant limit(s) per Illinois Environmental Protection Agency air per it ID number 063060AEV and converted from pounds per hour to pounds per MMBtu by dividing the permitted pounds per hour limit by the permitted MMBtu per hour throughput for the unit.

[10] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-5b. Natural Gas Fuel Heaters Recent Permit Limitations and Determinations of BACT for $NO_X$ from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted $NO_X$ Limit | Limit Unit | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|
| Dewpoint Heaters | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 4.54 | MMBtu/hr | 0.011 | LB/MM BTU | Ultra-low NOx burners. | 4 |
| FGFUELHTR (2 fuel pre-heaters) | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 13.5 | MMBtu/hr | 0.0978 | LB/MMBTU | Good combustion practices | 6 |
| fuel heater | *TX-0983 | CPV BASIN RANCH ENERGY CENTER | 11/24/2024 | 16 | MMBtu/hr | 0.037 | LB/MMBTU | Low NOx burner | 4 |
| FUEL WATER BATH HEATER | *TX-0994 | SL ENERGY POWER PLANT I | 10/29/2025 | 14 | MMBtu/hr | 0.01 | LB/MMBTU | Good combustion practices | 4 |
| FUEL GAS HEATER | *TX-1000 | ANTELOPE ELK ENERGY CENTER | 8/14/2025 | 5.5 | MMBtu/hr | 0.036 | LB/MMBTU | Low NOx burners and firing pipeline-quality natural gas. RBLC searches for small fuel gas heaters (<10 MMBtu/hr) installed in the last 10 years used low NOx burners achieving emission limits ranging from 0.036 to 0.10 lb/MMBtu. | 4 |
| DEWPOINT HEATERS | *TX-1011 | GW RANCH | 1/16/2026 | 11.1 | MMBtu/hr | - | - | 0.011 lb/MMbtu on a rolling 3-hr average achieved by use of low-NOx burners. This concentration is accepted as BACT for small natural gas-fired heaters below 40 MMBtu/hr. | 7 |
| FUEL GAS HEATER, 1 | *VA-0336 | DOMINION CHESTERFIELD POWER STATION | 12/19/2025 | 18.8 | MMBtu/hr | 0.11 | LB/MMBTU | NOx emissions will be minimized by installing a unit with ultra-low NOx burners that would achieve an emission rate of 0.011 lbs/MMBtu. DEQ accepts this limit as Article 6 BACT. | 4 |
| Heaters: S04/P04 and S05/P05 | *WI-0326 | NEMADJI TRAIL ENERGY CENTER | 9/19/2023 | 10 | MMBtu/hr | 0.049 | LB/MMBTU | (a) P04 and P05 shall be equipped with low-NOx burners.<br>(b) Only pipeline quality natural gas may be combusted in P04 and P05.<br>(c) The permittee shall operate and maintain P04 and P05 according to the manufacturerâ€™s recommendations.<br>(d) The permittee shall tune within 120 days of the initial operation, and within 24-months of each preceding tune-up.<br>(e) NOx emissions from P04 and P05 may not exceed 0.049 lb/MMBtu each. | 4 |
| Three Gas Heaters | AL-0329 | COLBERT COMBUSTION TURBINE PLANT | 9/21/2021 | 10 | MMBtu/hr | 0.011 | LB/MMBTU | - | |
| Two natural gas heaters | FL-0363 | DANIA BEACH ENERGY CENTER | 12/4/2017 | 9.9 | MMBtu/hr | 0.1 | LB/MMBTU | Manufacturer certification | |
| Fuel Heater | IL-0121 | INVENERGY NELSON EXPANSION LLC | 9/27/2016 | 15 | MMBtu/hr | 0.033 | LB/MMBTU | - | |
| Dewpoint Heater | IN-0371 | WABASH VALLEY RESOURCES, LLC | 1/11/2024 | 1.44 | MMBtu/hr | 50 | LB/MMSCF | Low NOx burners and good combustion practices | |
| Dew Point Heater | IN-0384 | SYCAMORE RIVERSIDE ENERGY LLC | 3/31/2025 | 20 | MMBtu/hr | 50 | LB/MMSCF | GOOD COMBUSTION PRACTICES AND LOW NOx BURNERS | 4 |
| EUFUELHTR (Fuel pre-heater) | MI-0424 | HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET | 12/5/2016 | 3.7 | MMBtu/hr | 0.1486 | LB/MMBTU | Good combustion practices. | 6 |
| EUFUELHTR1: Natural gas fired fuel heater | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 20.8 | MMBtu/hr | 0.0361 | LB/MMBTU | Low NOx burner | 6 |
| EUFUELHTR2: Natural gas fired fuel heater | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 3.8 | MMBtu/hr | 0.0368 | LB/MMBTU | Low NOx burner | 6 |
| Fuel Gas Heaters (2 identical, P007 and P008) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 15 | MMBtu/hr | 0.02 | LB/MMBTU | Low-NOx gas burner | |
| Dew Point Heater | VA-0328 | C4GT, LLC | 4/26/2018 | 16 | MMBtu/hr | 0.8 | T/YR | Ultra Low NOx burners | 5,7 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Three (3) Fuel Gas Heaters | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 12 | MMBtu/hr | 0.011 | LBS/MMBTU | : Low NOx burners | 5,7,8 |

[1] The RBLC query was performed using terbic IDs 11.310, 13.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, and 19.600. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "heater". Manually removed process heaters |
| THROUGHPUT | ≥ 1.7 MMBtu/hr and ≤ 21.7 MMBtu/hr. Units with throughputs outside of this range were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted pollutant limit(s) converted from pounds per hour to pounds per MMBtu by dividing the permitted pounds per hour limit by the permitted MMBtu per hour throughput for the unit.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-5c. Natural Gas Fuel Heaters Recent Permit Limitations and Determinations of BACT for $SO_2$ from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted $SO_2$ Limit | Limit Unit | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|
| Dewpoint Heaters | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 4.54 | MMBtu/hr | 0.0014 | LB/MM BTU | Use of natural gas fuel. | 4 |
| FGFUELHTR (2 fuel pre-heaters) | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 13.5 | MMBtu/hr | 2000 | GR/MMSCF | Good combustion practices and the use of pipeline quality natural gas. | |
| fuel heater | *TX-0983 | CPV BASIN RANCH ENERGY CENTER | 11/24/2024 | 16 | MMBtu/hr | - | - | Assumption of 100% molar conversion of natural gas sulfur to SO2 (conservative since SO2 and H2SO4 emissions are double counted), good combustion practices, units fire only pipeline quality natural gas with no more than 0.5 grains sulfur/100 dscf fuel. | 4 |
| DEWPOINT HEATERS | *TX-1011 | GW RANCH | 1/16/2026 | 11.1 | MMBtu/hr | - | - | is 0.5 grain per 100 standard cubic feet (gr/100 scf). | 7 |
| Two natural gas heaters | FL-0363 | DANIA BEACH ENERGY CENTER | 12/4/2017 | 9.9 | MMBtu/hr | 2 | GRAINS S / 100 SCF | Clean fuel | |
| Fuel Gas Heaters (2 identical, P007 and P008) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 15 | MMBtu/hr | 0.0015 | LB/MMBTU | Pipeline natural gas fuel | 6 |
| Dew Point Heater | VA-0328 | C4GT, LLC | 4/26/2018 | 16 | MMBtu/hr | - | - | Pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf | 5,7 |
| Three (3) Fuel Gas Heaters | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 12 | MMBtu/hr | - | - | Pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf | 5,8 |

[1] The RBLC query was performed using terbic IDs 11.310, 13.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, and 19.600. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "heater". Manually removed process heaters |
| THROUGHPUT | ≥ 1.7 MMBtu/hr and ≤ 21.7 MMBtu/hr. Units with throughputs outside of this range were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted pollutant limit(s) converted from pounds per hour to pounds per MMBtu by dividing the permitted pounds per hour limit by the permitted MMBtu per hour throughput for the unit.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-5d. Natural Gas Fuel Heaters Recent Permit Limitations and Determinations of BACT for PM from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Particulate Matter Type | Permitted PM Limit | Limit Unit | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|
| Dewpoint Heaters | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 4.54 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0048 | LB/MM BTU | Good combustion practices. | 4 |
| Dewpoint Heaters | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 4.54 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0048 | LB/MM BTU | Good combustion practices. | 4 |
| FGFUELHTR (2 fuel pre-heaters) | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 13.5 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0074 | LB/MMBTU | Good combustion practices | 6 |
| FGFUELHTR (2 fuel pre-heaters) | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 13.5 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0074 | LB/MMBTU | Good combustion practices | 6 |
| DEWPOINT HEATERS | *TX-1011 | GW RANCH | 1/16/2026 | 11.1 | MMBtu/hr | Particulate matter, total (TPM) | - | - | Use of pipeline-quality natural gas and the application of good combustion practices | 7 |
| Heaters: S04/P04 and S05/P05 | *WI-0326 | NEMADJI TRAIL ENERGY CENTER | 9/19/2023 | 10 | MMBtu/hr | Particulate matter, total (TPM) | 0.01 | LB/MMBTU | (a) The permittee shall operate and maintain according to the manufacturerâ€™s recommendations.<br>(b) The permittee shall tune within 120 days of the initial operation, and within 24-months of each preceding tune-up.<br>(c) The permittee may only combust pipeline quality natural gas. | 4 |
| Fuel Heater | IL-0121 | INVENERGY NELSON EXPANSION LLC | 9/27/2016 | 15 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0070 | LB/MMBTU | - | 6 |
| Fuel Heater | IL-0121 | INVENERGY NELSON EXPANSION LLC | 9/27/2016 | 15 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0070 | LB/MMBTU | - | 6 |
| Fuel Heater | IL-0129 | CPV THREE RIVERS ENERGY CENTER | 7/30/2018 | 12.8 | MMBtu/hr | Particulate matter, total (TPM) | 0.0075 | LB/MMBTU | Good combustion practice | |
| Fuel Heater | IL-0130 | JACKSON ENERGY CENTER | 12/31/2018 | 13 | MMBtu/hr | Particulate matter, total (TPM) | 0.0075 | LB/MMBTU | Good combustion practice | |
| Turbine Fuel Heaters | IN-0382 | DUKE ENERGY INDIANA, INC.-CAYUGA GENERATING STATION | 2/14/2025 | 10 | MMBtu/hr | Particulate matter, total (TPM) | 0.0019 | LB/MMBTU | good combustion practices and use of pipeline quality gas | 4 |
| Dew Point Heater | IN-0384 | SYCAMORE RIVERSIDE ENERGY LLC | 3/31/2025 | 20 | MMBtu/hr | Particulate matter, total (TPM) | 0.0048 | LB/MMBTU | GOOD COMBUSTION PRACTICES AND LOW SULFUR FUELS | 4 |
| Dew Point Heater | IN-0384 | SYCAMORE RIVERSIDE ENERGY LLC | 3/31/2025 | 20 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0048 | LB/MMBTU | GOOD COMBUSTION PRACTICES AND LOW SULFUR FUELS | 4 |
| Dew Point Heater | IN-0384 | SYCAMORE RIVERSIDE ENERGY LLC | 3/31/2025 | 20 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0048 | LB/MMBTU | GOOD COMBUSTION PRACTICES AND LOW SULFUR FUELS | 4 |
| EUFUELHTR (Fuel pre-heater) | MI-0424 | HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET | 12/5/2016 | 3.7 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0075 | LB/MMBTU | Good combustion practices. | |
| EUFUELHTR (Fuel pre-heater) | MI-0424 | HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET | 12/5/2016 | 3.7 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0075 | LB/MMBTU | Good combustion practices. | |
| EUFUELHTR1: Natural gas fired fuel heater | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 20.8 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0072 | LB/MMBTU | Low sulfur fuel | 6 |
| EUFUELHTR1: Natural gas fired fuel heater | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 20.8 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0072 | LB/MMBTU | Low sulfur fuel | 6 |
| EUFUELHTR2: Natural gas fired fuel heater | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 3.8 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.0079 | LB/MMBTU | Low sulfur fuel | 6 |
| EUFUELHTR2: Natural gas fired fuel heater | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 3.8 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.0079 | LB/MMBTU | Low sulfur fuel | 6 |
| Fuel Gas Heaters (2 identical, P007 and P008) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 15 | MMBtu/hr | Particulate matter, total (TPM) | 0.005 | LB/MMBTU | Combustion control | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Fuel Gas Heaters (2 identical, P007 and P008) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 15 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.005 | LB/MMBTU | Combustion control | |
| Fuel Gas Heaters (2 identical, P007 and P008) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 15 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.005 | LB/MMBTU | Combustion control | |
| Dew Point Heater | VA-0328 | C4GT, LLC | 4/26/2018 | 16 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.5 | T/YR | Good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12 mo rolling av. | 5,7 |
| Dew Point Heater | VA-0328 | C4GT, LLC | 4/26/2018 | 16 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.5 | T/YR | Good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12 mo rolling av. | 5,7 |
| Three (3) Fuel Gas Heaters | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 12 | MMBtu/hr | Particulate matter, total; 2.5 µm (TPM2.5) | 0.5 | T/YR (EACH) | : Good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-month rolling average. | 5,8 |
| Three (3) Fuel Gas Heaters | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 12 | MMBtu/hr | Particulate matter, total; 10 µm (TPM10) | 0.4 | T/YR | Good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-month rolling average. | 5,8 |

[1] The RBLC query was performed using terbic IDs 11.310, 13.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, and 19.600. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "heater". Manually removed process heaters |
| THROUGHPUT | ≥ 1.7 MMBtu/hr and ≤ 21.7 MMBtu/hr. Units with throughputs outside of this range were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted pollutant limit(s) converted from pounds per hour to pounds per MMBtu by dividing the permitted pounds per hour limit by the permitted MMBtu per hour throughput for the unit.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-5e. Natural Gas Fuel Heaters Recent Permit Limitations and Determinations of BACT for VOC from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted VOC Limit | Limit Unit | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|
| Dewpoint Heaters | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 4.54 | MMBtu/hr | 0.008 | LB/MM BTU | Good combustion practices. | 4 |
| FGFUELHTR (2 fuel pre-heaters) | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 13.5 | MMBtu/hr | 0.0052 | LB/MMBTU | Good combustion practices | 6 |
| fuel heater | *TX-0983 | CPV BASIN RANCH ENERGY CENTER | 11/24/2024 | 16 | MMBtu/hr | 0.025 | LB/MMBTU | Good combustion practices | 4 |
| FUEL WATER BATH HEATER | *TX-0994 | SL ENERGY POWER PLANT I | 10/29/2025 | 14 | MMBtu/hr | - | - | Good combustion practices, clean fuel | 4 |
| DEWPOINT HEATERS | *TX-1011 | GW RANCH | 1/16/2026 | 11.1 | MMBtu/hr | 0.0054 | LB/MMBTU | CLEAN FUEL | 7 |
| FUEL GAS HEATER, 1 | *VA-0336 | DOMINION CHESTERFIELD POWER STATION | 12/19/2025 | 18.8 | MMBtu/hr | 0.005 | LB/MMBTU | Good combustion practices, operator training, proper emissions unit design, construction and maintenance | 4 |
| Heaters: S04/P04 and S05/P05 | *WI-0326 | NEMADJI TRAIL ENERGY CENTER | 9/19/2023 | 10 | MMBtu/hr | 0.005 | LB/MMBTU | (a) The permittee shall operate and maintain according to the manufacturerâ€™s recommendations. (b) The permittee shall tune within 120 days of the initial operation, and within 24-months of each preceding tune-up. (c) VOC emissions from may not exceed 0.005 lb/MMBtu. (d) The permittee may only combust pipeline quality natural gas. | 4 |
| Two natural gas heaters (< 10 MMBtu/hr each) | FL-0364 | SEMINOLE GENERATING STATION | 3/21/2018 | 9.9 | MMBtu/hr | 0.005 | LB/MMBTU | - | |
| Turbine Fuel Heaters | IN-0382 | DUKE ENERGY INDIANA, INC.- CAYUGA GENERATING STATION | 2/14/2025 | 10 | MMBtu/hr | 0.01 | LB/MMBTU | good combustion practices | 4 |
| Dew Point Heater | IN-0384 | SYCAMORE RIVERSIDE ENERGY LLC | 3/31/2025 | 20 | MMBtu/hr | 0.025 | LB/MMBTU | GOOD COMBUSTION PRACTICES | 4 |
| EUFUELHTR (Fuel pre-heater) | MI-0424 | HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET | 12/5/2016 | 3.7 | MMBtu/hr | 0.0081 | LB/MMBTU | Good combustion practices. | 6 |
| EUFUELHTR1: Natural gas fired fuel heater | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 20.8 | MMBtu/hr | 0.0082 | LB/MMBTU | Good combustion controls | 6 |
| EUFUELHTR2: Natural gas fired fuel heater | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 3.8 | MMBtu/hr | 0.0079 | LB/MMBTU | Good combustion controls. | 6 |
| Fuel Gas Heaters (2 identical, P007 and P008) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 15 | MMBtu/hr | 0.0050 | LB/MMBTU | Combustion control | 6 |
| Dew Point Heater | VA-0328 | C4GT, LLC | 4/26/2018 | 16 | MMBtu/hr | - | - | good combustion practices | 5,7 |
| Three (3) Fuel Gas Heaters | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 12 | MMBtu/hr | 0.3 | T/YR | good combustion practices, operator training, and proper emissions unit design, construction and maintenance. | 5,8 |

[1] The RBLC query was performed using terbic IDs 11.310, 13.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, and 19.600. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "heater". Manually removed process heaters |
| THROUGHPUT | ≥ 1.7 MMBtu/hr and ≤ 21.7 MMBtu/hr. Units with throughputs outside of this range were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted pollutant limit(s) converted from pounds per hour to pounds per MMBtu by dividing the permitted pounds per hour limit by the permitted MMBtu per hour throughput for the unit.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-5f. Natural Gas Fuel Heaters Recent Permit Limitations and Determinations of BACT for GHGs from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted GHG Limit | Limit Unit | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|
| Dewpoint Heaters | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | 4.54 | MMBtu/hr | 2326 | T/YR | Good combustion practices. | 4 |
| FGFUELHTR (2 fuel pre-heaters) | *MI-0445 | INDECK NILES, LLC | 11/26/2019 | 13.5 | MMBtu/hr | 13848 | T/YR | Energy Efficiency Measures and the use of a low carbon fuel (pipeline quality natural gas) | |
| fuel heater | *TX-0983 | CPV BASIN RANCH ENERGY CENTER | 11/24/2024 | 16 | MMBtu/hr | - | - | Natural gas fuel, which is the lowest carbon fuel available, thus minimizing formation of CO2 from combustion. not exceed routine emissions. | 4 |
| FUEL WATER BATH HEATER | *TX-0994 | SL ENERGY POWER PLANT I | 10/29/2025 | 14 | MMBtu/hr | - | - | Good combustion practices, clean fuel | 4 |
| FUEL GAS HEATER | *TX-1000 | ANTELOPE ELK ENERGY CENTER | 8/14/2025 | 5.5 | MMBtu/hr | - | - | GOOD COMBUSTION PRACTICES | 4 |
| DEWPOINT HEATERS | *TX-1011 | GW RANCH | 1/16/2026 | 11.1 | MMBtu/hr | - | - | The total gross thermal efficiency for the dewpoint heaters is 117 lb CO2/MMBtu. | |
| FUEL GAS HEATER, 1 | *VA-0336 | DOMINION CHESTERFIELD POWER STATION | 12/19/2025 | 18.8 | MMBtu/hr | 9644 | TONS | Pipeline quality natural gas and efficient design and operation. Subject to NSPS Subpart Dc | 4,6 |
| Heaters: S04/P04 and S05/P05 | *WI-0326 | NEMADJI TRAIL ENERGY CENTER | 9/19/2023 | 10 | MMBtu/hr | - | - | (a) Equipped with low-NOx burners. (b) Only pipeline quality natural gas may be combusted. (c) The permittee shall operate and maintain according to the manufacturerâ€™s recommendations. (d) The permittee shall tune within 120 days of the initial operation of, and within 24-months of each preceding tune-up. | 4 |
| Three Gas Heaters | AL-0329 | COLBERT COMBUSTION TURBINE PLANT | 9/21/2021 | 10 | MMBtu/hr | 117.1 | LB/MMBTU | - | |
| Fuel Heater | IL-0121 | INVENERGY NELSON EXPANSION LLC | 9/27/2016 | 15 | MMBtu/hr | 1836 | TPY | - | |
| Fuel Heater | IL-0129 | CPV THREE RIVERS ENERGY CENTER | 7/30/2018 | 12.8 | MMBtu/hr | 6600 | TON/YR | Good combustion practice | |
| Fuel Heater | IL-0130 | JACKSON ENERGY CENTER | 12/31/2018 | 13 | MMBtu/hr | 6700 | TONS/YEAR | Good combustion practice | |
| Dewpoint Heater | IN-0371 | WABASH VALLEY RESOURCES, LLC | 1/11/2024 | 1.44 | MMBtu/hr | 117 | LB/MMBTU | Good Combustion Practices | |
| Turbine Fuel Heaters | IN-0382 | DUKE ENERGY INDIANA, INC.- CAYUGA GENERATING STATION | 2/14/2025 | 10 | MMBtu/hr | 10258 | TONS | good combustion practices and use of pipeline quality natural gas | 4 |
| Dew Point Heater | IN-0384 | SYCAMORE RIVERSIDE ENERGY LLC | 3/31/2025 | 20 | MMBtu/hr | - | - | GOOD COMBUSTION PRACTICES AND LOW SULFUR FUELS | 4 |
| EUFUELHTR (Fuel pre-heater) | MI-0424 | HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET | 12/5/2016 | 3.7 | MMBtu/hr | 1934 | T/YR | Good combustion practices. | |
| EUFUELHTR1: Natural gas fired fuel heater | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 20.8 | MMBtu/hr | 6310 | T/YR | Natural gas fuel | |
| EUFUELHTR2: Natural gas fired fuel heater | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 3.8 | MMBtu/hr | 6310 | T/YR | Natural gas fuel | |
| Fuel Gas Heaters (2 identical, P007 and P008) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 15 | MMBtu/hr | 7695 | T/YR | Natural gas, low-emitting fuel | |
| Natural-Gas-Fired Fuel Gas Heaters | TX-0824 | JACKSON COUNTY GENERATING FACILITY | 6/30/2017 | 5.5 | MMBtu/hr | 2818.74 | T/YR | natural gas as a low carbon fuel, good operating and maintenance practices, efficient design, and low annual capacity | 6 |
| Dew Point Heater | VA-0328 | C4GT, LLC | 4/26/2018 | 16 | MMBtu/hr | 8208 | T/YR | use of natural gas and high efficiency design and operation | 5,6 |
| Three (3) Fuel Gas Heaters | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 12 | MMBtu/hr | 6261 | T/YR | use of natural gas and high efficiency design and operation | 5,7 |

[1] The RBLC query was performed using terbic IDs 11.310, 13.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, and 19.600. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "heater". Manually removed process heaters |
| THROUGHPUT | ≥ 1.7 MMBtu/hr and ≤ 21.7 MMBtu/hr. Units with throughputs outside of this range were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted unit throughput(s) per RBLC entry's process notes.

[7] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-5g. Natural Gas Fuel Heaters Recent Permit Limitations and Determinations of BACT for $H_2SO_4$ from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted $H_2SO_4$ Limit | Limit Unit | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|
| fuel heater | *TX-0983 | CPV BASIN RANCH ENERGY CENTER | 11/24/2024 | 16 | MMBtu/hr | - | - | Assumption of 100% molar conversion of natural gas sulfur to SO2 (conservative since SO2 and H2SO4 emissions are double counted), good combustion practices, units fire only pipeline quality natural gas with no more than 0.5 grains sulfur/100 dscf fuel. | 4 |
| Fuel Heater | IL-0129 | CPV THREE RIVERS ENERGY CENTER | 7/30/2018 | 12.8 | MMBtu/hr | 0.0011 | LB/MMBTU | Good combustion practice | 6 |
| Fuel Heater | IL-0130 | JACKSON ENERGY CENTER | 12/31/2018 | 13 | MMBtu/hr | 0.0011 | LB/MMBTU | Good combustion practice | 6 |
| EUFUELHTR1: Natural gas fired fuel heater | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 20.8 | MMBtu/hr | 0.34 | GR S/100 SCF | Low sulfur fuel | |
| EUFUELHTR2: Natural gas fired fuel heater | MI-0435 | BELLE RIVER COMBINED CYCLE POWER PLANT | 7/16/2018 | 3.8 | MMBtu/hr | 0.34 | GR S/100 SCF | Low sulfur fuel | |
| Fuel Gas Heaters (2 identical, P007 and P008) | OH-0374 | GUERNSEY POWER STATION LLC | 10/23/2017 | 15 | MMBtu/hr | 2.3 | X10-4 LB/MMBTU | Pipeline natural gas fuel | |
| Dew Point Heater | VA-0328 | C4GT, LLC | 4/26/2018 | 16 | MMBtu/hr | - | - | Pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf | 5,7 |
| Three (3) Fuel Gas Heaters | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 12 | MMBtu/hr | - | - | Pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf | 5,8 |
| Natural Gas-Fired Heater (P04) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 10 | MMBtu/hr | - | - | Only combust pipeline quality natural gas and maintain heater according to manufacturerâ€™s recommendations. | |
| Natural Gas-Fired Heater (P05) | WI-0300 | NEMADJI TRAIL ENERGY CENTER | 9/1/2020 | 10 | MMBtu/hr | - | - | Only combust pipeline quality natural gas and operate and maintain heater according to manufacturerâ€™s recommendations. | |

[1] The RBLC query was performed using terbic IDs 11.310, 13.310, 15.110, 15.150, 15.210, 15.250, 15.900, 16.110, 16.210, and 19.600. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "heater". Manually removed process heaters |
| THROUGHPUT | ≥ 1.7 MMBtu/hr and ≤ 21.7 MMBtu/hr. Units with throughputs outside of this range were removed |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

[6] Permitted pollutant limit(s) converted from pounds per hour to pounds per MMBtu by dividing the permitted pounds per hour limit by the permitted MMBtu per hour throughput for the unit.

[7] Permitted unit throughput(s) per RBLC entry's process notes.

[8] Permitted unit throughput per Commonwealth of Virginia Department of Environmental Quality permit Registration No. 52610.

**Table C-6a. Natural Gas Fugitives Recent Permit Limitations and Determinations of BACT for GHGs and VOCs from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Pollutant | Permitted Limit | Limit Unit | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|
| PF-13 - Process Fugitives (FUG0002) | *LA-0312 | ST. JAMES METHANOL PLANT | 6/30/2017 | - | - | Volatile Organic Compounds (VOC) | - | - | Compliance with NESHAP Subpart H. LDAR Monitoring. | |
| 44-22 - AO-5 Fugitive Emissions | *LA-0394 | GEISMAR PLANT | 12/12/2023 | - | - | Carbon Dioxide Equivalent (CO2e) | 1 | TONS/YR | Implementation of an LDAR program is the most effective strategy for control of fugitive VOC emissions and will also minimize emissions of GHGs | |
| 44-22 - AO-5 Fugitive Emissions | *LA-0394 | GEISMAR PLANT | 12/12/2023 | - | - | Volatile Organic Compounds (VOC) | 8.03 | TONS/YR | Implementation of an LDAR program is the most effective strategy for control of fugitive VOC emissions | |
| FUG - Fugitive Emissions - KMe Facility | *LA-0401 | KOCH METHANOL (KME) FACILITY | 12/20/2023 | - | - | Volatile Organic Compounds (VOC) | 43.51 | TONS/YEAR | Equipment design and LDAR pursuant to 40 CFR 60, Subpart VVa and 40 CFR 63, Subpart H | |
| 13-91 - Fugitive Solvent Emissions | *LA-0402 | DESTREHAN OIL PROCESSING FACILITY | 12/13/2023 | 175 | tons/hr | Volatile Organic Compounds (VOC) | 68.39 | T/YR | - | |
| Fugitive Emissions | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | - | - | Carbon Dioxide Equivalent (CO2e) | 375 | T/YR | Proper design and good work practices. | 4 |
| Fugitive Emissions | *LA-0412 | ENTERGY LOUISIANA, LLC - FRANKLIN FARMS POWER STATION | 12/23/2025 | - | - | Volatile Organic Compounds (VOC) | 0.4 | T/YR | Proper design and good work practices. | 4 |
| Fugitive Emissions | *LA-0414 | CP2 LNG TERMINAL | 7/22/2025 | - | - | Carbon Dioxide Equivalent (CO2e) | 6524 | TONS/YEAR | Proper piping design and installation, good work practices, and conduct an AVO program. | |
| Fugitive Emissions | *LA-0414 | CP2 LNG TERMINAL | 7/22/2025 | - | - | Volatile Organic Compounds (VOC) | 2.3 | TONS/YEAR | Proper piping design and installation, good work practices, conduct an AVO program, and compliance with LAC 33:III.2111 | |
| Fugitive Emissions | *LA-0415 | MOSS LAKE COMPRESSOR STATION | 11/20/2025 | - | - | Carbon Dioxide Equivalent (CO2e) | 3573 | TONS/YEAR | Proper piping design and installation; LDAR program; Good work practices; Compliance with LAC 33:III.2111 and 40 CFR 60 Subpart OOOOb | |
| Fugitive Emissions | *LA-0415 | MOSS LAKE COMPRESSOR STATION | 11/20/2025 | - | - | Volatile Organic Compounds (VOC) | 24.69 | TONS/YEAR | Proper piping design and installation; LDAR program; Good work practices; Compliance with LAC 33:III.2111 and 40 CFR 60 Subpart OOOOb | |
| Fugitive Equipment Leaks | *TN-0163 | HOLSTON ARMY AMMUNITION PLANT | 10/8/2018 | - | - | Volatile Organic Compounds (VOC) | - | - | Comply with NSPS VVa work practices | |
| FUGITIVE COMPONENTS | *TX-0994 | SL ENERGY POWER PLANT I | 10/29/2025 | - | - | Carbon Dioxide Equivalent (CO2e) | - | - | NO LDAR PROGRAM | 4 |
| FUGITIVE COMPONENTS | *TX-0994 | SL ENERGY POWER PLANT I | 10/29/2025 | - | - | Volatile Organic Compounds (VOC) | - | - | TOTAL UNCONTROLLED LESS THAN 10 TPY, NO SPECIFIED LDAR | 4 |
| FUGITIVE COMPONENTS | *TX-1003 | PERMIAN BASIN STEAM ELECTRIC STATION | 9/24/2025 | - | - | Volatile Organic Compounds (VOC) | - | - | The uncontrolled site-wide VOC emissions from fugitive sources are less than 10 tpy. No LDAR monitoring is required | |
| FUGITIVES | *TX-1004 | GREGORY POWER FACILITY | 12/19/2025 | - | - | Volatile Organic Compounds (VOC) | - | - | UNCONTROLLED LESS THAN 10 TPY. LIMITED BY PROPER DESIGN AND OPEARTION OF FUEL GAS PIPING AND AVO IS BMP | |
| FUGITIVE COMPONENTS | *TX-1005 | FERMI AMERICA PROJECT MATADOR | 2/25/2026 | - | - | Carbon Dioxide Equivalent (CO2e) | - | - | VOC service are estimated to be less than 10 tpy and monitoring is not required. VOC and GHG will be limited through proper design and installation, and use of good work practices. | |
| FUGITIVE COMPONENTS | *TX-1005 | FERMI AMERICA PROJECT MATADOR | 2/25/2026 | - | - | Volatile Organic Compounds (VOC) | - | - | VOC service are estimated to be less than 10 tpy and monitoring is not required. VOC and GHG will be limited through proper design and installation, and use of good work practices. | |
| FUGITIVE COMPONENTS | *TX-1009 | JONES STATION POWER PLANT | 2/6/2026 | - | - | Volatile Organic Compounds (VOC) | - | - | BEST MANAGEMENT PRACTICES, LOW VOC CONTENT FUEL | |
| FUGITIVE COMPONENTS | *TX-1010 | JONES STATION POWER PLANT | 2/6/2026 | - | - | Carbon Dioxide Equivalent (CO2e) | - | - | Daily AVO inspection for all piping and valves in natural gas service. | |
| FUGITIVE COMPONENTS | *TX-1010 | JONES STATION POWER PLANT | 2/6/2026 | - | - | Volatile Organic Compounds (VOC) | - | - | Daily AVO inspection for all piping and valves in natural gas service. | |
| FUGITIVE COMPONENTS | *TX-1011 | GW RANCH | 1/16/2026 | - | - | Carbon Dioxide Equivalent (CO2e) | - | - | - | |
| FUGITIVE COMPONENTS | *TX-1011 | GW RANCH | 1/16/2026 | - | - | Volatile Organic Compounds (VOC) | - | - | - | |
| FUGITIVE EMISSIONS | *VA-0336 | DOMINION CHESTERFIELD POWER STATION | 12/19/2025 | - | - | Methane | - | - | Best management practices (for example, directed inspection and maintenance) to prevent, detect and repair natural gas releases. The permittee must develop a fugitive emission monitoring (FEM) plan, keep the plan available for inspection on site, and keep records of all monitoring results and actions taken. | 4 |
| F1: Fugitive Components | *WI-0273 | SUPERIOR REFINING COMPANY LLC | 7/15/2022 | - | - | Volatile Organic Compounds (VOC) | - | - | Leak Detection and Repair (LDAR) | |
| Block 4000 fugitive emissions | IN-0317 | RIVERVIEW ENERGY CORPORATION | 06/11/2019  ACT | - | - | Volatile Organic Compounds (VOC) | 25.04 | TONS | Leak detection and repair (LDAR) program | |
| Natural Gas Piping Fugitives | IN-0384 | SYCAMORE RIVERSIDE ENERGY LLC | 3/31/2025 | - | - | Carbon Dioxide Equivalent (CO2e) | 65.7 | TONS | Audio, Visual, and Olfactory (AVO) inspection walk-throughs once per day | 4 |
| Fugitive Emissions | LA-0277 | COMONIMER-1 UNIT | 9/1/2016 | - | - | Volatile Organic Compounds (VOC) | - | - | Comply with requirements of 40 CFR 63 Subpart UU and LAC 33:III.2111 | |
| fugitive emissions | LA-0316 | CAMERON LNG FACILITY | 2/17/2017 | - | - | Carbon Dioxide Equivalent (CO2e) | - | - | Implement a leak detection and repair (LDAR) program to minimize the leak | |
| fugitive emissions | LA-0316 | CAMERON LNG FACILITY | 2/17/2017 | - | - | Volatile Organic Compounds (VOC) | - | - | Complying with LAC 33:III.2111 | |
| Process Fugitives (I-G-1000, II-G-1000) | LA-0317 | METHANEX - GEISMAR METHANOL PLANT | 12/22/2016 | - | - | Carbon Dioxide Equivalent (CO2e) | - | - | complying with 40 CFR 63 Subpart H | |
| Fugitive Emissions FE-1 | LA-0319 | LAKE CHARLES CHEMICAL COMPLEX - COMONOMER-1 UNIT | 9/1/2016 | - | - | Volatile Organic Compounds (VOC) | - | - | Complying with 40 CFR 63 Subpart UU | |
| Fugitive Emissions (FUG0001) | LA-0324 | COMMONWEALTH LNG FACILITY | 3/28/2023 | - | - | Volatile Organic Compounds (VOC) | - | - | Appropriate component selection, design, and installation; Utilizing proper piping design; Compliance with LAC 33:III.2111; and LDAR. | |
| Fugitive Equipment Leaks | LA-0331 | CALCASIEU PASS LNG PROJECT | 9/21/2018 | - | - | Carbon Dioxide Equivalent (CO2e) | 3141 | T/YR | Proper piping design. | |
| Fugitive Equipment Leaks | LA-0331 | CALCASIEU PASS LNG PROJECT | 9/21/2018 | - | - | Volatile Organic Compounds (VOC) | 5 | T/YR | Proper piping design and compliance with LAC 33:III.2111. | |
| fugitives | LA-0346 | GULF COAST METHANOL COMPLEX | 1/4/2018 | - | - | Volatile Organic Compounds (VOC) | - | - | LDAR meets requirements of 40 CFR 63 Subpart H | |

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|---|---|---|---|---|---|---|---|---|---|---|
| Fugitives | LA-0349 | DRIFTWOOD LNG FACILITY | 7/10/2018 | - | - | Carbon Dioxide Equivalent (CO2e) | - | - | Leak Management Program an Good Work Practices | |
| Fugitives | LA-0349 | DRIFTWOOD LNG FACILITY | 7/10/2018 | - | - | Volatile Organic Compounds (VOC) | - | - | Good Work Practices, Comply with LAC 33:III.2111, 40 CFR 63 Subpart H, TT, or UU, as applicable | |
| Fugitive Emissions (Unit 305, Unit 333, Refinery, GRL) | LA-0356 | GARYVILLE REFINERY | 9/27/2019 | - | - | Volatile Organic Compounds (VOC) | - | - | Comply with 40 CFR 60 Subpart GGGa | |
| Area D Process D Fugitives | LA-0362 | LAKE CHARLES REFINERY, AREA D | 7/18/2019 | - | - | Volatile Organic Compounds (VOC) | 24.44 | LB/H | Compliance with the most stringent applicable Leak Detection and Repair (LDAR) program, which is Louisiana MACT Determination for Refineries with Consent Decree Enhancements. | |
| Fugitive Emissions | LA-0364 | FG LA COMPLEX | 1/6/2020 | - | - | Volatile Organic Compounds (VOC) | - | - | Compliance with applicable provisions 40 CFR 63 Subpart UU. | |
| Fugitives (FUG0001) | LA-0382 | BIG LAKE FUELS METHANOL PLANT | 4/25/2019 | - | - | Volatile Organic Compounds (VOC) | - | - | Comply with 40 CFR 63 Subpart H | |
| Fugitives (FUG0001) | LA-0383 | LAKE CHARLES LNG EXPORT TERMINAL | 9/3/2020 | - | - | Carbon Dioxide Equivalent (CO2e) | - | - | Proper piping design and LDAR | |
| Fugitives (FUG0001) | LA-0383 | LAKE CHARLES LNG EXPORT TERMINAL | 9/3/2020 | - | - | Volatile Organic Compounds (VOC) | - | - | Proper piping design and LDAR | |
| Fugitives | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | - | - | Carbon Dioxide Equivalent (CO2e) | 104 | T/YR | Proper piping design and installation. | |
| FUGITIVES | TX-0815 | PORT ARTHUR ETHANE SIDE CRACKER | 1/17/2017 | - | - | Volatile Organic Compounds (VOC) | 17.2 | T/YR | 28VHP LDAR Program | |
| Natural Gas Fugitives | TX-0824 | JACKSON COUNTY GENERATING FACILITY | 6/30/2017 | - | - | Carbon Dioxide Equivalent (CO2e) | 693.3 | T/YR | weekly checks for leaks using audio, visual, and olfactory (AVO) sensing for natural gas leaks | |
| FUGITIVES | TX-0840 | CORPUS CHRISTI TERMINAL | 10/31/2018 | - | - | Volatile Organic Compounds (VOC) | - | - | Fugitive Leak Detection and Repair (LDAR) per the 28 MID Monitoring program that requires quarterly monitoring of all components with a leak definition of 500 ppmv and directed maintenance. | |
| Equipment Leaks/Fugitive Emissions | TX-0847 | VALERO PORT ARTHUR REFINERY | 9/16/2018 | - | - | Carbon Dioxide Equivalent (CO2e) | - | - | 28 VHP | |
| Equipment Leaks/Fugitive Emissions | TX-0847 | VALERO PORT ARTHUR REFINERY | 9/16/2018 | - | - | Volatile Organic Compounds (VOC) | - | - | 28 VHP | |
| FUGITIVES | TX-0850 | CORPUS CHRISTI TERMINAL | 7/15/2018 | - | - | Volatile Organic Compounds (VOC) | - | - | 28 MID | |
| FUGITIVES | TX-0851 | RIO BRAVO PIPELINE FACILITY | 12/17/2018 | - | - | Carbon Dioxide Equivalent (CO2e) | - | - | 28 VHP | |
| FUGITIVES | TX-0851 | RIO BRAVO PIPELINE FACILITY | 12/17/2018 | - | - | Volatile Organic Compounds (VOC) | - | - | 28VHP | |
| Fugitive Components | TX-0852 | CORPUS CHRISTI WATERFRONT TERMINAL | 1/2/2019 | - | - | Volatile Organic Compounds (VOC) | - | - | 28LAER | |
| Fugitives | TX-0855 | BUCKEYE SOUTH TEXAS GATEWAY TERMINAL | 3/13/2019 | - | - | Volatile Organic Compounds (VOC) | - | - | 28 VHP, 28PI LDAR | |
| FUGITIVES | TX-0861 | BUCKEYE TEXAS PROCESSING CORPUS CHRISTI FACILITY | 8/29/2019 | - | - | Volatile Organic Compounds (VOC) | - | - | 28VHP LDAR | |
| FUGITIVES | TX-0865 | EQUISTAR CHEMICALS CHANNELVIEW COMPLEX | 9/9/2019 | - | - | Carbon Dioxide Equivalent (CO2e) | - | - | 28LAER & 28PI LDAR | |
| Fugitives | TX-0871 | PORT ARTHUR REFINERY | 1/31/2020 | - | - | Volatile Organic Compounds (VOC) | - | - | 28VHP leak detection and repair (LDAR) | |
| Fugitives (Routine) | TX-0872 | CONDENSATE SPLITTER FACILITY | 10/31/2019 | - | - | Volatile Organic Compounds (VOC) | 15.63 | LB/H | 28VHP.<br>Leak-less connectors. | |
| FUGITIVES | TX-0873 | PORT ARTHUR REFINERY | 2/4/2020 | - | - | Volatile Organic Compounds (VOC) | - | - | 28 MID, 28 AVO and OGI fugitive programs.<br>Authorized for infrared camera (28MID+). | |
| FUGITIVES | TX-0874 | PORT ARTHUR REFINERY | 2/4/2020 | - | - | Volatile Organic Compounds (VOC) | - | - | 28MID LDAR and 28CNTQ. | |
| FUGITIVES | TX-0878 | LNG EXPORT TERMINAL | 9/15/2022 | - | - | Carbon Dioxide Equivalent (CO2e) | - | - | 28 VHP | |
| FUGITIVES | TX-0878 | LNG EXPORT TERMINAL | 9/15/2022 | - | - | Volatile Organic Compounds (VOC) | - | - | 28 VHP | |
| FUGITIVES | TX-0881 | EXXONMOBIL BEAUMONT REFINERY | 1/10/2020 | - | - | Carbon Dioxide Equivalent (CO2e) | - | - | Compliance with Refinery MACT fugitives and Texas 28VHP LDAR program. | |
| Fugitives | TX-0887 | MIDLAND PLAINS MARKETING TERMINAL | 4/7/2020 | - | - | Volatile Organic Compounds (VOC) | - | - | The site-wide fugitive emissions are less than 10 tpy uncontrolled VOC emissions. LADR program and emission reduction credit is not applied. | |
| FUGITIVE COMPONENTS | TX-0888 | ORANGE POLYETHYLENE PLANT | 4/23/2020 | - | - | Carbon Dioxide Equivalent (CO2e) | - | - | 28 VHP, 28CNTA, 28PI leak detection and repair (LDAR) programs | |
| FUGITIVE COMPONENTS | TX-0888 | ORANGE POLYETHYLENE PLANT | 4/23/2020 | - | - | Volatile Organic Compounds (VOC) | - | - | 28 VHP, 28CNTA, 28PI leak detection and repair (LDAR) programs | |
| fugitives | TX-0892 | NEDERLAND TERMINAL | 7/13/2020 | - | - | Volatile Organic Compounds (VOC) | - | - | 28-VHP LDAR fugitive | |
| Fugitives | TX-0908 | NEWMAN POWER STATION | 8/27/2021 | - | - | Carbon Dioxide Equivalent (CO2e) | - | - | weekly AVO | |
| Fugitives | TX-0908 | NEWMAN POWER STATION | 8/27/2021 | - | - | Volatile Organic Compounds (VOC) | - | - | weekly AVO | |
| Fugitives | TX-0909 | POLYETHYLENE UNIT 1792 | 12/8/2020 | - | - | Volatile Organic Compounds (VOC) | - | - | 28VHP | |
| FUGITIVES | TX-0910 | POLYETHYLENE UNIT 1796 | 12/11/2020 | - | - | Volatile Organic Compounds (VOC) | - | - | 28 VHP | |
| FUGITIVE COMPONENTS | TX-0914 | BORGER REFINERY | 1/21/2021 | - | - | Carbon Dioxide Equivalent (CO2e) | - | - | 28VHP | |
| FUGITIVE COMPONENTS | TX-0914 | BORGER REFINERY | 1/21/2021 | - | - | Volatile Organic Compounds (VOC) | - | - | 28VHP | |
| FUGITIVE COMPONENTS | TX-0916 | CEDAR BAYOU | 2/1/2021 | - | - | Volatile Organic Compounds (VOC) | - | - | 28 VHP | |
| FUGITIVES | TX-0929 | FORMOSA POINT COMFORT PLANT | 10/15/2021 | - | - | Volatile Organic Compounds (VOC) | - | - | modified 28VHP LDAR program in VOC service. A more stringent 500ppmv leak definition of 28MID is used. Annual 28CNTA monitoring is voluntarily used. | |

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|---|---|---|---|---|---|---|---|---|---|---|
| Fugitive Components | TX-0930 | CENTURION BROWNSVILLE | 10/19/2021 | - | - | Methane | - | - | Leak detection and repair (LDAR) monitoring and directed maintenance in accordance with the 28VHP program. Quarterly instrumental monitoring using a Method 21 gas analyzer. | |
| NATURAL GAS FUGITIVES | TX-0939 | ORANGE COUNTY ADVANCED POWER STATION | 3/13/2023 | - | - | Carbon Dioxide Equivalent (CO2e) | - | - | 28AVO LDAR program | |
| NATURAL GAS FUGITIVES | TX-0939 | ORANGE COUNTY ADVANCED POWER STATION | 3/13/2023 | - | - | Volatile Organic Compounds (VOC) | - | - | 28AVO LDAR program | |
| Fugitive Piping Leaks | TX-0962 | POINT COMFORT PLANT | 9/22/2023 | - | - | Volatile Organic Compounds (VOC) | - | - | A modified version of the 28VHP LDAR program using a 500 ppm leak definition is used. 28CNTA. 28PI specifically for mineral oil service. | |
| EQUIPMENT FUGITIVES | TX-0967 | QUAIL RUN CARBON CAPTURE PLANT | 2/5/2024 | - | - | Volatile Organic Compounds (VOC) | - | - | 28M leak detection and repair (LDAR) program (voluntary). The total VOC emission rate from equipment leak fugitives from all fugitives associated with the proposed project combined before taking LDAR credits is approximately 9.38 tpy,,which does not require LDAR control per TCEQ Tier 1 BACT. However, the applicant will voluntarily implement the 28M LDAR program. | |
| FUGITIVE COMPONENTS | TX-0986 | JACK COUNTY GENERATION FACILITY | 12/27/2024 | - | - | Carbon Dioxide Equivalent (CO2e) | - | - | For natural gas fugitive piping components, emissions are represented with oil and gas production facility-specific emission factors. Uncontrolled VOC emissions from equipment leak fugitives are less than 10 tpy, so an LDAR program is not warranted. However, daily audio, visual, and olfactory (AVO) inspections are performed for natural gas piping as BACT for GHG emissions. | |
| FUGITIVE COMPONENTS | TX-0986 | JACK COUNTY GENERATION FACILITY | 12/27/2024 | - | - | Volatile Organic Compounds (VOC) | - | - | For natural gas fugitive piping components, emissions are represented with oil and gas production facility-specific emission factors. Uncontrolled VOC emissions from equipment leak fugitives are less than 10 tpy, so an LDAR program is not warranted. However, daily audio, visual, and olfactory (AVO) inspections are performed for natural gas piping as BACT for GHG emissions. | |
| Process NameF01 â€" Piping Component/Pumping Fugitive | WI-0279 | CORPORATE/COMPANY NAMEENBRIDGE ENERGY LIMITED PARTNERSHIP - | 10/2/2017 | - | - | Volatile Organic Compounds (VOC) | - | - | Complying with Leak Detection and Repair (LDAR) Program | |
| Piping Component Equipment Leak Fugitive (F01A) | WI-0307 | ENBRIDGE SUPERIOR TERMINAL | 9/22/2021 | - | - | Volatile Organic Compounds (VOC) | - | - | Use certified low-leaking valves or fit certified low-leaking valve packing technology on pressure relief piping and leak detection and repair (LDAR) program. | |
| Fugitive Components (F100) | WI-0311 | SUPERIOR REFINING COMPANY LLC | 9/27/2019 | - | - | Volatile Organic Compounds (VOC) | - | - | Leak Detection and Repair (LDAR) | |
| Fugitive components (F100) | WI-0315 | SUPERIOR REFINING COMPANY LLC | 10/9/2020 | - | - | Volatile Organic Compounds (VOC) | - | - | Leak Detection and Repair (LDAR) | |

[1] The RBLC query was performed using terbic IDs 11.310 15.110, 15.150, 15.210, 15.900, 16.110, 16.210, and 50.007. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "fugitive". Manually removed non-piping fugitives such as road and circuit breaker fugitives |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

**Table C-7a. Natural Gas Turbines Recent Permit Limitations and Determinations of BACT for VOC and TPM from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Pollutant | Permitted Limit | Limit Unit | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|---|
| LUBE OIL VENTS | *TX-0994 | SL ENERGY POWER PLANT I | 10/29/2025 | - | - | Volatile Organic Compounds (VOC) | - | - | unloading, storage, and heated recirculation of lube oil are estimated to emit equal to or less than 0.3 gallons per day of oil lost per vent, based on the oil consumption for similar units and operations. use of oil mist eliminators to remove fine oil droplets from the air flow of the vapor extraction vents and minimize emissions. | 4 |
| LUBE OIL VENTS | *TX-0994 | SL ENERGY POWER PLANT I | 10/29/2025 | - | - | Particulate matter, total; 10 µm (TPM10) | - | - | unloading, storage, and heated recirculation of lube oil are estimated to emit equal to or less than 0.3 gallons per day of oil lost per vent, based on the oil consumption for similar units and operations. use of oil mist eliminators to remove fine oil droplets from the air flow of the vapor extraction vents and minimize emissions. | 4 |
| LUBE OIL VENTS | *TX-1003 | PERMIAN BASIN STEAM ELECTRIC STATION | 9/24/2025 | - | - | Volatile Organic Compounds (VOC) | - | - | lube oil mist eliminator | |
| LUBE OIL VENTS | *TX-1005 | FERMI AMERICA PROJECT MATADOR | 2/25/2026 | - | - | Volatile Organic Compounds (VOC) | - | - | MIST ELIMINATORS | |
| LUBE OIL VENT | *TX-1008 | JONES STATION POWER PLANT | 2/13/2026 | - | - | Volatile Organic Compounds (VOC) | - | - | Lube oil mist emissions are proposed to be controlled by a high efficiency mist eliminator.<br>The TCEQ does not provide Tier 1 BACT guidelines lube oil vent emissions. There is no process code associated with lube oil vents that can be searched in the RBLC. However, a search by the applicant for Other Miscellaneous Sources in the RBLC Code 99.999 category and a review of other available permits identified a few recently permitted facilities with lube oil vent listed as a process source. These recent RBLC determinations identify mist eliminators as the control method. The proposed use of mist eliminators satisfies BACT. | |
| LUBE OIL VENT | *TX-1009 | JONES STATION POWER PLANT | 2/6/2026 | - | - | Volatile Organic Compounds (VOC) | - | - | controlled by a high efficiency mist eliminator. | |
| LUBE OIL VENTS | *TX-1010 | JONES STATION POWER PLANT | 2/6/2026 | - | - | Volatile Organic Compounds (VOC) | - | - | Lube oil vents will be equipped with high efficiency mist eliminators. This proposal meets Tier I BACT and utilizes all technically feasible control technologies identified in the top-down analysis. | |
| LUBE OIL VENTS | *TX-1012 | GAINES COUNTY POWER PLANT | 4/6/2026 | - | - | Volatile Organic Compounds (VOC) | - | - | : Emissions are generated from the lubrication oil feed system, and emissions of condensed droplets will be controlled by a mist eliminator serving the lube oil reservoir. Emissions are estimated based on an assume daily volumetric emission rate per mist eliminator and the lube oil replacement rates for similar units equipped with mist eliminators. Lube oil vent emissions are counted both as VOC and particulate matter. It is assumed that lube oil mist eliminator vents will emit equal to or less than 0.3 gallons per day of lube oil per vent, based on oil consumption for similar units. The TCEQ does not provide Tier 1 BACT guidelines for lube oil vent emissions, and there is no process code in the RBLC database associated with lube oil vents. The applicant proposed to control the lube oil vent emissions with oil mist eliminators to satisfy BACT | |
| LUBE OIL VENTS | *TX-1012 | GAINES COUNTY POWER PLANT | 4/6/2026 | - | - | Particulate matter, total; 10 µm (TPM10) | - | - | : Emissions are generated from the lubrication oil feed system, and emissions of condensed droplets will be controlled by a mist eliminator serving the lube oil reservoir. Emissions are estimated based on an assume daily volumetric emission rate per mist eliminator and the lube oil replacement rates for similar units equipped with mist eliminators. Lube oil vent emissions are counted both as VOC and particulate matter. It is assumed that lube oil mist eliminator vents will emit equal to or less than 0.3 gallons per day of lube oil per vent, based on oil consumption for similar units. The TCEQ does not provide Tier 1 BACT guidelines for lube oil vent emissions, and there is no process code in the RBLC database associated with lube oil vents. The applicant proposed to control the lube oil vent emissions with oil mist eliminators to satisfy BACT | |
| Lube Oil Demister Vents | IN-0382 | DUKE ENERGY INDIANA, INC.- CAYUGA GENERATING STATION | 2/14/2025 | - | - | Volatile Organic Compounds (VOC) | - | - | good engineering design and operating practices | 4 |
| Lube Oil Demister Vents | IN-0382 | DUKE ENERGY INDIANA, INC.- CAYUGA GENERATING STATION | 2/14/2025 | - | - | Particulate matter, total (TPM) | - | - | good engineering design and operating practices | 4 |

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|---|---|---|---|---|---|---|---|---|---|---|
| UT2 Cogeneration and Steam Turbine Lube Oil Vents | LA-0364 | FG LA COMPLEX | 1/6/2020 | - | - | Volatile Organic Compounds (VOC) | - | - | - | |
| LUBE OIL VENTS | TX-0939 | ORANGE COUNTY ADVANCED POWER STATION | 3/13/2023 | - | - | Volatile Organic Compounds (VOC) | - | - | Mist eliminator | |
| LUBE OIL VENTS | TX-0986 | JACK COUNTY GENERATION FACILITY | 12/27/2024 | - | - | Volatile Organic Compounds (VOC) | - | - | Lube oil vents are equipped with mist eliminators to minimize emissions. Good design and operating practices are used. Lube oil is assumed to emit as VOC, PM, PM10, and PM2.5. It is assumed that PM is equal to PM10, which is equal to PM2.5. The unloading, storage, and heated recirculation of lube oil in the gas and steam turbine reservoirs will emit less than 0.01 gallon per day of oil per turbine mist eliminator vent, based on oil consumption limits permitted for similar turbines. | |

[1] The RBLC query was performed using terbic IDs 15.110, 15.150, 15.210, 15.900, 16.110, 16.210, 19.900, 49.999, and 64.003. RBLC queries were performed between 6/9/2026 and 7/16/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "vent". Manually removed non-lube oil vent processes |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

**Table C-8a. Circuit Breaker Recent Permit Limitations and Determinations of BACT for GHGs from the EPA RBLC Database (Prior 10 years) [1,2]**

| Process | RBLC ID [3] | Facility | Permit Date (from RBLC) | Throughput | Throughput Unit | Permitted GHG Limit | Limit Unit | Control | Footnotes |
|---|---|---|---|---|---|---|---|---|---|
| Circuit Breaker | *IL-0137 | MARQUIS CARBON CAPTURE LLC | 6/23/2025 | - | - | 0.02 | TON/YEAR | Low-leak design (leak rate of no more than 0.5% per year); insulating (or dielectric) material with a GWP of no greater than 292; LDAR | |
| Circuit Breakers and other SF6 components | *IN-0400 | AES INDIANA, LLC-EAGLE VALLEY GENERATING STATION | 10/7/2025 | - | - | 192.4 | TONS CO2E | fully enclosed SF6 circuit breakers outfitted with low pressure alarms for leak detection | |
| CIRCUIT BREAKERS | *TX-0983 | CPV BASIN RANCH ENERGY CENTER | 11/24/2024 | - | - | - | - | State-of-the-art, totally enclosed pressurized SF6 circuit breakers (leak-tight closed systems) with leak detection including a density alarm that provides a warning when SF6 has escaped and maximum annual leak rate of 0.5 weight %. | 4 |
| CIRCUIT BREAKERS | *TX-0983 | CPV BASIN RANCH ENERGY CENTER | 11/24/2024 | - | - | - | - | State-of-the-art, totally enclosed pressurized SF6 circuit breakers (leak-tight closed systems) with leak detection including a density alarm that provides a warning when SF6 has escaped and maximum annual leak rate of 0.5 weight %. | |
| CIRCUIT BREAKERS | *TX-1009 | JONES STATION POWER PLANT | 2/6/2026 | - | - | - | - | The TCEQ does not specify Tier I BACT for SF6 emissions from circuit breakers. There is no process code associated with circuit breakers fugitives that can be searched in the RBLC. However, a search by the applicant for Other Miscellaneous Sources in the RBLC Code 99.999 category and a review of other available permits identified a few recently permitted facilities with circuit breakers listed as a process source. These recent RBLC determinations identify state-of-the-art, totally enclosed pressurized SF6 circuit breakers (leak-tight closed systems) as the control method. The proposed use of state-of-the-art, totally enclosed pressurized SF6 circuit breakers (leak-tight closed systems) as the control method satisfies BACT. The applicant proposed to use state-of-the-art, totally enclosed pressurized SF6 circuit breakers (leak-tight closed systems) with leak detection including a density alarm that provides a warning when SF6 has escaped and maximum annual leak rate of 0.5 weight %, which is consistent with BACT for other similar recently issued projects (see, for example, TCEQ Project No. 352417 for NRG Greens Bayou Stationâ€™s Permit Nos. 171485, PSDTX1616, GHGPSDTX230, and N308).<br><br>BACT will be met by use of circuit breakers that are gas-tight and guaranteed to achieve a leak rate of 0.5% by year by weight or less. | |
| CIRCUIT BREAKERS | *TX-1010 | JONES STATION POWER PLANT | 2/6/2026 | - | - | - | - | State-of-the-art enclosed pressure SF6 circuit breakers with a guaranteed leak loss rate of 0.5% or less by weight per year equipped with a low-pressure alarm and lockout. This proposal is consistent with the BACT descriptions above. Therefore, this meets Tier I BACT and utilizes all technically feasible control options identified in the EPA top-down analysis. | |
| ELECTRICAL CIRCUIT BREAKERS, 16 | *VA-0336 | DOMINION CHESTERFIELD POWER STATION | 12/19/2025 | - | - | 211 | TONS | enclosed pressure, with maximum leakage of 5% and low-pressure detection with alarm. | 4 |
| Circuit Breakers; F03 - SF6 Containing Equipment | *WI-0326 | NEMADJI TRAIL ENERGY CENTER | 9/19/2023 | - | - | 120 | SHORT TONS | (1)(a) Circuit breakers containing SF6 shall be pressurized and have a manufacturer guaranteed loss rate not to exceed 0.5%, by weight, per year; and<br>(b) The permittee shall comply with the leak monitoring program | 4 |
| Circuit breakers (two) | FL-0363 | DANIA BEACH ENERGY CENTER | 12/4/2017 | - | - | 0.5 | % LEAK PER YEAR | Certified leak rate < 0.5% per year | |
| Two Circuit Breakers | FL-0367 | SHADY HILLS COMBINED CYCLE FACILITY | 7/27/2018 | - | - | 0.5 | % LEAK PER YEAR | Certified leak rate < 0.5% per year | |
| Two Circuit Breakers | FL-0371 | SHADY HILLS COMBINED CYCLE FACILITY | 6/7/2021 | - | - | 0.5 | % LEAK PER YEAR | Certified leak rate < 0.5% per year | |
| Circuit Breakers | IL-0129 | CPV THREE RIVERS ENERGY CENTER | 7/30/2018 | - | - | 0.5 | % LEAK RATE | - | |
| Circuit Breakers | IL-0130 | JACKSON ENERGY CENTER | 12/31/2018 | - | - | 0.5 | PERCENT LEAK RATE | - | |
| Circuit Breakers | IL-0133 | LINCOLN LAND ENERGY CENTER | 7/29/2022 | - | - | 0.5 | PERCENT LEAK RATE | - | 4 |
| Circuit Breakers SF6 | IN-0294 | ST. JOSEPH ENERGY CENTER, LLC | 8/8/2018 | - | - | - | - | - | |
| Electrical Circuit Breakers | IN-0382 | DUKE ENERGY INDIANA, INC.- CAYUGA GENERATING STATION | 2/14/2025 | - | - | 0.5 | % | fully enclosed pressurized SF6 circuit breakers outfitted with density alarms for leak detection | 4 |
| Circuit Breakers | IN-0384 | SYCAMORE RIVERSIDE ENERGY LLC | 3/31/2025 | - | - | 73.6 | LB | totally enclosed and pressurized circuit breakers with a design leak rate of no more than 0.5% and a density alarm for leak detection | 4 |
| Circuit Breakers | LA-0391 | MAGNOLIA POWER GENERATING STATION UNIT 1 | 6/3/2022 | - | - | 85 | T/YR | Enclosed pressure design with a low pressure detection system with an alarm to limit SF6 leak rate to 0.5 % per year. | |
| Circuit breakers | PA-0310 | CPV FAIRVIEW ENERGY CENTER | 9/2/2016 | - | - | 1500 | PPM | State-of-the-art sealed enclosed-pressure circuit breakers with leak detection | |
| Sulfur hexafluoride (SF6) insulated Electrical Equipment | TX-0824 | JACKSON COUNTY GENERATING FACILITY | 6/30/2017 | - | - | 34.4 | T/YR | The use of circuit breakers with totally enclosed insulation systems equipped with a low pressure alarm and low pressure lockout is BACT | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CIRCUIT BREAKER FUGITIVES | TX-0939 | ORANGE COUNTY ADVANCED POWER STATION | 3/13/2023 | - | - | - | - | State-of-the-art circuit breakers that are gas-tight and require minimal SF6 are used. An AVO monitoring program is used to detect circuit breaker leaks. | |
| CIRCUIT BREAKERS (3) | VA-0325 | GREENSVILLE POWER STATION | 6/17/2016 | - | - | 19 | T/YR | Enclosed pressure type breaker and leak detector | |
| Circuit Breakers - 6 | VA-0328 | C4GT, LLC | 4/26/2018 | 0.5 | % | - | - | Enclosed-pressure design with low-pressure detection system (with alarm). | 5 |
| Circuit Breakers | VA-0332 | CHICKAHOMINY POWER LLC | 6/24/2019 | 0.5 | % | - | - | Enclosed-pressure design with low-pressure detection system (with alarm). | 5 |
| Sulfur Hexafluoride Containing Circuit Breakers and Transformers (F90) | WI-0299 | WPL- RIVERSIDE ENERGY CENTER | 8/20/2020 | - | - | 0.5 | % LEAK RATE, BY WGHT | - | |

[1] The RBLC query was performed using terbic IDs 15.110, 15.150, 15.210, 15.900, 16.110, 16.210, 19.900, 99.006, and 99.999. RBLC queries were performed between 6/9/2026 and 7/15/2026 with the default date window (last 10 years).

[2] Raw RBLC query results were filtered using the following parameters:

| RBLC Column Header: | Filter Applied: |
|---|---|
| PERMIT_ISSUANCE_DATE | 9/1/2016 and later |
| PROCESS_NAME | Contains "circuit" or "electrical equipment" |
| CASE-BY-CASE_BASIS | Equals "BACT-PSD", "N/A" and "OTHER CASE-BY-CASE" |

[3] * Indicates that the facilities are draft determination in the RBLC database.

[4] Facility or emission unit is not yet operational and compliance with the BACT limit has not yet been demonstrated.

[5] Facility or emission unit was never constructed due to project cancellation or dormancy.

# EXHIBIT B-2
# GROUNDWATER AVAILABILITY ASSESSMENT

# Steele Energy Center Certificate of Environmental Compatibility Supporting Water Memorandum

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## Groundwater Availability Assessment

R26-01086-00
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# Acronyms

| Term | Definition |
|---|---|
| 5MP | Fifth Management Plan |
| A.A.C. | Arizona Administrative Code |
| ADEQ | Arizona Department of Environmental Quality |
| ADWR | Arizona Department of Water Resources |
| AF | Acre-feet |
| AFY | Acre-feet per Year |
| AMA | Active Management Area |
| amsl | Above Mean Sea Level |
| APP | Aquifer Protection Permit |
| A.R.S. | Arizona Revised Statutes |
| AWS | Assured Water Supply |
| BADCT | Best Available Demonstrated Control Technology |
| bls | Below Land Surface |
| CAP | Central Arizona Project |
| CEC | Certificate of Environmental Compatibility |
| DTW | Depth to Water |
| gpm | Gallons per Minute |
| GWSI | Groundwater Site Inventory |
| IGFR | Irrigation Grandfathered Right |
| InSAR | Interferometric Synthetic Aperture Radar |
| LCU | Lower Conglomerate Unit |
| MSCU | Middle Silt and Clay Unit |
| SEC | Steele Energy Center |
| UAU | Upper Alluvial Unit |
| USF | Underground Storage Facility |
| USGS | United States Geological Survey |

# Executive Summary

The Steele Energy Center is a proposed combined-cycle generating facility (Project) on a 137-acre site in the Eloy Sub-basin of the Pinal Active Management Area (AMA), Pinal County, Arizona (**Figure 1**). The projected annual water use for the facility is 300 acre-feet per year (AFY), with a peak instantaneous withdrawal capability of 800 gallons per minute (gpm). The proposed water supply is groundwater that will be withdrawn from four existing, non-exempt production wells located on adjoining parcels southwest of the site (**Figure 2**). The four wells operate under irrigation grandfathered right (IGFR) No. 58-104163.0000, which authorizes groundwater pumping up to 1,230 AFY. The portion of the IGFR proposed to serve the Project will be retired for non-irrigation use under A.R.S. § 45-469 and converted to a Type 1 non-irrigation grandfathered right before the Project is operational.

Physical availability of groundwater was evaluated using the Arizona Department of Water Resources (ADWR) Pinal AMA regional groundwater flow model, which was updated through 2025 and simulated through 2131. Three scenarios were developed to assess availability: no withdrawal for the Project (Base Model), continued irrigation withdrawal at 1,230 AFY allotment and the associated agricultural recharge (Continued Agriculture Model), and Project withdrawal of 300 AFY (Project Model). The Project will withdraw approximately 930 AFY less than the IGFR is authorized to use, and approximately one quarter of the 1,219 AFY the average annual reported pumping over 39 years of record between 1984 and 2023. For the 100-year predictive period, all four wells are simulated as they are currently constructed, with pumping proportions split between model Layers 1 and 2, consistent with how ADWR set up the 2019 Pinal AMA Model. Relative to the Base Model where no withdrawal occurs at the parcel, simulated water level drawdown in the Project Model occurs with a maximum of 3.6 feet compared to 10.8 feet under the Continued Agriculture Model in the Upper Alluvial Unit (UAU), a maximum of 2.0 feet and 6.1 feet respectively in the Middle Silt and Clay Unit (MSCU), and 0.8 foot and 2.2 feet respectively in the Lower Conglomerate Unit (LCU) at the end of the 100-year predictive period. No withdrawal is simulated from the four Project wells from the LCU; the response in that unit reflects vertical leakage from the overlying units rather than direct pumping. Water levels simulated in the Project Model are higher than water levels in the Continued Agriculture Model, therefore the Project does not adversely affect the aquifer or surrounding wells relative to the withdrawal the parcel is authorized to make.

# 1. Introduction

Spheros Environmental (Spheros) was contracted to prepare a groundwater availability assessment memorandum (memo) in support of an application for a Certificate of Environmental Compatibility (CEC) for the Steele Energy Center (Project). The Project is located in the Eloy Sub-basin of the Pinal AMA, in Pinal County, Arizona. The Project site is located on an estimated 137-acre footprint with two lined evaporation ponds on its northern and northeastern boundaries and lies within the southeast quarter of Section 19, Township 6 South, Range 9 East, Gila and Salt River Baseline and Meridian.

This report has been compiled in reference to Arizona Revised Statutes (A.R.S.) §§ 40-360.13 and assesses the availability of water, the potential local impacts on the aquifer, and the applicability of meeting water management goals in the Pinal AMA Fifth Management Plan (5MP) as defined by ADWR.

The anticipated average annual water demand for the Project is 300 AFY, with anticipated peak instantaneous withdrawal capability of 800 gpm. The water supply for the Project is groundwater. Withdrawal authority is IGFR No. 58-104163.0000, a portion of which, sufficient to serve the Project's 300 AFY demand, will be retired and converted to a Type 1 non-IGFR under A.R.S. § 45-469 before the Project is operational. Withdrawals are proposed from four existing non-exempt production wells located on a parcel adjoining the Project site to the southwest.

## 1.1 Applicable AMA and ADWR Requirements

The Project is a combined-cycle electric generating facility located within the Pinal AMA. Water supply for the Project is groundwater withdrawn under an IGFR, a portion of which will be retired to a Type 1 non-IGFR. The Project's water use is governed by the 5MP, effective January 1, 2025, and by applicable provisions of A.R.S. Titles 45 and 49. The requirements applicable to the Project are set forth below.

### 1.1.1 Project Classification

The Project is an industrial facility designed to produce more than 25 megawatts of electricity by utilizing a combination of steam and combustion turbine power generation methods and is therefore a combined-cycle electric power plant as defined at 5MP § 6-701(2) and a large-scale power plant as defined at 5MP § 6-701(8). As such, the Project is an Industrial Water User regulated under the Large-Scale Power Plant Program of 5MP Chapter 6.7.

Heat rejection at the Project is accomplished by air-cooled condenser, with evaporative cooling of the combustion turbine inlet air, and no cooling towers are employed. The conservation requirements at 5MP § 6-704, applicable to combined-cycle power plants, are directed to the operation of cooling towers. The conservation requirement applicable to the Project is therefore that of 5MP § 6-702, which applies to all power plants and provides that plants should use zero liquid discharge systems where appropriate and economically feasible. Process wastewater is evaporated on site in lined ponds, and no liquid is discharged from the facility.

### Evaporation Ponds and Aquifer Protection Permit

The Project's proposed double-lined evaporation ponds would be regulated under Arizona Department of Environmental Quality (ADEQ) Aquifer Protection Permit (APP) program because evaporation ponds are considered surface impoundments used to contain liquids that could impact groundwater quality. As part of the APP process, the permit applicant must demonstrate that the facility incorporates Best Available Demonstrated Control Technology (BADCT) and that the discharge will not cause or contribute to a violation of Aquifer Water Quality Standards at the applicable point of compliance. The APP application would typically include engineering design information, a hydrogeologic evaluation, monitoring requirements, contingency planning, and closure provisions demonstrating protection of groundwater resources. (R18-9-A201 to R18-9-A209, AAC, 2026).

For lined impoundments, ADEQ's requirements include design and construction measures intended to minimize seepage and protect groundwater quality. Under the general permit provisions for lined impoundments, liners must achieve a calculated seepage rate of less than 550 gallons per acre per day, be chemically compatible with the stored fluids, and be installed with appropriate quality assurance and quality control procedures. Facilities must also provide adequate freeboard for stormwater management, maintain the integrity of the liner system through routine inspections, and implement corrective actions if leakage, overtopping, or liner damage is identified. Closure activities generally require removal of residual liquids and evaluation of any potential liner leakage to ensure continued protection of groundwater resources. (R18-9-D301, AAC, 2026).

## 1.1.2 General Industrial Conservation Requirements

As an Industrial Water User, the Project is subject to the conservation requirements applicable to all industrial users under 5MP § 6-402. The Project must avoid waste and use only the amount of water reasonably required for each industrial use, and make diligent efforts to recycle water; not use water for non-residential single-pass cooling or heating unless the water is reused; use low-flow plumbing fixtures; and use plants from ADWR's Low Water Use and Drought Tolerant Plants List for the Pinal AMA for landscaping to the maximum extent feasible, watered with a water-efficient irrigation system.

### 1.1.3 New Large Industrial User Program

Under 5MP § 6-1301, a new large industrial user is an industrial user that begins using more than 100 AF of water per year for industrial purposes after January 1, 2025. The Project's anticipated water use of 300 AFY exceeds this threshold. Under 5MP § 6-1302, the Project must submit to the ADWR Director a plan to improve the efficiency of water use at the Project, no later than 180 days after receiving notice of the requirement or within 180 days after the end of the first calendar year in which the Project uses more than 100 AF, whichever is later. The plan must specify the level of water conservation that can be achieved assuming the use of the latest commercially available technology consistent with reasonable economic return; identify water uses and conservation opportunities within the facility, addressing landscaping, space cooling, process-related water use including recycling, and sanitary and kitchen uses as appropriate; describe an ongoing water conservation education program for employees; and include an implementation schedule.

### 1.1.4 Monitoring and Reporting Requirements

The Project is subject to the monitoring and reporting requirements applicable to all industrial users under 5MP § 6-403(A). Its annual report under A.R.S. § 45-632 must include the total quantity of water, by source and including effluent, withdrawn, diverted or received during the reporting year for industrial process purposes and, separately, for purposes other than industrial process purposes; an estimate of the quantity of wastewater generated and the quantity of wastewater recycled during the calendar year; a description of the primary purposes for which water is used; and the acreage planted with plants from ADWR's Low Water Use and Drought Tolerant Plants List. All water quantities must be measured in accordance with ADWR's measuring device rules (Arizona Administrative Code (A.A.C.) R12-15-901 et seq.).

As a combined-cycle power plant, the Project is additionally subject to the reporting requirements of 5MP § 6-710(A). The Project does not employ cooling towers, so the cooling tower reporting items at § 6-710(A)(1)(a) through (f) do not apply. The remaining requirements apply regardless of cooling configuration, and require the Project to report all time periods during which the facility was not generating electricity, the amount of electricity generated in each month or partial month during which it was generating, and the estimated quantity of water from any source, including effluent, used during the calendar year for each purpose other than electric power generation.

### 1.1.5 Withdrawal Authority and Groundwater Fees

The Project's supply is native groundwater withdrawn under IGFR No. 58-104163.0000, Certificate No. 58-104163, issued June 7, 1983. The water right is appurtenant to 302 irrigation acres in the NE quarter, the N half of the SE quarter, and the E half of the NW quarter of Section 25, Township 6 South, Range 8 East, and carries a maximum annual groundwater allotment of 1,230 AF. Wells with ADWR registration numbers 55-625222, 55-625223, 55-625224 and 55-625225 report under the

right. It is assumed that the portion of the IGFR necessary to serve the Project demand of 300 AFY will be retired for non-irrigation use under A.R.S. § 45-469, yielding a Type 1 non-IGFR in that volume. Groundwater is withdrawn at the existing wellfield in Section 25 and conveyed to the Project site. Withdrawals are subject to the annual groundwater withdrawal fees established under A.R.S. § 45-611 and to the annual reporting requirements of A.R.S. § 45-632.

### 1.1.6 Well Construction

The four existing non-exempt production wells located on the controlled lands yield water from the UAU and MSCU aquifer units. If a redrill is needed, ADWR requires a notice of intention to drill and approval by the Director under A.R.S. §§ 45-596 and 45-599. Existing wells can be legally replaced within 660 feet from the original well while maintaining the permitted pumping capacity. The four wells have reported total depths of 600 feet (55-625222), 1,600 feet (55-625223), 600 feet (55-625224) and 500 feet (55-625225), and registered maximum pump capacities totaling 3,300 gpm.

### 1.1.7 Physical Availability

Under A.R.S. § 45-576, a demonstration of an assured water supply (AWS) requires proof that the pledged water supply will be of adequate quality and physically, legally, and continuously available for 100 years, and that its use will be consistent with the management goal and management plan of the AMA. Physical availability under A.A.C. R12-15-716 is demonstrated where projected depth to water at the end of the 100-year period does not exceed 1,100 feet below land surface. The Project is not a subdivision or a municipal provider and this memorandum does not constitute an application for a determination of AWS. The 1,100-foot criterion is applied here as the established AMA benchmark for evaluating long-term physical availability of the Project's supply.

### 1.1.8 Consistency with the Management Goal

The withdrawal replaces irrigation use at the same wellfield. Irrigation grandfathered right 58-104163.0000 carries a maximum annual groundwater allotment of 1,230 AF across 302 irrigation acres, against a proposed non-irrigation demand of 300 AFY. Retirement of irrigation acres for non-irrigation use under A.R.S. § 45-469 yields a Type 1 non-IGFR. The Project will convert the volume necessary to serve its 300 AFY demand, and the balance of the irrigation right is not relied upon in this assessment.

Additionally, the incremental effect of the Project on simulated groundwater levels, relative to continued withdrawal under the existing IGFR, is presented in Section 3. The Project also complies with the conservation, monitoring and reporting standards of 5MP Chapter 6.7. The evaporation

ponds are total containment facilities and provide no recharge offset; the management goal analysis does not rely on one.

# 2. Hydrogeologic Background

This section presents the hydrogeologic context for the proposed Project, summarizing the regional geologic setting, the hydrogeologic framework and aquifer characteristics of the Pinal AMA, known land subsidence conditions associated with groundwater withdrawal, and current groundwater levels and trends based on ADWR monitoring data. Collectively, these subsections establish the baseline groundwater conditions against which the site's long-term water supply availability is evaluated.

## 2.1 Regional Geology

The proposed Project location is within the Basin and Range Physiographic Province of southern Arizona. The Basin and Range is the result of faulting and extension of the crust during the Late Oligocene to Early Miocene. Extension created uplifted northwest-southeast trending mountain blocks separated by adjacent basins. Sediments from the surrounding mountains accumulated in the large and deep basins between bedrock features through mechanical weathering and transport by wind or flowing water. These sediments have been deposited over time, forming thick sequences of unconsolidated sediments that constitute the primary aquifer system in the region. The alluvium consists of lenticular beds of clay, silt, sand, and gravel (Wickham and Corkhill, 1989).

The Project site is situated on the piedmont along the eastern margin of the Eloy Sub-basin, where basin-fill thickness decreases toward the adjacent bedrock highlands. Basin-margin positions are characterized by rapid lateral changes in basin-fill thickness and by shallower depth to bedrock than basin-center positions, both of which are relevant to the differential compaction and earth fissure discussion in Section 2.2.3.

Estimated depth to bedrock at the Project is approximately 3,200 feet below land surface. The 3,200-foot depth-to-bedrock contour of Oppenheimer and Sumner (1980), as compiled in Arizona Geological Survey Digital Geologic Map DGM-52 (Richard, Shipman, Greene, and Harris, 2007), passes within approximately 470 feet of the site point. The nearest bracketing contours are the 1,600-foot contour approximately 2.2 miles from the site and the 4,800-foot contour approximately 4.0 miles from the site, consistent with basin fill thickening rapidly away from the piedmont margin along the eastern edge of the sub-basin.

## 2.2 Hydrogeologic Characteristics

Groundwater in the Eloy Sub-basin and within the site study area occurs under unconfined conditions in the upper sedimentary units and under confined to semi-confined conditions in the lower regional aquifer. The updated ADWR Pinal AMA groundwater flow model (Pinal AMA Model) was used to assess groundwater availability in the vicinity of the Project. The following sections detail the hydrogeologic framework of the model in relation to the site along with current groundwater trends from the ADWR GWSI well network.

### 2.2.1 Pinal AMA Model Hydrogeologic Framework

The Pinal AMA Model was originally developed by the ADWR in 1990 (Corkhill and Hill, 1990). An update was performed in 2014 by ADWR which used MODFLOW-2005 (Liu et al., 2014). Since 2014, ADWR updated the model with annual pumping and recharge data from 2010 through 2015, along with structural and other modifications (ADWR, 2019). The 2019 Pinal AMA Model was designed to assist in predicting the impacts of water demands on the aquifer system over the 100-year predictive period. The groundwater model is a three-layer, finite-difference model based on the USGS code MODFLOW-2005. The active model domain encompasses an area of about 4,000 square miles.

The 100-year Assured Water Supply projection prepared by ADWR from the 2019 Pinal AMA Model was used as the basis for this modeling effort. Alterations to model packages are detailed in Section 3.1.

The hydrogeologic framework for the Pinal AMA Model consists of three alluvial aquifers within the sub-basins, including the Upper Alluvial Unit (UAU), the Middle Silt and Clay Unit (MSCU), and the Lower Conglomerate Unit (LCU) (Wickham and Corkhill, 1989). Aquifer parameters for the area were developed from the Pinal AMA Model (ADWR, 2019); which included updates and structural modifications to the 2014 Pinal AMA Model (Liu, et al., 2014).

Unit thicknesses, hydraulic properties and transmissivity for the four model cells containing the production wells are summarized in **Table 1**. Ranges span the four cells. Transmissivity is the product of horizontal hydraulic conductivity and unit thickness.

#### Upper Alluvial Unit (UAU)

The UAU consists primarily of unconsolidated to slightly consolidated inter-bedded sand and gravels with some finer grained materials existing as lenses. Cementation is low to nonexistent (Wickham and Corkhill, 1989). Groundwater in the UAU is generally unconfined, with perched, semi-perched, and semi-confined conditions occurring locally. The UAU consists of unconsolidated sand, gravel, cobbles, and boulders, with occasional thin interbeds of finer-grained materials. The model estimates that the UAU averages approximately 336 feet thick across the four wellfield cells, ranging from 327

to 345 feet. The Pinal AMA Model hydraulic conductivity of the UAU at these cells is simulated at 20 ft/day and the specific yield is 0.15 (or 15 percent), which is dimensionless. See Table 1 for model properties.

**Table 1.** Model Properties at the Project Wells

| Well / Model Cell (row,col) | Cadastral | Hydraulic Conductivity (ft/day) | Specific Yield (-) | Unit Thickness (ft) | Transmissivity (ft2/day) |
|---|---|---|---|---|---|
| 625222 (146,198) | 25AAA | L1: **20** L2: **3** L3: **5** | L1: **0.15** L2: **0.05** L3: **0.04** | L1: 332 L2: 1,409 L3: 1,259 | L1: 6,640 L2: 4,227 L3: 6,295 |
| 625223 (147,198) | 25ADA | L1: **20** L2: **3** L3: **5** | L1: **0.15** L2: **0.05** L3: **0.04** | L1: 327 L2: 1,482 L3: 1,191 | L1: 6,540 L2: 4,446 L3: 5,955 |
| 625224 (147,197) | 25DAC | L1: **20** L2: **3** L3: **3** | L1: **0.15** L2: **0.05** L3: **0.04** | L1: 341 L2: 1,656 L3: 1,003 | L1: 6,820 L2: 4,968 L3: 3,009 |
| 625225 (146,197) | 25ABB | L1: **20** L2: **3** L3: **3** | L1: **0.15** L2: **0.05** L3: **0.04** | L1: 345 L2: 1,596 L3: 1,059 | L1: 6,900 L2: 4,788 L3: 3,177 |

## Middle Silt and Clay Unit (MSCU)

The MSCU is a fine-grained unit that consists primarily of silt, clay, and sand (Wickham and Corkhill, 1989). The MSCU was defined by counting the frequency and thickness of fine-grained sub-layers or interbeds. The Pinal AMA Model estimates that the MSCU averages approximately 1,536 feet thick, ranging from 1,409 to 1,656 feet, beneath the four wellfield cells associated with the Project. The hydraulic conductivity at these cells is simulated at 3 ft/day and the specific yield is 0.05 (or 5 percent).

## Lower Conglomerate Unit (LCU)

The LCU is characterized by semi-consolidated to consolidated coarse sediments consisting of granite fragments, cobbles, boulders, sands and gravels with varying degrees of cementation (Wickham and Corkhill, 1989). This unit is the deepest water bearing unit in the model area and generally overlies impermeable bedrock. The Pinal AMA Model estimates that the LCU averages approximately 1,128 feet thick, ranging from 1,003 to 1,259 feet, at the four wellfield cells associated

with the Project. The Pinal AMA Model hydraulic conductivity at these cells is simulated at 3 to 5 ft/day and the specific yield is 0.04 (or 4 percent). The maximum thickness of the Pinal AMA Model is truncated by ADWR at 3,000 feet bls. Estimated depth to bedrock at the Project is approximately 3,200 feet bls, based on the depth to bedrock contours of Oppenheimer and Sumner (1980) compiled in Arizona Geological Survey Digital Geologic Map DGM-52 (Richard et al., 2007), indicating that the model truncation approximates the base of the basin-fill aquifer at this location.

### 2.2.2 History of Subsidence

ADWR land subsidence monitoring (ADWR 2025) shows the proposed Project is located within the interior of the mapped Picacho subsidence feature, in the east-central portion of the subsided area. The Project lies approximately 4.0 miles inside its nearest boundary. Based on the ADWR Interferometric Synthetic Aperture Radar (InSAR) satellite captured dataset for this feature (May 2010 to May 2026), the Project site had approximately 0.75 inches of total cumulative subsidence over the measurement period with the well field ranging from 2 to 6 inches of measured subsidence. **Figure 3** presents the site location relative to the mapped subsidence extent and magnitude.

Earth fissures have formed in many deep alluvial basins in Arizona due to differential compaction and land subsidence resulting from groundwater pumping, usually associated with high rates of pumping. In 2016, the AGS released updated earth fissure planning maps showing the location of known or reported earth fissures in Pinal County. Earth fissures are a consequence of land subsidence driven by aquifer depletion, and they express that subsidence as direct ground movement at the surface. Where they occur, differential vertical displacement and surface rupture present a geotechnical hazard to foundations, pads, pipelines, roads and other linear infrastructure, and they are therefore addressed as engineering design consideration for construction of Project infrastructure.

The Project is located within the Picacho Peak and Friendly Corner earth fissure study area of the Arizona Geological Survey. The nearest recognized and reported earth fissures are approximately a quarter to half mile from the Project site. These nearest features are mapped as reported, unconfirmed earth fissures (Arizona Geological Survey 2019a; 2019b). The next nearest study areas are Toltec Buttes approximately 8.3 miles distant and Signal Peak approximately 11.7 miles distant. Because the Project reduces withdrawal at the wellfield relative to the use authorized under the existing IGFR, and because the simulated change in water levels attributable to the Project is small and stabilizes early in the predictive period, the Project is not expected to accelerate subsidence or contribute to the formation or propagation of earth fissures in the vicinity. Existing fissure hazards remain a construction and design consideration for Project infrastructure and should be addressed through geotechnical investigation and siting.

### 2.2.3 Current Groundwater Levels and Trends

Water level trends and elevation data were obtained from ADWR index wells (ADWR, 2026a) within the study area. A water level surface representing 2025 is provided on **Figure 4**. The five index wells nearest the Project site, all within 3.4 miles, one of which has an insufficient record for trend calculation, are summarized in **Table 2**. Rates are expressed as feet per year, with positive values indicating rising water levels and negative values indicating decline.

Excluding the well with an insufficient record, the four remaining index wells average a slight decline of 0.11 foot per year over the most recent five-year period and a decline of 1.40 feet per year over the most recent ten-year period. Individual well trends are mixed in sign over both periods, indicating that no single coherent regional trend is expressed in the immediate vicinity of the site. A map showing the locations and water level change for the past decade is provided on **Figure 5**.

Additional GWSI wells with construction data are located immediately southwest of the Project site in Section 25, Township 6 South, Range 8 East, and are summarized in **Table 3**.

**Table 2.** Index Well Water Level Changes in the Study Area

| Registry Number | Cadastral | Approximate Distance from Project (miles) | 5-year Rate (ft/yr) | 10-year Rate (ft/yr) |
|---|---|---|---|---|
| N/A | D-06-09 29BBA4 | 0.48 | +3.49 | +1.02 |
| N/A | D-06-09 29BBA3 PZ1 | 0.50 | N/A | N/A |
| 625234 | D-06-08 14CCC | 2.81 | -2.49 | -1.73 |
| **617559** | D-06-08 11ADA1 | 2.92 | -1.09 | -1.79 |
| 625232 | D-06-08 27BDD2 | 3.33 | -0.34 | -3.12 |
| **Average, excluding N/A** | | | -0.11 | -1.40 |

Water level trends near the site are mixed. Across the four index wells with adequate records, the ten-year average change over 2015 through 2025 is a decline of 1.40 feet per year, and the five-year average over 2020 through 2025 is essentially flat at a decline of 0.11 foot per year. The regional water level change surface for 2015 through 2025 places the site near the 5-foot decline contour, or about 0.5 foot per year. Individual wells range from a rise of 3.49 feet per year to a decline of 3.12 feet per year over the five-year period, which reflects local pumping rather than a uniform regional trend.

**Table 3.** Project Well Construction and Water Level Information

| Cadastral | Registry No. | Land surface (ft amsl) | Well Depth (ft, bls), registered[1] | Last WL date | DTW (ft, bls) | WL elevation (ft amsl) |
|---|---|---|---|---|---|---|
| D-06-08 25ABB | 625225 | 1,495 | 500 (GWSI 464) | 1/17/1977 | 193.7 | 1,301.3 |
| D-06-08 25AAA | 625222 | 1,505 | 600 (GWSI 510) | 2/1/2024 | 134.1 | 1,370.9 |
| D-06-08 25ADA | 625223 | 1,501 | 1,600 (GWSI 210) | 2/4/2024 | 112.1 | 1,388.9 |
| D-06-08 25DAC | 625224 | 1,505 | 600 (GWSI 522) | 11/12/1998 | 124.1 | 1,380.9 |

1. Registered well depths are followed by depths recorded in the Groundwater Site Inventory (GWSI) database

# 3. Sustainability Assessment

## 3.1 Model Adaptations

To evaluate potential impacts to the local aquifer, the Pinal AMA Model was used to simulate historic and future predictive scenarios. The 100-year AWS projection prepared by ADWR in 2019 was used as the source model for this modeling effort. Spheros modified the model recharge and pumping packages for this water assessment modeling effort. Alterations to the pumping and recharge packages are detailed in Section 3.1.1.

The Pinal AMA Model is a three-layer, finite-difference model based on the USGS code MODFLOW-2005, comprising 196 rows and 222 columns on a uniform 2,640-foot grid, with 210 stress periods comprising an initial steady-state period and 209 annual transient periods spanning 1923 through 2131. Each model cell represents 160 acres. Simulations were executed using MODFLOW-2005 version 1.12.00.

### 3.1.1 Model Assumptions

The 2019 Pinal AWS Version of the model was adapted in each of these simulations first by extending it out to 2131 for the 100-year predictive period in addition to the following edits for each scenario.

The simulations are broken into relative portions of time for ease of discussion in this section;

- **ADWR Historical Period** covers the years 1923-2015 and is unaltered
- **Updated Historical Period** covers the years 2016-2025 and refers to the period that pumping and artificial recharge were updated with ADWR publicly available data
- **Lead Up Period** covers the years 2026-2031 and refers to the period where predictive simulations have not yet begun, and underground storage facility (USF) recharge and pumping assumptions are copied from 2025
- **Predictive Period** covers the years 2032-2131 which refers to the 100-year predictive period where pumping from the four wells occurs

The following revisions and assumptions were made to model simulations and hold true for each of the modeled scenarios.

## Simulated Pumping

The model pumping was updated for the Updated Historical Period from ADWR's reported pumping database (ADWR, 2026a). The 2025 reported pumping rates were repeated for 2026 through 2131 which includes the 100-year Predictive Period.

The Project site is located in model row 145, column 199. The four production wells occupy three model cells in the ADWR Pinal 2019 Model.

- row 146, column 197, containing wells 625225 (25ABB) and 625222 (25AAA);
- row 147, column 197, containing well 625223 (25ADA); and
- row 148, column 197, containing well 625224 (25DAC).

However, several of the actual well locations are in different cells than simulated in the 2019 Pinal AMA Model. The model simulations presented herein leave the four wells in their original model placements through 2031 then move them to their known current locations in the Predictive Period starting in 2032. The well locations in the Predictive Period are:

- row 146, column 197 (25ABB) containing well 625225

- row 146, column 198 (25AAA) containing well 625222
- row 147, column 197 (25DAC) containing well 625224
- row 147, column 198 (25ADA) containing well 625223

## Well Deepening

In the predictive simulations, some model cells go dry and MODFLOW cannot remove water from a dry cell, which artificially reduces simulated pumping over time. In practice, a well owner whose well went dry would deepen it and continue withdrawing the volume needed. To represent this, Spheros applied an iterative well deepening process to the model pumping package (WEL file). The highest-demand simulation, Scenario 2, was run to identify wells limited by dry cells. For each well so identified, a revised WEL file moved that layer's demand down one layer for all subsequent stress periods, and the simulation was rerun to identify additional dry cells. The process was repeated until no further deepening was possible, since the model has only three layers. Deepening was applied only to model years 2026 onward to preserve the calibrated historical period. In total, 54 wells were deepened, some more than once. The four Project production wells did not require deepening and remain in the layers assigned by ADWR in the 2019 Pinal AWS Model; their proportional pumping is given in Table 4.

**Table 4.** Project Wells Modeled Proportional Pumping.

| Registry No. | Percent Pumping Applied in Layer 1 | Percent Pumping Applied in Layer 2 | Percent Pumping Applied in Layer 3 |
|---|---|---|---|
| 625222 | 91.2% | 8.8% | 0% |
| 625223 | 56.8% | 43.2% | 0% |
| 625224 | 90.0% | 10.0% | 0% |
| 625225 | 86.4% | 13.6% | 0% |

## Simulated Recharge

The Pinal AMA Model recharge package is made up of multiple recharge components that are described in Table 5. Additional data was obtained from ADWR to extend the record for artificial recharge for the model (ADWR, 2026b). Adjustments to the recharge package components for each of the model scenarios are described in detail in Section 3.1.2.

**Table 5.** Recharge Package Components Used in the Model

| Recharge Package Component | ADWR Historical Period 1923-2015 | Updated Historical Period 2016-2025 | Lead Up Period 2026-2031 | Predictive Period 2032-2131 |
|---|---|---|---|---|
| Stream | Varies but averages ~ 54K AFY | Repeating 16-yr period of record from 1995 to 2010 as reported in the 2019 AWS Pinal AMA Model report. | | |
| Agriculture | Varies from 516K to 340K AFY, but held constant at 354K starting in 2015 | 2019 AWS Pinal AMA Model AG assumptions through 2125; 2125 volumes repeated for 2126 through 2131. Fallow farmland recharge removed from 2024 onward*. *Retained in Scenario 2, consistent with continued farming at 1,230 AFY. | | |
| Artificial | Starts in 1980, then varies at ~ 2100 AFY | Updated with ADWR reported USF volumes through 2025. ADWR estimates used where no verified volume exists; prior-year volume substituted where the estimate was the maximum. | Repeated 2025 USF Inputs | Zero |
| Mountain Front | 500 AFY (constant throughout) | Held constant at 500 AFY | | |
| Canal | Repeating pattern that scales down with average of ~ 85K AFY | Repeating 16 yr period that scales down, then repeats the 16-year pattern from 2105 to 2121 through the end of the predictive period | | |
| Picacho | Varies but constant at 1834 AFY since 2016 | Held constant at 1834 AFY | | |
| Urban | Starts in 1980 and then ramps up to 3182 AFY in 2009, then held constant | Held constant at 3182 AFY | | |

### 3.1.2 Model Scenarios

Three model scenarios were developed in which differences in the predictive period were used to evaluate the impact of withdrawals from the four wells for the Project against continued withdrawal under the existing IGFR. Modifications to the Pinal AMA Model are described in the scenario descriptions that follow. Recharge package components are summarized in **Table 5**.

## Scenario 1 – Base Model

The predictive period update in the recharge package for Scenario 1 includes all artificial recharge represented as USF recharge turned off after 2031. Additionally, starting in 2024 agricultural recharge set to zero for the seven cells where the farmland that the current wells serve is located.

The pumping package for the predictive period utilizes the 2025 reported pumping rates for all of the wells in the model. Under this scenario the four wells on the wellfield parcel are inactive, consistent with ADWR records showing no reported withdrawal at the parcel after 2023, and no withdrawal is simulated from them from 2024 through the predictive period.

## Scenario 2 – Continued Agriculture Model

Scenario 2 represents continuation of the water use authorized at the wellfield parcel today. The parcel is presently idle, but the IGFR is active and the allotment remains available to the right holder. The same recharge package used for Scenario 1 is used in Scenario 2 with the exception that the agricultural recharge on the seven cells is put back in for the predictive period. For the pumping package, the four wellfield wells withdraw under the existing IGFR at its maximum annual groundwater allotment of 1,230 AF, divided evenly among the four wells, beginning in 2032 and continuing for the remainder of the predictive period. Withdrawal is assigned by well to the model layer corresponding to each well's registered total depth and is simulated as constant with no seasonal variation. The remaining wells in the model pump at 2025 rates to match Scenario 1 pumping.

## Scenario 3 – Project Model

Scenario 3 represents the Project with the same recharge package used for Scenario 1 used in Scenario 3. For the pumping package, the four wellfield wells withdraw at the proposed Project rate of a constant 75 AFY each, totaling 300 AFY, beginning in 2032 and continuing for the remainder of the predictive period. Withdrawal is assigned by well across model layers in the constant proportions set by the 2019 Pinal AMA Model and listed in Table 4. All four wells bottom within the MSCU and none reaches the LCU. The deepest well, 55-625223 at 1,600 feet, bottoms at approximately -99 feet amsl, about 200 feet above the top of the Lower Conglomerate Unit at its model cell. The three wells

at 500 to 600 feet are open across the UAU and bottom within the upper MSCU. Withdrawal is simulated as constant with no seasonal variation and no reduction for standby capacity. The remaining wells in the model pump at 2025 rates to match Scenario 1 pumping.

## 3.2 Modeling Results

### 3.2.1 Impacts to Aquifer

Potential impacts of the Project's 300 AFY withdrawal were evaluated using the three scenarios described in Section 3.1.2. Because the IGFR is active and its allotment remains available to the right holder, Scenario 2 rather than Scenario 1 represents the withdrawal expected at the parcel absent the Project. The effect of the Project is therefore reported as the difference between Scenario 3 and Scenario 2, a reduction of approximately 930 AFY at the parcel.

Results are presented at the end of the Predictive Period (2131) on Figures 6 through 8, which show the simulated drawdown difference, the impact at the wellfield, and the simulated depth to water, respectively. All three are in Layer 1 (UAU), the most affected layer..

#### Historic Withdrawal at the Wellfield Parcel

Groundwater pumping occurred at the wellfield parcel throughout the historical period. ADWR records for the four production wells on the parcel document 39 years of recorded pumping between 1984 and 2023, totaling 47,551 acre-feet (AF), with a mean annual volume of 1,219 AF, a median annual volume of 1,176 AF, and a peak single-year volume of 3,094 AF in 1985. The maximum annual groundwater allotment on IGFR 58-104163.0000 is 1,230 AF, consistent with the long-term reported mean, and is the rate simulated in Scenario 2.

The proposed Project withdrawal of 300 AFY is approximately one quarter of both the parcel's annual allotment and its mean historic annual withdrawal, and less than 10 percent of its documented peak year. Withdrawal at the parcel declined over the final decade of record, ranging from 392 to 702 AFY between 2019 and 2023. The proposed withdrawal is therefore below recent actual use at the parcel, as well as below both the long-term historic average and the volume authorized under the existing right.

#### Simulated Drawdown

Model results in the 100-year predictive period simulate a decrease in groundwater levels at and around the wellfield parcel under all three scenario conditions. Absolute simulated water level elevations reflect regional recharge and demand assumptions that extend well beyond the Project

area, so the effect attributable to the Project is evaluated as the difference between scenario simulations at the same point in time rather than as an absolute elevation.

Simulated drawdown measured from the start of the predictive period is presented in Table 6.

**Table 6.** Simulated drawdown over the 100-year predictive period (2032 to 2131) at the most impacted wellfield model cell, well 55-625222, Layer 1

| Model Scenario | Simulated Drawdown 2032 to 2131 (feet) | Difference from Base Model (feet) | Average Difference (ft/yr) |
|---|---|---|---|
| Scenario 1 – Base Model (no withdrawal at the wellfield parcel) | 27.92 | – | – |
| Scenario 2 – Continued Agriculture Model (1,230 AF) | 38.72 | 10.80 | 0.108 |
| Scenario 3 – Project Model (300 AFY) | 31.50 | 3.58 | 0.036 |

Values are reported at model cell row 146, column 198, which contains well 55-625222 (D-06-08 25AAA) and shows the largest simulated response of the four wellfield cells. Layer 1 (Upper Alluvial Unit) is reported due to greatest effect of pumping of the three layers.

Base Model drawdown across the four wellfield cells in Layer 1 ranges from 27.92 to 30.02 feet over the predictive period, an average rate of approximately 0.28 foot per year.

Relative to the Continued Agriculture Model condition of Scenario 2, the Project Model results in a higher simulated water level of 5.95 feet at the wellfield cells in Layer 1, 3.57 feet in Layer 2, and 1.33 feet in Layer 3 at the end of the predictive period. Because the Project withdraws approximately 930 AFY less than the parcel is authorized to withdraw under the existing IGFR, simulated water levels under Scenario 3 improve the water table relative to Scenario 2 throughout the period of withdrawal. Figure 6 presents the simulated drawdown difference and Figure 7 presents the extent of the simulated effect at the wellfield.

Measured instead against Scenario 1, in which no withdrawal occurs at the parcel, the incremental average effect of the Project withdrawals within the wellfield cells is 3.54 feet in Layer 1, 1.84 feet in Layer 2, and 0.76 feet in Layer 3 after 100 years of withdrawal. Approximately 60% of that effect develops within the first five years of withdrawal in Layer 1, after which the cone of depression expands laterally rather than deepening appreciably.

## 3.3 Conclusions

### 3.3.1 Hydrogeologic Findings and Sustainability Assessment

The groundwater flow modeling analysis evaluates the Project's withdrawal of 300 AFY against the withdrawal authorized at the same wellfield under the existing IGFR. The model was run under three conditions: a Base Model with no withdrawal at the wellfield parcel; a Continued Agriculture Model in which the parcel withdraws its maximum annual groundwater allotment of 1,230 AF beginning in 2032; and a Project Model in which the parcel withdraws 300 AFY beginning in the same year.

Simulated water levels decrease over the predictive period under all three conditions. Under the assured water supply recharge assumptions carried in the model, this decrease is an expected result. Although the simulations show a general decline in water elevation, absolute simulated elevations should not be relied upon, and the effect of the Project is reported as the difference between simulations at the same point in time. Relative to the continued agriculture model, simulated water levels at the wellfield are on average 5.95 feet higher in Layer 1, 3.57 feet in Layer 2, and 1.33 feet in Layer 3 at the end of the predictive period under Project withdrawal, reflecting a reduction of approximately 930 AFY in withdrawal at the parcel while still accounting for the agricultural recharge in the Continued Agriculture Model. Relative to the Base Model, the incremental average effect of Project withdrawal at the wellfield is 3.54 feet in Layer 1, 1.84 feet in Layer 2, and 0.76 feet in Layer 3.

### 3.3.2 Consistency with the Management Plan and Physical Availability

The Project's supply is native groundwater withdrawn under IGFR No. 58-104163.0000. Consistency with the management goal rests on the reduction in withdrawal at the wellfield, the modeled effect of that reduction on the aquifer, and compliance with the conservation and reporting standards of the 5MP.

The IGFR carries a maximum annual groundwater allotment of 1,230 AF across 302 irrigation acres. Retirement of irrigation acres for non-irrigation use under A.R.S. § 45-469 yields a Type 1 non-IGFR. The Project will convert only the volume necessary to serve its 300 AFY demand. That demand is approximately 930 AF per year below the withdrawal authorized today under the irrigation right.

The reduction is also substantial against actual use. ADWR records document 39 years of reported pumping at the four wells between 1984 and 2023 totaling 47,551 AF, a mean annual volume of 1,219 AF and a peak of 3,094 AF in 1985. The proposed withdrawal is approximately one quarter of both the current allotment and the long-term mean, and is below the 392 to 702 AF per year reported over the final five years of record.

The model results are consistent with that reduction. Measured against continued irrigation withdrawal under the existing right, simulated water levels at the wellfield are on average 5.95 feet higher in the UAU and 3.57 feet higher in the MSCU at the end of the predictive period. Measured against no withdrawal at the parcel, the incremental effect of the Project is 3.54 feet and 1.84 feet in those units. The effect develops early and stabilizes, with the difference between 50 years and 100 years of withdrawal amounting to an average of approximately 0.5 foot in the UAU and 0.32 foot in the MSCU. Modeled Project withdrawals produce a small and early-stabilizing local effect.

Groundwater is physically available to serve the Project over the planning horizon, and the withdrawal is consistent with the 5MP management goal of the Pinal AMA.

### 3.3.3 Mitigation and Offset Strategies

No mitigation measures are warranted. The Project does not add demand at the wellfield, it replaces a larger agricultural demand with a smaller industrial one, and the simulated effect relative to that authorized use is a rise in water levels rather than a decline. The retirement of irrigation acres is itself the offset, and it is permanent rather than operational, so it does not depend on continued performance by the facility.

The evaporation ponds are total containment facilities. They return no water to the aquifer, and no recharge credit or offset is claimed for them. Water conservation at the facility is addressed through the requirements of 5MP Chapter 6.7 and the general industrial requirements of 5MP § 6-402, including the zero liquid discharge standard of 5MP § 6-702, and through the water use efficiency plan required of a new large industrial user under 5MP § 6-1302. Withdrawals are measured in accordance with ADWR's measuring device rules at A.A.C. R12-15-901 et seq. and reported annually under A.R.S. § 45-632 and 5MP §§ 6-403(A) and 6-710(A), which provides ongoing verification that actual use remains at or below the 300 AFY evaluated in this assessment.

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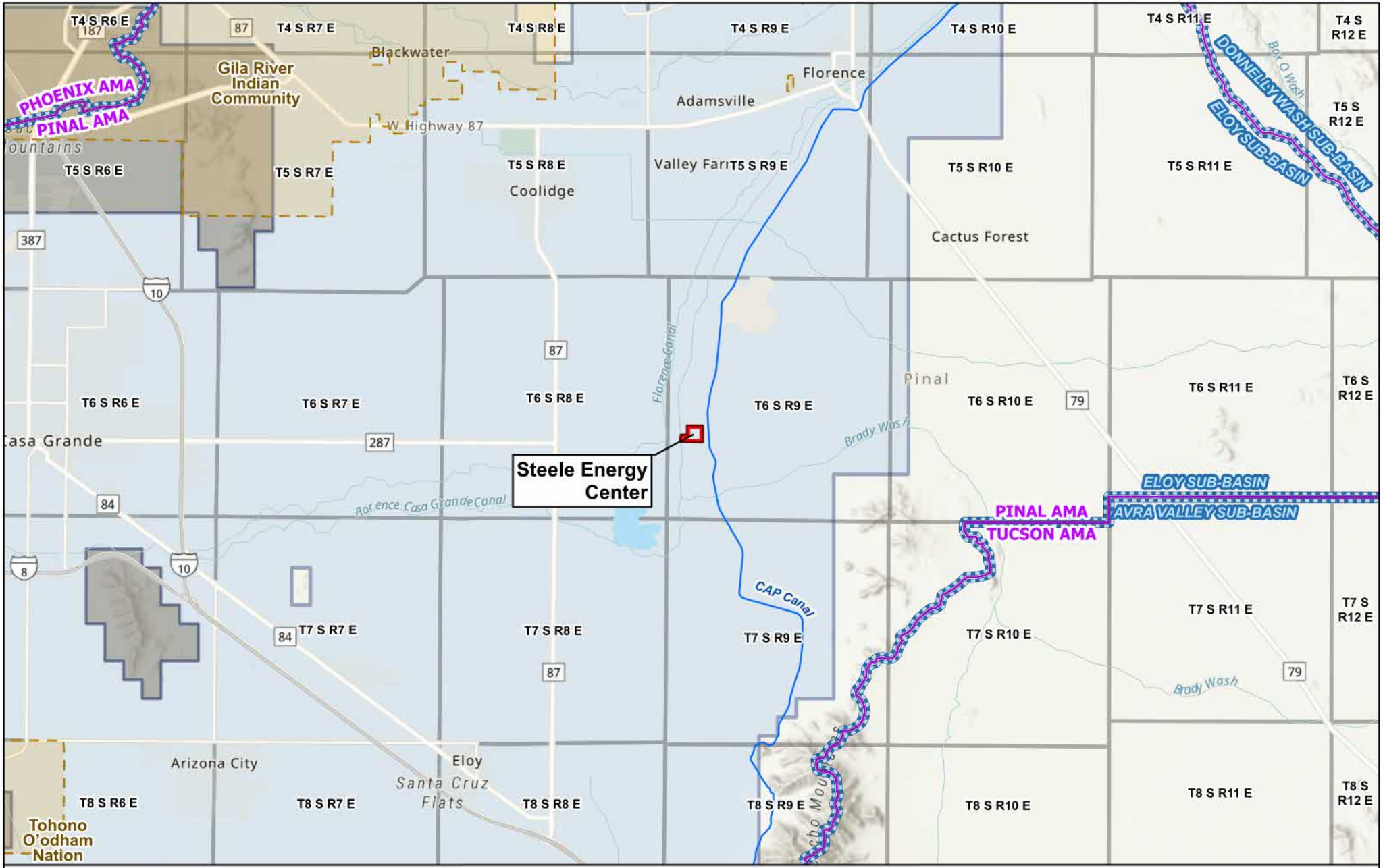
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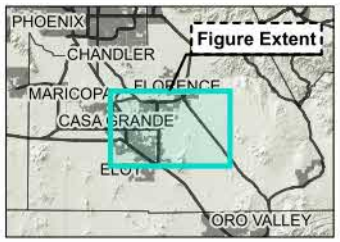
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# 5. Figures




**Explanation**

- CAP Canal
- Steele Energy Center
- Model Domain
- Modeled No Flow / Hard Rock
- Active Management Area
- American Indian Reservation
- Sub-Basin
- Township

**FIGURE 1**
**REGIONAL LOCATION MAP**

Southwestern Power Group - Steele Energy Center

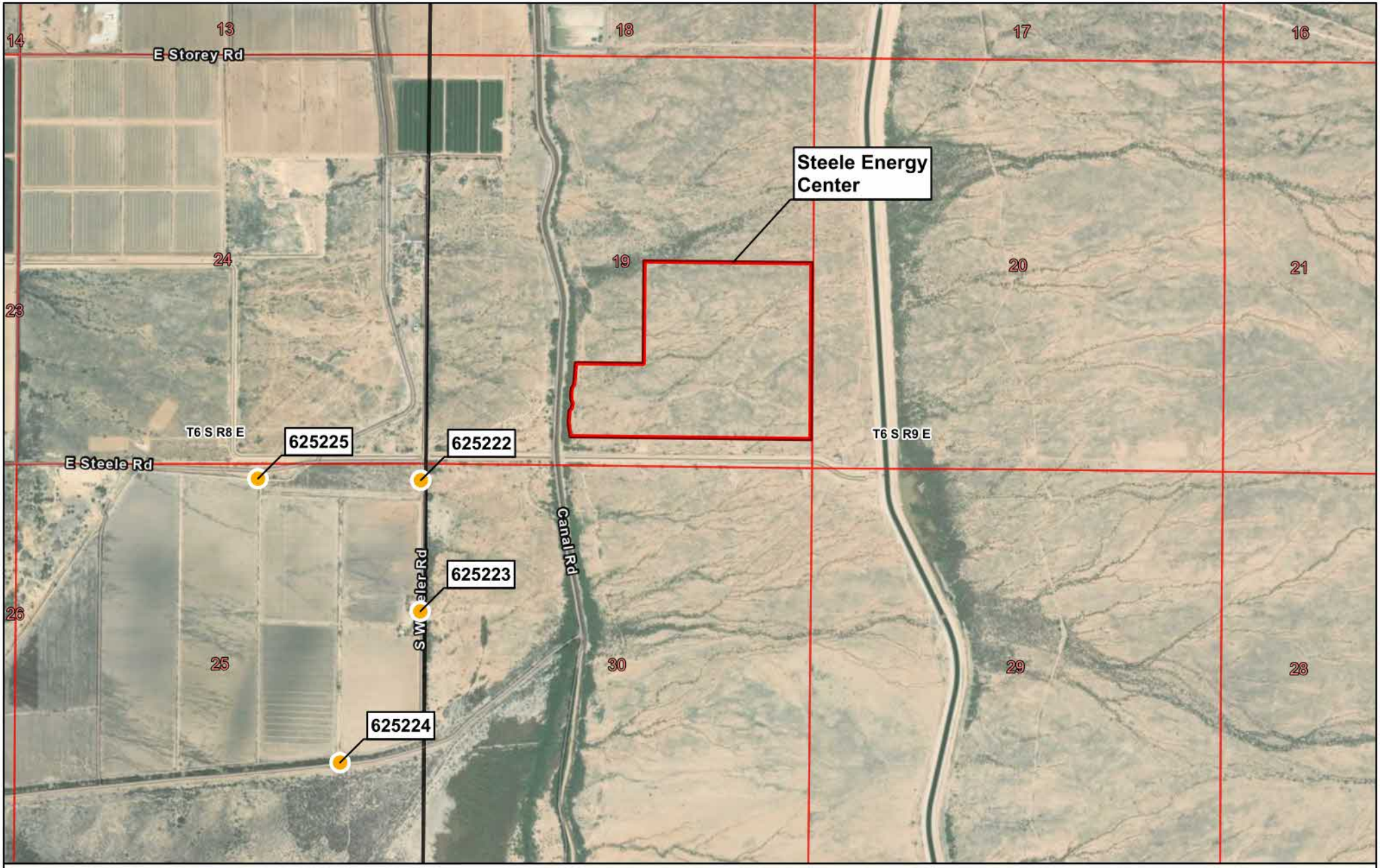
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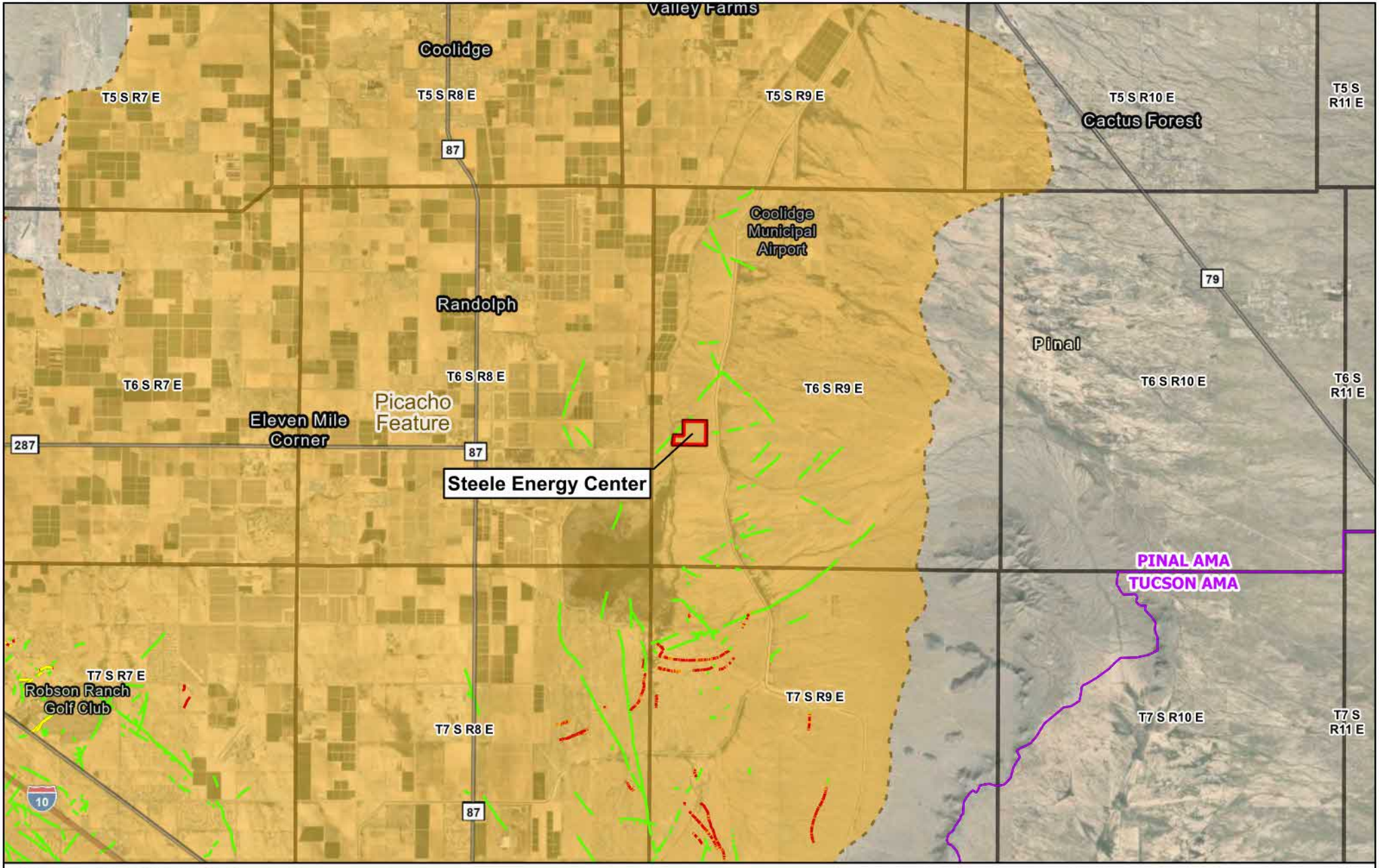
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# FIGURE 3
# SUBSIDENCE AND FISSURES

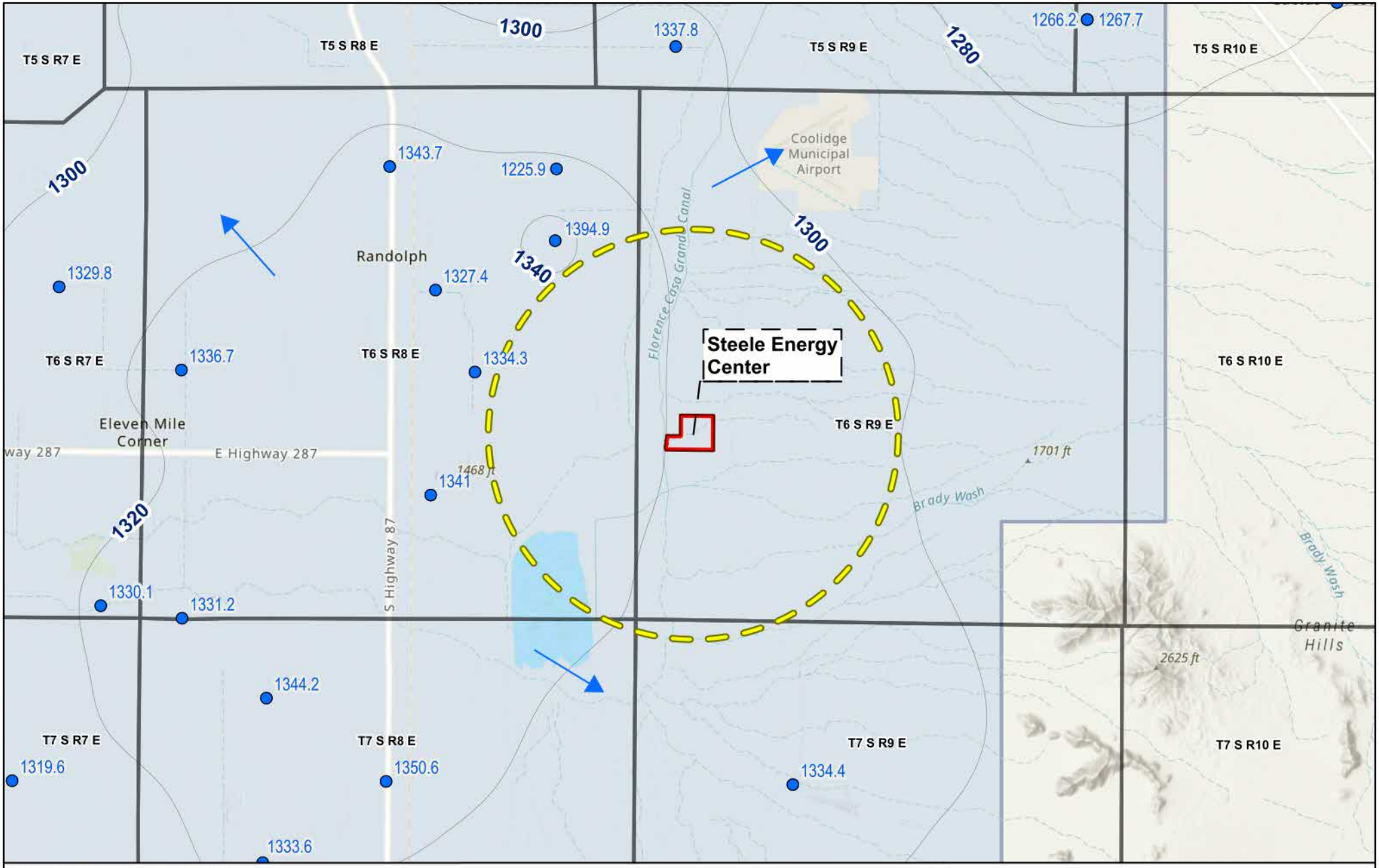
Southwestern Power Group - Steele Energy Center

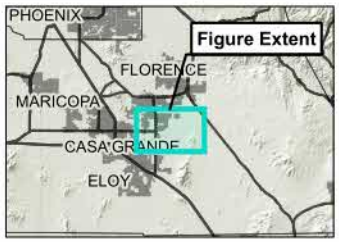
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**Explanation**

- 2025 GWSI Well (Water Level Elevation, ft amsl)
- 2025 GWSI Contour (Water Level Elevation, ft amsl)
- Study Area
- Direction of Groundwater Flow
- Steele Energy Center
- Model Domain
- Township

**FIGURE 4**
**2025 WATER LEVEL ELEVATION**

Southwestern Power Group - Steele Energy Center

0 0.75 1.5 2.25 3 Miles

SCALE: 1:100,000

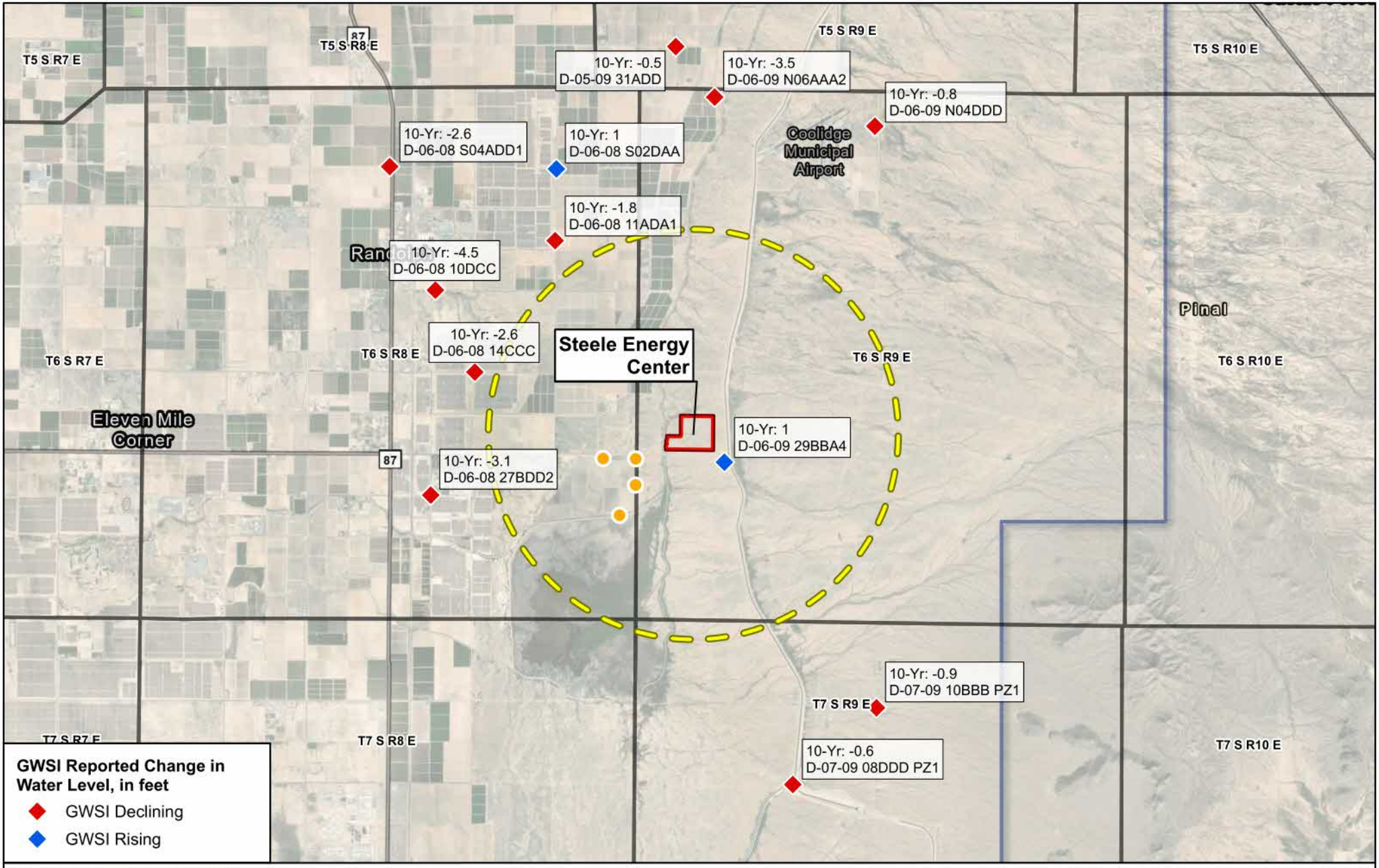
SPHEROS ENVIRONMENTAL

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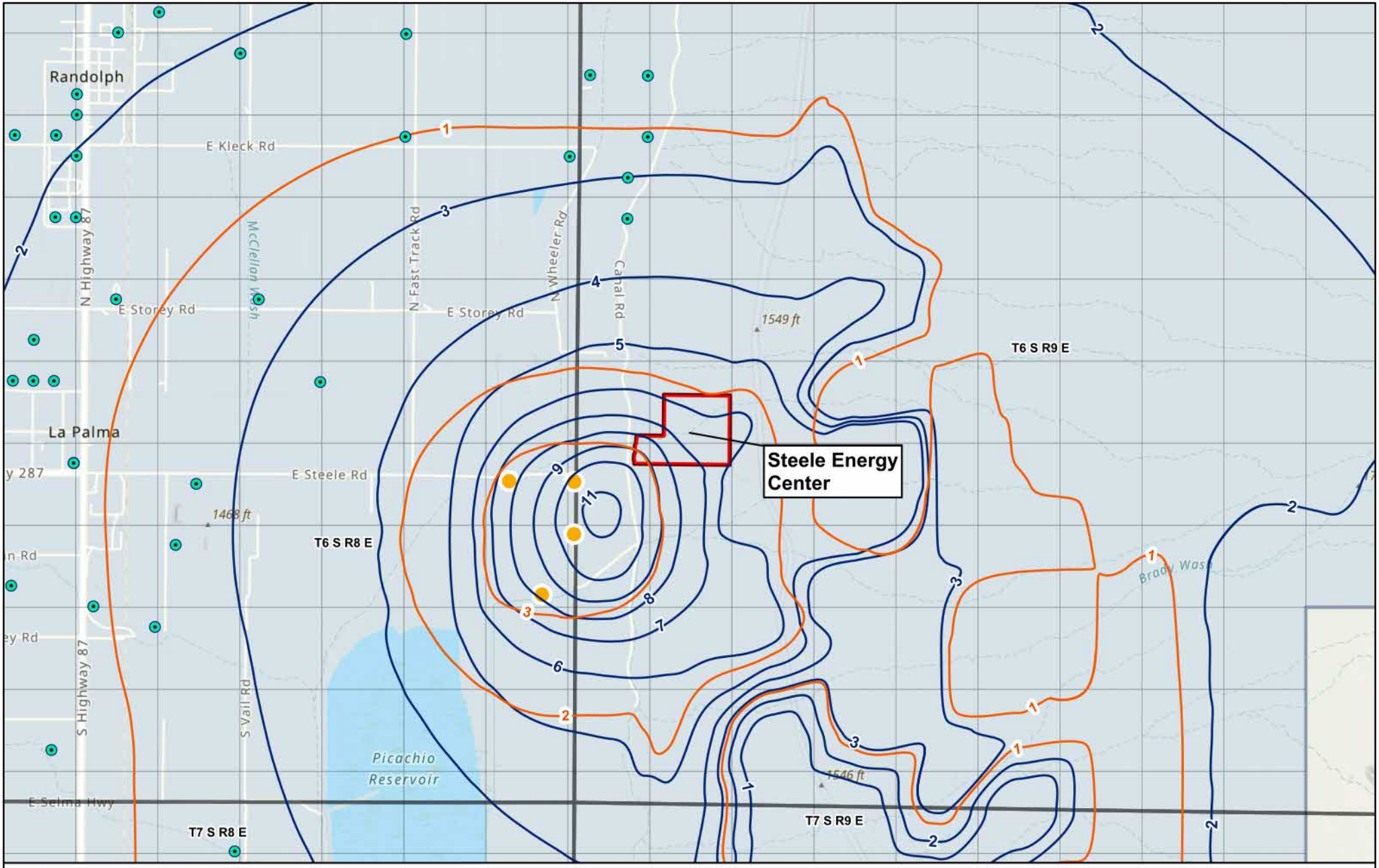
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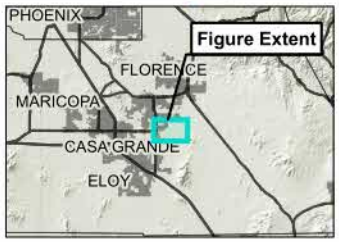
Service Layer Credits: World Topographic Map, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community,World Hillshade, Esri, NASA, NGA, USGS, FEMA

ft amsl = Feet above mean sea level




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**Explanation**

- Local Production Well
- Existing Project Well
- 2032 - 2131 Simulated Drawdown Difference (300AF Scenario), in feet
- 2032 - 2131 Simulated Drawdown Difference (1230AF Scenario), in feet
- Steele Energy Center
- Model Cell
- Model Domain
- Township

Note: Only Water Level Decreases Shown, 1230AF Scenario includes AG recharge in the Predictive Period

**FIGURE 6**
**100-YEAR SIMULATED DRAWDOWN DIFFERENCE MAP**

Southwestern Power Group - Steele Energy Center

0 0.5 1 1.5 Miles

SCALE: 1:50,000

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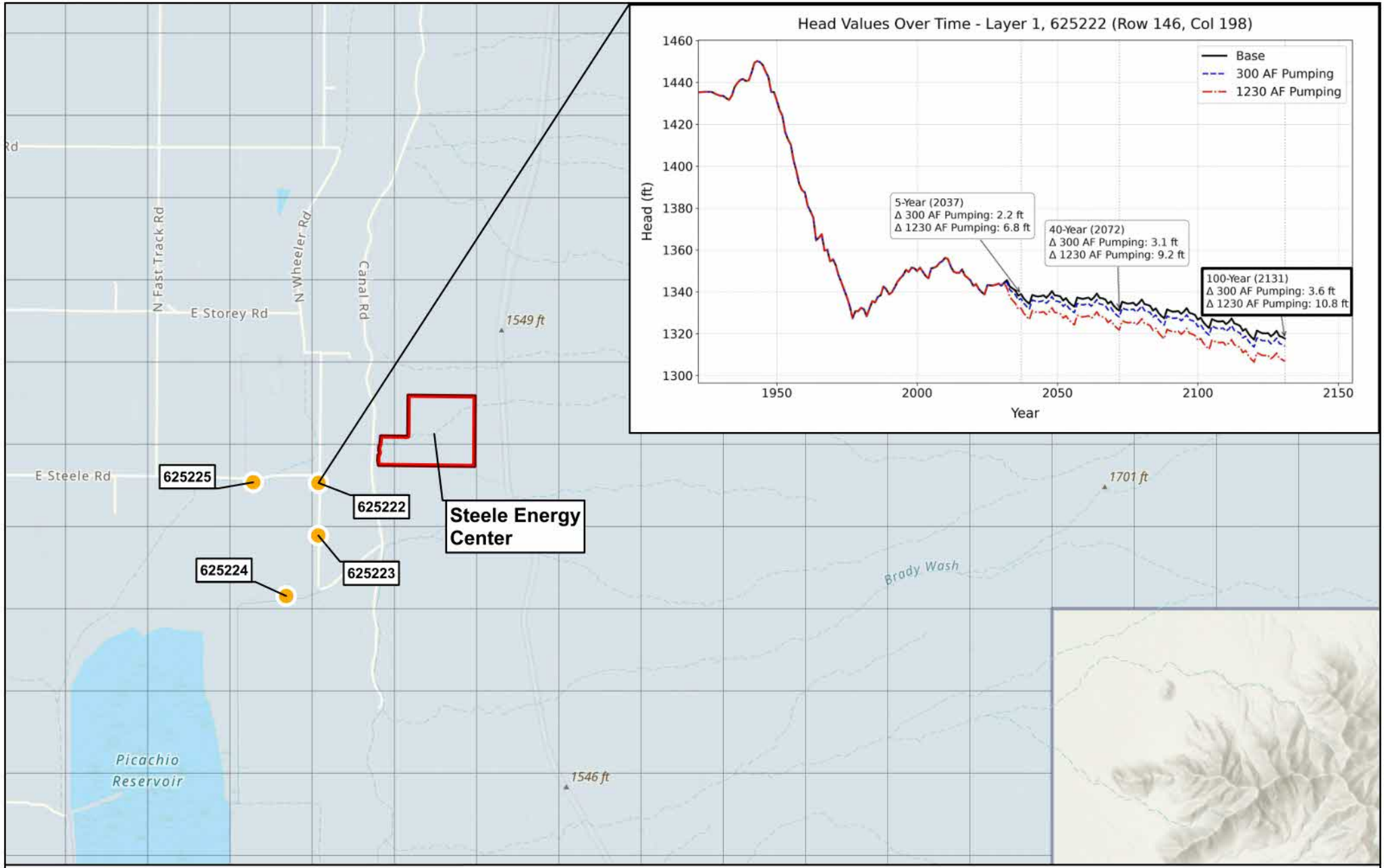



**FIGURE 7**
**MODEL RESULTS - 100-YEAR IMPACT MAP**

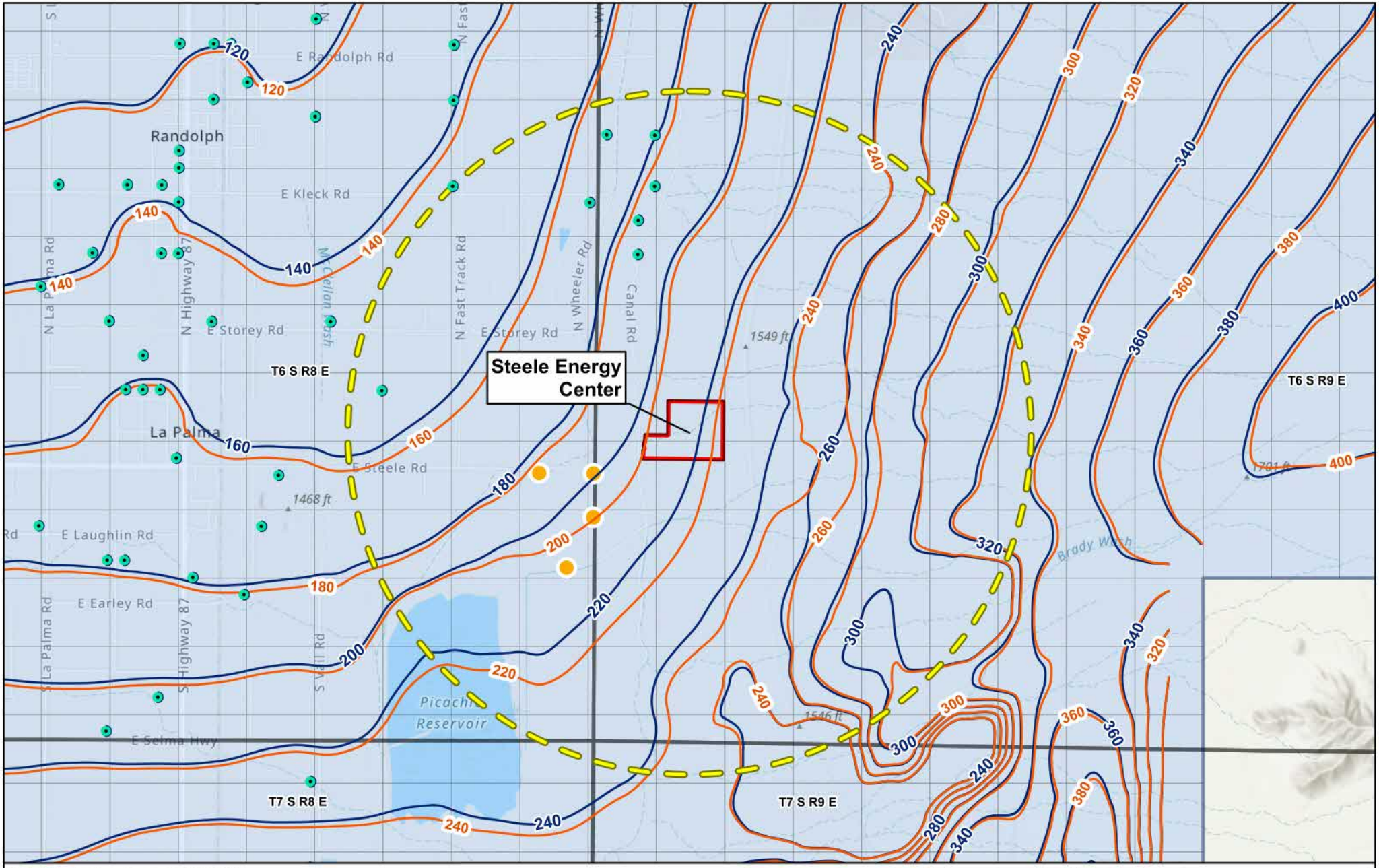
Southwestern Power Group - Steele Energy Center

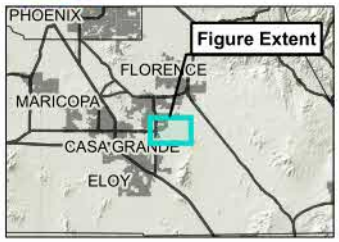
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**Explanation**

- Local Production Well
- Existing Project Well
- 100-Year Depth to Water Contour, 300AF (ft, bls)
- 100-Year Depth to Water Contour, 1230AF (ft, bls)
- Study Area
- Steele Energy Center
- Model Cell
- Model Domain
- Township

**FIGURE 8**
**MODEL RESULTS -**
**100-YEAR DEPTH TO WATER**

Southwestern Power Group - Steele Energy Center

0 0.5 1 1.5 2 Miles

SCALE: 1:60,000

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AFY = acre feet per year
ft, bls = feet below land surface

# EXHIBIT C
# AREAS OF BIOLOGICAL WEALTH

In accordance with Arizona Administrative Code R14-7-119 the Applicant provides the following information:

*Describe any areas in the vicinity of the proposed site or route which are unique because of biological wealth or because they are habitats for rare and endangered species. Describe the biological wealth or species involved and state effects, if any, the proposed facilities will have thereon.*

## Introduction

Areas of biological wealth and the rare and endangered species that may occur at or in the vicinity of the proposed Steele Energy Center (SEC or Project) were identified through a biotic resource review conducted by KP Environmental, Inc. (KPE). The data sources consulted for the review include:

- Topographical and aerial maps and land use, land cover, and elevation data.
- The U.S. Fish and Wildlife Service (USFWS) species list for the Project obtained from the USFWS online Information for Planning and Consultation (IPaC) system (**Exhibit C-1**).
- Species information obtained from the USFWS Environmental Conservation Online System, the USFWS Arizona Ecological Services document library, the Arizona Game and Fish Department (AGFD) Online Environmental Review Tool (**Exhibit C-2**).
- AGFD Review Letter of the Steele Energy Center Project and additional correspondence (**Exhibit C-3**).

The AGFD Online Environmental Review Tool database query establishes a buffer beyond the Steele Energy Center Project to search for occurrence records and the presence of modeled habitat (AGFD 2026a). The size of the buffer depends on the type of project being considered. For the anticipated work areas, the buffer is five miles beyond the Steele Energy Center Project as defined by the AGFD Online Environmental Review Tool.

In addition, KPE, biologists with expertise in the biology of flora and fauna of the region completed an on-ground habitat assessment for the Project. All plant and wildlife species observed during surveys on July 16, 2026, were recorded (see **Exhibit D** for a complete list), and the site was assessed to determine if habitat features for species protected under the federal, state, or local regulations were present on the Project site and vicinity.

## Laws and Policies

Applicable laws and policies regarding special-status species in Arizona include the following:

The USFWS administers the following federal laws and associated regulations:

- The Endangered Species Act (ESA) of 1973, as amended, protects wildlife species listed as threatened or endangered from "take" (generally, intentional or unintentional harm or harassment of a listed species). However, the ESA does not provide the same take protections for listed plant species, except on federal land. The ESA also allows for the designation of critical habitat for listed species, although designation of critical habitat is not required. Critical habitat is an administrative designation of a defined area with specific characteristics important to the survival and recovery of a listed species. Designation of critical habitat can affect federal actions but not state or private actions unless there is a federal nexus.

- The Migratory Bird Treaty Act (MBTA) provides for the protection of migratory birds and prohibits their unlawful take or possession. The act bans "taking" any native birds; "taking" can mean killing a wild bird or possessing parts of a wild bird, including feathers, nests, or eggs. Exceptions are allowed for hunting game birds and for research purposes, both of which require permits.

- The Bald and Golden Eagle Protection Act (BGEPA) prohibits any form of possession or taking of bald eagles (*Haliaeetus leucocephalus*) or golden eagles (*Aquila chrysaetos*). The act prohibits the "take" of bald and golden eagles; "taking" includes disturbing eagles, which means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior.

The AGFD manages and conserves wildlife in Arizona. Nearly all take of wildlife is regulated in some manner through the hunting and fishing license system. Arizona does not have a counterpart to the federal ESA, but a list of rare species (Wildlife of Special Concern [WSC]) was created in 1996 by the AGFD, based on ESA candidate species, without creating any specific statutory protections for those species. The WSC status is no longer a valid category because they were former but no longer candidate species under the ESA; however, the AGFD continues to track these species due to an existing memorandum of understanding between the USFWS and AGFD. Generally, no hunting or capture of those species is allowed, with some exceptions for managed recreational fisheries of native fish and recreational capture of certain reptiles.

Arizona prepared a Comprehensive Wildlife Conservation Strategy in 2006 (AGFD, 2006), later renamed the State Wildlife Action Plan (SWAP), through a state–federal partnership and grant program. The SWAP was updated in 2022 (AGFD, 2022) and is now called the

Arizona Wildlife Conservation Strategy (AWCS), making minor refinements to SWAP criteria to provide clarity. The AWCS identifies Species of Greatest Conservation Need (SGCN) in several tiers. SGCN was scored on the following seven criteria: Extirpated Status, Federal or Legal Status, Declining Status, Disjunct Status, Demographic Status, Concentration Status, and Distribution Status. Tier 1 species were deemed vulnerable in at least one of the previous categories and is at least one of the following: federally listed as endangered or threatened under the ESA, recently removed from ESA and currently requires post-delisting monitoring, specifically covered under a signed conservation agreement such as Candidate Conservation Agreement (CCA) or a Candidate Conservation Agreement with Assurances (CCAA) or a Conservation Strategy and Assessment or Strategic Conservation Plan, or a closed season species (i.e., no take permitted) as identified in AGFD Orders 40, 41, 42 or 43 (AGFD, 2022). Tier 2 species were deemed vulnerable in at least one of the seven criteria listed above but matched none of the additional criteria also listed above. Tier 3 species have "unknown status" in at least one of the seven criteria listed above. These species have no assessed status, and thus represent priority research and information needs. With more information on these species, their status is likely to change.

Native plants in Arizona are managed by the Arizona Department of Agriculture (ADA), which regulates harvest, salvage, and transport of plants. Harvest or salvage of most plant species may be permitted or required, and fees may be assessed on Arizona State Land Department (ASLD) State Trust Land (State Land). Plants listed in the Highly Safeguarded category may only be taken or salvaged for scientific or conservation purposes.

The ADA administers the state noxious weed law under Arizona Administrative Code R3-4-245.

## Inventory

KPE biologists conducted a biological reconnaissance survey of the Project site on July 16, 2026. The biologists documented existing conditions and noted any habitat features that may be important to special-status species or related to areas of biological wealth on the Project site and vicinity.

The USFWS IPaC was accessed on June 30, 2026, and the USFWS generated a report listing proposed, candidate, threatened, and endangered species and other resources that could potentially occur within the Project site (USFWS 2026); species are shown in Table C-1, USFWS-listed Species).

The AZGFD Online ERT search was completed for the Project on June 30, 2026 (AZGFD 2026a). The information provided in the environmental review is used to guide preliminary decisions and assessments of proposed land development, management, and conservation projects while incorporating fish and wildlife resource needs or features.

Prior to conducting the desktop analysis, the ecology and habitat requirements of various species that could occur in the county were researched. During the field assessment, scans for migratory bird nests, western burrowing owls, and special-status species were

conducted for the proposed Project components. The information was used to evaluate the potential effects of Project implementation on special-status species within the vicinity of the Project.

## Summary of Occurrence

The USFWS and AGFD identified several rare, endangered, threatened, and other special-status species that are known to occur or could occur in the region (i.e., near the Project for USFWS and within a five-mile buffer of the Project site for AGFD). These protected areas, special-status species, and their likelihood of being present in the vicinity of the proposed Project are addressed below in four sections: 1) Areas of Biological Wealth 2) Federally Listed Threatened and Endangered Species, 3) Other Special Status-Species, and 4) Protected Native Plants (AGFD, 2026a; USFWS, 2026d).

### Areas of Biological Wealth

There are no designated or proposed critical habitats, wildlife movement corridors, or Important Bird Areas within the Project site (USFWS, 2026d)

Pinal County Riparian Areas are mapped within the Project site (AGFD, 2026a). This riparian category was developed to provide planners and other project proponents with the information to identify opportunities to protect riparian areas, open spaces, and other natural resources throughout Pinal County and the surrounding areas (AGFD and Pinal County, 2019). The area mapped as Pinal County Riparian habitat in the middle of the Project site does not qualify as riparian habitat based on field surveys and desktop review, with concurrence from AZGFD (see **Exhibit C-3**). Although ironwoods and mesquites are present along portions of the drainage, their presence is sparse and patchy and does not create a dense or even moderate tree canopy to be considered riparian habitat. There is an additional riparian area on the western boundary of the Project site, however, this will not be disturbed and will be buffered by 50 feet to protect the habitat. The closest Important Bird Area (IBA), the Boyce Thompson Arboretum/Arnett-Queen Creeks IBA, is approximately 30 miles northeast of the Project (Audubon, 2026). The habitat assessment survey determined there are no wetlands, native riparian areas nor IBAs located within or adjacent to the Project.

### Federally Listed Threatened and Endangered Species

The USFWS IPaC and AZGFD ERT did not identify plant species listed as threatened or endangered under the ESA within the Project site. Based on field reconnaissance, there is no suitable habitat for federally listed plants within the Project site.

The IPaC (USFWS 2025a) lists five species of threatened or endangered wildlife with the potential to occur in the analysis area: cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*), southwestern willow flycatcher (*Empidonax traillii extimus*), yellow-billed cuckoo (*Coccyzus americanus*), Gila chub (*Gila intermedia*), and Gila topminnow (incl. *Yaqui*) (*Poeciliopsis occidentalis*) and one candidate species; monarch

butterfly (*Danaus plexippus*). The species' federal status and potential for occurrence in the vicinity of the Project are presented in **Table C-1**.

The ERT (AZGFD 2026a) lists three species of threatened or endangered wildlife with the potential to occur in the analysis area: southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail (*Rallus obsoletus yumanensis*); one species with a Candidate Conservation Agreement (CCA), Sonoran desert tortoise (*Gopherus morafkai*); and one species listed under the BGEPA, golden eagle (*Aquila chrysaetos*). The species' federal status and potential for occurrence in the vicinity of the Project are presented in **Table C-1** and **Table C-2**.

**Table C-1**
**USFWS-Listed Species**

| Species | | USFWS Protection Status | Occurrence Status (Justification) |
|---|---|---|---|
| **Common name** | **Scientific name** | | |
| **Birds** | | | |
| Cactus Ferruginous Pygmy-Owl | *Glaucidium brasilianum cactorum* | Threatened | Low potential to occur. There is marginal Sonoran desert scrub habitat within the Project site, but nesting would be very unlikely as there are few saguaro cactus and mature trees that could support cavities for nesting within the Project site. This species did not have occurrence records within five miles of the Project (AGFD 2026a) and was not observed during the field assessment. |
| Southwestern Willow Flycatcher | *Empidonax traillii extimus* | Endangered | Low Potential to occur. Suitable riparian habitat for this species is not present in the Project site. The nearby canals could provide a source of water during migration and while unlikely this species could occur within the Project site during a stopover. This species does have occurrence records within five miles of the Project (AGFD 2026a); However, this species was not observed during the field assessment. |
| Yellow-billed Cuckoo | *Coccyzus americanus* | Threatened | Low Potential to occur. Suitable riparian habitat for this species is not present in the Project site. The nearby canals could provide a source of water during migration and while unlikely this species could occur within the Project site during a stopover. This species does have occurrence records within five miles of the Project (AGFD 2026a); However it was not observed during the field assessment. |
| **Fish** | | | |

| Table C-1<br>USFWS-Listed Species | | | |
|---|---|---|---|
| **Species** | | **USFWS Protection Status** | **Occurrence Status (Justification)** |
| **Common name** | **Scientific name** | | |
| Gila Chub | *Gila intermedia* | Endangered | No potential to occur. There is no suitable aquatic habitat for this species in the Project site. The Project site is distant from aquatic resources with habitat to support this species. This species did not have occurrence records within five miles of the Project site (AGFD 2026a) and was not observed during the field assessment. |
| Gila Topminnow (incl. Yaqui) | *Poeciliopsis occidentalis* | Endangered | No potential to occur. There is no suitable aquatic habitat for this species in the Project site. The Project site is distant from aquatic resources with habitat to support this species. This species did not have occurrence records within five miles of the Project site (AGFD 2026a) and was not observed during the field assessment. |
| **Insects** | | | |
| Monarch Butterfly | *Danaus plexippus* | Candidate | May occur. This species may be present as transients during migration or as occasional individuals passing through the Project site enroute to larval food plants or nectar resources. No milkweed (*Asclepias*) species were observed within the Project site for larval use, but nectar sources are available for foraging and migration. |

*Cactus Ferruginous Pygmy-Owl*

In Arizona, cactus ferruginous pygmy-owls typically occur within 1,000 to 4,000 feet elevation. Historically, cactus ferruginous pygmy-owls were documented in cottonwood-mesquite forests and mesquite riparian woodlands along the Gila and Salt Rivers and major tributaries and Sonoran desertscrub. Currently, most cactus ferruginous pygmy-owls are found in Sonoran desertscrub in southern Arizona (USFWS, 2026b). Although the proposed Project site is within elevation range for this species (just above 1,000 feet), they are not likely to occur for nesting purposes as the Sonoran desertscrub is marginal quality with limited tree and cactus individuals for cavity nesting opportunities. There are no occurrence records for this species within five miles of the Project site (AZGFD 2026) and this species was not observed during the field survey.

*Southwestern Willow Flycatcher*

The southwestern willow flycatcher is a migratory bird that breeds in dense riparian habitats throughout the southwestern United States. Breeding habitat typically consists of dense stands of willow, cottonwood, tamarisk, or other riparian trees and shrubs associated with rivers, streams, wetlands, or areas with saturated soils or nearby surface water. In Arizona, the species occurs across a broad elevational range, generally below

approximately 8,500 feet (USFWS 2026). Although the southwestern willow flycatcher has been documented within 5 miles of the Project site, suitable dense riparian vegetation and associated hydrologic conditions required for nesting are not present within the Project site. There is a band of riparian habitat that occurs along the western irrigation canal just outside of the western boundary of the Project Site but still does not meet the above criteria. Therefore, the species is not expected to occur within the Project site for nesting purposes; however, individuals may occasionally pass through the area during migration or for foraging activity.

*Yellow-billed Cuckoo*

The yellow-billed cuckoo is primarily found in high quality, desert riparian forest habitat dominated by native tree species, especially cottonwood and willow stands bordered by mesquite forested areas (Johnson, 2009). Yellow-billed cuckoos nest primarily in habitat dominated by native species with multistoried structure and high, dense canopies. Yellow-billed cuckoos tend to prefer nesting areas with lower overall temperature and high humidity, so tall shade trees and open water to increase humidity seem particularly important (USBR, 2008). Cuckoos generally do not use sites with canopy cover that is less than 40 percent, and greater than 65 percent is preferred. No desert riparian woodlands or other vegetated areas with suitable canopy cover exist within the immediate project vicinity. However, there is a band of riparian habitat that occurs along the western irrigation canal on the western boundary of the Project Site that could support this species. In order to confirm, a yellow-billed cuckoo biologist conducted a field review of this habitat and determined it is not suitable habitat and would not be expected to support the species (see **Exhibit C-4**). Therefore, the species is not expected to occur on the Project site for nesting purposes; however, individuals may occasionally pass through the area during migration or for foraging purposes. In addition, the Applicant will provide a 50-foot buffer from the eastern edge of the trees to site disturbance. Some tree removal will be required for the bridge installations and vegetation clearing will be done outside of the nesting bird season (March 1$^{st}$ to June 30$^{th}$) unless a biologist is present, the area has been surveyed, and no nests were found.

*Gila Topminnow*

The Gila topminnow is native to the greater Gila River watershed in Arizona and New Mexico. The typical habitat of Gila topminnow includes shallow warm water, small streams or marginal areas of larger more permanent water sources, constantly flowing springs, marshes (cienegas), and permanent and intermittent streams (Magana et al., 2002). As there are no natural aquatic features (e.g., rivers and streams) within the Project site, there is no potential for Gila topminnow to occur within the Project site.

*Gila Chub*

Gila chub is a native to the Gila River basin of Arizona and New Mexico. The species commonly inhabits perennial pools in smaller streams, cienegas, springs, and spring-fed tributaries, generally at elevations between approximately 2,000 and 5,500 feet. Gila chub typically occupy deeper, low-velocity waters with abundant cover, including undercut

banks, boulders, root wads, woody debris, and overhanging or aquatic vegetation (USFWS 2025). The proposed Project site does not contain perennial streams, pools, cienegas, springs, or other suitable aquatic habitat for Gila chub. Therefore, Gila chub are not expected to occur within the Project site, and the Project would not affect suitable habitat for this species.

*Monarch Butterfly*

Significant declines in the population of migrating monarch butterflies have led to widespread concern about this species and the long-term persistence of the North American monarch migration. Augmenting larval feeding and adult nectaring opportunities are part of an international conservation effort for the monarch butterfly. Breeding habitat is characterized by the presence of milkweed species, the monarchs' host plant (Jepson et al. 2015). Suitable breeding habitat does not exist within the Project site. No milkweed species nor monarch individuals were observed in the Project site during the habitat assessment survey. There is a low likelihood for monarch individuals to pass through, and due to the disturbed nature of the site and the surrounding areas, it is unlikely that monarch butterflies will deposit eggs within or around the Project site.

**Other Special-Status Species**

Other special-status species include the following:

- Eagles protected by the BGEPA.

- Birds of Conservation Concern (BCC), which are bird species, beyond those designated as federally threatened or endangered that represent the USFWS's highest conservation priorities. The relevant BCC for this analysis is those identified by the USFWS (2021) as occurring in Bird Conservation Region (BCR) 33.

- SGCN identified by AGFD's AWCS, which are species in need of conservation efforts to preclude them from listing under the ESA. Species are scored on the following seven criteria: Extirpated Status, Federal or State Legal Status, Declining Status, Disjunct Status, Demographic Status, Concentration Status, and Distribution Status. Each criteria contains a score from "0" to "2," with "0" indicating insufficient data, "1" indicating that the vulnerability criterion is met, and "2" indicating that the species does not meet the vulnerability criterion. If a species ranks as "vulnerable" (i.e., score = "1") under one or more of the seven vulnerability criteria, it was included in the SGCN list. Species were considered to have "unknown status" if there were insufficient data to determine the species' vulnerability under one or more of the criteria (i.e., if none of the seven criteria were scored as "1," but one or more of the seven categories scored "0"). Following this initial vulnerability assessment scoring, the resulting SGCN list was further refined into three tiers (AGFD, 2022).

- Tier 1 species are those deemed vulnerable (scored a "1") in at least one of the seven categories *and* is either federally listed as endangered or threatened under the ESA, recently removed from the ESA and currently requires post-delisting monitoring, specifically covered under a signed CCA/CCAA/Conservation Strategy and Assessment/Strategic Conservation Plan, or considered to be a closed season species (i.e., no take permitted) as identified in Arizona Game and Fish Commission Orders 40, 41, 42 or 43.

- Tier 2 species are those deemed vulnerable (scored a "1") in at least one of the seven categories but matched none of the additional criteria for Tier 1.

- Tier 3 species are those with "unknown status" in at least one of the seven categories but do not rise to the classification of Tier 2. These species are those for which status is unable to be assessed and, thus, represent priority research and information needs. As more information becomes available, their tier status will be reevaluated (AGFD, 2022).

The species in these categories (other than those also designated as federally threatened or endangered, which are addressed above) have occurrence records or predicted habitat modeled within five miles of the Project site (AGFD, 2026a) and are discussed and listed below in **Table C-2**, where they are evaluated for potential occurrence based on the results of Project site surveys, familiarity with the vicinity, and freely available information sources, including the AGFD's Heritage Data Management System (HDMS) (AGFD, 2026b); the online field guide Reptiles and Amphibians of Arizona (Brennan, 2021); the online field guide All About Birds (Cornell Lab of Ornithology, 2026a); Google Earth (2026); and the Arizona Ecological Services website and document library (USFWS 2026e).

**Table C-2**
**Other Special-Status Species that May Occur in the Vicinity of the Project**

| **Species** | | **Protection Status[1]** | | |
|---|---|---|---|---|
| **Common name** | **Scientific name** | **ESA[2, 3]** | **Arizona SGCN[3]** | **Potential to Occur in Project site (Justification)[4]** |
| **Amphibians** | | | | |
| Lowland Leopard Frog | *Lithobates yavapaiensis* | SC | 1 | Low potential to occur. Marginal habitat along the irrigation canals may provide suitable habitat. |
| Sonoran Desert Toad | *Incilius alvarius* | -- | 2 | Low potential to occur. Marginal habitat along the irrigation canals may provide suitable habitat. |
| **Birds** | | | | |
| Abert's Towhee | *Melozone aberti* | -- | 2 | Low potential to occur this species prefers dense brush and woodlands along desert rivers. The is marginal desert scrub habitat that may provide potential foraging habitat for this species. |

**Table C-2**
**Other Special-Status Species that May Occur in the Vicinity of the Project**

| Species | | Protection Status[1] | | |
|---|---|---|---|---|
| **Common name** | **Scientific name** | **ESA[2, 3]** | **Arizona SGCN[3]** | **Potential to Occur in Project site (Justification)[4]** |
| American Bittern | *Botaurus lentiginosus* | -- | 2 | Low potential to occur. The ephemeral washes near the Project may provide marginal habitat that could support a stopover or foraging behavior. |
| American Kestrel | *Falco sparverius* | -- | 2 | Moderate potential to occur. Can forage in open habitat where nearby perch sites can provide a vantage point over open habitat. Can nest in natural or manmade cavities. |
| American Peregrine Falcon | *Falco peregrinus anatum* | SC | 1 | Low potential to occur, but no potential for nesting. This species may hunt over open habitat but requires steep rocky cliffsides for nesting. |
| Bendire's Thrasher | *Toxostoma bendirei* | BCC | 2 | Moderate potential to occur. Suitable desertscrub habitat present, but limited cactus species onsite present low potential for nesting |
| Brewer's Sparrow | *Spizella breweri* | -- | 2 | Low potential to occur. Marginal desertscrub present for foraging may support transient, migrating, or wintering individuals |
| Bullock's Oriole | *Icterus bullockii* | -- | 2 | Low potential to occur. This species is fairly tolerant to disturbance and can occur along the margins of agricultural and within open scrub habitat if trees are nearby for nesting.. |
| Cactus Wren | *Campylorhynchus brunneicapillus* | -- | 2 | Low potential to occur. Marginal desertscrub present for foraging and potentially nesting. |
| Chestnut-collared Longspur | *Calcarius ornatus* | -- | 2 | No potential to occur. No suitable habitat present within Project site. |
| Costa's Hummingbird | *Calypte costae* | BCC | 2 | Moderate potential to occur. This species requires ample flowering plants to maintain metabolic needs. There are some flowering species within the Project site. |
| Elf Owl | *Micrathene whitneyi* | | 3 | Moderate potential to occur. This species will nest in cavities of trees or cacti in desertscrub habitat. |
| Ferruginous Hawk | *Buteo regalis* | SC | 2 | Moderate potential to occur. Will hunt in areas with open desert scrub habitat and agricultural lands. |
| Gila Woodpecker | *Melanerpes uropygialis* | BCC | 2 | Moderate potential to occur. This species can tolerate human disturbance and will nest in cavities of trees or cacti in desertscrub habitat. |

**Table C-2**
**Other Special-Status Species that May Occur in the Vicinity of the Project**

| Species | | Protection Status[1] | | |
|---|---|---|---|---|
| **Common name** | **Scientific name** | **ESA[2, 3]** | **Arizona SGCN[3]** | **Potential to Occur in Project site (Justification)[4]** |
| Gilded Flicker | *Colaptes chrysoides* | BCC | 2 | Moderate potential to occur. This species can tolerate human disturbance and will nest in cavities of trees or cacti in desertscrub habitat. |
| Golden Eagle | *Aquila chrysaetos* | BGA | 2 | Low potential to occur, but no potential for nesting. This species may hunt over open habitat but requires steep rocky cliffsides for nesting. |
| Gray Flycatcher | *Empidonax wrightii* | -- | 2 | Low potential to occur. May forage or stopover in the Project site but there is no suitable nesting habitat present in vicinity of Project site. |
| Harris's Hawk | *Parabuteo unicinctus* | -- | 2 | Moderate potential to occur. Will hunt in areas with open habitat including and along the margins of agricultural lands. |
| Inca Dove | *Columbina inca* | -- | 2 | Moderate potential to occur. Tolerant of disturbance and can occur in agricultural lands and open desert scrub habitat. |
| Lincoln's Sparrow | *Melospiza lincolnii* | -- | 2 | No potential to occur. No suitable habitat present in vicinity of Project site. |
| Loggerhead Shrike | *Lanius ludovicianus* | SC | 2 | Moderate potential to occur. Tolerant of disturbance and can occur in open desert scrub and agricultural lands. |
| Mountain Plover | *Anarhynchus montanus* | | 2 | Moderate potential to occur. The earthen shoulders of the concrete irrigation canals may provide access to water necessary for this species during a stopover site. Additionally, the small ponds and canals within the surrounding habitat may also attract this species to the area. |
| Prairie Falcon | *Falco mexicanus* | -- | 2 | Moderate potential to occur. Will hunt in areas with open desert scrub habitat including fallow agricultural lands. |
| Red-winged Blackbird | *Agelaius phoeniceus* | -- | 2 | Low potential to occur. In years of high rain when the ponded areas within the project are full this species could forage within the Project site. |
| Rufous-Winged Sparrow | *Peucaea carpalis* | BCC | 2 | Moderate potential to occur. Suitable desert scrub habitat and desert washes within the Project site. |

**Table C-2**
**Other Special-Status Species that May Occur in the Vicinity of the Project**

| Species | | Protection Status[1] | | |
|---|---|---|---|---|
| **Common name** | **Scientific name** | **ESA[2, 3]** | **Arizona SGCN[3]** | **Potential to Occur in Project site (Justification)[4]** |
| Sagebrush Sparrow | *Artemisiospiza nevadensis* | | 2 | Low potential to occur. The desert scrub habitat within the Project site could provide marginal wintering habitat for this species. |
| Savannah Sparrow | *Passerculus sandwichensis* | -- | 2 | Low potential to occur. The agricultural habitat surrounding the Project site could potentially support this species. |
| Southwestern Willow Flycatcher | *Empidonax traillii extimus* | LE | 1 | Low potential to occur and no potential for nesting. While unlikely this species may use habitat within the Project site as a stopover on the way to quality riparian areas. |
| Sprague's Pipit | *Anthus spragueii* | SC | 2 | No potential to occur. No suitable habitat present in vicinity of Project site. |
| Swainson's Hawk | *Buteo swainsoni* | -- | 2 | Moderate potential to occur. Will hunt in areas with open desert scrub habitat and agricultural lands. |
| Verdin | *Auriparus flaviceps* | BCC | 2 | Moderate potential to occur. Will forage in areas with open desert scrub habitat and agricultural lands. |
| Vesper Sparrow | *Pooecetes gramineus* | -- | 2 | Low potential to occur. This species may use the agricultural and the irrigation canals near the Project site as a stopover site on the way to more suitable habitat. |
| Western Burrowing Owl | *Athene cunicularia hypugaea* | SC, BCC | 2 | High potential to occur. The banks along the concrete irrigation canals, and proximity to open fields provide highly suitable habitat for this species. |
| Western Screech-Owl | *Megascops kennicottii* | -- | 2 | Low potential to occur. Marginally suitable habitat present within Project site. |
| Yellow-billed Cuckoo (Western Distinct Population Segment [DPS]) | *Coccyzus americanus* | LT | 1 | Low potential to occur and no potential for nesting. While unlikely this species may use habitat within the Project site as a stopover on the way to quality riparian areas. |
| Yumas Ridgway's Rail | *Rallus obsoletus yumanensis* | LE | 1 | No potential to occur, there is no wetland/marshland habitat within the Project site. |
| **Reptiles** | | | | |
| Regal Horned Lizard | *Phrynosoma solare* | -- | 2 | Moderate potential to occur. Desert scrub habitat with sandy washes within the Project Site could provide suitable foraging areas for this species. |

| Table C-2<br>Other Special-Status Species that May Occur in the Vicinity of the Project | | | | |
|---|---|---|---|---|
| **Species** | | **Protection Status[1]** | | |
| **Common name** | **Scientific name** | **ESA[2, 3]** | **Arizona SGCN[3]** | **Potential to Occur in Project site (Justification)[4]** |
| Sonoran Desert Tortoise | *Gopherus morafkai* | CCA | 1 | Moderate potential to occur. The desert scrub habitat within the Project site may provide suitable habitat for this species. |
| Variable Sandsnake | *Chilomeniscus stramineus* | -- | 2 | Moderate potential to occur. The desert scrub habitat within the Project site may provide suitable habitat for this species. |
| **Mammals** | | | | |
| Antelope Jackrabbit | *Lepus alleni* | | 2 | Moderate potential to occur in the desert scrub habitat within the Project site. |
| Bailey's Pocket Mouse | *Chaetodipus baileyi* | | | Moderate potential to occur in the desert scrub habitat within the Project site. |
| Brazilian Free-tailed Bat | *Tadarida brasiliensis* | -- | 2 | Low potential to occur. May forage in the open desert scrub habitat especially near the irrigation canals. |
| California Leaf-nosed Bat | *Macrotus californicus* | | 2 | Moderate potential to occur foraging only. The desert scrub and washes within the Project site may provide suitable foraging habitat for this species. |
| Cave Myotis | *Myotis velifer* | SC | 2 | Moderate potential to occur foraging only. The desert scrub and washes within the Project site may provide suitable foraging habitat for this species. |
| Gray-collared Chipmunk | *Neotamias cinereicollis* | -- | 2 | No potential to occur. No suitable habitat present within Project site |
| Greater Western Bonneted Bat | *Eumops perotis californicus* | SC | 2 | Moderate potential to occur foraging only. The desert scrub and washes within the Project site may provide suitable foraging habitat for this species. |
| Harris' Antelope Squirrel | *Ammospermophilus harrisii* | -- | 2 | Moderate potential to occur in the desert scrub habitat within the Project site. |
| Pocketed Free-tailed Bat | *Nyctinomops femorosaccus* | -- | 2 | Moderate potential to occur foraging only. The desert scrub and washes within the Project site may provide suitable foraging habitat for this species. |
| Western Yellow Bat | *Lasiurus xanthinus* | -- | 2 | No potential to occur due to an absence of suitable roosting and foraging habitat. |
| Yuma Myotis | *Myotis yumanensis* | SC | 2 | Moderate potential to occur foraging only. The desert scrub, washes, and irrigation canals within the Project site may provide suitable foraging habitat for this species. |

| Table C-2<br>Other Special-Status Species that May Occur in the Vicinity of the Project | | | | |
|---|---|---|---|---|
| **Species** | | **Protection Status[1]** | | |
| **Common name** | **Scientific name** | **ESA[2, 3]** | **Arizona SGCN[3]** | **Potential to Occur in Project site (Justification)[4]** |
| [1]LT=Listed Threatened, SC=Species of Concern, CCA= Candidate Conservation Agreement, BCC=Bird of Conservation Concern, BGA=Bald and Golden Eagle Protection Act protected, 1 = Tier 1 and deemed vulnerable in Arizona in at least one of seven assessment criterion AND matches one of the following criterion; federally listed as endangered or threatened under the ESA, recently removed from ESA and currently required post-delisting monitoring, specifically covered under a signed conservation agreement such as CCA or a CCAA or a Conservation Strategy and Assessment or Strategic Conservation Plan, or is a closed season species (no take permitted), 2 = Tier 2 and deemed vulnerable in Arizona in at least one of seven assessment criterion but matches none of the additional criterion for Tier 1. *Some special-status species listed in this table do not have status listed for the federal ESA or Arizona SGCN but have a special status with another agency, such as USFS, and therefore are included in this list.*<br>[2] USFWS, 2026d<br>[3] AGFD, 2026a, b, | | | | |

*Birds of Conservation Concern (BCC)*

The Project is located in BCR 33, the Sonoran and Mohave Deserts BCR, for which 27 BCC species are listed (USFWS, 2021). Seven of the 27 BCC species listed for the Sonoran Desert BCR were noted as having predicted range models that may intersect with the Project site (AGFD 2026a). Of these, it was determined that all seven BCC species may actually occur in proximity to the Project following the habitat assessment: Bendire's thrasher, Costa's hummingbird, Gila woodpecker, gilded flicker, rufous-winged sparrow, western burrowing owl, and verdin which are described herein.

*Bendire's Thrasher*

Bendire's thrasher can be found in open desertscrub habitats including arid grasslands. Because Bendire's thrashers have the potential to utilize agricultural habitats for nesting and foraging, this species may occur in the Project site. However, no nests nor individuals of this species were observed during the habitat assessment.

*Costa's Hummingbird*

Costa's hummingbird occurs in desertscrub in the Sonoran and Mojave deserts and chapparal and sage scrub areas in coastal California. During the nonbreeding season, they use similar dry habitats for foraging as well as parks, gardens, and higher elevation mountains. The Project site is within the breeding range for Costa's hummingbird, and this species has been documented within five miles of the Project site. This species may occur within the desert scrub portions of the Project site near irrigation canals for nesting or foraging. However, no nests nor individuals of this species were observed during the habitat assessment.

*Gila Woodpecker*

Gila woodpecker occurs in arid desert habitats including Sonoran desertscrub, riparian corridors, and areas with mesquite, cottonwood, and willow. The species is highly tolerant of human disturbance and frequently occupies agricultural, suburban, and urban environments where suitable nesting and foraging trees or large cacti are present. Gila woodpeckers commonly nest in saguaro cactus or trees in riparian or developed settings

and forage on insects and fruit in a variety of vegetation types. Because the species is adaptable and can utilize disturbed landscapes, it may occur in the Project site where suitable nesting structures are present; however, no individuals or active nests were observed during the habitat assessment.

*Gilded flicker*

Gilded flickers are found in Sonoran desertscrub habitats, particularly areas containing saguaro cactus and desert washes with scattered trees. The species typically nests in cavities excavated in large columnar cacti such as saguaro, and forages primarily on the ground for ants and other insects in open desert environments. The open nature of the Sonoran desertscrub habitat within the Project site may provide suitable foraging habitat for this species. No individuals or nesting cavities of this species were observed during the field habitat assessment

*Rufous-Winged Sparrow*

The rufous-winged sparrow is primarily associated with Sonoran desertscrub and semidesert grassland in south-central Arizona. It typically occupies relatively flat to gently rolling terrain with a mixture of grasses and scattered shrubs or small trees, particularly areas containing mesquite, paloverde, acacia, and cholla. The species generally favors areas with sufficient grass and herbaceous ground cover for nesting and foraging and may also occur along desert washes where grasses and woody vegetation are more developed. There is potential for this species to occur within desert scrub habitat and washes in the Project site. However, no nests nor individuals of this species were observed during the habitat assessment

*Western Burrowing Owl*

The western burrowing owl prefers arid habitats with short grass or bare soil, such as grasslands, deserts, and steppe environments. This species may occur within burrows created by prairie dogs, ground squirrels, badgers, or tortoises, as well as the edges of ditches along roads in agricultural areas. This species is considered a USFWS Species of Concern and has a status as AGFD SGCN 2. It also receives federal protection by the USFWS under the MBTA and by Arizona state law (Arizona Revised Statutes [A.R.S.] Title 17). The Project site is within the year-round range for western burrowing owl, and this species has been documented within five miles of the Project site. Due to the presence of suitable habitat, this species may occur within the Project site for nesting or foraging. However, this species was not observed during the July 2026 habitat assessment field surveys.

*Species of Greatest Conservation Need*

The AGFD Online Environmental Review Tool identified six species of greatest conservation need with Tier 1 status (four birds, one amphibian, and one reptile) predicted to occur within five miles of the Project (AGFD, 2026a). Of these six species, five may occur; Lowland leopard frog, American peregrine falcon, southwestern willow flycatcher, yellow-billed cuckoo, and Sonoran desert tortoise in proximity to the Project site, based on the results of the habitat assessment, familiarity with the vicinity, and freely available information sources (**Table C-2**). Analysis for Tier 1 status species with potential to occur in the Project site that were not assessed in a previous section is provided below. These species include lowland leopard frog, American peregrine falcon, and Sonoran desert tortoise.

*Lowland Leopard Frog*

The lowland leopard frog occurs primarily in central and southeastern Arizona and inhabits aquatic systems ranging from desert grasslands to pinyon-juniper habitats. The species is a habitat generalist and breeds in a variety of natural and human-made aquatic systems, including rivers, permanent streams and pools, springs, cienegas, stock tanks, canals, and irrigation sloughs. The Project site contains sparse Sonoran desertscrub habitat and is located in close proximity to a flood drainage and an irrigation canals and approximately 1 mile north of Picacho Reservoir. Although suitable aquatic habitat is not present within the Project site, the nearby canals and reservoir may provide potentially suitable habitat for this species. Therefore, lowland leopard frogs are not expected to regularly occur within the Project site but may occur in nearby aquatic habitats or potentially disperse through the Project site.

*American Peregrine Falcon*

The American peregrine falcon occupies a wide variety of open habitats from tundra to desert mountains. Nesting and wintering habitats are varied, including wetlands, woodlands, forests, cities, and agricultural habitats. The Project site is within the year-round distribution range for this species. Due to the presence of open Sonoran desert scrub habitat, the American peregrine falcon may occur within the Project site for foraging purposes. However, no nests nor individuals of this species were documented during the habitat assessment.

*Sonoran Desert Tortoise*

The Sonoran desert tortoise inhabits rocky hillsides, bajadas, and desert scrub communities where boulder outcrops, caliche caves, rock shelters, and dense vegetation provide cover, nesting sites, and protection from extreme temperatures. The species spends much of the year in burrows or natural shelters and forages on a variety of, forbs, and cacti following seasonal precipitation. Suitable habitat for this species occurs within portions of the Project site, particularly in areas containing rocky terrain and relatively undisturbed Sonoran Desert vegetation. Sonoran desert tortoise has been documented within 5 miles of the

Project site; however, no individuals, burrows, or other signs of occupancy were observed during the field habitat assessment.

The AGFD Online Environmental Review Tool identified 43 species of greatest conservation need with Tier 2 status (one amphibian, 29 birds, two reptiles, and 11 mammals) predicted to occur within five miles of the Project. Of these, 35 (one amphibian, 22 birds, two reptiles, and ten mammals) may occur in proximity to the Project site based on the results of the field assessment and desktop analysis: Sonoran desert toad, Abert's towhee, American kestrel, Bendire's thrasher, Bullock's oriole, cactus wren, Costa's hummingbird, ferruginous hawk, Gila woodpecker, gilded flicker, golden eagle, gray flycatcher, Harris's hawk, Inca dove, loggerhead shrike, mountain plover, prairie falcon, red-winged blackbird, rufous-winged sparrow, Swainson's hawk, verdin, western burrowing owl, western screech-owl, antelope jackrabbit, Bailey's pocket mouse, Brazilian free-tailed bat, California leaf-nosed bat, cave myotis, greater western bonneted bat, Harris' antelope squirrel, pocketed free-tailed bat, western yellow bat, Yuma myotis, regal horned lizard, and variable sandsnake. No individuals of these species were observed during the field assessment. Potential impacts to special-status species are addressed within Other Special-Status Species within the "Summary of Potential Effects" section.

The AGFD Online Environmental Review Tool identified two species of greatest conservation need with Tier 3 status (two birds) predicted to occur within five miles of the Project. Of these, both may occur in proximity to the Project site based on the results of the field assessment and desktop analysis: elf owl and sagebrush sparrow. No individuals of these species were observed during the field assessment. Potential impacts to special-status species are addressed within Other Special-Status Species within the "Summary of Potential Effects" section.

**Protected Native Plants**

The Arizona Native Plant Law (A.R.S. § 3-904) (ANPL) identifies a lengthy list of plant species—largely cacti, agaves, yuccas, and desert trees—that are susceptible to removal for collection, landscaping, sale, or other commercial uses. The ANPL states that these plants shall not be taken, transported, or possessed from any land without permission and a permit from the ADA; it also requires notification prior to land clearing even if the plants would be destroyed.

Of the 35 special-status plant species recorded in the AGFD HDMS having some potential to occur within Pinal County, none have been recorded in or within five miles of the Project site (AGFD, 2026b).

**Noxious Weeds**

The State of Arizona maintains a list of noxious weeds divided into three categories: Class A, Class B, and Class C. Class A noxious weeds are species that are not known to occur or are of limited distribution in Arizona and are considered high priorities for quarantine, control, or mitigation. Class B noxious weeds are known to occur in Arizona but have limited distributions and may be considered high-priority pests for quarantine, control, or

mitigation when they pose a significant threat to crops, commodities, or habitats. Class C noxious weeds are widespread within Arizona but may be recommended for active control based on risk assessment. Noxious and invasive weeds have the potential to occur within disturbed and agricultural portions of the Project site. According to occurrence records from iMapInvasives, no noxious weeds have been documented within 1 mile of the Project site. However, several invasive species known from Pinal County are associated with disturbed roadsides, agricultural lands, desert scrub, drainages, and irrigation features, including stinknet (*Oncosiphon pilulifer*), Saharan mustard (*Brassica tournefortii*), buffelgrass (*Cenchrus ciliaris*), Johnsongrass (*Sorghum halepense*), and salt cedar (*Tamarix* spp.). These species can colonize disturbed or otherwise suitable habitats and may displace native vegetation or reduce habitat quality. Surveys for Noxious Weeds should be done in Fall or Spring in coordination with emergent seasons.

## Summary of Potential Effects

Potential impacts to special-status species related to the construction of the Project could include displacement of individuals from the construction area, possible abandonment of nests due to construction activities, injury or death from vehicle strikes during construction, collision or electrocution risk with switchyard equipment, temporary impacts on foraging behaviors in adjacent habitat, and noise-related disturbance. Project vehicle speed would be limited to 15 miles per hour (mph), reducing the potential for injury or death to special-status species during construction due to vehicle strikes. No new transmission or distribution powerlines are proposed as part of the Project; therefore, the Project would not introduce new collision or electrocution risks associated with overhead powerlines. The proposed 500-kV switchyard would be designed in accordance with applicable electrical design standards to minimize the potential for avian electrocution.

### Areas of Biological Wealth

The Project does not overlap with any areas of biological wealth. Previous and current land uses, including agricultural, along with local roads and infrastructure, has degraded areas of natural vegetation (wildlife habitat). The majority of the Project-related impacts would be temporary and short-term in nature. No wetlands, nor IBAs are located in the Project footprint.

### Federally Listed Threatened and Endangered Species

Of the threatened, endangered, and candidate species identified in the IPaC and ERT reports, no suitable habitat occurs within the Project site for Yuma Ridgway's rail, Gila chub, or Gila topminnow. These species are unlikely to occur within the Project site and, therefore, are not anticipated to be impacted by the Project. Marginally suitable habitat occurs within the Project site or nearby vicinity for two federally threatened species (cactus ferruginous pygmy-owl and yellow-billed cuckoo), one federally endangered species (southwestern willow flycatcher), one candidate species (monarch butterfly), and one species with a candidate conservation agreement (Sonoran desert tortoise). Potential impacts to these species are discussed below.

Habitat for cactus ferruginous pygmy-owl occurs within portions of the Project site where Sonoran Desert scrub, desert washes, and scattered mature trees and saguaros provide potential foraging and nesting habitat. Although saguaros are present within the Project site, suitable nesting opportunities appear limited, and no cactus ferruginous pygmy-owls or evidence of occupancy were observed during the biological field surveys. Protocol surveys for cactus ferruginous pygmy-owl will be conducted prior to construction to determine whether the species occupies suitable habitat within or adjacent to If the species is detected, appropriate avoidance and minimization measures would be developed in coordination with the U.S. Fish and Wildlife Service and other applicable agencies. Therefore, with implementation of appropriate preconstruction surveys and avoidance measures, impacts to cactus ferruginous pygmy-owl are anticipated to be minor.

Habitat for Sonoran desert tortoise occurs within portions of the Project site where Sonoran desertscrub, desert washes, and rocky or undisturbed upland areas provide potential sheltering, foraging, and movement habitat. Although portions of the Project site have been previously disturbed, individual tortoises may occur within or move through areas of suitable habitat. Project activities could result in direct injury or mortality, disturbance of individuals, loss or modification of habitat, or entrapment within open trenches or excavations. To minimize potential impacts, preconstruction surveys would be conducted in areas of suitable habitat prior to ground-disturbing activities, and any tortoises encountered would be avoided or relocated in accordance with applicable Arizona Game and Fish Department guidance and Project-specific avoidance and minimization measures. With implementation of preconstruction surveys and appropriate avoidance and minimization measures, impacts to Sonoran desert tortoise are anticipated to be minor.

Monarch individuals have the low likelihood to occur within the Project site. Monarch butterfly habitat comprises milkweed, which is used exclusively for reproduction, and floral nectar resources for adult food sources. No milkweed was observed during the habitat assessment surveys; however, monarch butterflies may use flowering plants in the Project site for foraging. Therefore, there is a low likelihood for monarch individuals to pass through, but it is unlikely that monarch butterflies will deposit eggs within or around the Project site. Individual monarch butterflies may experience injury, change of behavior, and temporary loss of foraging habitat as a result of the Project construction. Individual monarch butterflies would be expected to largely shift activity to nearby suitable foraging habitat.

## Other Special-Status Species

The following sections address the potential effects from development of the Project components to special-status species that may occur within the Project site.

*Special-Status Bird Species*

Golden eagles may forage in proximity to the Project site near agricultural fields, areas containing water features and may opportunistically feed on carrion via roads and highways, though the likelihood of this type of occurrence is low. Golden eagles foraging within the Project site would likely flee at the onset of construction. A 15-mph speed limit

would be implemented during construction to mitigate any potential impacts to this species. If a Golden eagle is discovered in the area, the applicant would coordinate with AGFD and USFWS, as appropriate. With implementation of mitigation, construction is anticipated to have minor impacts on golden eagle.

American peregrine falcon may utilize open desert scrub habitat within the Project site for foraging, though the likelihood of this type of occurrence is low. Peregrine falcons foraging within the Project site would likely flee at the onset of construction. A 15-mph speed limit would be implemented within the project limits during construction to mitigate any potential impacts to this species. No significant impacts are expected to potentially foraging American peregrine falcons as a result of construction activities.

Suitable habitat for western burrowing owl exists within the Project site, and this species has been documented in proximity to the anticipated work areas. Potential impacts to western burrowing owl related to the construction of the Project could include displacement of individuals from the construction area, possible abandonment of burrows due to construction activities, injury or death from vehicle strikes during construction, temporary impacts on foraging behaviors in adjacent habitat, and noise-related disturbance. In order to mitigate potential impacts to western burrowing owl, a pre-construction survey would be conducted no more than *30 days prior to construction* for active burrows occupied by western burrowing owl. Should an active burrowing owl burrow be detected, the applicant would coordinate with AGFD and USFWS, as appropriate. If active burrows and/or nests cannot be avoided, the applicant would work with the AGFD, USFWS, and wildlife rehabilitators should western burrowing owls need to be relocated. Therefore, direct impacts associated with the Project would constitute a short-term minor impact on western burrowing owl. With implementation of mitigation, construction is anticipated to have minor impacts on the western burrowing owl.

Potential impacts to special-status bird species could include changes in behavior due to project-related noise, vibration, and the presence of workers and equipment, loss of breeding and foraging habitat; and impacts to nesting species. Potential impacts to nesting birds and their eggs covered under the MBTA would be avoided and/or minimized either by limiting ground-clearing/vegetation removal activities to outside the breeding season (March 1st to June 30th) or through surveys to identify active nests and placement of buffers around those active nests until the young fledge or the nest fails during the breeding season. As a result, no significant impacts are expected to special-status bird species due to construction activities.

*Special-Status Mammal Species*

Suitable roosting habitat for the Brazilian free-tailed bat, greater western bonneted bat, cave myotis, and Yuma myotis may include bridges and abandoned buildings in proximity to the Project site. These structures could potentially serve as day roosts for the bat species. Bats are not expected to roost on active generation projects but may roost nearby if structures are suitable. Indirect impacts to bats could include temporary construction noise, which may lead to behavior changes or loss of fitness for individuals. Potential construction

noise-related impacts would be short-term and are anticipated to be limited given the existing sources of anthropogenic noise in the surrounding area, including roadway traffic, agricultural activities, and industrial operations. Operational noise lessens outside the fenceline and is not expected to have detrimental effects on bat species.

Direct impacts to Brazilian free-tailed bat, greater western bonneted bat, cave myotis, and Yuma myotis are not expected due to the nocturnal nature of these species. Therefore, no long-term impacts would be expected to any Brazilian free-tailed bats, greater western bonneted bat, cave myotis, or Yuma myotis that may occur in the Project site.

Project activities would remove open desert scrub habitat, which may decrease the suitability of the area for foraging by insectivorous bat species. California leaf-nosed bat, pocketed free-tailed bat, and western yellow bats that may utilize the Project site for foraging have the potential to be negatively impacted by decreased prey availability as a result of desert scrub habitat removal. However, because the Project site is between large irrigation canals and surrounded by open desert scrub and existing agricultural land these areas will still provide for suitable areas for foraging, any loss of vegetation or irrigation from construction activities would not contribute meaningfully to habitat fragmentation for special-status mammals or decrease connectivity between habitat patches. As a result, minor impacts would be expected to any California leaf-nosed bat, pocketed free-tailed bat, and western yellow bats that may occur in the Project site.

Bat species can collide with human-made structures during long-distance migration. Migrating bats often fly high above ground level and do not actively echolocate. However, during normal foraging activity, bats actively use echolocation and are typically able to detect and avoid features such as generation equipment (Arnett et al., 2015). Construction is anticipated to occur primarily during the day; however, if nighttime construction occurs in certain cases, those activities at night would increase light pollution and human presence in the Project site and would impact bat activity patterns. The increase of nighttime lighting in the Project site has the potential to attract insects, which could have minor beneficial impacts to some bat species as their food source increased. However, some bat species would likely shift their foraging activities away from construction and additional light. The negative impacts would likely be minor because foraging habitat for insectivorous species occurs outside of the Project site.

*Special-Status Reptile Species*

Potential impacts to regal horned lizard include death, injury, or impacts arising from behavior changes and would be similar to those described for terrestrial mammals. Potential impacts from the loss, degradation, and fragmentation of reptilian habitat from project activities would be the same as those described for terrestrial mammals.

*Special-Status Amphibian Species*

Potential impacts to Sonoran Desert toad include death, injury, or impacts arising from behavior changes and would be similar to those described for terrestrial mammals.

Potential impacts from the loss, degradation, and fragmentation of amphibian habitat from project activities would be the same as those described for terrestrial mammals.

*Special-Status Fish Species*

The Project would have no impact on special-status fish species because no habitat for special-status fish species is present in the Project site.

**Protected Native Plants**

Of the 35 special-status plant species having some potential to occur within Pinal County (AGFD, 2026b), none have been recorded within or within five miles of the Project (AGFD, 2024a). If special-status plant species are encountered during Project activities, the Applicant would comply with applicable Arizona Department of Agriculture (AZDA) requirements and the Arizona Native Plant (ANP) regulations, as applicable.

**Noxious Weeds**

Measures would be taken to avoid introducing or spreading noxious weeds in the Project site; therefore, the Project would be unlikely to contribute to an increase of noxious weeds, in extent or abundance, in the vicinity of the Project (**Table C-3**).

## Mitigation Measures

The proposed Project is within sparsely vegetated desert scrub habitat The majority of the disturbances associated with construction of the Project would occur in areas with very low vegetation coverage. The proposed Project is not likely to significantly affect any rare, endangered, or other special-status species. Implementation of mitigation measures (**Table C-3**) would ensure avoidance and minimization of potential risk to wildlife, and the risk that electrical infrastructure poses to birds would be addressed by following industry-suggested practices as design features for the Project.

| **Table C-3**<br>**Proposed Mitigation Measures** |
|---|
| ***BIOLOGICAL RESOURCES*** |
| ***Vegetation*** |
| Adverse effects on vegetation during construction would be minimized as follows: |
| • A 50-foot protection buffer from the eastern edge of the tree line will be established and maintained around the riparian area located along the western boundary of the Project to avoid and minimize impacts to riparian habitat during construction activities. Trees will need to be removed for the bridge installation, which will be done outside of bird nesting season (March 1st to June 30th), unless with a biologist and no nests are found. |
| *The following prescriptions would prevent the spread of invasive weeds into previously uninfested areas in the designated construction ROW.* |
| • In advance of construction activities, all construction equipment arriving on site would have the tires, axles, frames, running boards, under-carriages, and any equipment parts designed to hold soil or rock washed and cleaned to prevent transport of invasive weed species into Project site. |
| ***Wildlife*** |
| *Construction activities and vehicle operation would be conducted to minimize potential impacts or disturbance of wildlife.* |
| • The Applicant will minimize the number of open trenches/excavation areas at any one given time during construction. Any trenches left uncovered overnight will be inspected to ensure no wildlife species have been trapped. If trenches cannot be backfilled in a timely manner, then escape ramps will be installed where practicable.<br>• Speed limits along the Project site and access roads would be limited to 15 mph. In addition, construction and maintenance employees would exercise caution when traveling to and from the proposed Project site on designated routes to reduce the potential for wildlife mortality.<br>• During construction, immediate work areas would be checked for animals before daily work is initiated to minimize harm.<br>• Construction would review the AGFD's *Wildlife Compatible Fencing Guidelines* during fence construction to reduce potential impacts to wildlife by preventing potential wildlife entanglement and impalement and ensuring that wildlife movement is not restricted.<br>• Artificial lighting could impair the ability of nocturnal animals to navigate (e.g., owls, migratory birds, bats, and other nocturnal mammals) and may affect wildlife behavior and populations (Davies et. al. 2013). The Department recommends using only the minimum amount of light needed for safety. The Department encourages the use of motion sensing lighting and "warmer" narrow spectrum lighting (amber, orange, red) which is wildlife-friendly and should be used as often as possible to minimize the number of species affected by lighting. It is also beneficial that all lighting is shielded, canted, or cut to minimize the amount of upward shining light. |
| *Implement conservation measures to decrease the likelihood of take of special-status wildlife species and impacts to critical habitat.* |
| • Protocol surveys for cactus ferruginous pygmy owl will be conducted prior to construction to determine whether these species occupies suitable habitat within or adjacent to the Project site. If these species are detected, appropriate avoidance and minimization measures would be developed in coordination with the U.S. Fish and Wildlife Service and other applicable agencies |
| • Conduct pre-construction burrowing owl survey within 30 days prior to the commencement of construction activities during the burrowing owl nesting season for active burrows occupied by western burrowing owl and other bird nests protected under the MBTA. If an active burrowing owl burrow is detected, the Applicant would coordinate with the AZGFD and USFWS as appropriate. |
| • Prior to ground-disturbing activities, preconstruction surveys for burrowing animals and reptiles will be conducted within the Project area. If occupied burrows are identified, appropriate avoidance, minimization, or appropriate eviction measures will be implemented, as applicable, prior to the initiation of construction activities. |

| Table C-3<br>Proposed Mitigation Measures |
|---|
| • If construction would occur during the nesting season, a pre-construction migratory bird nest survey would be conducted within 10 days prior to the commencement of construction activities to ensure that any active nests are avoided. If an active nest is discovered, on-site personnel would take steps to ensure the nesting birds are protected. |

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# EXHIBIT C-1
# USFWS IPAC RESULTS

# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Pinal County, Arizona



## Local office

Arizona Ecological Services Field Office

(602) 242-0210
(602) 242-2513

9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517

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# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Birds

| NAME | STATUS |
|---|---|
| Cactus ferruginous pygmy-owl Glaucidium brasilianum cactorum<br>Wherever found<br>There is **final** critical habitat for this species.<br>https://ecos.fws.gov/ecp/species/1225 | Threatened |
| Southwestern willow flycatcher Empidonax traillii extimus<br>Wherever found<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>https://ecos.fws.gov/ecp/species/6749 | Endangered |
| Yellow-billed Cuckoo Coccyzus americanus<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>https://ecos.fws.gov/ecp/species/3911 | Threatened |

## Fishes

| NAME | STATUS |
|---|---|
| Gila chub Gila intermedia<br>Wherever found<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>https://ecos.fws.gov/ecp/species/51 | Endangered |

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| NAME | STATUS |
|---|---|
| Gila topminnow (incl. Yaqui) Poeciliopsis occidentalis<br>Wherever found<br>No critical habitat has been designated for this species.<br>https://ecos.fws.gov/ecp/species/1116 | Endangered |

## Insects

| NAME | STATUS |
|---|---|
| Monarch butterfly Danaus plexippus<br>Wherever found<br>There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.<br>https://ecos.fws.gov/ecp/species/9743 | Proposed Threatened |

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

# Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are Bald Eagles and/or Golden Eagles in your project area.

**Measures for Proactively Minimizing Eagle Impacts**
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

**Ensure Your Eagle List is Accurate and Complete**
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

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**Review the FAQs**
The FAQs below provide important additional information and resources.

| NAME | BREEDING SEASON |
|---|---|
| Golden Eagle Aquila chrysaetos<br>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.<br>https://ecos.fws.gov/ecp/species/1680 | Breeds Dec 1 to Aug 31 |

# Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

***Probability of Presence*** (▪)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

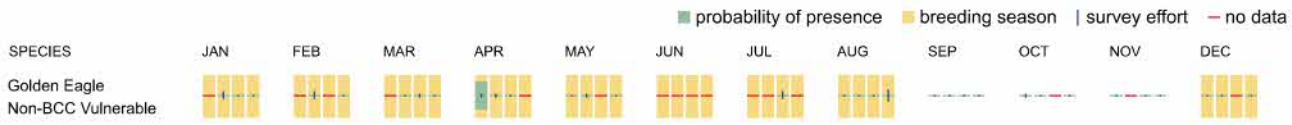
**Breeding Season** (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

**Survey Effort** (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

**No Data** (–)
A week is marked as having no data if there were no survey events for that week.

**Survey Timeframe**
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.




## Bald & Golden Eagles FAQs

**What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?**

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle (Bald and Golden Eagle Protection Act requirements may apply).

**Proper interpretation and use of your eagle report**
On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the

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species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

**How do I know if eagles are breeding, wintering, or migrating in my area?**

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

**Interpreting the Probability of Presence Graphs**

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

***How is the probability of presence score calculated? The calculation is done in three steps:***
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

**Breeding Season ()**
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

**Survey Effort ()**
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

**No Data ()**
A week is marked as having no data if there were no survey events for that week.

**Survey Timeframe**
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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# Migratory birds

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

**Measures for Proactively Minimizing Migratory Bird Impacts**

Your IPaC Migratory Bird list showcases birds of concern, including Birds of Conservation Concern (BCC), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the Nationwide avoidance and minimization measures for birds document, and any other project-specific avoidance and minimization measures suggested at the link Measures for avoiding and minimizing impacts to birds for the birds of concern on your list below.

**Ensure Your Migratory Bird List is Accurate and Complete**

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles document, to help you properly interpret the report for your specified location,

including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

**Review the FAQs**

The FAQs below provide important additional information and resources.

| NAME | BREEDING SEASON |
|---|---|
| American Avocet Recurvirostra americana<br>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA | Breeds Apr 21 to Aug 10 |
| Bendire's Thrasher Toxostoma bendirei<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9435 | Breeds Mar 15 to Jul 31 |
| Costa's Hummingbird Calypte costae<br>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA<br>https://ecos.fws.gov/ecp/species/9470 | Breeds Jan 15 to Jun 10 |
| Gila Woodpecker Melanerpes uropygialis<br>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA<br>https://ecos.fws.gov/ecp/species/5960 | Breeds Apr 1 to Aug 31 |
| Golden Eagle Aquila chrysaetos<br>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.<br>https://ecos.fws.gov/ecp/species/1680 | Breeds Dec 1 to Aug 31 |
| Marbled Godwit Limosa fedoa<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9481 | Breeds elsewhere |
| Willet Tringa semipalmata<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds elsewhere |

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# Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

**Probability of Presence** (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

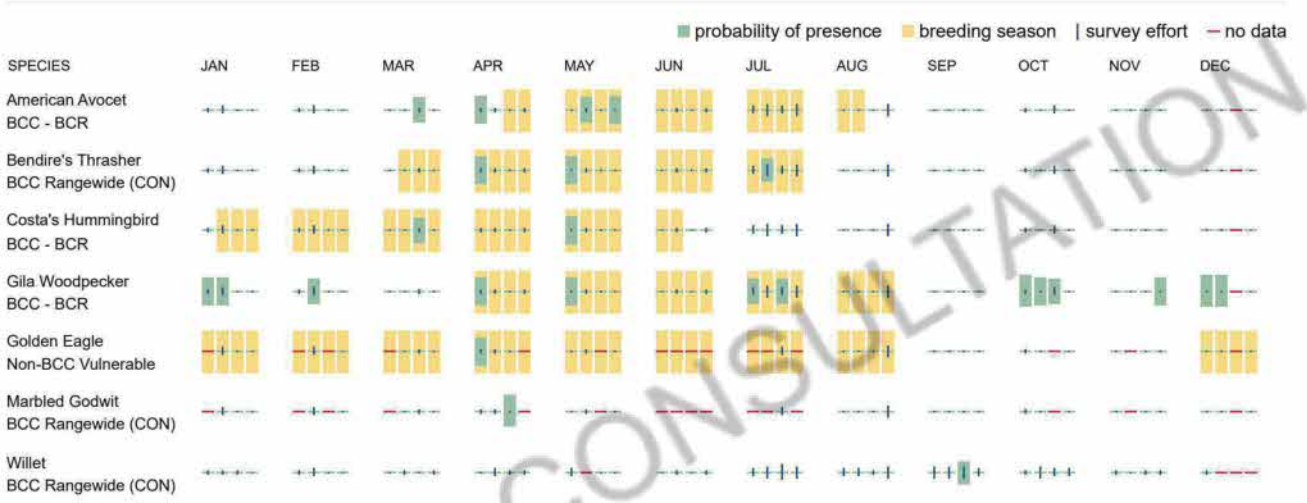
**Breeding Season** (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

**Survey Effort** (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

**No Data** (–)
A week is marked as having no data if there were no survey events for that week.

**Survey Timeframe**
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.




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## Migratory Bird FAQs

**Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.**

Nationwide Avoidance & Minimization Measures for Birds describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?**

The Migratory Bird Resource List is comprised of Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the Bald and Golden Eagle Protection Act and those species marked as "Vulnerable". See the FAQ "What are the levels of concern for migratory birds?" for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle (Bald and Golden Eagle Protection Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the Rapid Avian Information Locator (RAIL) Tool.

**Why are subspecies showing up on my list?**

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

**What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

**How do I know if a bird is breeding, wintering, or migrating in my area?**

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

**What are the levels of concern for migratory birds?**

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. *"Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the* Bald and Golden Eagle Protection Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ "Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

**Details about birds that are potentially affected by offshore projects**

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

**Proper interpretation and use of your migratory bird report**

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

**Interpreting the Probability of Presence Graphs**
Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

***How is the probability of presence score calculated? The calculation is done in three steps:***
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

**Breeding Season ()**
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

**Survey Effort ()**
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

**No Data ()**
A week is marked as having no data if there were no survey events for that week.

**Survey Timeframe**
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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# Facilities

## National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

## Fish hatcheries

There are no fish hatcheries at this location.

## Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER
FORESTED/SHRUB WETLAND
PSS1Ah

RIVERINE
R4SBJ

A full description for each wetland code can be found at the National Wetlands Inventory website

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**NOTE:** This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

**Data limitations**

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

**Data exclusions**

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

**Data precautions**

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving

modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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# EXHIBIT C-2
# AGFD ONLINE ENVIRONMENTAL REVIEW TOOL RESULTS

# Arizona Environmental Online Review Tool Report

***Arizona Game and Fish Department Mission***
***To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.***

**The Department requests further coordination to provide project/species specific recommendations. Please use the Project Evaluation Form to submit your project to the Project Evaluation Program at PEP@azgfd.gov.**

**Project Name:**

Steele Energy Center

**Project Type:**

Energy Production/Storage/Transfer, Energy Production (generation), gas power plant (new/expansion)

**Project ID:**

HGIS-28905

**Project Description:**

Steele Energy Center, LLC has proposed the Steele Energy Center (SEC) Project an up to 1500 megawatt (MW) natural gas-fired generation power plant (SEC Project or Project). The Project is located in central Pinal County southeast of Coolidge and east of Casa Grande and encompasses approximately 135 acres of undeveloped land. The Project involves construction and operations of a natural gas-fired generation power plant to interconnect into the permitted Rio Sol 500 kilovolt (kV) transmission line that is located on the SEC site.

**Contact Person:**

Gabriella Glener

**Organization:**

KP Environmental

**On Behalf Of:**

CONSULTING

**Disclaimer:**

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. Arizona Wildlife Conservation Strategy (AWCS), specifically Species of Greatest Conservation Need (SGCN), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

**Locations Accuracy Disclaimer:**
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

**Recommendations Disclaimer:**

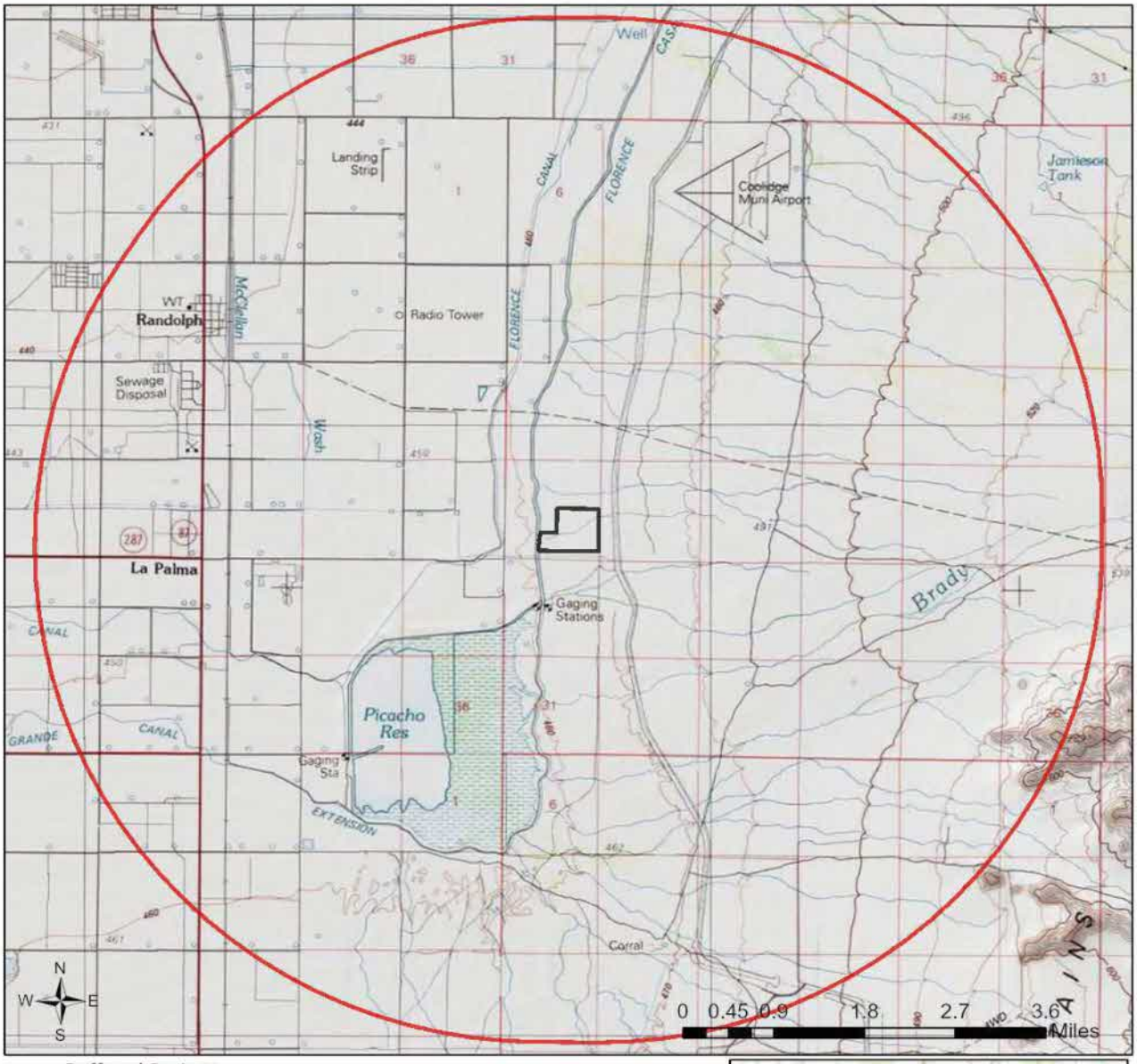
1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by implementing the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. When the Department requests further coordination on the project report, this report does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals. Further coordination with the Department requires the submission of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once the Department has received the information, please allow 30 days for completion of project reviews. Send requests to:?

**Project Evaluation Program, Habitat Branch**
**Arizona Game and Fish Department**
**5000 West Carefree Highway**
**Phoenix, Arizona 85086-5000**
**Email:** PEP@azgfd.gov
**Phone Number: (623) 236-7600**

5. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies.

# Steele Energy Center

## USA Topo Basemap With Locator Map




Buffered Project Boundary

Project Boundary




Project Size (acres): 134.06

Lat/Long (DD): 32.8833 / -111.4517

County(s): Pinal

AGFD Region(s): Tucson

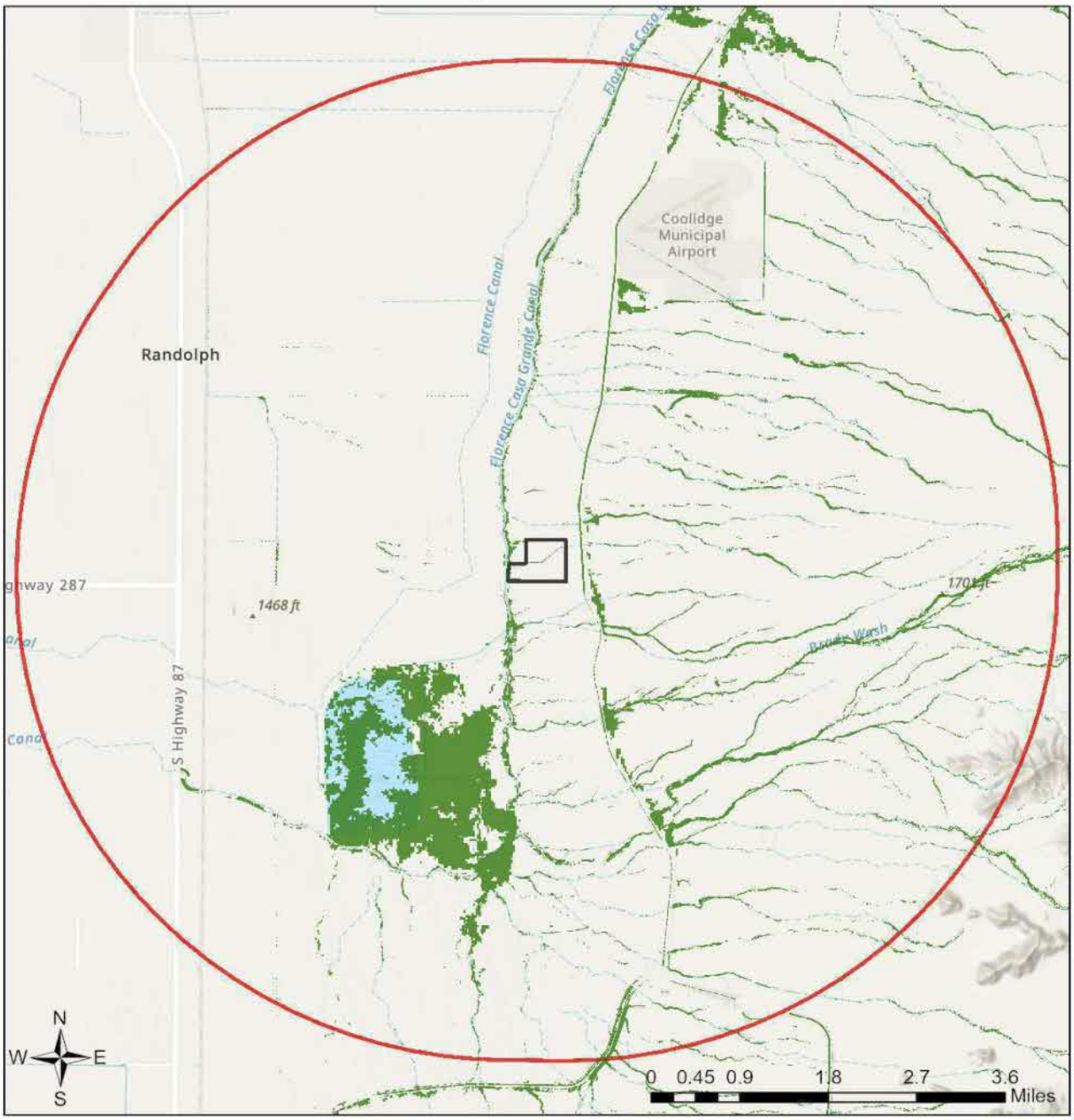
Township/Range(s): T6S, R9E

USGS Quad(s): VALLEY FARMS

County of Yavapai, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
Copyright:© 2013 National Geographic Society, i-cubed
Esri, USGS

# Steele Energy Center

## Important Areas




- Buffered Project Boundary
- Project Boundary
- Important Bird Areas
- Critical Habitat
- Pinal County Riparian
- Wildlife Connectivity

Project Size (acres): 134.06

Lat/Long (DD): 32.8833 / -111.4517

County(s): Pinal

AGFD Region(s): Tucson

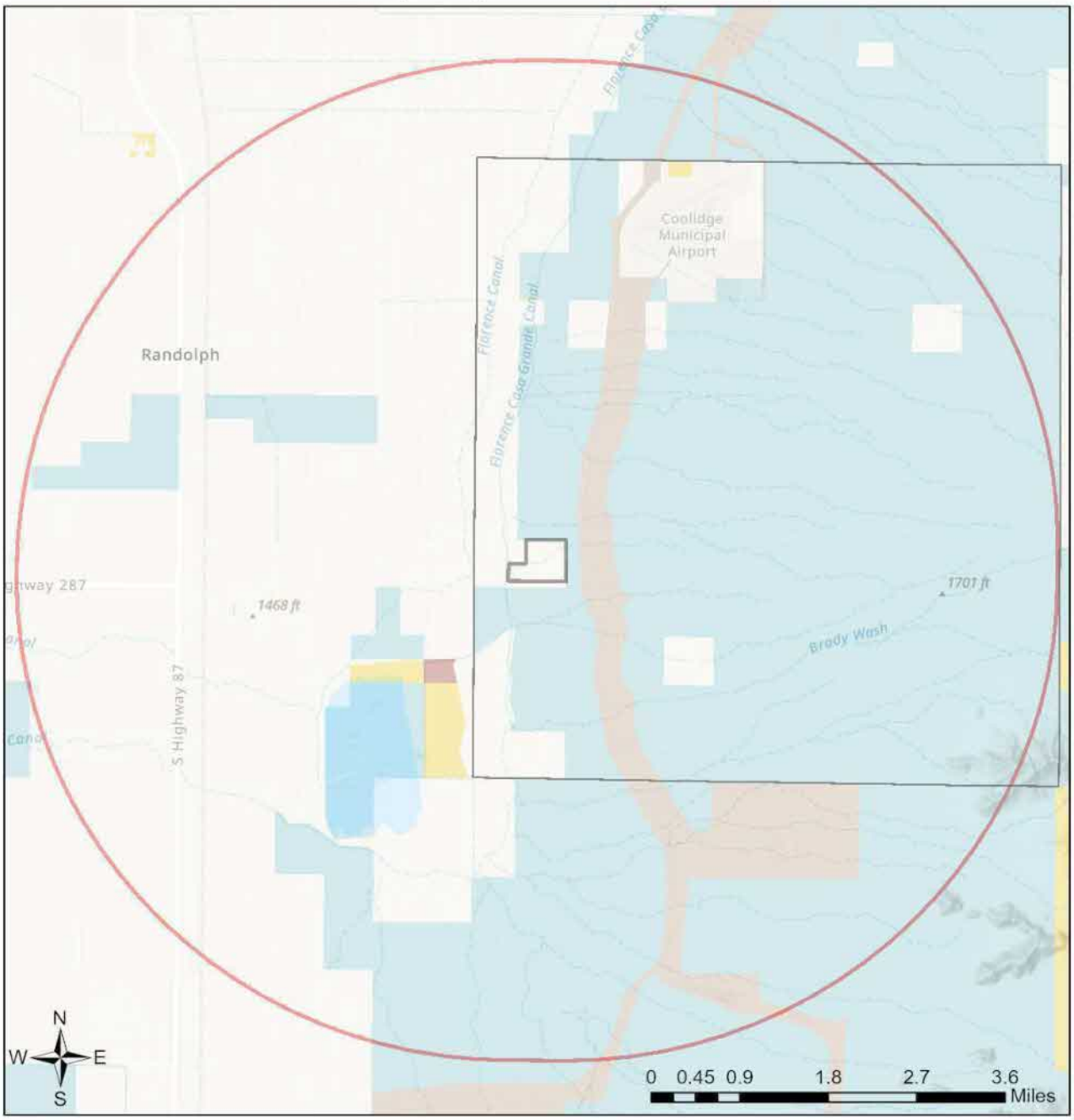
Township/Range(s): T6S, R9E

USGS Quad(s): VALLEY FARMS

Esri, NASA, NGA, USGS
Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS

# Steele Energy Center

## Township/Ranges and Land Ownership




- Buffered Project Boundary
- Project Boundary
- AZ Game & Fish Dept.
- BLM
- BOR
- Indian Res.
- Military
- Mixed/Other
- National Park/Mon.
- Private
- State & Regional Parks
- State Trust
- US Forest Service
- Wildlife Area/Refuge
- Township/Range

Project Size (acres): 134.06

Lat/Long (DD): 32.8833 / -111.4517

County(s): Pinal

AGFD Region(s): Tucson

Township/Range(s): T6S, R9E

USGS Quad(s): VALLEY FARMS

Esri, NASA, NGA, USGS
Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS

**Special Status Species Documented within 5 Miles of Project Vicinity**

| Scientific Name | Common Name | FWS | USFS | BLM | NPL | SGCN |
|---|---|---|---|---|---|---|
| Agelaius phoeniceus | Red-winged Blackbird | | | | | 2 |
| Athene cunicularia hypugaea | Western Burrowing Owl | | S | S | | 2 |
| Campylorhynchus brunneicapillus | Cactus Wren | | | | | 2 |
| Coccyzus americanus | Yellow-billed Cuckoo (Western DPS) | LT | S | S | | 1 |
| Empidonax traillii extimus | Southwestern Willow Flycatcher | LE | | S | | 1 |
| Falco sparverius | American Kestrel | | | | | 2 |
| Incilius alvarius | Sonoran Desert Toad | | | | | 2 |
| Lepus alleni | Antelope Jackrabbit | | | | | 2 |
| Melozone aberti | Abert's Towhee | | S | | | 2 |
| Rallus obsoletus yumanensis | Yuma Ridgway's Rail | LE | | S | | 1 |
| Toxostoma bendirei | Bendire's Thrasher | | | | | 2 |

*Note: Status code definitions can be found at* https://www.azgfd.com/wildlife-conservation/on-the-ground-conservation/state-wildlife-action-plan/state-wildlife-action-plan-status-definitions/.

**Special Areas Documented that Intersect with Project Footprint as Drawn**

| Scientific Name | Common Name | FWS | USFS | BLM | NPL | SGCN |
|---|---|---|---|---|---|---|
| Riparian Area | Riparian Area | | | | | |

*Note: Status code definitions can be found at* https://www.azgfd.com/wildlife-conservation/on-the-ground-conservation/state-wildlife-action-plan/state-wildlife-action-plan-status-definitions/.

**Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models**

| Scientific Name | Common Name | FWS | USFS | BLM | NPL | SGCN |
|---|---|---|---|---|---|---|
| Ammospermophilus harrisii | Harris' Antelope Squirrel | | | | | 2 |
| Anarhynchus montanus | Mountain Plover | | | | | 2 |
| Anthus spragueii | Sprague's Pipit | | | | | 2 |
| Aquila chrysaetos | Golden Eagle | BGA | | S | | 2 |
| Artemisiospiza nevadensis | Sagebrush Sparrow | | | | | 3 |
| Athene cunicularia hypugaea | Western Burrowing Owl | | S | S | | 2 |
| Auriparus flaviceps | Verdin | | | | | 2 |
| Botaurus lentiginosus | American Bittern | | | | | 2 |
| Buteo regalis | Ferruginous Hawk | | | S | | 2 |
| Buteo swainsoni | Swainson's Hawk | | | | | 2 |
| Calcarius ornatus | Chestnut-collared Longspur | | | | | 2 |
| Calypte costae | Costa's Hummingbird | | | | | 2 |
| Campylorhynchus brunneicapillus | Cactus Wren | | | | | 2 |
| Chaetodipus baileyi | Bailey's Pocket Mouse | | | | | 2 |
| Chilomeniscus cinctus | Variable Sandsnake | | | | | 2 |
| Coccyzus americanus | Yellow-billed Cuckoo (Western DPS) | LT | S | S | | 1 |

**Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models**

| Scientific Name | Common Name | FWS | USFS | BLM | NPL | SGCN |
|---|---|---|---|---|---|---|
| Colaptes chrysoides | Gilded Flicker | | | S | | 2 |
| Columbina inca | Inca Dove | | | | | 2 |
| Empidonax wrightii | Gray Flycatcher | | | | | 2 |
| Eumops perotis californicus | Greater Western Bonneted Bat | | | S | | 2 |
| Falco mexicanus | Prairie Falcon | | | | | 2 |
| Falco peregrinus anatum | American Peregrine Falcon | | S | S | | 1 |
| Falco sparverius | American Kestrel | | | | | 2 |
| Gopherus morafkai | Sonoran Desert Tortoise | CCA | S | S | | 1 |
| Icterus bullockii | Bullock's Oriole | | | | | 2 |
| Incilius alvarius | Sonoran Desert Toad | | | | | 2 |
| Lanius ludovicianus | Loggerhead Shrike | | | | | 2 |
| Lasiurus xanthinus | Western Yellow Bat | | S | | | 2 |
| Lepus alleni | Antelope Jackrabbit | | | | | 2 |
| Macrotus californicus | California Leaf-nosed Bat | | | S | | 2 |
| Megascops kennicottii | Western Screech-owl | | | | | 2 |
| Melanerpes uropygialis | Gila Woodpecker | | | | | 2 |
| Melospiza lincolnii | Lincoln's Sparrow | | | | | 2 |
| Melozone aberti | Abert's Towhee | | S | | | 2 |
| Micrathene whitneyi | Elf Owl | | | | | 3 |
| Myotis velifer | Cave Myotis | | | S | | 2 |
| Myotis yumanensis | Yuma Myotis | | | | | 2 |
| Neotamias cinereicollis | Gray-collared Chipmunk | | | | | 2 |
| Nyctinomops femorosaccus | Pocketed Free-tailed Bat | | | | | 2 |
| Parabuteo unicinctus | Harris's Hawk | | | | | 2 |
| Passerculus sandwichensis | Savannah Sparrow | | | | | 2 |
| Peucaea carpalis | Rufous-winged Sparrow | | | | | 2 |
| Phrynosoma solare | Regal Horned Lizard | | | | | 2 |
| Pooecetes gramineus | Vesper Sparrow | | | | | 2 |
| Rallus obsoletus yumanensis | Yuma Ridgway's Rail | LE | | S | | 1 |
| Rana yavapaiensis | Lowland Leopard Frog | | S | S | | 1 |
| Spizella breweri | Brewer's Sparrow | | | | | 2 |
| Tadarida brasiliensis | Brazilian Free-tailed Bat | | | | | 2 |
| Toxostoma bendirei | Bendire's Thrasher | | | | | 2 |

**Species of Economic and Recreation Importance Predicted that Intersect with Project Footprint as Drawn**

| Scientific Name | Common Name | FWS | USFS | BLM | NPL | SGCN |
|---|---|---|---|---|---|---|
| Callipepla gambelii | Gambel's Quail | | | | | |
| Pecari tajacu | Javelina | | | | | |
| Puma concolor | Mountain Lion | | | | | |

**Species of Economic and Recreation Importance Predicted that Intersect with Project Footprint as Drawn**

| Scientific Name | Common Name | FWS | USFS | BLM | NPL | SGCN |
|---|---|---|---|---|---|---|
| Zenaida asiatica | White-winged Dove | | | | | |
| Zenaida macroura | Mourning Dove | | | | | |

**Project Type: Energy Production/Storage/Transfer, Energy Production (generation), gas power plant (new/expansion)**

**Project Type Recommendations:**
During the planning stages of your project, please consider the local or regional needs of wildlife in regards to movement, connectivity, and access to habitat needs. Loss of this permeability prevents wildlife from accessing resources, finding mates, reduces gene flow, prevents wildlife from re-colonizing areas where local extirpations may have occurred, and ultimately prevents wildlife from contributing to ecosystem functions, such as pollination, seed dispersal, control of prey numbers, and resistance to invasive species. In many cases, streams and washes provide natural movement corridors for wildlife and should be maintained in their natural state. Uplands also support a large diversity of species, and it is important to identify and conserve upland wildlife movement corridors. In addition, maintaining biodiversity and ecosystem functions can be facilitated through improving designs of structures, fences, roadways, and culverts to promote passage for a variety of wildlife species. Guidelines for many of these can be found at: https://www.azgfd.com/wildlife-conservation/planning-for-wildlife/planning-for-wildlife-wildlife-friendly-guidelines/.

Consider impacts of outdoor lighting on wildlife and develop measures or alternatives that can be taken to increase human safety while minimizing potential impacts to wildlife. Artificial lighting could impair the ability of nocturnal animals to navigate (e.g., owls, migratory birds, bats, and other nocturnal mammals) and may affect wildlife behavior and populations. The AZGFD recommends using only the minimum amount of light needed for safety, especially in areas immediately adjacent to open space or undeveloped lands. The AZGFD encourages the use of motion sensing lighting and narrow spectrum lighting (amber or warm tones typically 2700 Kelvin or lower) wherever possible to lower the range of species affected by lighting. Also, please consider shielding, canting, or cutting all lighting, where possible, to ensure that light reaches only areas needing illumination and to minimize impacts to nocturnal wildlife.

Minimize the potential introduction or spread of exotic invasive species, including aquatic and terrestrial plants, animals, insects and pathogens. Precautions should be taken to wash and/or decontaminate all equipment utilized in the project activities before entering and leaving the site. See the Arizona Department of Agriculture website for a list of prohibited and restricted noxious weeds at https://www.invasivespeciesinfo.gov/ and the Arizona Native Plant Society https://aznps.com/invas for recommendations on how to control these species. To view a list of documented invasive species or to report invasive species in or near your project area visit iMapInvasives - a national cloud-based application for tracking and managing invasive species at https://imap.natureserve.org/imap/services/page/map.html.

- To build a list: zoom to your area of interest, use the identify/measure tool to draw a polygon around your area of interest, and select “See What’s Here” for a list of reported species. To export the list, you must have an account and be logged in. You can then use the export tool to draw a boundary and export the records in a csv file.

Evaluate potential impacts to wildlife and fish species due to changes in access to water, water quality, quantity, chemistry, temperature, and alteration to flow regimes (timing, magnitude, duration, and frequency of floods). Minimize impacts to springs, in-stream flow, and consider irrigation improvements to decrease water use. If dredging is a project component, consider timing the project to minimize impacts to spawning fish and other aquatic species. Wash, drain, and dry equipment to reduce the spread of exotic invasive species. AZGFD recommends early coordination with the Project Evaluation Program (PEP@azgfd.gov) for projects that could impact water resources, wetlands, streams, springs, and/or riparian habitats.

The AZGFD recommends that wildlife surveys are conducted to determine if noise-sensitive species, such as birds or mammals, occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

The AZGFD recommends following the Avian Power Line Interaction Committee (APLIC) guidelines for new power lines, which can be found in the current version of *Suggested Practices for Avian Protection on Power Lines and Reducing Avian Collisions with Power Lines*. Large bodied birds, such as hawks, owls, vultures, and eagles, may be vulnerable to line strikes and electrocution during construction and operation of power lines and substations; power poles can also serve as perches for large-bodied birds. These potential impacts can be avoided or minimized by following the APLIC guidelines which include designing the power lines with enough space between energized components to reduce the likelihood of a bird electrocution or installing bird flight diverters in sections of line where elevated bird strikes are anticipated (e.g. lines over water bodies or in the path of colonial roosting locations). The AZGFD's Raptor Coordinator, who can be contacted at raptors@azgfd.gov or 623-236-7575, can provide further information on specific design features and best management practices.

The AZGFD recommends revegetating disturbed areas with native drought-tolerant species that represent the natural surrounding landscape. Landscaping with native plants can help support wildlife and pollinator species in the area while reducing dust and erosion. In addition, the applicable land management agencies should be consulted regarding guidelines for revegetation efforts. The AZGFD also recommends the development of a short and long-term monitoring plan, including adaptive management guidelines to address invasive species control and maintain native vegetation.

Arizona's wildlife is highly dependent on any available surface water. Wildlife, especially waterfowl, are attracted to any form of open water. Implement measures to prevent wildlife access to water collection/storage basins, evaporation or settling ponds, and/or facility storage yards containing hazardous and other human-made substances. Design slopes to discourage wading birds and use fencing, netting, hazing or other measures to exclude wildlife.

**Project Location and/or Species Recommendations:**
HDMS records indicate that one or more **Listed, Proposed, or Candidate** species or **Critical Habitat** (Designated or Proposed) have been documented in the vicinity of your project. The Endangered Species Act (ESA) gives the US Fish and Wildlife Service (USFWS) regulatory authority over all federally listed species. Please contact USFWS Ecological Services Offices at https://www.fws.gov/office/arizona-ecological-services or:

**Phoenix Main Office**
9828 North 31st Avenue #C3
Phoenix, AZ 85051-2517
Phone: 602-242-0210
Fax: 602-242-2513

**Tucson Sub-Office**
201 N. Bonita Suite 141
Tucson, AZ 85745
Phone: 520-670-6144
Fax: 520-670-6155

**Flagstaff Sub-Office**
SW Forest Science Complex
2500 S. Pine Knoll Dr.
Flagstaff, AZ 86001
Phone: 928-556-2157
Fax: 928-556-2121

This review has identified **riparian areas** within the vicinity of your project. During the planning stage of your project, avoid, minimize, or mitigate any potential impacts to riparian areas identified in this report. Riparian areas play an important role in maintaining the functional integrity of the landscape, primarily by acting as natural drainages that convey water through an area, thereby reducing flood events. In addition, riparian areas provide important movement corridors and habitat for fish and wildlife. Riparian areas are channels that contain water year-round or at least part of the year. Riparian areas also include those channels which are dry most of the year, but may contain or convey water following rain events. All types of riparian areas offer vital habitats, resources, and movement corridors for wildlife. The Pinal County Comprehensive Plan (i.e. policies *6.1.2.1* and *7.1.2.4*), Open Space and Trails Master Plan, Drainage Ordinance, and Drainage Design Manual all identify riparian area considerations, guidance, and policies. Guidelines to avoid, minimize, or mitigate impacts to riparian habitat can be found at https://www.azgfd.com/wildlife-conservation/planning-for-wildlife/planning-for-wildlife-wildlife-friendly-guidelines/. Further consultation with the Arizona Game and Fish Department and Pinal County may be warranted.

HDMS records indicate that **Western Burrowing Owls** have been documented within the vicinity of your project area. Please review the western burrowing owl resource page at https://www.azgfd.com/wildlife-conservation/conservation-and-endangered-species-programs/burrowing-owl-management/.

# EXHIBIT C-3
# AGFD CORRESPONDENCE

September 2, 2026

Mr. Dennis Loria
Steele Energy Center, LLC
15961 Airline Highway
Baton Rouge, Louisiana 70817

Electronically submitted to: dloria@mmrgrp.com

**RE: Steele Energy Center**

Dear Mr. Loria:

The Arizona Game and Fish Department (Department) appreciates the opportunity to review the proposed Steele Energy Center project near Coolidge in Central Pinal County, AZ. The Department understands that Southwestern Power Group proposes to construct and operate an up to 1,950 megawatt (MW) natural gas-fired generation power plant to interconnect to the permitted Rio Sol 500 kilovolt transmission line located on the project site. The project area is located on 135 acres of undeveloped desert scrub land, situated directly between the Florence-Casa Grande Canal to the west, and the Central Arizona Project (CAP) Canal to the east, surrounded by undeveloped land zoned General Rural. The Department also understands the goal of the Steele Energy Center is to provide power to the regional grid which is currently strained due to load growth, extreme weather events, and greater reliance on intermittent resources.

Under Title 17 of the Arizona Revised Statutes, the Department, by and through the Arizona Game and Fish Commission, has jurisdictional authority and public trust responsibilities to conserve and protect the state's fish and wildlife resources. In addition, the Department manages threatened and endangered species through authorities of Section 6 of the Endangered Species Act (ESA) and the Department's 10(a)1(A) permit. It is the mission of the Department to conserve and protect Arizona's diverse fish and wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations. For your consideration, the Department provides the following comments based on the agency's statutory authorities, public trust responsibilities, and special expertise related to wildlife resources and wildlife related recreation.

The Department recognizes the importance of planning efforts to develop energy infrastructure that contribute to regional and state economic growth needs and would like to work closely with Southwestern Power Group during the planning and development of this project. The


**GOVERNOR:** KATIE HOBBS **COMMISSIONERS:** CHAIRMAN JAMES E. GOUGHNOUR, PAYSON | KURT KERR, PINETOP
JESSICA MANUELL, PARKS | MARSHA PETRIE SUE, SCOTTSDALE **DIRECTOR:** TOM P. FINLEY **DEPUTY DIRECTOR:** JOSHUA W. HURST

Department recognizes that appropriate coordination, proper planning, and voluntary implementation of best management practices allow projects to be developed that avoid, minimize, or offset potential impacts to wildlife and wildlife-related recreational access during development and operation of the facilities. The Department recognizes that this project is in the early stages of planning, and requests the opportunity to review design plans when they are available. Based on the information in report HGIS-28905 generated on June 30, 2026, the Department provides the following recommendations:

- The yellow-billed cuckoo, which is federally listed as Threatened under the ESA, and the southwestern willow flycatcher, which is federally listed as Endangered under the ESA, have been recorded within a two mile radius of the proposed project. Vegetation on the western edge of the property may provide habitat for these species. If you are uncertain about the effects of the project on these species, or if you anticipate your project will not be in compliance with the ESA, the Department recommends contacting the U.S. Fish and Wildlife Service[1] (USFWS) for technical assistance and options to comply with the ESA, such as conservation measures to avoid or minimize adverse effects to listed species.
- The western burrowing owl, a special status species that is regulated under the Migratory Bird Treaty Act (MBTA), has been documented within approximately two miles of the Project area. The Department recommends avoiding burrows to the extent feasible to avoid impacts to this species. If an active burrowing owl burrow is detected, please contact the Department and the USFWS to determine conservation measures that can be implemented to minimize impacts on this species.
- The trees and/or vegetation within the project area may provide nesting opportunities for other avian species that are regulated under the MBTA and protected under state law. Breeding season for birds in the project vicinity is generally March through June, depending on the species and habitat, and for raptors it is generally January through late June. The Department recommends any removal and/or trimming of trees/vegetation occur outside the bird breeding season to limit impacts. If it is anticipated the project will not be in compliance with MBTA, the Department recommends contacting the USFWS for technical assistance. The USFWS will provide options to comply with the MBTA.
- If trenching or digging of large holes will occur, the Department recommends that trenching/digging and backfilling crews work together to minimize the number of open holes/trenches at any given time. Where trenches/holes are left open overnight or for more than 24 hours, the Department recommends escape ramps be constructed in each hole and at least every 300 feet in trenches. Escape ramps can be short lateral trenches or wooden planks sloping to the surface, ramp slopes should be less than 45 degrees (1:1). Trenches or holes that have been left open should be inspected for animals and animals removed prior to backfilling.
- To minimize the potential introduction or spread of exotic invasive species, precautions should be taken to wash and/or decontaminate all equipment utilized in the project activities before entering and leaving the site. Please review the Arizona Department of Agriculture's website[2] for a list of prohibited and restricted noxious weeds and the

[1] https://www.fws.gov/office/arizona-ecological-services/contact-us
[2] https://agriculture.az.gov/pestspest-control/agriculture-pests/noxious-weeds

Arizona Native Plant Society[3] for recommendations on control methods. To view a list of documented invasive species or to report invasive species in or near your project area visit iMapInvasives[4] – a national cloud-based application for tracking and managing invasive species.

  - To build a list: zoom to your area of interest, use the identify/measure tool to draw a polygon around your area of interest, and select "See What's Here" for a list of reported species. To export the list, you must have an account and be logged in. You can then use the export tool to draw a boundary and export the records in a csv file.
  - Stinknet is a highly invasive noxious winter weed native to South Africa, and when dry are extremely flammable. Stinknet (also known as globe chamomile) has heavily infested Maricopa, Pima, and Pinal counties, and is expanding into Gila, Graham, Yavapai, and Yuma counties. Emergence starts in late November and plants can continue to germinate and emerge through May in wet years. In order to minimize the spread of this plant it is critical that any new infestations are identified and quickly managed. Additional information is available through the Sonoran Desert Cooperative Weed Management Area[5], the Southwest Vegetation Management Association[6], or the Arizona Native Plant Society[7].

- Artificial lighting could impair the ability of nocturnal animals to navigate (e.g., owls, migratory birds, bats, and other nocturnal mammals) and may affect wildlife behavior and populations (Davies et. al. 2013). The Department recommends using only the minimum amount of light needed for safety. The Department encourages the use of motion sensing lighting and "warmer" narrow spectrum lighting (amber, orange, red) which is wildlife-friendly and should be used as often as possible to minimize the number of species affected by lighting. It is also beneficial that all lighting is shielded, canted, or cut to minimize the amount of upward shining light.
- For any areas that may be fenced as part of this project, please refer to the Department's *Wildlife Compatible Fencing Guidelines*[8] for information on how fencing impacts wildlife and ways to design fencing to prevent wildlife entanglement and impalement. Department personnel are available as resources to help determine appropriate fencing design and layout that will achieve its objective while reducing impact to wildlife.

Thank you for the opportunity to provide input on the Steele Energy Center Project. For further coordination, please contact Katie Matthiesen at Kmatthiesen@azgfd.gov or 520-359-7073.

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[3] https://aznps.com/invas
[4] https://imap.natureserve.org/imap/services/page/map.html
[5] http://www.sdcwma.org/species/stinknet.php
[6] https://www.swvma.org/
[7] http://aznps.com
[8] https://s3.amazonaws.com/azgfd-portal-wordpress/PortalImages/files/wildlife/planningFor/wildlifeFriendlyGuidelines/110125_AGFD_fencing_guidelines.pdf

Sincerely,

Dave Daniels
Regional Supervisor, Region V

Cc: Callie Cavalcant, Habitat Branch Chief, AZGFD

AZGFD #M26-08055651

**From:** Jessica Potter
**To:** rjohnson
**Cc:** Alexiss Adams; Jack Ford; Kenda Pollio; Dennis Loria; Katie Matthiesen
**Subject:** Fwd: Steele Energy Center - Pinal County
**Date:** Wednesday, September 16, 2026 1:25:42 PM
**Attachments:** {AB8A0520-4326-4562-AD8E-AA7C4B7E26F0}.png

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Hi Raina,

Please see the response below regarding the mapped riparian layer and our buffer recommendations.

Thank you for the opportunity to discuss our letter and recommendations for the project. We appreciate the coordination and are here if you have any questions.

Best,

**Jessica Potter**
PROJECT EVALUATION PROGRAM SPECIALIST
ARIZONA GAME AND FISH DEPARTMENT

5000 W. Carefree Highway
Phoenix, AZ 85086

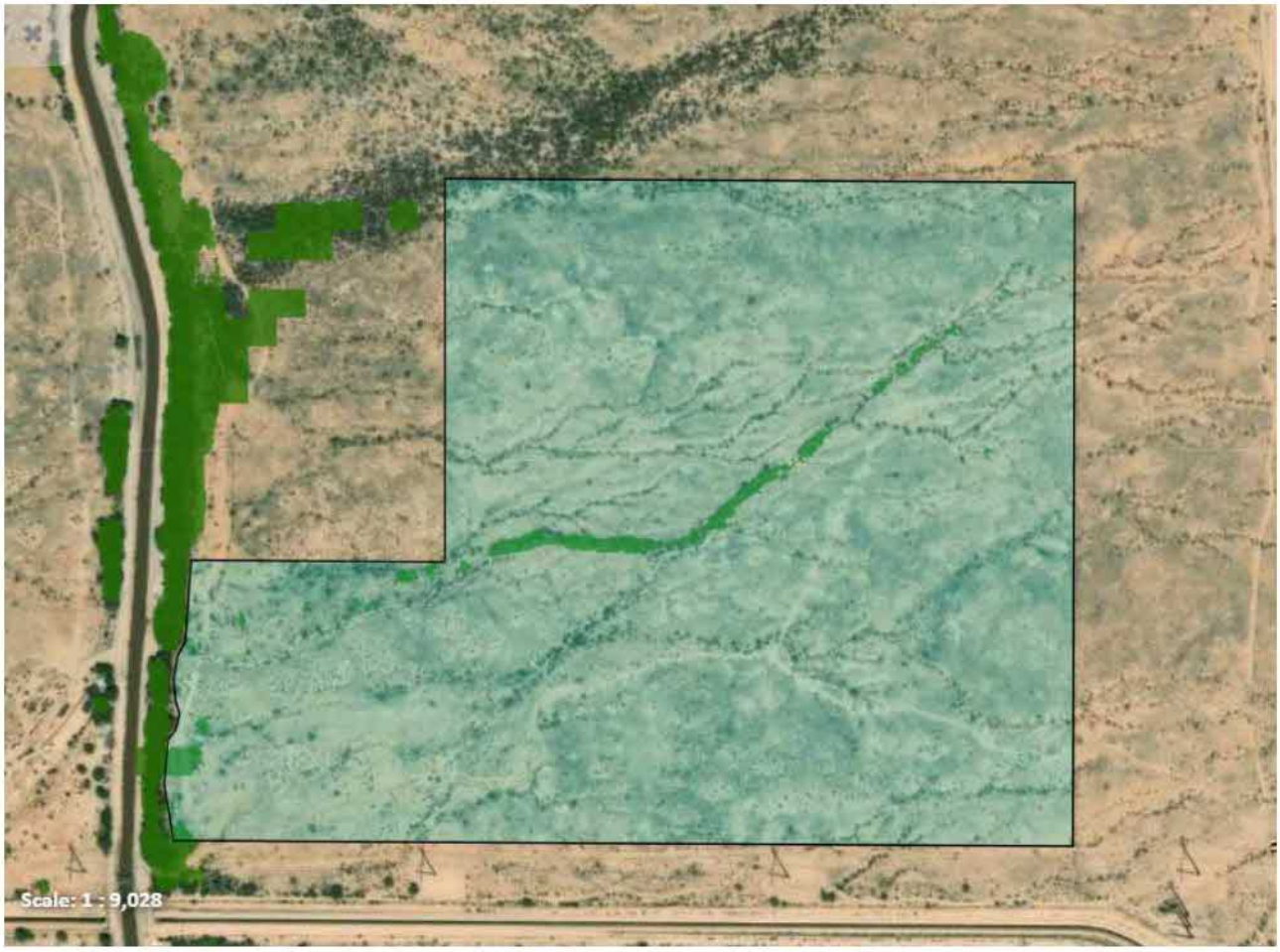
OFFICE: (623)236-7618
CELL: (602)819-9196
azgfd.gov

---------- Forwarded message ---------
From: **Jessica Potter** <jpotter@azgfd.gov>
Date: Thu, Sep 3, 2026 at 9:16 AM
Subject: Re: Steele Energy Center - Pinal County
To: Kelley Fox <kelley.fox@pinal.gov>
Cc: <pep@azgfd.gov>, Ginger Ritter <gritter@azgfd.gov>, Laura Paulson <lpaulson@azgfd.gov>, Katie Matthiesen <kmatthiesen@azgfd.gov>

Hi Kelley,

Thank you for sharing this application with us, I have attached the comments we provided to the developer yesterday.

Regarding the riparian vegetation, we do not believe incorporating a setback from the mapped feature crossing the center of the project would provide much value; therefore, we do not recommend a buffer for this feature. We do, however, recommend buffering the dense riparian areas west and north of the project from project infrastructure. Please let me know if you have any questions or would like to discuss this further.




**Jessica Potter**
PROJECT EVALUATION PROGRAM SPECIALIST
ARIZONA GAME AND FISH DEPARTMENT

5000 W. Carefree Highway
Phoenix, AZ 85086

OFFICE: (623)236-7618
CELL: (602)819-9196
azgfd.gov

## Raina Johnson

**From:** Raina Johnson
**Sent:** Friday, September 25, 2026 11:20 AM
**To:** 'Conway, Meaghan'
**Cc:** Garza, Brittany L
**Subject:** RE: [EXTERNAL] SEC and YBCU Introduction
**Attachments:** M26-08055651 AZGFD comm Steele Energy Center (1).pdf

This is not a Federal Project, it is on private land.

The only thing that *may* have a federal component is the SCIDD and HIDD bridges we will need to install that will remove some of the trees.

Yes, Mark Pollock did a habitat assessment on the trees and found no suitable habitat. When I get that report I can share it with you.

We are adhering to stipulations that AZGFD put in the letter attached with addresses lighting, etc., we just didn't want to leave no stone unturned and wanted to reach out about the YBCU items.

**Raina (Rain) Johnson**
Environmental and Permitting Manager

SouthWestern POWER GROUP

**Southwestern Power Group**
***An MMR company***
5343 N. 16th Street, Suite 300,
Phoenix, Arizona 85016
(o) (602)808-2004
(m) (435)503-5592
rjohnson@southwesternpower.com

---

**From:** Conway, Meaghan <meaghan_conway@fws.gov>
**Sent:** Friday, September 25, 2026 10:58 AM
**To:** Raina Johnson <rjohnson@southwesternpower.com>
**Cc:** Garza, Brittany L <brittany_garza@fws.gov>
**Subject:** Re: [EXTERNAL] SEC and YBCU Introduction

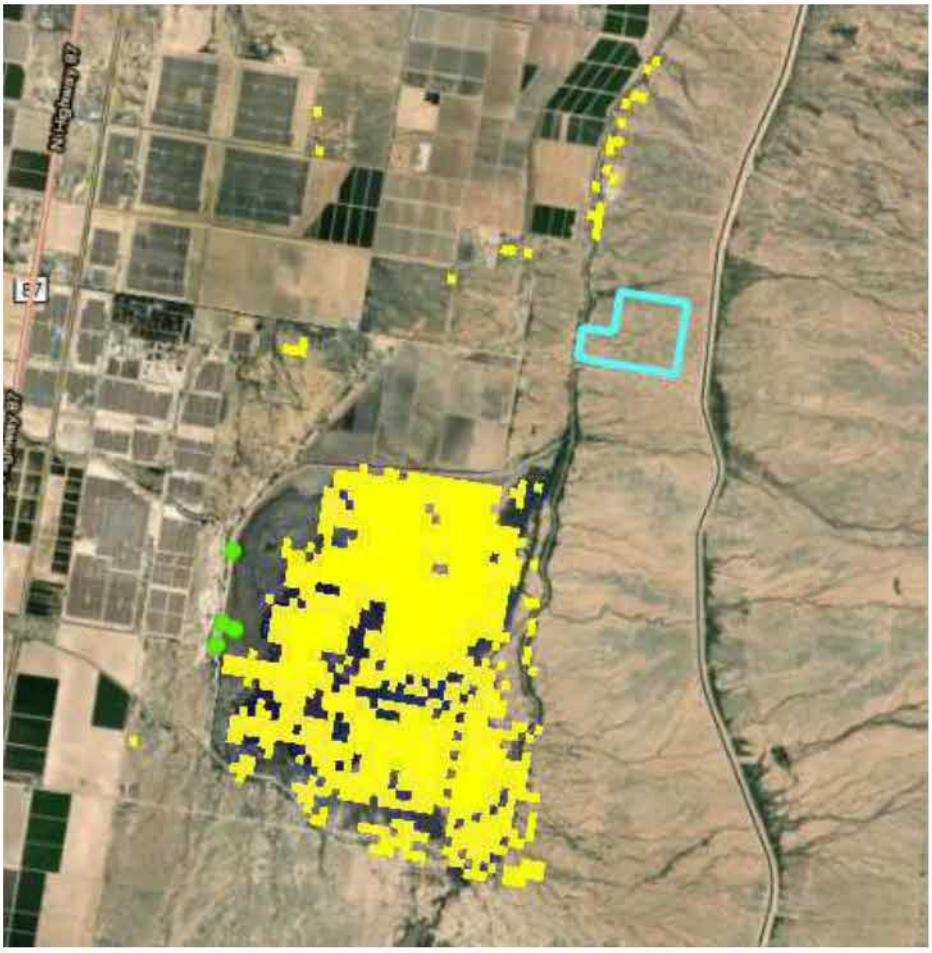
Hi Raina,

Is this a federal project? Have you run the project through iPac yet?

I included below the location showing potentially suitable habitat from the YBCU suitability models. The pixels are lower probability (should be verified, but sounds like you may have already completed that step?). We do have some very old detections from the reservoir. While there is no habitat within the immediate footprint, it would be helpful to consider impacts that might extend outside of the footprint (e.g. water withdrawals, noise, lighting, etc.).

Happy to discuss further if that is helpful. I've also included Brittany who is the geographic lead for the area.

Meaghan




*Meaghan Conway, PhD*
*Fish and Wildlife Biologist*
*Arizona Ecological Services - Tucson Field Office*
*U.S. Fish & Wildlife Service*
*201 N. Bonita Avenue, Suite 141*
*Tucson, AZ 85745*

*The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.*

---

**From:** Raina Johnson <rjohnson@southwesternpower.com>
**Sent:** Thursday, September 24, 2026 3:33 PM
**To:** Conway, Meaghan <meaghan_conway@fws.gov>
**Subject:** RE: [EXTERNAL] SEC and YBCU Introduction

Yes! Please see attached.

I received your contact from Mark Pollock who did the habitat assessment by the Florence-Casa Grande canal in June of this year.

**Raina (Rain) Johnson**
Environmental and Permitting Manager

SouthWestern POWER GROUP

**Southwestern Power Group**
***An MMR company***
5343 N. 16th Street, Suite 300,
Phoenix, Arizona 85016
(o) (602)808-2004
(m) (435)503-5592
rjohnson@southwesternpower.com

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**From:** Conway, Meaghan <meaghan_conway@fws.gov>
**Sent:** Thursday, September 24, 2026 3:30 PM
**To:** Raina Johnson <rjohnson@southwesternpower.com>
**Subject:** Re: [EXTERNAL] SEC and YBCU Introduction

Hi Raina,

Do you have a shapefile or something that can provide a better reference for the location?

Thanks,
Meaghan

*Meaghan Conway, PhD*
*Fish and Wildlife Biologist*
*Arizona Ecological Services - Tucson Field Office*
*U.S. Fish & Wildlife Service*
*201 N. Bonita Avenue, Suite 141*
*Tucson, AZ 85745*

*The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.*

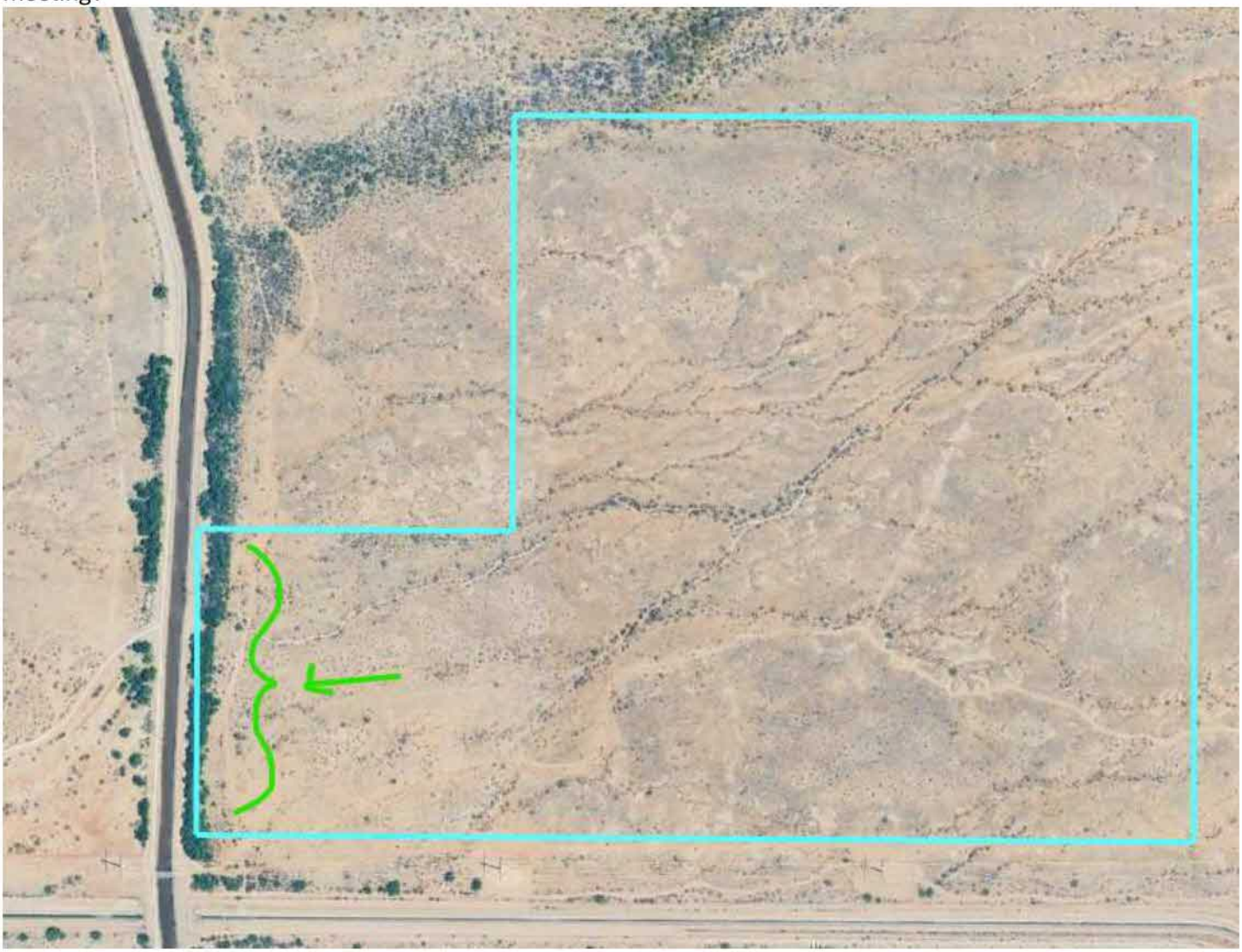
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**From:** Raina Johnson <rjohnson@southwesternpower.com>
**Sent:** Thursday, September 24, 2026 3:20 PM
**To:** Conway, Meaghan <meaghan_conway@fws.gov>
**Cc:** Alexiss Adams <aadams@southwesternpower.com>
**Subject:** [EXTERNAL] SEC and YBCU Introduction

**This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.**

Hi Meaghan,

My name is Raina Johnson, and I am the Permitting and Environmental Manager for an energy developer Southwestern Power Group. We are currently developing a Project called Steele Energy Center in Arizona State. The Steele Energy Center is a proposed up to 1950 MW natural gas-fired generation power plant located in central Pinal County southeast of Coolidge and east of Casa Grande and encompasses approximately 137 acres of undeveloped land.
We have consulted with AZGFD and they have suggested we get in contact with the USFWS about mesquite trees by the Florence-Casa Grande canal near Coolidge (image below). We did surveys in the area and found it not the be suitable habitat for YBCU. However, we would love to discuss more with you the findings if you have time for a meeting?



**Raina (Rain) Johnson**
Environmental and Permitting Manager

**Southwestern Power Group**
***An MMR company***
5343 N. 16th Street, Suite 300,
Phoenix, Arizona 85016
(o) (602)808-2004
(m) (435)503-5592
rjohnson@southwesternpower.com

# EXHIBIT C-4
# HABITAT ASSESSMENT FOR YELLOW-BILLED CUCKOO AND SOUTHWESTERN WILLOW FLYCATHER

# Memo

**To:** Cindy Freeman

**From:** Mark Pollock, Ecologist

**Cc:** Raina Johnson, Alexis Adams, Jonathon Ford, Erik Nyquist, Jarrad Davis, Cindy Smith

**Date:** 2026-10-07

**Reference:** US-PE-0247586-003

**Subject:** Steele Energy Center Project Habitat Assessment for Yellow-billed Cuckoo and Southwestern Willow Flycatcher

WSP USA Inc. was asked by Southwestern Power Group to conduct a southwestern willow flycatcher (*Empidonax traillii extimus*; SWFL) and yellow-billed cuckoo (*Coccyzus americanus*; YBCU) field habitat assessment of potentially suitable habitats in and around the Steele Energy Center Project (Project). The survey area included one parcel, approximately 55 hectares in size, and a 0.5-mile buffer around the parcel. The 0.5-mile buffer overlaps a portion of the Florence-Casa Grande Canal. A field habitat assessment completed in June 2026 concluded that the portion of the Florence-Casa Grande Canal within the survey area does not support any suitable or marginal breeding habitat for SWFL or YBCU. A figure of the survey area (Figure 1) and representative photo logs are provided at the end of this memo.

On June 24, 2026, the portion of the Florence-Casa Grande Canal in and within 0.5 mile of the Project was visited by a biologist with extensive experience surveying for SWFL and YBCU and assessing their habitats. Google Earth imagery dated April 15, 2025, was reviewed and verified in the field to confirm that it accurately reflects current conditions regarding the size and locations of riparian/xeroriparian patches in the survey area. Additional characteristics of the habitat were also assessed in the field, including species composition, tree size, and general density/cover of trees and shrubs.

The Florence-Casa Grande canal was dry during the site visit and was flanked on each side (approximately 40 meters apart) by a narrow strip of small to medium-sized mesquite trees (*Prosopis velutina, syn. Neltuma velutina*). Within 600 meters of the Project the strips of mesquite were only 25 meters wide in their widest places. North of the Project, the patches of mesquite get very patchy and even narrower, mostly less than 15 meters wide. Greater than 600 meters south of the Project, the strips of mesquite widen slightly, but are still only approximately 50 meters wide at their widest locations.

Due to the small size of the patch, habitat surrounding the Florence-Casa Grande Canal does not provide suitable or marginal habitat for YBCU. Suitable YBCU habitat would be typically greater than 100 meters wide (USFWS 2021), and suitable patches would be at least 15 hectares and usually greater

WSP USA Inc.
3940 Glenbrook Dr.
Hailey, ID 83333

than 80 hectares (Halterman et al. 2015; USFWS 2021). While YBCU can occupy xeroriparian mesquite bosques, such as along the San Pedro River, compared with occupied xeroriparian habitat along the San Pedro River (approximately 80 miles southeast of the Project), the mesquite trees along the Florence-Casa Grande canal are smaller and the patches are much narrower and less extensive. While Beauregard et al. (2024) found that YBCU in southeastern Arizona occupy and breed in a broader range of xeroriparian habitats, including areas with relatively narrow or restricted riparian or xeroriparian habitats, that study was restricted to mountain ranges and foothills within the Madrean Sky Island Archipelago region approximately 50 to 150 miles southeast of the Project, at higher elevations (approximately 4,000 feet and higher), in areas where the surrounding uplands typically had a significant tree component. Overall habitat conditions at the Florence-Casa Grande Canal and surrounding uplands differ significantly from those found in the Madrean Sky Island Archipelago region, especially during the YBCU breeding season—i.e. the monsoon season—when the Madrean Sky Island Archipelago region receives significantly more monsoon precipitation than areas further north and west. For example, during the monsoon season (i.e. June 15 – September 30) in an average year, Tucson receives 5.7 inches of rain, Sierra Vista receives 8.5 inches, Nogales receives 9.6 inches, but Phoenix receives only 2.4 inches of rain (National Weather Service 2026). The first three cities are representative of valleys within the Madrean Sky Island Archipelago region (mountain ranges and foothills receive even more rain), whereas Phoenix is closer in elevation and location to the Project.

For all the reasons described above, the Florence-Casa Grande Canal does not have potential to provide suitable or marginal habitat for SWFL or YBCU within the survey area.

**References**


Beauregard, N. D., T. C. Theimer, C. A. Drost, and S. J. Sferra. 2024. Breeding by western yellow-billed Cuckoos in xeroriparian habitat in southeastern Arizona. Journal of Field Ornithology 95:1.

Halterman, M.D., M.J. Johnson, J.A. Holmes and S.A. Laymon. 2015. *A Natural History Summary and Survey Protocol for the Western Distinct Population Segment of the Yellow-billed Cuckoo: U.S. Fish and Wildlife Techniques and Methods*, 45 p.

National Weather Service. 2026. Monsoon statistics. Available at https://www.weather.gov/twc/Monsoon (accessed July 2026).

United States Fish and Wildlife Service (USFWS). 2021. Endangered and threatened wildlife and plants; designation of critical habitat for the western distinct population segment of the yellow-billed cuckoo. FR 86: 20798-21005.

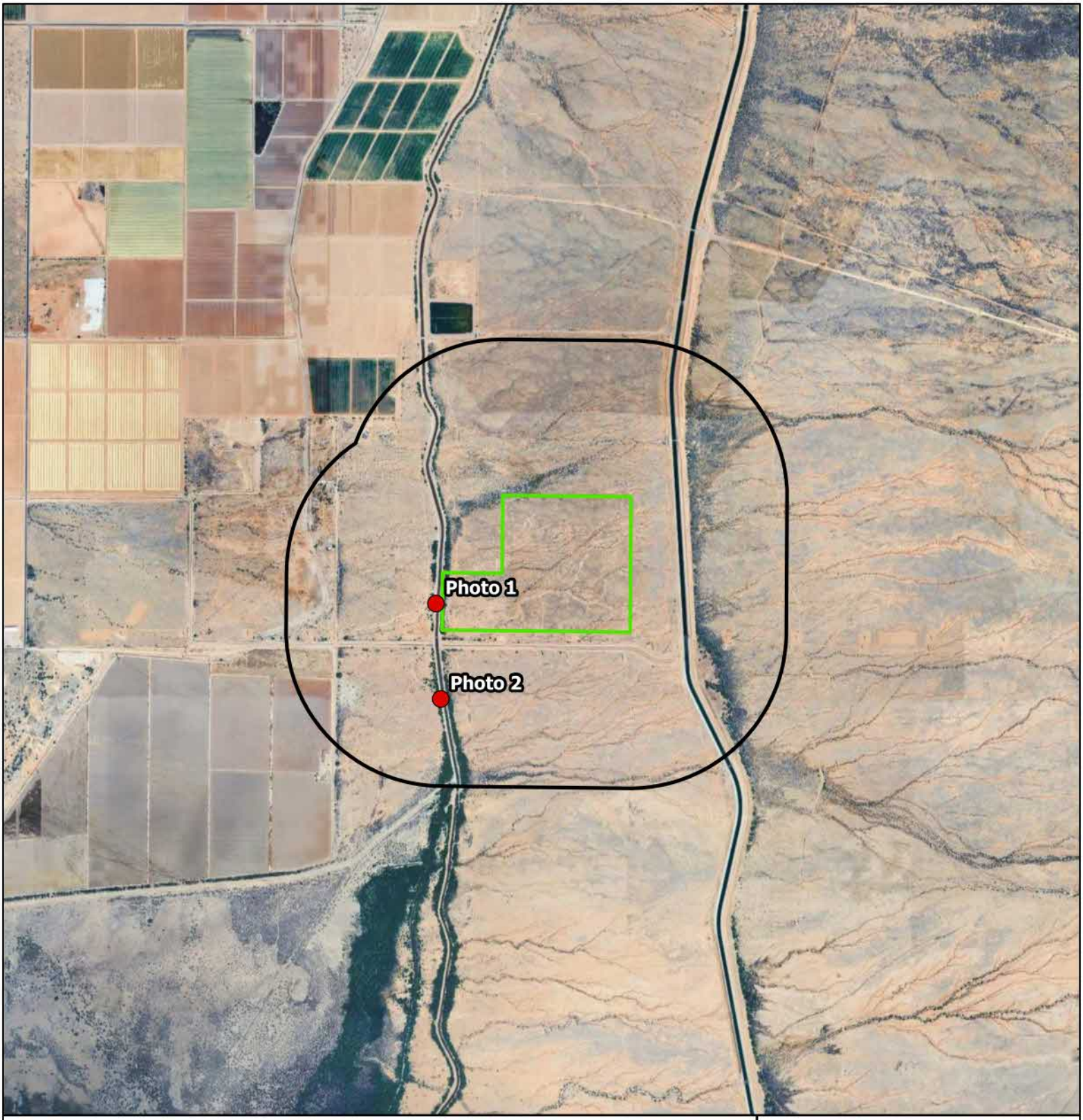



Photo Location
Study Area
Project Area

# STEELE ENERGY CENTER PROJECT

**FIGURE 1**
**YELLOW-BILLED CUCKOO AND SOUTHWESTERN WILLOW FLYCATCHER HABITAT ASSESSMENT**

0 0.25 0.5
Miles

N

Steele Energy Center

Date: 10/8/2026

# Photo Log



**Photo 1: Florence-Casa Grande Canal near the center of the Project.**



**Photo 2: Florence-Casa Grande Canal 250 meters south of Project.**

# EXHIBIT D
# BIOLOGICAL RESOURCES

In accordance with Arizona Administrative Code R14-7-119, the Applicant provides the following information:

*List the fish, wildlife, plant life and associated forms of life in the vicinity of the proposed site or route and describe the effects, if any, the proposed facilities will have thereon.*

## Introduction

To identify vegetation and wildlife that may occur at or in the vicinity of the proposed Steele Energy Center (SEC or Project), KP Environmental, A Spheros Company (KPE) reviewed the following sources:

- Topographical and aerial maps and land use, land cover, and elevation data.
- The U.S. Fish and Wildlife Service (USFWS) species list for the Project site was obtained from the USFWS online Information for Planning and Consultation (IPaC) system (**Exhibit C-1**) (USFWS, 2026).
- Species information obtained from the USFWS Environmental Conservation Online System, the USFWS Arizona Ecological Services document library, the Arizona Game and Fish Department (AGFD) Online Environmental Review Tool (**Exhibit C-2**) and special-status species listed in the AGFD Heritage Data Management System (HDMS) within Pinal County (AGFD, 2006; 2026a; 2026b).

In addition, a habitat assessment survey was conducted for biological resources:

- On July 16, 2026, KPE biologists with knowledge of the biology of flora and fauna of the region completed an on-ground habitat assessment survey of the approximately 137-acre Project site (Project site).

## Results

**Exhibit D-1** contains **Tables D-1, D-2, D-3, D-4, D-5, D-6 and D-7. Table D-1** includes species that were observed during the biological habitat assessment in July 2026, and **Tables D2-D7** include lists of common plant life, mammals, birds, reptiles, and amphibians potentially present in Pinal County and within the vicinity of the Project site.

The majority of the Project site consists of sparsely vegetated open creosote scrub and Sonoran desert scrub habitat. Several ephemeral desert washes cross the Project site and support woody vegetation, including honey mesquite (*Prosopis glandulosa*), palo verde (*Parkinsonia* spp.), and desert ironwood (*Olneya tesota*). These washes provide localized areas of greater vegetation density and structural diversity compared to the surrounding upland desert scrub. The Project site lies between two parallel, concrete-lined irrigation canals and is approximately 0.5 mile northeast of Picacho Reservoir. Land uses west of the Project site are dominated by agricultural and

industrial/utility development, while open desert habitat occurs to the south and east. Coolidge Municipal Airport is located approximately 2.8 miles north of the Project site. During the habitat assessment survey, no burrows, nests, or nest-building behavior were observed, and no federally or state-listed threatened or endangered species were documented within the Project site.

In addition, the Project is near active commercial and agricultural development with the agricultural transitioning into industrial development. No protected areas, or any areas of biological wealth were noted within the Project site.

## Vegetation

The proposed Project site is located within the Arizona Uplands and Eastern Sonoran Basins subdivision (IV ecoregion) of the Sonoran Basin and Range III ecoregion (Griffith, 2014) with an elevation of approximately 1,450 feet above mean sea level. Land uses in the Project site include agricultural land. The vegetation communities found within the area are described below. **Table D-6** in **Exhibit D-1** lists some of the native vegetation that could be found within the Project site and Pinal County in general.

*Open Sonoran Desertscrub*

The Sonoran desertscrub within the Project site characterized by relatively sparse, low-density vegetation with large areas of exposed soil and open space between individual plants. The plant community consists of creosote bush (*Larrea tridentata*), velvet mesquite (*Prosopis velutina*), desert ironwood (*Olneya tesota*), fishhook barrel cactus (*Ferocactus wislizeni*), and saguaro (*Carnegiea gigantea*). Overall vegetative cover is low, with shrubs, trees, and cacti occurring as widely spaced individuals rather than forming a continuous canopy. Vegetation density and structural diversity increase moderately along ephemeral washes, where greater moisture availability supports a higher concentration of woody vegetation, particularly mesquite and desert ironwood.

*Creosote Scrub*

The Project site contains open creosote scrub habitat characterized by sparse vegetation and very low vegetative cover. Unlike the open Sonoran desert scrub habitat, creosote bush is the dominant plant species, with other species such as mesquite, ironwood, and saguaro occurring only sporadically throughout the habitat. Vegetation is widely spaced, with substantial areas of exposed soil between individual shrubs and other plants.

## Wildlife

Common wildlife species that have the potential to occur in the proposed Project site and the immediate vicinity are associated with desertscrub habitats. Representative bird species include elf owl (*Micrathene whitneyi*), gilded flicker (*Colaptes chrysoides*), Gila woodpecker (*Melanerpes uropygialis*), Costa's hummingbird (*Calypte costae*), LeConte's thrasher (*Toxostoma lecontei*), and Brewer's sparrow (*Spizella breweri*) (Arizona Bird Species Conservation Initiative and Sonoran Joint Venture 2023). **Table D-1** presents common and special status species that were observed in the vicinity of the Project site during the habitat assessment performed by KPE in July

2026. Special status species observed during this study were included in the species analysis in **Exhibit C**.

## Summary of Potential Effects

Construction and operation of the Project will result in short-term and long-term disturbance to desert scrub habitats and to the wildlife that occupy these habitats. Short-term effects to resident wildlife could include possible displacement of animals caused by increased construction activity and noise levels in the proposed Project site. A short-term effect will be removal or damage to vegetation within the Project site. Wildlife species are not expected to experience long-term detrimental effects from the loss or alteration of vegetative cover within the Project site based on the availability of other suitable and unaffected habitats in the vicinity of the Project. The Project is unlikely to affect wildlife movement, including larger mammals, if they are present.

*Invasive Weed Species and Noxious Weeds*

Non-native and weed species typically dominate disturbed and unmaintained areas. Non-native species observed in proximity to these areas in vicinity of the Project site included stinknet (*Oncosiphon pilulifer*), Russian thistle (*Salsola tragus*), sandbur (*Cenchrus* sp.), Saharan mustard (*Brassica tournefortii*), tamarisk (*Tamarix* sp.), prickly lettuce (*Lactuca serriola*) and acacia (*Acacia* sp.). Saharan mustard, stinknet, sandbur, and tamarisk are listed as Arizona noxious weeds. Noxious Weed surveys should be done in the fall or spring in coordination with emergent seasons.

## Mitigation Measures

The following mitigation measures reduce risk of animal injury or spread of invasive species. For mitigation measures specific to special-status species, please see **Exhibit C**.

- Pre-construction surveys for nesting birds would be conducted by qualified biologists if vegetation clearing activities would occur during bird nesting season (March 1st to June 30th)

- To minimize the introduction and spread of invasive species and noxious weeds washing of equipment prior to and following mobilization to the Project site.

- Pre-construction burrowing owl surveys would be conducted by qualified biologist within 30 days prior to the commencement of construction activities during the burrowing owl nesting season for active burrows occupied by western burrowing owl and other bird nests protected under the MBTA. If an active burrowing owl burrow is detected, the Project would coordinate with the AGFD and USFWS as appropriate

- Protocol surveys for cactus ferruginous pygmy owl will be conducted prior to construction to determine whether these species occupy suitable habitat within or adjacent to the Project site. If these species are detected, appropriate avoidance, minimization, and appropriate eviction measures would be developed in coordination with the U.S. Fish and Wildlife Service and other applicable agencies.

## References

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U.S. Fish and Wildlife Service (USFWS). 2026. Information for Planning and Consultation Resource List, List of Species. Accessed: June 2026. Available at: http://www. http://ecos.fws.gov/ipac/.

# EXHIBIT D-1
# BIOLOGICAL RESOURCES TABLES

| Table D-1<br>Species Observed During the Biological Habitat Assessment in the Vicinity of the Project | |
|---|---|
| **Common Name** | **Scientific Name** |
| **Birds** | |
| Mourning dove | *Zenaida macroura* |
| Northern flicker | *Colaptes auratus* |
| **Plants** | |
| Creosote bush | *Larrea tridentata* |
| Fishhook barrel cactus | *Ferocactus wislizeni* |
| Saguaro | *Carnegiea gigantea* |
| Mesquite | *Prosopis s*p. |
| [1]KP Environmental, 2026. | |

| **Table D-2**<br>**Amphibian Species**[1]<br>Potential Occurrence in the Vicinity of the Project Area | |
|---|---|
| **Common Name** | **Scientific Name** |
| American Bullfrog | *Rana catesbeiana* |
| Barred Tiger Salamander | *Ambystoma mavortium mavortium* |
| Canyon Treefrog | *Hyla arenicolor* |
| Chiricahua Leopard Frog | *Rana chiricahuensis* |
| Couch's Spadefoot | *Scaphiopus couchii* |
| Great Plains Toad | *Anaxyrus cognatus* |
| Lowland Leopard Frog | *Rana yavapaiensis* |
| Mexican Spadefoot | *Spea multiplicata* |
| Red-spotted Toad | *Anaxyrus punctatus* |
| Rio Grande Leopard Frog | *Rana berlandieri* |
| Sinoloan Narrow-mouthed Toad | *Gastrophryne mazatlanensis* |
| Sonoran Desert Toad | *Incilius alvarius* |
| Sonoran Green Toad | *Anaxyrus retiformis* |
| Western Tiger Salamander | *Ambystoma mavortium* |
| Woodhouse's Toad | *Anaxyrus woodhousii* |
| [1]AGFD, 2026. | |

| Table D-3<br>**Bird Species**[1]<br>Potential Occurrence in the Vicinity of the Project Area | |
|---|---|
| **Common Name** | **Scientific name** |
| Abert's Towhee | *Melozone aberti* |
| American Barn Owl | *Tyto furcata* |
| American Coot | *Fulica americana* |
| American Crow | *Corvus brachyrhynchos* |
| American Goshawk | *Astur atricapillus* |
| American Kestrel | *Falco sparverius* |
| American Peregrine Falcon | *Falco peregrinus anatum* |
| American Pipit | *Anthus rubescens* |
| American Redstart | *Setophaga ruticilla* |
| American Robin | *Turdus migratorius* |
| American Wigeon | *Mareca americana* |
| Anna's Hummingbird | *Calypte anna* |
| Arizona Bell's Vireo | *Vireo bellii arizonae* |
| Ash-throated Flycatcher | *Myiarchus cinerascens* |
| Audubon's Warbler | *Setophaga coronata auduboni* |
| Bald Eagle | *Haliaeetus leucocephalus* |
| Bald Eagle - Winter Population | *Haliaeetus leucocephalus (wintering pop.)* |
| Band-tailed Pigeon | *Patagioenas fasciata* |
| Barn Swallow | *Hirundo rustica* |
| Belted Kingfisher | *Megaceryle alcyon* |
| Bendire's Thrasher | *Toxostoma bendirei* |
| Bewick's Wren | *Thryomanes bewickii* |
| Black Phoebe | *Sayornis nigricans* |
| Black Vulture | *Coragyps atratus* |
| Black-bellied Whistling-Duck | *Dendrocygna autumnalis* |
| Black-chinned Hummingbird | *Archilochus alexandri* |
| Black-chinned Sparrow | *Spizella atrogularis* |
| Black-crowned Night Heron | *Nycticorax nycticorax* |
| Black-headed Grosbeak | *Pheucticus melanocephalus* |
| Black-tailed Gnatcatcher | *Polioptila melanura* |
| Black-throated Blue Warbler | *Setophaga caerulescens* |
| Black-throated Gray Warbler | *Setophaga nigrescens* |
| Black-throated Sparrow | *Amphispiza bilineata* |
| Blue Grosbeak | *Passerina caerulea* |
| Blue Mockingbird | *Melanotis caerulescens* |
| Blue-gray Gnatcatcher | *Polioptila caerulea* |
| Blue-winged Teal | *Spatula discors* |
| Brewer's Blackbird | *Euphagus cyanocephalus* |
| Brewer's Sparrow | *Spizella breweri* |
| Bridled Titmouse | *Baeolophus wollweberi* |
| Broad-billed Hummingbird | *Cynanthus latirostris* |
| Broad-tailed Hummingbird | *Selasphorus platycercus* |
| Broad-winged Hawk | *Buteo platypterus* |
| Bronzed Cowbird | *Molothrus aeneus* |
| Brown Pelican | *Pelecanus occidentalis* |
| Brown-crested Flycatcher | *Myiarchus tyrannulus* |
| Brown-headed Cowbird | *Molothrus ater* |
| Buff-collared Nightjar | *Antrostomus ridgwayi* |

| Table D-3<br>**Bird Species**[1]<br>Potential Occurrence in the Vicinity of the Project Area | |
|---|---|
| Bullock's Oriole | *Icterus bullockii* |
| Burrowing Owl | *Athene cunicularia* |
| Bushtit | *Psaltriparus minimus* |
| Cactus Ferruginous Pygmy-owl | *Glaucidium brasilianum cactorum* |
| Cactus Wren | *Campylorhynchus brunneicapillus* |
| Canyon Towhee | *Melozone fusca* |
| Canyon Wren | *Catherpes mexicanus* |
| Cassin's Kingbird | *Tyrannus vociferans* |
| Cassin's Vireo | *Vireo cassinii* |
| Chihuahuan Raven | *Corvus cryptoleucus* |
| Chipping Sparrow | *Spizella passerina* |
| Cliff Swallow | *Petrochelidon pyrrhonota* |
| Common Black Hawk | *Buteogallus anthracinus* |
| Common Gallinule | *Gallinula galeata* |
| Common Ground Dove | *Columbina passerina* |
| Common Merganser | *Mergus merganser* |
| Common Nighthawk | *Chordeiles minor* |
| Common Poorwill | *Phalaenoptilus nuttallii* |
| Common Raven | *Corvus corax* |
| Common Yellowthroat | *Geothlypis trichas* |
| Cooper's Hawk | *Astur cooperii* |
| Costa's Hummingbird | *Calypte costae* |
| Crested Caracara | *Caracara plancus* |
| Crissal Thrasher | *Toxostoma crissale* |
| Curve-billed Thrasher | *Toxostoma curvirostre* |
| Dark-eyed Junco | *Junco hyemalis* |
| Double-crested Cormorant | *Nannopterum auritum* |
| Dunlin | *Calidris alpina* |
| Dusky Flycatcher | *Empidonax oberholseri* |
| Dusky-capped Flycatcher | *Myiarchus tuberculifer* |
| Elf Owl | *Micrathene whitneyi* |
| Eurasian Collared-Dove | *Streptopelia decaocto* |
| European Starling | *Sturnus vulgaris* |
| Ferruginous Hawk | *Buteo regalis* |
| Gambel's (Western Taiga) White-crowned Sparrow | *Zonotrichia leucophrys gambelii* |
| Gambel's Quail | *Callipepla gambelii* |
| Gila Woodpecker | *Melanerpes uropygialis* |
| Gilded Flicker | *Colaptes chrysoides* |
| Golden Eagle | *Aquila chrysaetos* |
| Gould's Turkey | *Meleagris gallopavo mexicana* |
| Gray Catbird | *Dumetella carolinensis* |
| Gray Flycatcher | *Empidonax wrightii* |
| Gray Hawk | *Buteo plagiatus* |
| Gray Vireo | *Vireo vicinior* |
| Great Blue Heron | *Ardea herodias* |
| Great Egret | *Ardea alba* |
| Great Horned Owl | *Bubo virginianus* |
| Greater Roadrunner | *Geococcyx californianus* |
| Greater Yellowlegs | *Tringa melanoleuca* |
| Great-tailed Grackle | *Quiscalus mexicanus* |

| Table D-3<br>**Bird Species**[1]<br>Potential Occurrence in the Vicinity of the Project Area | |
|---|---|
| Green Heron | *Butorides virescens* |
| Green-tailed Towhee | *Pipilo chlorurus* |
| Hammond's Flycatcher | *Empidonax hammondii* |
| Harris's Hawk | *Parabuteo unicinctus* |
| Hepatic Tanager | *Piranga flava* |
| Hermit Thrush | *Catharus guttatus* |
| Hermit Warbler | *Setophaga occidentalis* |
| Hooded Oriole | *Icterus cucullatus* |
| Horned Lark | *Eremophila alpestris* |
| House Finch | *Haemorhous mexicanus* |
| House Sparrow | *Passer domesticus* |
| Hutton's Vireo | *Vireo huttoni* |
| Inca Dove | *Columbina inca* |
| Indigo Bunting | *Passerina cyanea* |
| Juniper Titmouse | *Baeolophus ridgwayi* |
| Killdeer | *Charadrius vociferus* |
| Ladder-backed Woodpecker | *Dryobates scalaris* |
| Lark Bunting | *Calamospiza melanocorys* |
| Lark Sparrow | *Chondestes grammacus* |
| Lazuli Bunting | *Passerina amoena* |
| Least Bittern | *Botaurus exilis* |
| LeConte's Thrasher | *Toxostoma lecontei* |
| Lesser Goldfinch | *Spinus psaltria* |
| Lesser Nighthawk | *Chordeiles acutipennis* |
| Lincoln's Sparrow | *Melospiza lincolnii* |
| Loggerhead Shrike | *Lanius ludovicianus* |
| Long-eared Owl | *Asio otus* |
| Louisiana Waterthrush | *Parkesia motacilla* |
| Lucy's Warbler | *Leiothlypis luciae* |
| MacGillivray's Warbler | *Geothlypis tolmiei* |
| Mallard | *Anas platyrhynchos* |
| Marsh Wren | *Cistothorus palustris* |
| Mexican Duck | *Anas diazi* |
| Mexican Jay | *Aphelocoma wollweberi* |
| Mexican Spotted Owl | *Strix occidentalis lucida* |
| Mississippi Kite | *Ictinia mississippiensis* |
| Mountain West White-crowned Sparrow | *Zonotrichia leucophrys oriantha* |
| Mourning Dove | *Zenaida macroura* |
| Nashville Warbler | *Leiothlypis ruficapilla* |
| Northern Beardless-Tyrannulet | *Camptostoma imberbe* |
| Northern Cardinal | *Cardinalis cardinalis* |
| Northern Flicker | *Colaptes auratus* |
| Northern Harrier | *Circus hudsonius* |
| Northern House Wren | *Troglodytes aedon* |
| Northern Mockingbird | *Mimus polyglottos* |
| Northern Rough-winged Swallow | *Stelgidopteryx serripennis* |
| Northern Shoveler | *Spatula clypeata* |
| Northern Waterthrush | *Parkesia noveboracensis* |
| Olive Warbler | *Peucedramus taeniatus* |
| Olive-sided Flycatcher | *Contopus cooperi* |

| **Table D-3**<br>**Bird Species**[1]<br>Potential Occurrence in the Vicinity of the Project Area | |
|---|---|
| Orange-crowned Warbler | *Leiothlypis celata* |
| Orchard Oriole | *Icterus spurius* |
| Osprey | *Pandion haliaetus* |
| Ovenbird | *Seiurus aurocapilla* |
| Peregrine Falcon | *Falco peregrinus* |
| Phainopepla | *Phainopepla nitens* |
| Pied-billed Grebe | *Podilymbus podiceps* |
| Pine Siskin | *Spinus pinus* |
| Plumbeous Vireo | *Vireo plumbeus* |
| Prairie Falcon | *Falco mexicanus* |
| Purple Martin | *Progne subis* |
| Pyrrhuloxia | *Cardinalis sinuatus* |
| Red-naped Sapsucker | *Sphyrapicus nuchalis* |
| Red-shouldered Hawk | *Buteo lineatus* |
| Red-tailed Hawk | *Buteo jamaicensis* |
| Red-winged Blackbird | *Agelaius phoeniceus* |
| Ring-necked Duck | *Aythya collaris* |
| Rock Pigeon | *Columba livia* |
| Rock Wren | *Salpinctes obsoletus* |
| Ruby-crowned Kinglet | *Corthylio calendula* |
| Rufous Hummingbird | *Selasphorus rufus* |
| Rufous-crowned Sparrow | *Aimophila ruficeps* |
| Rufous-winged Sparrow | *Peucaea carpalis* |
| Sage Thrasher | *Oreoscoptes montanus* |
| Sagebrush Sparrow | *Artemisiospiza nevadensis* |
| Savannah Sparrow | *Passerculus sandwichensis* |
| Say's Phoebe | *Sayornis saya* |
| Scott's Oriole | *Icterus parisorum* |
| Sharp-shinned Hawk | *Accipiter striatus* |
| Snowy Egret | *Egretta thula* |
| Song Sparrow | *Melospiza melodia* |
| Sora | *Porzana carolina* |
| Southwestern Willow Flycatcher | *Empidonax traillii extimus* |
| Spotted Sandpiper | *Actitis macularius* |
| Spotted Towhee | *Pipilo maculatus* |
| Sulphur-bellied Flycatcher | *Myiodynastes luteiventris* |
| Summer Tanager | *Piranga rubra* |
| Swainson's Hawk | *Buteo swainsoni* |
| Swainson's Thrush | *Catharus ustulatus* |
| Thick-billed Kingbird | *Tyrannus crassirostris* |
| Townsend's Warbler | *Setophaga townsendi* |
| Tree Swallow | *Tachycineta bicolor* |
| Tropical Kingbird | *Tyrannus melancholicus* |
| Tufted Flycatcher | *Mitrephanes phaeocercus* |
| Turkey Vulture | *Cathartes aura* |
| Varied Bunting | *Passerina versicolor* |
| Verdin | *Auriparus flaviceps* |
| Vermilion Flycatcher | *Pyrocephalus rubinus* |

| **Table D-3**<br>**Bird Species**[1]<br>Potential Occurrence in the Vicinity of the Project Area | |
|---|---|
| Vesper Sparrow | *Pooecetes gramineus* |
| Violet-green Swallow | *Tachycineta thalassina* |
| Virginia Rail | *Rallus limicola* |
| Virginia's Warbler | *Leiothlypis virginiae* |
| Western Bluebird | *Sialia mexicana* |
| Western Burrowing Owl | *Athene cunicularia hypugaea* |
| Western Cattle-Egret | *Ardea ibis* |
| Western Flycatcher | *Empidonax difficilis* |
| Western Grebe | *Aechmophorus occidentalis* |
| Western Kingbird | *Tyrannus verticalis* |
| Western Meadowlark | *Sturnella neglecta* |
| Western Screech-owl | *Megascops kennicottii* |
| Western Tanager | *Piranga ludoviciana* |
| Western Warbling Vireo | *Vireo swainsoni* |
| Western Wood-Pewee | *Contopus sordidulus* |
| Whiskered Screech-owl | *Megascops trichopsis* |
| White-breasted Nuthatch | *Sitta carolinensis* |
| White-crowned Sparrow | *Zonotrichia leucophrys* |
| White-faced Ibis | *Plegadis chihi* |
| White-throated Swift | *Aeronautes saxatalis* |
| White-winged Dove | *Zenaida asiatica* |
| Wild Turkey | *Meleagris gallopavo* |
| Willow Flycatcher | *Empidonax traillii* |
| Wilson's Warbler | *Cardellina pusilla* |
| Woodhouse's Scrub-jay | *Aphelocoma woodhouseii* |
| Yellow Warbler | *Setophaga petechia* |
| Yellow-billed Cuckoo (Western DPS) | *Coccyzus americanus* |
| Yellow-breasted Chat | *Icteria virens* |
| Yellow-eyed Junco | *Junco phaeonotus* |
| Yellow-rumped Warbler | *Setophaga coronata* |
| Yuma Ridgway's Rail | *Rallus obsoletus yumanensis* |
| Zone-tailed Hawk | *Buteo albonotatus* |
| [1]AGFD, 2026. | |

| **Table D-4**<br>**Invertebrate Species**[1]<br>Potential Occurrence in the Vicinity of the Project Area | |
|---|---|
| **Common Name** | **Scientific Name** |
| Empress Leilia | *Asterocampa leilia* |
| Galiuro Talussnail | *Sonorella galiurensis* |
| Ingham's Southwestern Orangetip | *Anthocharis thoosa inghami* |
| Maricopa Tiger Beetle | *Cicindela oregona maricopa* |
| Monarch | *Danaus plexippus* |
| Picacho Talussnail | *Sonorella simmonsi* |
| Queen | *Danaus gilippus* |
| Red Swamp Crawfish | *Procambarus clarkii* |
| Southwest Spring Firefly | *Bicellonycha wickershamorum wickershamorum* |
| Superstition Mountains Talussnail | *Sonorella superstitionis* |
| Tortolita Talussnail | *Sonorella tortillita* |
| Ursine Giant skipper | *Megathymus ursus ursus* |
| Virile Crayfish | *Faxonius virilis* |
| White-lined Sphinx | *Hyles lineata* |
| [1]AGFD, 2026. | |

| Table D-5<br>**Mammal Species**[1]<br>Potential Occurrence in the Vicinity of the Project Area | |
|---|---|
| **Common Name** | **Scientific Name** |
| American Badger | *Taxidea taxus* |
| American Beaver | *Castor canadensis* |
| American Black Bear | *Ursus americanus* |
| Antelope Jackrabbit | *Lepus alleni* |
| Arizona Cotton Rat | *Sigmodon arizonae* |
| Arizona Myotis | *Myotis occultus* |
| Arizona Pocket Mouse | *Perognathus amplus* |
| Bailey's Pocket Mouse | *Chaetodipus baileyi* |
| Big Brown Bat | *Eptesicus fuscus* |
| Big Free-tailed Bat | *Nyctinomops macrotis* |
| Bighorn Sheep | *Ovis canadensis* |
| Black-tailed Jackrabbit | *Lepus californicus* |
| Bobcat | *Lynx rufus* |
| Botta's Pocket Gopher | *Thomomys bottae* |
| Brazilian Free-tailed Bat | *Tadarida brasiliensis* |
| Brush Mouse | *Peromyscus boylii* |
| Cactus Mouse | *Peromyscus eremicus* |
| California Leaf-nosed Bat | *Macrotus californicus* |
| California Myotis | *Myotis californicus* |
| Canyon Bat | *Parastrellus hesperus* |
| Cave Myotis | *Myotis velifer* |
| Cliff Chipmunk | *Neotamias dorsalis* |
| Collared Peccary | *Dicotyles tajacu* |
| Common Gray Fox | *Urocyon cinereoargenteus* |
| Coyote | *Canis latrans* |
| Crawford's Desert Shrew | *Notiosorex crawfordi* |
| Deer Mouse | *Peromyscus maniculatus* |
| Desert Cottontail | *Sylvilagus audubonii* |
| Desert Kangaroo Rat | *Dipodomys deserti* |
| Desert Red Bat | *Lasiurus frantzii* |
| Desert Spotted Skunk | *Spilogale leucoparia* |
| Feral Burro | *Equus asinus* |
| Feral Horse | *Equus caballus* |
| Fringed Myotis | *Myotis thysanodes* |
| Fulvous Harvest Mouse | *Reithrodontomys fulvescens* |
| Greater Western Bonneted Bat | *Eumops perotis californicus* |
| Harris' Antelope Squirrel | *Ammospermophilus harrisii* |
| Hispid Cotton Rat | *Sigmodon hispidus* |
| Hispid Pocket Mouse | *Chaetodipus hispidus* |
| Hoary Bat | *Lasiurus cinereus* |

| **Table D-5**<br>**Mammal Species**[1]<br>Potential Occurrence in the Vicinity of the Project Area | |
|---|---|
| Hog-nosed Skunk | *Conepatus leuconotus leuconotus* |
| Holzner's Cottontail | *Sylvilagus holzneri* |
| Hooded Skunk | *Mephitis macroura* |
| House Mouse | *Mus musculus* |
| Kit Fox | *Vulpes macrotis* |
| Lesser Long-nosed Bat | *Leptonycteris yerbabuenae* |
| Long-legged Myotis | *Myotis volans* |
| Merriam's Kangaroo Rat | *Dipodomys merriami* |
| Mexican Long-tongued Bat | *Choeronycteris mexicana* |
| Mexican Opossum | *Didelphis virginiana californica* |
| Mexican Woodrat | *Neotoma mexicana* |
| Mountain Lion | *Puma concolor* |
| Mule Deer | *Odocoileus hemionus* |
| Northern Raccoon | *Procyon lotor* |
| Ocelot | *Leopardus pardalis* |
| Ord's Kangaroo Rat | *Dipodomys ordii* |
| Pale Townsend's Big-eared Bat | *Corynorhinus townsendii pallescens* |
| Pallid Bat | *Antrozous pallidus* |
| Plains Harvest Mouse | *Reithrodontomys montanus* |
| Pocketed Free-tailed Bat | *Nyctinomops femorosaccus* |
| Ringtail | *Bassariscus astutus* |
| Rock Pocket Mouse | *Chaetodipus intermedius* |
| Rock Squirrel | *Otospermophilus variegatus* |
| Round-tailed Ground Squirrel | *Xerospermophilus tereticaudus* |
| Silky Pocket Mouse | *Perognathus flavus* |
| Silver-haired Bat | *Lasionycteris noctivagans* |
| Sonoran Desert Pocket Mouse | *Chaetodipus penicillatus* |
| Sonoran Pronghorn | *Antilocapra americana sonoriensis* |
| Southern Grasshopper Mouse | *Onychomys torridus* |
| Southwestern Myotis | *Myotis auriculus* |
| Striped Skunk | *Mephitis mephitis* |
| Western Harvest Mouse | *Reithrodontomys megalotis* |
| Western Small-footed Myotis | *Myotis ciliolabrum* |
| Western White-throated Woodrat | *Neotoma albigula* |
| Western Yellow Bat | *Lasiurus xanthinus* |
| White-footed Mouse | *Peromyscus leucopus* |
| White-nosed Coati | *Nasua narica* |
| White-tailed Deer | *Odocoileus virginianus* |
| Yavapai Arizona Pocket Mouse | *Perognathus amplus amplus* |
| Yuma Myotis | *Myotis yumanensis* |
| [1]AGFD, 2026. | |

| **Table D-6**<br>**Plant Species**[1]<br>Potential Occurrence in the Vicinity of the Project Area | |
|---|---|
| **Common Name** | **Scientific Name** |
| Acuna Cactus | *Echinomastus erectocentrus var. acunensis* |
| Aravaipa Sage | *Salvia amissa* |
| Aravaipa Woodfern | *Pelazoneuron puberulum var. sonorense* |
| Arizona False Pennyroyal | *Hedeoma dentata* |
| Arizona Hedgehog Cactus | *Echinocereus arizonicus ssp. arizonicus* |
| Beavertail Prickly-pear | *Opuntia basilaris* |
| Cactus-apple | *Opuntia engelmannii* |
| California Willowherb | *Epilobium ravenii* |
| Catalina Beardtongue | *Penstemon discolor* |
| Chihuahuan Sedge | *Carex chihuahuensis* |
| Coastal Woodfern | *Dryopteris arguta* |
| Cochise Sedge | *Carex ultra* |
| Compass Barrel Cactus | *Ferocactus wislizeni* |
| Copper Zephyr Lily | *Zephyranthes longifolia* |
| Desert Barrel Cactus | *Ferocactus cylindraceus* |
| Desert Tansy-aster | *Leucosyris arida* |
| Dune Blazingstar | *Mentzelia longiloba var. longiloba* |
| Fendler Hedgehog-cactus | *Echinocereus fendleri* |
| Flannel Bush | *Fremontodendron californicum* |
| Gila Rock Daisy | *Laphamia gilensis var. gilensis* |
| Graham's Nipple Cactus | *Mammillaria grahamii* |
| Hairy Water Clover | *Marsilea vestita* |
| Hohokam Agave | *Agave murpheyi* |
| Huachuca Water-umbel | *Lilaeopsis schaffneriana ssp. recurva* |
| Lobed Fleabane | *Erigeron lobatus* |
| Lotebush | *Ziziphus obtusifolia var. obtusifolia* |
| Lyre-leaved Twistflower | *Streptanthus carinatus* |
| Magenta-flower Hedgehog-cactus | *Echinocereus fasciculatus* |
| Mapleleaf False Snapdragon | *Mabrya acerifolia* |
| Mexican Broomspurge | *Euphorbia gracillima* |
| Mexican Gama Grass | *Tripsacum lanceolatum* |
| Mexican Milkweed | *Asclepias linaria* |
| Miniature Suncup | *Camissoniopsis micrantha* |
| Mojave Milkweed | *Asclepias nyctaginifolia* |
| Mountain Spikerush | *Eleocharis montana* |
| Needle-spined Pineapple Cactus | *Echinomastus erectocentrus var. erectocentrus* |
| New Mexican Prickly-pear | *Opuntia phaeacantha* |
| Nichol Turk's Head Cactus | *Echinocactus horizonthalonius var. nicholii* |
| Nichol's Hedgehog Cactus | *Echinocereus nicholii* |

| **Table D-6**<br>**Plant Species**[1]<br>Potential Occurrence in the Vicinity of the Project Area | |
|---|---|
| Organ Pipe Cactus | *Stenocereus thurberi* |
| Pima Indian Mallow | *Abutilon parishii* |
| Pinkflower Hedgehog Cactus | *Echinocereus bonkerae* |
| Pringle Popcorn-flower | *Plagiobothrys pringlei* |
| Pringle's Fleabane | *Erigeron pringlei* |
| Redflower Onion | *Allium rhizomatum* |
| Rush Milkweed | *Asclepias subulata* |
| San Carlos Wild-buckwheat | *Eriogonum capillare* |
| Santa Rita Hedgehog Cactus | *Echinocereus santaritensis* |
| Sierra Ancha Fleabane | *Erigeron anchana* |
| Small-flowered Flameflower | *Phemeranthus parviflorus* |
| Spider Milkweed | *Asclepias asperula* |
| Spotted Wintergreen | *Chimaphila maculata* |
| Stag-horn Cholla | *Opuntia versicolor* |
| Thornber Fishhook Cactus | *Mammillaria thornberi* |
| Thread-leaf Giant Hyssop | *Agastache rupestris* |
| Toumey Agave | *Agave toumeyana var. bella* |
| Tumamoc Globeberry | *Tumamoca macdougalii* |
| Varied Fishhook Cactus | *Mammillaria viridiflora* |
| Velvet Mesquite | *Neltuma velutina* |
| Washoe Suncup | *Camissonia pusilla* |
| Western Sandparsley | *Spermolepis gigantea* |
| Wright's Snakeweed | *Gutierrezia wrightii* |
| Yavapai Blazingstar | *Mentzelia longiloba var. yavapaiensis* |
| [1]AGFD, 2026. | |

| Table D-7<br>**Reptile Species**[1]<br>Potential Occurrence in the Vicinity of the Project Area | |
|---|---|
| **Common Name** | **Scientific Name** |
| Arizona Black Rattlesnake | *Crotalus cerberus* |
| Arizona Glossy Snake | *Arizona elegans noctivaga* |
| Banded Sandsnake | *Chilomeniscus cinctus* |
| Bezy's Night Lizard | *Xantusia bezyi* |
| Big Bend Patch-nosed Snake | *Salvadora hexalepis deserticola* |
| Black-necked Gartersnake | *Thamnophis cyrtopsis* |
| Black-tailed Rattlesnake | *Crotalus molossus* |
| California Kingsnake | *Lampropeltis californiae* |
| Checkered Gartersnake | *Thamnophis marcianus* |
| Chihuahuan Greater Earless Lizard | *Cophosaurus texanus scitulus* |
| Clark's Spiny Lizard | *Sceloporus clarkii* |
| Coachwhip | *Masticophis flagellum* |
| Common Chuckwalla | *Sauromalus ater* |
| Common Lesser Earless Lizard | *Holbrookia maculata* |
| Common Side-blotched Lizard | *Uta stansburiana* |
| Desert Grassland Whiptail | *Aspidoscelis uniparens* |
| Desert Iguana | *Dipsosaurus dorsalis* |
| Desert Mud Turtle | *Kinosternon sonoriense sonoriense* |
| Desert Nightsnake | *Hypsiglena chlorophaea* |
| Desert Patch-nosed Snake | *Salvadora hexalepis hexalepis* |
| Desert Spiny Lizard | *Sceloporus magister* |
| Eastern Collared Lizard | *Crotaphytus collaris* |
| Eastern Fence Lizard | *Sceloporus undulatus* |
| Eastern Kingsnake | *Lampropeltis getula* |
| Giant Spotted Whiptail | *Aspidoscelis stictogrammus* |
| Gila Monster | *Heloderma suspectum* |
| Glossy Snake | *Arizona elegans* |
| Gophersnake | *Pituophis catenifer* |
| Great Basin Collared Lizard | *Crotaphytus bicinctores* |
| Greater Earless Lizard | *Cophosaurus texanus* |
| Greater Short-horned Lizard | *Phrynosoma hernandesi* |
| Long-nosed Leopard Lizard | *Gambelia wislizenii* |
| Long-nosed Snake | *Rhinocheilus lecontei* |
| Long-tailed Brush Lizard | *Urosaurus graciosus* |
| Madrean Alligator Lizard | *Elgaria kingii* |
| Mediterranean Gecko | *Hemidactylus turcicus* |
| Mohave Desert Sidewinder | *Crotalus cerastes cerastes* |
| Mohave Rattlesnake | *Crotalus scutulatus* |
| Mountain Patch-nosed Snake | *Salvadora grahamiae* |
| New Mexico Threadsnake | *Rena dissecta* |

| **Table D-7**<br>**Reptile Species**[1]<br>Potential Occurrence in the Vicinity of the Project Area | |
|---|---|
| Northern Desert Nightsnake | *Hypsiglena chlorophaea deserticola* |
| Ornate Box Turtle | *Terrapene ornata* |
| Ornate Tree Lizard | *Urosaurus ornatus* |
| Plateau Fence Lizard | *Sceloporus tristichus* |
| Pond Slider | *Trachemys scripta* |
| Prairie Rattlesnake | *Crotalus viridis* |
| Red Racer | *Masticophis flagellum piceus* |
| Red-backed Whiptail | *Aspidoscelis xanthonotus* |
| Regal Horned Lizard | *Phrynosoma solare* |
| Resplendent Shovel-nosed Snake | *Chionactis annulata* |
| Ring-necked Snake | *Diadophis punctatus* |
| Saddled Leaf-nosed Snake | *Phyllorhynchus browni* |
| Schott's Tree Lizard | *Urosaurus ornatus schottii* |
| Sidewinder | *Crotalus cerastes* |
| Smith's Black-headed Snake | *Tantilla hobartsmithi* |
| Snapping Turtle | *Chelydra serpentina* |
| Sonoran Coachwhip | *Masticophis flagellum cingulum* |
| Sonoran Coralsnake | *Micruroides euryxanthus* |
| Sonoran Desert Tortoise | *Gopherus morafkai* |
| Sonoran Gophersnake | *Pituophis catenifer affinis* |
| Sonoran Lyresnake | *Trimorphodon lambda* |
| Sonoran Sidewinder | *Crotalus cerastes cercobombus* |
| Sonoran Spotted Whiptail | *Aspidoscelis sonorae* |
| Sonoran Whipsnake | *Masticophis bilineatus* |
| Southwestern Fence Lizard | *Sceloporus cowlesi* |
| Southwestern Speckled Rattlesnake | *Crotalus pyrrhus* |
| Spiny Softshell | *Apalone spinifera* |
| Spotted Leaf-nosed Snake | *Phyllorhynchus decurtatus* |
| Striped Whipsnake | *Masticophis taeniatus* |
| Tiger Rattlesnake | *Crotalus tigris* |
| Tiger Whiptail | *Aspidoscelis tigris* |
| Western Banded Gecko | *Coleonyx variegatus* |
| Western Diamond-backed Rattlesnake | *Crotalus atrox* |
| Western Groundsnake | *Sonora semiannulata* |
| Western Patch-nosed Snake | *Salvadora hexalepis* |
| Western Shovel-nosed Snake | *Chionactis occipitalis* |
| Western Side-blotched Lizard | *Uta stansburiana elegans* |
| Western Threadsnake | *Rena humilis* |
| Zebra-tailed Lizard | *Callisaurus draconoides* |
| [1]AGFD, 2026. | |

# EXHIBIT E
# SCENIC AREAS, HISTORIC SITES AND STRUCTURES, ARCHAEOLOGICAL SITES

In accordance with Arizona Administrative Code R14-7-119, the Applicant provides the following information:

*Describe any existing scenic areas, historic sites and structures or archaeological sites in the vicinity of the proposed facilities and state the effects, if any, the proposed facilities will have thereon.*

## VISUAL RESOURCES

### Sensitive Viewpoints

Sensitive viewpoints consist of locations from which a significant number of individuals having some regard for the integrity of visual resources would view a landscape and be exposed to the presence of the Steele Energy Center (SEC or Project) which consists of an approximately 1400 megawatt (MW) natural gas-fired generation power plant. There are no designated scenic areas within the Project area. Potential sensitive viewpoints in the Project area occur along transportation corridors within proximity of vacant, industrial, agricultural, recreational and residential land uses, from residential land uses and sensitive visual receptors or locations where the Project could be seen.

Viewer sensitivity is based on the importance of features, conditions that affect visual perception, and social factors that contribute to view perception. The levels of sensitivity are generally classified as low, moderate, or high depending on viewer types and exposure, view orientation and duration, and viewer awareness or sensitivity to visual changes.

Visual quality is the visual pattern created by the combination of natural character landscapes and industrial and artificial features. Visual quality is typically evaluated using the following descriptions:

- Natural – the landscape exhibits distinctive and memorable natural visual features (landforms, rock outcrops, etc.) and patterns (vegetation/open space) that are largely undisturbed, usually a rural or open space setting. Few human-made developments or disturbances are present.

- Rural – the landscape consists of natural and human-made features/patterns, often the result of altering the landscape for farming or mineral extraction. These areas may not be visually distinct or unusual in the region.

- Mixed Residential and Commercial – the landscape is primarily human-made and affected by elements common to the built environment of mixed residential and commercial, and industrial areas. Human elements are prevalent, or landscape modifications exist, that do not compatibly blend with the natural surroundings.

## Existing Conditions

Six representative key viewpoints, or Key Observation Points (KOPs), were selected within the Project area to depict the existing visual quality. In addition, an aerial Project rendering was created. The KOPs were selected based on viewers viewing the Project from the closest sensitive visual receptors, residences and along nearby major transportation corridors. Photos were taken during field reconnaissance in June 2026. The locations of the KOPs and simulations are included in figures at the end of this section. **Figure E-1** depicts a map with the locations of the six KOPs. The existing conditions and the potential visual effects of the proposed Project components are shown for the KOPs in **Figures E-1a, E-1b, E-1c, E-1d, E-1e,** and **E-1f**.

**KOP A (Figure E-1a) East Kleck Road & North Wheeler Road Looking Southeast**

KOP A was taken from the corner of East Kleck Road and North Wheeler Road looking southeast towards the proposed Project. KOP A represents the view from a congregation of residential or commercial buildings approximately 1.75 miles from the Project. The existing view shows North Wheeler Road and the Florence Canal in the foreground, distribution lines, water storage tanks, and vegetation in the middle ground, and the Picacho Mountains and distribution lines in the background. The visual quality is classified as mixed rural and commercial in character.

**KOP B (Figure E-1b) Florence-Casa Grande Canal Looking Southeast**

KOP B was taken from the Florence-Casa Grande Canal looking southeast towards the Project. KOP B represents the view from an irrigation canal, recreational business and associated residential dwelling approximately one mile from the Project. The existing view shows the sandy edge of the canal, a barbed wire fence and vegetation in the foreground, buildings and infrastructure associated with Desert Pheasant Recreation, vegetation, and distribution lines in the middle ground, and the Picacho Mountains in the background. The visual quality is classified as mixed rural and commercial in character.

**KOP C (Figure E-1c) North Wheeler Road & East Steele Road Looking East**

KOP C was taken from the corner of North Wheeler Road and East Steele Road looking east directly towards the Project. KOP C represents the view from the closest access road approximately half a mile from the Project. The existing view shows sand, vegetation, debris, and a trail/path in the foreground, vegetation in the middle ground, vegetation in the background, and mountains in the far, left background. The visual quality is classified as rural.

**KOP D (Figure E-1d) East Steele Road & North Fast Track Road Looking East**

KOP D was taken from the corner of East Steele Road and North Fast Track Road looking east towards the Project. KOP D represents the view from one of the closest farm facilities and a paved road approximately 1.5 miles west of the Project. The existing view shows paved East Steele Road in the foreground, distribution and transmission lines, pole markers, vegetation, sand and East Steele Road in the middle ground, distribution and transmission lines and mountains in the background and far background. The visual quality is classified as mixed rural and commercial.

**KOP E (Figure E-1e) Picacho Reservoir Looking Northeast**

KOP E was taken from the Picacho Reservoir looking northeast towards the Project. KOP E represents the view from the Picacho Reservoir approximately 2.5 miles from the southwest of the Project. The existing view shows the shoulder of a dirt road in the foreground, vegetation in the middle ground, and transmission lines and the mountains in the background. The visual quality is classified as mixed rural.

**KOP F (Figure E-1f) East Steele Road Looking East**

KOP F was taken from East Steele Road looking East towards the Project. KOP E represents the view from a main transportation corridor in proximity to the Project, located between two solar facilities, Storey Solar/BESS and Saint Solar Energy Center, and to the west of two businesses, Goldman Storage and Goldman Dairy. The existing view shows paved East Steele Road in the foreground, solar panels, a caution "gas pipeline" sign and an underground pipeline, vegetation, sand, an irrigation ditch, distribution lines, and infrastructure including mailboxes and driveways associated with Goldman Storage and Dairy in the middle ground, and transmission lines, residential or commercial buildings, and the mountains in the background. The visual quality is classified as mixed residential and commercial.

**Birds Eye Rendering Looking North (Figure E-1g)**

A rendering was developed from a bird's eye view looking north. The existing land use in the immediate vicinity around the Project site includes low density rural residential, vacant land, local roadways, the Central Arizona Project (CAP) Canal, the Florence-Casa Grande Canal, the SunZia Transmission Line and the Pinal Central – Tortolita 500 kilovolt (kV) Transmission Line. The visual quality of the aerial view is classified as agricultural, utility/industrial and vacant in character.

## Potential Effects

Potential effects to visual resources relate to changes in available views of the landscape and the effects of those changes on viewers. Potential effects were evaluated based on a combination of contrasts between levels of visual quality and the levels of viewer sensitivity.

Visual resources would be affected by introducing a combined cycle natural gas-fired turbine (CCGT) power plant and associated infrastructure that includes new gas turbines, switchyard infrastructure and evaporation ponds into the existing visual landscape. The effects of introducing these elements into the landscape would be apparent when viewed from sensitive viewpoints. The Project would introduce new elements into the landscape which would appreciably alter the existing form, line, color, and texture which characterize the existing landscape.

Visual effects associated with each of the KOPs are described below and shown in **Figures E-1a, E-1b, E-1c. E-1d, E-1e,** and **E-1f.** (visual simulations). These simulations show the views from the KOPs after construction of the Project.

**KOP A (Figure E-1a) East Kleck Road & North Wheeler Road Looking Southeast**

KOP A was taken from the corner of East Kleck Road and North Wheeler Road looking southeast towards the proposed Project. KOP A represents the view from a congregation of residential or

commercial buildings approximately 1.75 miles from the Project. The proposed view shows no changes to the foreground and introduces Project components in the middle ground/background. The Project components visible from this viewpoint are the power plant and associated buildings. The proposed structures would be visible but would not substantially alter the visual characteristics of the visual landscape due to existing utility/industrial infrastructure in the viewshed and the surrounding topography. The Project would be visible to nearby residences and travelers on North Wheeler Road, however, it does not dominate the foreground or middle ground nor fully obscure the mountain views in the background. Therefore, the perceptible visual contrast would be moderate from this viewshed.

**KOP B (Figure E-1b) Florence-Casa Grande Canal Looking Southeast**

KOP B was taken from the Florence-Casa Grande Canal looking southeast towards the Project. KOP B represents the view from an irrigation canal, recreational business and associated residential dwelling approximately one mile from the Project. The proposed view depicts no change to the foreground and introduces Project components in the middle ground. The Project components visible from this viewpoint includes the power plant and associated infrastructure. The proposed structure would alter the visual characteristics of the visual landscape but there is existing utility/industrial in the viewshed. The Project would be visible to travelers on North Wheeler Road. The perceptible visual contrast would be high from this viewshed.

**KOP C (Figure E-1c) North Wheeler Road & East Steele Road Looking East**

KOP C was taken from the corner of North Wheeler Road and East Steele Road looking east towards the Project. KOP C represents the view from the closest access road approximately half a mile from the Project. The proposed view depicts no change to the foreground and introduces Project components into the middle ground. The Project components visible from this viewpoint includes the power plant and associated infrastructure. The proposed structure would alter the visual characteristics of the existing visual landscape by adding utility/industrial use to the viewshed. The Project would be visible to travelers on East Steele Road and North Steele Road. The perceptible visual contrast would be high from this viewshed.

**KOP D (Figure E-1d) East Steele Road & North Fast Track Road Looking East**

KOP D was taken from the corner of East Steele Road and North Fast Track Road looking east towards the Project. KOP D represents the view from one of the closest farm facilities and a paved road approximately 1.5 miles west of the Project. The proposed view depicts no change to the foreground or middle ground and introduces Project components into the background. The Project components visible from this viewpoint include the power plant and associated infrastructure. The Project would be visible to nearby residences and travelers on East Steele Road. The proposed structure would not substantially alter the visual characteristics of the existing visual landscape due to existing utility/industrial infrastructure in the viewshed. It would be at a distance that does not dominate the foreground, middle ground, or background, nor fully obscure the surrounding views. Therefore, perceptible visual contrast would be moderate from this viewshed.

**KOP E (Figure E-1e) Picacho Reservoir Looking Northeast**

KOP E was taken from the Picacho Reservoir looking northeast towards the Project. KOP E represents the view from and of the Picacho Reservoir approximately southwest 2.5 miles from the Project. The proposed view depicts no change to the foreground, middle ground, or background. Intervening existing desert vegetation blocks the view of the Project. Therefore, perceptible visual contrast would be low from this viewshed.

**KOP F (Figure E-1f) East Steele Road Looking East**

KOP F was taken from East Steele Road looking East towards the Project. KOP F represents the view from a main transportation corridor in proximity to the Project, located between two solar facilities, Storey Solar/BESS and Saint Solar Energy Center, and to the west of two businesses, Goldman Storage and Goldman Dairy. The proposed view depicts no change to the foreground or middle ground and introduces Project components into the background. The Project components visible from this viewpoint include the power plant and associated infrastructure. The proposed structure would not substantially alter the visual characteristics of the visual landscape due to existing utility/industrial infrastructure in the viewshed and the surrounding topography. The Project would be visible to the nearby businesses, solar farms, and travelers on East Steele Road. It would be at a distance that does not dominate the foreground, middle ground, or background nor fully obscure the surrounding views. Therefore, perceptible visual contrast would be low from this viewshed.

## HISTORIC AND ARCHAEOLOGICAL RESOURCES

A Cultural Resources Survey was prepared for the Project to provide an overview for cultural resources impacts. The Cultural Resources Survey is included in **Exhibit E-1**. Correspondence with the Native American Tribes and Arizona State Historic Preservation Office (SHPO) are included in **Exhibit E-2**. A response from the Salt River Pima-Maricopa Indian Community is included at the end of **Exhibit E-2.** Agave Archaeology conducted The Cultural Resources Survey which included a Class I records review and Class III archaeological survey. The results of the survey identified a historic canal that is part of the San Carlos Irrigation and Drainage District, a previously mitigated prehistoric site no longer eligible for NRHP listing, and isolated occurrences of cultural materials that do not meet site criteria.

### Existing Conditions

The Project area falls on the southwestern edge of what is commonly referred to as the Phoenix Basin, near Brady Wash. This area has a human occupation that is generally accepted to span at least the last 12,000 years. The record of human habitation is generally broken down into recognizable prehistoric and historic periods. The history of the Project area is discussed in the Cultural Resources Survey Report, included in **Exhibit E-1.**

**Prior Cultural Resources Surveys**

Prior cultural resource surveys intersecting the Project area are listed below in **Table E-1.**

| Table E-1 – Prior Cultural Resource Surveys Intersecting the Project | | | |
|---|---|---|---|
| **Project No.** | **Project Name** | **Consultant** | **Reference** |
| 1999-443.ASM | Hohokam Bridge Canal Survey | Tierra ROW | (Fratt 1999) |
| 2012-363.ASM | TEP Pinal Central to Tortolita Survey | WestLand Resources, Inc. | (White III et al. 2012) |

The ASM records search also indicated that a total of two previously recorded cultural resource sites have been identified intersecting with the Project. One of these sites have been determined eligible, and one determined a contributor to district and eligible individually by the NRHP. These are detailed below and in **Table E-2** (in bold).

| Table E-2 Previously Recorded Cultural Resources Intersecting the Project Area | | | | |
|---|---|---|---|---|
| **Resource Name** | **Description** | **Cultural/Temporal Affiliation** | **NRHP Status** | **Reference** |
| **AZ AA:3:116(ASM)** | **Artifact scatter** | **Hohokam Colonial-Sedentary Period** | **Eligible (d)** | **(White III et al. 2012)** |
| **Florence Casa Grande Canal, AZ AA:3:215(ASM)** | **Florence-Casa Grande Canal** | **Euro-American AD 1880s – 1930s** | **Contributor to district and eligible (a,c) individually** | **(Pfaff 1994, 1996)** |

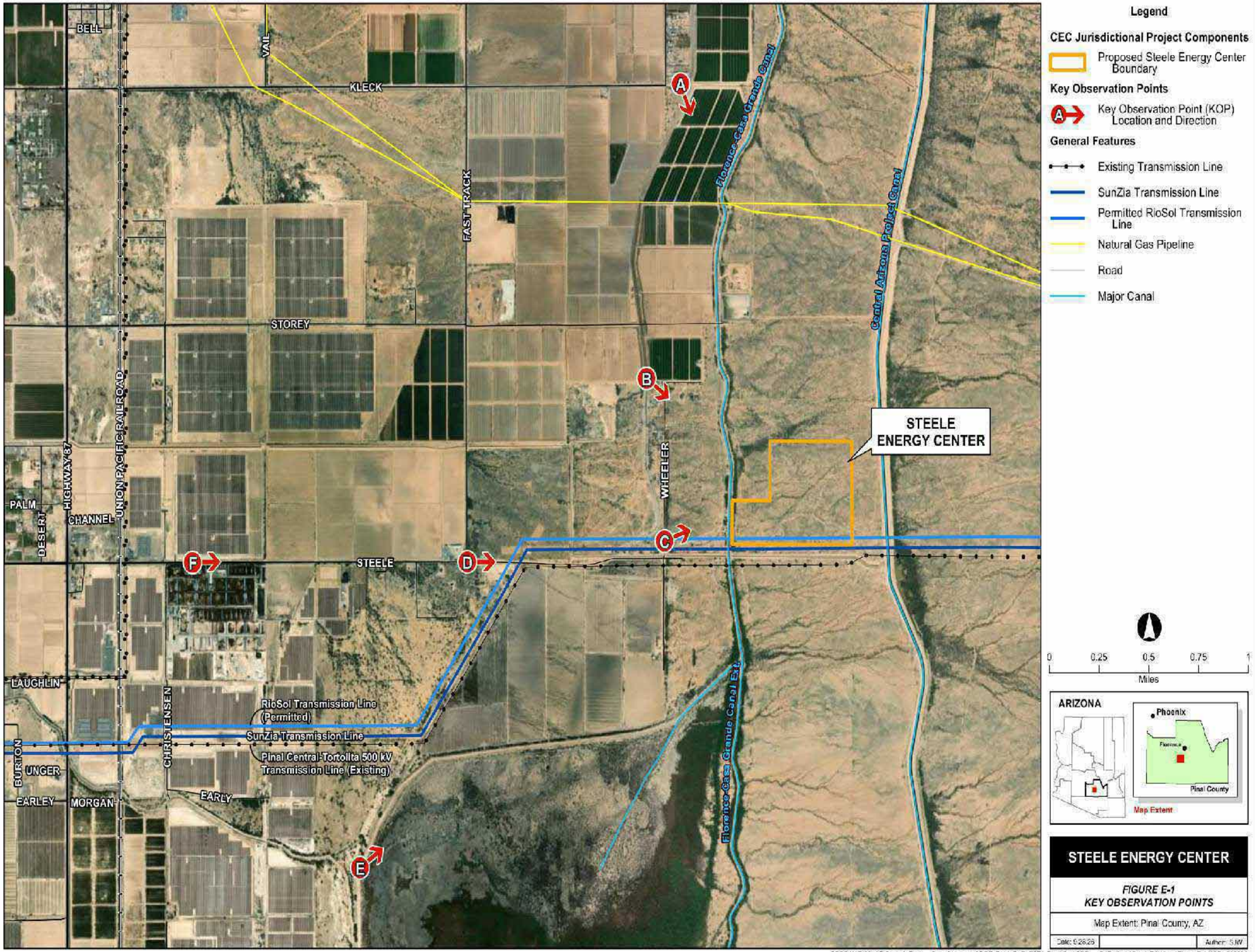
Site AZ AA:3:116(ASM) is Hohokam surface artifact scatter associated near the southern border of the project area and extending into the project area. The site was previously determined NRHP-eligible under criterion (d) during consultation for the SunZia Southwest Transmission Line project for the potential to have subsurface deposits in dune areas north of the SunZia ROW (Swanson and Rayle 2017). The site was subsequently subjected to 100 percent surface collection within the SunZia right-of-way (ROW) immediately south of the project area (Swanson 2023). In addition, a series of 10 square areas, each 5m x 5m, were mechanically excavated to sterile deposits. Five of the stripping units (SA-2, SA-3, SA-5, SA-6 and SA-8) were placed within low dunes in the current project area north of the SunZia ROW (Figure 4), and identified no subsurface cultural materials, nor did the other five stripping areas in the ROW(Swanson 2023). During the current survey, a cluster of 17 sherds was identified in a 20-meter diameter area in the northwest part of the site (10 plainware jar sherds and 7 indeterminate red-on-buff bowl sherds), and a single sherd was located in the northeast part of the site (plainware) and do not meet site qualification criteria. The results of data recovery for SunZia including mitigation results at AZ AA:3:116(ASM) are in preparation and recommend the site ineligible for NRHP listing.

## Tribal Outreach

Correspondence with the Ak-Chin Indian Community, Gila River Indian Community, Hopi Tribe, Mescalero Apache Tribe, Pascua Yaqui Tribe, Pueblo of Zuni, Salt River Pima-Maricopa Indian Community, Tohono O'Odham Nation, Tonto Apache Tribe, White Mountain Apache, Yavapai-Apache Tribe and the State Historic Preservation Office regarding cultural resources is included in **Exhibit E-2**. The cultural report included in **Exhibit E-1** was also provided to the Tribes along with the correspondence.

## Recommendations

Agave Archaeology recommends that the canal be avoided by direct Project effects, however canal crossings are not considered an adverse effect for the resource. Avoidance of the prehistoric site is not necessary due to prior mitigation. No additional cultural resources work is recommended.


BELL
VAIL
KLECK
FAST TRACK
STOREY
WHEELER
STEELE
ENERGY CENTER
STEELE
PALM
DESERT
HIGHWAY 87
CHANNEL
UNION PACIFIC RAILROAD
LAUGHLIN
CHRISTENSEN
BURTON
UNGER
EARLEY
MORGAN
EARLY
RioSol Transmission Line
(Permitted)
SunZia Transmission Line
Pinal Central-Tortolita 500 kV
Transmission Line (Existing)
Florence-Casa Grande Canal
Central Arizona Project Canal
Florence-Casa Grande Canal Ext.
A
B
C
D
E
F
Legend
CEC Jurisdictional Project Components
Proposed Steele Energy Center Boundary
Key Observation Points
Key Observation Point (KOP) Location and Direction
General Features
Existing Transmission Line
SunZia Transmission Line
Permitted RioSol Transmission Line
Natural Gas Pipeline
Road
Major Canal
0
0.25
0.5
0.75
1
Miles
ARIZONA
Phoenix
Florence
Pinal County
Map Extent
STEELE ENERGY CENTER
FIGURE E-1
KEY OBSERVATION POINTS
Map Extent: Pinal County, AZ
Date: 9.28.23
Author: SJW
SPCS NAD 83, AZ Central, Feet.
Data Sources: ADOT, BLM, CAP, ESRI, Pinal Co.; SRP.
D:\Projects\SteeleEC\Maps\Figure E-1 KOPs 092823

# KOP A (Figure E-1a)
# East Kleck Road & North Wheeler Road – Looking Southeast







This simulation is for graphic representation only, and exact structure types and locations have not been determined.

# KOP B (Figure E-1b)
# Florence-Casa Grande Canal - Looking Southeast





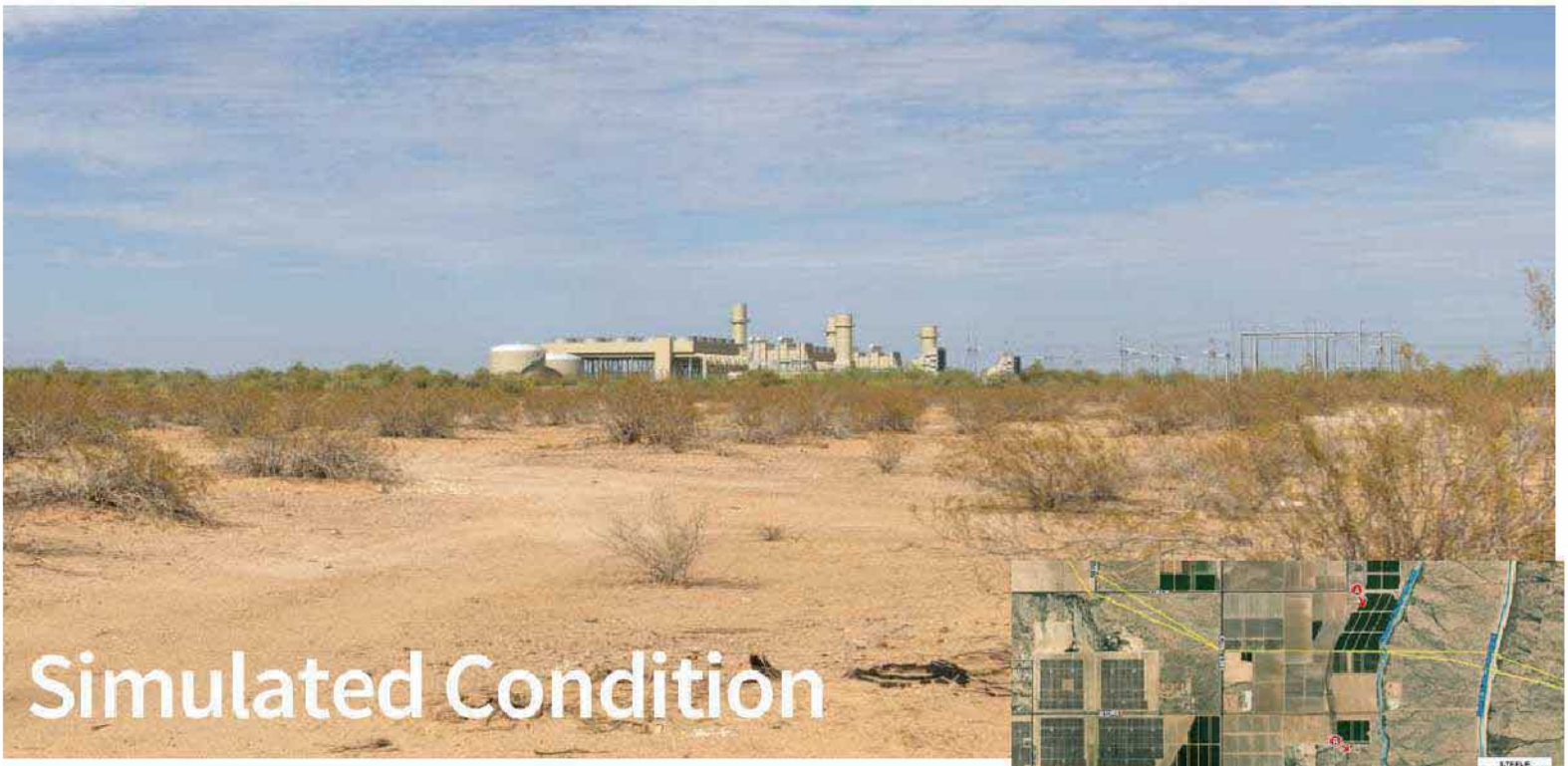





This simulation is for graphic representation only, and exact structure types and locations have not been determined.

# KOP C (Figure E-1c) North Wheeler Road & East Steele Road – Looking East






This simulation is for graphic representation only, and exact structure types and locations have not been determined.

# KOP D (Figure E-1d)
# East Steele Road & North Fast Track Road – Looking East









This simulation is for graphic representation only, and exact structure types and locations have not been determined.

# KOP E (Figure E-1e)
# Picacho Reservoir – Looking Northeast










This simulation is for graphic representation only, and exact structure types and locations have not been determined.

# KOP F (Figure E-1f)
# East Steele Road – Looking East









This simulation is for graphic representation only, and exact structure types and locations have not been determined.

# Birds Eye Rendering – Looking North (Figure E-1g)



This simulation is for graphic representation only, and exact structure types and locations have not been determined.

# EXHIBIT E-1
# CULTURAL RESOURCES SURVEY

# A Cultural Resources Survey of ± 142 acres for the Steele Energy Center near Coolidge, Pinal County, Arizona

Prepared for Steele Energy Center, LLC

September 2026



Agave Archaeology

Technical Report No. AA-2642

# A Cultural Resources Survey of ± 142 acres for the Steele Energy Center near Coolidge, Pinal County, Arizona

**Prepared for: Steele Energy Center, LLC**

**Prepared by: Chase Oswald, MS, RPA; Steve Swanson, PhD, RPA**

**Summary:**
Agave Archaeology conducted a Class I records review and Class III archaeological survey of the proposed Steele Energy Center, identifying a historic canal that is part of the San Carlos Irrigation and Drainage District, a previously mitigated prehistoric site no longer eligible for NRHP listing, and isolated occurrences of cultural materials that do not meet site criteria. It is recommended that the canal be avoided by direct project effects, however canal crossings are not considered an adverse effect for the resource. Avoidance of the prehistoric site is not necessary due to prior mitigation. No additional cultural resources work is recommended.

## STATE HISTORIC PRESERVATION OFFICE SURVEY REPORT SUMMARY FORM

**1. REPORT TITLE**

**1a. Report Title:** A Cultural Resources Survey of ± 142 acres for the Steele Energy Center near Coolidge, Pinal County, Arizona

**1b. Report Author(s):** Chase Oswald, Steve Swanson

**1c. Date:** August 31, 2026 (revised September 15, 2026)

**1d. Report No.:** Technical Report No. AA-2642

**2. PROJECT REGISTRATION/PERMITS**

**2a. ASM Accession Number:** N/A

**2b. AAA Permit Number:** N/A

**3. ORGANIZATION/CONSULTING FIRM**

**3a. Name:** Agave Archaeology, LLC

**3b. Internal Project Number**: AA2642

**3c. Internal Project Name:** Steele Energy Project

**3d. Contact Name:** Steve Swanson

**3e. Contact Address:** 914 N 9th St Phoenix, AZ 85006

**3f. Contact Phone:** (602) 828-7822

**3g. Contact Email:** steve@agavearch.com

**4. SPONSOR/LEAD AGENCY**

**4a. Sponsor:** Steele Energy Center, LLC

**4b. Lead Agency:** N/A

**4c. Agency Project Number(s)**: *N/A*

**4d. Agency Project Name:** N/A

**4e. Funding Source(s):** Private

**4f. Other Involved Agencies:** None

**4g. Applicable Regulations:** Arizona Antiquities Act (A.R.S. § 41-865 et seq.); State Historic Preservation Act A.R.S. §41-861 et seq

**5. DESCRIPTION OF PROJECT OR UNDERTAKING:**

Proponent proposes the construction of an energy center on privately owned land, using private funds, and the construction of a canal crossing on privately owned land. Construction of the canal crossing will require issuance of a Canal Right-of-Way Access Permit issued by the Bureau of Indian Affairs (BIA) and an Encroachment Agreement issued by the BIA San Carlos Irrigation Project.

**6. PROJECT AREA/AREA OF POTENTIAL EFFECTS:**

The combined energy center and canal crossing areas are within an irregular polygon that spans approximately 142 acres in area. These facilities have not been designed at this point, so the actual acreage of their respective footprints is not known, but will be less than areas surveyed for each. A total of 136 acres were surveyed in association with the proposed energy center. A total of 8 acres were surveyed in association with the proposed canal crossing. As noted, actual disturbance/development area for each will be less than the areas surveyed.

## STATE HISTORIC PRESERVATION OFFICE SURVEY REPORT SUMMARY FORM

### 7. PROJECT LOCATION

**7a. Address:** NEC Canal Rd and E Storey Rd (approximate)

**7b. Nearest City/Town:** Coolidge, Arizona

**7c. County**: Pinal

**7d. Project Locator UTM** 457753 m East, 3638442 m North

**7e. NAD:** 1983

**7f. Zone:** 12

**7g. Baseline & Meridian:** Gila & Salt Rivers Baseline & Meridian (GSRBM)

**7h. USGS Quadrangle(s)**: Florence, AZ

**7i. Legal Description(s):** Township 6 South, Range 9 East, Section 19

### 8. SURVEY AREA

**8a. Total Acres:** 142 (approximate)

**8b. Survey Area**

| 1. Land Jurisdiction | 2. Total Acres Surveyed | 3. Total Acres Not Surveyed | 4. Justification for Areas Not Surveyed |
|---|---|---|---|
| Private (canal crossing) | 8 | 0.00 | N/A |
| Private (energy center) | 136 | 0.00 | N/A |

### 9. ENVIRONMENTAL CONTEXTS

**9a. Landform:** Nearly level plateaus or terraces and valley flats (USGS GAP Analysis Program 2005b)

**9b. Elevation:** 1,513 – 1,541 feet amsl

**9c. Surrounding Topographic Features:** Picacho Mountains 7.0 kilometers to the southeast.

**9d. Nearest Drainage:** Picacho Reservoir 2.32 km to the southwest

**9e. Local Geology:** Quaternary surficial deposits, undivided (Peters et al. 2018)

**9f. Vegetation:** Sonora-Mojave Mixed Salt Desert Scrub; Sonoran Paloverde-Mixed Cacti Desert Scrub; Sonora-Mojave Creosotebush-White Bursage Desert Scrub (USGS GAP Analysis Program 2005a)

**9g. Soils/Deposition:** Casa Grande fine sandy loam, 0 to 3 percent slopes; Denure sandy loam, 1 to 3 percent slopes; Mohall loam MLRA 40 (National Cooperative Soil Survey 2025)

**9h. Buried Deposits:** Not likely

**9i. Justification:** Project is located on desert pavement previously disturbed by two-track roads, dumping, and canal laterals.

### 10. BUILT ENVIRONMENT

Built environment elements in the review area include canals and canal laterals, culverts, paved roads, electrical distribution and transmission lines, residential buildings, agricultural land, and two-track roads.

### 11. INVENTORY CLASS COMPLETED

**11a. Class I Inventory:** ☐

**11b. Researcher(s):** Chase Oswald, Steve Swanson

**11c. Class II Survey**: ☐

**11d. Sampling Strategy:** N/A

**11e. Class III Inventory**: ☒

## 12. BACKGROUND RESEARCH SOURCES

**12a. AZSITE:** ☒

**12b. ASM Archaeological Records Office**: ☒

**12c. SHPO Inventories and/or SHPO Library:** ☒

**12d. NRHP Database**: ☒

**12e. ADOT Portal**: ☒

**12f. GLO Maps:** ☒

**12g. Land- Managing Agency Files:** N/A

**12h. Tribal Cultural Resources Files:** N/A

**12i. Local Government Websites:** N/A

**12j. Other:** USGS historic maps; aerial photographs

## 13. BACKGROUND RESEARCH RESULTS

**13a. Prior cultural resource surveys intersecting Project:**

| Project No. | Project Name | Consultant | Reference |
|---|---|---|---|
| 1999-443.ASM | Hohokam Bridge Canal Survey | Tierra ROW | (Fratt 1999) |
| 2012-363.ASM | TEP Pinal Central to Tortolita Survey | WestLand Resources, Inc. | (White III et al. 2012) |

**13b. Previously recorded cultural resources intersecting Project:**

| Resource Name | Description | Cultural/Temporal Affiliation | NRHP Status | Reference |
|---|---|---|---|---|
| AZ AA:3:116(ASM) | Artifact scatter | Hohokam Colonial-Sedentary Period | Eligible (d) | (White III et al. 2012) |
| Florence Casa Grande Canal, AZ AA:3:215(ASM) | Florence-Casa Grande Canal | Euro-American AD 1880s – 1930s | Contributor to district and eligible (a,c) individually | (Pfaff 1994, 1996) |

**13c. Historic Buildings/Districts/Neighborhoods:** None.

**13d. Historic USGS Map and GLO Properties within the Project Area:** The 1928 and 1929 GLO plats depict fencelines, two-rack roads, the Florence Canal, and the Florence Casa Grande Canal within the review area (Figure 2). A 1940 map of SCIP facilities (Irrigation Division of the Office of Indian Affairs 1940) plots the Florence Casa Grande Canal running north-south intersecting the west side of the project. (Figure 3). The 1964 USGS Valley Farms, AZ 1:24,000-scale topographic quadrangle depicts the Florence Casa Grande Canal running north-south transecting the western end of the project portion of the project area, aligned with the subsequently recorded SCIP canal lateral.

**13f. Background Research Narrative:** Records review identifies a historic canal and a prehistoric artifact scatter intersecting the project area.

## 14. CULTURAL CONTEXTS

**14a. Prehistoric Culture:** Archaic, Hohokam

**14b. Protohistoric Culture**: Piipash; Yavapai; O'odham

**14c. Indigenous Historic Culture**: Piipash; Akimel O'odham; Tohono O'odham

**14d. Euro-American Culture**: Euroamerican farmers

**15. FIELD SURVEY PERSONNEL**

**15a. Principal Investigator:** Steve Swanson, PhD, RPA

**15b. Field Supervisor:** Juan Morlock

**15c. Crew:** John Palmer

**15d. Fieldwork Date(s):** July 16th-20th, 2026

**16. SURVEY METHODS**

**16a. Transect Intervals:** < 15 meters

**16b. Coverage (%):** 100

**16c. Site Recording Criteria**: ASM

**16d. Ground Surface Visibility**: 100 percent

**16e. Observed Disturbances:** Canal, two-track roads, trash dumping

**17. FIELD SURVEY RESULTS**

**17a. Previously recorded site not meeting site criteria** ☒

Site AZ AA:3:116(ASM) is Hohokam surface artifact scatter associated near the southern border of the project area and extending into the project area. The site was previously determined NRHP-eligible under criterion (d) during consultation for the SunZia Southwest Transmission Line project for the potential to have subsurface deposits in dune areas north of the SunZia ROW (Swanson and Rayle 2017). The site was subsequently subjected to 100 percent surface collection within the SunZia right-of-way (ROW) immediately south of the project area (Swanson 2023). In addition, a series of 10 square areas, each 5m x 5m, were mechanically excavated to sterile deposits. Five of the stripping units (SA-2, SA-3, SA-5, SA-6 and SA-8) were placed within low dunes in the current project area north of the SunZia ROW (Figure 4), and identified no subsurface cultural materials, nor did the other five stripping areas in the ROW (Swanson 2023). During the current survey, a cluster of 17 sherds was identified in a 20-meter diameter area in the northwest part of the site (10 plainware jar sherds and 7 indeterminate red-on-buff bowl sherds), and a single sherd was located in the northeast part of the site (plainware) and do not meet site qualification criteria. The results of data recovery for SunZia including mitigation results at AZ AA:3:116(ASM) are in preparation and recommend the site ineligible for NRHP listing.

**17b. Isolated Occurrences (IOs) Only**: ☐

**17c. Number of IOs Recorded**: 31 (see table below)

| Isolated Occurrences | | | | |
|---|---|---|---|---|
| **ID** | **Age** | **Material** | **Description** | **UTM E... / UTM N...** |
| IO-1 | Prehistoric | Ceramic | Sand-tempered plainware (STP) jar body sherds (n=2) | |
| IO-2 | Prehistoric | Groundstone | Vesicular basalt metate fragment | |
| IO-3 | Prehistoric | Debitage | Fine-grained volcanic (FGV) angular debris | |
| IO-4 | Prehistoric | Ceramic | STP indeterminate body sherd, black interior | |
| IO-5 | Prehistoric | Ceramic | STP vessel body sherd | |
| IO-6 | Prehistoric | Debitage | FGV cortical flake | |
| IO-7 | Prehistoric | Debitage | Rhyolite non-cortical flake | |
| IO-8 | Prehistoric | Groundstone | Vesicular basalt mano fragment, shaped margins, heavy grinding on one face | |
| IO-9 | Prehistoric | Ceramic | STP jar body and rim sherds (n=35) in 4m area | |

| Isolated Occurrences | | | | |
|---|---|---|---|---|
| **ID** | **Age** | **Material** | **Description** | |
| IO-10 | Prehistoric | Debitage | FGV cortical flake | |
| IO-11 | Prehistoric | Ceramic | Indet. Red-on-buff jar body sherd | |
| IO-12 | Prehistoric | Ceramic | Indet. buffware jar body sherds (n=7) in 3m area | |
| IO-13 | Prehistoric | Ceramic | STP jar body sherds (n=7) in 3m area | |
| IO-14 | Prehistoric | Debitage | Rhyolite cortical flake | |
| IO-15 | Prehistoric | Ceramic | Gila red jar body sherd | |
| IO-16 | Prehistoric | Debitage | FGV non-cortical flake | |
| IO-17 | Prehistoric | Ceramic | Indet. Red-on-buff vessel body sherd | |
| IO-18 | Prehistoric | Ceramic | Sand-tempered plainware jar body, brown exterior and interior, reddish brown paste | |
| IO-19 | Prehistoric | Ceramic | STP jar body sherds (n=15) in 3m area | |
| IO-20 | Prehistoric | Ceramic | STP jar body sherds (n=30) in 3m area | |
| IO-21 | Prehistoric | Ceramic | STP jar body sherd | |
| IO-22 | Prehistoric | Groundstone | Sandstone biscuit mano fragment | |
| IO-23 | Prehistoric | Ceramic | Buffware jar body sherds (n=2) | |
| IO-24 | Prehistoric | Debitage | FGV non-cortical flake | |
| IO-25 | Prehistoric | Ceramic | STP jar body sherds (n=22) in 3m area, intermixed with sporting clay fragments and shotgun shells | |
| IO-26 | Prehistoric | Ceramic | STP jar body sherd | |
| IO-27 | Prehistoric | Groundstone | Vesicular basalt trough metate fragment | |
| IO-28 | Prehistoric | Debitage | Purple rhyolite shatter | |
| IO-29 | Prehistoric | Debitage | Fine-grained volcanic, secondary flake | |
| IO-30 | Prehistoric | Ceramic | STP jar body sherd | |
| IO-31 | Prehistoric | Groundstone | Vesicular basalt metate fragments (n=3) | |

**17d. Historic Structures:** Florence-Casa Grande canal documented under Historic American Engineering Record No. AZ-50 (Pfaff 1994, 1996). The structure was determined NTHP-eligible individually and as contributor to the SCIDD with SHPO concurrence, 2017 (SHPO Undertaking No. 2017-0088).

## 18. COMMENTS

Agave Archaeology conducted a Class I records review and Class III archaeological survey of the proposed Steele Energy Center, identifying a historic canal that is part of the San Carlos Irrigation and Drainage District, a previously mitigated prehistoric site, and isolated occurrences of cultural materials that do not meet site criteria . It is recommended that the canal be avoided by direct project effects, however canal crossings are not considered an adverse effect for the resource. Avoidance of the prehistoric site is not necessary due to prior mitigation. No additional cultural resources work is recommended.

## 19. ATTACHMENTS

**19a. Project Locator Map with Land Jurisdiction:** ☒ (Figure 1)

**19b. Background Research Map(s):** ☒ (Figure 1)

**19c. Survey Results Map(s):** ☒ (Figure 1)

**19d. GLO Map:** ☒ (Figure 2)

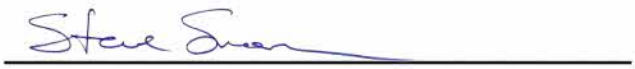
**19e. Agency (SCIP) Map:** ☒ (Figure 3)

**19f. Site Detail:** ☒ (Figure 4)

**19g. Project Overview Photo:** ☒ (Figure 5)

## 20. CONSULTANT CERTIFICATION

I certify the information provided herein has been reviewed for content and accuracy and all work meets applicable agency standards.



**Signature**

Principal
**Title**

## 21. DISCOVERY CLAUSE

In the event that previously unreported cultural resources are encountered during ground disturbing activities, all work must immediately cease within 30 meters (100 feet) until a qualified archaeologist has documented the discovery and evaluated its eligibility for the Arizona Register of Historic Places in consultation with the SHPO and Tribes, as appropriate. Work must not resume in this area without approval of the lead agency.

If human remains are encountered during ground-disturbing activities, all work must immediately cease within 30 meters (100 feet) of the discovery and the area must be secured. The Arizona State Museum, SHPO, and appropriate Tribes must be notified of the discovery. All discoveries will be treated in accordance with Arizona Revised Statutes (A.R.S. § 41-865) and work must not resume in this area without authorization from ASM.

## 22. REFERENCES CITED

Arizona State Museum
1995 *Archaeological Site Recording Manual*. Arizona State Museum, University of Arizona, Tucson.

Fratt, Lee
1999 A*n Archaeological Assessment Survey of Approximately .2 Acres Near the Intersection of the Florence-Casa Grande Canal and the Hohokam Main Canal in Pinal County, Arizona*. Tierra Archaeological & Environmental Consultants, Tucson, Arizona.

Irrigation Division of the Office of Indian Affairs
1940 *San Carlos Irrigation Project, Gila River Indian Reservation*. Department of the Interior. Washington, D.C.

National Cooperative Soil Survey
2025 *Soil Characterization Database*. Online resource accessed August 2025 at https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

Peters, S. E., J. M. Husson, and J. Czaplewski
2018 Macrostrat: A Platform for Geological Data Integration and Deep-Time Earth Crust Research. *Geochemistry, Geophysics, Geosystems* 19:1393-1409.

Pfaff, Christine
1994 *The San Carlos Irrigation Project: An Historic Overiew and Evaluation of Signficance, Pinal County, Arizona.*

1996 *HAER No. AZ-50, San Carlos Irrigation Project, North and South of Gila River, Vicinity of Coolidge, Pinal County, Arizona: Photographs, Written Historical and Descriptive Data*. National Park Service, Western Region, San Francisco.

Swanson, Steve
2023 *SunZia Treatment Summary for Historic Property AZ AA:3:116(ASM)*. Letter report submitted to Bureau of Land Management October 11, 2023. Terracon, Tempe, Arizona.

Swanson, Steve, and Christopher E. Rayle (editors)
2017 *A Class III Cultural Resources Survey of the SunZia Southwest Transmission Project Phase One Line in Arizona*. EPG Cultural Resource Services Technical Paper No. 2017-06. Environmental Planning Group, LLC, Phoenix.

USGS GAP Analysis Program

2005a *Southwest Regional GAP Analysis Project – Land Cover Descriptions*. RS/GIS Laboratory, College of Natural Resources, Utah State University.

2005b *Southwest Regional GAP Analysis Project – Land Form Descriptions*. RS/GIS Laboratory, College of Natural Resources, Utah State University.

White III, William A., Su Benaron, Mary M. Praciunas, and Cannon S. Daughtrey

2012 *A Cultural Resources Inventory of Approximately 41 miles for the TEP Pinal-Tortolita 500-KV Transmission Line, Pinal County, Arizona*. WestLand Resources, Inc., Tucson, Arizona.

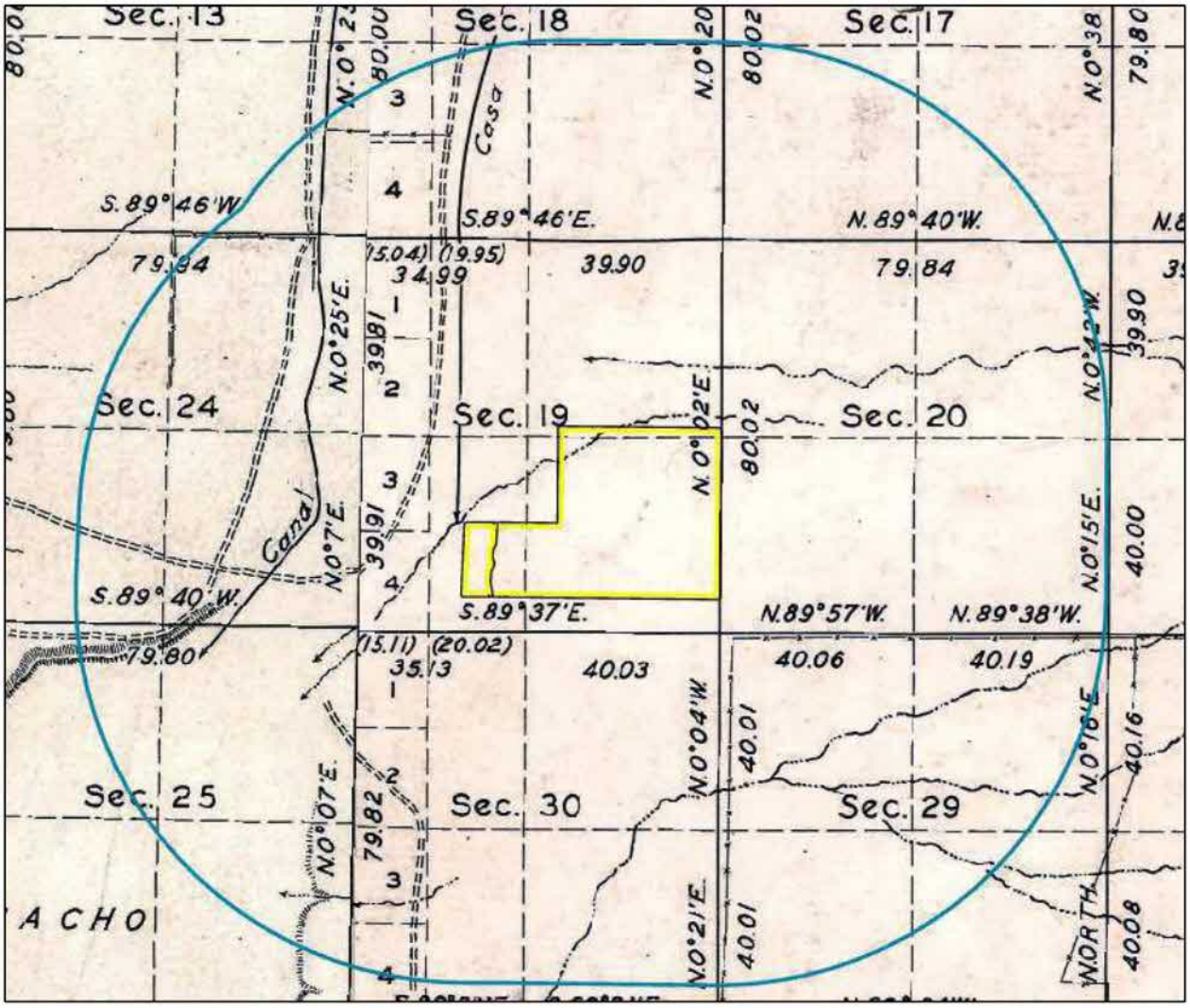



**Figure 2. Portions of 1928-1929 GLO plats of T6S, R9E and T6S, R8E; project areas yellow, review area blue.**

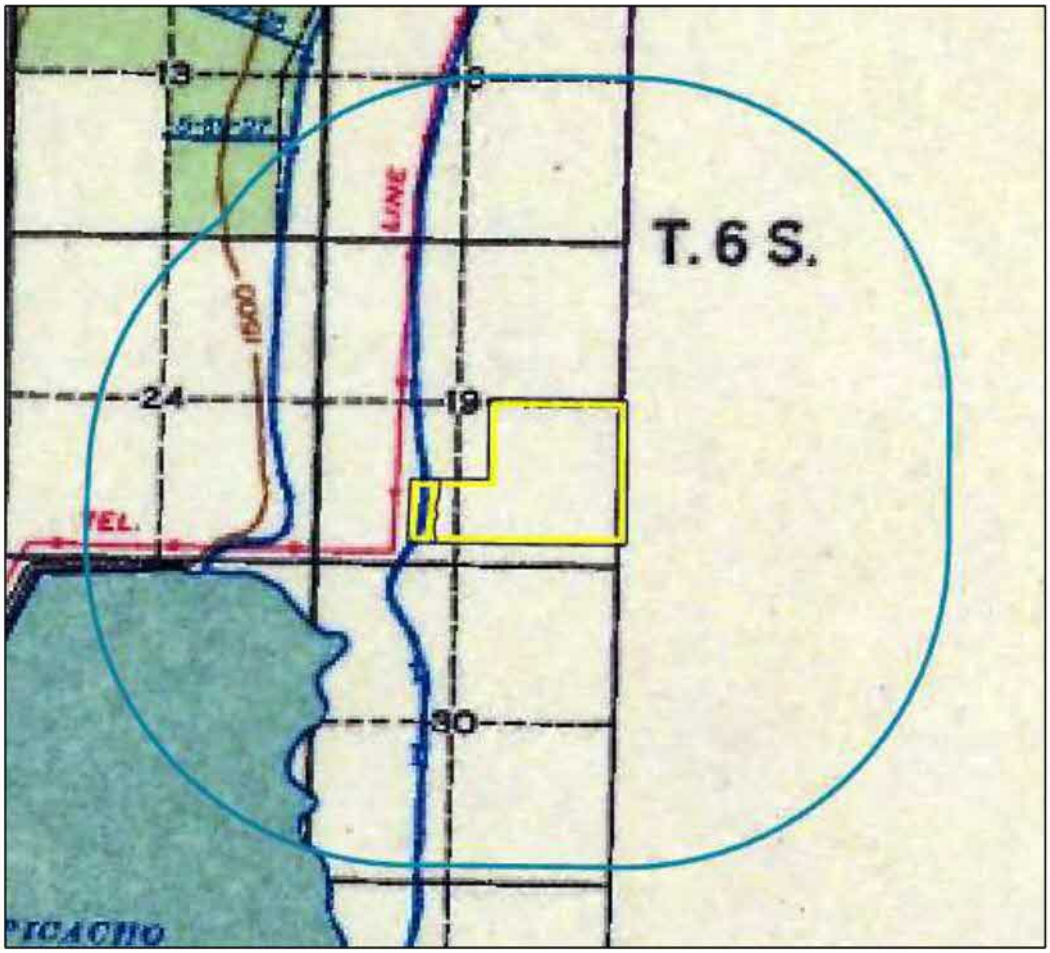



**Figure 3. Portion of 1940s BIA San Carlos Irrigation Project map.**



**Figure 5. Representative photo of project area facing northeast.**

# EXHIBIT E-2
# TRIBAL CORRESPONDENCE

| Tribe | Original Letter NO Enclosure | Original Letter w/ Enclosure | Copy of Original Letter w/ Enclosure | Email Original Letter NO Enclosures | Email Original Letter W/ Enclosures | Email Copy of Original Letter W/ Enclosure | Notes |
|---|---|---|---|---|---|---|---|
| **Ak-Chin Indian Community** | | | Cultural Resources Program<br>Ak-Chin Indian Community<br>42507 W. Peters & Nall Road<br>Maricopa, AZ 85138 | Mr. Gabriel Lopez,<br>Chairman<br>Ak-Chin Indian Community<br>GLopez2@ak-chin.nsn.us | | Ms. Elaine F. Peters, Director<br>Cultural Resources Program, Ak-Chin Indian Community<br>epeters@ak-chin.nsn.us Ms. Reylynne Williams, Tribal Historic Preservation Officer<br>Reylynne.Williams@gric.nsn.us; and Linda Morgan, M.A., Director, GRIC-CRMP<br>Linda.Morgan@gric.nsn.us | |
| **Gila River Indian Community** | | | | | | | A cover letter addressed to the GRIC Governor: Stephen Roe Lewis, Governor |
| **Hopi Tribe** | | | Stewart Koyiyumptewa<br>Tribal Historic Preservation Officer<br>Hopi Tribe Cultural Preservation Office<br>P.O. Box 123<br>Kykotsmovi, AZ 86039 | | Lamar Keevama,<br>Chairman<br>LaKeevama@hopi.nsn.us | | |
| **Mescalero Apache Tribe** | Duane Duffy<br>President<br>Mescalero Apache Tribe<br>P.O. Box 227<br>Mescalero, NM 88340 | | Ms. Holly Houghten<br>Tribal Historic Preservation Officer<br>Mescalero Apache Tribe<br>P.O. Box 227<br>Mescalero, NM 88340 | | | | |
| **Pascua Yaqui Tribe** | Mr. Julian Hernandez<br>Chairman<br>Pascua Yaqui Tribe<br>7474 S. Camino de Oeste<br>Tucson, AZ 85746 | | Dr. Karl A. Hoerig<br>Tribal Historic Preservation Officer<br>Pascua Yaqui Tribe<br>5100 W. Calle Tetakusim, Room 130<br>Tucson, AZ 85757 | | | | |
| **Pueblo of Zuni** | Mr. Arden Kucate<br>Governor<br>Pueblo of Zuni<br>P. O. Box 339<br>Zuni, NM 87327 | | | | | Mr. Kurt Dongoske<br>Director, Tribal Historic Preservation Officer<br>Pueblo of Zuni<br>kdongoske@gmail.com<br>Shane.Anton@srpmic-nsn.gov<br>Angela.garcia-lewis@srpmic-ns.gov | |
| **Salt River Pima-Maricopa Indian Community** | | | | | | Martha.Martinez@srpmic-nsn.gov<br>Sunday.Eiselt@srpmic-nsn.gov<br>April.Lewis@srpmic-nsn.gov | cover letter addressed to:<br>President Martin Harvier<br>10005 E Osborn Road<br>Scottsdale, AZ 85256 |
| **Tohono O'Odham Nation** | | | | | Richard Saunders,<br>Director, Natural Resources<br>Richard.Saunders@tonation-nsn.gov<br>&<br>Eric Verwys, Assistant Director, Natural Resources.<br>Eric.Verwys@tonation-nsn.gov. | | |
| **Tonto Apache Tribe** | | Mr. Calvin Johnson, Chairman<br>Tonto Apache Tribe<br>Tonto Apache Reservation #30<br>Payson, AZ 85541 | Ms. Jeri De Cota<br>Cultural & NAGPRA Representative<br>Tonto Apache Tribe<br>Tonto Apache Reservation #30 | | | | |
| **White Mountain Apache** | [redacted]<br>White Mountain Apache Tribe<br>P.O. Box 700<br>Whiteriver, AZ 85941 | | [redacted]<br>Tribal Historic Preservation Officer<br>White Mountain Apache Tribe | | | | |
| **Yavapai-Apache Nation** | | | | | Mr. Buddy Rocha, Jr.,<br>Chairman<br>Yavapai-Apache Nation<br>brochajr@yan-tribe.org | Marley Jaun, mjuan@yan-tribe.org Barbara McCabe, bmccabe@yan-tribe.org Olivia McMahon, omcmahon@yan-tribe.org | |

kp environmental

September 16, 2026

Gabriel Lopez
Chairman
Ak-Chin Indian Community
42507 W. Peters & Nall Road
Maricopa, AZ 85138

RE: Steele Energy Center
Tribal Consultation for the Certificate of Environmental Compatibility

The Steele Energy Center is a proposed up to 1950 megawatt (MW) natural gas-fired generation power plant located in central Pinal County southeast of Coolidge and east of Casa Grande and encompasses approximately 135 acres of undeveloped land.

The Steele Energy Center is being developed to help meet growing electricity demand and support the reliability and stability of the local and regional power system, which is facing increasing strain from unprecedented load growth, more frequent extreme weather events, and the continued expansion of intermittent renewable energy resources.

The Arizona Corporation Commission (ACC) requires that Steele Energy Center, LLC obtain a Certificate of Environmental Compatibility (CEC) for this Project because it includes a thermal generation plant. Consulting parties for this Project are the Arizona State Historic Preservation Officer, Ak-Chin Indian Community, Gila River Indian Community, Hopi Tribe, Mescalero Apache Tribe, Pascua Yaqui Tribe, Pueblo of Zuni, Salt River Pima- Maricopa Indian Community, Tohono O'odham Nation, Tonto Apache Tribe, White Mountain Apache Tribe and Yavapai Apache Nation.

**Legal Description and UTM**

A privately owned parcel of land situated in Township 6 South, Range 9 East, Section 19 Gila and Salt River Meridian, Pinal County, Arizona.

The Project Locator UTM is as follows: Zone 12N, 457,753 m East, 3,638,442 m North.

Steele Energy Center, LLC has retained KP Environmental, Inc., to assist with the preparation of a CEC for the Project. They also retained Agave Archeology, to conduct a Class I records review and a Class III archaeological survey. Agave Archaeology prepared a Cultural Resource Survey to summarize previously conducted cultural resource projects and known cultural resources within the Project study area as part of the CEC Application package. A copy of the Cultural Resource Survey is enclosed for your review and comment. All cultural resource locational information, including maps, will be redacted from any copies of the document available to the general public. The Class I and Class III surveys can be provided upon request. The following table shows a summary of previous investigations:

| Project No. | Project Name | Consultant | Reference |
|---|---|---|---|
| 1999-443.ASM | Hohokam Bridge Canal Survey | Tierra ROW | (Fratt 1999) |
| 2012-363.ASM | TEP Pinal Central to Tortolita Survey | WestLand Resources, Inc. | (White III et al. 2012) |

The following table provides identification of previously recorded cultural resources within the Project Area:

| Resource Name | Description | Cultural/Temporal Affiliation | NRHP Status | Reference |
|---|---|---|---|---|
| AZ AA:3:116(ASM) | Artifact scatter | Hohokam Colonial-Sedentary Period | Eligible (d) | (White III et al. 2012) |
| Florence Casa Grande Canal, AZ AA:3:215(ASM) | Florence-Casa Grande Canal | Euro-American AD 1880s – 1930s | Contributor to district and eligible (a,c) individually | (Pfaff 1994, 1996) |

We are inquiring whether you have any concerns regarding cultural resources as well as any sites of traditional, religious, cultural, or historical importance to your community within the Project vicinity. Steele Energy Center, LLC will be filing their CEC Application on October 15, 2026, and has scheduled public hearings associated with the CEC Application starting November 30, 2026. I would greatly appreciate your comments prior to October 15, 2025. Please provide comments to my attention, using the details below:

Kenda Pollio
KP Environmental Inc.
280 Melba Encinitas, CA 92024
kpollio@kpenvironmental.com

Your correspondence will be included as part of the Project record that is filed with the ACC. If you have any further questions or would like to discuss this document, please do not hesitate to contact me by email or by telephone at 602.909.2636. To learn more about this project, visit steele.energy.

Respectfully,



Kenda Pollio, Principal
602.909.2636
kpollio@kpenvironmental.com
www.kpenvironmental.net

CC: Cultural Resources Program, Ms. Elaine F. Peters and Ms. Tracy Wind with enclosures

| | |
|---|---|
| **From:** | Eiselt, Sunday |
| **To:** | Gabriella Glener; Anton, Shane; Angela.garcia-lewis@srpmic-ns.gov; Martinez, Martha |
| **Subject:** | Re: Steele Energy Center Tribal Consultation |
| **Date:** | Monday, September 21, 2026 8:52:23 AM |
| **Attachments:** | Outlook-fx5lltfk.png<br>Outlook-hy3e0m4h.png |

---

**[External]**

Good morning the SRPMIC THPO defers to the GRIC THPO as lead in the consultation process for this project.

B. Sunday Eiselt, Ph.D
THPO Archaeologist
on behalf of Shane Anton, THPO
Cultural Resources Department
Salt River Pima-Maricopa Indian Community
1635 N. Longmore Rd
Scottsdale, AZ 85256
Sunday.Eiselt@srpmic-nsn.gov
Office: (480) 362 3347

# White Mountain Apache Tribe

**Office of Historic Preservation**
**PO Box 1032**
**Fort Apache, AZ 85926**
**Ph: (928) 338-3033 Fax: (928) 338-6055**


**To:** Kenda Pollio, Principal, **kp** environmental

**Date:** October 09, 2026

**Re:** *Steele Energy Center Cultural Heritage Resources Report*

The White Mountain Apache Tribe Historic Preservation Office appreciates receiving information on the project dated; *September 16, 2026.* In regard to this, please refer to the following statement(s) below;

Thank you for allowing the White Mountain Apache tribe the opportunity to review and respond to above cultural heritage resource report for the proposed 1950 megawatt natural gas-fired generation power plant project, located in central Pinal County southeast of Coolidge and east of Casa Grande and encompasses approximately 135 acres, Arizona.

Please be advised, after careful consideration, we have determined the cultural heritage resource report will have a ***"No Adverse Effect"*** to the White Mountain Apache tribe's cultural heritage resources or historic properties. We concur report determination.

Thank you for the continued tribal engagement and consultation, and collaborations in protecting and preserving places of cultural and historical importance.

Sincerely,

Mark Altaha

White Mountain Apache Tribe
Trial Historic Preservation Officer

# EXHIBIT F
# RECREATIONAL PURPOSES AND ASPECTS

In accordance with Arizona Administrative Code R14-7-119, the Applicant provides the following information:

*State the extent, if any, the proposed site or route will be available to the public for recreational purposes, consistent with safety considerations and regulations, and attach any plans the Applicant may have concerning the development of the recreational aspects of the proposed site or route.*

## Existing Conditions

Regional recreation information near the proposed Steele Energy Center (SEC or Project) and for the region and surrounding areas was gathered from Pinal County.

Regionally, Pinal County has a diverse geography which offers a multitude of recreational opportunities. The terrain within the county ranges from the mountains in the east, with views at elevation up to 6,000 feet to primarily low valleys in the west, filled with desert vegetation. Within the large area encompassed by Pinal County, there are five State Parks, four Wilderness Areas, three National Monuments, two National Forests, a National Scenic Trail, approximately 60 miles of regional non-motorized multi-use trails, and several neighborhood/community parks associated with various mountain ranges such as the Superstition Mountains, Table Top Mountain, and the Palo Verde Mountains.

Recreational areas within, or just outside a one-mile buffer of the Project, shown in **Figure F-1**, are described below.

The Central Arizona Project (CAP) canal system and the CAP national recreation trail is located approximately 1,000 feet east of the Project site. The section closest to the Project site is currently under construction. The trail is mostly unpaved and flat, and can be used for gravel biking, walking, running, and horseback riding. The trail will extend to over 100 miles in Pinal County and 336 miles in Arizona when fully completed.

A proposed regional multi-use trail corridor, supported by Pinal County's Comprehensive Plan, is located south of the southern boundary of the Project, as shown on **Figure F-1** in purple.

There is an existing/planned multi-use trail corridor approximately 0.75 miles north of the Project site, as shown on **Figure F-1** in green. Additionally, an adopted county trail corridor, that parallels the CAP Canal east of the Project, is depicted on **Figure F-1** in yellow.

A Pinal County Proposed Open Space intersects the southeast corner of the Project site and extends both south and east of the Project. The Pinal County Comprehensive Plan Document (Pinal, 2019) says that proposed open space areas were created to protect and connect natural and cultural resources, such as riparian and mountainous areas, wildlife movement corridors, and bajadas and buffer areas.

A Pinal County Proposed Regional Park is proposed approximately 0.7 miles southeast of the Project. As discussed in the Pinal County Open Space and Trails Master Plan (Pinal, 2007) the proposed park may provide more passive-oriented recreational opportunities that would conserve the natural resources within this area while allowing users to experience the natural environment. The Applicant will comply with the County's requirements for the planned trails, proposed open space, and proposed regional park and will continue coordination throughout construction.

The Picacho Reservoir, approximately one mile southwest of the Project, has a historical recreational use of fishing, hiking and birdwatching. In recent years there have been significant changes to the Reservoir, inhibiting recreational activities. Access points are now fenced and prohibit public use, and the Reservoir itself is mostly dry. The Reservoir has ceased to be a major public attraction for recreational use.

Located on North Wheeler Road, approximately 2,000 feet west of the Project site, is K Nine Birddog Brittanys, which breeds and trains dogs on site for hunting and competition. Approximately 3,000 feet northwest of the Project site is Desert Pheasant Recreation, a licensed shooting preserve for the hunting of Pheasant and Chukar. Both facilities include multiple buildings, dog kennels, and outdoor space.

Approximately 3.2 miles northeast of the Project site is the Coolidge Municipal Airport. Complete Parachute Solutions is an onsite business, which provides tactical training, basic military free-fall courses, and parachute technologies. Complete Parachute Solutions includes a classroom, storage room, large aircraft approved runways, and a military approved drop zone.

## Potential Effects

The Project site will not be available for public recreation purposes, but it will not preclude recreational use in the surrounding area.

The Applicant will work with Pinal County through entitlements and throughout the development of the Project to remain consistent with the County's Comprehensive Plan (Pinal County, 2019) and Open Space and Recreation Area Designation guidelines.

## References

Central Arizona Project. 2026. CAP Trail. Accessed 9/10/2026 Located at: https://www.cap-az.com/about/cap-trail/

Complete Parachute Solutions. 2026. Accessed 9/9/2026. Located at: https://www.cpsworld.com

Desert Pheasant Recreation. 2025. Accessed 9/7/2026. Located at: https://www.pheasantrec.com

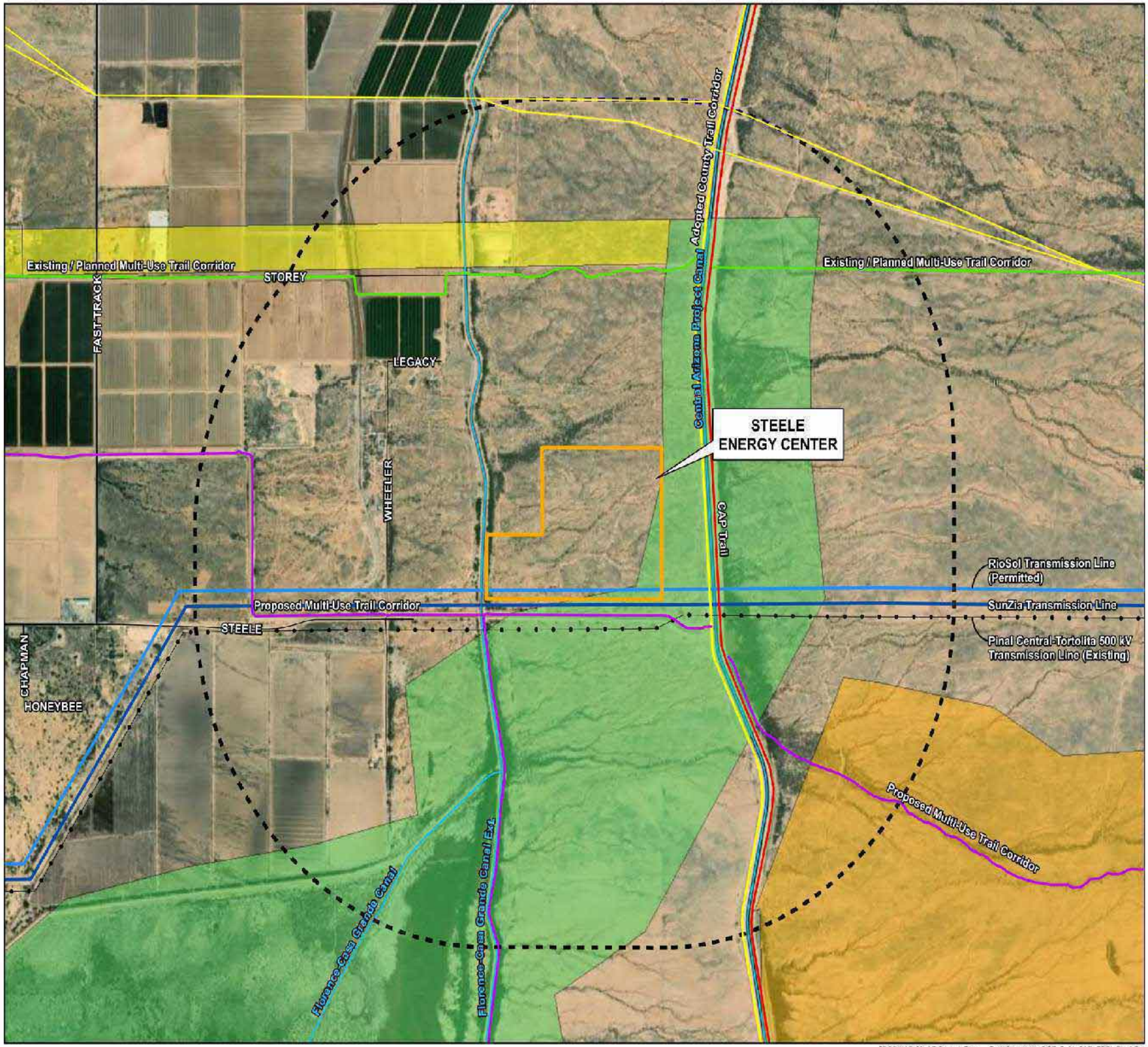
Google Earth Pro. 2026. Ariel imagery. Accessed September 2026

K Nine Birddog Brittanys. 2025. Accessed 9/7/2026. Located at: https://www.kninebirddog.com

Pinal County. 2026. CAP National Recreation Trail. Accessed 9/7/2026. Located at: https://www.pinal.gov/1099/CAP-National-Recreation-Trail

Pinal County. 2026. Open Space Trails and Regional Parks. Accessed 9/7/2026. Located at: https://www.pinal.gov/658/Open-Space-Trails-Regional-Parks

Pinal County. 2023. Open Space and Trails Map. Accessed 9/7/2026. Located at: https://explore.pinal.gov/DocumentCenter/View/7116/Open-Space-and-Trails-Map---Updated-2023-with-Notes-PDF




**Legend**

**CEC Jurisdictional Project Components**

- Proposed Steele Energy Center Boundary
- 1-Mile Buffer of Steele Energy Center

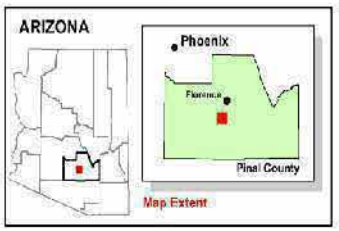
**Recreation**

- CAP Trail
- Adopted County Trail Corridor
- Existing / Planned Multi-Use Trail Corridor
- Proposed Multi-Use Trail Corridor
- Existing Open Space
- Proposed Open Space
- Proposed Regional Park

**General Features**

- Existing Transmission Line
- SunZia Transmission Line
- Permitted RioSol Transmission Line
- Natural Gas Pipeline
- Road
- Major Canal

0 500 1,000 1,500 2,000
Feet




**STEELE ENERGY CENTER**

*FIGURE F-1*
*RECREATION*

Map Extent: Pinal County, AZ

Date: 9.28.26 | Author: SJW

SPCS: NAD 83, AZ Central, Foc... Data Sources: ADOT, B.J.M. CAP, ESRI, Pinal Co., SRP... D:\Projects\SteeleEC\Maps\Figure F-1 Recreation 1 Mile 091626

# EXHIBIT G
# CONCEPTS OF TYPICAL FACILITIES

In accordance with Arizona Administrative Code R14-7-119, the Applicant provides the following information:

*Attach any artist's or architect's conception of the proposed plant or transmission line structures and switchyards which applicant believes may be informative to the committee.*

The following drawings are included:

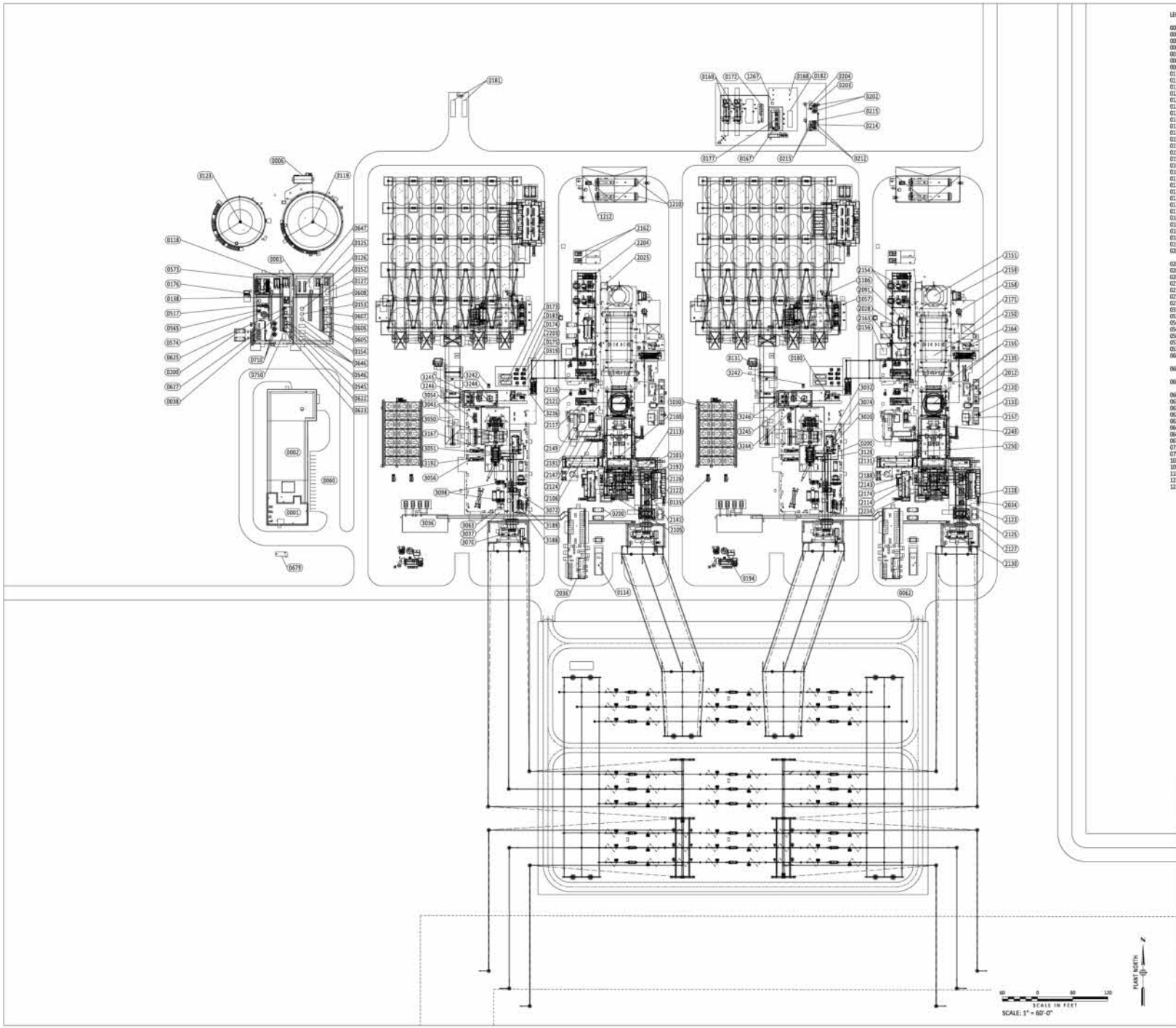
**Figure G-1:** Plot Plan

**Figure G-2:** Site Plan

**Figure G-3:** Aerial Rendering

# Figure G-1

Plot Plan



LEGEND:

0001 ADMINISTRATION AND WAREHOUSE BUILDING
0002 CONTROL BUILDING
0003 WATER TREATMENT BUILDING
0006 FIRE WATER PUMP ENCLOSURE
0038 WATER TREATMENT ELECTRICAL ENCLOSURE
0060 PARKING AREA
0062 ROADWAY
0114 EMERGENCY DIESEL GENERATOR
0118 DEMIN WATER PUMPS
0119 DEMIN WATER STORAGE TANK
0123 SERVICE WATER/FIREWATER STORAGE TANK
0125 SERVICE WATER PUMPS
0126 ULTRAFILTRATION BACKWASH PUMP
0127 ULTRAFILTRATION CIP SKID (CLEAN-IN-PLACE)
0131 WASTE WATER COLLECTION SUMP
0135 CLOSED COOLING WATER PUMPS
0138 POTABLE WATER TEMPERING SKID
0152 POTABLE WATER STORAGE TANK
0153 ULTRAFILTRATION CIP TANK (CLEAN-IN-PLACE)
0154 ULTRAFILTRATION FILTRATE TANK
0156 TOWER CRANE
0168 FUEL GAS METERING AREA
0169 FUEL GAS DEW POINT HEATER
0172 FUEL GAS REGULATING SKID
0173 AIR COMPRESSORS
0174 DESICCANT AIR DRYER
0175 DRY AIR RECEIVERS
0176 DESICCANT AIR DRYER
0177 FUEL GAS FILTER/SEPARATOR SKID
0180 TRIM COOLER
0181 HYDROGEN STORAGE TRAILERS
0182 FUEL GAS CHROMATOGRAPH
0183 AIR COMPRESSORS
0194 AUXILIARY BOILER
0200 PAD MOUNTED TRANSFORMER (M/I POWER BLOCK AREA)
0202 LIQUID NITROGEN STORAGE TANK
0203 NITROGEN VAPORIZATION SKID
0204 NITROGEN REGULATOR SKID
0212 CARBON DIOXIDE STORAGE TANK
0213 CARBON DIOXIDE TANK VAPORIZATION SKID
0214 CARBON DIOXIDE VAPORIZATION SKID
0215 CARBON DIOXIDE REGULATOR SKID
0517 WET AIR RECEIVER (SC-CT)
0517 CLEAN-IN-PLACE (CIP) SKID
0545 CAUSTIC STORAGE TANK
0546 CAUSTIC METERING PUMPS
0565 RO PERMEATE FORWARDING PUMP SKID
0573 RO SKID
0574 RO PERMEATE STORAGE TANK
0605 ULTRAFILTRATION SODIUM HYPO SKID AND TOTE
0606 ULTRAFILTRATION CITRIC ACID SKID AND TOTE
0607 ULTRAFILTRATION SODIUM HYDROXIDE SKID AND TOTE
0608 ULTRAFILTRATION AIR RECEIVER
0622 SODIUM HYPOCHLORITE TOTES
0623 SODIUM HYPOCHLORITE PUMPS
0625 ANTI-SCALANT PUMPS
0627 ANTI-SCALANT TOTES
0646 ULTRAFILTRATION SKID
0647 POTABLE WATER TREATMENT SKID
0679 UNDERGROUND SANITARY HOLDING TANK
0710 SERVICE DEIONIZATION SYSTEM
0750 ELECTRODEIONIZATION SYSTEM
1050 AIR COOLED HEAT EXCHANGER
1057 CONDENSATE PUMPS
1186 CONDENSATE DEAERATOR RECEIVER TANK
1210 AMMONIA STORAGE TANK
1212 AMMONIA FORWARDING PUMPS
1250 WET COMPRESSION SKID (OPTIONAL)
1267 FUEL GAS DRAINS TANK
2012 OIL/WATER SEPARATOR (CC-CT)
2025 ELEVATOR
2028 HRSG ELECTRICAL ENCLOSURE
2034 LCI COOLER (CC-CT)
2091 CLOSED COOLING WATER HEAD TANK
2100 COMBUSTION TURBINE (CC)
2101 COMBUSTION TURBINE GENERATOR (CC)
2105 AIR INLET FILTER (CC-CT)
2106 FUEL GAS SCRUBBER (CC-CT)
2113 LUBE OIL MODULE (ACCESSORY MODULE) (CC-CT)
2114 PACKAGED ELECTRICAL ELECTRONIC CONTROL CENTER (PEECC)
2116 FUEL GAS ABSOLUTE SEPARATOR (CC-CT)
2117 FUEL GAS PERFORMANCE HEATER (CC-CT)
2121 FUEL GAS DRAINS TANK
2122 LCI AND EXCITATION COMPARTMENT (CC-CTG)
2123 DC LINK REACTOR (CC-CT)
2124 WATER MIST SKID
2125 ISOLATION TRANSFORMER (CC-CTG)
2126 EXCITATION TRANSFORMER (CC-CTG)
2127 GENERATOR BREAKER (CC-CTG)
2128 ISO PHASE BUS DUCT (CC-CTG)
2130 STEP-UP TRANSFORMER (CC-CTG)
2131 BATTERY COMPARTMENT (CC-CTG)
2133 WATER WASH DRAINS TANK (CC-CTG)
2135 WATER WASH SKID (CC-CT)
2141 AC LINK REACTOR (CC-CT)
2143 HYDROGEN GAS DRYER (CC-CTG)
2147 FUEL GAS STARTUP HEATER (ELECTRICAL)
2149 SAMPLE PANEL
2150 HRSG
2151 HRSG STACK
2154 BOILER FEEDWATER PUMPS
2155 DUCT BURNER FUEL SKID
2155 BURNER BLOWER SKID (CC-CTG)
2157 COOLING FAN MODULE
2158 BLOWDOWN TANK
2159 BLOWDOWN TANK DRAIN SUMP AND PUMPS
2162 HRSG LP RECIRCULATION PUMPS
2163 CONTINUOUS EMISSIONS MONITORING SYSTEMS BUILDING (CEMS)
2164 AMMONIA VAPORIZING SKID (CC-CT)
2171 HRSG EQUIPMENT REMOVAL AREA
2174 EVAPORATIVE COOLER SKID (CC-CT)
2188 EVAPORATIVE COOLER WATER TANK (CC-CT)
2191 SAMPLE PANEL FP VALVE HOUSE
2192 SEAL OIL DRAIN ENLARGMENT (CC-CTG)
2203 PIPE RACK
2204 FINGER RACE
2234 PULSE AIR RECEIVER (CC-CT)
2249 HDAS HEAT EXCHANGER (CC-CT)
3020 STG HYDROGEN GAS DRYER
3032 HYDROGEN CONTROL SYSTEM (CC-STC)
3036 MEDIUM VOLTAGE PDC
3037 UNIT AUX TRANSFORMER
3043 AIR COOLED CONDENSER DUCT
3050 STEAM TURBINE
3051 STEAM TURBINE GENERATOR (STG)
3054 GLAND STEAM CONDENSER (CC-ST)
3056 LIQUID RING VACUUM PUMP
3063 STG EXCITATION TRANSFORMER
3070 STEP-UP TRANSFORMER (CC-STC)
3072 CIRCUIT BREAKER (CC-STG)
3074 LUBE OIL MODULE
3098 CLOSED COOLING WATER PUMPS (CC-STC)
3128 ISO PHASE BUS DUCT (CC-STC)
3167 BEARING DRAIN ENGLARGEMENT, STG
3188 STEAM TURBINE DCS ROOM
3189 STEAM TURBINE ELECTRICAL ROOM
3192 SEAL OIL DRAIN ENLARGEMENT (CC-STC)
3236 PIPE RACK STAIR TOWER (CC)
3242 STEAM TURBINE DRAINS TANK PIT SUMP PUMPS SKID
3244 HP DRAINS TANK
3245 LP DRAINS TANK
3246 LP DRAINS TANK PUMPS

SCALE: 1" = 60'-0"

PLANT NORTH

- PRELIMINARY -
NOT FOR CONSTRUCTION

| REV | | | |
|---|---|---|---|
| B | PRELIMINARY | | |
| | T. RIGGERSTAFF | E. VANZOMMEVELD | OPEN |
| A | PRELIMINARY | | |
| | A. SCHANNUTH | E. VANZOMMEVELD | 04-09-26 |
| REV | DESIGN BY | CHECKED BY | DATE |

STEELE ENERGY CENTER, LLC
STEELE ENERGY CENTER TWO (2) - 1X1 CC

Kiewit

SouthWestern POWER GROUP

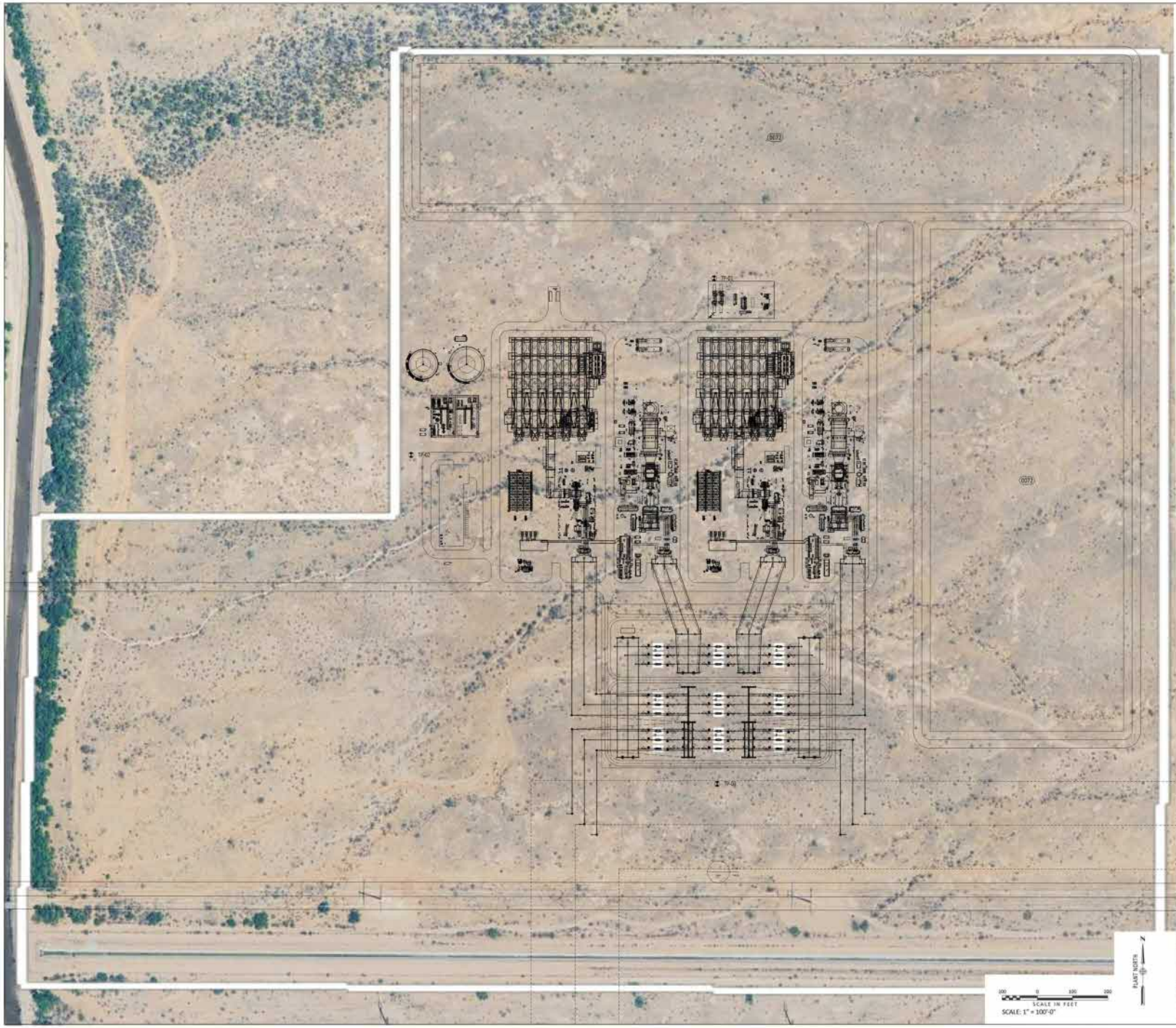
PLOT PLAN

| | |
|---|---|
| ENGINEER/DESIGN ORGANIZATION | A. SCHANNUTH |
| LEAD ENG | S. HERBERT |
| ENG MGR | J. NASH |
| PROJ MGR | J. NASH |

DRAWING NUMBER
P0063750-PP-001

# Figure G-2

Site Plan




| TIE-IN LOCATIONS | |
|---|---|
| TP-01 | FUEL GAS TIE IN |
| TP-02 | WELL WATER TIE IN |
| TP-03 | 500 kV SWITCHYARD TO IKOSOL TRANSMISSION LINE |

LEGEND:

0072 EVAPORATION PONDS

NOTES:

1. NORTH EVAPORATION POND 400' X 2000' (18.4 ACRES).
2. EAST EVAPORATION POND 550' X 1425' (18 ACRES).

- PRELIMINARY -
NOT FOR CONSTRUCTION

| REV | DESIGN BY | CHECKED BY | DATE |
|---|---|---|---|
| B | PRELIMINARY | | |
| | T. BIDDERSTAFF | E. VAN ZONNEVELD | OPEN |
| A | PRELIMINARY | | |
| | A. SCHARNUTH | E. VAN ZONNEVELD | 04-09-26 |

STEELE ENERGY CENTER, LLC
STEELE ENERGY CENTER TWO (2) - 1X1 CC

Kiewit

SouthWestern POWER GROUP

SITE PLAN

| ORIGINATOR/DESIGN ORIGINATOR | A. SCHARNUTH |
|---|---|
| LEAD ENG | E. VAN ZONNEVELD |
| ENG MGR | A. TORRES |
| PROJ MGR | A. TORRES |

DRAWING NUMBER: P0063750-SP-001

# Figure G-3

Aerial Rendering



# Steele Energy Center

Birdseye View Looking North - Proposed View

Visual Environments
WWW.VISENV.COM

7/13/26

# EXHIBIT H
# EXISTING PLANS

In accordance with Arizona Administrative Code R14-7-119, the Applicant provides the following information:

*To the extent applicant is able to determine, state the existing plans of the state, local government, and private entities for other developments at or in the vicinity of the proposed site or route.*

## Planned Area Developments

Information regarding each existing Planned Area Development (PAD) near the proposed Steele Energy Center Project (SEC or Project) was gathered during meetings with Pinal County and meetings with developers and stakeholders. PADs and future expansion plans in the area surrounding the Project components are administered by Pinal County and the City of Coolidge. Included in this exhibit are PADs that are generally defined as proposed developments that have filed an application for a permit or have been permitted but not built or occupied completely.

There is one PAD within the one-mile buffer of the Project, as depicted on **Figure H-1**.

Heritage Arizona – The Estates, and Heritage Arizona – District H are located approximately 0.4 miles northwest of the Project. This PAD was identified through Maricopa Association of Governments (MAG) data sets. Heritage is approximately 11,438 acres of large scale residential and community development proposed in the City of Coolidge. There are different "planning areas" within this proposed PAD. The Estates is associated with large residential lots and big floor plans, and District H is the shopping, dining and entertainment district accompanied by high and low-density housing. The Applicant has reached out to the landowner to make them aware of our Project.

Valley Farms Energy Center is a proposed 400-megawatt battery storage facility on 68.77 acres of land. The PAD is approximately 3.9 miles from the Project site. Clark Pacific Concrete Plant is a manufacturer of concrete building components on 160 acres of land. The PAD is approximately 5.8 miles away from the Project site.

The Coolidge Generating Station is currently adding 575 megawatts of new power generation produced by 12 gas turbines to the existing station. The first six turbines are expected to be completed by Summer 2026, and the second six by Summer 2027. The Station is approximately 3.5 miles from the Project Site.

## Planned Road Improvements

There are no road improvements planned by the Arizona Department of Transportation (ADOT) within the 1-mile buffer of the Project.

There are no road improvements planned by the Pinal County five-year (2024-2029) Transportation Improvement and Maintenance Program (TIMP) within the 1-mile buffer of the Project.

There are no road improvements planned by the City of Coolidge Road Closures and Maintenance document within the 1-mile buffer of the Project.

## Potential Effects

Heritage Arizona is the only proposed PAD within one-mile of the Project. There is no evidence of development occurring on this Project or active work associated with the development. The Applicant has reached out to the landowner. There are no other PADs or planned road improvements in the one-mile buffer of the Project components, so there are no potential effects of the Project to developing PADs.

## References

City of Coolidge. 2026. Roadwork. Accessed 9/10/2026 located at: https://www.coolidgeaz.com/roadwork

Maricopa Association of Governments. 2026. Located at: https://azmag.gov/Programs/Maps-and-Data

Pinal County. 2025. Five-Year Transportation Improvement and Maintenance Program PDF. Accessed 9/10/2026. Located at: https://www.pinal.gov/DocumentCenter/View/7768/Five-Year-Plan-PDF?bidId=

Pinal County. 2026. Five-year Transportation Improvement and Maintenance Program. Accessed 9/10/2026. Located at: https://www.pinal.gov/DocumentCenter/View/23738/DRAFT-2026-TIMP?bidId=

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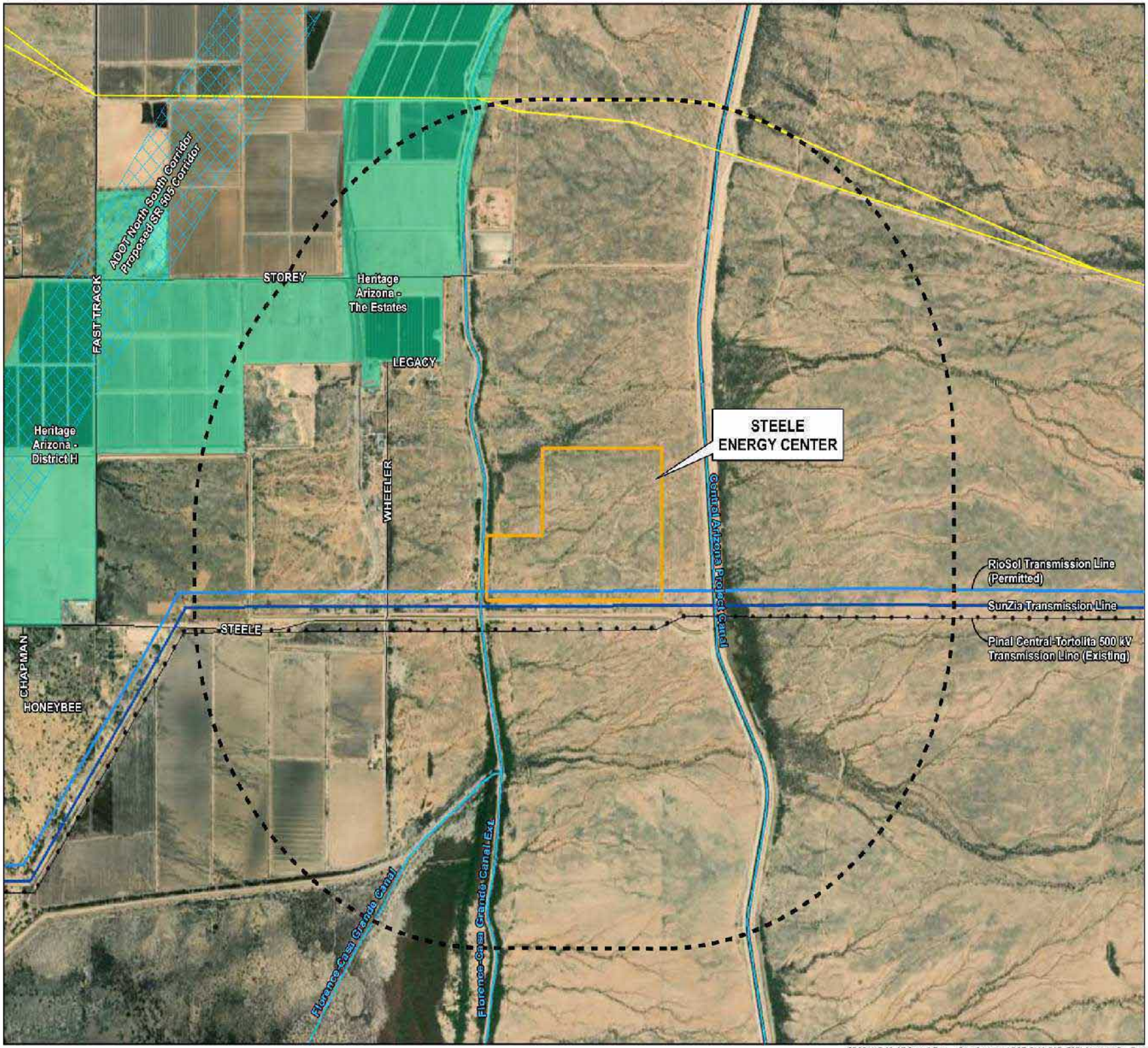
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**Legend**

**CEC Jurisdictional Project Components**

- Proposed Steele Energy Center Boundary
- 1-Mile Buffer of Steele Energy Center

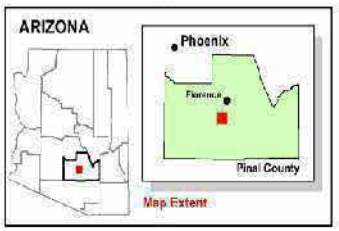
**Planned Area Developments**

- Proposed SR 505 Corridor
- Proposed Planned Area Development

**General Features**

- Existing Transmission Line
- SunZia Transmission Line
- Permitted RioSol Transmission Line
- Natural Gas Pipeline
- Road
- Major Canal

0 500 1,000 1,500 2,000
Feet




**STEELE ENERGY CENTER**

*FIGURE H-1*
*PLANNED AREA DEVELOPMENTS*

Map Extent: Pinal County, AZ

Date: 9.28.26 | Author: SJW

SPCS NAD 83 AZ Central, Feet. Data Sources: ADOT, BLM, CAP, ESRI, Maricopa Co., Pinal Co., SRP. D:\Projects\SteeleEC\Maps\Figure H-1 PADs-1 Mile 091626

# EXHIBIT I
# NOISE EMISSIONS AND COMMUNICATION INTERFERENCE

In accordance with Arizona Administrative Code R14-7-119, the Applicant provides the following information:

*Describe the anticipated noise emission levels and any interference with communication signals which will emanate from the proposed facilities.*

## Introduction

A noise study was conducted to determine the potential noise impacts that would result from construction and operation of the proposed Steele Energy Center (SEC or Project). This noise study includes any potential operational noise impacts associated with the Project. The analysis was conducted to determine whether facility operations would follow applicable Pinal County noise standards and whether Project-generated noise would result in a substantial increase over existing ambient conditions at nearby residences.

This noise study provides background information on environmental sound, including descriptions of the sound metrics used throughout the report, applicable noise standards and regulations, the results of the ambient sound measurement program, and an assessment of the potential noise impacts from development and operation. Interference with communication signals is also evaluated.

## Existing Conditions

The Project site is located in central Pinal County, an area characterized predominantly by vacant desert, irrigated agricultural land, and scattered low-density rural residential development. Surrounding uses include agricultural land served by the San Carlos Irrigation Project canal system, undeveloped desert, and utility-scale solar generation facilities located several miles to the west. The Hohokam Main Canal runs east to west immediately south of the Project site.

To establish the existing noise conditions in the Project area, a long-term (24-hour) ambient noise measurement was conducted at one location (NM1) between June 11 and June 12, 2026, at the southwestern corner of the Project site. A single monitoring location was selected because the Project site and its immediate surroundings are undeveloped, and the nearest noise-sensitive receptors are located west and northwest of the Project site as described below, where ambient conditions are consistent with those measured at the Project site. The measurement was intended to capture a full day-night cycle and reflect potential variations in noise levels due to land uses in the surrounding area.

Noise sensitive receptors in the Project area consist of scattered rural residential uses located west and northwest of the Project site and accessed from North Wheeler Road. A review of Pinal County Assessor parcel records identified no noise-sensitive receptors east of the Project site. All identified receptor parcels are located in unincorporated Pinal County and are zoned GR (General Rural), which falls within the Rural land use classification of the Pinal County Excessive Noise

Ordinance. The incorporated limits of the City of Coolidge lie in the vicinity but do not include any of the receptor parcels. There were two receptor locations identified for purposes of this analysis.

Receptor 1 (R1) is the rural residential use at 774 North Wheeler Road located approximately 1,860 feet west of the Project site boundary. The approximately 5.97-acre parcel is zoned GR and is classified by the Pinal County Assessor as residential. The parcel is improved and supports a canine training and bird dog kennel operation.

Receptor 2 (R2) is the rural residential use at 9815 East Legacy lane located approximately 2,450 feet north west of the Project site boundary. The approximately five-acre parcel is zoned GR and is classified by the Pinal County Assessor as residential. The parcel is improved with a single-family dwelling. R2 is located approximately 740 feet east of the Desert Pheasant Recreation, a licensed shooting preserve at 1030 North Wheeler Road.

Activities at the shooting preserve included guided and unguided upland bird hunting for pheasant and chukar, together with dog training and related operations. Hunting activity produces intermittent shotgun discharge, which generates short-duration maximum noise levels substantially higher than the continuous levels associated with the proposed Project, although such events are of very short duration and occur seasonally.

Noise levels were recorded using a calibrated, industry-standard sound level meter capable of continuously logging sound over a 24-hour period. Results were processed to calculate average noise levels during the daytime period (7:00 AM to 9:00 PM) and nighttime period (9:00 PM to 7:00 AM). In addition, the Day-Night Average Sound Level (Ldn) was calculated for the monitoring location. Ldn provides a single number descriptor of the overall 24-hour noise environment and includes a 10-dBA penalty applied to nighttime noise levels to account for the increased sensitivity to noise during typical sleeping hours.

The ambient noise environment in the Project area reflects the rural and low-density character of the surrounding region. NM1, located at the southwestern corner of the Project site adjacent to the Hohokam Main Canal, resulted in daytime averages of 45.2 dBA, nighttime averages of 42.8 dBA, and a 24-hour Ldn of 49.6 dBA. The noise environment at this location is influenced primarily by intermittent vehicle traffic on nearby unpaved roadways, seasonal agricultural activity to the west, and natural sources including wind and wildlife. Additional intermittent contributions are associated with canine training and shooting preserve facilities located along North Wheeler Road west and northwest of the monitoring location described above, including dog activity and intermittent firearm discharge associated with hunting preserve operations, and with aircraft overflights associated with Coolidge Municipal Airport, an active general aviation facility located approximately four miles to the north-northeast.

The complete noise technical report for the Project, titled *Operational Noise Study - Steele Energy Center Project* and dated October 2026, is included as **Exhibit I-1.**

## Noise Impacts from Proposed Project

Noise levels resulting from construction and operation of the Project were evaluated with respect to noise guidelines and policies as established by Pinal County, Arizona, and federal agencies. No federal laws, regulations, or standards that directly affect this Project with respect to noise were identified. However, there are guidelines at the federal level that direct the consideration of a broad range of noise issues. For example, the U.S. Environmental Protection Agency (EPA) has published a guideline that specifically addresses issues of community noise (EPA 1974). This guideline commonly referred to as the "levels document," recommends a threshold for noise levels affecting residential land use of Ldn <55 dBA for exterior levels. Additionally, the Department of Housing and Urban Developments Noise Guidebook, Chapter 2. Section 5l.lOl(a)(8), proposes that exterior areas of frequent human use follow the EPAs 55 Ldn threshold. However, the same Section indicates that a noise level of 65 dBA Ldn could be considered acceptable (HUD 2009).

Pursuant to Section 9.0(I) of the Pinal County Excessive Noise Ordinance (Ordinance No. 050306-ENO, as amended by Ordinance No. 031611-ENO-01), “power plant equipment during normal operation” is expressly exempt from the sound level thresholds established by that ordinance. The proposed power generation facility, when operating as designed, is not subject to those thresholds. The thresholds are described below for reference only, and acoustic modeling is provided in this study to quantify operational sound levels notwithstanding the exemption.

The Pinal County Excessive Noise Ordinance applies to all unincorporated areas of the County and establishes sound level thresholds based on land use zoning. It is intended to protect public health and welfare by prohibiting excessive noise, defined as sound that exceeds thresholds specified in Section 6.0 of the ordinance.

These thresholds are enforced through measurement at the property line of the property generating the noise using A-weighted sound levels (dBA) over a two-minute equivalent sound level (Leq) period. The thresholds vary by zoning designation and time of day. The Project site is currently zoned GR. Under PCDSC 2.150.010(c), a power plant is not exempt from zoning regulation and must be located within an appropriate zoning district or obtain a special use permit. Power plants are a permitted use in the I-3 Industrial zoning district under PCDSC 2.340.020(J). The industrial sound level thresholds established by the ordinance are 70 dBA (7:00 AM to 10:00 PM) and 65 dBA (10:00 PM to 7:00 AM). As stated above, these thresholds do not apply to Project operation and are presented for reference only as shown in **Table I-1.**

**Table I-1. Limiting Sound Levels for Land Use Districts**

| **Zoning District Classifications** | **Leq Limits, dBA** |
|---|---|
| Residential: CR-1A, CR-1, CR-2, CR-3, CR-4, CR-5, OS, MH, RV, MHP, PM/RVP, TR | 60 dBA (7 a.m.-8 p.m.)<br>55 dBA (8 p.m. – 7 a.m.) |
| Commercial or Business: CB-1, CB-2 | 65 dBA (7 a.m. – 10 p.m.) |

| | |
|---|---|
| | 60 dBA (10 p.m. – 7 a.m.) |
| Industrial: CI-B, CI-1, CI-2 | 70 dBA (7 a.m. – 10 p.m.)<br>65 dBA (10 p.m. – 7 a.m.) |
| Rural: CAR, SR, SR-1, SH, GR, GR-5, GR-10 | 65 dBA (7 a.m. – 9 p.m.)<br>60 dBA (9 p.m. – 7 a.m.) |
| Source: Pinal County (2011)<br>Note: The Leq limits specified are Leq for a two-minute lime interval. Partial Leq levels may be obtained as necessary to assure an accurate indication of the representative sound environment for the site.<br>Sound projected from property within one zoning district into property within another zoning district of a lesser sound level limit shall not exceed such lesser sound level limit. | |

The parcels surrounding the Project site are zoned as General Rural (GR).

## Construction

The Pinal County ordinance does not limit noise from construction, but does limit the allowed operation times for construction to occur to the following:

- Concrete Work - 5:00 a.m. to 7:00 p.m. from April 15 to October 15 and 6:00 a.m. to 7:00 p.m. from October 16 to April 14.
- Other Types of Construction - 6:00 a.m. to 7:00 p.m. from April 15 to October 15 and 7:00 a.m. to 7:00 p.m. from October 16 to April 14.
- Construction and repair work in non-residential areas. not within 500 feet of a residential property, shall not begin prior to 5:00 a.m. and must stop by 7:00 p.m. or at such other times as authorized by permit.
- Weekends and Holidays Excluded - Construction or repair work shall be limited to 7:00 a.m. to 7:00 p.m. and concrete pouring shall be limited to 6:00 a.m. to 7:00 p.m.

Construction outside the time periods specified above is allowed if an appropriate permit has been obtained beforehand from the county.

Typical construction activities at the Project site would result in a transient increase in the ambient noise level resulting from the operation of construction equipment, as the construction of the Project is expected to occur over a three-year timeframe. The increase in noise level would be proportional to the distance to the noise source. The extent of the noise effects would depend on the type of construction activity, duration of the construction activity, and the distance between the noise source and receiver. It is anticipated that construction activities would take place primarily during daylight hours (dawn to dusk) up to six days a week (Monday-Saturday).

## Operations

To determine the potential noise impact from the expected operation of the proposed Project, detailed noise modeling was conducted. **Exhibit I-l** provides detailed information on the inputs used to populate the refined model.

Operational noise levels related to the proposed Project were calculated with the noise model SoundPLAN, a commercially available software that produces computer simulations of noise propagation from sources. The SoundPLAN modeling software accounts for large differences in topography, and the presence of intervening structures or landscaping that would block a direct line of sight between operation activities from the proposed Project site and nearby sensitive receptors. The operational noise levels were calculated for sensitive-receptor locations using SoundPLAN.

The assumptions utilized in the noise report for operational noise levels associated with the proposed Project are described in detail in **Exhibit I-1**. For modeling purposes, the noise source was assumed to occupy the entire designated thermal generation area. A composite sound power level of 100 dBA was assigned to the modeled area source to represent cumulative operational noise under full load conditions. This approach assumes that noise generating equipment is distributed throughout the site and operating simultaneously, providing a conservative representation of long-term operational conditions in the absence of finalized equipment layouts.

Sound level thresholds established by the Pinal County Excessive Noise Ordinance are measured at the property line of the property generating the noise. Modeled Project-related noise levels at the Project property line would be 59.0 dBA during both daytime and nighttime hours. Combined with measured ambient levels, total exterior noise levels at the property line would be 59.2 dBA during daytime hours and 59.1 dBA during nighttime hours, or 10.8 dBA and 5.9 dBA below the industrial sound level thresholds of 70 dBA (7:00 AM to 10:00 PM) and 65 dBA (10:00 PM to 7:00 AM), respectively. The Project would therefore remain below the referenced thresholds at the point at which those thresholds are measured, notwithstanding the Section 9.0(I) exemption for power plant equipment during normal operation.

At Receptor 1 (R1), the rural residential use at 774 North Wheeler Road located approximately 1,860 feet west of the Project Site boundary, modeled noise levels from the proposed Project would be 48.9 dBA during both daytime and nighttime hours. Combined with measured ambient levels, total exterior noise levels would be 50.4 dBA during daytime hours and 49.9 dBA during nighttime hours, or 19.6 dBA and 15.1 dBA below the general rural sound level thresholds of 65 dBA and 60 dBA, respectively.

At Receptor 2 (R2), the rural residential use at 9815 East Legacy Lane located approximately 2,450 feet northwest of the Project Site boundary, modeled noise levels from the proposed Project would be 44.8 dBA during both daytime and nighttime hours. Combined with measured ambient levels, total exterior noise levels would be 48.0 dBA during daytime hours and 46.9 dBA during nighttime hours, or 22.0 dBA and 18.1 dBA below the general rural sound level thresholds of 65 dBA and 60 dBA, respectively.

Based on this comparison, modeled noise levels at the nearest sensitive receptors remain below the County's daytime limit and nighttime limit for the Rural zoning district. The measured ambient environment in the Project area is characteristic of an undeveloped rural area, with a nighttime

average of 42.8 dBA. In environments with low existing ambient levels, the introduction of any continuous source produces a comparatively larger relative increase than the same source would produce in a more developed setting, even where resulting absolute levels remain low. A change of 3 dBA is generally regarded in acoustical practice as the approximate threshold of perceptibility for a change in a steady sound, and a change of 5 dBA as a readily perceptible change. The nighttime increase of 4.1 dBA would therefore be perceptible at the nearest receptor, while the daytime increase of 2.8 dBA would fall at or below the approximate threshold of perceptibility. In both periods, total exterior noise levels would remain well below the levels at which the county has determined noise becomes excessive.

Because total exterior noise levels attributable to the proposed Project would remain below the applicable Pinal County daytime and nighttime limiting sound levels at the nearest identified sensitive receptor, and because power plant equipment during normal operation is exempt from those limits, operational noise impacts associated with the Project would not be considered significant.

## Communication Interference

The Project operation does not impact radio communications. While the Project does have high voltage gen-tie transmission lines connecting to the new 500 kilovolt (kV) switchyard, which is not the subject of this Application, they do not materially impact radio communications.

## Conclusions

Predicted Project construction noise levels may temporarily exceed 65 dBA, but activities causing these temporary elevated noise levels will operate during allowable construction process hours as presented in Section 050306-ENO of the Pinal County Municipal Ordinance or will seek a permit, if necessary.

The noise impact assessment indicated that noise generated by the Project would be below the applicable Pinal County Industrial zoning designation at the site boundary and General Rural zoning designation at the receptors. Additionally, though not applicable to the Project, predicted noise levels at all property boundaries will adhere to the Pinal County Excessive Noise Ordinance. No objectionable noise and/or interference with radio signals is anticipated from the proposed Project.

## References

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# EXHIBIT I-1
# OPERATIONAL NOISE STUDY

# OPERATIONAL NOISE STUDY

## Steele Energy Center Project

**APNs 400-01-009C and 400-01-009D**
**Section 19, Township 6 South, Range 9 East**
**Unincorporated Pinal County, Arizona**

**KP Environmental**


**Prepared By:**

Christ Kirikian, M.S., INCE Associate – OM, Managing Consultant

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**October 2026**


R260514.0036

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## APPENDICES


1.0 Noise Monitoring Worksheets
2.0 SoundPLAN Output Sheets

# 1. EXECUTIVE SUMMARY

This report presents the results of an *Operational Noise Study* prepared for the proposed Steele Energy Center Project located in the unincorporated area of Pinal County, Arizona. The Project Site is situated approximately 18 miles east of Casa Grande and eight miles southeast of the City of Coolidge. The site is currently undeveloped and characterized by vacant desert land, with surrounding uses consisting of vacant desert, irrigated agricultural land, and scattered low-density rural residential development. The Project Site is zoned GR (General Rural).

The Project buildout would consist of two natural gas-fired combined cycle power blocks, an air-cooled condenser, and an on-site electrical substation. Each power block would comprise one combustion turbine (CT) exhausting to one heat recovery steam generator (HRSG) with an integral duct burner, and one steam turbine (ST), arranged in a 1x1 configuration, for a maximum gross power design rating of approximately 1,452 megawatts (MW). The Project would also include generator step-up transformers, an auxiliary boiler, boiler feed pumps, an emergency diesel generator, and a diesel-driven fire pump.

To establish the existing noise environment, a long-term 24-hour ambient noise measurement was conducted at one location. Noise monitoring location 1 (NM1) is located at the southwestern corner of the Project Site, adjacent to the Hohokam Main Canal, in an undeveloped rural setting. Measured ambient noise levels at NM1 were 45.2 A-weighted decibels (dBA) during daytime hours and 42.8 dBA during nighttime hours, with a 24-hour day-night average sound level (Ldn) of 49.6 dBA. These levels are characteristic of an undeveloped rural area with no substantial existing noise sources in the immediate vicinity.

Noise-sensitive receptors in the Project vicinity consist of scattered rural residential uses located west and northwest of the Project Site, all of which are located in unincorporated Pinal County and zoned GR (General Rural). Two receptor locations were evaluated. Receptor 1 (R1) is the rural residential use at 774 North Wheeler Road, approximately 1,860 feet west of the Project Site boundary. Receptor 2 (R2) is the rural residential use at 9815 East Legacy Lane, approximately 2,450 feet northwest of the Project Site boundary. No noise-sensitive receptors were identified east of the Project Site.

Pursuant to Section 9.0(I) of the Pinal County Excessive Noise Ordinance (Ordinance No. 050306-ENO, as amended by Ordinance No. 031611-ENO-01), power plant equipment during normal operation is exempt from the sound level thresholds established by that ordinance. The Project is therefore not subject to those thresholds. For reference only, the ordinance establishes industrial sound level thresholds of 70 dBA from 7:00 AM to 10:00 PM and 65 dBA from 10:00 PM to 7:00 AM, which would apply to the Project Site zoned to an industrial classification. These thresholds are enforced by measurement at the property line of the property generating the noise.

Operational noise levels were modeled using SoundPLAN noise modeling software under worst-case conditions, representing simultaneous full-load operation of all project equipment. As shown in **Table 3: Modeled Exterior Noise Levels from Operational Sources**, in **Section 6: Impact Analysis**, total exterior noise levels at the Project property line would be 59.2 dBA during daytime hours and 59.1 dBA during nighttime hours, or 10.8 dBA and 5.9 dBA below the referenced thresholds. At R1, total exterior noise levels would be 50.4 dBA during daytime hours and 49.9 dBA during nighttime hours, or 19.6 dBA and 15.1 dBA below the referenced thresholds. At R2, total exterior noise levels would be 48.0 dBA during daytime hours and 46.9 dBA during nighttime hours, or 22.0 dBA and 18.1 dBA below the referenced thresholds.

The ordinance establishes absolute sound level thresholds and does not establish a criterion based on increase over existing ambient conditions. Project-related noise levels would remain below the industrial sound level thresholds referenced for comparison at the Project property line and at both identified noise-sensitive receptors, and power plant equipment during normal operation is in any event exempt from those thresholds under Section 9.0(I). Operational noise impacts associated with the Project would therefore be less than significant during both daytime and nighttime periods.

# 2. PROJECT DESCRIPTION

The Steele Energy Center (Project) site is on privately owned land in unincorporated Pinal County, Arizona, approximately 18 miles east of Casa Grande and 8 miles southeast of the City of Coolidge (refer to **Figure 1: Project Site Location**). Land uses in the vicinity are a mix of undeveloped Sonoran Desert scrub and irrigated agriculture served by the San Carlos Irrigation Project canal system. The Hohokam Main Canal runs east to west immediately south of the southern site boundary. Coolidge Municipal Airport lies approximately 4 miles to the north-northeast, and Picacho Reservoir lies approximately 4 miles to the southwest. Several utility-scale solar generating facilities operate several miles to the west near State Route 287 and Interstate 10.

The Project would consist of two GE Vernova 7HA.03 combined cycle gas turbine (CCGT) power blocks (refer to **Figure 2: Proposed Project Plot Plan**). Each power block would include one combustion turbine (CT) exhausting into one heat recovery steam generator (HRSG) equipped with one integral duct burner (DB) for supplementary steam production. Steam produced by each HRSG would be routed to one steam turbine (ST), augmenting cycle power production. Each CCGT unit would also be capable of operating in simple cycle mode, allowing CT operation independent of steam cycle availability. The CT and ST in each power block would be arranged in a 1x1 configuration. The maximum gross power design rating for the two power blocks would total approximately 1,452 megawatts (MW).

The Project would also include an air-cooled condenser, generator step-up transformers, an auxiliary boiler, boiler feed pumps, an emergency diesel generator, a diesel-driven fire pump, and an on-site electrical substation. This analysis evaluates the Project at full load.



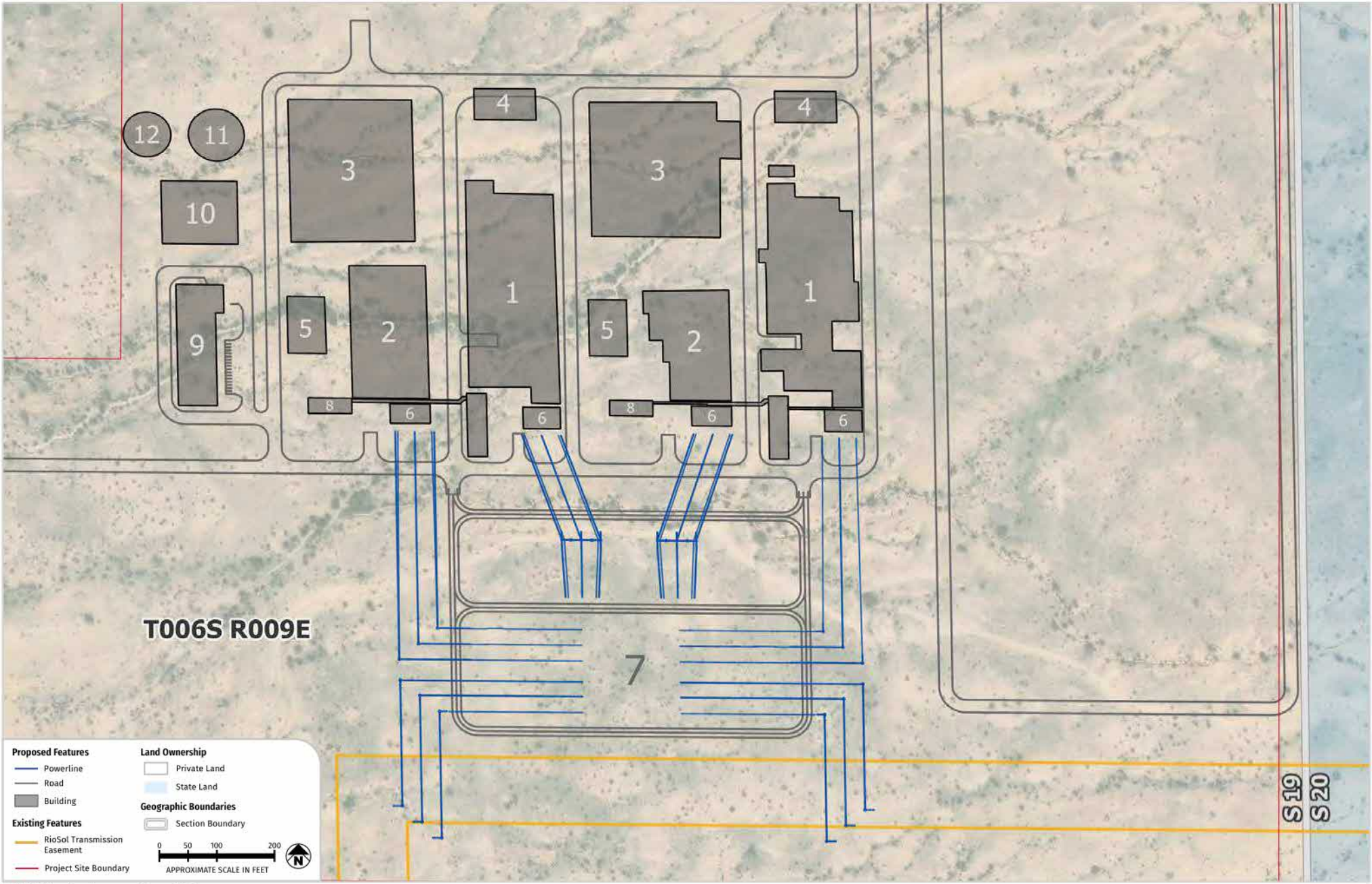

SOURCE: Google Earth - 2026.

FIGURE 1

Trinity Consultants

Meridian

**Project Site Location**




**SOURCE:** Percheron – June 2026.

**FIGURE 2**

Trinity Consultants | Meridian

## Proposed Project Plot Plan

# 3. EXISTING CONDITIONS

The Project Site is located in central Pinal County, an area characterized predominantly by vacant desert, irrigated agricultural land, and scattered low-density rural residential development. Surrounding uses include agricultural land served by the San Carlos Irrigation Project canal system, undeveloped desert, and utility-scale solar generation facilities located several miles to the west. The Hohokam Main Canal runs east to west immediately south of the Project Site.

To establish the existing noise environment in the Project area, a long-term (24-hour) ambient noise measurement was conducted at one (1) location (refer to **Figure 3: Noise Measurement Location**) between June 11 and June 12, 2026, at the southwestern corner of the Project Site. A single monitoring location was selected because the Project Site and its immediate surroundings are undeveloped, and the nearest noise-sensitive receptors are located west and northwest of the Project Site as described below, where ambient conditions are consistent with those measured at the Project Site. The measurement was intended to capture a full day-night cycle and reflect potential variations in noise levels due to land uses in the surrounding area.

Noise sensitive receptors in the Project vicinity consist of scattered rural residential uses located west and northwest of the Project Site and accessed from North Wheeler Road. A review of Pinal County Assessor parcel records identified no noise-sensitive receptors east of the Project site. All identified receptor parcels are located in unincorporated Pinal County and are zoned GR (General Rural), which falls within the Rural land use classification of the Pinal County Excessive Noise Ordinance. The incorporated limits of the City of Coolidge lie in the vicinity but do not include any of the receptor parcels. Two receptor locations were identified for purposes of this analysis are shown on **Figure 3**.

Receptor 1 (R1) is the rural residential use at 774 North Wheeler Road (Assessor's Parcel Number 401-38-006F), located approximately 1,860 feet west of the Project site boundary. The approximately 5.97-acre parcel is zoned GR (General Rural) and is classified by the Pinal County Assessor as residential. The parcel is improved and supports a canine training and bird dog kennel operation.

Receptor 2 (R2) is the rural residential use at 9815 East Legacy lane (Assessor's Parcel Number 400-01-008H), located approximately 2,450 feet north west of the Project Site boundary. The approximately five-acre parcel is zoned GR (General Rural) and is classified by the Pinal County Assessor as residential. The parcel is improved with a single-family dwelling. R2 is located approximately 740 feet east of the Desert Pheasant Recreation, a licensed shooting preserve at 1030 North Wheeler Road.

Activities at the shooting preserve included guided and unguided upland bird hunting for pheasant and chukar, together with dog training and related operations. Hunting activity produces intermittent shotgun discharge, which generates short-duration maximum noise levels substantially higher than the continuous levels associated with the proposed Project, although such events are of very short duration and occur seasonally.

Noise levels were recorded using a calibrated, industry-standard sound level meter capable of continuously logging sound over a 24-hour period. Results were processed to calculate average noise levels during the daytime period (7:00 AM to 9:00 PM) and nighttime period (9:00 PM to 7:00 AM). In addition, the Day-Night Average Sound Level (Ldn) was calculated for the monitoring location. Ldn provides a single number descriptor of the overall 24-hour noise environment and includes a 10-dBA penalty applied to nighttime noise levels to account for the increased sensitivity to noise during typical sleeping hours.

**Table 1: Ambient Noise Measurements** provides the measured average ambient noise levels by time period and 24-hour Ldn. Aircraft overflights, although intermittent, were included in the calculated averages in **Table 1** to reflect typical ambient conditions experienced at each monitoring location. The ambient noise environment in the Project area reflects the rural and low-density character of the surrounding region. NM1, located at the southwestern corner of the Project Site adjacent to the Hohokam Main Canal, resulted in daytime averages of 45.2 dBA, nighttime averages of 42.8 dBA, and a 24-hour Ldn of 49.6 dBA as shown in **Table 1**. The noise environment at this location is influenced primarily by intermittent vehicle traffic on nearby unpaved roadways, seasonal agricultural activity to the west, and natural sources including wind and wildlife. Additional intermittent contributions are associated with canine training and shooting preserve facilities located along North Wheeler Road west and northwest of the monitoring location described above, including dog activity and intermittent firearm discharge associated with hunting preserve operations, and with aircraft overflights associated with Coolidge Municipal Airport, an active general aviation facility located approximately four miles to the north-northeast.

**Table 1: Ambient Noise Measurements**

| Location | Period | dBA, Leq |
|---|---|---|
| **NM1**: At the southwestern corner of the Project Site | Daytime (7:00 AM – 9:00 PM) | 45.2 |
| | Nighttime (9:00 PM – 7:00 AM) | 42.8 |
| | 24-hour Ldn | 49.6 |

Source: Refer to **Appendix 1.0: Noise Monitoring Worksheets**.
Notes: dBA = A-weighted decibels; Ldn = day-night average sound level; Leq = equivalent continuous sound level; NM1 = Noise Monitoring Location 1




SOURCE: Google Earth – 2026.

FIGURE 3

Trinity Consultants Meridian

Noise Measurement Location

# 4. APPLICABLE REGULATIONS

Pursuant to Section 9.0(I) of the Pinal County Excessive Noise Ordinance (Ordinance No. 050306-ENO, as amended by Ordinance No. 031611-ENO-01), "power plant equipment during normal operation" is expressly exempt from the sound level thresholds established by that ordinance. The proposed power generation facility, when operating as designed, is not subject to those thresholds. The thresholds are described below for reference only, and acoustic modeling is provided in this study to quantify operational sound levels notwithstanding the exemption.

The Pinal County Excessive Noise Ordinance applies to all unincorporated areas of the county and establishes sound level thresholds based on land use zoning. It is intended to protect public health and welfare by prohibiting excessive noise, defined as sound that exceeds thresholds specified in Section 6.0 of the ordinance.

These thresholds are enforced through measurement at the property line of the property generating the noise using A-weighted sound levels (dBA) over a two-minute equivalent sound level (Leq) period. The thresholds vary by zoning designation and time of day. **Table 2: Limiting Sound Levels for Land Use Districts** summarizes the applicable thresholds. The Project Site is currently zoned GR (General Rural). Under PCDSC 2.150.010(c), a power plant is not exempt from zoning regulation and must be located within an appropriate zoning district or obtain a special use permit. Power plants are a permitted use in the I-3 Industrial zoning district under PCDSC 2.340.020(J). The industrial sound level thresholds established by the ordinance are 70 dBA (7:00 AM to 10:00 PM) and 65 dBA (10:00 PM to 7:00 AM). As stated above, these thresholds do not apply to Project operation and are presented for reference only.

Pinal County Ordinance No. 050306-ENO regulates construction noise through the sound level thresholds of Section 6.0, which apply to construction activities under Section 8.0(A), and through restrictions on the hours during which construction may occur. Concrete work is permitted between 5:00 AM and 7:00 PM from April 15 through October 15 and between 6:00 AM and 7:00 PM from October 16 through April 14. Other construction activities in or within 500 feet of a residential property are permitted between 6:00 AM and 7:00 PM from April 15 through October 15 and between 7:00 AM and 7:00 PM from October 16 through April 14.

Construction and repair work located in nonresidential areas and more than 500 feet from residential property may commence as early as 5:00 AM and must cease by 7:00 PM, unless otherwise authorized by permit. On weekends and holidays, construction and repair activities are limited to the hours of 7:00 AM to 7:00 PM, while concrete pouring is limited to the hours of 6:00 AM to 7:00 PM. Construction activities occurring outside of these hours may be authorized by Pinal County through issuance of an appropriate permit.

**Table 2: Limiting Sound Levels for Land Use Districts**

| Zoning District Classification | Daytime Limit | Nighttime Limit |
|---|---|---|
| Residential (CR-1A, CR-1, CR-2, CR-3, CR-4, CR-5, OS, MH, RV, MHP, PM/RVP, TR) | 60 dBA (7:00 AM – 8:00 PM) | 55 dBA (8:00 PM – 7:00 AM) |
| Commercial or Business (CB-1, CB-2) | 65 dBA (7:00 AM – 10:00 PM) | 60 dBA (10:00 PM – 7:00 AM) |
| Industrial (CI-B, CI-1, CI-2) | 70 dBA (7:00 AM – 10:00 PM) | 65 dBA (10:00 PM – 7:00 AM) |
| Rural (CAR, SR, SR-1, SH, GR, GR-5, GR-10) | 65 dBA (7:00 AM – 9:00 PM) | 60 dBA (9:00 PM – 7:00 AM) |

Notes: dBA = A-weighted decibels.
Sound projected from property within one zoning district into property within another zoning district of a lesser sound level limit shall not exceed such lesser sound level limit. The industrial sound level thresholds shown are those established by Section 6.0(A), Table 1 of the ordinance for the industrial land use classification. The ordinance was adopted in 2006 and amended in 2011, and its district list reflects the industrial districts in effect at that time (CI-B, CI-1 and CI-2), which were retained under PCDSC 2.15.010. The I-3 Industrial zoning district was established under PCDSC 2.15.040 for properties zoned on or after February 18, 2012 and is the industrial district in which power plants are a permitted use. Thresholds are presented for reference only; power plant equipment during normal operation is exempt under Section 9.0(I).

## 5.1 AMBIENT NOISE MEASUREMENTS

Noise-level monitoring was conducted between June 11 and June 12, 2026, at one location within the Project vicinity, **as shown in Figure 3.** Noise-level monitoring was conducted for a 24-hour interval at each location using a Larson Davis Model 831 sound-level meter. This meter satisfies the American National Standards Institute (ANSI) standard for general environmental noise measurement instrumentation. The ANSI specifies several types of sound-level meters according to their precision. Types 1, 2, and 3 are referred to as "precision," "general-purpose," and "survey" meters, respectively. Most measurements carefully taken with a Type 1 sound-level meter will have a margin of error not exceeding 1 dB.

## 5.2 OPERATIONAL NOISE

Operational noise levels associated with the proposed Project were calculated using SoundPLAN, a commercially available noise modeling software that produces computer simulations of noise propagation from sources. SoundPLAN accounts for variations in topography and the presence of intervening structures that would affect sound propagation between the Project Site and nearby sensitive receptors.

To quantify noise levels associated with the proposed Project, the following assumptions were used.

### 5.2.1 Gas Turbine Package

Each combustion turbine package was modeled as a single source representing the complete package, using an aggregate A-weighted sound power level (LwA) of 113.3 decibels (dB). This value is the logarithmic sum of the manufacturer-supplied component sound power levels for the gas turbine compartment, generator, inlet plenum, exhaust diffuser, load compartment, lube oil module, compartment ventilation fans, and cooling fan module. All components of the package were assumed to operate concurrently and continuously at full load, which represents a conservative operating scenario.

### 5.2.2 HRSG Package

Each HRSG was modeled as two sources. Casing radiation, including inlet, body, and breakout noise, was modeled as an area source over the HRSG surfaces at a sound power level of 82.1 dB LwA. The stack exit was modeled as a point source at the stack outlet at a sound power level of 103 dB LwA, applying the manufacturer-specified 90-degree directivity. Intermittent sources associated with startup, shutdown, and steam blows, including safety relief valve discharge, were not included in the continuous operating scenario.

### 5.2.3 Air-Cooled Condenser

The air-cooled condenser (ACC) was modeled as an area source over the full ACC footprint at a sound power level of 100 dB LwA, assuming all fan cells are operating continuously at full speed.

### 5.2.4 Transmission Line

The generation tie line was modeled as a line source at a sound power level of 25 dB LwA. At this level, the transmission line is a negligible contributor to total Project noise and does not measurably affect modeled levels at the receptor.

### 5.2.5 Steam Turbine Package

Each steam turbine package was modeled as a single source representing the steam turbine and associated generator, using an aggregate sound power level of 113.3 dB LwA.

### 5.2.6 Auxiliary Equipment

The emergency diesel generators are used exclusively for emergency conditions and periodic readiness testing and are not expected to operate during routine conditions. For the purposes of this assessment, the emergency diesel generator was modeled at 105 dB LwA.

# 6. IMPACT ANALYSIS

Modeled exterior noise levels at sensitive receptor locations are presented in **Table 3**. For illustrative purposes, noise levels generated from the site are also shown graphically in **Figure 4: Operational Noise Level Contour Map (Proposed Project Plot Plan)**. **Table 3** compares modeled exterior noise levels from Project-related operational sources to the Pinal County industrial sound level thresholds referenced in Section 4 and to the existing ambient noise level averages measured at the monitoring location as documented in **Table 1**. Modeled levels are reported at three locations: the Project property line, at which the ordinance thresholds are measured, and the two identified noise-sensitive receptors described in Section 3.

Sound level thresholds established by the Pinal County Excessive Noise Ordinance are measured at the property line of the property generating the noise. As shown in Table 3, modeled Project-related noise levels at the Project property line would be 59.0 dBA during both daytime and nighttime hours. Combined with measured ambient levels, total exterior noise levels at the property line would be 59.2 dBA during daytime hours and 59.1 dBA during nighttime hours, or 10.8 dBA and 5.9 dBA below the industrial sound level thresholds of 70 dBA (7:00 AM to 10:00 PM) and 65 dBA (10:00 PM to 7:00 AM), respectively. The Project would therefore remain below the referenced thresholds at the point at which those thresholds are measured, notwithstanding the Section 9.0(I) exemption for power plant equipment during normal operation.

At Receptor 1 (R1), the rural residential use at 774 North Wheeler Road located approximately 1,860 feet west of the Project Site boundary, modeled noise levels from the proposed Project would be 48.9 dBA during both daytime and nighttime hours. Combined with measured ambient levels, total exterior noise levels would be 50.4 dBA during daytime hours and 49.9 dBA during nighttime hours, or 19.6 dBA and 15.1 dBA below the general rural sound level thresholds of 65 dBA and 60 dBA, respectively.

At Receptor 2 (R2), the rural residential use at 9815 East Legacy Lane located approximately 2,450 feet northwest of the Project Site boundary, modeled noise levels from the proposed Project would be 44.8 dBA during both daytime and nighttime hours. Combined with measured ambient levels, total exterior noise levels would be 48.0 dBA during daytime hours and 46.9 dBA during nighttime hours, or 22.0 dBA and 18.1 dBA below the general rural sound level thresholds of 65 dBA and 60 dBA, respectively.

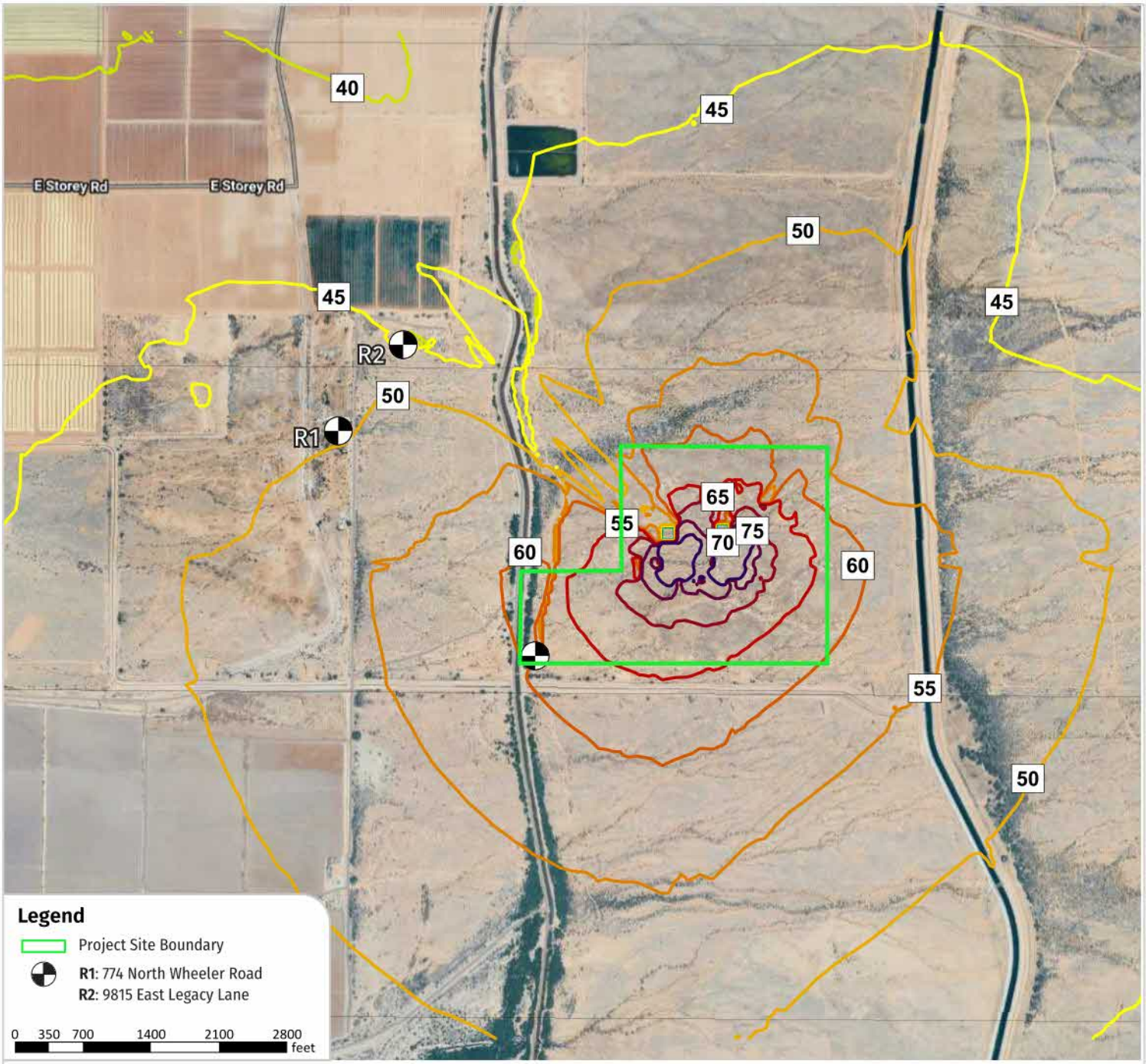
Project-related noise would be continuous and steady in character, without the intermittent or fluctuating quality of the existing sources that contribute to the measured ambient environment, which include vehicle traffic on nearby unpaved roadways, seasonal agricultural activity, canine training operations, and seasonal firearm discharge associated with the licensed shooting preserve located northwest of the Project Site.

Power plant equipment during normal operation is exempt from the Pinal County Excessive Noise Ordinance under Section 9.0(I). Project-related noise levels would nonetheless remain below the industrial sound level thresholds referenced for comparison at the Project property line and at both identified noise-sensitive receptors. Operational noise impacts associated with the Project would therefore be less than significant during both daytime and nighttime periods.

**Table 3: Modeled Exterior Noise Levels from Operational Sources**

| Receptor | Time Period | Measured Ambient (dBA Leq) | Modeled Project (dBA Leq) | Ambient plus Project (dBA Leq) | Pinal County Land Use Threshold (reference only) | Exceeds Standard? |
|---|---|---|---|---|---|---|
| | | dBA | | | | |
| Project Property Line | Daytime | 45.2 | 59.0 | 59.2 | 70 | No |
| | Nighttime | 42.8 | 59.0 | 59.1 | 65 | No |
| R1: 774 North Wheeler Road | Daytime | 45.2 | 48.9 | 50.4 | 65 | No |
| | Nighttime | 42.8 | 48.9 | 49.9 | 60 | No |
| R2: 9815 East Legacy Lane | Daytime | 45.2 | 44.8 | 48.0 | 65 | No |
| | Nighttime | 42.8 | 44.8 | 46.9 | 60 | No |

Source: Refer to **Appendix 2.0** for SoundPLAN Output Sheets.
Notes: dBA = A=weighted decibels; Leq = equivalent continuous sound level




Noise level
Leq
in dB(A)

| | |
|---|---|
| > 80 | 50 - 55 |
| 75 - 80 | 45 - 50 |
| 70 - 75 | 40 - 45 |
| 65 - 70 | 35 - 40 |
| 60 - 65 | 30 - 35 |
| 55 - 60 | <= 30 |

SOURCE: Meridian – 2026.

FIGURE 4

Trinity Consultants Meridian

**Operational Noise Level Contour Map (Proposed Project Plot Plan)**

# 7. CERTIFICATION

I certify that this *Operational Noise Study* was prepared by me or under my direct supervision and that the analysis presented herein represents my professional opinion regarding the existing noise environment and potential operational noise impacts associated with the proposed Steele Energy Center Project.

The analysis was conducted using standard methods and is based on the best available information at the time of preparation.

I certify that the statements and conclusions presented in this report are true and correct to the best of my knowledge.

If you have any questions regarding this analysis, please contact me directly at (818) 415-7274 or at ckirikian@meridianconsultantsllc.com.



**Christ Kirikian, INCE Associate**
***Managing Consultant (OM)***

# APPENDIX 1.0

Noise Monitoring Worksheets

**Monitoring Location: NM1**
**Date: June 11 - 12, 2026**

| Monitoring Period | | | Monitored Leq | Logarithmic Equivalent | Evening/Night Adjustments 10 dB | 5 dB |
|---|---|---|---|---|---|---|
| Midnight | | 0 / 24 | 41.0 | 12589 | 125893 | 39811 |
| am | 1:00 | 100 | 41.2 | 13183 | 131826 | 41687 |
| | 2:00 | 200 | 44.2 | 26303 | 263027 | 83176 |
| | 3:00 | 300 | 40.9 | 12303 | 123027 | 38905 |
| | 4:00 | 400 | 43.7 | 23442 | 234423 | 74131 |
| | 5:00 | 500 | 45.3 | 33884 | 338844 | 107152 |
| | 6:00 | 600 | 42.0 | 15849 | 158489 | 50119 |
| | 7:00 | 700 | 42.0 | 15849 | 158489 | 50119 |
| | 8:00 | 800 | 47.1 | 51286 | 512861 | 162181 |
| | 9:00 | 900 | 41.0 | 12589 | 125893 | 39811 |
| | 10:00 | 1000 | 41.6 | 14454 | 144544 | 45709 |
| | 11:00 | 1100 | 39.7 | 9333 | 93325 | 29512 |
| | 12:00 | 1200 | 43.5 | 22387 | 223872 | 70795 |
| pm | 1:00 | 1300 | 47.4 | 54954 | 549541 | 173780 |
| | 2:00 | 1400 | 40.5 | 11220 | 112202 | 35481 |
| | 3:00 | 1500 | 45.0 | 31623 | 316228 | 100000 |
| | 4:00 | 1600 | 45.3 | 33884 | 338844 | 107152 |
| | 5:00 | 1700 | 44.9 | 30903 | 309030 | 97724 |
| | 6:00 | 1800 | 44.4 | 27542 | 275423 | 87096 |
| | 7:00 | 1900 | 51.3 | 134896 | 1348963 | 426580 |
| | 8:00 | 2000 | 40.5 | 11220 | 112202 | 35481 |
| | 9:00 | 2100 | 42.4 | 17378 | 173780 | 54954 |
| | 10:00 | 2200 | 43.6 | 22909 | 229087 | 72444 |
| pm | 11:00 | 2300 | 41.2 | 13183 | 131826 | 41687 |

**Leq Morning Peak Hour 7:00-10:00 a.m.**
**44** dBA

**Leq Evening Peak Hour 7:00-10:00 p.m.**
**47.4** dBA

**Leq Nighttime 9:00 pm-7:00 a.m. (not adjusted)**
**42.8** dBA

**Leq Daytime 7:00 am-9:00 p.m.**
**45.2** dBA

**Leq 8-Hour**
**39.4** dBA

**Ldn: 10 dB adjustment between 10:00 p.m. & 7:00 a.m.**
**49.7** dBA

**CNEL: 5 dB adjustment between 7:00p.m. & 10:00 p.m., & 10 dB**
**50.3** dBA **adjustment between 10:00 p.m. & 7:00 a.m.**

**Difference between CNEL and Ldn**
CNEL - Ldn 0.64283394

# APPENDIX 2.0

SoundPLAN Output Sheets

| Source | Source group | Source type | Leq,d dB(A) | |
|---|---|---|---|---|
| Receiver Property Boundary Fl G Leq,d 59.0 dB(A) | | | | |
| Stack Exhaust | Default industrial noise | Point | 33.1 | |
| Stack Exhaust | Default industrial noise | Point | 31.0 | |
| Transmission Line | Default industrial noise | Line | -42.4 | |
| Transmission Line | Default industrial noise | Line | -44.0 | |
| Transmission Line | Default industrial noise | Line | -42.8 | |
| Transmission Line | Default industrial noise | Line | -43.8 | |
| Transmission Line | Default industrial noise | Line | -44.0 | |
| Transmission Line | Default industrial noise | Line | -44.2 | |
| Transmission Line | Default industrial noise | Line | -44.9 | |
| Transmission Line | Default industrial noise | Line | -45.0 | |
| Transmission Line | Default industrial noise | Line | -45.2 | |
| Transmission Line | Default industrial noise | Line | -42.7 | |
| Transmission Line | Default industrial noise | Line | -42.8 | |
| Transmission Line | Default industrial noise | Line | -43.0 | |
| Transmission Line | Default industrial noise | Line | -45.4 | |
| Transmission Line | Default industrial noise | Line | -45.5 | |
| Transmission Line | Default industrial noise | Line | -45.7 | |
| Transmission Line | Default industrial noise | Line | -43.9 | |
| Transmission Line | Default industrial noise | Line | -43.9 | |
| Transmission Line | Default industrial noise | Line | -43.9 | |
| Transmission Line | Default industrial noise | Line | -44.2 | |
| Transmission Line | Default industrial noise | Line | -44.3 | |
| Transmission Line | Default industrial noise | Line | -44.4 | |
| Transmission Line | Default industrial noise | Line | -44.0 | |
| Transmission Line | Default industrial noise | Line | -44.3 | |
| Transmission Line | Default industrial noise | Line | -45.9 | |
| Transmission Line | Default industrial noise | Line | -45.8 | |
| Industrial building, room 15-Roof 01 | Default industrial noise | Area | -72.3 | |
| Industrial building, room 15-Area source 01 | Default industrial noise | Area | 27.2 | |
| Industrial building, room 15-Roof 01 | Default industrial noise | Area | -77.0 | |
| Industrial building, room 15-Area source 01 | Default industrial noise | Area | 21.6 | |
| Air Cooled Heat Exchanger-Roof 01 | Default industrial noise | Area | -72.9 | |
| Air Cooled Heat Exchanger-Area source 01 | Default industrial noise | Area | 25.8 | |
| Air Cooled Heat Exchanger-Roof 01 | Default industrial noise | Area | -71.3 | |
| Air Cooled Heat Exchanger-Area source 01 | Default industrial noise | Area | 26.7 | |
| Industrial building, room 23-Facade 01 | Default industrial noise | Area | 47.5 | |
| Industrial building, room 23-Area source 01 | Default industrial noise | Area | 47.4 | |
| Industrial building, room 23-Facade 02 | Default industrial noise | Area | 35.6 | |
| Industrial building, room 23-Area source 02 | Default industrial noise | Area | 29.3 | |
| Industrial building, room 23-Facade 03 | Default industrial noise | Area | 34.9 | |
| Industrial building, room 23-Area source 03 | Default industrial noise | Area | 29.0 | |
| Industrial building, room 23-Facade 04 | Default industrial noise | Area | 46.5 | |
| Industrial building, room 23-Area source 04 | Default industrial noise | Area | 46.8 | |
| Industrial building, room 23-Facade 05 | Default industrial noise | Area | 49.2 | |

| Source | Source group | Source type | Leq,d dB(A) | |
|---|---|---|---|---|
| Industrial building, room 23-Area source 05 | Default industrial noise | Area | 49.9 | |
| Industrial building, room 23-Facade 06 | Default industrial noise | Area | 47.7 | |
| Industrial building, room 23-Area source 06 | Default industrial noise | Area | 47.4 | |
| Industrial building, room 23-Facade 01 | Default industrial noise | Area | 43.5 | |
| Industrial building, room 23-Area source 01 | Default industrial noise | Area | 43.4 | |
| Industrial building, room 23-Facade 02 | Default industrial noise | Area | 32.9 | |
| Industrial building, room 23-Area source 02 | Default industrial noise | Area | 26.9 | |
| Industrial building, room 23-Facade 03 | Default industrial noise | Area | 32.2 | |
| Industrial building, room 23-Area source 03 | Default industrial noise | Area | 26.7 | |
| Industrial building, room 23-Facade 04 | Default industrial noise | Area | 43.6 | |
| Industrial building, room 23-Area source 04 | Default industrial noise | Area | 44.4 | |
| Industrial building, room 23-Facade 05 | Default industrial noise | Area | 46.4 | |
| Industrial building, room 23-Area source 05 | Default industrial noise | Area | 46.0 | |
| Industrial building, room 23-Facade 06 | Default industrial noise | Area | 43.6 | |
| Industrial building, room 23-Area source 06 | Default industrial noise | Area | 43.7 | |
| Generator-Point source 01 | Default industrial noise | Point | 28.5 | |
| Generator-Point source 01 | Default industrial noise | Point | 25.8 | |
| Gas Turbine Dog House-Turbine Dog House Roof | Plant | Area | 20.6 | |
| Gas Turbine Dog House-Turbine Dog House South | Plant | Area | 14.6 | |
| Gas Turbine Dog House-Turbine Dog House West | Plant | Area | 34.1 | |
| Gas Turbine Dog House-Turbine Dog House North | Plant | Area | 31.3 | |
| Gas Turbine Dog House-Turbine Dog House East | Plant | Area | 19.0 | |
| De-Ice Unit-De-Ice Unit Roof | Plant | Area | -88.6 | |
| De-Ice Unit-Ground floor | Default industrial noise | Area | | |
| De-Ice Unit-De-Ice Unit West | Plant | Area | 8.4 | |
| De-Ice Unit-De-Ice Unit East | Plant | Area | 29.8 | |
| HRSG Unit-HRSG Unit Roof | Plant | Area | -2.2 | |
| HRSG Unit-HRSG Unit West | Plant | Area | 8.9 | |
| HRSG Unit-HRSG Unit West | Plant | Area | 33.3 | |
| Auxiliary Skid-Auxiliary Power Unit Roof | Plant | Area | 26.0 | |
| Auxiliary Skid-Auxiliary Power Unit South | Plant | Area | 27.1 | |
| Auxiliary Skid-Auxiliary Power Unit East | Plant | Area | 37.7 | |
| Auxiliary Skid-Auxiliary Power Unit North | Plant | Area | 41.7 | |
| Auxiliary Skid-Auxiliary Power Unit West | Plant | Area | 36.8 | |
| Air Intake-Air Intake South | Plant | Area | 1.1 | |
| Air Intake-Air Intake East | Plant | Area | 18.8 | |
| Air Intake-Air Intake North | Plant | Area | 8.4 | |
| Air Intake-Air Intake West | Plant | Area | -11.7 | |
| SCR-SCR Roof 01 | Default industrial noise | Area | -3.6 | |
| SCR-SCR Floor | Default industrial noise | Area | | |
| SCR-SCR Wall | Default industrial noise | Area | 34.1 | |
| SCR-SCR Wall | Default industrial noise | Area | 10.9 | |

| Source | Source group | Source type | Leq,d dB(A) | |
|---|---|---|---|---|
| SCR-Area source 02 | Default industrial noise | Area | 9.9 | |
| Gas Turbine Dog House-Turbine Dog House Roof | Plant | Area | 18.0 | |
| Gas Turbine Dog House-Turbine Dog House South | Plant | Area | 8.7 | |
| Gas Turbine Dog House-Turbine Dog House West | Plant | Area | 31.5 | |
| Gas Turbine Dog House-Turbine Dog House North | Plant | Area | 29.1 | |
| Gas Turbine Dog House-Turbine Dog House East | Plant | Area | 17.2 | |
| De-Ice Unit-De-Ice Unit Roof | Plant | Area | -92.4 | |
| De-Ice Unit-Ground floor | Default industrial noise | Area | | |
| De-Ice Unit-De-Ice Unit West | Plant | Area | 6.0 | |
| De-Ice Unit-De-Ice Unit East | Plant | Area | 29.5 | |
| HRSG Unit-HRSG Unit Roof | Plant | Area | -7.3 | |
| HRSG Unit-HRSG Unit West | Plant | Area | 6.1 | |
| HRSG Unit-HRSG Unit West | Plant | Area | 31.2 | |
| Auxiliary Skid-Auxiliary Power Unit Roof | Plant | Area | 23.0 | |
| Auxiliary Skid-Auxiliary Power Unit South | Plant | Area | 24.7 | |
| Auxiliary Skid-Auxiliary Power Unit East | Plant | Area | 35.7 | |
| Auxiliary Skid-Auxiliary Power Unit North | Plant | Area | 39.6 | |
| Auxiliary Skid-Auxiliary Power Unit West | Plant | Area | 33.3 | |
| Air Intake-Air Intake South | Plant | Area | -15.2 | |
| Air Intake-Air Intake East | Plant | Area | 16.8 | |
| Air Intake-Air Intake North | Plant | Area | 6.1 | |
| Air Intake-Air Intake West | Plant | Area | -13.2 | |
| SCR-SCR Roof 01 | Default industrial noise | Area | -5.6 | |
| SCR-SCR Floor | Default industrial noise | Area | | |
| SCR-SCR Wall | Default industrial noise | Area | 32.4 | |
| SCR-SCR Wall | Default industrial noise | Area | 8.1 | |
| SCR-Area source 02 | Default industrial noise | Area | 11.4 | |
| Industrial building, room 17-Roof 01 | Default industrial noise | Area | -74.0 | |
| Industrial building, room 17-Area source 01 | Default industrial noise | Area | 31.1 | |
| Industrial building, room 17-Roof 01 | Default industrial noise | Area | -76.5 | |
| Industrial building, room 17-Area source 01 | Default industrial noise | Area | 23.6 | |
| Industrial building, room 17-Roof 01 | Default industrial noise | Area | -76.5 | |
| Industrial building, room 17-Area source 01 | Default industrial noise | Area | 28.9 | |
| Industrial building, room 17-Roof 01 | Default industrial noise | Area | -78.9 | |
| Industrial building, room 17-Area source 01 | Default industrial noise | Area | 21.1 | |
| Receiver R1: 774 North Wheeler Road Fl G Leq,d 48.9 dB(A) | | | | |
| Stack Exhaust | Default industrial noise | Point | 26.6 | |
| Stack Exhaust | Default industrial noise | Point | 25.2 | |
| Transmission Line | Default industrial noise | Line | -51.9 | |
| Transmission Line | Default industrial noise | Line | -52.6 | |
| Transmission Line | Default industrial noise | Line | -52.0 | |
| Transmission Line | Default industrial noise | Line | -52.2 | |

| Source | Source group | Source type | Leq,d dB(A) | |
|---|---|---|---|---|
| Transmission Line | Default industrial noise | Line | -52.3 | |
| Transmission Line | Default industrial noise | Line | -52.4 | |
| Transmission Line | Default industrial noise | Line | -52.7 | |
| Transmission Line | Default industrial noise | Line | -52.8 | |
| Transmission Line | Default industrial noise | Line | -52.9 | |
| Transmission Line | Default industrial noise | Line | -52.1 | |
| Transmission Line | Default industrial noise | Line | -52.2 | |
| Transmission Line | Default industrial noise | Line | -52.3 | |
| Transmission Line | Default industrial noise | Line | -53.3 | |
| Transmission Line | Default industrial noise | Line | -53.4 | |
| Transmission Line | Default industrial noise | Line | -53.5 | |
| Transmission Line | Default industrial noise | Line | -52.8 | |
| Transmission Line | Default industrial noise | Line | -52.9 | |
| Transmission Line | Default industrial noise | Line | -52.9 | |
| Transmission Line | Default industrial noise | Line | -52.5 | |
| Transmission Line | Default industrial noise | Line | -52.6 | |
| Transmission Line | Default industrial noise | Line | -52.7 | |
| Transmission Line | Default industrial noise | Line | -52.7 | |
| Transmission Line | Default industrial noise | Line | -52.9 | |
| Transmission Line | Default industrial noise | Line | -53.6 | |
| Transmission Line | Default industrial noise | Line | -53.4 | |
| Industrial building, room 15-Roof 01 | Default industrial noise | Area | -75.5 | |
| Industrial building, room 15-Area source 01 | Default industrial noise | Area | 24.4 | |
| Industrial building, room 15-Roof 01 | Default industrial noise | Area | -77.1 | |
| Industrial building, room 15-Area source 01 | Default industrial noise | Area | 22.8 | |
| Air Cooled Heat Exchanger-Roof 01 | Default industrial noise | Area | -82.4 | |
| Air Cooled Heat Exchanger-Area source 01 | Default industrial noise | Area | 14.3 | |
| Air Cooled Heat Exchanger-Roof 01 | Default industrial noise | Area | -74.9 | |
| Air Cooled Heat Exchanger-Area source 01 | Default industrial noise | Area | 25.3 | |
| Industrial building, room 23-Facade 01 | Default industrial noise | Area | 30.4 | |
| Industrial building, room 23-Area source 01 | Default industrial noise | Area | 22.5 | |
| Industrial building, room 23-Facade 02 | Default industrial noise | Area | 31.6 | |
| Industrial building, room 23-Area source 02 | Default industrial noise | Area | 21.9 | |
| Industrial building, room 23-Facade 03 | Default industrial noise | Area | 40.3 | |
| Industrial building, room 23-Area source 03 | Default industrial noise | Area | 40.3 | |
| Industrial building, room 23-Facade 04 | Default industrial noise | Area | 39.8 | |
| Industrial building, room 23-Area source 04 | Default industrial noise | Area | 40.2 | |
| Industrial building, room 23-Facade 05 | Default industrial noise | Area | 28.2 | |
| Industrial building, room 23-Area source 05 | Default industrial noise | Area | 22.9 | |
| Industrial building, room 23-Facade 06 | Default industrial noise | Area | 37.9 | |
| Industrial building, room 23-Area source 06 | Default industrial noise | Area | 39.7 | |
| Industrial building, room 23-Facade 01 | Default industrial noise | Area | 21.1 | |
| Industrial building, room 23-Area source 01 | Default industrial noise | Area | 19.8 | |
| Industrial building, room 23-Facade 02 | Default industrial noise | Area | 19.4 | |
| Industrial building, room 23-Area source 02 | Default industrial noise | Area | 18.8 | |

| Source | Source group | Source type | Leq,d dB(A) | |
|---|---|---|---|---|
| Industrial building, room 23-Facade 03 | Default industrial noise | Area | 25.1 | |
| Industrial building, room 23-Area source 03 | Default industrial noise | Area | 24.3 | |
| Industrial building, room 23-Facade 04 | Default industrial noise | Area | 28.5 | |
| Industrial building, room 23-Area source 04 | Default industrial noise | Area | 27.3 | |
| Industrial building, room 23-Facade 05 | Default industrial noise | Area | 20.4 | |
| Industrial building, room 23-Area source 05 | Default industrial noise | Area | 19.7 | |
| Industrial building, room 23-Facade 06 | Default industrial noise | Area | 32.7 | |
| Industrial building, room 23-Area source 06 | Default industrial noise | Area | 32.9 | |
| Generator-Point source 01 | Default industrial noise | Point | 27.9 | |
| Generator-Point source 01 | Default industrial noise | Point | 26.5 | |
| Gas Turbine Dog House-Turbine Dog House Roof | Plant | Area | 19.0 | |
| Gas Turbine Dog House-Turbine Dog House South | Plant | Area | 13.2 | |
| Gas Turbine Dog House-Turbine Dog House West | Plant | Area | 24.5 | |
| Gas Turbine Dog House-Turbine Dog House North | Plant | Area | 12.7 | |
| Gas Turbine Dog House-Turbine Dog House East | Plant | Area | 15.4 | |
| De-Ice Unit-De-Ice Unit Roof | Plant | Area | -65.5 | |
| De-Ice Unit-Ground floor | Default industrial noise | Area | -5.4 | |
| De-Ice Unit-De-Ice Unit West | Plant | Area | 11.5 | |
| De-Ice Unit-De-Ice Unit East | Plant | Area | 22.7 | |
| HRSG Unit-HRSG Unit Roof | Plant | Area | 14.6 | |
| HRSG Unit-HRSG Unit West | Plant | Area | 12.3 | |
| HRSG Unit-HRSG Unit West | Plant | Area | 23.6 | |
| Auxiliary Skid-Auxiliary Power Unit Roof | Plant | Area | 23.2 | |
| Auxiliary Skid-Auxiliary Power Unit South | Plant | Area | 32.4 | |
| Auxiliary Skid-Auxiliary Power Unit East | Plant | Area | 27.8 | |
| Auxiliary Skid-Auxiliary Power Unit North | Plant | Area | 19.0 | |
| Auxiliary Skid-Auxiliary Power Unit West | Plant | Area | 19.2 | |
| Air Intake-Air Intake South | Plant | Area | 6.5 | |
| Air Intake-Air Intake East | Plant | Area | 10.2 | |
| Air Intake-Air Intake North | Plant | Area | -12.7 | |
| Air Intake-Air Intake West | Plant | Area | -9.6 | |
| SCR-SCR Roof 01 | Default industrial noise | Area | -3.2 | |
| SCR-SCR Floor | Default industrial noise | Area | -1.2 | |
| SCR-SCR Wall | Default industrial noise | Area | 25.3 | |
| SCR-SCR Wall | Default industrial noise | Area | 16.9 | |
| SCR-Area source 02 | Default industrial noise | Area | -5.8 | |
| Gas Turbine Dog House-Turbine Dog House Roof | Plant | Area | 17.5 | |
| Gas Turbine Dog House-Turbine Dog House South | Plant | Area | 11.8 | |
| Gas Turbine Dog House-Turbine Dog House West | Plant | Area | 22.4 | |

| Source | Source group | Source type | Leq,d dB(A) | |
|---|---|---|---|---|
| Gas Turbine Dog House-Turbine Dog House North | Plant | Area | 10.0 | |
| Gas Turbine Dog House-Turbine Dog House East | Plant | Area | 13.8 | |
| De-Ice Unit-De-Ice Unit Roof | Plant | Area | -67.7 | |
| De-Ice Unit-Ground floor | Default industrial noise | Area | | |
| De-Ice Unit-De-Ice Unit West | Plant | Area | 10.3 | |
| De-Ice Unit-De-Ice Unit East | Plant | Area | 20.9 | |
| HRSG Unit-HRSG Unit Roof | Plant | Area | 13.2 | |
| HRSG Unit-HRSG Unit West | Plant | Area | 11.2 | |
| HRSG Unit-HRSG Unit West | Plant | Area | 22.0 | |
| Auxiliary Skid-Auxiliary Power Unit Roof | Plant | Area | 21.2 | |
| Auxiliary Skid-Auxiliary Power Unit South | Plant | Area | 30.8 | |
| Auxiliary Skid-Auxiliary Power Unit East | Plant | Area | 25.7 | |
| Auxiliary Skid-Auxiliary Power Unit North | Plant | Area | 17.4 | |
| Auxiliary Skid-Auxiliary Power Unit West | Plant | Area | 17.6 | |
| Air Intake-Air Intake South | Plant | Area | 5.9 | |
| Air Intake-Air Intake East | Plant | Area | 8.9 | |
| Air Intake-Air Intake North | Plant | Area | -16.7 | |
| Air Intake-Air Intake West | Plant | Area | -11.5 | |
| SCR-SCR Roof 01 | Default industrial noise | Area | -6.5 | |
| SCR-SCR Floor | Default industrial noise | Area | | |
| SCR-SCR Wall | Default industrial noise | Area | 23.8 | |
| SCR-SCR Wall | Default industrial noise | Area | 14.9 | |
| SCR-Area source 02 | Default industrial noise | Area | -7.9 | |
| Industrial building, room 17-Roof 01 | Default industrial noise | Area | -76.5 | |
| Industrial building, room 17-Area source 01 | Default industrial noise | Area | 23.5 | |
| Industrial building, room 17-Roof 01 | Default industrial noise | Area | -82.1 | |
| Industrial building, room 17-Area source 01 | Default industrial noise | Area | 20.9 | |
| Industrial building, room 17-Roof 01 | Default industrial noise | Area | -78.1 | |
| Industrial building, room 17-Area source 01 | Default industrial noise | Area | 19.9 | |
| Industrial building, room 17-Roof 01 | Default industrial noise | Area | -80.2 | |
| Industrial building, room 17-Area source 01 | Default industrial noise | Area | 20.2 | |
| Receiver R2: 9815 East Legacy Lane Fl G Leq,d 44.8 dB(A) | | | | |
| Stack Exhaust | Default industrial noise | Point | 27.2 | |
| Stack Exhaust | Default industrial noise | Point | 25.9 | |
| Transmission Line | Default industrial noise | Line | -51.7 | |
| Transmission Line | Default industrial noise | Line | -52.3 | |
| Transmission Line | Default industrial noise | Line | -51.7 | |
| Transmission Line | Default industrial noise | Line | -51.9 | |
| Transmission Line | Default industrial noise | Line | -52.0 | |
| Transmission Line | Default industrial noise | Line | -52.0 | |
| Transmission Line | Default industrial noise | Line | -52.3 | |
| Transmission Line | Default industrial noise | Line | -52.4 | |
| Transmission Line | Default industrial noise | Line | -52.4 | |
| Transmission Line | Default industrial noise | Line | -52.0 | |

| Source | Source group | Source type | Leq,d dB(A) | |
|---|---|---|---|---|
| Transmission Line | Default industrial noise | Line | -52.0 | |
| Transmission Line | Default industrial noise | Line | -52.1 | |
| Transmission Line | Default industrial noise | Line | -52.7 | |
| Transmission Line | Default industrial noise | Line | -52.7 | |
| Transmission Line | Default industrial noise | Line | -52.8 | |
| Transmission Line | Default industrial noise | Line | -52.7 | |
| Transmission Line | Default industrial noise | Line | -52.7 | |
| Transmission Line | Default industrial noise | Line | -52.8 | |
| Transmission Line | Default industrial noise | Line | -52.1 | |
| Transmission Line | Default industrial noise | Line | -52.2 | |
| Transmission Line | Default industrial noise | Line | -52.3 | |
| Transmission Line | Default industrial noise | Line | -52.5 | |
| Transmission Line | Default industrial noise | Line | -52.7 | |
| Transmission Line | Default industrial noise | Line | -53.0 | |
| Transmission Line | Default industrial noise | Line | -52.8 | |
| Industrial building, room 15-Roof 01 | Default industrial noise | Area | -74.9 | |
| Industrial building, room 15-Area source 01 | Default industrial noise | Area | 25.1 | |
| Industrial building, room 15-Roof 01 | Default industrial noise | Area | -76.3 | |
| Industrial building, room 15-Area source 01 | Default industrial noise | Area | 23.7 | |
| Air Cooled Heat Exchanger-Roof 01 | Default industrial noise | Area | -93.7 | |
| Air Cooled Heat Exchanger-Area source 01 | Default industrial noise | Area | 8.4 | |
| Air Cooled Heat Exchanger-Roof 01 | Default industrial noise | Area | -75.4 | |
| Air Cooled Heat Exchanger-Area source 01 | Default industrial noise | Area | 24.4 | |
| Industrial building, room 23-Facade 01 | Default industrial noise | Area | 26.8 | |
| Industrial building, room 23-Area source 01 | Default industrial noise | Area | 21.2 | |
| Industrial building, room 23-Facade 02 | Default industrial noise | Area | 21.7 | |
| Industrial building, room 23-Area source 02 | Default industrial noise | Area | 20.7 | |
| Industrial building, room 23-Facade 03 | Default industrial noise | Area | 23.2 | |
| Industrial building, room 23-Area source 03 | Default industrial noise | Area | 22.4 | |
| Industrial building, room 23-Facade 04 | Default industrial noise | Area | 33.7 | |
| Industrial building, room 23-Area source 04 | Default industrial noise | Area | 33.4 | |
| Industrial building, room 23-Facade 05 | Default industrial noise | Area | 21.2 | |
| Industrial building, room 23-Area source 05 | Default industrial noise | Area | 20.9 | |
| Industrial building, room 23-Facade 06 | Default industrial noise | Area | 37.2 | |
| Industrial building, room 23-Area source 06 | Default industrial noise | Area | 36.7 | |
| Industrial building, room 23-Facade 01 | Default industrial noise | Area | 19.1 | |
| Industrial building, room 23-Area source 01 | Default industrial noise | Area | 19.1 | |
| Industrial building, room 23-Facade 02 | Default industrial noise | Area | 19.4 | |
| Industrial building, room 23-Area source 02 | Default industrial noise | Area | 19.2 | |
| Industrial building, room 23-Facade 03 | Default industrial noise | Area | 28.3 | |
| Industrial building, room 23-Area source 03 | Default industrial noise | Area | 27.3 | |
| Industrial building, room 23-Facade 04 | Default industrial noise | Area | 29.0 | |
| Industrial building, room 23-Area source 04 | Default industrial noise | Area | 27.7 | |
| Industrial building, room 23-Facade 05 | Default industrial noise | Area | 19.2 | |
| Industrial building, room 23-Area source 05 | Default industrial noise | Area | 19.2 | |

| Source | Source group | Source type | Leq,d dB(A) | |
|---|---|---|---|---|
| Industrial building, room 23-Facade 06 | Default industrial noise | Area | 26.3 | |
| Industrial building, room 23-Area source 06 | Default industrial noise | Area | 26.6 | |
| Generator-Point source 01 | Default industrial noise | Point | 27.2 | |
| Generator-Point source 01 | Default industrial noise | Point | 18.3 | |
| Gas Turbine Dog House-Turbine Dog House Roof | Plant | Area | 18.8 | |
| Gas Turbine Dog House-Turbine Dog House South | Plant | Area | 17.7 | |
| Gas Turbine Dog House-Turbine Dog House West | Plant | Area | 23.8 | |
| Gas Turbine Dog House-Turbine Dog House North | Plant | Area | 11.3 | |
| Gas Turbine Dog House-Turbine Dog House East | Plant | Area | 15.5 | |
| De-Ice Unit-De-Ice Unit Roof | Plant | Area | -64.9 | |
| De-Ice Unit-Ground floor | Default industrial noise | Area | -4.7 | |
| De-Ice Unit-De-Ice Unit West | Plant | Area | 12.5 | |
| De-Ice Unit-De-Ice Unit East | Plant | Area | 23.1 | |
| HRSG Unit-HRSG Unit Roof | Plant | Area | 14.8 | |
| HRSG Unit-HRSG Unit West | Plant | Area | 14.0 | |
| HRSG Unit-HRSG Unit West | Plant | Area | 23.9 | |
| Auxiliary Skid-Auxiliary Power Unit Roof | Plant | Area | 22.5 | |
| Auxiliary Skid-Auxiliary Power Unit South | Plant | Area | 31.6 | |
| Auxiliary Skid-Auxiliary Power Unit East | Plant | Area | 26.5 | |
| Auxiliary Skid-Auxiliary Power Unit North | Plant | Area | 20.4 | |
| Auxiliary Skid-Auxiliary Power Unit West | Plant | Area | 26.6 | |
| Air Intake-Air Intake South | Plant | Area | 6.5 | |
| Air Intake-Air Intake East | Plant | Area | 10.1 | |
| Air Intake-Air Intake North | Plant | Area | -12.3 | |
| Air Intake-Air Intake West | Plant | Area | -9.9 | |
| SCR-SCR Roof 01 | Default industrial noise | Area | -2.4 | |
| SCR-SCR Floor | Default industrial noise | Area | -0.4 | |
| SCR-SCR Wall | Default industrial noise | Area | 25.6 | |
| SCR-SCR Wall | Default industrial noise | Area | 17.6 | |
| SCR-Area source 02 | Default industrial noise | Area | -4.2 | |
| Gas Turbine Dog House-Turbine Dog House Roof | Plant | Area | 17.6 | |
| Gas Turbine Dog House-Turbine Dog House South | Plant | Area | 12.9 | |
| Gas Turbine Dog House-Turbine Dog House West | Plant | Area | 26.5 | |
| Gas Turbine Dog House-Turbine Dog House North | Plant | Area | 9.9 | |
| Gas Turbine Dog House-Turbine Dog House East | Plant | Area | 14.4 | |
| De-Ice Unit-De-Ice Unit Roof | Plant | Area | -66.2 | |
| De-Ice Unit-Ground floor | Default industrial noise | Area | | |
| De-Ice Unit-De-Ice Unit West | Plant | Area | 10.9 | |
| De-Ice Unit-De-Ice Unit East | Plant | Area | 21.4 | |

| Source | Source group | Source type | Leq,d dB(A) | |
|---|---|---|---|---|
| HRSG Unit-HRSG Unit Roof | Plant | Area | 13.4 | |
| HRSG Unit-HRSG Unit West | Plant | Area | 12.3 | |
| HRSG Unit-HRSG Unit West | Plant | Area | 22.7 | |
| Auxiliary Skid-Auxiliary Power Unit Roof | Plant | Area | 21.1 | |
| Auxiliary Skid-Auxiliary Power Unit South | Plant | Area | 30.0 | |
| Auxiliary Skid-Auxiliary Power Unit East | Plant | Area | 25.2 | |
| Auxiliary Skid-Auxiliary Power Unit North | Plant | Area | 19.3 | |
| Auxiliary Skid-Auxiliary Power Unit West | Plant | Area | 25.4 | |
| Air Intake-Air Intake South | Plant | Area | 7.4 | |
| Air Intake-Air Intake East | Plant | Area | 9.2 | |
| Air Intake-Air Intake North | Plant | Area | -14.1 | |
| Air Intake-Air Intake West | Plant | Area | -11.2 | |
| SCR-SCR Roof 01 | Default industrial noise | Area | -4.6 | |
| SCR-SCR Floor | Default industrial noise | Area | | |
| SCR-SCR Wall | Default industrial noise | Area | 24.4 | |
| SCR-SCR Wall | Default industrial noise | Area | 16.4 | |
| SCR-Area source 02 | Default industrial noise | Area | -5.9 | |
| Industrial building, room 17-Roof 01 | Default industrial noise | Area | -76.2 | |
| Industrial building, room 17-Area source 01 | Default industrial noise | Area | 23.8 | |
| Industrial building, room 17-Roof 01 | Default industrial noise | Area | -85.2 | |
| Industrial building, room 17-Area source 01 | Default industrial noise | Area | 17.0 | |
| Industrial building, room 17-Roof 01 | Default industrial noise | Area | -84.5 | |
| Industrial building, room 17-Area source 01 | Default industrial noise | Area | 15.6 | |
| Industrial building, room 17-Roof 01 | Default industrial noise | Area | -85.2 | |
| Industrial building, room 17-Area source 01 | Default industrial noise | Area | 14.9 | |

# EXHIBIT J
# SPECIAL FACTORS

In accordance with Arizona Administrative Code R14-7-119, the Applicant provides the following information:

*Describe any special factors not previously covered herein, which Applicant believes to be relevant to an informed decision on its application.*

As described earlier in this Application, Steele Energy Center, LLC (Applicant) initiated the proposed Steele Energy Center (SEC or Project) to help meet growing electricity demand and support the reliability and stability of the local and regional power system.

The Applicant conducted a comprehensive public outreach and engagement process to ensure the public was informed of the Project and provided multiple opportunities to review information and submit comments.

## Summary of Public Process

The Applicant conducted a public process comprised of numerous outreach activities. The outreach process informed the public, elected officials, jurisdictional agencies, property owners, and stakeholders within the Project area. The process included postcard mailings and emails, elected officials and stakeholder briefings and meetings, a Project information line, virtual open houses, and in-person open houses. In addition, social media and a Project website were used to inform the public and stakeholders.

The Project public process consisted of two phases. In each phase, the Applicant employed various methods of outreach to inform the public of the Project and solicit feedback.

### Postcard Mailings and Emails

The Applicant mailed postcards and sent emails for both phases of the public process to government entities, stakeholders and property owners in the vicinity of the Project.

The Phase 1 postcard was sent on July 13, 2026, to a one-mile notification area around the Project. The postcard included Project information and a map, website, hotline and open house information. A copy of the Phase 1 postcard is included in **Exhibit J-1a**. Emails were sent to stakeholders on July 14, 2026 which included the same information as the postcard.

The Phase 2 postcard was sent on September 4, 2026, to a two-mile notification area around the Project. The postcard followed the same format as the previous and included updated Project information and information about the Certificate of Environmental Compatibility process and Line Siting Committee hearings. A copy of the Phase 2 postcard is included in **Exhibit J-1b.** Emails were sent to stakeholders on September 10, 2026 which included the same information as the postcard.

An additional postcard will be sent to property owners within two miles of the Project to notify them of the CEC hearing.

## Briefings/Meetings and Letters of Support

Throughout the Project process, team members held meetings with local jurisdiction and agency representatives, including elected government officials, planning staff, and stakeholders to relay information about the Project, answer questions, and request feedback. These meetings enabled the Project team to identify stakeholder issues and share information about Project developments. Additionally, team members contacted property owners around the Project site to ensure they were aware of the Project. A summary of agency and other stakeholder meetings is included in **Exhibit J-2**.

## Project Information Line

The Applicant provided an additional opportunity for members of the public to ask questions, provide comments and receive information by providing a Project information telephone line. The telephone number was provided in all Project communications. The Project line was answered live and/or messages were responded to within 24 hours including on weekends and holidays.

## Public Meetings/Materials

The Applicant hosted two rounds of virtual and in-person open houses. Presentation and feedback materials for those meetings are included in **Exhibit J-3.** Phase 1 is included in **Exhibit J-3a** and Phase 2 in **Exhibit J-3b.** Questions and comments were submitted through the on-line chat feature during virtual meetings. Hard copy comment forms were also available at the in-person open houses. All details received through the chat feature and comment forms are also included in **Exhibit J-3a** or **J-3b.**

### *Phase 1*

*Virtual Open House Meetings*

A virtual open house meeting was held on July 28, 2026, at 5:30 p.m. One member of the public attended and no questions or comments were submitted. The second virtual open house meeting was held on July 29, 2026, at 12:00 p.m. A total of four members of the public attended and no questions or comments were submitted. These meetings consisted of detailed presentations and question and answer sessions.

*In-Person Open House*

An in-person open house was held on Wednesday, July 29, 2026, from 4:30-6:00 p.m. at the Mary C O'Brien Elementary School. The meeting was an open house/drop-in format where participants could view Project information boards and speak to Project resource specialists. Project information and Project team members were accessible for the entirety of the open house with three members of the public attending. The team addressed questions and listened to attendee comments.

Refreshments were provided.

Three community members who attended live close to the Project and came prepared with questions and comments regarding the Project. Two of the attendees live 0.5 miles northeast of the Project and expressed their interest in limiting public access to the Project site. They recommended putting up private property signs and fencing the site. The Applicant has put up signs and has followed up with these landowners. Attendees were encouraged to fill out a comment form expressing their issues, concerns, or general statements. Two comment forms were received at the open house. The Applicant also provided comment forms that attendees could return by mail. Sign-in sheets, comment forms and the open house summary are included in **Exhibit J-3a.**

***Phase 2***

*Virtual Open House Meetings*

A virtual open house meeting was on held on September 23, 2026, at 1:00 p.m. One member of the public attended and one question was submitted. The second virtual open house meeting was held on September 24, 2026, at 5:00 p.m. A total of three members of the public attended and no questions or comments were submitted. These meetings consisted of detailed presentations and question and answer sessions.

*In-Person Open House*

An in-person open house was held on September 23, 2026, from 5:00-7:00 p.m. at the Mary C O'Brien Elementary School. The meeting was an open house/drop-in format where participants could view Project information boards and speak to Project resource specialists. Project information and Project team members were accessible for two hours with two members of the public in attendance. The team addressed questions and listened to attendee comments. Refreshments were provided.

Two community members attended and were very engaged and came prepared with questions, comments, and concerns regarding aspects of the Project. Attendees were encouraged to fill out a comment card expressing their issues, concerns, or general statements. Sign-in sheets, and the open house summary are included in **Exhibit J-3b.**

A summary of all public comments from Phases 1 and 2 that were received through the website or through meetings in addition to the comment forms described above are included in **Exhibit J-2a.**

## Website and Social Media

A Project website steele.energy was created as a central location to provide stakeholders and interested parties with updates, general Project information and opportunities for public comment. Interested parties were able to visit and review materials at their convenience and submit comments and questions through an embedded comment form. A copy of the website content is shown in **Exhibit J-4**.

Google advertisements were used to reach additional interested parties and announce the virtual open houses and the in-person open houses. Google advertisements were posted during the following periods: July 17 – 27, 2026 and September 14 – 24, 2026. The social media advertisements targeted specific areas within Pinal County utilizing zip codes in the vicinity to the Project, which included, 85122, 85128, 85192 and 85194. The first campaign achieved 39,789 impressions and the second campaign achieved 47,386 impressions; both demonstrated a higher than industry average click-through rate. Copies of these advertisements are included in **Exhibit J-5.**

Additional social media advertisements will be created prior to the CEC hearing.

# EXHIBIT J-1
# POST CARD MAILINGS

# EXHIBIT J-1A
# PHASE 1

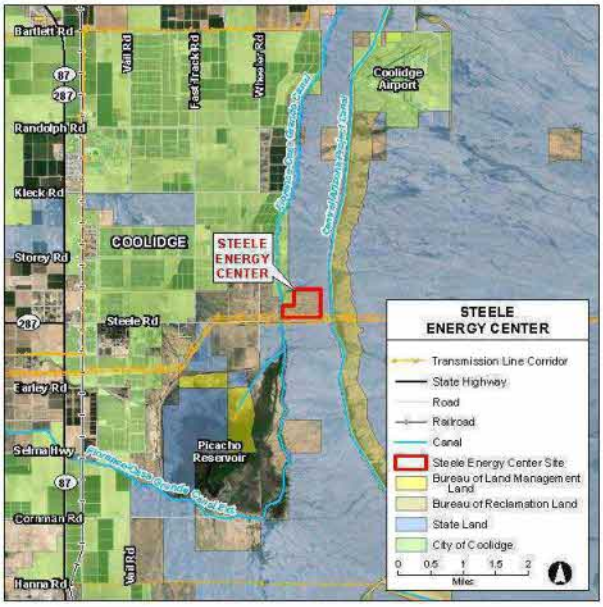
# Steele Energy Center Open House Meetings

The Steele Energy Center is a proposed up to 1800 MW natural gas-fired generation power plant located in central Pinal County southeast of Coolidge and east of Casa Grande and encompasses approximately 135 acres of undeveloped land.

The Project's generation resources will provide essential energy to the regional grid, which is strained due to unprecedented load growth, increasingly frequent extreme weather events, and greater reliance on intermittent resources.

Steele Energy Center, LLC is hosting virtual and in-person open houses to invite the public to learn and provide input on the Project.

Open house meeting details on the back.




Please visit *steele.energy* or call *833-367-7890* for more information.

Steele Energy Center

## Open House Details

**Virtual Open Houses**
**July 28, 2026 @ 5:30 PM**
**July 29, 2026 @ 12:00 PM**

**The two virtual open houses will present the same information.**
*This will be a Zoom meeting and registration is required! Please check your email for a link following registration.*

**In-Person Meeting**
**July 29, 2026 | 4:30 – 6:00 PM**

**Mary C O'Brien Elementary School**
1400 N 11 Mile Corner Rd, Casa Grande, AZ 85194
*This will be an open house format and registration for this event is encouraged but not required.*

The same information will be presented at all open houses

To register, please scan the QR Code or visit the Project website at: *steele.energy* or register by phone at *833-367-7890.*

Steele Energy Center

# EXHIBIT J-1B
# PHASE 2

# Steele Energy Center Open House Meetings

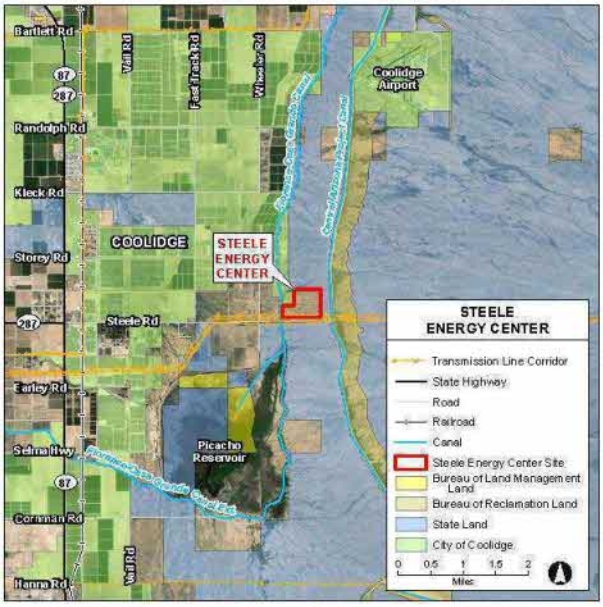
The Steele Energy Center is a proposed up to 1950 MW natural gas-fired generation power plant located in central Pinal County southeast of Coolidge and east of Casa Grande and encompasses approximately 135 acres of undeveloped land.

The Project's generation resources will provide essential energy to the regional grid, which is strained due to unprecedented load growth, increasingly frequent extreme weather events, and greater reliance on intermittent resources.

Steele Energy Center, LLC is seeking a Certificate of Environmental Compatibility (CEC) for the power plant to be filed with the Arizona Corporation Commission (ACC). The CEC process includes public hearings with the Arizona Power Plant and Transmission Line Siting Committee before seeking final approval from the ACC. Hearings before the Line Siting Committee will begin on November 30, 2026, and will be held locally near the Project. More detailed information about the CEC hearing, including the exact, times and location, will be posted on the Project website when available.

Steele Energy Center, LLC is hosting virtual and in-person open houses to invite the public to learn and provide input on the Project.

Open house meeting details on the back.




Please visit *steele.energy* or call *833-367-7890* for more information.

Steele Energy Center

## Open House Details

**Virtual Open Houses**
**September 23, 1:00 PM**
**September 24, 5:00 PM**

**The virtual open house will present the same information.**
*This will be a Zoom meeting and registration is required! Please check your email for a link following registration.*

**In-Person Meeting**
**September 23 | 5:00 – 7:00 PM**

**Mary C O'Brien Elementary School**
1400 N 11 Mile Corner Rd, Casa Grande, AZ 85194
*This will be an open house format and registration for this event is encouraged but not required.*

The same information will be presented at all open houses

To register, please scan the QR Code or visit the Project website at: *steele.energy* or register by phone at *833-367-7890.*

Steele Energy Center

# EXHIBIT J-2
# BRIEFINGS/MEETINGS

## Elected and Stakeholder Meetings

| Organization | Contact | Date | Meeting Attendees | Summary |
|---|---|---|---|---|
| Pinal County | Jeffrey McClure - Supervisor District 4 | 7/7/2026 | Rain Johnson<br>Jack Ford<br>Alexiss Adams<br>Alex Hayes | Project representatives provided a briefing on the Project and were available to respond to all comments and |
| Energy Advisor to Governor's Office | Blaise Caudill | 7/27/2026 | Rain Johnson<br>Jack Ford | Project representatives provided a briefing on the Project and were available to respond to all comments and questions. |
| Coolidge Fire Marshall | P.J. McCullough | 9/8/2026 | Jon Flintoff | Project representatives provided a briefing on the Project and were available to respond to all comments and questions. |
| Pinal County | Stephen Q Miller - Supervisor District 3 | 9/10/2026 | Rain Johnson<br>Jack Ford<br>Alexiss Adams<br>Alex Hayes | Project representatives provided a briefing on the Project and were available to respond to all comments and |
| Pinal County | Muhannad Zubi - Development Review Manager | 9/16/2026 | Rain Johnson<br>Jack Ford<br>Alexiss Adams<br>Alex Hayes | Project representatives provided a briefing on the Project and were available to respond to all comments and |
| Pinal County Partnership | Craig McFarland - CEO | 9/21/2026 | Rain Johnson<br>Jack Ford<br>Alexiss Adams<br>Alex Hayes | Project representatives provided a briefing on the Project and were available to respond to all comments and |
| Desert Pheasant Recreation | Bob Henson | 9/24/2026 | Leon Porter, Bob Henson | Mr. Henson is the owner of the Bird Dog Training Facility west of the Project. A Project representative briefed him on the Project and discussed all questions and concerns. |
| Pinal Land Holdings LLC | Matt McCormick & Jackob Anderson | 9/25/2026 | Leon Porter, Jack Ford, Alexiss Adams, Raina Johnson, Matt McCormick, Jackob Anderson | Project representatives briefed nearby land owners of the Project and discussed questions and |
| ARIZONA CORPORATION COMMISSION | Vice Chair - Rachel Walden | 9/28/2026 | Dean Miller<br>Dennis Loria<br>John Ryan<br>Rain Johnson | Project representatives provided a briefing on the Project and were available to respond to all comments and questions. |
| ARIZONA CORPORATION COMMISSION | Commissioner - Lea Márquez Peterson | 9/28/2026 | Dean Miller<br>Dennis Loria<br>John Ryan<br>Rain Johnson | Project representatives provided a briefing on the Project and were available to respond to all comments and questions. |

| | | | | |
|---|---|---|---|---|
| ARIZONA CORPORATION COMMISSION | Commissioner - Kevin Thompson | 9/29/2026 | Dean Miller<br>Dennis Loria<br>John Ryan<br>Jack Ford | Project representatives provided a briefing on the Project and were available to respond to all comments and questions. |
| ARIZONA CORPORATION COMMISSION | Commissioner - René Lopez | 9/30/2026 | Dean Miller<br>Dennis Loria<br>John Ryan<br>Jack Ford | Project representatives provided a briefing on the Project and were available to respond to all comments and questions. |

## Stakeholder Emails

| Organization | Contact | Date | Type (email, mailer, etc.) |
|---|---|---|---|
| US SENATE | Mark Kelly | 7/14/26 & 9/10/26 | Email |
| US SENATE | Ruben Gallego | 7/14/26 & 9/10/26 | Email |
| US CONGRESS | Eli Crane | 7/14/26 & 9/10/26 | Email |
| BUREAU OF RECLAMATION - Lower Colorado Basin - | Area Manager - Alexander B Smith | 7/14/26 & 9/10/26 | Email |
| ARIZONA CORPORATION COMMISSION | Chair - Nick Myers | 7/14/26 & 9/10/26 | Email |
| ARIZONA CORPORATION COMMISSION | Vice Chair - Rachel Walden | 7/14/26 & 9/10/26 | Email |
| ARIZONA CORPORATION COMMISSION | Commissioner - Lea Márquez Peterson | 7/14/26 & 9/10/26 | Email |
| ARIZONA CORPORATION COMMISSION | Commissioner - Kevin Thompson | 7/14/26 & 9/10/26 | Email |
| ARIZONA CORPORATION COMMISSION | Commissioner - René Lopez | 7/14/26 & 9/10/26 | Email |
| AZ HOUSE OF REPRESENTATIVE | District 16 - Chris Lopez | 7/14/26 & 9/10/26 | Email |
| AZ HOUSE OF REPRESENTATIVE | District 16 - Teresa Martinez | 7/14/26 & 9/10/26 | Email |
| AZ SENATE | District 16 - TJ Shope | 7/14/26 & 9/10/26 | Email |
| AZ Game & Fish Department - | Director - Tom Finley | 7/14/26 & 9/10/26 | Email |
| Energy Advisor to Governor's Office | Blaise Caudill | 7/14/26 & 9/10/26 | Email |
| Pinal County | Jeffrey McClure - Supervisor District 4 | 7/14/26 & 9/10/26 | Email |
| Pinal County | Stephen Q Miller - Supervisor District 3 | 7/14/26 & 9/10/26 | Email |
| Pinal County | Rich Vitiello - Supervisor District 1 | 7/14/26 & 9/10/26 | Email |
| Pinal County | Mike Goodman - Supervisor District 2 | 7/14/26 & 9/10/26 | Email |
| Pinal County | Jeff Serdy - Supervisor District 5 | 7/14/26 & 9/10/26 | Email |
| Pinal County | Sangeeta Deoka- Pinal Planning and Zoning | 7/14/26 & 9/10/26 | Email |
| Pinal County | Christopher Wanamaker- County Engineer | 7/14/26 & 9/10/26 | Email |
| Pinal County | Dedrick Denton - Interim Associate Director | 7/14/26 & 9/10/26 | Email |

| | | | |
|---|---|---|---|
| Pinal County | Muhannad Zubi - Development Review Manager | 7/14/26 & 9/10/26 | Email |
| Pinal County | Leo Lew - County Manager | 7/14/26 & 9/10/26 | Email |
| Pinal County | Himanshu Patel - Deputy County Manager | 7/14/26 & 9/10/26 | Email |
| Pinal County | Cathryn Whalen- Deputy County Manager | 7/14/26 & 9/10/26 | Email |
| Pinal County Partnership | Craig McFarland - CEO | 7/14/26 & 9/10/26 | Email |
| Pinal County Partnership | Rina Rien - Exec Director | 7/14/26 & 9/10/26 | Email |
| Pinal Alliance for Economic Growth | Patti King - Exec Manager | 7/14/26 & 9/10/26 | Email |
| Copper Corridor Economic Development | Tino Flores - President | 7/14/26 & 9/10/26 | Email |
| Coolidge Fire | P.J. McCullough | 7/14/26 & 9/10/26 | Email |
| City Manager of Coolidge | Gilbert Lopez | 7/14/26 & 9/10/26 | Email |
| Mayor of Coolidge | Jon Thompson - City Clerk Norma Ortiz | 7/14/26 & 9/10/26 | Email |
| Coolidge Chamber of Commerce | | 7/14/26 & 9/10/26 | Email |
| K Nine Birddog Brittany's | Bob Henderson | 7/14/26 & 9/10/26 | Email |
| Desert Pheasant Recreation | | 7/14/26 & 9/10/26 | Email |
| Mamita's Farmstand | | 7/14/26 & 9/10/26 | Email |
| Bottoms Up Arena | | 7/14/26 & 9/10/26 | Email |
| Coolidge Municipal Airport | | 7/14/26 & 9/10/26 | Email |
| EZ Cruzer Autobody | | 7/14/26 & 9/10/26 | Email |
| Arcwood Environmental | | 7/14/26 & 9/10/26 | Email |
| Goldman Dairy | | 7/14/26 & 9/10/26 | Email |
| Brown Farming | | 7/14/26 & 9/10/26 | Email |
| Western Emulsions | | 7/14/26 & 9/10/26 | Email |
| Arizona Training Program | | 7/14/26 & 9/10/26 | Email |
| Windmill Dairy | | 7/14/26 & 9/10/26 | Email |
| Pinal Land Holdings | Jackob Anderson, Matt McCormick | 7/14/26 & 9/10/26 | Email |

## Public Calls & Comments

| Name | Date | Comment Type | Comment | Response |
|---|---|---|---|---|
| Charmayne Armington | 9/28/2026 | Email | In response to a Project representative reaching out:<br><br>Hi Jack, Yes we would love to look over any of the new information. My mom and I were planning on attending but completely forgot about it on the day of. Thank you so much for reaching out! | A Project representative sent the open house presentation and offered to set up a call. |

# EXHIBIT J-3
# PUBLIC MEETING MATERIALS

# EXHIBIT J-3A
# PHASE 1

Steele Energy
CENTER

# Open House

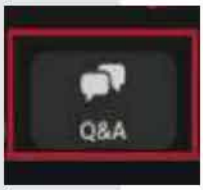
# Agenda

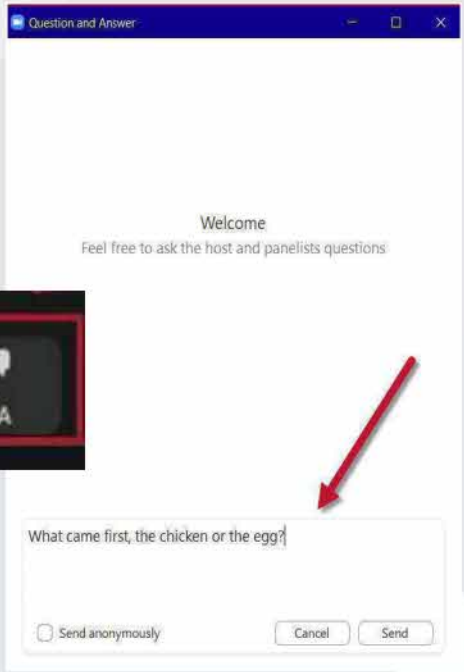
- Applicant Introduction
- Project Overview & Project Need & Benefits
- Project Description
- Environmental and Permitting
- Q&A

# Questions

- Use the Q&A feature to submit questions
- Ask questions throughout the presentation
- We will respond to as many questions as we can

*Click "Q&A" at bottom of screen*




# Who Are We?

## Who Are We?



- Southwestern Power Group (SWPG) is an independent developer of utility-scale generation and transmission assets, with a market focus in the Desert Southwest
- Since 2000, the Phoenix-based company has distinguished itself as a leading force in evolving energy markets, including utility-scale generation and transmission assets
- SWPG is comprised of a select, experienced group of individuals with decades of experience in finance, permitting, licensing, real estate, construction and operations.
- SWPG is a wholly-owned subsidiary of MMR Group, a privately-owned construction services firm based in Baton Rouge, Louisiana.

SouthWestern POWER GROUP

MMR

# Project Overview & Need and Benefit

# Project Overview

Steele Energy Center

- Natural gas-fired power generation facility that has the potential to generate up to 1950 MW
- The Project will use advanced, natural gas fired combustion turbines in either a combined cycle or simple cycle configuration with state-of-the-art emission control systems
- The site will use approximately 135 acres in Pinal County, southeast of Coolidge
- The site is in unincorporated Pinal County on private land owned by the Applicant

# Project Need

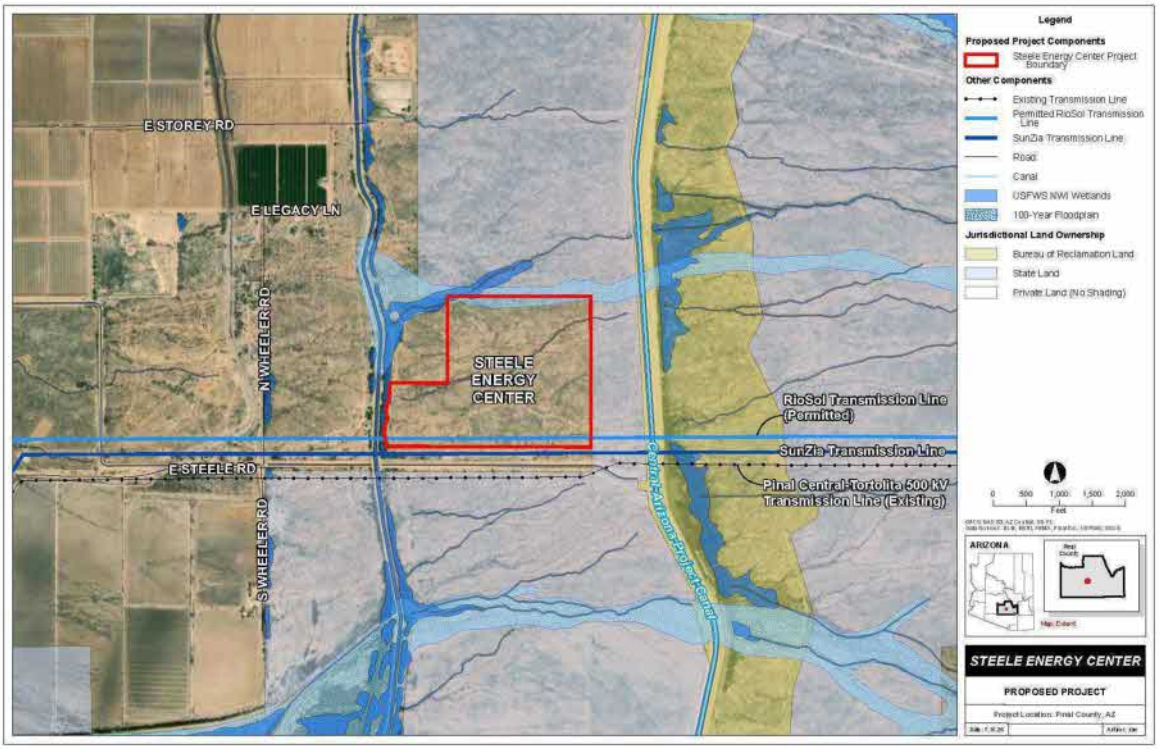
- Provide essential energy to the regional grid, which is strained due to unprecedented load growth, increasingly frequent extreme weather events, and greater reliance on intermittent resources
- Capable of serving over 800,000 homes with reliable baseload power
- Help address the critical energy needs of the modern economy using the latest fuel- and water-efficient generation technologies



# Key Project Attributes

- Located in a remote area thereby minimizing visual, noise impacts on local communities
- Strategically located near existing infrastructure so that no new transmission corridors are needed to access the AZ electrical grid
- Utilize dry cooling technologies to minimize water use
- Fueled by clean-burning, reliable natural gas



# Milestone Schedule




# Project Description

# Two Project Design Configurations

1,400 to 1,950 MW total

**2** **Combined Cycle Power Blocks**

Approx. 975 MW each

**Delivers the highest fuel efficiency**

- **Top Cycle**
  Gas thermal cycle powered by natural gas combustion
- **Bottom Cycle**
  Steam thermal cycle powered by exhaust heat from the top cycle

OR

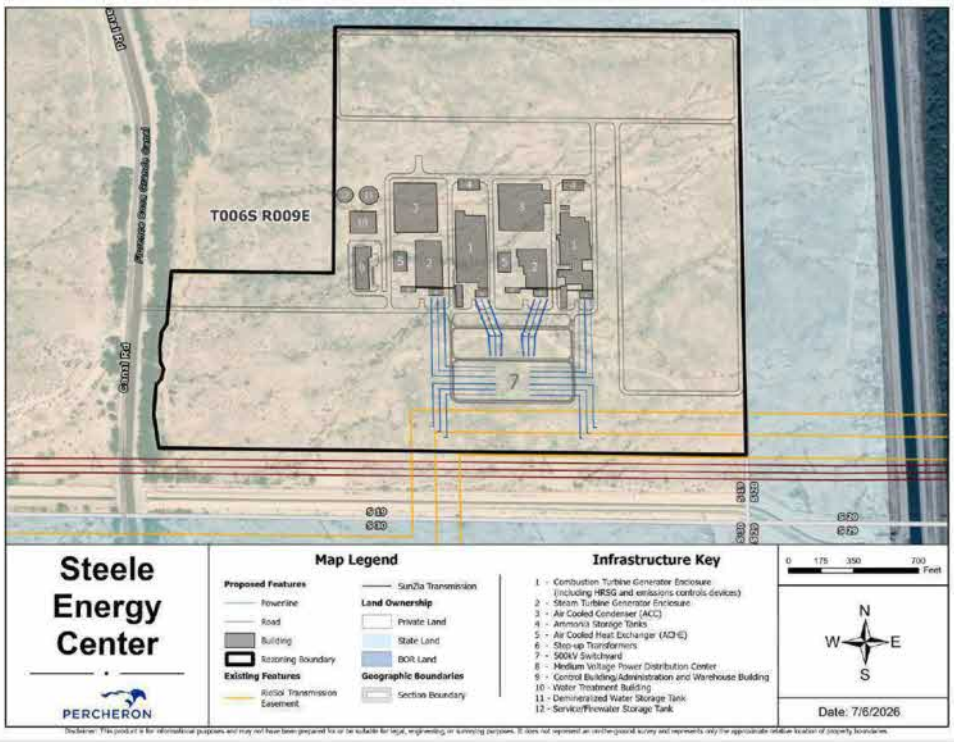
Over 1,000 MW total

**20** **Simple Cycle Aeroderivative Turbines**

Approx. 50 MW each

**Fast-ramping, highly flexible dispatchable generation**

- **Grid-firming capacity**
  Supports a diverse mix of non-dispatchable resources on the regional grid

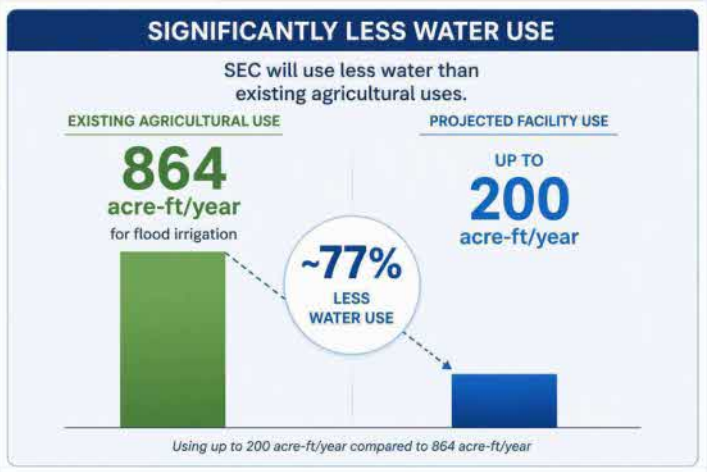




# Environmental & Regulatory & Construction

# Water

- Convert agricultural water rights to supply water to the facility
- Groundwater will be treated before use in the facility
- Wastewater will be contained in evaporation ponds to prevent discharge to the aquifer




# Noise Emissions and Controls

- The facility will comply with OSHA Occupational Noise Exposure Standard and the Pinal County Excessive Noise Ordinance and EPA Guidelines.
- Design will protect workers from hearing loss due to exposure during work shifts. Hearing protection will be required where reducing noise below a certain threshold is not practical
- Design will also consider noise mitigation to achieve low noise at nearby residences
- Although Power Plants are exempt from the Pinal County Excessive Noise Ordinance, SEC will comply with the standards for this location which is zoned General Rural
- The design will include noise mitigation features such as inlet and exhaust silencers, insulation, enclosures, and acoustic barriers

# Emission Controls & Air Quality Compliance

**BACT COMPLIANCE**

Turbine emissions are controlled to Best Available Control Technology (BACT) levels

**STATE-OF-THE-ART EMISSIONS CONTROL**

Turbines will be equipped with state-of-the-art Selective Catalytic Reduction (SCR) and Oxidation Catalyst technology to significantly reduce emissions

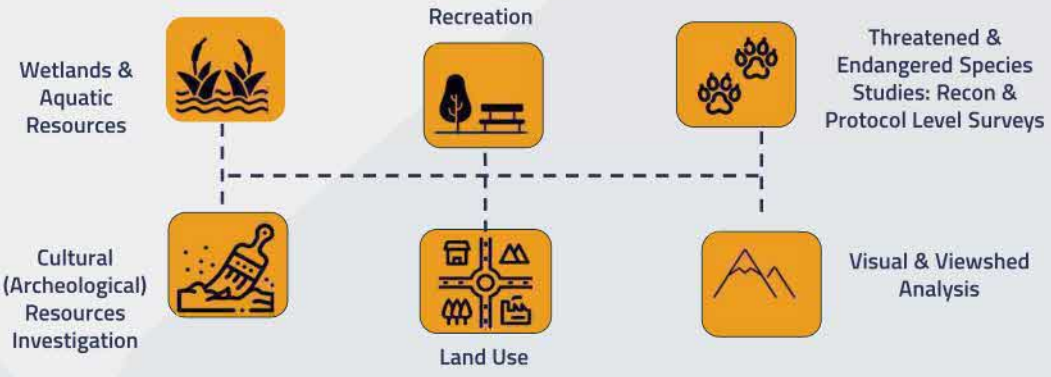
**AIR QUALITY COMPLIANCE**

Ambient air quality modeling demonstrates compliance with health-protective National Ambient Air Quality Standards (NAAQS)

**PERMITTING TIMELINE**

Anticipate filing for Air Quality Permit in Q3 2026

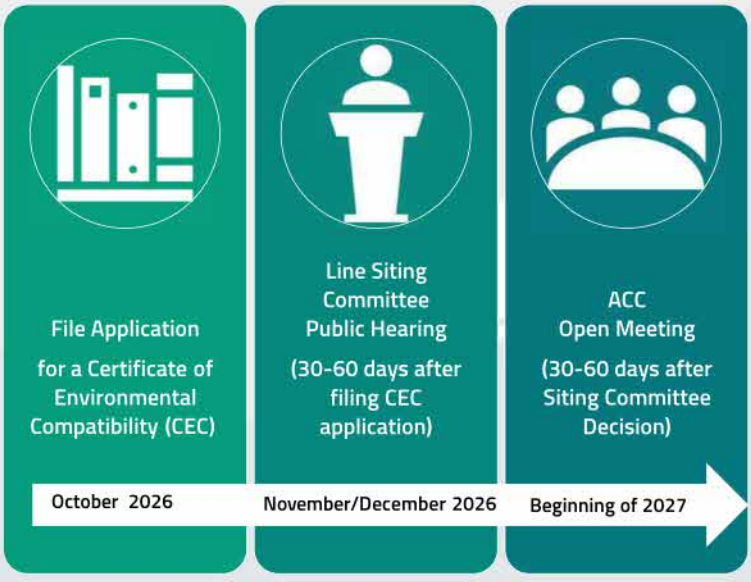
# Other Environmental Studies



# Pinal County Regulatory Process




# State Regulatory Process

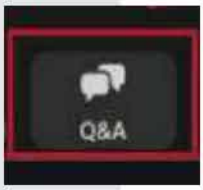


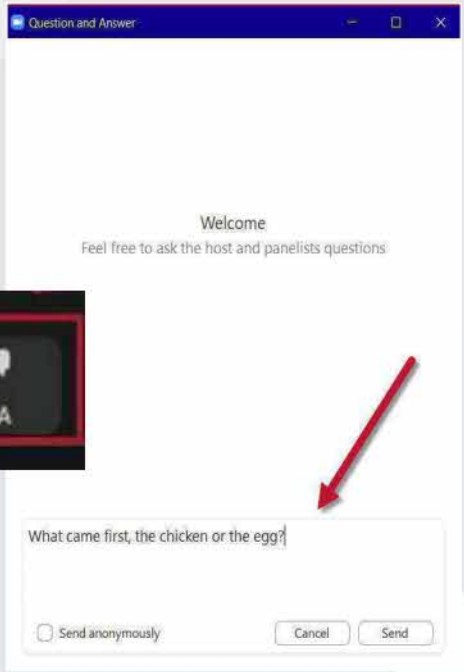

- Arizona Corporation Commission Process applies to the Natural Gas Generation Facility.

# Questions

- Use the Q&A feature to submit questions
- Ask questions throughout the presentation
- We will respond to as many questions as we can

*Click "Q&A" at bottom of screen*




Steele Energy Center

# We want to hear from you!

- Website: steele.energy
- Phone: 833-367-7890

In-Person Open House, July 29, 2026, at the Mary C O'Brien Elementary School
4:30 PM – 6:00 PM

# Steele Energy Center Project
# Public Process Summary July 2026

## Introduction

The following provides a summary of the Steele Energy Center (Project) Public Process virtual open houses and In-person meeting that occurred on July 28 & 29, 2026.

The following includes the list of meetings that are summarized below:

- Virtual Public Open House #1 – Tuesday, July 28, 2026 at 5:30 PM
- Virtual Public Open House #2 – Wednesday, July 29, 2026 at 12:00 PM
- In-person Open House - Wednesday, July 29, 2026 at 4:30 PM

In addition, the following appendices are included:

Appendix A: Registrants & Attendees
Appendix B: Sign-in Sheets and Comment Forms (In-person)

Total Registrants: 22
Total Attendees: 8
Total questions/comments: 2

Virtual Panelists:
Kenda Pollio – KP Environmental
Raina Johnson SWPG
Leon Porter - SWPG
Jack Ford – SWPG
Dennis Loria – MMR
Gabby Glener - KP Environmental

## Virtual Public Open House #1
## Tuesday, July 28, 2026 at 5:30 PM

KPE opened the meeting with an introduction and thank you to those in attendance. We then introduced Raina Johnson, and she presented the panelists from Southwestern Power Group (SWPG). The Project Team jointly presented a series of slides covering the Agenda, Information about SWPG, Project Overview & Need and Benefit, Project Description, Environmental & Regulatory & Construction. A Q&A session followed where participants could ask questions and submit comments.

**Attendees:** **1**

Attendees were allowed and encouraged to post comments and ask questions using the Q&A feature on Zoom. No public questions were submitted. Attendees were also encouraged to comment through the website and Project email address.
The meeting ended by reminding everyone about the 12:00 PM virtual and In-person meetings on July 29 and reminded people to check Project website for updates.

## Virtual Public Open House #2
## Wednesday, July 29, 2026 at 12:00PM

This meeting had the same format as above during the 7/28/26 meeting.

**Attendees:** **4**

No public questions were submitted

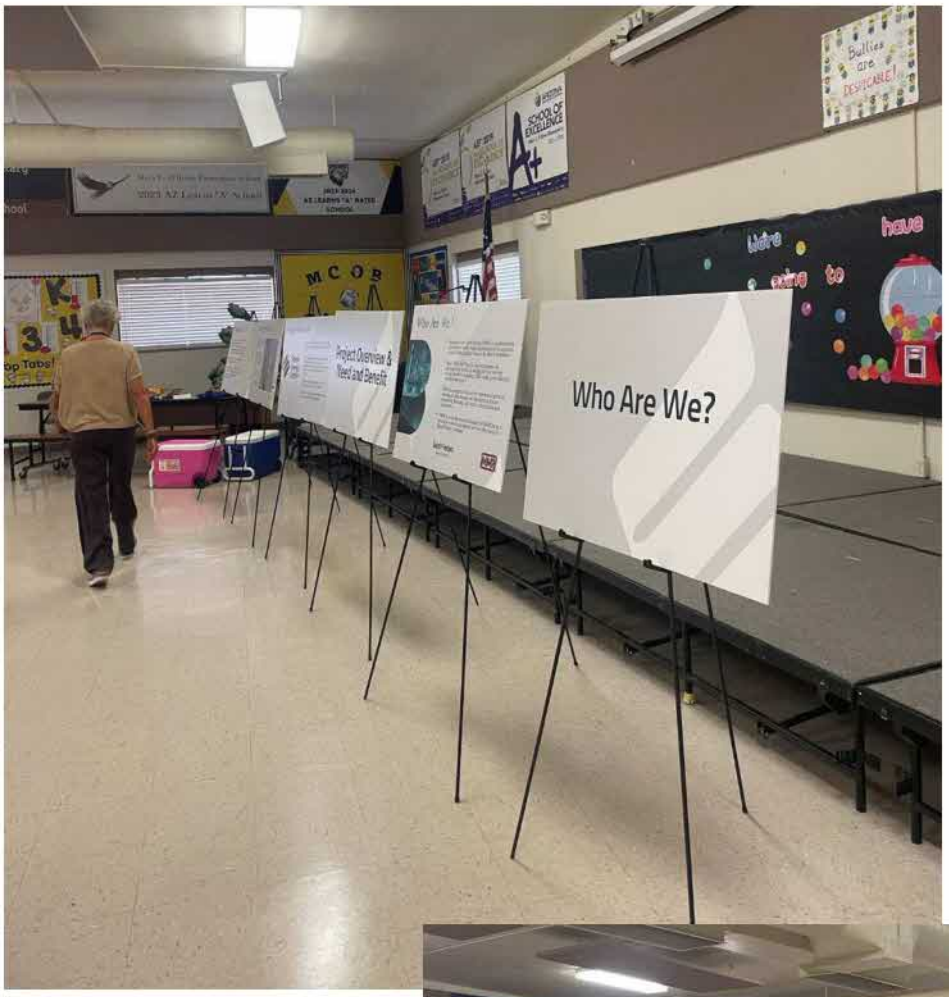
## In-person Open House
## Wednesday, July 29, 2026 at 4:30PM
## Mary C O'Brien Elementary School

**Attendees:** **3**

An In-person Open House was conducted in an open house come-and-go format where there were visual boards around the room and members of the Project Team were available to speak one-on-one with members of the community. The stations included the following: Who Are We, Project Overview & Need and Benefit, Project Description, Environmental & Regulatory & Construction, and Comments.

There were refreshments and attendees were given a Comment Form to submit at the meeting or return by mail. Two comment forms are included in **Appendix B**.

The comments submitted requested a fence around the Project site.


Who Are We?
Project Overview &
Need and Benefit
Bullies are DESPICABLE!
SCHOOL OF EXCELLENCE
A+
MCOB


WE DID IT!
M.C.O.B.
Excelling School
MCOB
FLIES HIGH

## Appendix A: Registrants & Attendees

### SEC Virtual #1 Registrants

| | | | | |
|---|---|---|---|---|
| 7/28/2026 17:30 | 1 | Virtual Open House #1 | Rose | VandenBrand |
| 7/28/2026 17:30 | 1 | Virtual Open House #1 | Nick | Myers |
| 7/28/2026 17:30 | 1 | Virtual Open House #1 | Tucker | Kirkes |
| 7/28/2026 17:30 | 1 | Virtual Open House #1 | Rene | Lopez |
| 7/28/2026 17:30 | 1 | Virtual Open House #1 | Rozanna | Martinez |
| 7/28/2026 17:30 | 1 | Virtual Open House #1 | Makayla | Roberts |
| 7/28/2026 17:30 | 1 | Virtual Open House #1 | Leslie | McFadden |
| 7/28/2026 17:30 | 1 | Virtual Open House #1 | Edward | Maddox |
| 7/28/2026 17:30 | 1 | Virtual Open House #1 | Heather | Figueroa |

### SEC Virtual #1 Attendees

| |
|---|
| Attendee Report |
| Steele Virtual #1 |
| Attendee Details |
| User Name (Original Name) |
| Lupe Martinez |

### SEC Virtual #2 Registrants

| | | | | |
|---|---|---|---|---|
| 7/29/2026 12:00 | 1 | Virtual Open House #2 | Tucker | Kirkes |
| 7/29/2026 12:00 | 1 | Virtual Open House #2 | Rose | VandenBrand |
| 7/29/2026 12:00 | 1 | Virtual Open House #2 | Rozanna | Martinez |
| 7/29/2026 12:00 | 1 | Virtual Open House #2 | Makayla | Roberts |
| 7/29/2026 12:00 | 1 | Virtual Open House #2 | Katy | Wilson |
| 7/29/2026 12:00 | 1 | Virtual Open House #2 | Bill | Doherty |
| 7/29/2026 12:00 | 1 | Virtual Open House #2 | Luis | Cordova |
| 7/29/2026 12:00 | 1 | Virtual Open House #2 | Lupe | Martinez |
| 7/29/2026 12:00 | 1 | Virtual Open House #2 | Colter | Ogden |
| 7/29/2026 12:00 | 1 | Virtual Open House #2 | Heather | Figueroa |
| 7/29/2026 12:00 | 1 | Virtual Open House #2 | Edward | Maddox |

### SEC Virtual #2 Attendees

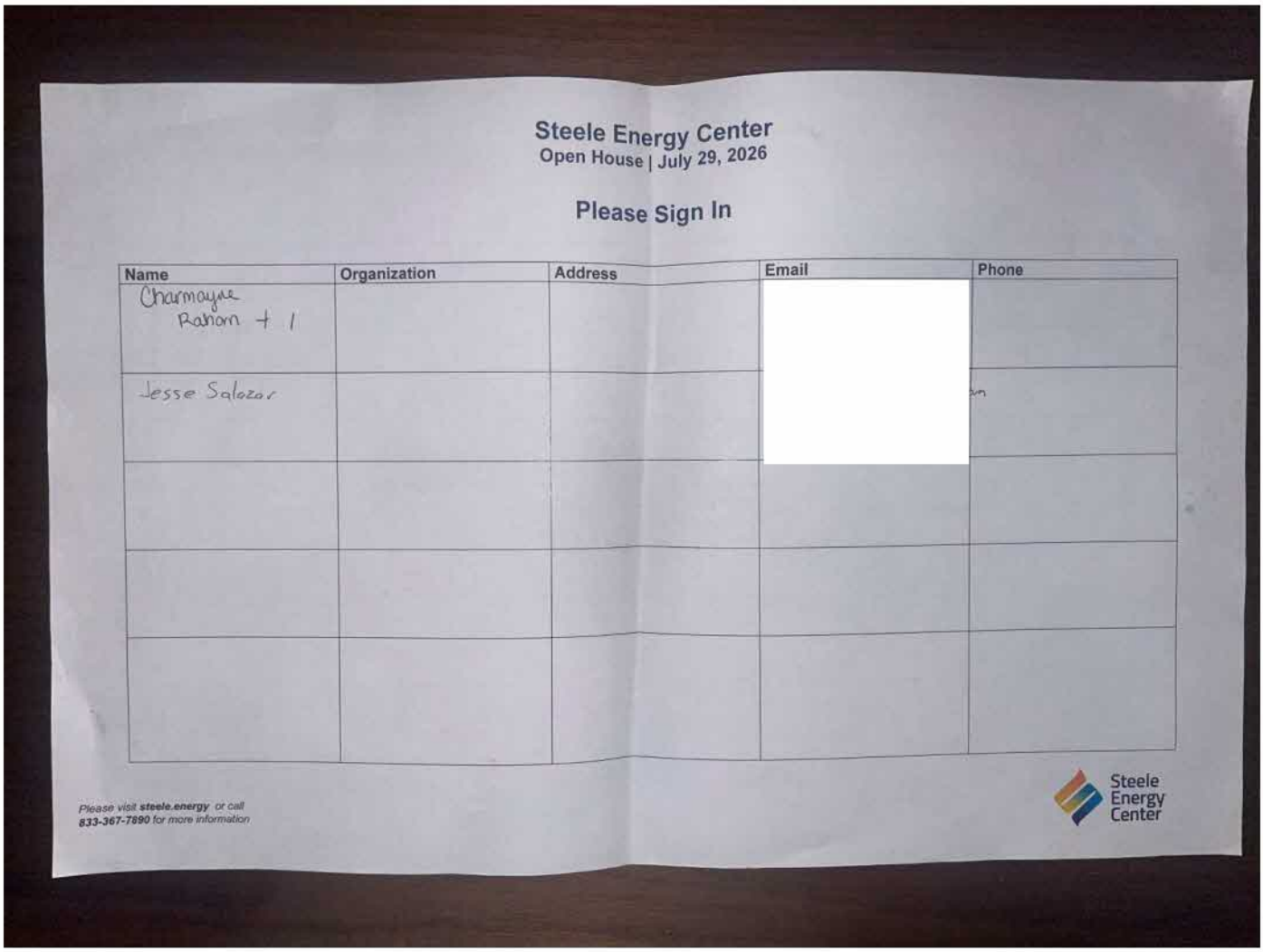
| |
|---|
| Attendee Report |
| Steele Virtual #2 |
| Attendee Details |
| User Name (Original Name) |
| Heather Figueroa |
| Ed Maddox |
| Colter Ogden |
| Luis Cordova |

### SEC In-person Open House Registrants

| | | | | |
|---|---|---|---|---|
| 7/29/2026 16:30 | 1 | In-person Open House | Tucker | Kirkes |
| 7/29/2026 16:30 | 1 | In-person Open House | RICH | VITIELLO |

## Appendix B : Sign-in Sheets and Comment Forms

### SEC In-person Open House Sign-in Sheets



Steele Energy Center
Open House | July 29, 2026

Please Sign In

| Name | Organization | Address | Email | Phone |
|---|---|---|---|---|
| Charmayne Rahorn + 1 | | | | |
| Jesse Salazar | | | | |
| | | | | |
| | | | | |
| | | | | |

Please visit **steele.energy** or call **833-367-7890** for more information

Steele Energy Center

# Steele Energy Center
## Open House | July 29, 2026

# Comment Form

Thank you for your interest. Please complete this form and provide any comments about the Project.

**Please Print**

Name: Susan Armington Phone: [redacted]

Address [redacted]

Organization: _____

Email: _____

Comments: PUT IN FENCE AND A GATE!! ALL ALONG YOUR PROPERTY ON WHEELER RD!!

Thank you for your time and interest!

*Please visit **steele.energy** or call*
***833-367-7890** for more information*

Steele Energy Center

# Steele Energy Center
## Open House | July 29, 2026

# Comment Form

Thank you for your interest. Please complete this form and provide any comments about the Project.

**Please Print**

Name: Charmayne Raborn Phone: [redacted]

Address [redacted]

Organization: _____

Email: Charmayne-a@yahoo.com

Comments: If you are going to make any improvements to the Steele Rd please put a fence along your property starting at Wheeler to keep people out of the area.

Thank you for your time and interest!

*Please visit **steele.energy** or call*
***833-367-7890** for more information*

Steele Energy Center

# EXHIBIT J-3B
# PHASE 2

Steele Energy
CENTER

# Open House

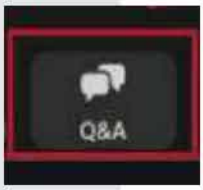
# Agenda

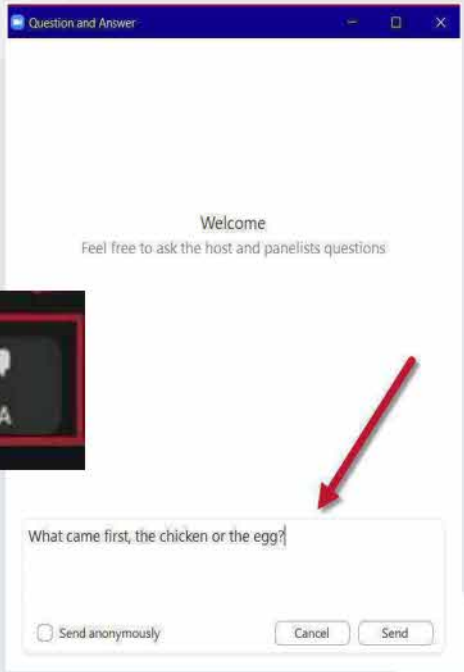
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- Project Overview & Project Need & Benefits
- Project Description
- Environmental and Permitting
- Q&A

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SouthWestern POWER GROUP

MMR

# Project Overview & Need and Benefit

## Project Overview

Steele Energy Center

- Natural gas-fired power generation facility that has the potential to generate up to 1950 MW
- The Project will use advanced, combined cycle natural gas fired combustion turbines with state-of-the-art emission control systems
- The site will use approximately 135 acres in Pinal County, southeast of Coolidge
- The site is in unincorporated Pinal County on private land owned by the Applicant

## Project Need

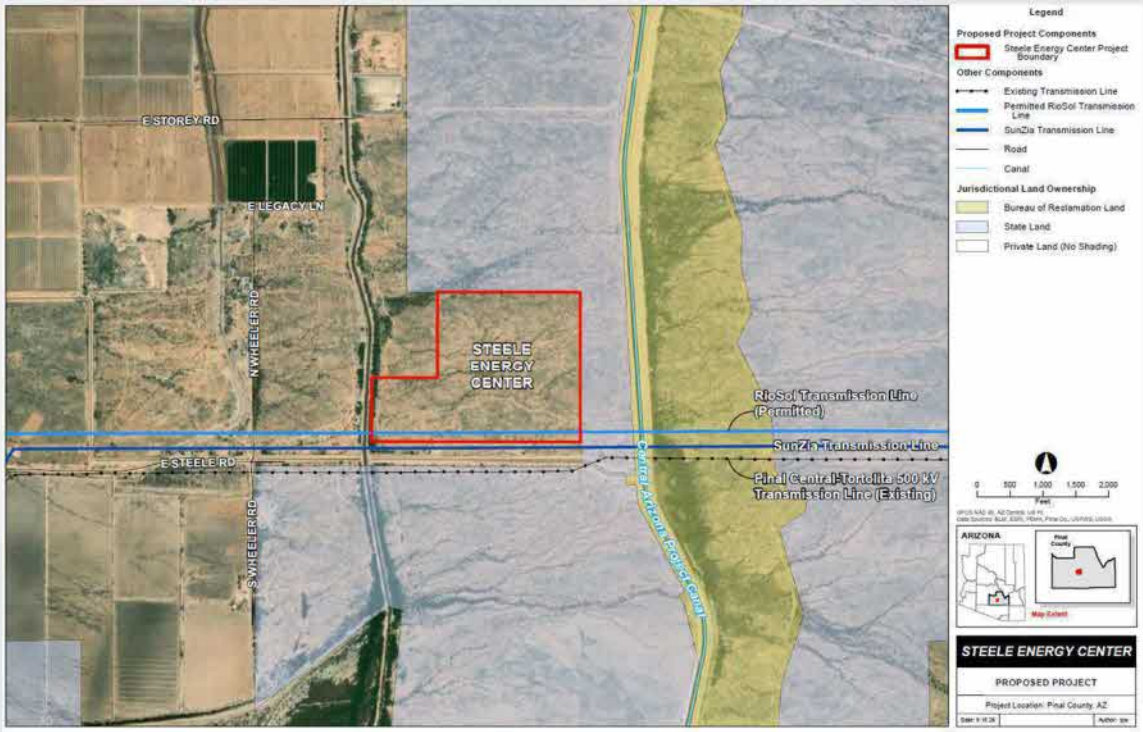
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- Capable of serving over 1,000,000 homes with reliable baseload power
- Help address the critical energy needs of the modern economy using the latest fuel- and water-efficient generation technologies



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- Located in an EPA attainment area for all criteria pollutants
- Strategically located near existing infrastructure so that no new transmission corridors are needed to access the AZ electrical grid
- Utilize dry cooling technologies to minimize water use
- Fueled by clean-burning, reliable natural gas



# Milestone Schedule




# Project Description

# Alternative Operating Scenarios (AOS)

## AOS 1 ~1,400 MW

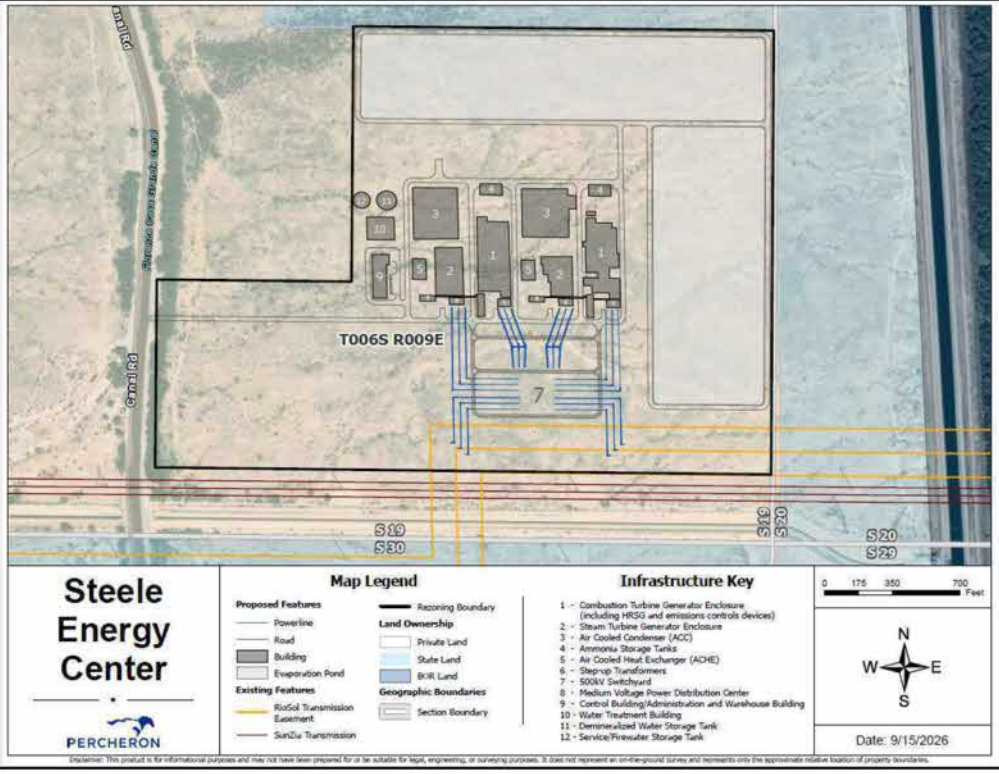
- Two NG-fired GE 7HA.03 CCGT power blocks, each consisting of one CT
- The CT and steam turbine for each power block are arranged in a 1x1 configuration

## AOS 2 ~1,950 MW

- Two NG-fired Siemens SGT6-8000H CCGT power blocks, each consisting of two CTs
- The two CTs and single steam turbine for each power block are arranged in a 2x1 configuration

- The proposed CCGT units are designed for continuous operation but will undergo periodic startup and shutdown (SUSD) events.
- When operating at steady-state, the CTs will be capable of operating between a nominal minimum emissions compliance load and 100-percent load.

# AOS 1



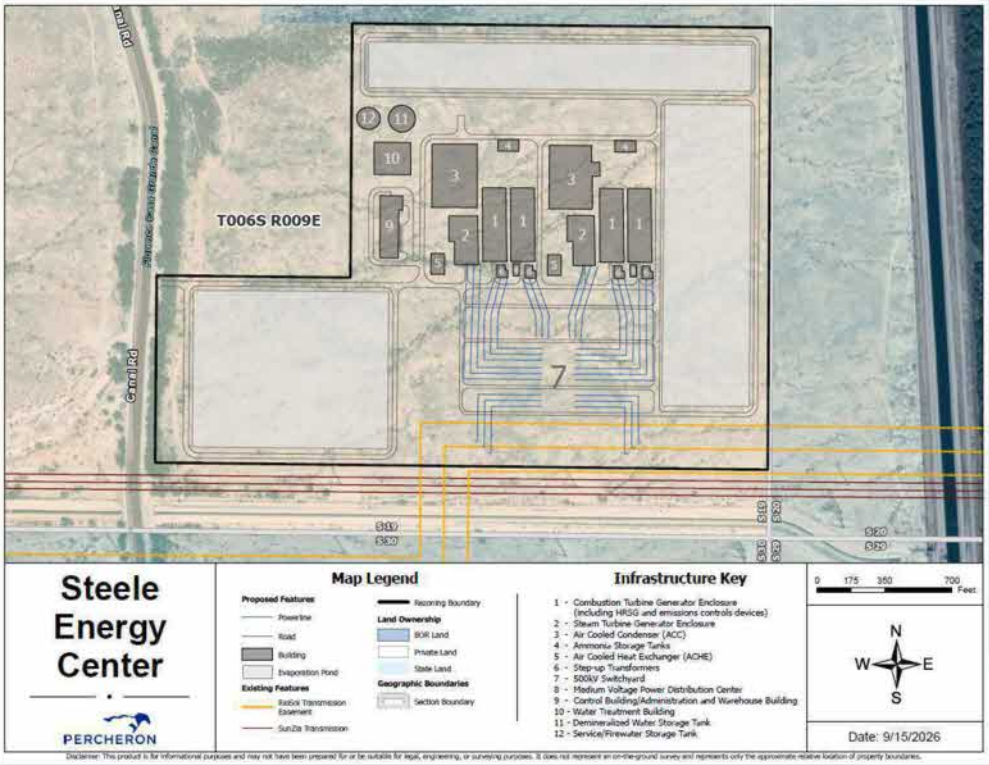

Note: Locations and Orientation of Equipment, Buildings and Ancillaries may change as the Project progresses and are shown for indicative purposes only.

# AOS 1



Note: Locations and Orientation of Equipment, Buildings and Ancillaries may change as the Project progresses and are shown for indicative purposes only.

# AOS 2




Note: Locations and Orientation of Equipment, Buildings and Ancillaries may change as the Project progresses and are shown for indicative purposes only.

# AOS 2




# Project Photo Simulation - Northwest

## Existing View





Florence Canal looking Southeast

# Project Photo Simulation - Northwest

## AOS 1 Simulated View





Florence Canal looking Southeast

*Photo simulation is conceptual, subject to change, and for graphical purposes only*

# Project Photo Simulation - Northwest

## AOS 2 Simulated View





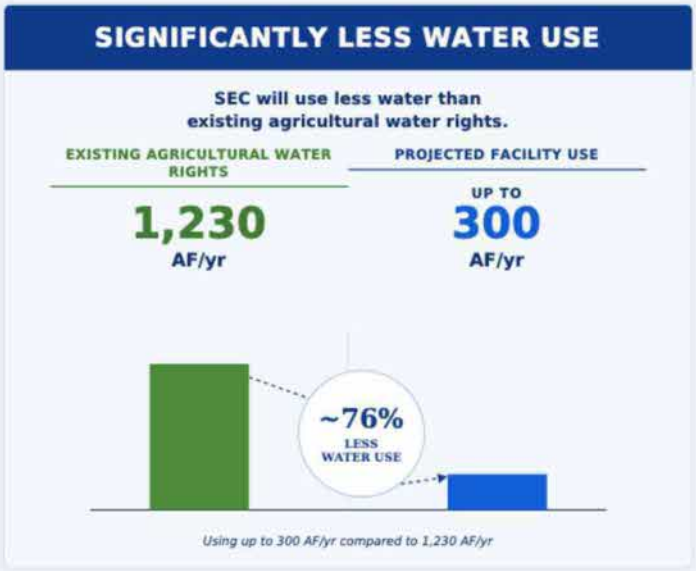
Florence Canal looking Southeast

*Photo simulation is conceptual, subject to change, and for graphical purposes only*

# Environmental & Regulatory & Construction

## Water

- Convert agricultural water rights to industrial water rights to supply water to the facility
- Groundwater will be treated before use in the facility
- Wastewater will be contained in evaporation ponds to prevent discharge to the aquifer



# Emission Controls & Air Quality Compliance

### BACT COMPLIANCE

Turbine emissions are controlled to Best Available Control Technology (BACT) levels

### STATE-OF-THE-ART EMISSIONS CONTROL

Turbines will be equipped with state-of-the-art Selective Catalytic Reduction (SCR) and Oxidation Catalyst technology to significantly reduce emissions

### AIR QUALITY COMPLIANCE

Ambient air quality modeling demonstrates compliance with health-protective National Ambient Air Quality Standards (NAAQS)

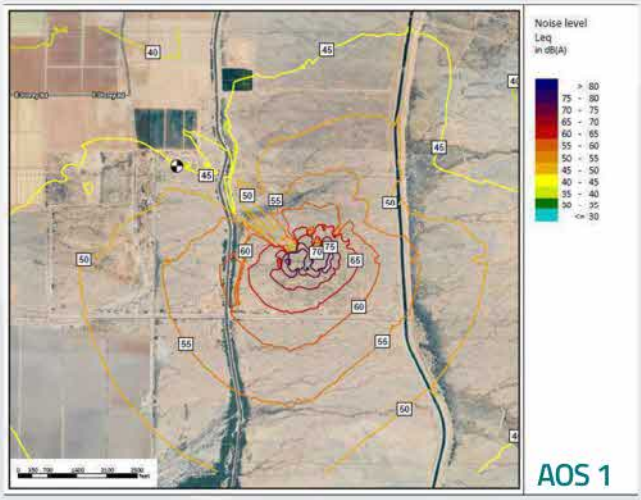
### PERMITTING TIMELINE

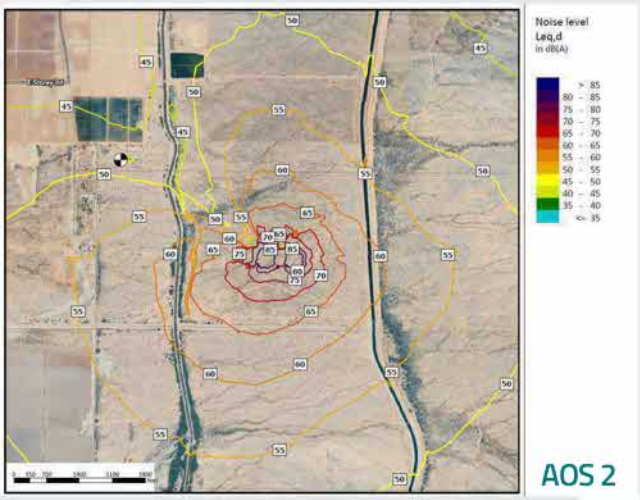
Anticipate filing for Air Quality Permit in Q3 2026

# Noise Emissions and Controls

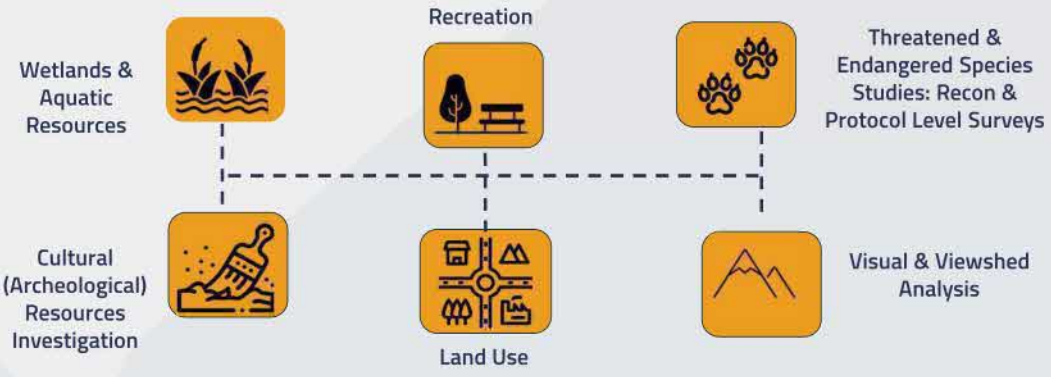
- The facility will comply with OSHA Occupational Noise Exposure Standard and the Pinal County Excessive Noise Ordinance and EPA Guidelines.
- Design will protect workers from hearing loss due to exposure during work shifts. Hearing protection will be required where reducing noise below a certain threshold is not practical
- Design will also consider noise mitigation to achieve low noise at nearby residences
- Although Power Plants are exempt from the Pinal County Excessive Noise Ordinance, SEC will comply with the standards for this location which is zoned General Rural
- The design will include noise mitigation features such as inlet and exhaust silencers, insulation, enclosures, and acoustic barriers

# Results of Noise Study



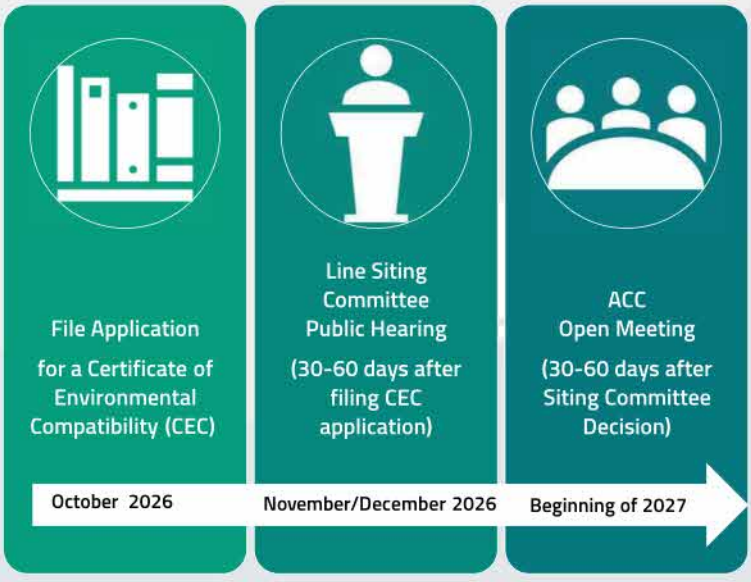

# Other Environmental Studies



# Pinal County Regulatory Process




# State Regulatory Process

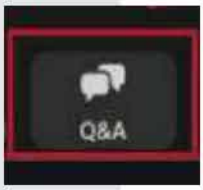


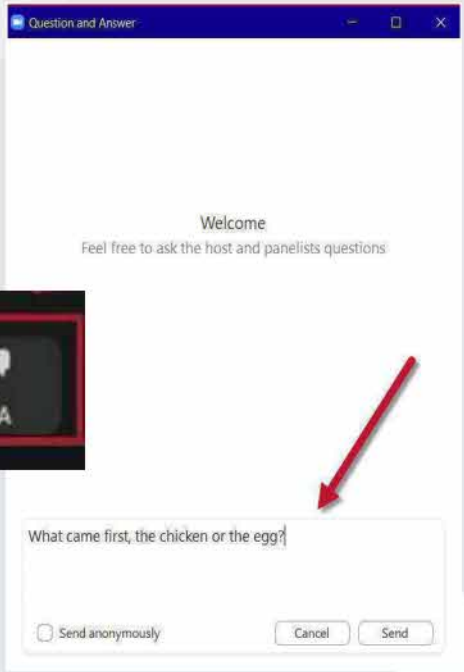

- Arizona Corporation Commission Process applies to the Natural Gas Generation Facility.

# Questions

- Use the Q&A feature to submit questions
- Ask questions throughout the presentation
- We will respond to as many questions as we can

*Click "Q&A" at bottom of screen*




Steele Energy Center

# We want to hear from you!

- Website: steele.energy
- Phone: 833-367-7890

In-Person Open House, September 23, 2026, at the Mary C O'Brien Elementary School
5:00 PM – 7:00 PM

# Steele Energy Center Project
# Public Process Summary
# September 2026

## Introduction

The following provides a summary of the Steele Energy Center (Project) Public Process virtual open houses and in-person meeting that occurred on September 23 & 24, 2026.

The following includes the list of meetings that are summarized below:

- Virtual Public Open House #1 – Wednesday, September 23, 2026 at 1:00 PM
- In-person Open House - Wednesday, September 23 at 5:00 PM
- Virtual Public Open House #2 – Thursday, September 24, 2026 at 5:00 PM

In addition, the following appendices are included:

Appendix A: Registrants & Attendees
Appendix B: Virtual Q&A
Appendix C: Sign-in Sheets and Comment Forms ( In-person)

Virtual Panelists:
Kenda Pollio – KP Environmental
Raina Johnson SWPG
Leon Porter - SWPG
Jack Ford – SWPG
Dennis Loria – MMR

## Virtual Public Open House #1
## Wednesday, September 23, 2026 at 1:00 PM

Kend Pollio opened the meeting with an introduction and thank you to those in attendance. She then introduced Raina Johnson, and she presented the panelists from Southwestern Power Group (SWPG). The Project Team jointly presented a series of slides covering the Agenda, Information about SWPG, Project Overview & Need and Benefit, Project Description, Environmental & Regulatory. A Q&A session followed where participants could ask questions and submit comments. One public question was submitted.

**Attendees:** 1

Attendees were allowed and encouraged to post comments and ask questions using the Q&A feature on Zoom. Attendees were also encouraged to comment through the website and Project email address. One question was submitted during the presentation.

The meeting ended by reminding everyone about the 5:00 PM in-person later that day, another virtual meeting on September 24, and reminded people to check Project website for updates.

## In-person Open House
## Wednesday, September 23, 2026 at 5:00PM
## Mary C O'Brien Elementary School

**Attendees: 2**

An In-person Open House was conducted in an open house come and go format where there were informational boards around the room and members of the Project Team were available to speak one–on–one with members of the community. The stations included the following: Applicant Overview, Project Overview & Need and Benefit, Project Description, Environmental & Regulatory & Comments.

There were refreshments and attendees were given a Comment form to submit at the meeting or mail in. No comment forms were submitted at the meeting.




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ELEMENTARY
2017 AZ LEARNS "A" SCHOOL



## Virtual Public Open House #2
## Thursday, September 24, 2026 at 5:30PM

This meeting had the same format as above during the 9/23/26 meeting.

**Attendees:** **3**

No public questions were submitted.

## Appendix A: Registrants & Attendees

### SEC Virtual #1 Registrants

| Start Date/Time (mm/dd/yyyy) | Qty | Item | First Name | Last Name |
|---|---|---|---|---|
| 9/23/2026 13:00 | 1 | Virtual Open House | Craig | McFarland |
| 9/23/2026 13:00 | 1 | Virtual Open House | Makayla | Roberts |
| 9/23/2026 13:00 | 1 | Virtual Open House | Rozanna | Martinez |
| 9/23/2026 13:00 | 1 | Virtual Open House | Heather | Figueroa |
| 9/23/2026 13:00 | 1 | Virtual Open House | Hattie | Fennell |
| 9/23/2026 13:00 | 1 | Virtual Open House | Susan | Westhouse |
| 9/23/2026 13:00 | 1 | Virtual Open House | Rene | Lopez |

### SEC Virtual #1 Attendees

| Attendee Report | |
|---|---|
| SEC Virtual | |
| User Name (Original Name) | |
| Hattie Fennell | |

### SEC In-person Open House Registrants

| Start Date/Time (mm/dd/yyyy) | Qty | Item | First Name | Last Name | Email |
|---|---|---|---|---|---|
| 9/23/2026 17:00 | 1 | In-person Open House | Taeya | Padilla | |

## SEC Virtual #2 Registrants

| | | | | | |
|---|---|---|---|---|---|
| 9/24/2026 17:00 | 1 | Virtual Open House #2 | Rene | Lopez | |
| 9/24/2026 17:00 | 1 | Virtual Open House #2 | Edward | Maddox | |
| 9/24/2026 17:00 | 1 | Virtual Open House #2 | Judi | Price | |
| 9/24/2026 17:00 | 1 | Virtual Open House #2 | Isabelle | Sayer | |
| 9/24/2026 17:00 | 1 | Virtual Open House #2 | Heather | Figueroa | |
| 9/24/2026 17:00 | 1 | Virtual Open House #2 | Steve | McCrea | |
| 9/24/2026 17:00 | 1 | Virtual Open House #2 | Rozanna | Martinez | |
| 9/24/2026 17:00 | 1 | Virtual Open House #2 | judi | price | |

## SEC Virtual #2 Attendees

| Attendee Report | |
|---|---|
| SEC Virtual 2 | |
| Attendee Details | |
| User Name (Original Name) | |
| Isabelle Sayer | i |
| E Maddox - Transalta | |
| Judi Price | j |

## Appendix B : Virtual Q&A

### SEC Virtual #1 Q&A

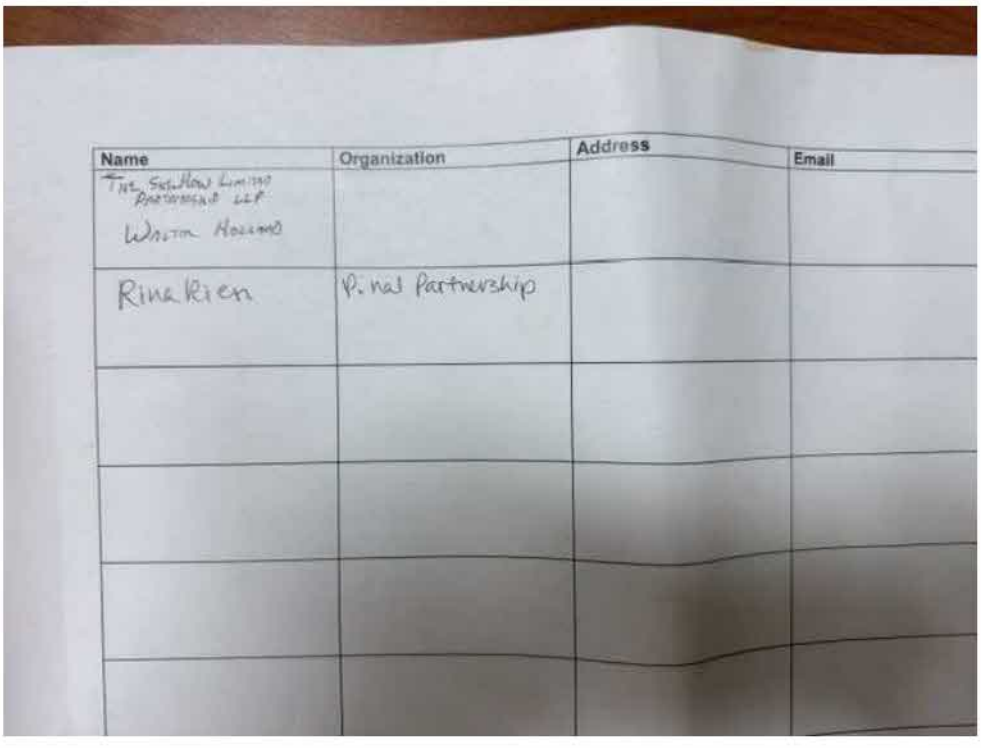
| Question Report | | |
|---|---|---|
| SEC Virtual 1 | | |
| Question Details | | |
| # | Question | Asker Name |
| 1 | You say agricultural water rights be converted to industrial rights. How is this possible when the site is being built on dessert land, not former farmland? Also, will this power be sold to a utility or to a private entity? | Hattie Fennell |

### SEC Virtual #2 Q&A

| Question Report | |
|---|---|
| SEC Virtual 2 | |
| Question Details | |
| # | Question |
| N/A | N/A |

## Appendix C : Sign-in Sheets

### SEC In-person Open House Sign-in Sheets



| Name | Organization | Address | Email |
|---|---|---|---|
| [illegible] Walton Holding | | | |
| Rina Rien | Personal Partnership | | |
| | | | |
| | | | |
| | | | |
| | | | |

**SEC In-person Open House Comment Forms**

**N/A**

# EXHIBIT J-4
# PROJECT WEBSITE

# Steele Energy
CENTER

## Natural Gas. Southwestern Power.

COMING SOON TO STEELE ROAD, PINAL COUNTY, ARIZONA

Steele Energy Center (SEC) is a proposed up to 1950 MW natural gas-fired generation power plant located in central Pinal County, Arizona, southwest of Coolidge and east of Casa Grande. The project's generation resources will provide essential energy to the regional grid, which is strained due to unprecedented load growth, increasingly frequent extreme weather events, and greater reliance on intermittent resources.

**Contact Us**

## Join an Open House

Steele Energy Center, LLC is hosting virtual and in-person open houses to invite the public to learn and provide input on the project. The same information will be provided at all open houses.

**Register**

### VIRTUAL DATES:

Hosted on Zoom. Registration required.

Sept. 23, 2026 | 1PM

A Zoom meeting link will be provided ahead of the event.

Sept. 24, 2026 | 5PM

A Zoom meeting link will be provided ahead of the event.

### IN-PERSON DATES:

Registration encouraged but not required.

Sept. 23, 2026 | 5-7PM

**Mary C O'Brien Elementary School**

1400 N 11 Mile Corner Rd, Casa Grande, AZ 85194

# EXHIBIT J-5
# SOCIAL MEDIA ADVERTISEMENTS

**Phase 1:**




**Steele Energy Center**

Virtual Open Houses: July 28 5:30 PM & July 29 12 PM In-Person Open House: July 29 4:30 PM

**Phase 2:**




**Learn about the SEC project**

Virtual Open Houses: Sept. 23 1:00 PM & Sept 24 5:30 PM In-Person Open House: Sept. 23 5:00 PM