2024 Fugitive Dust Report
Sandy Creek Energy Station
Riesel, Texas

Facility Background

The Sandy Creek Energy Station (SCES) is a nominal 900-megawatt (MW) super-critical electrical generating unit (EGU) that burns low sulfur sub-bituminous coal brought in by train from the Powder River Basin. The unit is equipped with one pulverized coal (PC) boiler, one multiple shell condensing steam turbine generator, multiple steam surface condensers, one multiple cell mechanical draft cooling tower, one auxiliary boiler, and various auxiliary equipment. The Air Quality Control System at the SCES includes Low NOx burners and a selective catalytic reduction (SCR) system to control nitrogen oxides (NOx). A powdered activated carbon injection system is installed to reduce mercury emissions. The SCES also includes a lime-based dry flue-gas desulfurization (FGD) system consisting of spray dry absorbers (SDA) for sulfur dioxide removal and a pulse fabric filter or baghouse for removing particulate matter. The particulate matter captured in the baghouse consist primarily of fly ash and small concentrations of unreacted lime and FGD reaction products.

During the combustion of coal in the boiler non-combustible residues (bottom ash) fall from the PC boiler into quench water and are continuously removed using an enclosed conveyor system and conveyed from a chute onto a concrete pad surrounded on three sides with a concrete enclosure. Ash from the PC boiler's economizer is transported from the economizer area by screw conveyor and dropped onto the bottom ash conveying system and mixed with this bottom ash.

Combustible residues from the boiler, as well as solid particulate matter captured in the baghouse, are referred to as fly ash in the Facility Plan. The fly ash is conveyed via a closed system to a silo. For on-site disposal, a pug mill adds moisture, and the moistened ash is dropped from one of two silo chutes and loaded into open-topped trucks which transfer the fly ash to the Facility's on-site Coal Combustion Residuals (CCR) landfill. For off-site sales, the fly ash is loaded dry from the silo via an enclosed, telescoping system, into enclosed tank trucks for transport off the facility property. A small portion of pre-conditioned fly ash also drops out through the FGD absorber outlet hopper onto a concrete pad and is loaded into trucks via a front-end loader for disposal at the CCR landfill.

Bottom ash and unsold fly ash, as well as other Facility-generated waste types (including cooling water screenings, waste coal, coal mill rejects, water treatment cake material, and waste lime residues) are transported to and placed in the CCR landfill. An unpaved road approximately 0.15 miles in length leads from the Facility to the CCR landfill. At this landfill, the fly ash and bottom ash are compacted for storage.

SCES uses a water truck equipped with pressurized directional sprays to suppress dust on the paved and unpaved roads as well as the active areas of the landfill.

Introduction:

In accordance with the requirements of Title 40 of the Code of Federal Regulations (40 CFR) Part 257, subpart §257.80(c), the 2023 fugitive dust inspection and report includes actions taken to control Coal Combustion Residual fugitive dust, citizens' complaints, and any corrective measures taken during the year. For the control of fugitive dust, the report is broken into four main operational areas as outlined in the Fugitive Dust Control Plan (Rev2 – December 2018).

General Fugitive Dust Control Measures:

The boiler and a large portion of the equipment used to combust coal to generate electricity are located inside a structure that encloses eight floors of the boiler. This enclosed structure reduces fugitive dust emissions generated through the transfer of economizer ash as well as bottom ash. The portions of the facility that are not enclosed utilize barriers, wind fence, drop chutes, and water to reduce the possible production of fugitive dust from the four operational areas. Housekeeping is also an important component in reducing the amount of ash that can produce fugitive dust. The Fugitive Dust Control Plan is broken up into the following four areas:

- **Inspection of Bottom Ash Fugitive Dust Control Measures**
- **Inspection of Fly Ash Fugitive Dust Control Measures**
- **Inspection of Ash Transport Fugitive Dust Control Measures**
- **Inspection of CCR Landfill Fugitive Dust Control Measures**

Inspection of Bottom Ash Fugitive Dust Control Measures

The bottom ash generated from the combustion of sub-bituminous coal in the boiler at the SCES consists of the heavy ash materials that accumulate in the economizer area of the boiler and the bottom ash conveyance quench water system at the base of the boiler. The economizer ash is moved to the bottom ash collection area by a series of screws and dropped onto the wet ash of the ash quench system before being conveyed to the outside storage area. Both ash types will be referred to as bottom ash for this report. The management practices used by SCES personnel to mitigate the accumulation of bottom ash and reduce the production of fugitive dust are as follows:

- Bottom ash residues are generated inside the structure that encloses most of the boiler.
- The bottom ash is wetted prior to deposition onto the outside storage area.
- The bottom ash consists of larger particle sizes that are less prone to the creation of fugitive dust.

- The outside storage area has a concrete floor with three concrete walls that are approximately twenty feet high. The floor of the area has grating that routes stormwater collected in the deposition area to the low flow wastewater treatment pond.
- The bottom ash is removed and transported by open-top trucks to the on-site landfill before the moisture is allowed to dissipate. A reduced vehicle speed of 10 mph (maximum) is enforced at the SCES. Also, truck operations are reduced or halted during high wind events.
- The outside storage area is cleaned on a regular basis to further mitigate the formation of fugitive ash.

Assessment of Effectiveness

During 2024, no third-party complaints were received regarding fugitive dust originating from the bottom ash collection area. On-site personnel working in the area did not report any fugitive dust problems. The annual inspection conducted by a third-party engineer noted no fugitive dust emissions coming from the bottom ash area. Fugitive dust generation is unlikely in the bottom ash drop point due to particle size and moisture content of the ash coming from the quench water. Further, the walls constructed around the drop point suppress wind from picking up the ash and drying out the ash during the summer months.

The containment wall, moisture content of the ash, and the large particle size are all effective in reducing the formation of fugitive dust from the bottom ash collection area. No further measures are required at this time.

Inspection of Fly Ash Fugitive Dust Control Measures

The fly ash generated from the combustion of sub-bituminous coal in the boiler at the SCES consists of the light ash materials that are collected by the baghouse and transported utilizing supplied air through an enclosed system to the fly ash storage silo. A small portion of ash drops by gravity from the SDA hopper outlets onto a concrete floor at the base of the vessel.

The management practices used by the SCES personnel to mitigate the accumulation of fly ash to reduce the production of fugitive dust are as follows:

- The transport system for fly ash is entirely enclosed apart from the FGD absorber module or SDA hopper outlets. The gas path takes the fly ash through the baghouse which captures approximately 99% of the fly ash in the gas stream. The baghouse is monitored continuously using an opacity monitor as well as broken bag indicators. Failures of the baghouse are rare, but when a failure occurs the problem area or baghouse compartment is isolated. The fly ash is cleaned up and baghouse repairs are made as soon as possible to mitigate

the formation of fugitive dust. During cleanup, when possible, water sprays are used to wet the ash.

- The fly ash and unreacted lime collected in the baghouse is then transported by an enclosed system using supplied air to the fly ash silo and recycle ash silo. The recycle ash is used for additional sulfur dioxide removal in the FGD system. The fly ash silo is equipped with a dual filter system or bin vent filter that utilizes differential pressure as a warning that the filter system may be failing. Failures of the filter system are rare, but the system is designed so each side can be repaired with the other is still in operation so the silo should never be without filtration. Any spilled fly ash is cleaned up as soon as possible to mitigate the formation of fugitive dust. During cleanup, when possible, water sprays are used to wet the ash.
- The SDA hopper outlets are under negative pressure and have isolation valves to minimize ash dropout. As chunks of fly ash drop to the concrete floor, the lighter fly ash is re-entrained and transported to the baghouse for removal.
- The fly ash that does accumulate on the concrete floor at the base of the FGD absorber modules is removed on a regular basis by a front-end loader and open top dump truck. Water sprays are utilized to wet the fly ash during the loading process.
- The FGD absorber module hopper outlets area is cleaned at a regular interval to reduce the chance of wind picking up any spilled fly ash.
- A wind fence has also been installed around the FGD absorber module hopper outlets to reduce the wind turbulence through the area and the chances of wind picking up fugitive dust.
- The fly ash in the silo is transferred by two separate methods:
    - The transfer of fly ash for transport to the on-site landfill is wetted in a pug mill prior to dropping into an open top truck. The wetting of the fly ash reduces the formation of fugitive dust emissions while the ash is dropped or transported. An observer watches the filling process to ensure the trucks are not over-filled during the transfer of fly ash from the pug mill to the open trucks.
    - The transfer of fly ash for transport off-site is achieved with a drop chute that forms a seal with a closed tank truck. The fly ash is dry and is not routed through the pug mill. Fugitive fly ash is re-entrained in the chute system and routed to the dust collection system at the top of the silo.
- Fly ash that accumulates at the base of the fly ash silo is required to be cleaned up after the loading of each truck (tank and open top). This requirement is found in the site Multisector General Permit TXR050000, Section O.

Assessment of Effectiveness

No complaints were received regarding the area below the FGD absorber module hopper outlets or Fly Ash silo during 2024. Windscreens were installed in late 2019 to reduce wind turbulence through the FGD absorber module area. The

windscreens have reduced the wind turbulence through the area as well as fugitive dust being entrained by wind turbulence through the FGD absorber module hopper area. The wind screens were replaced in 2022 due to damage to the originally installed screens.

The wind screens, baghouse, recycle ash system bin vent filters, fly ash silo bin vent filters, pug mill, and drop chute are all effective in reducing or eliminating the formation of fugitive dust from the fly ash dust control systems. No further measures are required at this time.

Inspection of Ash Transport Fugitive Dust Control

Bottom ash and fly ash continue to be transported to the on-site landfill by open top dump trucks. Fly ash is also transported off-site in a closed tank truck. The management practices used by SCES personnel to mitigate the accumulation of bottom ash and fly ash to reduce the production of fugitive dust are as follows:

- Bottom ash is moved to the open top trucks utilizing a front-end loader. The ash is transferred while the ash still has moisture to reduce the formation of fugitive dust. The particle size of the bottom ash is also large and reduces the formation of fugitive dust. The bottom ash is also located behind three large retaining walls that are approximately 20 feet high and act to reduce wind turbulence through the area.
- As discussed above, the transfer of fly ash from the FGD area utilizes a front-end loader to move the fly ash accumulated below the FGD absorber module hopper outlets to the open top truck. Water is utilized to reduce the formation of fugitive dust during loading operations. The wind fence also reduces the spread of fugitive dust when the ash is transferred from the drop area onto a waiting truck by slowing wind that passes through the area below the FGD absorber modules.
- From the fly ash silo, ash transported to the landfill is wetted utilizing a pug mill before being dropped into a waiting open top truck. The pug mill reduces the formation of fugitive dust formation and transport. A spotter also ensures the trucks are not overfilled during the transfer process.
- From the fly ash silo, ash transported off-site via tank truck is transferred dry through a drop chute system that forms a seal with a closed tank truck. The chute is equipped with a system that transports fugitive fly ash back into the silo.
    - Operators work to ensure the tank trucks are not overfilled by timing the drop of ash.
    - If a small amount of fly ash does accumulate at the point where the seal is made with the tank opening, the ash is washed off utilizing a gantry/wash station constructed to allow drivers to access the top of the tank and close the hatch. Following the completion of the fill cycle the

tank trucks then move to the scales to be weighed and then move to a gantry platform to close the tank opening and wash the residue ash from the top of the tank truck into a small pit collection area.
        - The water in the small pit is cleaned out as needed but is often cleaned daily due to the accumulation of contact water. The pit is not allowed to dry out and is not allowed to overflow the sides.
    - If a tank truck is overfilled the truck will back into a designated area and hook into a hose that removes the excess ash to the flue gas stream leading into the unit baghouse. Small spills associated with disengaging the hose are cleaned up immediately as required by the multisector stormwater permit. The area where tank trucks are permitted to back up and off-load excess ash is permanently paved with concrete, which allows small deposits of ash to be easily cleaned up when decoupling.
- The road to the landfill continues to be periodically graded and a speed limit of 10 mph is enforced. Also, truck operations are reduced or halted during high wind events.
- During dry conditions, a water truck is utilized to water the landfill road and active working face of the landfill to reduce the formation of fugitive emissions.

Assessment of Effectiveness

No complaints were received regarding the transport of ash during 2024. Personnel continue to adhere to the above work practices in order to mitigate the formation of fugitive dust. No further measures are required at this time.

Inspection of CCR Landfill Fugitive Dust Control

The management practices used by SCES personnel to mitigate the production of fugitive dust in the landfill are as follows:

- Prior to placement of the ash in the landfill it is conditioned with water as explained through the above processes.
- After the ash has been deposited into the working face of the landfill, a compactor and/or dozer is used to compact the ash.
- The active area of the landfill is also closely controlled due to New Source Review Permit 70861, Condition 25. This requirement restricts the landfill to only have five acres of the landfill open at any time. The active working area of the landfill is restricted to one acre.
- A water truck is also utilized to water the compacted areas of the landfill. Once the wetted fly ash dries, the ash forms a hard crust that further minimizes the potential for the formation of fugitive dust.
- Temporary cover is utilized on inactive portions of the landfill to reduce wind erosion.

- A berm surrounds the outside of the open, inactive area and active ash placement areas. The ash is graded to direct contact stormwater to the chimney drain which is a part of the leachate management system.
- All plant roads are watered on a regular basis during dry periods.

Assessment of Effectiveness

No complaints were received regarding the transport of ash during 2024. Personnel continue to adhere to the above work practices in order to mitigate the formation of fugitive dust. No further measures are required at this time.

Summary of Citizen Complaints

There were no citizen complaints associated with or related to Coal Combustion Residual dust during 2024. The last complaint related to Coal Combustion Residual dust was received on October 2, 2018, regarding dust coming from the off-site transport of ash in the tank trucks. A wash station with collection pit was installed and is utilized by each individual tank truck driver before leaving the site.

Corrective Actions

Process adjustments in the operation of the FGD absorber modules were made to address plugging of the fly ash piping system. One of these adjustments resulted in an increase of fly ash accumulation in the FGD absorber module hoppers and a corresponding decrease of accumulation in the fly ash silo, transferring fugitive emissions from one point to the other. This adjustment was reversed in October and fly ash accumulation at the FGD absorber modules has returned to historical norms.

There were no corrective actions associated with the management of ash systems at the SCES. Personnel perform maintenance on the current mechanical treatment systems on a time-based interval to minimize mechanical failures. Periodic inspections are also conducted to remove worn bags in the baghouses at the SCES. Housekeeping practices are also adhered to on a daily basis to manage the sources of fugitive dust.