Permit to Operate (Change of Conditions Without Prior Approval)

Applicant Long Beach City, Southeast Resource Recovery Facility (SERRF)

Mailing Address 120 Pier S. Avenue
Long Beach, CA 90802

Equipment Location 100 – 120 Henry Ford Avenue
Long Beach, CA 90802-1039

APPLICATION 556341, FACILITY ID 044577
Equipment Description

BOTTOM ASH HANDLING, TREATMENT AND STORAGE SYSTEM CONSISTING OF:

1. TWO BOTTOM ASH RESIDUE CONVEYORS, VIBRATORY TYPE, BOTH SERVING ALL THREE COMBUSTOR/BOILERS OF THE RESOURCE RECOVERY SYSTEMS # 1, 2 AND 3.

2. THREE ASH QUENCH TANKS, WITH RAM EXTRACTORS, EACH SERVING ONE COMBUSTOR/BOILER OF THE RESOURCE RECOVERY SYSTEMS # 1, 2 AND 3.

3. TWO BOTTOM ASH BELT CONVEYORS.

4. SIX DRAG CHAIN UNDERGRATE SIFTING CONVEYORS, SERVING THE THREE COMBUSTOR/BOILERS AND DISCHARGING INTO THE THREE ASH QUENCH TANKS WITH RAM EXTRACTORS IDENTIFIED IN #2 ABOVE.

5. SIX COMBUSTOR/BOILER 4TH PASS SCREW CONVEYORS, SERVING THE THREE COMBUSTOR/BOILERS AND DISCHARGING INTO THE THREE ASH QUENCH TANKS WITH RAM EXTRACTORS IDENTIFIED IN #2 ABOVE.

6. ASH/RESIDUE STORAGE BUILDING, 76’ L. X 104’ W. X 22’ H., ENCLOSED, WITH TRUCK ACCESS DOORS, EACH 18’ W. X 18’ H.

7. PHOSPHORIC ACID STORAGE TANK, 10,000 GALLON CAPACITY, COMMON TO THE FLYASH TREATMENT SYSTEM.

8. HOOD VENTILATION SYSTEM VENTING THE PHOSPHATE TREATMENT AREA TO THE EXISTING COMBUSTOR/BOILERS.

9. BUCKET ELEVATOR, CEMENT TRANSPORT, BOTTOM ASH VIBRATING GRIZZLY SCREEN DISCHARGE.

10. BOTTOM ASH GRIZZLY SCREEN, VIBRATORY TYPE (BOTTOM ASH BELT CONVEYOR DISCHARGE UNDERS), 6’- 0” WIDE, TWO INCH SCREENING.

11 TWO BOTTOM ASH CONVEYORS, VIBRATORY TYPE, GRIZZLY SCREEN DISCHARGE.

12. OPTIONAL PORTABLE TROMMEL SCREEN, FOR METAL RECOVERY, WITH IN-FEED CONVEYOR, AND FINES COLLECTION AND DISCHARGE CONVEYORS.

13. SIX SCREW CONVEYORS, CEMENT TRANSPORT (FROM AN EXISTING CEMENT BIN TO A LOCATION BELOW THE BOTTOM ASH SCREEN.

14. PNEUMATIC CONVEYOR, CEMENT TRANSPORT (FROM AN EXISTING CEMENT BIN TO A LOCATION BELOW THE BOTTOM ASH SCREEN).

Background/Process Description

The above application was submitted on September 24, 2013 for a Permit to Operate, Change of Conditions Without Prior Approval application type (Class 3) with expedited permit processing (XPP) to include a metal recovery trommel screen into the bottom ash handling, treatment, and storage system under current Permit F35537, A/N 312316. As a result of the annual Compliance Title V Permit review on August 8, 2013, it was determined that the trommel screen was not included in the existing bottom ash handling permit. The applicant believes this may be due to staff possibly overlooking the equipment during the permitting process. This application does not result in any emission increases and does not require any operational changes.

The facility is a Refuse to Energy facility that burns approximately 1,380 tons per day of municipal refuse and produces 36 MW of electricity. Excess electricity produced is sold to Southern California Edison. Refuse is transferred to the facility by truck. Trucks deposit the refuse into a large receiving pit inside the building. Overhead bridge cranes are used for mixing, charging and removal of non-combustibles. The three combustor/boiler systems combust the waste and generate heat which is used in the boilers to generate steam. The steam drives a turbine which drives a generator to produce electricity. The exhaust from the combustors is vented to an air pollution control system, which use a spray drier for SOx and acid gas removal and a baghouse for particulate matter control. Odors and particulate matter emissions from the receiving area are vented to the combustor/boiler system for incineration. NOx emissions are controlled with a Selective Non-Catalytic Reduction (SNCR) system. The SNCR will reduce the NOx emissions by 20% to 50%.

Bottom ash from the combustion of refuse in the three refuse fired boilers is collected, conveyed, and stored and is subsequently treated by mixing with cement and phosphoric acid to form a stable matrix that is suitable for transportation and disposal at a landfill. Each boiler is rated at 460 tons/day of municipal solid waste. The bottom ash contains metal, glass, and other non-combustible residues that discharge from each boiler by a water impounded hydraulically operated ram extractor. The unburned combustibles are less than 5% of the residue and the dewatered combined ash moisture content is less than 25%.

A pivot gate in the discharge chute of each boiler directs the extractor discharge to one of the two vibrating conveyors. The vibrating conveyor transports the bottom ash horizontally to the discharge end, where bottom ash flows by gravity to an inclined belt conveyor that elevates the ash for discharge into a metal Grizzly screen separator located in the ash storage building. The separated metals are then fed to the portable trommel screen, which is also located inside the controlled bottom ash building and is operated only as needed. This facility recycles approximately 825 tons of metals each month.

There is no school within 1000 feet of emission source. The maximum operating schedule is 24 hours/day, 7 days/week, 52 weeks/year. There are no Notices to Comply or Notices of Violation issued and no complaints received in the last 2 years.

Emission Calculations

PM10 emission increase due to addition of trommel screen
0.0022 lbs/ton (controlled fines screening)
0.00110 lbs/ton (uncontrolled loading/unloading/conveyor transfer point)
Based on EPA AP-42, 11.19.2, Table 11.19.2-2 (8/2004)
R1 = R2 = [(0.00110 lbs/ton x 2 transfer points-uncontrolled conveying) + (0.0022 lbs/ton x 1 fines screening-controlled)] x 484 tons/day x day/24hr x (1.0-0.95) = 0.00 lb/hr = 0 lbs/day (NSR)

Assume 95% control from controlled bottom ash building.
There is no emission increase from the addition of the trommel screen. BACT is not applicable since there is no emission increase.

Rules Evaluation

Rule 212: Rule 212 (c)(1)- There is no school within 1000 feet of the facility.
Rule 212 (c)(2)- There is no emission increase due to the addition of the trommel screen.
Rule 212(c)(3)- There is no emission increase of toxic air contaminants.
Public Notice is not required.

Rule 401: Visible Emissions
No violations are expected, limits are listed under Rule 401(b)(1).

Rule 402: Nuisance
Nuisance is not expected with proper operation, monitoring and maintenance. Based on previous operation of the facility for the last two years, compliance is expected. No complaints have been received in the last two years against the facility.

Rule 404: Particulate Matter
No violations are expected limits are listed under Rule 404 Table 404(a).

Rule 405: Solid Particulate Matter-Concentration
No violations are expected limits are listed under Rule 405 Table 404(a).
484 tons/day = 40,333 lbs/hr → 13.8 lbs/hr PM. There is no emission increase.

Reg XIII: Rule 1303(a)- BACT was not triggered since there is no emission increase.
Rule 1303(b)(1)- There was no emission increase. Modeling is not required.
Rule 1303(b)(2)- Offsets are not required, since there is no emission increase.
Compliance is expected.

Rule 1401: Toxic Air Contaminants
Rule 1401(d)(1)(B)- There is no expected increase in Toxic Air Contaminant (TACs) emissions. Therefore this is no expected increase in MICR, cancer burden, HIA or HIA.
Compliance is expected.

Rule 1401.1: Requirements for New and Relocated Facilities Near Schools
Rule 1401.1(b)- Not applicable, since the facility is an existing facility.

Reg. XXX: Including an optional portable trommel in the permit equipment description is considered a Title V Minor permit revision under Rule 3000(b)(15), since the there is no emission increase and the modification of the equipment does not result in new or additional NSPS or NESHAP requirements and will be subject to an EPA review (Rule 3003 (j)). A public notice is not required.
Compliance is expected.

Conclusions & Recommendations

The equipment is in compliance with the Rules and Regulations of the SCAQMD. A Permit to Operate is recommended for application 556341 after EPA review. For Permit Conditions please see Sample Permits.