THE LANDIS SEWERAGE AUTHORITY

Environmental Justice Presentation and Information
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Prepared for Landis Sewerage Authority by:

enviroCOP
COMPLIANCE OVER PENALTIES™

Introduction –

Landis Sewerage Authority (LSA) operates a Wastewater Treatment facility (WWTF) located at 1776 South Mill Road, In Vineland, New Jersey. The WWTF facility has a design flow of 10.2 million gallons per day (MGD) with average flows of 5.32 MGD. The facility consists of two (2) one million gallon per day equalization basins, Six (6) 500,000 gallon denitrification basins and eight (8) 800,000 aeration basins, two (2) 980,000 gallon digester tanks along with two (2) 1.9 million gallon sludge storage tanks. NJDEP has determined that the City of Vineland is in a Environmental Justice Overburdened Community (OBC). A map showing the location of the LSA WWTF is included. The blue area depicts an OBC. (attachment 1)

Air Pollution Permits/Certificates –

LSA is registered with the New Jersey Department of Environmental Protection (NJDEP) and has an Air Program Interest No. 75224

Besides the equipment listed in the introduction, the facility has air permits approved by the New Jersey Department of Environmental Protection as follows:

- **General Air Permit (GP190002) - diesel fired Emergency Generators**
    - Main Facility Emergency Generator
    - Trailer Mounted Emergency Generator

- Both diesel powered generators are allowed to operate for fifty (50) hours per year for testing and maintenance (except for ozone action days declared by NJDEP). In an emergency, these generators can operate as many hours as needed until the end of the emergency. New Jersey's Air Quality is based on the National Air Quality Index System, which looks at 5 major pollutant levels currently in the air, compares those pollutant levels to established health standards, and then gives the air a current rating (or grade), such as "good" or "unhealthy." The prohibition from testing/maintaining Emergency Generators on certain days is designed to ensure that NJ's air quality does not get worse on those days with unhealthful air. The prohibition ensures that NJ's air quality will not get worse for operating auxiliary equipment, such as emergency generators on days with unhealthful air and help protect the public health from the harmful effects of unhealthy air.

- **Pre-Construction Air Permit (PCP190002) –** (attachments 2 & 3)
    - Combine Heat and Power (CHP) Engine (see attachment 4)
    - Hot Water Boiler 1 (see attachment 5)
    - Hot Water Boiler 2 (see attachment 5)
    - Emergency Flare (see attachment 6)
  - Gas from the two (2) anerobic digester tanks is sent to the 170 kW CHP clean burning engine which generates electricity that is used at the LSA WWTF. This allows the facility to reduce its dependence on electricity from outside the facility and reduce its own carbon footprint by reducing C02 emissions by approximately 800 tons/year.
  - The facility also directs digester gas to both hot water boilers. The boilers provide 900,000 BTU of hot water per hour to be used at the main office building and other areas/equipment throughout the LSA WWTF.
  - Finally, an emergency flare is on-site to be used to burn excess gas that cannot be used in either of the two boilers or the CHP engine.

- **Pre-Construction Air Permit (PCP210001) – Fats/Oils/Grease (FOG) Tank**
  Instead of burning FOG material at a incinerator or sending it to a landfill for disposal, the LSA WWTF accepts FOG material which includes grease traps from restaurants and food establishments. The material is then mixed with sewerage from the facility in the anerobic digesters tanks. (attachments 7a, 7b, 7c, 7d, 7e and 7f)

    - This permit consists of a FOG receiving area, concrete truck loading pad (see attachment 8) where FOG material is then pumped via a heated submerged fill pipes to an 18,000-gallon aboveground tank. (see attachment 9)
    - Air emissions from the heated concrete FOG storage tank are directed to a woodchip biofilter where microbes feed on the nutrient rich material and reduces any emissions.

Copies of the LSA approved air pollution permits/certificates can be found at the NJDEP Air program Website: https://dep.nj.gov/boss/ and selecting Reports, then Approved Permits and using the Air PI 75224 to select the Landis sewerage Authority WWTF.

LSA's Other Green Energy Projects -

Besides producing electricity from the CHP engine, LSA has engaged in other projects that produce electricity such as:

- An eight (8) Megawatt (MW) solar array is on LSA property. This solar array powers approximately 500 homes in the City of Vineland further reducing the City of Vineland's carbon footprint. (see attachment 10)
- A 2.6 kW wind turbine is mounted on a 45-foot monopole. (see attachment 11)
- Over 100,000 trees have been planted on LSA property.

With the combination of the CHP Engine, Solar Array and Wind Turbine, THE LSA produces more energy than it uses. Supplying the excess electricity to the grid assists LSA in reducing customer's cost.

LSA's Environmentally Friendly Projects –

- LSA Treated Bio-solids, which are rich in nitrogen and phosphorus, are used to organically fertilize 550 acres of LSA property and used to grow hay and straw and southern Pine trees. (attachment 12)
- LSA returns approximately 1.8 billion gallons of highly treated effluent to the ground, using infiltration basins and spray irrigation that helps recharge the aquifer, rather than discharging into a river or ocean as other WWTF do. It also supports the wetlands in the surrounding area.
- LSA has planted approximately 100,000 loblolly, short leaf, and white cedar trees. These trees capture carbon, removing greenhouse gases from the atmosphere. (see attachments 13a, 13b and 13c)
- Installed a two car EV charging station, using energy produced from the wind turbine.
- Operates two (2) electric vehicles (SUVs), thus eliminating fossil fuel and CO2 and other emissions to the atmosphere. (see attachment 14)

Why is LSA having this Public Meeting –

On September 22, 2001, NJDEP Commissioner signed an Administrative Order (AO 2021-25) to support and assist facilities in complying with the upcoming Environmental Justice Law. This law provides for community engagement of the environmental and public health impacts, and identifies ways to minimize those impacts.

LSA, with the assistance of enviroCOP, LLC, submitted a modification to an Air Pollution Permit (PCP190002) on April 3, 2023 to NJDEP. Because LSA processes sludge and liquid food waste (FOG material), as defined by USEPA it needs to undergo the Community Engagement and Public Meeting process found in AO 2021-25. . As stated earlier, LSA does not process more

than50 million gallons per day of flow, nor is a major facility as defined by NJDEP. The AO2021-25 process includes the following:

- Public meeting
- Public Comment Period (no less than 60 days)
- Response by LSA on public comments
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These items must be completed prior to the review of the submitted air permit application/modification PCPO230001 by the NJDEP.

Stressors Identified in Vineland City –

Based on NJDEP Overburdened Community Stressor Summary, the main stressors that could be tied to the LSA facility are the following: (attachment 15)

- Ground Level Ozone
- Cancer Risk from Diesel Particulate Matter
- Traffic (cars, trucks Heavy Duty Trucks and Railways)

TRAFFIC –
LSA facility does not significantly contribute to any of these stressors in the community. There are no railway tracks that work through the LSA facility. Car emissions are offset using LSA electric car and EV charging station. The electricity for the charging station is generated by the on-site windmill. Although there may be some truck traffic from the transporting of FOG material. Those emissions are minimal in comparison to the diesel emissions from trucks travelling on Route 55 or 47.

CANCER RISK FROM DIESEL PARTICULATE MATTER – (attachment 16)
Again, there are minimal diesel emissions from trucks at the LSA facility. Unlike other WWTF, Solid material are land applied to use as fertilizer on the LSA property. No trucks are used to haul away solid materials. Therefore, the cancer risk from diesel particulate matter is very small in comparison to that of other industrial sources or mobile (truck) sources within the City of Vineland. The transportation sector (trucks, trains, and cars) is the greatest contributor overall to diesel emissions.

GROUND LEVEL OZONE –
Ground level ozone is formed when Volatile Organics (VOC) and Nitrogen Oxides (NOx) react in sunlight. Emissions from electric Utilities, motor vehicle exhaust and gasoline vapors are major sources of VOC and NOx emissions. (attachment 17)
LSA is not a significant contributor to ground level ozone. There are a few combustion emissions sources at the facility that are minimal contributors to the overall combustion emissions in the City of Vineland. LSA has installed solar arrays to power 500 homes in Vineland and thus

reduces emissions contributed by electric utility. LSA uses gases from the anerobic digestors to produce hot water in boilers and electricity from the CHP engine used within the facility, eliminating the need for outside utilities. Motor vehicle exhaust is reduced using electric vehicles by LSA personnel. Vehicle exhaust is the No. 1 contributor to Ozone formation in New Jersey.

What Modifications does PCP230001 include –

- Increase the number of hours the Hot Water Boilers (No. 1 and 2) can use No. 2 fuel oil from 3,000 per year to 8,700 hours per year. No. 2 Fuel Oil is a back up fuel used only in cases of a malfunction of the digester gas system. There would be an increase of particulate matter, Carbon Monoxide and Nitrogen Oxide emissions. However, firing of No. 2 fuel oil is only used in the event of a malfunction of the digester gas system.
- Add natural gas as a back-up fuel to Boilers No. 1 and 2 (future) which would eliminate No. 2 fuel oil and further reduce emissions. Firing natural gas would reduce emissions versus No. 2 fuel oil. This would be an approximate 50% reduction from firing No. 2 Oil in the boilers.
- Increase slightly H2S emissions from CHP Engine while still reducing 95% of H2S in the digester gas pretreatment equipment. 98% of remaining H2S emissions are converted to SO2 emissions in the combustion process. H2S emissions will have no impact on the surrounding community.
- Correct SO2 emissions currently listed in approved NJDEP air permit PCP19002, prior to pre-treatment and going to the Hot Water Boilers. These emissions were previously underestimated. However, the SO2 emissions will still be below the NJDEP limit of 310 PPM SO2 at 12 % CO2 which is the current limit in the approved air permit. Therefore, there will be no net increase.

What special considerations does LSA expect to implement to ensure there are no impacts to the community and environmental health.

- LSA plans to continue its comprehensive Odor Control Survey of H2S emissions. LSA has instituted an odor control plan to monitor H2S emissions around its property to ensure there will be no environmental or public health impacts concerns to the community.
- LSA has established an emergency phone number for the community to contact LSA in the event they have any environmental concern. This phone number can be found on the LSA website – htpps://landissewerageauthority.com

- LSA has previously completed an air model of H2S emissions that have shown no environmental impact off the LSA property.
- LSA has not had any odor related complaints reported to NJDEP.
- The LSA mission statement is to operate the WWTF in a manner to protect the environment by proper collection and treatment of wastewater in compliance with our NJDEP permits and regulations.

CONCLUSIONS –

With the environmentally green projects completed by LSA, the emissions from the WWTF will have no impact on the overall air quality for the City of Vineland. In fact, emissions of Greenhouse gasses and criterial pollutants from the LSA WWTF are being reduced by the implementation of the environmentally beneficial projects being operated at the LSA facility.

Questions/comments on any of the material provided should be addressed to:
Anthony Tobolski, executive Director, Landis Sewerage Authority, 1776 South Mill Road, Vineland, New Jersey 08360
or by email to athonytobolski@landissewerageauthority.com

LSA will respond in writing to each comment submitted.

List of Attachments –

1) Map of LSA WWTF in OBC
2) Flow Diagram of Biogas to CHP engine/boilers and flare
3) Flow Diagram of Biogas Flow and Biogas Conditioning System
4) Picture of CHP Engine
5) Picture of Hot Water Boiler
6) Picture of Emergency Flare
7) Picture of FOG waste (7a, 7b, 7c, 7d, 7e, and 7f)
8) Picture of FOG receiving area
9) Picture of Fog Tank
10) Picture of LSA solar array field
11) Picture of LSA wind turbine
12) Picture of LSA hay field
13) Picture of LSA tree planting (13a, 13b, 13c)
14) Picture of LSA two vehicle charging station
15) NJDEP OBC Stressor Summary
16) USEPA Info on Diesel Particulate Matter
17) USEPA Picture of How Ground Level Ozone is formed