SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES	PAGE
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STATIONARY SOURCE COMPLIANCE DIVISION	APPL NO	DATE
	510147	9/11/10
PERMIT APPLICATION PROCESSING AND CALCULATIONS	PROCESSED BY	CHECKED BY
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Applicant

Sunshine Canyon Landfill
14747 San Fernando Road
Sylmar, CA 91342

Equipment Location

SAME

Equipment Description

LANDFILL LEACHATE/CONDENSATE COLLECTION AND TREATMENT SYSTEM CONSISITNG OF:

1. LEACHATE/LANDFILL CONDENSATE EXTRACTION WELLS, PUMPS AND PIPING.

2. INFLUENT SURGE TANK, LEACHATE/CONDENSATE, 8,000 GALLONS, VENTED TO A 200 LB CARBON ADSORBER.

3. EMERGENCY STORAGE TANK, LEACHATE/CONDENSATE, 12,000 GALLONS, VENTED TO A 200 LB CARBON ADSORBER (COMMON TO THE INFLUENT SURGE TANK).

4. TWO AERATION BLOWERS, EACH 300 SCFM MAXIMUM FLOW RATE.

5. TWO PACT REACTORS, LEACHATE/CONDENSATE, EACH 15,000 GALLONS, VENTED TO TWO CARBON ADSORBERS, IN SERIES, EACH 2,000 LBS OF ACTIVATED CARBON.

6. SLUDGE STORAGE TANK, UP TO 5,000 GALLONS, VENTED TO A 200 LB CARBON ADSORBER.

7. SLUDGE FILTER PRESS, 50 GAL/HR

8. SODIUM HYDROXIDE TANK

9. NUTRIENTS TANK, AMMONIUM PHOSPHATE/PHOSPHORIC ACID, UP TO 325 GAL.

10. ASSOCIATED PUMPS

History

The Sunshine Canyon Landfill is an active Class III landfill. The site is surrounded by hills and a freeway with the exception of the south side where a housing complex is located approximately half a mile. This application was submitted to install a second landfill leachate/condensate treatment system. This system will be used to treat leachate/condensate with higher voc content with the use of a Powder Activated Carbon Treatment (PACT) reactor. A Rule 441 research operation was performed in order to determine the efficiency of the Powder Activated Carbon Treatment (PACT) reactor under A/N 510401to see if the VOC concentrations in the leachate/condensate will not exceed 45 ug/l. The test showed less than 5 ug/l.

Process Description

Landfill condensate/leachate will be pumped into an 8,000 gallon influent tank. In addition, an emergency condensate/leachate storage tank with 12,000 gallons will be installed for emergency overflow. The condensate/leachate will then be pumped into two PACT reactors (4,000 gallon batch) connected in parallel. Prior to entering the PACT reactors, the liquid will be treated with sodium hydroxide and nutrients such as ammonium phosphate/phosphoric acid will be added. Air will pumped into the reactor at 300 cfm in order to enhance the reaction. The PACT media grows bacteria on its surface and adsorbs volatile organic compounds and other compounds which are then biodegraded by the activated sludge bacteria to essentially CO2 and water. When treatment is completed, the condensate will be pumped into a 500 gallon effluent tank for onsite use. Sludge from the PACT reactors will be pumped into a storage tank for offsite disposal. The sludge will be filter pressed and the water will be recycled thru the treatment system. The sludge cake will be tested and if hazardous, shipped offsite. If not hazardous, it will be landfill at the working face. The influent surge and sludge storage tank will each be passively vented to a 200 lb activated carbon drum. The PACT reactors will each be passively vented to two carbon adsorbers in series, each with 2,000 pounds of activated carbon. See applicant's Table 4 for monitoring schedule.

Calculations

Max. groundwater flow = 20,000 gpd (833 gph)
Assume 99% removal by PACT reactor and 50% capture in carbon adsorbers.

ROG emissions in exhaust of carbon:
Per applicant (Table 4), corrected to 20,000 gpd.

R1 = 3.355 lbs/day x 20,000/6,000 x (1-0.99)
= 0.11 lbs/day
= 0.0047 lbs/hr

R2 =0.11 lbs/day x (1-0.50)
= 0.055 lbs/day
= 0.0023 lbs/hr

Carbon changeout (2000 lb vessel):
0.11 lbs/day x (1-0.50) = 0.055 lbs/day out of carbon filter, 0.055 lbs/day captured in carbon.

2000 lbs C x 0.008 lbs VOC/lb C = 16 lbs VOC capacity
VOC = (0.055) lbs/day captured
16 lbs VOC x day/0.055 lbs VOC = 290 days

Carbon changeout (200 lb vessel):

Per Tank Program, results show 0.11 lbs/yr (0.0003 lbs/day) VOC out of tank and into carbon adsorber (assuming TOC = VOC).

200 lbs C x 0.008 lbs VOC/lb C = 1.6 lbs VOC capacity
VOC = (0.0003) lbs/day captured
1.6 lbs VOC x day/0.0003 lbs VOC = 5330 days

Evaluation

CEQA: Not required. See signed Form 400-CEQA

Rule 212: Emissions are less than 212(g), toxic risk is less than one in a million and no school within 1000 feet. Therefore, a public notice is not required.

Rule 401: Visible Emissions
No violations are expected

Rule 402: Nuisance
Nuisance is not expected.

Reg. XIII: New Source Review
PACT reactor vented to carbon adsorber is considered BACT.
Modeling for VOC is not required.

Rule 1401: Emission levels are below the Table -1A Screening Levels. Risk assessment calculations are not required. Toxic risk, HIC and HIA are in compliance.

Reg XXX: Title V Permits
This is a “de minimis” permit revision (emission increase is less than 1 lb/day) which requires a 45 day EPA notice.

Conclusions and Recommendations

The equipment is in compliance with the Rules and Regulations of the SCAQMD. Recommend issuing a revised Tile V Permit to include a Permit to Construct/Operate for this equipment after a 45 day EPA notice.

Conditions

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THIS APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. THIS EQUIPMENT SHALL BE OPERATED AND MAINTAINED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION
   [RULE 204]

4. THE OPERATION OF THIS EQUIPMENT SHALL NOT RESULT IN THE RELEASE OF ANY RAW LANDFILL GAS.
   [RULE 402]

5. THE OPERATION OF THIS EQUIPMENT SHALL NOT RESULT IN THE DISCHARGE OF UNTREATED ODOROUS LIQUID.
   [RULE 402]

6. THE TOTAL AMOUNT OF LEACHATE/CONDENSATE TREATED (IN THE TREATMENT SYSTEM) SHALL NOT EXCEED 20,000 GALLONS PER DAY.
   [RULE 1303(b)(2)-OFFSET]

7. A TOTALIZING FLOW METER SHALL BE INSTALLED AT THE INFLUENT FEED LINE AND AT THE EFFLUENT DISCHARGE LINE TO INDICATE THE TOTAL AMOUNT (IN GALLONS) OF LEACHATE/CONDENSATE TREATED BY THIS SYSTEM.
   [RULE1303(a)(1)-BACT

8. THE PACT REACTOR SHALL NOT BE OPERATED UNLESS OFF GASES ARE VENTED TO TWO CARBON ADSORBERS, CONNECTED IN SERIES, EACH WITH AT LEAST 2000 LBS OF ACTIVATED CARBON.
   [RULE 1303(a)(1)-BACT]

9. THE CONCENTRATION OF TOTAL NON-METHANE HYDROCARBONS SHALL BE MEASURED AND RECORDED AT THE INLET, MIDPOINT AND THE OUTLET OF CARBON ADSORBERS VENTING THE PACT REACTORS, AT LEAST QUARTERLY USING AN ORGANIC VAPOR ANALYZER OR OTHER APPROVED METHOD. THE MONITOR SHALL BE CALIBRATED WITH OR RESULTS CORRELATED TO HEXANE, AND MAINTAINED AND CALIBRATED PER EPA METHOD 21. CALIBRATION SHALL BE PERFORMED PRIOR TO EACH MONITORING VISIT.
[RULE 1303(a)(1)-BACT]

10. WHENEVER THE TNMOC CONCENTRATION AT THE OUTLET OF THE PRIMARY CARBON ADSORBER INDICATES THAT THE ADSORPTION EFFICIENCY HAS DROPPED BELOW 90 PERCENT AND EXCEEDS 50 PPM, THE CARBON SHALL BE REPLACED AS FOLLOWS:

    I. PRIMARY CARBON ADSORBER SHALL BE REPLACED WITH EITHER FRESH ACTIVATED CARBON OR,

    II. ADSORBENT FROM THE SECONDARY ADSORBER AND THE SECONDARY CARBON ADSORBER SHALL BE REPLACED WITH FRESH ACTIVATED CARBON.

    [RULE 1303(a)(1)-BACT]

11. SPENT CARBON FROM THE CARBON ADSORBERS SHALL BE STORED IN CLOSED CONTAINERS PRIOR TO DISPOSAL OR REGENERATION.
[RULE 402]

12. THE INFLUENT SURGE TANK AND EMERGENCY STORAGE TANK SHALL BE VENTED TO A COMMON CARBON ADSORBER WITH AT LEAST 200 LBS OF ACTIVATED CARBON.
[RULE 1303(a)(1)-BACT]

13. THE SLUDGE STORAGE TANK SHALL BE VENTED TO A CARBON ADSORBER, WITH AT LEAST 200 LBS OF ACTIVATED CARBON.
[RULE 1303(a)(1)-BACT]

14. THE CONCENTRATION OF NMOC SHALL BE MEASURED AND RECORDED AT THE INLET AND OUTLET OF THE CARBON ADSORBERS VENTING THE INFLUENT SURGE TANK, EMERGENCY STORAGE TANK AND THE SLUDGE STORAGE TANK AT LEAST QUARTERLY USING AN ORGANIC VAPOR ANALYZER OR OTHER APPROVED METHOD. THE MONITOR SHALL BE CALIBRATED WITH OR RESULTS CORRELATED TO HEXANE, AND MAINTAINED AND CALIBRATED PER EPA METHOD 21. CALIBRATION SHALL BE PERFORMED PRIOR TO EACH MONITORING VISIT
[RULE 1303(a)(1)-BACT]

15. WHENEVER THE TNMOC CONCENTRATION AT THE OUTLET OF THE CARBON ADSORBER VENTING THE INFLUENT SURGE TANK, EMERGENCY STORAGE TANK AND THE SLUDGE STORAGE TANK INDICATES THAT THE ADSORPTION EFFICIENCY HAS DROPPED BELOW 90 PERCENT, THE CARBON SHALL BE REPLACED.
[RULE 1303(a)(1)-BACT]

16. A LOG SHALL BE MAINTAINED THAT INDICATES THE DATE OF ANY CARBON REPLACEMENT.
[RULE 1303(a)(1)-BACT]

17. TOTAL ORGANIC COMPOUND EMISSIONS FROM THE FINAL OUTLET OFANY OF THE CARBON ADSORBERS TO THE ATMOSPHERE SHALL NOT EXCEED 50 PPMV AS HEXANE.
[RULE 1303(a)(1)-BACT]

18. THE LEACHATE/CONDENSATE FROM THE SLUDGE FILTER PRESS SHALL BE RETURNED TO THE INFLUENT TANK FOR TREATMENT.
[RULE 402, 1303(a)(1)-BACT]

19. ANY LIQUID USED FOR DUST CONTROL OR OTHER PURPOSES SHALL BE ODORLESS, SHALL NOT CONTAIN TOTAL VOLATILE ORGANIC COMPOUNDS IN EXCESS OF 45 UG/L AND SHALL BE MONITORED AND RECORDED MONTHLY.
[RULE 402]

20. SULDGE CAKE FROM THE FILTER PRESS SHALL BE PROPERLY DISPOSED.
[RULE 402]

21. ALL CONNECTIONS, VALVES AND OPENINGS SHALL BE PROPERLY SEALED OR CLOSED TO PREVENT RAW LEACHATE/CONDENSATE VAPORS FROM ENTERING INTO THE ATMOSPHERE.
[RULE 402]

22. ALL LEACHATE/ CONDENSATE COLLECTED SHALL BE PROPERLY DISPOSED OR TREATED.
[RULE 402]

23. RECORDS SHALL BE MAINTINED TO VERIFY COMPLIANCE WITH THE CONDITIONS OF THIS PERMIT FOR AT LEAST TWO YEARS AND MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 1303(a)(1)-BACT]

24. THIS PERMIT SHALL EXPIRE IF CONSTRUCTION OF THIS EQUIPMENT IS NOT COMPLETE WITHIN ONE YEAR FROM THE DATE OF ISSUANCE OF THIS PERMIT UNLESS AN EXTENSION IS GRANTED BY THE EXEECUTIVE OFFICER.
[RULE 204]