



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

February 10, 2012

Anthony Bertrand
Area Environmental Manager
Republic Services, Inc.
Sunshine Canyon Landfill
14747 San Fernando Rd.
Sylmar, CA 91342

Dear Mr. Bertrand:

Evaluation of the Existing Landfill Gas Collection and Control System, Sunshine Canyon Landfill, Prepared by Tetra Tech BAS, November 29, 2011
Third Amended Order for Abatement, December 6, 2011, Conditions 1.a. and 1.b.

The South Coast Air Quality Management District (AQMD) received the above-referenced evaluation report prepared and submitted on your behalf by Tetra Tech BAS (BAS) in accordance with the Third Amended Order for Abatement (O/A). Conditions 1.a. and 1.b. of the O/A, in relevant portions, require Sunshine Canyon Landfill (SCL) to install 7 to 10 vertical wells per week, beginning December 16, 2011, until the maximum number of wells as described in the above-referenced evaluation report has been installed and the AQMD has determined that such number of wells is appropriate. The O/A Conditions also require that the installation of the wells shall be prioritized, subject to approval by the AQMD.

The AQMD staff has thoroughly reviewed the evaluation report and determined that the evaluations conducted by BAS, along with the supplemental evaluation of lateral pipe sizing submitted to AQMD on January 17, 2012, meet the requirements set forth in the O/A. These evaluations concluded that the collection efficiency of the existing gas collection and control system (GCCS) needs improvement. A summary of BAS's recommendations are provided below:

- A. Install up to 70 additional vertical wells based on priorities identified in 13 phases. Areas with most surface emissions will receive new wells first. Recognizing that the O/A requires installation of 7 to 10 wells per week, the report estimates that two phases should be scheduled for completion each week.
- B. Increase flare capacity by:
 - a. Immediate installation of a temporary flare with 3,000 scfm capacity,
 - b. Replace selected sections of GCCS piping to reduce system restrictions,
 - c. Replace Flare No. 8 with a larger capacity Flare No. 9, and
 - d. Evaluate the need for improvement at Flare Nos. 1 and 3.
- C. Begin the permitting process for additional flare capacity by January 2013, in order to provide 100% backup to the landfill gas (LFG) to Energy plant.

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- D. Upon installation of future collection and control system, the flow direction of the gas may change. Additional modeling shall be performed to verify that the pipe sizing analysis is still accurate.

AQMD staff, in general, agrees with BAS's recommendations and hereby approves the evaluation, provided that Republic Services/SCL confirms in writing that the following comments and concerns will be addressed and/or incorporated through the AQMD permitting process (e.g., minimum collection efficiency in Item 1, minimum vacuum in Item 3, and lateral pipe replacement in Item 8, etc.), or otherwise implemented for items that do not need an AQMD permit (e.g., additional evaluation in Item 2, additional information in Item 3, and additional monitoring in Item 6, etc.):

1. The evaluation of the expected gas generation rates and the GCCS system were conducted based on the current methane concentration of 44% and the collection efficiency of 68%. After the recommended improvements are made, the collection efficiency is then assumed to increase to 80%, however, the methane concentration is assumed to remain as 44%. We consider both assumptions to be marginally adequate for two reasons. First, we would expect that the GCCS should perform better than 80%, in order to ensure that the uncollected gas does not migrate into the atmosphere and continue to cause odor issues in the nearby communities. Secondly, when the GCCS collection efficiency improves, we expect the methane concentrations to be somewhat lower. Both of these adjustments would result in an increase in the estimated gas generation rates. Therefore, we recalculated the gas generation rates by using 85% collection efficiency and 42% methane concentration, and found that the estimated gas generation rates are approximately 11% higher than BAS's estimates. For example, at the end of 2016, our estimated rate was 16,420 scfm, instead of BAS's 14,752 scfm. As a result, the total permitted flare capacity of 13,335 scfm (with the proposed Flare #9 in service and Flare #8 on standby) would be exceeded in 2012, rather than BAS's estimate of mid-2014. In other words, SCL would need to immediately proceed to permit additional flare capacities, including but not limited to placing Flare #8 back in regular service in 2012 and installing an additional flare (5th flare) by 2017. In addition, SCL should conduct all necessary activities to maintain a high level of gas collection efficiency (e.g., a minimum of 80% of the estimated generation rates or possibly higher) at all times and well into the future.
2. In the gas generation rate estimates, BAS used the waste acceptance rates provided by Cornerstone, which basically assumes an annual rate of 2,515,000 tons for 2012, gradually increases until it reaches 3,432,000 tons in 2020, and then stays at this rate until 2037. The SCL-LEA has communicated its concerns to us and indicated that the gas generation rate estimates for all future years should be based on the landfill's permitted capacity of 12,100 tons per day, 6 days per week, or 3,775,200 tons per year. **The AQMD requests that SCL submit an additional evaluation by March 1, 2012, that includes the revised waste acceptance rates and 85% collection efficiency at 42% methane concentration discussed in Item 1 above.**
3. The proposed addition of 70 vertical wells is based on the estimated radius of influence (ROI) of 128 feet, which in turn is based on a minimum of 3 inches water column (w.c.) vacuum being applied to all wells and specific well design features to

minimize air intrusion. This initial set of additional wells is acceptable provided that SCL either maintains or exceeds its current level of efforts in monitoring and maintaining all of the wells, and install additional wells on an expedited schedule (i.e., faster than what required by AQMD Rule 1150.1) in areas where the coverage appears to be inadequate. In addition, SCL should apply the 3" w.c. vacuum as a minimum requirement for all wells.

In addition, the SCL-LEA is concerned that the ROI calculations were based in part on the assumption of the waste density of 1,350 lbs/yd³. The SCL-LEA believes that the in-place waste density could be as high as 1,600 lbs/yd³ due to the use of 9" daily soil cover and other considerations. This density could increase as landfill ages. Therefore, SCL is requested to either provide additional information to justify the use of the waste density or additional evaluation of the ROI using the higher waste density as suggested by SCL-LEA.

4. A statement in Section 3.2.1 of the GCCS Evaluation Report indicates that measurements of 500 ppm of methane above background levels are recorded as exceedance and that, based on these results, some areas within SCL's waste footprint do not currently have adequate LFG emissions control. It should be noted that the landfill surface emission monitoring includes both the 500 ppm instantaneous surface monitoring and the 25 ppm integrated surface monitoring. Both are good indicators of insufficient LFG emission control. We believe that the above-mentioned statement was simply an oversight of the report writer and not intended for SCL to rely only on the 500 ppm monitoring results.
5. Since SCL installed very few horizontal collectors in the existing waste fill areas, the evaluations focused primarily on the effectiveness of vertical wells. While this is acceptable for the purpose of the evaluation, we would like to re-emphasize the importance of installing and maintaining the horizontal collectors in a proper manner in order for the landfill to eventually be completed with a fully-integrated, effective gas collection and control system. Therefore, SCL shall continue to install the horizontal collectors in the new fill areas as described in the O/A. As for the existing filled areas, SCL shall install a system of horizontal collectors when each of the filled areas has reached its final elevation.

In addition, the SCL-LEA is particularly concerned about two specific areas where landfill gas can escape the collection system and enter into the atmosphere: (1) the existing filled areas where the edge of the waste footprint meets the liner and (2) the side-slopes (e.g., where the old Republic Logo area was) in the existing filled area. The AQMD urges SCL to step up its effort in monitoring the emissions from these areas and, if any exceedance of 25 ppm or 500 ppm is found, take immediate remedial actions as required by Rule 1150.1 and the O/A. SCL should also consider installing additional vertical, horizontal and/or inclined wells, as appropriate, in these areas to further improve gas collection efficiency in these particular areas of concern.

6. Section 6.2 of the report evaluates the existing blowers with respect to their capabilities to support the desirable outcome of the GCCS and SCL's planned or ongoing actions to upgrade some of the blowers. BAS proposes to re-evaluate the

overall suitability of these blowers after the ongoing flare and blower replacements are completed. We believe that this re-evaluation is necessary and should be implemented as proposed.

7. Except for the timing issues as discussed in Item 1 above, AQMD fully agrees with the statement in Section 7.3 of the report, which recommends that SCL maintain 100% flare capacity, even after the proposed DTE Biomass Energy Co. LFG to energy plant is built. This is essential in order to ensure adequate landfill gas control during the time when the energy plant is shut down for maintenance, and to provide for additional flexibility if additional gas need to be collected to mitigate gas migration.
8. The separate Lateral Pipe Sizing Evaluation submitted on January 15, 2012, identifies that 68 lateral pipes (or 6.8% of all pipes at SCL) analyzed did not meet the requirements of the analysis and thus required replacement. The analysis performed in this evaluation forms a critical basis for maintaining the collection efficiency expected in the subject evaluation. Therefore, it is important for SCL to timely upgrade these undersized lateral pipes. **SCL should further establish a definitive timeline for this task and submit it to the AQMD for approval by March 1, 2012.**

Again, AQMD staff appreciates your timely submittal of the evaluation report. AQMD staff found the report to be well-written and comprehensive, covering all aspects necessary for evaluating the GCCS systems at SCL. If you have any questions or concerns about our comments, please contact me at (909) 396-2664, or by email at JChen@aqmd.gov.

Sincerely,



Jay Chen, P.E.
Senior A.Q. Engineering Manager
Refinery & Waste Management Permitting
Engineering and Compliance

cc: Gus Andraos, TetraTech BAS
Cindy Chen, SCL-LEA
Eugene Tseng, SCL-LEA
Mohsen Nazemi
Jill Whynot
Nancy Feldman
Nick Sanchez
Ed Pupka
Charles Tupac