

SUNSHINE CANYON LANDFILL



October 19, 2012

Michael LoGrande
City of Los Angeles

John Sanabria
County of Los Angeles
Department of City Planning
200 N. Spring Street
Los Angeles, CA 90012

Subject: Report to the Joint Sunshine Canyon Landfill Technical Advisory Committee
November 7, 2012

Dear Mr. LoGrande and Mr. Sanabria:

This report provides an update of items of interest specified by the City of Los Angeles, Planning Department and the County of Los Angeles Department of Planning to be discussed at the November 7, 2012 Joint Sunshine Canyon Landfill Technical Advisory Committee (TAC).

1.0 Current Odor Control Mitigation Measures (City/County)

As reported in the June TAC Report, SCL site personnel continue to implement odor control mitigation measures. A description of the mitigation measures that are being taken or are currently in the process of development are described below.

Mitigation Measures Currently Being Taken

- To eliminate the potential contribution of odors from loads carried by transfer trucks, site supervisors patrol areas close to the site where transfer trucks have been observed parking to wait for the site gates to open at 6 AM. If a transfer truck or any other waste truck is observed parking within a 5-mile radius of the site, they are reminded of the site's policy, told to leave the area and banned from entering the site for the day. Repeat offenders are reported to the hauling company and the drivers are banned from entering the site for a week;
- Condition 1.h.i of the Third Amended Stipulated Order for Abatement (S/O) provides for queuing of trucks beginning at 5 AM within the site gates so trucks do not park on San Fernando Road. This condition also requires SCL to extend the on-site misting system to provide additional mitigation for trucks parked on-site prior to disposal. The extension of the misting system to the scalehouse was completed on December 13, 2011 as required in the S/O. The gates to the site are open at 5 AM, however no trucks are queuing on site from 5 AM to 6 AM;
- Under Abatement Order 3448-13, Condition 1.a., it was required that transfer trucks from Republic-operated transfer stations could not deposit their loads at the site before 9 AM on all Mondays; Condition 1.b. required these transfer station loads be delayed until after 9 AM on all

other days if adverse wind conditions were present. Starting on October 17, 2011, transfer trucks from Republic-operated transfer stations were delayed from coming to the site until after 9 AM Monday through Friday irrespective of wind conditions. The receipt of transfer station loads on Saturdays prior to 9 AM is dependent on whether adverse wind conditions are present. This practice has continued since October 2011;

- SCL has worked with one major customer whose wastestream has been identified as odorous to delay the receipt of their containers until after 9 AM. This practice went into effect on February 1, 2012 continued until mid-August when it was agreed that these trucks could enter the site at 8:30 AM due to routing of these loads;
- SCL staff is continuing to work with major customers regarding actions that can reasonably be taken to mitigate odors in their loads. In January 2012, a misting system that sprays neutralizer on waste was installed at a major customers' facility as a joint effort between Republic Services, the customer and an odor control company. Work to automate the system was done in February 2012 and an evaluation of the effectiveness of this process was performed. Although initial observations of the effectiveness of this system to mitigate odors were favorable, continued observations indicated there were no benefits to continuing the use of the neutralizing system at the facility. This practice was discontinued in September 2012;
- Procedures for the handling and management of odorous loads at Republic-operated transfer stations have been developed and the Operations Supervisors at the transfer stations have been trained on the procedures. These procedures involve identifying odoriferous loads at the transfer stations and notifying SCL personnel when these loads are coming into the site so they can be properly managed. The procedures also call for not accepting the loads if they are deemed too odorous to be handled at SCL. These procedures have remained in effect;
- The procedures for the management of odorous loads at the site have been developed and the site scale house operators have been trained on these procedures. The procedures include identifying loads that register a '4' on SCAQMD's odor classification scale and notifying the site supervisor on duty so the load can be immediately taken to the working face, deposited and covered with a layer of soil. As indicated previously, loads will not be accepted if they are deemed too odorous to be handled at SCL. These procedures have remained in effect;
- Condition 1.g. of the S/O required SCL to develop written procedures for the minimization of odors and emissions during installation and trenching of vertical wells and horizontal collectors. These procedures were submitted to SCAQMD on December 9, 2011. These procedures are being followed by all SCL contractors when they are performing work that involves the installation of wells and/or trenching for the installation of horizontal collectors;
- In accordance with Condition 2.b.i of the Abatement Order, SCL is required to operate at least one DustBoss system during operating hours. This practice continues with the operation of four DustBosses on a daily basis.

Additional Odor Control Measures

SCL personnel worked with the DustBoss manufacturer and an odor control consultant to develop a more efficient system that will have a greater potential to neutralize odorous air particles. The original DustBoss (DB60) was designed for dust control and functions well for that purpose. As designed, the DB60 produced too much water and too large of a water particle to be ideal for controlling odor. The goal of modifying the DB60 is to create water particles in the 5-7 micron

range to have a better chance for impacting with odor particles of the same size. The DB60 has been modified to have a single air atomizing nozzle that creates water particles in the 27-38 micron range with a water flow of approximately 0.5 gallons per minute (gpm). The modifications to the DB60 are intended to produce a smaller, lighter, and thus "faster" deodorizer particle. In conjunction with the DB60 modifications, SCL personnel have been working with an odor control consultant who is developing a new new neutralizing solution to work with the modified DB60.

The first modified DustBoss was placed into operation in May 2012, the second in June 2012 and the third in July 2012, and the fourth in September 2012.

- Three orchard fans have been purchased and modified to run by electricity rather than fuel. The orchard fans are located in the scalehouse area of the site and are operated during the nighttime hours as a mitigation measure to collect potentially odorous air that could accumulate along the ground surface during low wind conditions.

2.0 Landfill Gas Collection System, including completed improvements and planned upgrades & Landfill Gas Monitoring (City/County)

Wellhead Monitoring

Monitoring of the site's landfill gas collection system is conducted in accordance with Federal NSPS (New Source Performance Standards) which require readings of pressure, temperature and oxygen be taken on a monthly basis from each monitoring point. Beginning in March 2011, SCL contracted with Brian A. Stirrat (BAS) and Associates to conduct weekly monitoring of the site's gas collection wells. This frequency was then reduced to bi-monthly monitoring in July 2011 after system improvements had been made.

Surface Emission Monitoring

Monthly surface emission monitoring (SEM) is conducted in accordance with SCAQMD Rule 1150.1 requirements. SEM monitoring consists of instantaneous and integrated monitoring conducted over an approved grid system established over the site.

SEM monitoring was conducted for the first quarter of 2012. For the entire second quarter of 2012, the results based on instantaneous monitoring showed that the City side of the landfill had 64 out of 458 grids that had surface emissions over 500 ppm Total Organic Carbon (TOC). For the entire first quarter of 2012 the County side of the landfill had 54 out of 448 total grids that had surface emissions over 500 ppm Total Organic Carbon (TOC). These grid areas were repaired and the areas passed a 3-day re-check and/or the second 10 day re-check as allowed by the requirements of SCAQMD Rule 1150.1.

Perimeter Probe Monitoring

Rule 1150.1 monitoring requires monthly monitoring of the site's perimeter probes. There were no probes that exceeded the regulatory threshold of 5% methane (%CH₄) for the second quarter of 2012.

3.0 Groundwater Monitoring (City/County)

During the first semi-annual monitoring period of 2012, exceedances of site Water Quality Protection Standards (WQPS) were noted for 1,4-dioxane in downgradient wells MW-1, MW-5 and MW-13R . During this monitoring period, an alternate source demonstration (ASD) was submitted addressing confirmed exceedances as they relate to low level detections of phthalates, polycyclic aromatic hydrocarbons (PAH's) and other semi-volatile organic compounds (SVOC's). The results of the ASD indicate that the reported detections were unlikely to be landfill related and appear to be laboratory related cross-contamination, minor natural crude oil impacts and other false positive indicators. Exceedances for total potassium and ammonia-nitrogen at well PZ-2 was confirmed; however they reflect natural variations in groundwater quality.

Several VOCs were detected from samples collected from the newly installed temporary sub-drain associated with subdrain liquid collection system CC2-3A. This sub-drain receives subsurface groundwater from adjacent portions of the unlined City Landfill Unit 1. Several VOCs were detected from samples collected from Subdrain N outlet. Liquids from this subdrain represent a composite of natural shallow groundwater seepage from various subdrain systems assoaciated with County disposal Phases 1 through V and City Landfill Unit 2, Cell A and CC-1. All discharge from this subdrain is collected and is properly managed at the facility's water treatment system

During the second quarter 2012 monitoring event, a confirmed exceedance of carbon disulfide at MW-6 was noted; previous detections indicate that this low level detection is not landfill related.

During the first semi-annual monitoring period of 2012, the City/County Landfill collected and managed a total of approximately 17,744,269 gallons of liquids from sub-drain, seep water, and groundwater collection systems established at the facility.

The groundwater monitoring program approved by the Los Angeles RWQCB for Sunshine Canyon Landfill is based on quarterly and semi-annual monitoring of 18 groundwater monitoring wells. Samples are analyzed by an EPA-approved analytical laboratory for more than 100 individual potential contaminants as specified by the RWQCB. Statistical analyses are used to identify any trends or changes in concentrations of constituents that could indicate a potential release from the site. In addition to the groundwater wells, monitoring is also conducted for sub-drains and lysimeter liquids. Reports of sampling and monitoring activities, including all analytical results, are submitted to the RWQCB on a semiannual and annual basis.

4.0 Surface Water Management System, Including a Drainage and Erosion Control Plan (City/county)

Management of surface water from the site and the substantial upland non-landfill area that drains to it is a major part of the site's environmental compliance and operational programs.

Functions of the surface water management system include the following:

- Prevent or minimize erosion from the landfill surface;
- Prevent discharge of sediments from the site in excess or regulatory standards;
- Maintain peak stormwater discharges at levels no greater than the pre-landfill condition of the site; and,
- Manage the 100-year, 24 hour storm as required by Title 27 of the California Code of Regulations (CCR).

The surface water management system at Sunshine Canyon has been designed according to requirements of CCR Title 27 and the County of Los Angeles. Its major components were evaluated in the Joint Technical Document for the City/County Landfill, and determined to be in conformance with all requirements.

The following sections describe the existing systems and planned additions that will enable these goals to be met throughout the life of the site, together with an evaluation of the current conditions relative to regulatory compliance.

4.1 Existing Stormwater Management System

The existing surface water management system at Sunshine Canyon consists of three subsystems of drainage controls:

- Permanent Perimeter Drainage System;
- Interim Interior Drainage System; and
- Temporary Erosion and Sediment Control Measures

Elements of each system are described below.

4.1.1 Perimeter Drainage System

The perimeter drainage system contains the major permanent control systems for the landfill. It intercepts all run-on of surface water from non-landfill areas and diverts it away from the landfill area, and manages runoff from landfill areas where refuse elevations are above the site perimeter drainage elevations. Existing elements of the perimeter system include the following, all of which have been designed to handle the peak discharge from the 100-year, 24-hour storm:

- Sedimentation Basin D, located at the far north end of the County area, which receives run-on from the native canyons north of the landfill area.
- Sedimentation Basin B, located on the east side of the County area, which receives runoff from the native East Canyon area and from portions of the landfill area. Basin B is concrete-lined and has a discharge structure designed to level out peak discharges of stormwater.
- Sedimentation Basin A, located on the west side of the County area, which receives run-on from slope and canyon areas west of the landfill area, and runoff from portions of the landfill area on the County side. Basin A is lined with concrete.
- East Perimeter Drainage Channel, is currently completed from Basin D to the Terminal Basin. The final phase of this channel improvement was completed in September 2012.
- West Perimeter Drainage Channel, which is currently completed from Basin D to Basin A. It presently discharges to the interim interior drainage system, as described below. Within the next 5 years it will be completed along the west perimeter of the approved City/County Landfill area, and will discharge directly to the Terminal Basin. When completed, the West Perimeter Channel will collect all drainage from the west side Closed City Landfill, which currently drains to the interim interior system as described below.

- Terminal Sedimentation Basin, located near the site entrance at San Fernando Road. All surface water discharge from the site passes through this concrete-lined basin, which is designed to manage the peak flow from the 100-year storm and discharge no greater flow than the pre-landfill condition of the site.

4.1.2 Interim Interior Drainage System

Until all areas of the City/County Landfill have been developed and filled to elevations above the site perimeter, run-off from areas of the site interior must be managed in a system of basins and channels discharging through the center of the site to the Terminal Basin. At present this includes the entire west side Closed City Landfill, currently active areas of Cells CC-1 and CC-2, and most of Cell A. During the current phase of landfill development in Cells CC-2 and CC-3A, the interim interior system is modified on an annual basis to accommodate the ongoing construction activity. System elements in place for the winter of 2012-2013 include the following:

- A primary drainage channel running from Basin A to the scalehouse area. The initial segment is an asphalt and concrete-lined channel conveying discharge from Basin A along access roads to a point approximately 700 feet below the entrance to the Administration area. This segment collects runoff from the administration area and slopes below it, and from a substantial area of slopes in the County landfill area. It connects to a temporary asphalt and HDPE geomembrane-lined segment that also receives runoff from the west side Closed City Landfill, and extends to the bottom of the scalehouse access road and crosses the road in a concrete box culvert, where it discharges into the Terminal Basin.
- Secondary temporary drainage channels in Cell CC-3A, Part 1. The channel is lined with HDPE membrane and includes road crossings that discharge into a temporary sedimentation basin.
- Large-diameter underground pipes that collect discharges from the above-referenced temporary basins, various catch basins and other points in the landfill interior. Two 60-inch diameter corrugated HDPE pipes collect from points north of the scalehouse, and discharge to two 90-inch corrugated steel pipes buried below the main site access road, which discharge to the Terminal Basin.
- The drainage system for the Closed City Landfill features one large shallow sedimentation basin and a series of semi-permanent and temporary channels that collect runoff and convey it to the primary interior drainage channel described above. In the future this system will discharge to the West Perimeter Drainage and will be conveyed directly to the Terminal Basin.

4.1.3 Temporary Erosion and Sediment Control Measures

Sunshine Canyon installs temporary erosion control systems on an annual basis in advance of the rainy season. The annually prepared drainage plan includes a variety of measures that not only reduce soil erosion but also reduce peak flows by slowing down and leveling discharges from the site. Typical components of the plan include:

- Silt fencing at the toe of refuse slopes and stockpiles;

- Silt fencing and sandbags along drainage channels to control silt and direct water from upslope areas into the channels;
- Straw wattles placed on landfill and stockpile slopes;
- Hydroseeding new refuse slopes and stockpiles that will not be used within the next 180 days;
- Temporary HDPE-lined channels on refuse slopes to direct flow from landfill areas into existing drainage channels; and
- Reducing sediment discharge and peak flows from sedimentation basins by placing temporary barriers around the discharge pipes and wrapping the discharge pipe openings with geotextile.

5.0 Sediment Cleanup at Basins A, B, D and Terminal Basin (City/County)

Sediment is removed from the onsite basins once the material is dry and accessible with heavy equipment. The removal activities are typically completed by August of each year. All sediment cleanup at Basins A, B, D and Terminal Basin have been completed as of August 2012.

6.0 Leachate Collection and Treatment System (City/County)

Leachate is collected in the leachate collection system installed beneath the City and County portions of the site. Leachate is collected in a gravel-packed riser sump at the low point of each landfill, and pumped via extraction pumps to the influent tank at the leachate treatment facility (LTF). The site produces about 10,000 – 15,000 gallons per day (gpd) of leachate.

LTF Process Description

The LTF treatment system consists of filters and granular activated carbon (GAC) vessels. The leachate first passes through the bag filter units, to remove suspended matter from the leachate and protect the GAC media from clogging which could reduce the treatment capacity and performance.

The filtered leachate then undergoes treatment in three GAC vessels, which are configured in series. The second and third GAC vessels serve as polishing units, ensuring effective removal of low level VOCs. The effluent routinely meets the WDR limits for VOCs.

The treated effluent from the third GAC vessel is routed to the effluent tank where it is conveyed by gravity to the gray water tank at the gray water treatment system. The treated effluent is blended with other site waters. The treated effluent from the gray water system is then pumped to two storage tanks; one 265,000 gallon tank and one 100,000 gallon tank. These tanks are used for temporary storage prior to the treated effluent being used on-site for dust control and irrigation. The gray water used onsite routinely meets the WDR limits, and is in full compliance with the site's WDR. A total of 120,000 -150,000 gpd are processed and reused in the gray water treatment system, including the LTF.

7.0 Revegetation Plans and Recent Hydroseeding Efforts on Temporary Slopes and Stockpiles (City/County)

The site will be seeding approximately 40 acres (approximately 19 acres on city north, 9.5 acres on the county slope and 11.5 acres on city south) during the Fall of 2012. (see Attachment A)

8.0 Venturan Coast Sage Mitigation Plan (City's M.4.4.1 (60) &(61))

Sunshine Canyon Landfill has contracted with a landscape architect to work with the biologist to develop an effective revegetation plan. Prior consultant recommendations have not been effective in establishing permanent growth and the new team will be focused on fresh ideas for implementation. The tentative schedule is:

- Conceptual plan completed in September 2012
- Implement trial area on South City Landfill in Q4 2012
- Monitor trial area performance Q1 2013 and Q2 2013
- If successful, begin implementation of phased plan in Q4 2013.

9.0 Chatsworth Mitigation (City Q.C.9)

The City of Los Angeles has proceeded to finalize the survey and other transfer documents, however they have not been completed as of September 2012. The agreement to open escrow by February 29, 2012 will need to be extended. Republic cannot provide a conservation easement or initiate restoration activities, as required by the special conditions of the above-referenced Corps permits, until escrow conditions have been satisfied. Since the prior plants that were grown have been donated or are no longer viable to use, Republic Services, Inc. has contracted with Santa Barbara Botanic Gardens again to perform the seed collection, seed cleaning and growing for this project. The first seed collection event will be conducted in October 2012.

10.0 Alternative fuel (City's Q.C.10.d.(1); status on Q.C.10.d. (2); Q.C.10.d. (4), Q.C.10.d.(6); Q.C.10.d.(7); County Condition 77 A-H)

SCL continues to fuel the E-85 vehicles with Ethanol 85 on average, every week at a fueling station located at 11699 San Vicente Blvd., Los Angeles, California. Currently the site owns and operates thirteen vehicles that use E-85 fuel.

According to SCL's research, there have been no advancements in technology for alternative fuel heavy machinery. No alternative fuel light-duty vehicles or heavy machinery have been purchased since the last update.

Sunshine Canyon Landfill contracted with Environ Strategies to update the 2008 Review Update of Alternative Fuel Technologies. (see Attachment B)

11.0 Backup Generator (City/County)

See Attachment C for more information on this section.

12.0 Implementation of Daily Neighborhood Litter Plan, including the newly added route from San Fernando Road to Sierra Highway to Highway 14 overpass (City/County)

The site has incorporated Sierra Highway to Highway 14 overpass into the current approved litter survey route. Due to accessibility and safety, there may be areas that can not be surveyed.

13.0 Current and Proposed Cell Development (City/County)

Development of Cell CC-3A, Part 1 commenced in February 2012 and included the excavation of 1.5 million cubic yards of soil to construct a 14 acre lined area. Primary efforts focused on the removal of the slide materials within the new cell footprint, re-compaction of engineered fill, installation of subdrain lines and construction of road and drainage facilities. Mass excavation and road/drainage facilities were completed in May 2012.

Lining activities of Cell CC-3A, Part 1 were completed in August 2012. Final certification from the RWQCB was received in August 2012.

Current operations commenced in Cell CC-3A, Part 1 in September 2012 and overlay onto the existing lined County and City cells as they progress in elevation.

14.0 Progress in removal of unsuitable materials, including alluvium, organic material, and landslide debris (City/County)

Removal of unsuitable materials, including alluvium, organic material, and landslide debris from Cell CC-3A, Part 1 was completed in May 2012 as part of the cell development activities. Material removed from below the cell subgrade was replaced with compacted engineered fill.

Future development of Cell CC-3A, Part 2 and Cell CC-3B will also include efforts to remove and mitigate unsuitable materials.

15.0 Development of gas-to-energy facility (City/County)

The third party developer, DTE Biomass Energy, received the air permit from SCAQMD in June 2012 and has commenced engineering plans. The building plans will be submitted to the County of Los Angeles for permit review in Q4 2012. Rough grading of the pad was completed in October 2012. An amendment to the landfill's Joint Technical Document was submitted to the LEA in October 2012. Building improvements are projected to start in Q1 2013 with full operation by December 2013.

16.0 Design of final cover and closure schedule for the County top deck (County)

A report entitled "Alternative Final Cover Evaluation Report, Sunshine Canyon County Landfill" was submitted to the Los Angeles Regional Water Quality Control Board (LA RWQCB) on December 13, 2011. This report presented the findings of the study conducted to evaluate the feasibility of constructing an alternative final cover system proposed for the phased closure of the County portion of the site in accordance with applicable regulations CCR Title 27, Section 21090 (a). These regulations require that landfill final covers be constructed according to minimum standards; e.g. prescriptive standards. This

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section of CCR also allows for alternatives to the prescriptive standard as long as the alternative cover meets the requirements of the prescriptive standards.

By letter dated October 8, 2012, the LA RWQCB provided comments on the subject report. Comments have also been received from the SCL LEA and comments were provided to the LA RWQCB from the Los Angeles County Department of Public Works. The comments will be reviewed and addressed.

17.0 Schedule for removing stockpile material on County top deck (County)

There are four stockpile areas (section #1-4). Removal of stockpile material at section #1 has begun, and the remaining sections will be completed by December 2013.

Please do not hesitate to contact me at (818) 362-2072 if you have any questions.

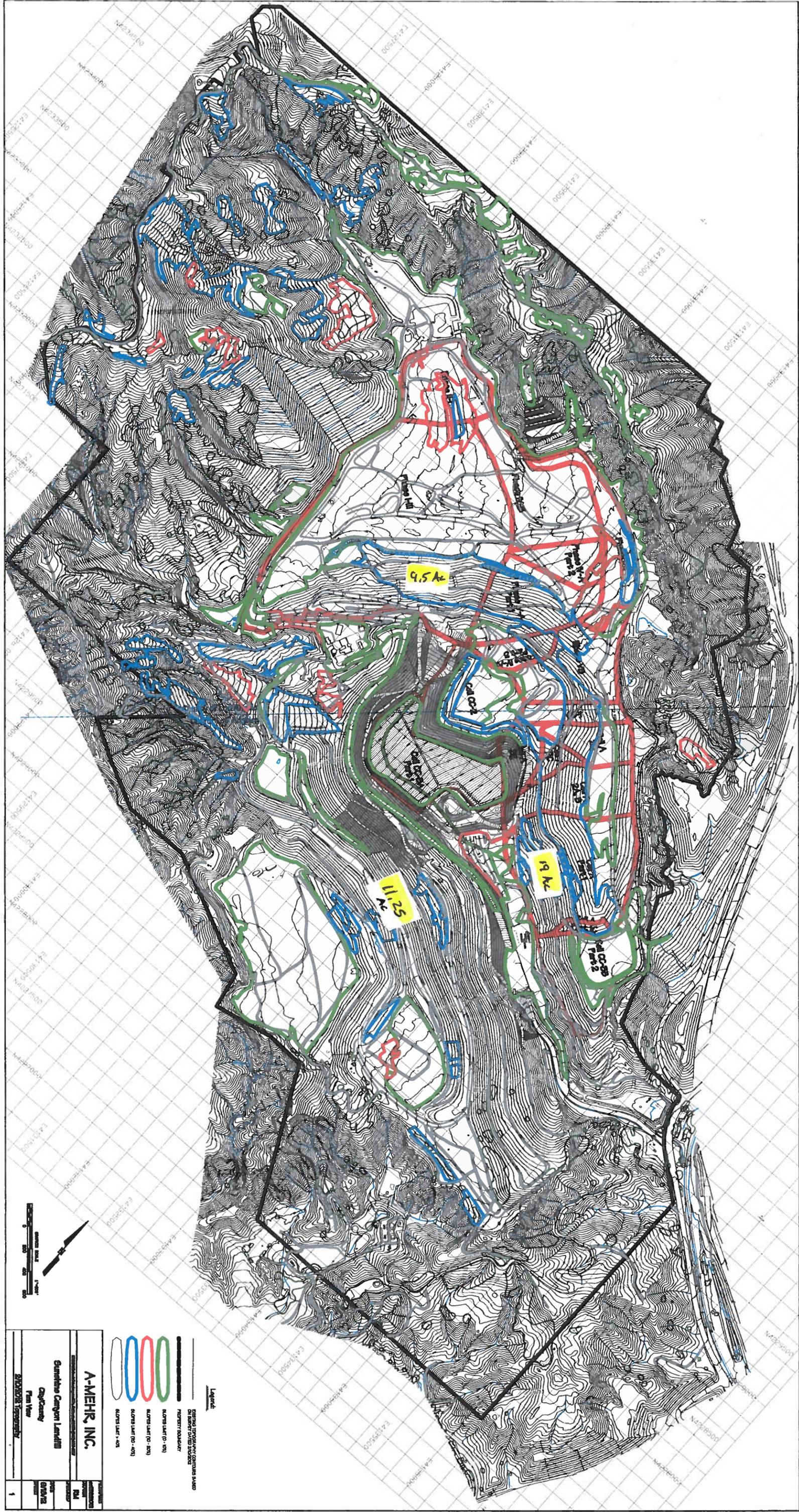
Sincerely,



David Cieply
General Manager

Cc: Linn Wyatt, City Planning
Ly Lam, City Planning
Maria Masis, LA County Regional Planning
Emiko Thompson, County Department of Public Works
Cindy Chen, SCL-LEA
Gerry Villalobos, SCL-LEA
David Thompson, SCL-LEA
Becky Van Sickle, Sunshine Canyon Landfill
Patti Costa, Sunshine Canyon Landfill
Tim Johnson, Sunshine Canyon Landfill
Anthony Bertrand, Sunshine Canyon Landfill
Achaya Kelapanda, Sunshine Canyon Landfill

Attachment A



- Legend**
- 
 DRAINAGE TEMPORARY CONTROLS BOUNDARY OR PERMIT DATED 3/20/2024
 - 
 PROPERTY BOUNDARY
 - 
 SLOPE LIMIT (0 - 4%)
 - 
 SLOPE LIMIT (4 - 10%)
 - 
 SLOPE LIMIT (10 - 40%)
 - 
 SLOPE LIMIT > 40%

A-MEHR, INC.	
Project Name	Quantico Canyon Landfill
Client	City/County
Scale	Plan View
Sheet No.	2/2/2024 (Temporary)
Revision	1

Attachment B

September 17, 2012

MEMORANDUM

To: Greg Eklund and Becky VanSickle

From: David Park, Carmen Teng, Lit Chan and Shari Libicki

Subject: 2012 Review Update of Alternative Fuel Technologies
for Sunshine Canyon Landfill Equipment

ENVIRON was asked to update the review of potential alternative fuel technologies for heavy-duty landfill equipment used at Sunshine Canyon Landfill. This memorandum provides equipment and alternative technology review updates of the ENVIRON memo dated May 21, 2008 entitled “2008 Review Update of Alternative Fuel Technologies for Sunshine Canyon Landfill Equipment.”

Specifically, the scope of work for this review update was to:

- Gather, review and update current heavy-duty landfill equipment inventory and activity data; and
- Update alternative fuel technology review to reflect the current status of alternative fuel technology or equipment for landfill equipment.

Review Update on Landfill Equipment

Sunshine Canyon Landfill provided an updated (2012) list of their landfill equipment. The general technical specifications, including fleet average and total engine model year and power are summarized in Table 1. Overview fleet statistics including number, average model year, and average horsepower by equipment type are summarized in Table 2. Annual hours of usage are extrapolated from the 2008 reporting. As shown in these tables, there are a total of 25 units of landfill equipment with a weighted average engine model year of 2003 and average horsepower (hp) of 395 hp. Fleet-wide total horsepower is 9,884 hp, and annual horsepower-hour is 1,018,430 horsepower per hour per year (hp-hr/yr).

Compared to the 2008 landfill equipment inventory, the 2012 inventory has more equipment (25 as compared to 20 units), the fleet is newer (model year 2003 as compared to 2001), higher average horsepower (395hp as compared to 345hp) and more total horsepower (9884 hp in 2012 as compared to 6902 hp in 2008) and high activities in terms of horsepower-hour (1,018,430 in 2012 as compared to 895,117 hp in 2008.) The Sunshine Canyon Landfill 2012 offroad inventory does not include articulated dump trucks (ADTs) or water-pull trucks.¹

¹ Sunshine Canyon Landfill has indicated that their water-pull trucks are included in their on-road fleet subject to ARB’s truck and bus regulation. The facility took delivery of an articulated dump truck during calendar year 2012, which will be included in their December 31, 2012 DOORS reporting.

While ENVIRON was not asked to update the emissions inventory for the 2012 landfill equipment, we performed a rough comparative analysis to estimate emissions impacts due to the changes in the equipment inventory and activities. The rough comparative analysis, based on weighted average horsepower, model year and total usage hours for the equipment fleet, and appropriate California Air Resources Board (ARB) emission factors and load factors, shows that the fleet-wide reactive organic gas (ROG), carbon monoxide (CO) and particulate matter (PM) emissions have increased due to the increase in fleet size and consequent increase in total equipment operating hours, as well as higher revised emission factors for ROG, CO and PM in the ARB's OFFROAD model. However despite this increase in overall increase in fleet activity, nitrous oxide (NOx) emissions are estimated to have decreased by 6% as a result of fleet turnover to newer, lower NOx emitting equipment, and lower revised emission factor for NOx in the ARB's OFFROAD model.

Table 1: General specifications and operation hours for Sunshine Canyon Landfill equipment in 2012.

Equipment Type	EIN	Make	Engine Make	Engine Model	Engine Model Year	HP	Operating Hours (hrs/year)²
Crawler Tractors	NS3N36	CAT	CAT	3116	1998	110	2833
Crawler Tractors	HG9G49	CAT	CAT	C18	2006	410	2833
Crawler Tractors	TR5E34	CAT	CAT	3408E	2003	410	2833
Crawler Tractors	RF3W33	CAT	CAT	3408E	2004	410	2833
Crawler Tractors	SU3D74	CAT	CAT	3408C	1990	370	2833
Crawler Tractors	HT5W43	CAT	CAT	C9	2009	283	2833
Crawler Tractors	CX7V48	CAT	CAT	C18	2007	401	2833
Crawler Tractors	LF7H56	CAT	CAT	C18	2008	410	2833
Excavators	RF9S74	HITAC HI	CUMMINS	N14	1996	370	2000
Graders	DP9R94	CAT	CAT	C11	2007	275	1500
Compactor	MY4Y73	TEREX	CUMMINS	QSK-19	2001	525	3000
Compactor	CA6F37	TEREX	CUMMINS	QSK-19	2001	525	3000
Compactor	RC4S87	CAT	CAT	C18	2004	481	3000
Compactor	CF6H58	CAT	CAT	C18	2004	499	3000
Compactor	JH6V37	CAT	CAT	3456	2002	475	3000
Compactor	RT6F97	CAT	CAT	C18	2006	499	3000
Compactor	TR6C55	CAT	CAT	C18	2008	544	3000
Compactor	AG5V87	CAT	CAT	C18	2008	544	3000

² Usage rates are derived from the 2008 fleet evaluation. Scrapers are assumed to operate similar hours to Graders.

Equipment Type	EIN	Make	Engine Make	Engine Model	Engine Model Year	HP	Operating Hours (hrs/year) ²
Rubber Tired Loaders	NB7M35	CAT	CAT	3406E	2001	311	2000
Rubber Tired Loaders	UN5F65	VOLVO	VOLVO	TD103K CE	1996	398	2000
Scraper/Front Engine	DJ5W44	CAT	CAT	C18	2007	499	1500
Scraper/Front Engine	CS3V89	CAT	CAT	C18	2007	499	1500
Scraper/Rear Engine	WW7G68	CAT	CAT	C9	2007	283	1500
Scraper/Rear Engine	WK7X88	CAT	CAT	C9	2007	283	1500
Backhoe	SP7W53	CAT	PERKINS	3054	1996	70	1500
FLEET TOTAL						9884	61664
FLEET AVERAGE					2003	395	

Table 2: Summary of Sunshine Canyon Landfill equipment.

Equipment Category	Number	Model Year	Average Power (hp)	Total Power (hp)	Annual Usage (All Equipment)
Crawler Tractors	8	2003	360	2881	22666
Excavators	1	1996	370	370	2000
Graders	1	2007	275	275	1500
Other Construction Equipment	8	2004	512	4092	24000
Rubber Tired Loaders	2	1999	355	709	4000
Scraper/Front Engine	2	2007	499	998	3000
Scraper/Rear Engine	2	2007	283	566	3000
Tractors/Loaders/Back hoes	1	1996	70	70	1500

Review Update of Alternative Fuel Technologies for Landfill Equipment

In the 2006 report to Sunshine Canyon Landfill and the succeeding May 2008 update memorandum, ENVIRON ranked the landfill equipment as potential candidates for alternative fuel or alternative diesel fuel demonstration based on technical characteristics and technology feasibility or availability, as well as the technical specification and emissions estimates of the landfill equipment. The identified alternative fuel and alternative diesel fuel technologies included natural gas (CNG/LNG), liquefied petroleum gas or propane (LPG), emulsified diesel fuel, biodiesel fuel, and diesel-electric hybridization.

In the previous evaluations, we noted that, other than the proven natural gas and LPG technologies for onroad street sweepers, there were no proven and demonstrated natural gas,

LPG, or electrification technologies for landfill equipment applications. We also noted that the use of biodiesel fuels would reduce PM emissions but it would also increase NOx emissions, and that studies and/or demonstrations were being conducted to reformulate or couple the biodiesel with fuel additive to reduce both the NOx and PM emissions. We also indicated that, while emulsified fuel was verified by ARB to provide about 14% NOx, and 63% PM emission reductions, and could be used for landfill equipment applications, emulsified diesel fuel was commercially unavailable. Our current findings associated with alternative fuel options for Sunshine Canyon Landfill equipment is as follow:

Biodiesel Update

While biodiesel fuels are still recognized as a mitigation technique for greenhouse gases, the ARB currently does not recognize these fuels as verified diesel emission control strategies (VDECS).³ Unless ARB reverses this decision, biodiesel fuel will not be accepted as an alternative fuel for these purposes.

Emulsified Fuel/Fuel Additives Update

PuriNOx, emulsified diesel fuel, continues to be verified by ARB as a Level 2 VDECS, to provide about 14% NOx, and 63% PM emission reductions; however the emulsified fuel supplier (Lubrizol) has stopped supplying PuriNOx. Thus, the use of emulsified fuel is infeasible as it is currently not available.

Viscon, a diesel fuel additive, was verified by ARB as a Level 1 VDECS on October 19, 2011. This technology is an additive and not an alternative fuel as it is blended with diesel fuel at a 1% Viscon by unit weight, which is not considered a substantial component of fuel. Viscon is a ultra-high molecular weight Polyisobutylene. ARB verifies its use in offroad heavy-duty diesel engines manufactured from 1985 – 1995 at power ratings ranging from 175hp – 300 hp. Viscon is verified by ARB as attaining a 25% reduction in PM emissions with no effect on NOx emissions. As shown in Table 1, only the MY 1990 crawler tractor was older than 1995 model year in the Sunshine Canyon Landfill equipment fleet, and the crawler tractor has a horsepower rating of 370 hp. Thus, the Viscon's fuel additive would not be a verified technology option for the Sunshine Canyon Landfill equipment fleet.

Electric Hybrid Offroad Technologies

The May 2008 update memo indicated that Volvo announced a L220F hybrid wheel loader development program. Volvo North America indicates that currently there are no firm plans for further developing commercial diesel-electric hybrid construction equipment. This segment of equipment development is being discussed internally; however Volvo does not expect to come to a decision on an official corporate strategy for two to five years.⁴

John Deere developed prototype diesel-electric hybrid 644K and 944K wheel loaders, unveiled during ConExpo2011. Deere indicates that the units are currently undergoing product testing and is planning commercial rollout in 2013. Deere is targeting fuel efficiency gains of 15% to

³ TRU Advisory: 08-08, Biodiesel, California Air Resources Board, January 2011, http://www.arb.ca.gov/diesel/tru/documents/advisory_08_08.pdf, downloaded August 24, 2012.

⁴ Telephone conversation, D. Park, ENVIRON with Thomas Caster, VP Sales Support, Volvo Construction Equipment NA, 828-650-2000, September 4, 2012.

20% on its 644K and 25% to 30% on its 944K.⁵ Deere indicates that the units will “undergo rigorous customer testing and will not be available until it fully meets every customer need.”⁶

Komatsu currently offers a diesel-electric hybrid excavator in the United States, the HB215LC. The rollout of this excavator is understated and not publically advertised. This machine produces 139 hp at the fly wheel. The excavator utilizes an electric swing motor to assist the engine in turning the upper structure of the excavator and operation of the bucket, arm, boom and slew functions. The electric motor acts as a generator during the braking phase of these functions, storing energy in ultra-capacitors. Komatsu claims 20% - 41% fuel savings depending on the application, with maximized fuel savings recognized in predominant slewing duty cycle.⁷ Distributors in Southern California, Road Machinery LLC, Perris, CA and Claremont Equipment Company, Escondito, CA indicate that they have units currently available. Komatsu indicates that in Japan, they sold more than 900 units of their first generation diesel-electric hybrid excavator, the PC200-8, by March 31, 2011.⁸

Natural Gas Technologies

Westport, Caterpillar, and EMD announced June 5, 2012 that they will jointly develop natural gas engine technologies for use in offroad equipment and rail applications.⁹ The suggested technology employed will include Westport’s natural gas engine high pressure direct injection (HPDI) in the Caterpillar offroad platform. The target projection for commercialization is five years.

Conclusions

The following summarizes our findings.

- There are demonstrated diesel-electric hybrid technologies for wheel loaders and one excavator from two manufacturers, John Deere and Komatsu, respectively. However only one commercially available diesel-electric hybrid solution is available, the Komatsu HB215LC excavator rated at 129 hp at the flywheel, which is only 35% of the horsepower rating of the excavator used in the Sunshine Canyon Landfill. Thus, the power output of the Komatsu excavator does not appear to meet Sunshine Canyon Landfill’s current operation requirements.
- ARB has taken biodiesel off the table as a VDECS recognized technology. Currently biodiesel is only recognized as a greenhouse gas reduction technology.
- One fuel additive has been added to the ARB VDECS verification page, Viscon, which is verified as a Level 1 diesel solution achieving PM reductions of 25%. However, due to the

⁵ VanHampton, T, “How John Deere’s New Hybrid Wheel Loaders Get Their Juice,” ENR.com, June 22, 2011, downloaded from <http://enr.construction.com/products/equipment/2011/0627-HowJohnDeeresNewHybridWheelLoadersGetTheirJuice.asp>, August 15, 2012.

⁶ John Deere press release, “John Deere Builds Its First Nine-Yard Loader on Customer Suggestions,” Marcy 22, 2011, downloaded from http://www.deere.com/wps/dcom/en_US/corporate/our_company/news_and_media/press_releases/2011/construction/2011mar22_944kconexpo.page, August 15, 2012.

⁷ “Komatsu Hybrid released with understated confidence,” Earthmover & Civil Contractor, downloaded from <http://www.earthmover.com.au/news/print-editions/june-2011/komatsu-hybrid-released-with-understated-confidence>, August 15, 2012.

⁸ Komatsu Annual Report, 2011, Interview with Kunio Noji, President and CEO, p. 12, downloaded from <http://www.komatsu.com/CompanyInfo/ir/annual/html/2011/>, August 15, 2012.

⁹ “Westport and Caterpillar Announce Agreement to Develop Natural Gas Technology for Off-Road Equipment,” downloaded from <http://www.westport.com/news/2012/westport-and-caterpillar-natural-gas-technology-agreement>, August 24, 2012.

low blend percentage, and its limitations on applicable model year and horsepower ranges, the Viscon fuel additive is not an alternative fuel option for the Sunshine Canyon Landfill equipment.

- Westport/Caterpillar proposes to commercialize natural gas engine technology for offroad applications in approximately five years.
- Fleet-wide emissions for the landfill facility can be reduced merely via fleet modernization with newer, cleaner engines, and improved operation efficiency to reduce fleet-wide equipment usages.

Attachment C

SUNSHINE CANYON LANDFILL



A REPUBLIC SERVICES COMPANY

October 1, 2012

Ms. Lisa Webber
City of Los Angeles
Deputy Director
SCLTAC Co-Chair

Mr. Mark Childs
County Of Los Angeles
Assistant Administrator
SCL-TAC Co-Chair, Pro Tem

SUBJECT: Backup Generator for Emergency Use
Sunshine Canyon Landfill

Dear Ms. Webber/ Mr. Childs;

By letter dated August 1, 2012, you requested we provide information related to obtaining backup generators for emergency use in the event a prolonged power outage results in the loss of power to the site's landfill gas control system, specifically to the site's flaring stations. A response to this letter was required within 30 days of August 1st, however, an extension for an additional 30 days was given on Monday August 27 via e-mail by both Ms. Ly Lam and Ms. Maria Masis so the required information could be provided.

The responses to the requested information are provided below.

1. ***Submit a schedule detailing the steps necessary to have the backup generators operational onsite, including, but not limited to details regarding their purchase and installation and necessary permit applications to the South Coast Air Quality Management District, (the) Petro Chem Unit of the Los Angeles County Fire Prevention...and the City's Construction Services Section...."***

Response to Item 1

At this time, we are evaluating options of whether we will (a) purchase emergency generators or (b) rent emergency generators on an as-needed basis.

- (a) Based on information from the suppliers and our contractors, the following schedule is anticipated for the design, permitting and installation of permanent emergency generators at the site's flaring stations:
 - Design/selection – 2 months
 - Permitting – 6 months
 - Order/receipt – 6 months

Based on this schedule, the earliest the permanent units could be in place on-site would be the first quarter of 2014.

- (b) The generators needed to provide power to each of the flare stations have been identified and we have contacted Quinn Power Systems to provide a delivery and rental agreement in the event these generators are needed. This agreement is included as an attachment to this letter. As stated on this agreement, the generators will be delivered to the site within 2-4 hours.

Until we complete the evaluation of whether to purchase generators, the rental agreement provides for arrangements for backup generators to be on-site in case of a prolonged power outage.

2. Complete the outfitting of all flares with electrical components to allow for the hook up (of) power generators;

Response to Item 2

The work either is completed or planned to install components to allow each of the site's flares to operate with a generator as follows:

- Flare 9 – the switch gear is in place to tie-in to the existing SCE powerline for a direct hook-up if needed.
- Flare 1 – work has been completed
- Flares 3 and 8 – manual transfer switches will be installed at these flares in early 2013.
- Temporary Flare – the temporary flare will go off-line by August 1, 2013 when Flare 10 is installed and on-line per Condition 5.j modified by the Fourth Amended Stipulated Order for Abatement signed on July 11, 2012. Flare 10 will be identical to Flare 9 and therefore the switch gear will be installed during the construction of Flare 10.

3. Until such time when the backup generators become operational on site, provide a vendor agreement that can immediately supply enough back-up generators to power all flares upon request, including time required for delivery and activation during emergencies.

Response to Item 3

As stated previously, a vendor agreement with Quinn Power Systems has been made to provide back-up generators upon request. A copy of this agreement is attached to this letter.

4. Submit a map showing safe access routes, including alternative routes, for delivery of power generators.

Response to Item 4

A map showing the access routes to Flares 1, 3, 8, and 9 is attached to this letter. Please note that future Flare 10 will be located adjacent to Flare 9 and will therefore have the same access route.

Please do not hesitate to contact me if you have any questions or comments.

Sincerely,

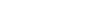


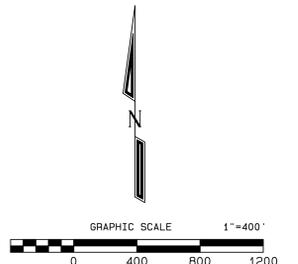
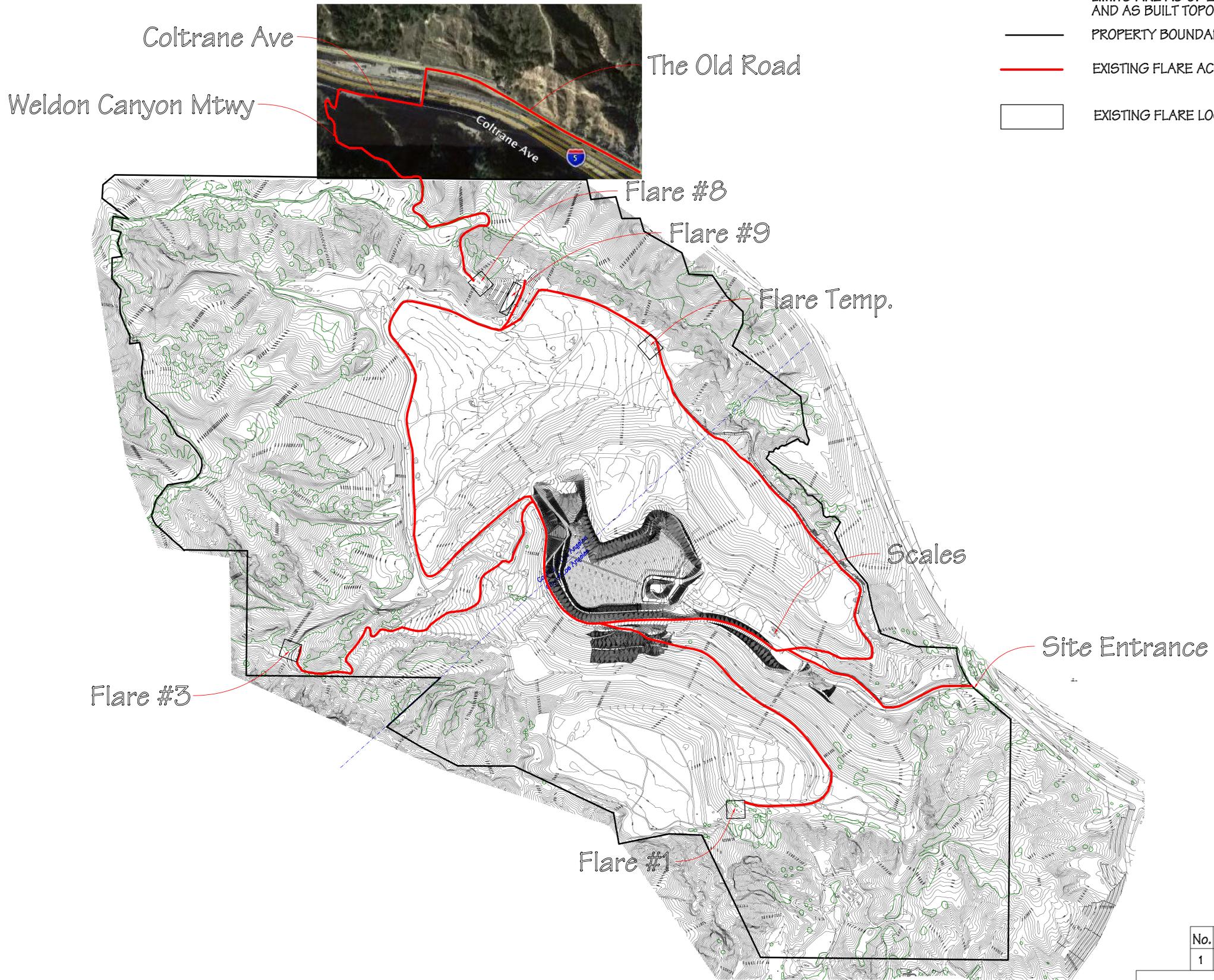
David Cieply
General Manager

Attachments: Vendor Agreement, Quinn Power Systems
Access Route Map, Sunshine Canyon Landfill

Cc: Ms. Maria Masis, Los Angeles County Department of Regional Planning
Ms. Iris Chi, Los Angeles County Department of Regional Planning
Ms. Cindy Chen, SCL LEA
Mr. Wayne Tsuda, SCL LEA
Mr. David Thompson, SCL LEA
Mr. Gerry Villalobos, SCL LEA
Mr. Pat Proano, Los Angeles County Department of Public Works
Ms. Emiko Thompson, Los Angeles County Department of Public Works
Ms. Tracy Swann, Los Angeles County Counsel
Mr. Kelley Kim, Los Angeles County Forester
Ms. Ly Lam, City of Los Angeles, Planning Department
Mr. Nicholas Hendricks, City of Los Angeles, Planning Department
Mr. Timothy McWilliams, City Attorney
Mr. Mohsen Nazemi, South Coast Air Quality Management District
Ms. Becky Bendickson, SCL-CAC
Mr. Wayde Hunter, SCL- CAC

LEGEND

-  EXISTING TOPOGRAPHY CONTOURS IN THE LINER LIMITS ARE AS OF 2/10/12 AERIAL TOPOGRAPHY AND AS BUILT TOPOS.
-  PROPERTY BOUNDARY
-  EXISTING FLARE ACCESS
-  EXISTING FLARE LOCATIONS



No.	Revision	Date	By
1	-	-	-

A-MEHR, INC.		FILENAME 210121JTA
<small>22016 Mill Creek Drive, Laguna Hills, California 92653 (949) 206-0187</small>		DRAWN RM
Sunshine Canyon Landfill City/County 2013 Site Plan Map Existing Flares and Access		CHECKED
		DATE 10/1/12
		SHEET
		1

Notes: 1. Base topographical map dated 2/10/12 and As-Built topos.



SUNSHINE CANYON LANDFILL

JOINT CITY/COUNTY TECHNICAL ADVISORY COMMITTEE



City of Los Angeles

Co-Chair: Lisa Webber

Dept. of City Planning
Dept. of Building and Safety
Dept. of Public Works – Bureau of Sanitation
Dept. of Public Works - Bureau of Engineering
Dept. of Recreation and Parks
Office of the Chief Legislative Analyst
Office of the City Attorney
Dept. of General Services, Fleet Services

County of Los Angeles

Co-Chair Pro Tem: Mark Child

Department of Regional Planning
Department of Public Works
Department of Public Health - LEA
Department of Forestry and Fire Warden
Office of the County Counsel

Other

SCL - LEA
SCL-CAC TAC Representative

August 1, 2012

Mr. David Cieply
General Manager
Republic Services, Inc.
Sunshine Canyon Landfill
14747 San Fernando Road
Sylmar, CA 91341-1021

Dear Mr. Cieply:

**SUBJECT: BACKUP GENERATORS FOR EMERGENCY USE
SUNSHINE CANYON LANDFILL**

At its meeting on June 26, 2012, the Sunshine Canyon Landfill Technical Advisory Committee ("SCL-TAC") advised Republic Services that adequate onsite backup generators are required in order to provide the landfill gas control system with power during a prolonged power outage. This requirement is prescribed under Condition [Q]C.10.e. of the City of Los Angeles Ordinance No. 172,933, and Condition No. 83 of the County of Los Angeles Conditional Use Permit No. 00-194-(5) ("CUP").

The purpose of these Conditions is to mitigate potential health, safety, and environmental risks associated with the migration of methane gas due to a prolonged loss of power to the landfill gas control system. Additionally, the backup generators must be capable of powering the entire landfill gas control system, which currently consists of Flares Number 1, 3, and 8, and the temporary flare, as well as their associated components.

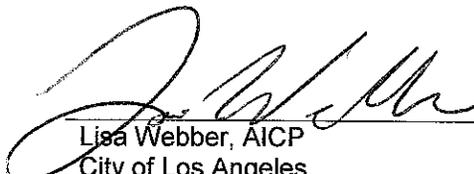
Therefore, Republic Services is required to perform the following within 30 days of the date of this letter:

1. Submit a schedule detailing the steps necessary to have the backup generators operational onsite, including but not limited to details regarding their purchase and installation and necessary permit applications to the South Coast Air Quality Management District, Petro Chem Unit of the Los Angeles County Fire Prevention at 15660 Stafford Street, Industry, CA 91744, and the City's Construction Services Section, 201 North Figueroa, 3rd Floor, Fire Counter (contact Mr. David Myers - (213) 482-6900);
2. Complete the outfitting of all flares with electrical components to allow for the hook up power generators;
3. Until such time when the backup generators become operational on site, provide a vendor agreement that can immediately supply enough back-up generators to power all flares upon request, including time required for delivery and activation during emergencies; and
4. Submit a map showing safe access routes, including alternate routes, for delivery of power generators.

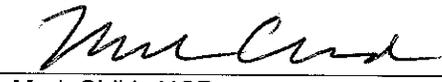
Failure by Republic to comply with this letter shall constitute a violation of the City's Conditions of Approval and the County Conditional Use Permit and be subject to the penalty provision described in Condition No. 11 of the County CUP.

Should you have further questions regarding this matter, please address your correspondence to the SCL-TAC Co-Chairs.

Sincerely,



Lisa Webber, AICP
City of Los Angeles
Deputy Director
SCL-TAC Co-Chair



Mark Child, AICP
County of Los Angeles
Assistant Administrator
SCL-TAC Co-Chair, Pro Tem

cc: DRP (Masis, Chi)
 DPH (Chen)
 DPW (Proano, Thompson)
 Fire/Forestry (Kim)
 County Counsel (Swann)
 City Planning (Hendricks, Lam)
 City Attorney (McWilliams, Wax)
 SCAQMD (Nazemi)
 SCL-CAC (Bendikson, Hunter)
 SCL-LEA (Chen, Villalobos, Tsuda, Thompson)