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SCS ENGINEERS

April 4, 2006
Project No. 07201034.01

Mr. Douglas Brewer
County of San Diego
Landfill Management
5201 Ruffin Road
San Diego, California 92123

Subject: Landfill Gas System Evaluation Work Plan
Poway Landfill
Poway, California

Dear Mr. Brewer:

SCS Engineers (SCS) has prepared the following Background, Scope of Work, and Schedule for consulting to the County on the effectiveness of the landfill gas collection system at the closed Poway Landfill. This Work Plan is based primarily on our review of the letter the County received from the Local Enforcement Agency requesting the County to take actions regarding potential LFG migration and impacts to ground water, review of the information provided us and developed by Geosyntec (including the Updated ROWD and EFS, Technical Memorandum, laboratory data, cross sections, and the Revised Down-gradient Soil Vapor Sampling Work Plan), our review of records of LFG system performance and the meeting held among SCS, the County and Geosyntec on March 28, 2006.

BACKGROUND

The data reviewed in the Geosyntec documents indicates a need to evaluate the completeness and performance of the LFG collection system particularly on the south side of the landfill. Currently there exists twelve (12) vertical LFG collectors on the south top deck and slope of the fill. Three (3) of these wells (EW-11, -12 and –13) have been frequently closed due to exceedance of the permit level of oxygen (i.e., 5%) and to avoid landfill combustion. On March 24 our field staff was directed to open the wells and keep them open as much as possible without exceeding the 5% oxygen limits. The site flare operates on a timer from 4:40 am to 2:30 pm and recent flows have been 65-70 scfm. There have been no significant surface emissions reported under the quarterly monitoring and perimeter gas probes (MP-1 though MP-5) have had no methane detected utilizing the GEM 500. These probes have also shown no vacuum(except –0.1 inches water column in MP-3 in January 2006 which may have been related to the DPE pilot being performed by Geosyntec near the probe).

The purposes of this work include:

1. Definition of the vacuum/pressure along the southern portions of the refuse fill,

2. Development of data to use for concept design of modifications to the LFG system, if needed,
3. Evaluation of potential liquids leaking from a storm drain that traverses the landfill near EW-12,
4. Evaluation of potential for ground water to be rising into the bottom portions of the refuse in two areas on the northern portions of the landfill as projected by Geosyntec,
5. Sampling of the small diameter gas probes installed on the landfill by Geosyntec and any other probes previously installed within the landfill property.

The following outlines the scope of work that SCS would implement.

SCOPE OF WORK

Our scope of work will include the following tasks:

Task 1: Review Existing LFG System Data and Geosyntec Documents
Task 2: Evaluate Potential Air Leaks and Short Circuiting of EWs
Task 3: Plan and Perform Vacuum/Pressure Profiles on Southern Portion of Landfill
Task 4: Perform Probes to Evaluate Liquid Conditions in Waste Near the Suspected Leaking Storm Water Drain
Task 5: Plan and Perform Probes to Evaluate Extent of Ground Water in Refuse
Task 6: Meet and Review All Data from This Work and Geosyntec's Work with the County and Geosyntec
Task 7: Develop Concept Level Alternatives for Enhancing LFG Controls and Rough Order of Magnitude Costs for Each
Task 8: Prepare Report Summarizing Findings, Recommendations.

Task 1—Review Existing Groundwater Reports and Data and LFG Collection and Monitoring Data

- Review the Updated ROWD, Technical Memorandum, the Revised Down-gradient Soil Vapor Sampling Work Plan and other documents prepared by Geosyntec related to the gas migration and ground water impacts,

- Review SCS data on LFG system, system performance, probe and surface emissions monitoring,

Task 2—Evaluate Conditions of Existing EWs and Prepare Improvements Prior to Vacuum Profiling

- Evaluate the condition of collectors EW-1, EW-2, EW-9 thru –14, EW-20 thru EW-23 in the field, particularly the potential for leaking bentonite seals, other wellhead/piping leaks, the proximity of the slotted portion to the landfill surface, the type and condition of cover soil near each well and develop plans for improving (i.e., decreasing) the intake

of oxygen at each well through repair of leaks (if any), improvement of cover soil, placement of well-bore seals, etc.,

- Implement the repairs or improvements developed above,

Task 3--Plan and Perform Vacuum/Pressure Profiles on Southern Portion of Landfill

- Set the LFG system at optimal operating condition prior to the vacuum/pressure measurements,

- Select locations and plan depths of probes to be completed on the top deck and next two lower benches (see attached Figure 1 for proposed locations, depths and primary purpose of each), the probes will be completed using a large truck mounted (or track mounted if access conditions require) cone Penetrometer rig equipped with a pore-pressure transducer installed in the tip of the penetrating rods (termed PPT), (Notes: 1.the PPT rods are cleaned as they are removed from each probe with built on wipers, as all the probes are in refuse there is no need to do more decontamination between probes but at the end of the work on the site all equipment that has contacted refuse will be decontaminated with hot water pressure cleaning procedures, 2. experience has shown that the PPT probe holes—slightly larger than 1-inch diameter "self-close" by the material squeezing but the operator will also "rod" bentonite into the surface of each probe opening to seal the surface).

- Perform the probes immediately adjacent to the four existing PVPs for calibration of both,

- Perform additional probes on the lower bench road, the upper bench road and the top deck,

- Reduce the data for presentation of extent of vacuum, pressure and/or liquids (based on hydrostatic shape of the pressure plot) with the waste prism,

Task 4--Perform Probes to Evaluate Liquid Conditions in Waste Near the Suspected Leaking Storm Water Drain

- Complete several PPT profiles around the suspected area of storm drain leakage and EW-2 (which had 2.6 ft. of liquids measured in the well bottom) (see Figure 1 for proposed locations, depths),

- Reduce the data to use in preparing an estimate of the extent of liquids in the refuse.

Task 5-- Plan and Perform Probes to Evaluate Extent of Ground Water in Refuse

- Plan and perform PPT probes within the two areas mapped by Geosyntec as likely to

have ground water within the bottom of the refuse (see Figure 1 for proposed locations and depths),

- Reduce the data to be used by Geosyntec in estimating the extent of liquids in the refuse prism.

Task 6--Meet and Review All Data from This Work and Geosyntec's Work with the County and Geosyntec

- It is anticipated that one 4-hour work session could address the findings and develop as a team the next steps.

Task 7-- Develop Concept Level Alternatives for Enhancing LFG Controls and Rough Order of Magnitude Costs for Each

- SCS will propose concept approaches for enhancement of the LFG controls and develop rough order of magnitude cost estimates for implementation of each.

Task 8 -- Prepare Report Summarizing Findings, Recommendations

- Draft and final versions of the report will be provided for review.

SCHEDULE

SCS has begun work on the project as directed by the County. The fieldwork can be completed within 3 weeks of approval of the Work Plan by the agencies (anticipated by April 14) and the report by mid-May (to help meet the June report deadline for Geosyntec).

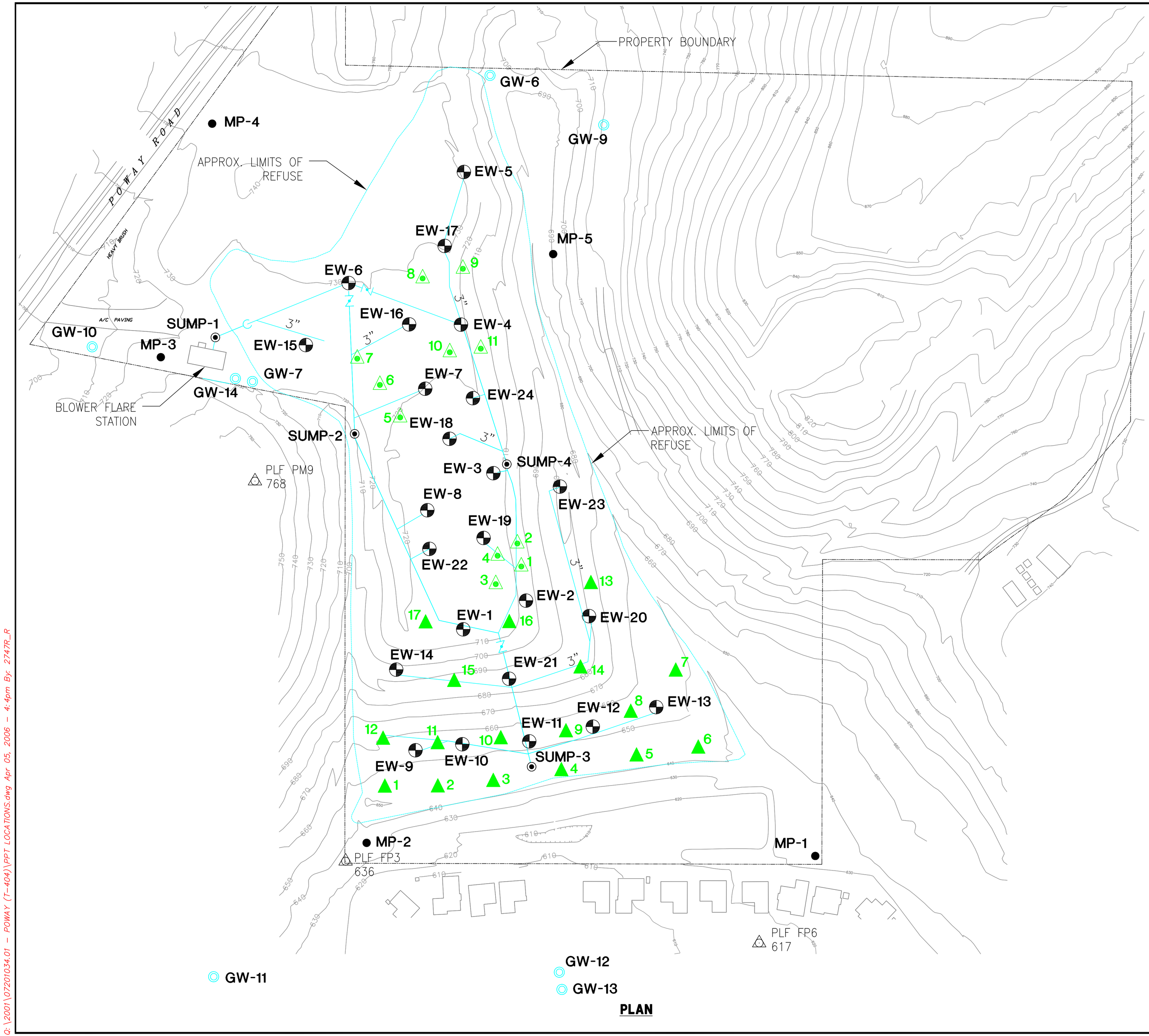
SCS will provide the County a fee proposal later this week.

Very truly yours,

Michael L. Leonard, Sr.

Michael L. Leonard, Sr., P.E.
Project Director
SCS ENGINEERS

Attachment



PLAN

N

GRAPHIC SCALE
80 0 80 160
SCALE IN FEET

LEGEND

EW-6 HORIZONTAL COLLECTOR
1 PPT-V
1 PPT-L

PPT NO.	ESTIMATED DEPTH (FT, BGS)	PURPOSE
PPT-V-1	20	VACUUM / PRESSURE PROFILE
PPT-V-2	20	VACUUM / PRESSURE PROFILE
PPT-V-3	20	VACUUM / PRESSURE PROFILE
PPT-V-4	20	VACUUM / PRESSURE PROFILE
PPT-V-5	20	VACUUM / PRESSURE PROFILE
PPT-V-6	20	VACUUM / PRESSURE PROFILE
PPT-V-7	40	VACUUM / PRESSURE PROFILE
PPT-V-8	40	VACUUM / PRESSURE PROFILE
PPT-V-9	40	VACUUM / PRESSURE PROFILE
PPT-V-10	40	VACUUM / PRESSURE PROFILE
PPT-V-11	40	VACUUM / PRESSURE PROFILE
PPT-V-12	40	VACUUM / PRESSURE PROFILE
PPT-V-13	60	VACUUM / PRESSURE PROFILE
PPT-V-14	60	VACUUM / PRESSURE PROFILE
PPT-V-15	60	VACUUM / PRESSURE PROFILE
PPT-V-16	80	VACUUM / PRESSURE PROFILE
PPT-V-17	80	VACUUM / PRESSURE PROFILE
PPT-L-1	80	LIQUID IN REFUSE
PPT-L-2	80	LIQUID IN REFUSE
PPT-L-3	80	LIQUID IN REFUSE
PPT-L-4	80	LIQUID IN REFUSE
PPT-L-5	70	LIQUID IN REFUSE
PPT-L-6	70	LIQUID IN REFUSE
PPT-L-7	70	LIQUID IN REFUSE
PPT-L-8	70	LIQUID IN REFUSE
PPT-L-9	70	LIQUID IN REFUSE
PPT-L-10	70	LIQUID IN REFUSE
PPT-L-11	70	LIQUID IN REFUSE

EXISTING TOPOGRAPHIC PLAN IS FURNISHED BY SAN DIEGO COUNTY SURVEYOR. THE TOPOGRAPHY DATA IS BASED ON MARCH 18,2003 AERIAL PHOTOGRAPHY.

NO. | REVISION | DATE

SHEET TITLE: PROPOSED PORE-PRESSURE PENETROMETER TEST LOCATIONS

PROJECT TITLE: LFG SYSTEM EVALUATION
POWAY LANDFILL
POWAY, CALIFORNIA

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DSN. BY: M. LEONARD | CHK. BY: M. LEONARD | APP. BY: M. LEONARD

DATE: 4-04-2006

SCALE: 1" = 80'-0"

FIGURE 1