SRE TARP Split Sampling:
Sample Collection for Lancaster and EMAX

Santa Susana Field Laboratory

Ventura County, California

Contract DE-AM09-05SR22404
CDM Task Order DE-AT30-08CC60021/ET17

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted.
Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

PROFESSIONAL GEOLOGIST
MARGARET BLOISA
No. 6360
Exp. 2/12
STATE OF CALIFORNIA

Prepared by: _____ 11/30/11
Margaret Bloisa, P.G. — Date
CDM Geologist

Approved by: _____ 11/30/11
John Wondolleck — Date
CDM Project Manager

SRE TARP Split Sampling: Sample Collection for Lancaster and EMAX

Subsurface soil samples from four locations in the SRE tarp area within Subarea 6 will be collected by EPA/HGL using a C-100 track mounted sonic rig. Sampling is scheduled to start on November 29, 2011. CDM will obtain from HGL co-located soil samples at EPA locations SL-282, SL-283, SL-284, and SL-285 for submittal to both Lancaster Laboratory, Inc. and EMAX Laboratories, Inc. The procedure described here will be followed to ensure the labs receive similar soil material from each boring.

Four surface samples will be collected from 0.0 ft to 0.5 ft-bgs at each location in accordance with procedures described in CDMs *Work Plan/ Field Sampling and Analysis Plan, Co-Located Chemical Sediment Sampling at Area IV, Santa Susana Field Laboratory* (CDM Federal Programs Corporation 2010) (WP/FSAP). In addition to the analyses specified in Table 1, the surface samples will be analyzed for pesticides and herbicides by both laboratories.

The four subsurface borings will be advanced to bedrock at each location using the sonic rig. Because the sampling methodology for the sonic rig differs from that for the DPT rig, which uses a split tube sampler, EPA and CDM will vary the sample collection procedure. The sonic rig uses a double-cased system consisting of an inner core barrel (5 feet long and 3-¼ inches inner diameter) and an override casing that fits around the core barrel. The override casing is vibrated by the rig around the core barrel.

The first boring at each location will be sampled by HGL. A section of core barrel will be advanced to 5 feet below ground surface and then overridden by the sonic casing. The soil-filled core barrel is pulled out of the override casing, which is left in the borehole. The soil will be vibrated out of the core barrel by the sonic rig and extruded into a plastic bag, forming a sleeve around the sample. The five foot sleeve of soil will be placed on the sample table. The sleeve will be opened and the soil lithologically described and measured by HGL with the alpha/beta/gamma instrument (Pancake) and a PID. After the first five-foot core barrel has been sampled by HGL, a clean section of core barrel and override casing will be added to the drill string and vibrated the next five feet. This process is repeated for each subsequent five foot section until bedrock is reached. It is anticipated that bedrock will be reached at approximately 15 feet below ground surface in this area.

A second boring will be advanced approximately 2 feet from the first boring for CDM to sample. Once the core in the plastic sleeve is given to the CDM geologist, the following procedure for collecting split samples will be followed:

A small slit will be made at one foot intervals along the sleeve and HGL will insert the PID instrument tip at each slit to measure any volatile organic compound concentrations. The sleeve will be slit lengthwise and the entire length screened again with the PID. CDM will obtain

soil material from within one foot sections from any and all depths exhibiting RAD or PID instrument readings above background, or with observed staining, and/or odor. In the absence of elevated readings, staining, or odor, a soil sample will be collected from the bottom of each sample interval at the default depths: 4.0-5.0, 9.0-10.0. 14.0-15.0, etc. A total depth sample will also be collected just above bedrock. To collect each sample to be submitted for chemical analyses CDM will:

- Determine sample depths based on criteria described above.
- Remove a one-foot section of the core at the targeted sampling depth and divide the sample longitudinally using a clean trowel or putty knife.
- For locations with PID readings, Encore samplers for TPH-gasoline range organics (GRO) and VOCs will be filled directly from the freshly exposed core. (For locations without any readings, only a TPH-GRO sample will be collected using an Encore sampler directly from the center of the core.)
- For the first laboratory, the required number of jars will be filled with soil from the same side of the core for the remaining analytes. All Encores and jars filled from this side of the core will be labeled as outlined in the CDM WP/FSAP. The name of the laboratory will also be noted on the sample label for each container.
- The required number of Encores and jars will then be filled from the second half of the divided core for the second lab, following the steps outlined above.
- At one of the sample locations, the surface sample will be collected in double volume for purposes of performing MS/MSD analyses for the analytes stipulated in Table 1.
- At another sample location, a duplicate sample will be collected from the surface sample (in accordance with procedures outlined in the CDM WP/SAP) for the analytes as stipulated in Table 1.
- Soil sample information, including the duplicate, will be placed on two chain of custodies (COCs), one for each laboratory. Analyses to be requested are summarized in Table 1 (all primary analytes, alcohols, glycols, terphenyls, and TPH). Surface samples will also include pesticides and herbicides. Terphenyls and dioxins will be requested for analysis by Lancaster only, since EMAX does not perform these analyses in house.

CDM expects that a sufficient amount of soil will be available from each boring for the required analyses so that no additional borings will need to be drilled and sampled.

Table 1 – SRE Tarp Area Sample Summary				
Sample Type	**EPA Identifier**	**Sample Location**	**EPA Sample Rationale**	**Analytical Suite**
Surface	282	SRE Tarp - West portion.	Potential radiological contamination from activities associated with the SRE Complex.	Primary[i], alcohols, glycols, terphenyls[ii], TPH
Subsurface	282	SRE Tarp - West portion.	Potential radiological contamination from activities associated with the SRE Complex.	Primary, alcohols, glycols, terphenyls, TPH
Surface	283	SRE Tarp - West portion.	Potential radiological contamination from activities associated with the SRE Complex.	Primary, alcohols, glycols, terphenyls, TPH
Subsurface	283	SRE Tarp - West portion.	Potential radiological contamination from activities associated with the SRE Complex.	Primary, alcohols, glycols, terphenyls, TPH
Surface	284	SRE Tarp - South portion.	Potential radiological contamination from activities associated with the SRE Complex.	Primary, alcohols, glycols, terphenyls, TPH
Subsurface	284	SRE Tarp - South portion.	Potential radiological contamination from activities associated with the SRE Complex.	Primary, alcohols, glycols, terphenyls, TPH
Surface	285	SRE Tarp - South portion.	Potential radiological contamination from activities associated with the SRE Complex.	Primary, alcohols, glycols, terphenyls, TPH
Subsurface	285	SRE Tarp - South portion.	Potential radiological contamination from activities associated with the SRE Complex.	Primary, alcohols, glycols, terphenyls, TPH

[i] Surface samples only will also be analyzed for pesticides and herbicides; dioxins will be analyzed by Lancaster only.

[ii] Terphenyls will be analyzed by Lancaster only.