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MEMORANDUM

To: Mark Malinowski, DTSC SSFL Project Manager

From: KC Ting, Ph. D., John Quinn, Ph.D., Carol Wortham, and Mui Sam, Ph. D.,
Environmental Chemistry Laboratory (ECL), Technical Advisory Team

Cc: Bruce Labelle, Ph. D., ECL Chief
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Date: October 30, 2012

Purpose: The Environmental Chemistry Laboratory (ECL) Technical Advisory Team provides technical consultation to Mark Malinowski, Project Manager, for evaluating the process of the SSFL Project. The process involves establishing site-specific method reporting limit (MRLs) values with accuracy and precision for chemical characterization and cleanup at the Santa Susana Field Laboratory site.

Findings: The Environmental Chemistry Laboratory does not recommend the process outlined in the current Draft Technical Memorandum (TM) to serve as the foundation for site characterizations and for the development of the MRL lookup table values. ECL cannot attest to the process as robust, technically sound, and defensible. The following outstanding questions regarding the process need to be addressed.

1. Are the 23 example chemicals sufficient to create MRLs for the proposed 282 organic compounds of interest?

Table 1 summarizes the number of example chemicals for the various analytical methods. The 23 example chemicals comprise only 7% of the total 282 chemicals. Seven percent is not a representative number according to guidelines from the NELAC Institute, Figure 1. The guidelines recommend at least 80% of the total compounds of the method.

Table 1. Percent of example chemicals used to represent all compounds in the various analytical methods.

Method	No. Chemicals Proposed to Analyze	No. Example Chemicals	% of Example Chemicals
VOCs (8260)	76	4	5
SVOCs-PAHs (8270 SIM)	25	3	12
SVOCs (8270)	82	3	4
Anions (9056)	7	1	14
PCBs/PCTs-Aroclors (8082)	12	2	17
Nonhalogenated Organics (8015)	16	2	13
Energetics (8330)	16	1	6
Pesticides (8081)	21	3	14
Herbicides (8151)	10	2	20
Dioxins/Furans (1613)	17	0	0
Total	282	21	7
Perchlorate (6850/6960)	1	1	100
Cr(VI) (7196/7199)	1	1	100
Metals	30	0	0

Figure 1. The NELAC Institute (TNI) - Management and Technical Requirements for Laboratories Performing Environmental Analysis - Volume 1 (EL-V1-2011)

Sample Specific Controls

For those methods that have extremely long lists of analytes, a representative number may be chosen using the following criteria for choosing the number of analytes to be spiked.

- i. For methods that include one (1) to ten (10) targets, spike all components.
- ii. For methods that include eleven (11) to twenty (20) targets, spike at least ten (10) or 80%, whichever is greater.

- iii. For methods with more than twenty (20) targets, spike at least sixteen (16) components or 80%.
2. How are the MRLs assigned for Metals? Cannot this same process be applied using the reporting limits?
3. How are the MRLs assigned for Dioxins/Furans? If none are determined, how will you be able to compare results from different laboratories?
4. In determination of the S1 MRL value there were instances where less than 10 laboratory values were used in the determination, yet all 10 laboratory values were used in the determination of the Base MRL accuracy and precision. How do you justify this? You determined in the MRL process that many of the historical data reflect older technologies that were not as sensitive as current technology. Could that also be reflected in the accuracy and precision for the historical data? Is it valid to use the historical data for this process? If so, can you determine accuracy and precision values only using the data from one laboratory (Phase I co-located)?
5. Finally, the Draft Technical Memorandum requires further review to remove and correct transcription errors and notations. ECL recommends a reviewer with technical expertise to proofread the document before it is released.

The Environmental Chemistry Laboratory provides technical consultation for DTSC. ECL has made recommendations on the Draft TM and concludes its service as the consultant for the Santa Susana Field Laboratory project.