



4903 Ulles: Suit ▼ Fresno California 93722 ▼ Phone 209 275-2175 ▼ Fax 209 275-4499

September 10, 1999

Parsons Engineering Science
8000 Centre Park Drive, Suite 200
Austin, TX 78754
Attn: Tammy Chang

Dear Ms. Chang:

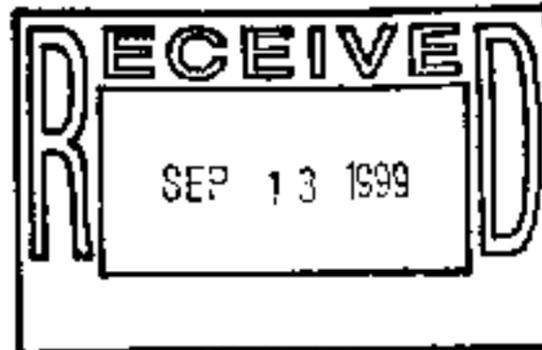
Attached is our plan for corrective action for the findings listed in the Parsons Engineering Science On-Site Evaluation Report received August 30, 1999.

If you have any questions or require further information, please contact us at your convenience. Thank you for choosing APPL, Inc.

Sincerely,

Paula Young, QA Director
APPL, Inc.

cc: Diane Anderson



**SW 846 method 8260B - Volatile Organic Compounds by Gas Chromatography/
Mass Spectrometry (GC/MS)**

Corrective Action Items

1. Our current SOP for manual integration is being revised. The draft of the revision will be sent to you for your approval before being finalized. All data packages will have the 'before' and 'after' chromatograms of the peaks along with the initials of the analyst and the peer reviewer. The reason for the manual integration will be documented by a number which corresponds to a reason which is outlined in the SOP.
2. All analyst training files will be reviewed to ensure they include the initial demonstration of capability. The acceptance criteria will be added to the ones currently in the file and will be included on all new demonstrations for new employees. A copy of Ray Valenzuela's initial demonstration will be sent to you.
3. Although the LCS percent recovery is monitored against the current control limits it is not entered into the control chart program in real time. The LCS data will be entered into the program on a real time basis. An SOP will be written to describe the procedure for entering data into this program. The analysts were instructed to do this in a timely manner and the supervisor will be responsible for making sure it happens.
4. Although the personnel were informed verbally of this requirement and have read the AFCEE QAPP, a memo will be distributed to all personnel describing the AFCEE requirement and the correct calculation to use to accomplish this. A copy of this memo will be sent to you.
5. An SOP is being written for monitoring the possible contamination in the VOA sample refrigerators. A copy of this SOP will be sent to you.
6. The analytical SOP for 8260B will be revised to describe the procedure of dropping standard points from an initial calibration curve. A revised SOP will be sent to you.
7. Samples that are suspected to have high concentrations of VOCs will be stored in the VOA sample refrigerator located in the garage. This refrigerator is currently used to store spent VOA samples. These samples are typically older than 28 days and are not likely to be injected again. This refrigerator will also be monitored for contamination with a refrigerator blank. This will be described in the receiving SOP and the VOA SOP. A copy of the revised SOPs will be sent to you.
8. Although a log book audit was performed on 7/16/99 which included having the supervisors of the sections review the log books, an additional memo was

distributed to all personnel instructing them to be more careful when making entries.

9. The record of initial review and the peer review is located on the multilevel form which travels with the data when turned into reporting. It is filed permanently with the final report.
10. The copies of the "before" and "after" pictures of the manual integrations were filed with the raw data. The package ARF#30204 was a level III type data package therefore chromatograms are not required. The manual integration pictures are included with level IV data packages and the explanation for the integration will be designated with a number which corresponds to an explanation in the manual integration SOP.

SW 846 method 6010B - Inductively Coupled Plasma-Atomic Emission Spectrometry

1. A copy of Parminder Singh's initial demonstration of capability will be filed in his training file and a copy sent to you.
2. An SOP is being written which describes how to properly enter information into maintenance log books. This will include "symptoms" which may occur, action taken to alleviate symptoms, and the time proper instrument performance was achieved. All analytical departments will have a copy of this SOP. A copy of this SOP will be sent to you.
3. Same as number 2.
4. Same as number 2.
5. An SOP is being written which will describe routine maintenance performed on all the instruments in the metals section. A copy of this SOP will be sent to you.
6. Although the standard has expired, the second source standard does not indicate it has degraded. This standard has been sent out for verification. This process will be described in an SOP. A copy of this SOP will be sent to you along with the results of the verification of the arsenic standard.
7. The above mentioned SOP will describe the determination of the expiration date for different dilutions of the stock standard.
8. This standard was reprepared. The supervisor of the metals section will monitor the standards to ensure they do not pass the expiration date.
9. The dilution test will be performed once per each sample matrix and by site.

10. The temperature will be documented in the digestion book.
11. A calibrated NIST thermometer will be purchased to calibrate the thermometer used for the hot plate. A copy of the page in the logbook where this is documented will be sent to you.
12. The pH of the buffer solution will now be documented in the TCLP digestion book. A copy of the logbook where this is documented will be sent to you.
13. The method does not give instructions for sample preparation procedures when the pH value is equal to 5. The pH meter measures to three decimal places. Although the likelihood of a sample having a pH of exactly 5.000 is low, the technician was instructed to notify the section supervisor who in turn will notify the project manager and subsequently the client. These instructions will be documented in the SOP and a copy sent to you.

SW 846 method 7470A/7471A - Mercury in Liquid Waste/Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique)

1. A copy of the SOP described in number 5 above will be sent to you.
2. A copy of the revised SOP will be sent to you.

SW 846 method 8270C - Semi-volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

1. The draft of the manual integration SOP will be sent to you.
2. A copy of Steve Singh's initial demonstration of capability including the acceptance criteria will be sent to you
3. A copy of the revised 8270C SOP including the procedure for routinely dropping standards will be sent to you.
4. A copy of the SOP describing how to properly enter information in the maintenance log books will be sent to you.
5. The analyst was instructed to use the entire date.
6. A memo will be distributed to all personnel regarding the calculation of the expiration date which will be consistent with the SOP.
7. The acceptance criterion will be documented in the SOP.
8. The calculation of the DDT breakdown is done by a spreadsheet set up in Excel. This spreadsheet was verified to be calculating correctly and documented in a file at the QA Officers desk.

SW 846 method 8081A - Organochlorine Pesticides by Gas Chromatography (GC)

1. A copy of the draft SOP for manual integration will be sent to you.
2. The initial demonstrations for all analytes will have the control limits added. A copy of the initial demonstration for Monica Aguilera, the 8081 analyst, will be sent to you.
3. Instructions on the use of the Primer solution will be documented in the maintenance SOP. A copy of this SOP will be sent to you.
4. The procedure for dropping points in the initial curve will be described in the 8081 SOP. A copy of the revised SOP will be sent to you.
5. The procedure for quantitative determination of the confirmed target analytes will be described in the 8081 SOP. A copy of the revised SOP will be sent to you.
6. Although the EPA Method 8081A allows the average of all analytes to be $\pm 15\%$ for the ICV and the CCV, the AFCEE QAPP does not. The analyst was informed that for all AFCEE projects the ICV and the CCV will be $\pm 15\%$ for each analyte.
7. Tap water is not used for the LCS. The DI water is used which is the same as the water used for the blank which would verify it is clean with every extraction.
8. The 8081 SOP will be revised to describe the procedure for target identification using the secondary column confirmation and flagging. A copy of the revised SOP will be sent to you.

SW 846 method 7060A/7131A/7421 - Arsenic, Cadmium and Lead (Atomic Absorption, Furnace Technique)

1. A copy of the initial demonstration including the acceptance criteria will be sent to you.
2. The standard was re-prepared. A copy of the SOP described earlier which includes the instructions for verifying expired standards and assigning expiration dates will be sent to you.
3. The nitric acid solution is prepared weekly. The date on the container was incorrect. All solutions were checked for expired dates and will continue to be checked in the future. The supervisor will ensure no expired standards or reagents are being used.

Sample Receipt, Storage, Preservation, Custody and Disposal

- 1. As mentioned earlier, the refrigerator in the garage has been designated as the storage place for suspected highly contaminated VOA samples.**
- 2. Samples suspected to be highly contaminated will be kept in the ice chest they arrived in to prevent contamination of other samples. This ice chest will be monitored for temperature compliance and documented in a log book. The ice chest will also be kept in the sample receiving area under supervision of the receiving personnel to maintain the security of the samples. A copy of the revised SOP outlining this procedure will be sent to you. Also a copy of the logbook for recording the temperature of the ice chest will be sent to you.**
- 3. The receiving personnel were reminded to double bag the VOA samples suspected to be highly contaminated as described in the SOP.**
- 4. All entries were reviewed and corrected. The sample receiving supervisor will ensure correct entries are made in the logbooks.**
- 5. An addendum was attached to the training form for the sample receiving supervisor documenting training for hazardous sample disposal. Attached is a copy of this form. In addition the training form was revised for new employees.**
- 6. The receiving personnel were instructed to be more detailed in documenting the location of the samples at all times in the laboratory. The SOP for hazardous sample disposal will be revised to be more specific in the instructions. A copy of this SOP will be sent to you.**
- 7. The cooler receipt form has been modified to indicate any discrepancies which are encountered during sample receipt. The sample receiving personnel will document which project manager was notified and the date and the time. The project manager will document on this form when (the date and time) a client has been notified of the discrepancy.**
- 8. A custom hood will be purchased for sample receiving. The time frame for completion is undetermined at this time, however during the interim the portable hood currently located in the GC room will be moved to the receiving department when receiving samples.**
- 9. The SOP for the revising and subsequent distribution of SOPs will be revised. A copy of this SOP will be kept in all departments and all personnel will be required read it. A copy of this SOP will be sent to you.**
- 10. The sample receiving supervisor reviews the log books on a monthly basis. In addition an audit of the log books is done once a year. The supervisor**

was instructed to be more careful during the review process to observe and correct any mis-entries. The personnel responsible for making the improper changes in the log book was again reminded of the correct procedure for making entries in a logbook.

11. There are personnel present in the sample receiving area at all times between 8:00am and 5:00pm. During non business hours the entire shipping and receiving area is locked. A key is kept by the Federal Express personnel which allows entry into the "lock out" room. This key does not allow entry into the receiving area. In addition an alarm system is also in place for monitoring the entire building except for the "lock out" room. A refrigerator which stores highly contaminated samples has been removed from the lock out room for security purposes. This refrigerator has been moved to the other laboratory. The temperature of this refrigerator is not monitored because the samples all belong to a particular client who would like us to keep the samples indefinitely. The only other items stored in the lock out room are empty ice chests.
12. The airflow rates of the portable ventilation hood are now being monitored. A copy of the logbook will be sent to you.

LIMS (Laboratory Information Management System)

1. The Laboratory Information Management System is strictly a database. This program does not perform any type of calculation. The information is retrieved from it using Access. Within this program the only calculations performed are % recovery and RPD on the spike template. A spike was printed and the calculation verified. A copy of this is kept on file at the QAU's desk. In addition the manufacturer of Labworks was contacted by E-mail. In their response they stated their product was alpha and beta tested and a select group of clients provided a third level of testing. They are willing to send a letter stating this if needed.

Security of the Facility

1. The sample storage refrigerator was removed to the other laboratory where personnel are present from 8:00am to 5:00pm. During non business hours the building is locked and secured by an alarm system.

Instrument Maintenance and Equipment Monitoring/Calibration

1. It is not necessary to calibrate the re-pipetors as they are not used to qualitatively measure the reagents. They are only used for transfer of the solution.

2. The portable ventilation hood will be monitored on a monthly basis. A copy of the logbook documenting this will be sent to you.
3. All our syringes are purchased from Hamilton and are not kept in production longer than 1 year. Their syringes are manufactured to have $\pm 1\%$ accuracy for the inside diameter therefore we feel it is not necessary to calibrate the syringes.
4. The SOP will be revised to reflect the actual procedure performed. A copy of the revised SOP will be sent to you.
5. We are currently looking for software to secure the clocks for the instruments and computers.
6. An SOP will be written which describes the procedures used to daily monitor the DI water and will include the acceptance limits. A copy of this SOP will be sent to you.
7. As mentioned above the acceptance limits will be included in the SOP. The personnel performing the daily check will be informed of the control limits.
8. The manufacturer of the calibration standards (YSI) states re-calibration is not necessary. This has been documented on the standards and recorded in the telephone log in the Wet Lab department.
9. A calibrated NIST thermometer will be purchased to calibrate the thermometer used in the drying oven. Upon arrival the thermometer will be calibrated and documented in the thermometer calibration log book. A copy of the page in the log book where this is documented will be sent to you.

QA/QC Function

1. A blank using the sand is extracted and analyzed with every MDL. This blank demonstrates the sand is free of contaminants.
2. Charts are generated using LCS/LCSD and MS/MSD and with only LCS/LCSD's. Control limits are established using only the LCS/LCSD's. The combination chart is generated only to document all spikes on a hardcopy report.
3. All the training files will be reviewed for completeness. This will be done on an annual basis and was listed on my internal audit schedule at the time of the audit.
4. The case narratives will be written by the analysts. This will take approximately 3 months to implement for all clients. For the Parsons project the analysts will write the case narratives. The narratives will be reviewed

first by the laboratory director or the project manager and the QAU will perform the final review.

5. An SOP will be written which describes the completion of formal corrective actions. A copy of this SOP will be sent to you.
6. The internal clock of the GC/MS is secured by the server. The password to access the server is known only to the computer personnel, Diane Anderson and the QAU director.
7. An SOP will be written which describes the procedure for data review. A copy of this SOP will be sent to you.
8. The data package review list will be revised to reflect what is actually being checked.
9. Attached is a revised organizational chart.
10. The QA Director will read the GLP guidelines. This will be documented in the training file.

Safety Program

1. A safety committee will be formed which will perform an annual internal audit of the safety program which will include a review of local, state and federal laws and regulations. The committee will also enlist the aid of the California OSHA consultants as a resource.
2. The hoods will be monitored with Vaneometers on a monthly basis and recorded in a log book. The conditions of the hoods will be monitored by the safety director on a quarterly basis and documented in the same log book.
3. Employee training and periodic review of the items listed in the laboratory safety program will be completed and documented on a regular basis. The employees are given a safety test on an annual basis which is kept in their safety training file. This test will be revised to include all items in the laboratory safety program.

