4203 West Swift ▼ Fresno, California 93722 ▼ Phone 559.275-2175 ▼ Fax 559.275-4422

October 12, 1999

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

Dear Ms. Chang:

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

The following items will require follow up at a later date:

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

6. We have not received the results back from the verification of the standard from the outside (reference) laboratory. The results will be sent to you upon receipt.

Instrument Maintenance and Equipment Monitoring and Calibration

5. Notification of purchase of the software will be sent to you.

9. We have not received the NIST calibrated thermometer. Upon arrival, the thermometer for the drying oven will be calibrated and documentation sent to you.

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.

   A copy of the manual integration SOP is enclosed.

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.

   Enclosed is a copy of Ray Valenzuela's initial demonstration of capabilty.

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.

   Enclosed is a copy of the SOP describing the proper way to enter spikes into the Control Limits Analysis Database.

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.

   A copy of the memo is enclosed.

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.

   A copy of the SOP is enclosed.

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.

A copy of the revised SOP is enclosed. The revisions have been highlighted.

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.

   A copy of the SOPs from the VOA department and the Receiving department are enclosed. Also are enclosed is a copy of the Whirlpool Refrigerator/Freezer log book documenting the temperatures.

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.

   A copy of the memo is enclosed.

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.

   A copy of Parminder Singh's initial demonstration of capability is enclosed.

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.

   A copy of this SOP is enclosed.

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.

   A copy of this SOP is enclosed.

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.

   A copy of this SOP is enclosed. We have not yet received the results back for the verification of the standard. The results will be sent to you upon receipt.

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.

   A copy of the standard preparation log book is enclosed documenting the preparation of the standard.

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.

    Enclosed are copies from the digestion log book which demonstrate the documentation of the temperature.

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.

    Enclosed is a copy of the thermometer calibration log book documenting the calibration of the thermometer.

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.

    Enclosed is a copy of the TCLP digestion log book documenting the pH of the buffer solution.

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.

    A copy of the revised SOP is enclosed.

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.

    A copy of the SOP is enclosed.

2. A copy of the revised SOP will be sent to you.

    A copy of the revised SOP is enclosed.

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.

    A copy of the manual integration SOP is enclosed.

2. A copy of Steve Singh's initial demonstration of capability including the acceptance criteria will be sent to you

    A copy of Steve Singh's initial demonstration is enclosed.

3. A copy of the revised 8270C SOP including the procedure for routinely dropping standards will be sent to you.

    A copy of the revised SOP is enclosed.

4. A copy of the SOP describing how to properly enter information in the maintenance log books will be sent to you.

    A copy of the SOP is enclosed.

5. The analyst was instructed to use the entire date.

    A copy of the revised SOP documenting the use of the entire date is enclosed. It was also mentioned in the memo regarding expiration dates.

6. A memo will be distributed to all personnel regarding the calculation of the expiration date which will be consistent with the SOP.

   A copy of the memo is enclosed.

7. The acceptance criterion will be documented in the SOP.

   The acceptance criterion is detailed in the SOP #ANA8270C.

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.

   The procedure is detailed in the SOP #ANA8270C.

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.

   A copy of the manual integration SOP is enclosed.

2. The initial demonstrations for all analyts will have the control limits added. A copy of the initial demonstration for Monica Aguilera, the 8081 analyst, will be sent to you.

   A copy of Monica Aguilera's initial demonstration of capability is enclosed.

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.

   A copy of the revised maintenance SOP is enclosed.

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.

   A copy of the revised SOP is enclosed.

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.

   A copy of the revised SOP is enclosed.

6. Although the EPA Method 8081A allows the average of all analytes to be ±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 ±15% for each analyte.

A copy of the memo distributed regarding the AFCEE ICV and CCV requirements is enclosed.

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.

A copy of the revised SOP is enclosed.

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.

A copy of the Kashmir Pandher's initial demonstration is enclosed.

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.

A copy of the SOP is enclosed.

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.

informed that for all AFCEE projects the ICV and the CCV will be ±15% for each analyte.

A copy of the memo distributed regarding the AFCEE ICV and CCV requirements is enclosed.

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.

A copy of the revised SOP is enclosed.

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.

A copy of the Kashmir Pandher's initial demonstration is enclosed.

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.

A copy of the SOP is enclosed.

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.

A copy of the SOP is enclosed. A copy of the Refrigerator temperature log book is enclosed.

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.

   A copy of the revised SOP is enclosed.

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.

   A copy of the revised SOP and cooler receipt form are enclosed.

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 to read it. A copy of this SOP will be sent to you.

   A copy of the SOPs are enclosed.

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 sample custody personnel present in the sample receiving area at all times between 8:00am and 5:00pm. During nonbusiness 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.

    The refrigerator and the samples belong to a particular client who does not require the temperature to be monitored. The client has been contacted regarding the samples in this refrigerator. They will either be sent back to them or disposed of properly. If the client does not want the refrigerator returned to them then we will monitor the temperature, verify the refrigerator has not been contaminated by the samples and move it back into production.

12. The airflow rates of the portable ventilation hood are now being monitored. A copy of the logbook will be sent to you.

    A copy of the Portable Hood Air-flow monitoring log book is enclosed.

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.

    A copy of the letter sent to us via E-mail from Labworks is enclosed. Also enclosed is a copy of a laboratory control spike with the %recovery and RPD calculation verified.

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 nonbusiness 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.

   A copy of the Portable Hood Air-flow monitoring log book is enclosed.

3. All our syringes are purchased from Hamilton and are not kept in production longer than 1 year. Their syringes are manufactured to have ±1% accuracy for the inside diameter therefore we feel it is not necessary to calibrate the syringes.

   The syringes will be calibrated monthly. A copy of the SOP for calibrating the syringes is enclosed.

4. The SOP will be revised to reflect the actual procedure performed. A copy of the revised SOP will be sent to you.

   A copy of the revised SOP and a copy of the pipet calibration log book is enclosed.

5. We are currently looking for software to secure the clocks for the instruments and computers.

   We are still looking for software to secure the clocks for the instruments and computers. We have contacted O'Brien and Gere. We are following their lead.

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.

   A copy of the SOP is enclosed.

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.

   YSI was unwilling to document that the calibration standards did not need to be re-calibrated. Therefore we sent the standards in to be recalibrated. The

standards will be calibrated annually. A copy of the postcard we received from YSI acknowledging the receipt of the calibration standards is enclosed.

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.

   The calibrated NIST thermometer has not yet arrived. Upon receipt of the thermometer the thermometer for the drying oven will be calibrated and the documentation 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.

   A copy of the memo stating Ottawa is to be used for soil MDLs is enclosed.

2. Charts are generated using LCS/LCSD and MS/MSD and with only LCS/LCSD's. Control limits are established using only the LCS/LCSDs. 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.

   A copy of the revised SOP is enclosed.

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.

   A copy of the revised SOP is enclosed.

8. The data package review list will be revised to reflect what is actually being checked.

   A copy of the revised data package review list is enclosed.

9. Attached is a revised organizational chart.

   A copy of the revised organizational chart is enclosed.

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.

Whirlpool Refrigerator/Freezer Log Book

Whirlpool Refrigerator			Whirlpool Freezer		
Date	Temp (°C)	Initials	Date	Temp (°C)	Initials
7-10-99	5.0°C - 1.0° = 4.0°C	LF	7-10-99	-19°C +1.0° = -18.0°C	LF
7-11-99	5.0°C - 1.0° = 4.0°C	LF	7-11-99	-20°C +1.0° = -19.0°C	LF
7-12-99	4.5°C -1.0° = 3.5°C	LF	7-12-99	-19.5°C +1.0° = -18.5°C	LF
7-13-99	4.0°C -1.0° = 3.0°C	LF	7-13-99	-20.0°C +1.0° = -19.0°C	LF
7-14-99	4.5°C - 1.0° = 3.5°C	LF	7-14-99	-20.0°C +1.0° = -19.0°C	LF
7-15-99	4.0°C -1.0° = 3.0°C	LF	7-15-99	-19.0°C +1.0° = -14.0°C	LF
7-16-99	5.0°C - 1.0° = 4.0°C	LF	7-16-99	-19.5°C +1.0° = -18.5°C	LF
7-17-99	5.0°C -1.0° = 4.0°C	LF	7-17-99	-19.5° + 1.0° = -18.5°C	LF
7-18-99	5.0° - 1.0 = 4.0°	LF	7-18-99	-15.0° + 1.0 = -14.0°	LF
7-19-99	5.0 - 1.0 = 4.0°C	LF	7-19-99	-18.0 +1.0 = -17.0°C	LF
7-20-99	2.0 - 1.0 = 1.0°C	LF	7-20-99	-26.0°+1.0 = -25°C #	LF
7-20-99	# Increased temperature in the refrigerator. LF 7/20/99				
7-21-99	5.5 - 1.0 = 4.5°C	LF	7-21-99	-15.5° +1.0 = -14.5°C	LF
7-22-99	5.0° - 1.0 = 4.0°C	LF	7-22-99	-18.0° +1.0 = -17°C	LF
7-23-99	5.5° - 1.0 = 4.5°C	LF	7-23-99	-17.5°C +1.0 = -16.5°C	LF
7-24-99	5.0° - 1.0 = 4.0°C	LF	7-24-99	-17.5°C +1.0 = -16.5°C	LF
7-25-99	5.0 - 1.0 = 4.0°C	LF	7-25-99	-19.0°C +1.0 = -18.0°C	LF
7-26-99	5.0 - 1.0 = 4.0°C	LF	7-26-99	-17.0° +1.0 = -16.0°C	LF
7-27-99	5.0 - 1.0 = 4.0°C	LF	7-27-99	-18.0° +1.0 = -17.0°C	LF
7-28-99	5.0 - 1.0 = 4.0°C	LF	7-28-99	-18.0° +1.0 = -17.0°C	LF
7-29-99	5.5 - 1.0 = 4.5°C	LF	7-29-99	-18.0° +1.0 = -17.0°C	LF
7-30-99	5.5 - 1.0 = 4.5°C	LF	7-30-99	-18.0° +1.0 = -17.0°C	LF
7-31-99	5.5 - 1.0 = 4.5°C	LF	7-31-99	-18.0° +1.0 = -17.0°C	LF
8-01-99	6.0 - 1.0 = 5.0°C	LF	8-01-99	-18.0° +1.0 = -17.0°	LF
8-02-99	6.0 - 1.0 = 5.0°C	LF	8-02-99	-18.0° +1.0 = -17.0°C	LF
8-3-99	6.0 - 1.0 = 5.0	SG	8-3-99	-18.0 + 1.0 = -17.0	SG
8-4-99	6.0 - 1.0 = 5.0°C	LF	8-4-99	-19.0 +1.0 = -18.0°	LF
8-5-99	5.0 - 1.0 = 4.0°C	LF	8-5-99	-19.0 +1.0 = -18.0°	LF
8-6-99	5.0 - 1.0 = 4.0°C	LF	8-6-99	-19.0 +1.0 = -18.0°	LF
8-7-99	4.5 - 1 = 3.5	GB	8-7-99	-19° + 1 = -18	GB
8-8-99	4.5 - 1.0 = 3.5°	LF	8-8-99	-18.0 + 1.0 = -17.0°	LF
8-9-99	4.5 - 1.0 = ~~4.0~~ 3.5°	LF	8-9-99	-17.0 +1.0 = -16.0°	LF
8-10-99	5.0 - 1.0 = 4.0°	LF	8-10-99	-18.0 +1.0 = -17.0°	LF
8-11-99	4.5 - 1.0 = 3.5°C	LF	8-11-99	-19.0 +1.0 = -18.0	LF
8-12-99	5.0 - 1.0 = 4.0°	LF	8-12-99	-19.0 +1.0 = -18.0	LF
8-13-99	5.0 - 1.0 = 4.0°	LF	8-13-99	-18.0 +1.0 = -17.0	LF

Memorandum

To: All personnel

CC: Diane

From: Paula

Date: September 23, 1999

Re: Laboratory Notebooks

I would like to remind everyone of the proper way to make entries into laboratory notebooks.

1. Each entry will be made with the date and initials of the person making the entry.
2. Entries will be made with black indelible ink.
3. Each person will initial and sign the inside front cover.
4. To make a correction to an entry, draw a line through the entry, write the correction next to it along with the reason for the correction and the date and initials of the person making the change.
5. A line will be drawn through unused spaces and the initials and date entered.
6. All logbooks will be reviewed at a minimum on a monthly basis by the supervisor or his/her designee. Notation of the review will be documented in the log book.

IDP_ICP

Initial Demonsration of Performance--ICP Laboratory Control Spikes
Method 6010B Analyzed by: Parminder Singh Prepared by: Gloria Menke

		Analysis Date					Avg. %	
Analyte	Spike Amt.	1/8/98	1/8/98	1/8/98	1/21/98	Avg. Rec.	Recovery	Std. Dev.
Al	2000	2003.27	1935.97	2141.22	1976.88	2014.3	100.7%	89.00
As	250	245.28	235.29	250.96	247.79	244.8	97.9%	6.77
Ba	250	245.52	237.08	255.93	249.31	247.0	98.8%	7.87
Be	50	49.40	47.37	49.43	49.57	48.9	97.9%	1.05
B	250	242.12	237.12	245.78	242.69	241.9	96.8%	3.59
Ca	25000	25087.06	24029.81	25077.83	25680.19	24968.7	99.9%	686.45
Cd	50	50.92	49.00	51.37	51.34	50.7	101.3%	1.12
Cr	250	249.10	238.74	248.65	255.53	248.0	99.2%	6.93
Co	250	241.58	231.11	236.01	251.38	240.0	96.0%	8.70
Cu	250	244.88	234.69	244.70	259.36	245.9	98.4%	10.15
Fe	1000	981.90	934.00	957.93	1014.72	972.1	97.2%	34.47
Mg	25000	23613.84	22505.90	22583.13	25146.46	23462.3	93.8%	1231.13
Mn	250	247.07	236.63	241.98	258.31	246.0	98.4%	9.25
Mo	250	254.39	244.11	257.88	256.18	253.1	101.3%	6.19
Ni	250	248.03	237.80	247.41	248.89	245.5	98.2%	5.19
P	2000	1884.53	1816.37	1914.98	1900.09	1879.0	93.9%	43.56
Ag	100	99.98	96.09	100.67	100.24	99.2	99.2%	2.12
Sr	250	254.15	244.90	265.11	259.05	255.8	102.3%	8.54
Tl	250	242.96	235.65	245.69	241.88	241.5	96.6%	4.24
Sn	250	255.74	241.65	252.70	253.17	250.8	100.3%	6.25
V	250	249.19	238.80	249.75	259.42	249.3	99.7%	8.43
Zn	250	270.29	249.28	260.08	257.01	259.2	103.7%	8.70
Pb	250	247.77	236.75	248.44	250.50	245.9	98.3%	6.19
Se	250	228.58	219.09	235.27	229.23	228.0	91.2%	6.68
Sb	250	246.20	236.82	246.91	247.66	244.4	97.8%	5.09
Ti	250	249.38	239.31	244.94	261.30	248.7	99.5%	9.34

Control Limits--LCS ±20%

Analyzed by: Parminder Singh Signed: _____

Prepared by: Gloria Menke Signed: _____

Metals Standards Log Book # 5 Page # 80

10/11/99
6:45 PM

1:1 HCL for DIGESTIONS

1000ml HCL (MALLINCKRODT Lot #5587 N14A17)
+ 1000ml D.I

10/11/99 PS
10:00 AM

ICP_ICAL_4 ICAP methods 6010B/200.7

5ml 10,000ug/ml AA (E.E. lot # 702202) / 100ml 5% HNO_3.

(⇒ 200 ppm Ag soln.)

QC# / Initial	Y-N PH<2	Initial WT-VOL	Final VOL.	SPK Sol'n	Digestion	Analysis	Date	Comment
99100BA-7471A QM								
84410s		3x.20g	96ml's		7471A	7471A	10/8/99	
82264s		3x.20g	↓		↓	↓	↓	
82265s		3x.20g						
99100BB-7471A QM								
0			96ml's		7471A	7471A	10/8/99	95°C
0 Dup				0.05ppm Hg Working				START TIME: 6:06pm
0.2				0.4 ml's				STOP: 6:39pm
0.5				1ml "				
1.0				2ml "				
2.0				4ml "				
5.0				10ml "				
5.0 Dup				10ml "				
10.0				20ml "				
~~99100BB-7471A QM~~								
99100BB-ICV				0.05ppm Hg Working ICV 8ml 10/8/99gm				
99100BB-BLK								
99100BB-LCS				0.05ppm Hg Working STD 8ml 10/8/99gm				
84121s		3x.20g						
84122s		3x.20g						
84123s		3x.20g						
84124s		3x.20g						
84125s		3x.20g						
84126s		3x.20g						
84126s Dup		3x.20g						
84126s S1		3x.20g		8ml "				
84126s S2		3x.20g		8ml "				
84127s		3x.20g						
84128s		3x.20g						
84129s		3x.20g						
84130s		3x.20g						
84131s		3x.20g						
84132s		3x.20g						
84133s		3x.20g						
84134s		3x.20g						
84135s cont. QM		3x.20g	↓		↓	↓	↓	

Decanted [illegible] 9/11/99gm KMnO4 10/14/99gm Aqua Regia 11/8/99gm

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Initial	QC #	Y-N PHLZ	Initial Wt-Vol	Final Vol.	SPK Soln	Digestion	Analysis	Date	Comment
9910DBA-245.1/7470A QM									
84414w		Y	100mL's	144.5mL		245.1/7470A	7470A	10/8/99	
84425w									
84428w									
84431w									
84482w									
84483w									
84484w									
9910DBA-7474A QM									
0				96mL's		7471A	7471A	10/8/99	95°C
0 Dup					0.4mL 10/8/99 qm				START TIME: 6:00pm STOP 6:30pm
0.2					1mL "				
0.5					2mL "				
1.0					4mL "				
2.0					10mL "				
5.0					10mL "				
5.0 Dup					20mL "				
10.0									
9910DBA-ICV					8mL 10/8/99 qm				
9910DBA-BLK									
9910DBA-LCS					8mL 10/8/99 qm				
84017m			3x.20g						
84018m			3x.20g						
84020s			3x.20g						
84021s			3x.20g						
84021s Dup			3x.20g						
84021s S1			3x.20g		8mL "				
84021s S2			3x.20g		8mL "				
84022s			3x.20g						
84023s			3x.20g						
84030s			3x.20g						
84030s Dup			3x.20g						
84030s S1			3x.20g		8mL "				
84030s S2			3x.20g		8mL "				
84031s			3x.20g						
84409s			3x.20g						

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QC# / Initial	Y-N PH<2	Initial Wt-Vol.	Final Vol.	SPK Sol'n	Digestion	Analysis	Date	Comment
991008A-3010A gm								
991008A-BLK		100mLs	100mLs		3010A	6010B	10/8/99	93°C
991008A-LCS		↓	↓	1000uL LCSW 1/11/99 RB	↓	↓	↓	
991008A-LCSD		↓	↓	〃	↓	↓	↓	
82710WA		50mLs	50mLs		↓	↓	↓	
82710WA Dissolved		100mL	↓ 1:1 HCL 9/16/99 gm Lot# A39021 HNO3 Mallinckrodt		↓	↓	↓	
82710WB		↓	↓		↓	↓	↓	
82710WB Dissolved		↓	↓		↓	↓	↓	
82710WC		↓	↓		↓	↓	↓	
82710WC Dissolved		↓	↓		↓	↓	↓	
82710WD		↓	↓		↓	↓	↓	
82710WD Dissolved		↓	↓		↓	↓	↓	
82710WE		↓	↓		↓	↓	↓	
82710WE Dissolved		↓	↓		↓	↓	↓	
991008A-245.1/7470A gm								
0		100mLs	144.5mL		245.1/7470A	7470A	10/8/99	95°C
0 Dup		↓	↓		↓	↓	↓	Time: Start 10:00am
0.2		↓	↓	0.025ppm Hg Working Std 10/8/99 gm 0.4mL	↓	↓	↓	Stop: 12:00pm
0.5		↓	↓	1mL 〃	↓	↓	↓	
1.0		↓	↓	2mL 〃	↓	↓	↓	
2.0		↓	↓	4mL 〃	↓	↓	↓	
5.0		↓	↓	10mL 〃	↓	↓	↓	
5.0 Dup		↓	↓	10mL 〃	↓	↓	↓	
10.0		↓	↓	20mL 〃	↓	↓	↓	
991008A-ICV		↓	↓	0.025ppm Hg Working ICV 10/8/99 gm 8mL	↓	↓	↓	
991008A-BLK		↓	↓		↓	↓	↓	
991008A-LCS		↓	↓	0.025ppm Hg Working STD 10/8/99 gm 8mL	↓	↓	↓	
991008A LCSD		↓	↓	8mL 〃	↓	↓	↓	
84019W	Y	↓	↓		↓	↓	↓	
84032W	↓	↓	↓		↓	↓	↓	
84032WD	↓	↓	↓		↓	↓	↓	
84032WS1	↓	↓	↓	8mL 〃	↓	↓	↓	
84032WS2	↓	↓	↓	8mL 〃	↓	↓	↓	
84033W	↓	↓	↓		↓	↓	↓	
84411W	↓	↓	↓		↓	↓	↓	
84413W	↓	↓	↓		↓	↓	↓	

cont. pg 48

Thermometer Calibration

Date	Initials	Nist Thermometer Serial #	Nist Thermometer Reading	Thermometer Serial #	Thermometer Reading	Correction factor	Freezer/ Refrigerator
4-1-99	NSR	V59773	-16	73479280 NSR 4-14-99	-16	-2.0	Orange-Purple
4-14-99	NSR	V59773	-20	8111	-20	0	A Freezer
4-14-99	NSR	V59773	4.0	7414	4.0	0	A Refrig
4-14-99	NSR	V59773	5.0	F19783	5.0	0	Maintenance
6-1-99	CLR	443349	3.0	2356	3.0	0	MS-1
6-1-99	CLR	443349	-18.0	8912	-17.0	+1	MS-1
6-1-99	CLR	443349	-20.0	9522	-20.0	0	MS-3
6-1-99	CLR	443349	4.0	6504	4.0°	0	MS-2
6-7-99	UF	443349	4.0	6389	4.5°	-0.5°C	Kelvinator Refrig
6-7-99	UF	443349	-16.0	8262	-16.0	0	Kelvinator Freezer
6-7-99	UF	443349	7.0	6529	7.5	-0.5°C	Marvel Refrigerator
6-7-99	UF	443349	-17.0	8362	-18.0	-1.0°C	Whirlpool freezer
6-7-99	UF	443349	3.0	F 19895	4.0	-1.0°C	Whirlpool refrigerator
7-15-99	CLR	443349	35	WATERBATH #1	34°	-1.0°C	ROTOVAP BATH #1
7-15-99	CLR	443349	37	WATERBATH #2	37°	0	ROTOVAP BATH #2
7-15-99	CLR	443349	35	WATERBATH #3	36°	-1.0°C	ROTOVAP BATH #3
7-27-99	LSL	443349	4.0°	F 25074	3.5°	+0.5°	GC-B
7-27-99	LSL	443349	4.5°	2168	6.0°	-1.5°	GC-F
7-27-99	LSL	443349	7.0°	7873	7.0°	0	MS-2
7-27-99	LSL	443349	4.0°	11241	5.0°	-1.0°	GC-E
7-27-99	LSL	443349	7.0°	6605	5.5°	+1.5°	GC-D
8-2-99	CLR	44349	4.5°	8013	4.5°	0	ORGANIC LAB EXPLOSION PROOF REFRIGERATOR #1
7-28-99	LSL	443349	-12.0°	F12080	-9.0°	-3.0°	MS-3
8-9-99	LSL	443349	-12.0°	8957	-17.0°	+5.0°	GC-B/FREEZER
10/11/99	GM	HB/B34596	93°C	2M4205	93°C	0	WATER BATH
10/11/99	GM	HB/B34596	93°C	1406	93°C	0	HOT PLATES

Initials GM Sample #	Determination of Extraction Fluid: Sample pH	Sample Wt.	Vol & Type of Extraction Fluid	Sample Wt.	Date & Time Start	Date & Time Stop	Extract pH	Acidified Yes/No	Comments	Location
BLK	FLUID PH. 4.961		2L. Fluid I		8/6/99 2:15 PM	8/7/99 8:00 AM	4.989	Y		SAMPLE EVALUATION
81780S	8.282 / 1.737	5.02g		100.01g			5.072		N.S.Q FOR DUP	<9.5mm
81785	7.520 / 1.787	5.02g		100.03g			5.032			
81789S	8.123 / 1.801	5.00g		100.03g			5.245			
81790S	7.881 / 1.780	5.00g		100.02g			5.516			
81794	8.961 / 1.942	5.02g		100.03g			7.555			
81818S	7.637 / 1.973	5.02g		100.00g			5.116			

TCLP Extraction Sheet.xls

Initials GM Sample #	Determination of Extraction Fluid: Sample pH	Sample Wt.	Vol & Type of Extraction Fluid	Sample Wt.	Date & Time Start	Date & Time Stop	Extract pH	Acidified Yes/No	Comments	Location
BLK	4.934		2L Fluid I		9/8/99 2:35 PM	9/9/99 8:30 AM		Y		
82449SL	5.00g	10.443 / 6.058	2L FLUID II	100.00g			7.483			
82450SL	5.00g	5.469 / 1.954	2L I	100.02g			4.815			
82451SL	5.00g	10.754 / 3.173	2L I	100.00g			5.365			
82453S	5.00g	10.007 / 2.779	2L FLUID I	100.02g			9.301			

Inorganic T.C.L.P. Log Book # 3 Page # 74

Initials / Sample #	Determination of Extraction Fluid: Sample pH	Determination of Extraction Fluid: Sample Wt.	Vol & Type of Extraction Fluid	Sample Wt.	Date & Time Start	Date & Time Stop	Extract pH	Acidified Yes/No	Comments	Location
82768m	5.00g	5.758 / 4.780	Fluid I 2L	100.00g	9/8/99 2:35PM	9/9/99 8:30AM	5.596	Y		
BLK	2.838		2L Fluid II							
82454s	5.00g	7.341 / 1.667	2L I	100.0kg			4.925			
82588m	5.00g	6.948 / 1.905	2L I	100.02g			5.044			
82628m	5.00g	9.109 / 1.687	2L I	10001g			5.014			
82629m	5.00g	10.812 / 7.405	2L II	100.03g			6.997			
82630m	5.00g	10.031 / 8.199	2L II	100.01g			5.915			
82631m	5.01g	10.580 / 2.174	2L I	100.02g			6.717			
82712 SL	5.00g	10.014 / 5.778	Fluid II 2L	100.00g	↓	↓	4.960			
82713	5.00g	8.678 / 7.006	II	N/A					N.S.Q. only TPHCd	
82714m	5.00g	5.692 / 1.620	2L I	100.03g	↓	↓	5.033	Y		

Initial Demonstration of Capability Study for EPA Method 8270C

INSTRUMENT: Sweetpea
COLUMN: HP-5
30m X 0.25mm X 1.0um

Analyste Name: S. Singh
Date Extracted: 1/5/99
Date Injected: 1/30/99

Compound Name	Spike Level	1 Results	2 Results	3 Results	4 Results	Std. Dev.
N-Nitrosodimethylamine	50	28.24	28.08	28.07	26.69	0.7242
Phenol	50	14.72	14.48	14.68	14.60	0.1226
Bis(2-Chloroethyl)ether	50	38.86	37.82	37.99	36.65	0.9090
2-Chlorophenol	50	32.93	32.00	32.38	31.15	0.7481
1,3-Dichlorobenzene	50	42.56	31.28	33.72	43.17	6.0717
1,4-Dichlorobenzene	50	44.57	30.95	34.86	41.17	6.1299
1,2-Dichlorobenzene	50	41.67	30.29	33.19	40.24	5.4816
2-Methylphenol	50	36.00	33.83	35.94	34.75	1.0404
Bis(2-Chloroisopropyl)ether	50	32.98	29.48	30.14	30.48	1.5307
4-Methylphenol	50	33.11	32.14	32.63	31.50	0.6886
N-Nitroso-di-n-propylamine	50	51.47	51.19	49.07	49.21	1.2708
Hexachloroethane	50	42.00	28.81	30.66	41.60	7.0085
Nitrobenzene	50	44.55	42.83	43.57	40.03	1.9423
Isophorone	50	47.32	44.45	46.08	42.28	2.1791
2-Nitrophenol	50	31.82	30.04	30.95	28.97	1.2227
Benzoic Acid	50	21.42	22.00	21.18	19.87	0.9001
Bis(2-Chloroethoxy)methane	50	35.20	34.45	33.90	32.29	1.2343
2,4-Dichlorophenol	50	34.11	32.99	33.72	30.91	1.4260
1,2,4-Trichlorobenzene	50	44.57	32.60	36.59	41.04	5.2152
Naphthalene	50	36.10	29.37	32.43	34.57	2.917
4-Chloroaniline	50	39.16	36.80	38.54	35.88	1.518
Hexachlorobutadiene	50	49.63	34.22	37.60	47.06	7.386
4-Chloro-3-methylphenol	50	34.06	33.01	33.92	30.87	1.472
2-Methylnaphthalene	50	31.33	27.00	29.13	29.60	1.782
Hexachlorocyclopentadiene	50	27.02	19.30	20.47	22.05	3.399
2,4,6-Trichlorophenol	50	34.79	31.15	31.60	30.26	1.974
2,4,5-Trichlorophenol	50	43.42	38.43	38.31	36.83	2.875
2-Chloronaphthalene	50	49.65	41.70	43.16	44.17	3.471
2-Nitroaniline	50	36.37	33.84	33.68	32.20	1.730
Dimethylphthalate	50	41.69	37.84	37.80	35.64	2.518
2,6-Dinitrotoluene	50	52.85	46.41	47.27	44.96	3.453
Acenaphthylene	50	32.41	28.31	29.46	28.71	1.854
3-Nitroaniline	50	39.98	38.47	39.03	37.63	0.987
Acenaphthene	50	36.23	32.41	32.80	33.03	1.760
2,4-Dinitrophenol	50	32.21	30.90	31.36	30.07	0.894

Stephen X. Singh

Initial Demonstration of Capability Study for EPA Method 8270C

This Initial Capability Study Analyzed By: Steve Singh

*EPA 8270C TABLE 6. Q.C.ACCEPTANCE CRITERIA

Compound Name	Spike Level	1 %Recovery	2 %Recovery	3 %Recovery	4 %Recovery	Average % Recovery	Acceptance Criteria*
N-Nitrosodimethylamine	50	56.5%	56.2%	56.1%	53.4%	55.5%	50-105%
Phenol	50	29.4%	29.0%	29.4%	29.0%	29.2%	5-112%
Bis(2-Chloroethyl)ether	50	77.7%	75.6%	76.0%	73.3%	75.7%	12-158%
2-Chlorophenol	50	65.9%	64.0%	64.8%	62.3%	64.2%	23-134%
1,3-Dichlorobenzene	50	85.1%	62.6%	67.4%	86.3%	75.4%	D-172
1,4-Dichlorobenzene	50	89.1%	61.9%	69.7%	82.3%	75.8%	20-124%
1,2-Dichlorobenzene	50	83.3%	60.6%	66.4%	80.5%	72.7%	32-129%
2-Methylphenol	50	72.0%	67.7%	71.9%	69.5%	70.3%	56-120%
Bis(2-Chloroisopropyl)ether	50	66.0%	59.0%	60.3%	61.0%	61.5%	36-166%
4-Methylphenol	50	66.2%	64.3%	65.3%	63.0%	64.7%	53-110%
N-Nitroso-di-n-propylamine	50	103%	102%	98.1%	98.4%	100%	D-230
Hexachloroethane	50	84.0%	57.6%	61.3%	83.2%	71.5%	40-113%
Nitrobenzene	50	89.1%	85.7%	87.1%	80.1%	85.5%	35-180%
Isophorone	50	94.6%	88.9%	92.2%	84.6%	90.1%	21-196%
2-Nitrophenol	50	63.6%	60.1%	61.9%	57.9%	60.9%	29-182%
Benzoic Acid	50	42.8%	44.0%	42.4%	39.7%	42.2%	8-124%
Bis(2-Chloroethoxy)methane	50	70.4%	68.9%	67.8%	64.6%	67.9%	33-184%
2,4-Dichlorophenol	50	68.2%	66.0%	67.4%	61.8%	65.9%	23-134%
1,2,4-Trichlorobenzene	50	89.1%	65.2%	73.2%	82.1%	77.4%	44-142%
Naphthalene	50	72.2%	58.7%	64.9%	69.1%	66.2%	21-133%
4-Chloroaniline	50	78.3%	73.6%	77.1%	71.8%	75.2%	64-142%
Hexachlorobutadiene	50	99.3%	68.4%	75.2%	94.1%	84.3%	24-116%
4-Chloro-3-methylphenol	50	68.1%	66.0%	67.8%	61.7%	65.9%	44-144%
2-Methylnaphthalene	50	62.7%	54.0%	58.3%	59.2%	58.5%	10-137%
Hexachlorocyclopentadiene	50	54.0%	38.6%	40.9%	44.1%	44.4%	D-106%
2,4,6-Trichlorophenol	50	69.6%	62.3%	63.2%	60.5%	63.9%	37-144%
2,4,5-Trichlorophenol	50	86.8%	76.9%	76.6%	73.7%	78.5%	56-140%
2-Chloronaphthalene	50	99.3%	83.4%	86.3%	88.3%	89.3%	12-144%
2-Nitroaniline	50	72.7%	67.7%	.67.4%	64.4%	68.0%	68-144%
Dimethylphthalate	50	83.4%	75.7%	75.6%	71.3%	76.5%	D-112
2,6-Dinitrotoluene	50	106%	92.8%	94.5%	89.9%	95.7%	50-158%
Acenaphthylene	50	64.8%	56.6%	58.9%	57.4%	59.4%	33-145%
3-Nitroaniline	50	80.0%	76.9%	78.1%	75.3%	77.6%	68-144%
Acenaphthene	50	72.5%	64.8%	65.6%	66.1%	67.2%	47-145%
2,4-Dinitrophenol	50	64.4%	61.8%	62.7%	60.1%	62.3%	D-191

Initial Demonstration of Capability Study for EPA Method 8270C

INSTRUMENT: Sweetpea
COLUMN: HP-5
30m X 0.25mm X 1.0um

Analysts Name: S. Singh
Date Extracted: 1/5/99
Date Injected: 1/30/99

Compound Name	Spike Level	1 Results	2 Results	3 Results	4 Results	Std. Dev.
4-Nitrophenol	50	17.09	15.81	15.93	15.62	0.6640
Dibenzofuran	50	36.03	32.72	32.63	31.83	1.8618
2,4-Dinitrotoluene	50	50.81	47.85	47.60	45.40	2.2218
Diethylphthalate	50	41.53	37.78	36.81	36.11	2.4141
4-Chlorophenyl-phenylether	50	39.50	36.98	36.65	34.98	1.8664
Fluorene	50	37.74	34.42	34.85	32.89	2.0262
4-Nitroaniline	50	53.67	49.23	50.20	48.11	2.4019
4,6-Dinitro-2-methylphenol	50	32.35	30.82	34.20	30.68	1.6428
N-Nitrosodiphenylamine	50	100.80	92.89	100.69	92.61	4.6175
4-Bromophenyl-phenylether	50	40.45	36.86	39.17	36.43	1.9087
Hexachlorobenzene	50	47.04	44.25	48.39	45.12	1.8682
Pentachlorophenol	50	37.09	33.29	35.23	31.20	2.5325
Phenanthrene	50	38.10	34.80	37.17	33.94	1.9547
Anthracene	50	37.43	34.54	36.71	34.06	1.6378
Carbazol	50	34.18	31.27	33.87	30.99	1.6801
Di-n-butylphthalate	50	39.89	35.59	37.60	35.56	2.0552
Fluoranthene	50	36.94	32.67	35.41	32.63	2.1289
Pyrene	50	38.43	36.07	36.87	34.51	1.6333
Butylbenzylphthalate	50	42.41	39.03	40.29	38.63	1.7007
3,3'-Dichlorobenzidine	50	50.24	48.13	49.91	46.14	1.8866
Benz[a]anthracene	50	37.75	34.51	35.26	33.61	1.778
Bis(2-Ethylhexyl)phthalate	50	42.47	38.99	39.90	38.61	1.738
Chrysene	50	37.90	35.93	36.11	34.31	1.468
Di-n-octylphthalate	50	44.57	40.92	41.80	39.93	1.995
Benzo[b]fluoranthene	50	40.63	37.67	39.66	36.74	1.784
Benzo[k]fluoranthene	50	36.87	35.45	36.70	33.48	1.564
Benzo[a]pyrene	50	37.72	35.73	36.75	33.80	1.677
Indeno(1,2,3-cd)pyrene	50	36.63	33.83	33.45	30.93	2.334
Dibenz[a,h]anthracene	50	36.96	34.40	33.73	30.98	2.457
Benzo[g,h,i]perylene	50	35.23	33.25	32.45	30.55	1.938

Initial Demonstration of Capability Study for EPA Method 8270C

This Initial Capability Study Analyzed By: Steve Singh

*EPA 8270C TABLE 6. Q.C.ACCEPTANCE CRITERIA

Compound Name	Spike Level	1 %Recovery	2 %Recovery	3 %Recovery	4 %Recovery	Average % Recovery	Acceptance Criteria*
4-Nitrophenol	50	34.2%	31.6%	31.9%	31.2%	32.2%	D-132
Dibenzofuran	50	72.1%	65.4%	65.3%	63.7%	66.6%	46-136%
2,4-Dinitrotoluene	50	102%	95.7%	95.2%	90.8%	95.8%	39-139%
Diethylphthalate	50	83.1%	75.6%	73.6%	72.2%	76.1%	D-114
4-Chlorophenyl-phenylether	50	79.0%	74.0%	73.3%	70.0%	74.1%	25-158%
Fluorene	50	75.5%	68.8%	69.7%	65.8%	70.0%	59-121%
4-Nitroaniline	50	107%	98.5%	100%	96.2%	101%	68-144%
4,6-Dinitro-2-methylphenol	50	64.7%	61.6%	68.4%	61.4%	64.0%	D-181
N-Nitrosodiphenylamine	50	202%	186%	201%	185%	193%	D-230
4-Bromophenyl-phenylether	50	80.9%	73.7%	78.3%	72.9%	76.5%	53-127%
Hexachlorobenzene	50	94.1%	88.5%	96.8%	90.2%	92.4%	D-152
Pentachlorophenol	50	74.2%	66.6%	70.5%	62.4%	68.4%	14-176%
Phenanthrene	50	76.2%	69.6%	74.3%	67.9%	72.0%	54-120%
Anthracene	50	74.9%	69.1%	73.4%	68.1%	71.4%	27-133%
Carbazol	50	68.4%	62.5%	67.7%	62.0%	65.2%	37-154%
Di-n-butylphthalate	50	79.8%	71.2%	75.2%	71.1%	74.3%	1-118%
Fluoranthene	50	73.9%	65.3%	70.8%	65.3%	68.8%	59-121%
Pyrene	50	76.9%	72.1%	73.7%	69.0%	72.9%	52-115%
Butylbenzylphthalate	50	84.8%	78.1%	80.6%	77.3%	80.2%	D-152
3,3'-Dichlorobenzidine	50	100%	96.3%	99.8%	92.3%	97.2%	D-262
Benz[a]anthracene	50	75.5%	69.0%	70.5%	67.2%	70.6%	33-143%
Bis(2-Ethylhexyl)phthalate	50	84.9%	78.0%	79.8%	77.2%	80.0%	8-158%
Chrysene	50	75.8%	71.9%	72.2%	68.6%	72.1%	17-168%
Di-n-octylphthalate	50	89.1%	81.8%	83.6%	79.9%	83.6%	75-134%
Benzo[b]fluoranthene	50	81.3%	75.3%	79.3%	73.5%	77.4%	24-159%
Benzo[k]fluoranthene	50	73.7%	70.9%	73.4%	67.0%	71.3%	11-162%
Benzo[a]pyrene	50	75.4%	71.5%	73.5%	67.6%	72.0%	17-163%
Indeno(1,2,3-cd)pyrene	50	73.3%	67.7%	66.9%	61.9%	67.4%	D-171
Dibenz[a,h]anthracene	50	73.9%	68.8%	67.5%	62.0%	68.0%	D-227
Benzo[g,h,i]perylene	50	70.5%	66.5%	64.9%	61.1%	65.7%	D-219

Memorandum

To: Sharon, Leonard and Stephanie

CC: Diane

From: Paula

Date: October 11, 1999

Re: Establishing the expiration date of standards

The following outlines the determination of the expiration date for standards:

<u>VOA</u>	
All stock standards	1 year from the date the ampule was opened
All working standards	1 month except VOCs - 1 week and VOC gases - 3 days
<u>MS-VOA</u>	
All stock standards	6 months from the date the ampule was opened
Working calibration standards	1 week from date of preparation
Working surrogates and IS	Three months from date of preparation
<u>MS-Semi-VOA</u>	
All stock standards	1 year from the date the ampule was opened
All working standards	1 month from date of preparation
<u>GC</u>	
All stock standards	1 year from the date the ampule was opened
Calibration working standards	6 months from date of preparation
Spike/surr. working standards	3 months from date of preparation

****When determining the expiration date of a standard the full date should be used (i.e. 10/05/00) and the date will not exceed the manufacturers expiration date.**

Initial Demonstration of Capability Study for EPA Method 8081

INSTRUMENT: ECD02A
COLUMN: RTX-5
30m X 0.53mm X 1.5um

Analysts Name: M. Aguilera
Date Extracted:11/13/98
Date Injected:11/24/98

Compound Name	Spike Level	1 Results	2 Results	3 Results	4 Results	Std. Dev.
a-BHC	1.000	0.933	0.929	0.977	0.970	0.0247
b-BHC	1.000	1.06	1.00	1.07	1.08	0.0359
Lindane	1.000	1.05	1.05	1.11	1.11	0.0346
d-BHC	1.000	1.05	1.02	1.10	1.11	0.0424
Heptachlor	1.000	1.03	0.999	1.07	1.09	0.0407
Aldrin	1.000	0.976	0.931	0.992	1.02	0.0372
Heptachlor epoxide	1.000	1.08	1.03	1.10	1.14	0.0457
g-Chlordane	1.000	1.04	0.985	1.08	1.10	0.0507
a-Endosulfan *	2.000	2.07	1.98	2.12	2.19	0.0887
a-Chlordane *	2.000	2.07	1.98	2.12	2.19	0.0887
p,p'-DDE	1.000	1.08	1.03	1.10	1.14	0.0457
Dieldrin	1.000	1.12	1.06	1.14	1.18	0.0500
Endrin	1.000	1.12	1.05	1.13	1.14	0.0408
b-Endosulfan	1.000	1.10	1.06	1.15	1.17	0.0497
p,p'-DDD	1.000	1.21	1.15	1.24	1.28	0.0548
Endrin aldehyde	1.000	1.10	1.08	1.16	1.20	0.0551
p,p'-DDT	1.000	1.01	0.97	1.08	1.12	0.0661
Endosulfan sulfate	1.000	0.890	0.847	0.920	0.946	0.0425
Endrin ketone	1.000	0.906	0.869	0.934	0.951	0.0358
Methoxychlor	1.000	0.885	0.860	0.952	0.962	0.0500

* These compounds co-elute.

This Initial Capability Study Analyzed By: Manuel Aguilera

Initial Demonstration of Capability Study for EPA Method 8081

Compound Name	Spike Level	1 %Recovery	2 %Recovery	3 %Recovery	4 %Recovery	Average % Recovery	Acceptance Criteria*
a-BHC	1.00	93.3%	92.9%	97.7%	97.0%	95.2%	49-131%
b-BHC	1.00	106%	100%	107%	108%	105%	66-132%
Lindane	1.00	105%	105%	111%	111%	108%	58-132%
d-BHC	1.00	105%	102%	110%	111%	107%	51-140%
Heptachlor	1.00	103%	100%	107%	109%	105%	40-110%
Aldrin	1.00	97.6%	93.1%	99.2%	102%	98.0%	34-120%
Heptachlor epoxide	1.00	108%	103%	110%	114%	109%	62-148%
g-Chlordane	1.00	104%	98.5%	108%	110%	105%	53-121%
a-Endosulfan	2.00	104%	99.0%	106%	110%	104%	76-132%
a-Chlordane	2.00	104%	99.0%	106%	110%	104%	69-121%
p,p'-DDE	1.00	108%	103%	110%	114%	109%	44-130%
Dieldrin	1.00	112%	105%	113%	114%	111%	65-140%
Endrin	1.00	110%	106%	115%	117%	112%	57-138%
b-Endosulfan	1.00	121%	115%	124%	128%	122%	73-140%
p,p'-DDD	1.00	121%	115%	124%	128%	122%	50-144%
Endrin aldehyde	1.00	110%	108%	116%	120%	114%	60-141%
p,p'-DDT	1.00	101%	97.4%	108%	112%	105%	40-154%
Endosulfan sulfate	1.00	89.0%	84.7%	92.0%	94.6%	90.1%	73-151%
Endrin ketone	1.00	90.6%	86.9%	93.4%	95.1%	91.5%	73-148%
Methoxychlor	1.00	88.5%	86.0%	95.2%	96.2%	91.5%	44-178%

* APPL Inc. Q.C. limits.

Memorandum

To: Sharon, Leonard and Stephanie

CC: Diane

From: Paula

Date: October 11, 1999

Re: Calibration criteria

I would like to remind everyone that although the SW846 methods allow you to average the %D for the continuing calibrations, AFCEE does not. In general the AFCEE QAPP states that **all analytes** will be ±15% of the expected value for the initial calibration verification and the calibration verification. Please refer to the documentation I gave you several months ago for each methods acceptance criteria or refer to the AFCEE QAPP version 3.0 located at my desk.

Temperature Log Book #3

Hobart 1 (~~Hobart 2~~ 9-13-99 MQ)	Hobart 2 (~~Monitowoc~~ 9-15-99 MQ)	Monitowoc		Initals	Comments
6.0°	5.0°	5.0°		MQ.	
6.0°	5.0°	5.0°		MQ.	
6.0°	5.0°	5.0°		J. Q.	
6.0	3.0	2.0		[illegible]	
6.0°	4.0°	5.0°		JH	
6.0°	4.0°	5.0°		MQ.	
6.0°	4.0°	5.0°		MQ.	
6.0°	4.0°	5.0°		MQ.	
6.0°	4.0°	5.0°		MQ.	
6.0°	5.0°	5.0°		MQ.	
6.0°	5.0°	5.0°		MQ	
6.0°	4.5°	4.0°		JR	
6.0°	5.0°	5.0°		MQ.	
6.0°	5.0°	4.5°		MQ.	
6.0°	5.0°	4.0°		MQ.	
6.0°	5.0°	4.0°		MQ.	
6.0°	5.0°	5.0°		MQ.	
6.0	3.5	2.0		MQ.	
6.0	4.5°	4.0°		[illegible]	
6.0°	6.0°	4.0°		JH	
6.0°	5.0°	4.0°		MQ.	
6.0°	5.0°	4.0°		MQ.	
6.0°	5.0°	4.0°		NSK	
6.0°	5.0°	4.0°		MJ.	
6.0°	5.0°	4.5°		YM	
5.0°	5.0°	4.0°		JR	
5.0°	5.0°	4.0°		MQ.	

Temperature Log Book #3

Date	Red-Black	Brown-yellow	~~Pink-Black~~ Red Green ~~9-15-99 MJ~~	~~orange-purple 9-15-99 MJ~~ Pink-Black	~~"A" 9-15-99 Refrig/Freezer~~ Orange purple	~~9-15-99 MJ Baxter~~ "A" Refrig/Freezer	~~9-15-99 MJ~~ Baxter
9-15-99	-18.0°	-15.0°	-18.0°	-19.0°	-20.0°	6.0°/-20.0°	5.0°
9-16-99	-16.0°	-16.0°	-17.0°	-15.0°	-20.0°	4.0°/-19.0°	6.0°
9-17-99	-19.0°	-16.0°	-16.5°	-12.5°	-18.0°	4.0°/-18.0°	5.5°
9-18-99	-16	-15	-16	-11	-19	4/-20	4.0
9-19-99	-17°	-15.0°	-18°	-13.0°	-18.0°	5°/-17°	6.0°
9-20-99	-17.0°	-16.0°	-17.0°	-13.0°	-20.0°	5.0°/-16°	4.0°
9-21-99	-15.0°	-16.0°	-17.0°	-13.0°	-20.0°	4.0°/-16°	4.0°
9-22-99	-16.0°	-16.0°	-17.0°	-13.0°	-18.0°	5.0°/-16°	6.0°
9-23-99	-16.0°	-17.0°	-17.0°	-12.0°	-20.0°	5.0°/-15.0°	5.0°
9-24-99	-20.0°	-13.0°	-19.0°	-13.0°	-10.0°	5.0°/-20.0°	6.0°
9/25/99	-19.0°	-13.0°	-16.0	-13.0	-18.0	4.0/-20.0	6.0°
9/26/99	-22.0°	-15.0°	-18.0°	-13.0°	-18.5°	5.5°/-18.0°	6.0°
9/27/99	-18.0°	-16.0°	-19.0°	-12.0°	-18.0	5.5°/-16.0°	5.0°
9/28/99	-19.0°	-15.0°	-17.0°	-12.0°	-19.0	5.0°/-17.0°	5.0°
9/29/99	-20.0°	-15.0°	-17.0°	-13.0°	-17.0	6.0/-17.0°	4.0°
9/30/99	-19.0°	-15.0°	-17.0°	-13.0°	-18.0	6.0°/-18.0°	4.0
10/01/99	-12.0°	-16.0°	-17.0°	-12.0°	-17.0°	6.0°/-16.0°	6.0°
10/02/99	-14.1	-15	-16	-15.0	-18.0	7.0/-15	4.0
10/03/99	-17.0°	-14.5°	-17.0°	-12.5	-18.0°	6.5°/-16°	6.0°
10/04/99	-11.0°	-15.0°	-19.0°	-13.0°	-19.0°	5.0°/-15°	5.0°
10/05/99	-15.0°	-16.0°	-18.0°	-13.0°	-19.0°	5.0°/-15.0°	5.0°
10/06/99	-20.0°	-15.0°	-10.0°	-13.0°	-19.0°	5.0°/-15.0°	6.0°
10-7-99	-19.0 ~~Low Alarm~~	-16.0	-15.0°	-13.0°	-18.0°	5.0/-16.0	5.0
10-8-99	-18.0°	-15.0°	-15.0°	-13.0°	-20.0°	4.0/-20.0	5.0
10-09-99	-17.0°	-15.5°	-16.0°	-13.0°	-21.0°	5.0°/-19.0°	5.0°
10-10-99	-18.0°	-15.0	-15.0°	-13.0°	-20.0°	4.0°/-19.0°	5.0°
10-11-99	-18.0°	-13.0°	-17.0°	-13.0°	-20.0°	4.0°/-16.0°	6.0°

September 28, 1999
Paula Young
APPL
4203 West Swift
Fresno, CA 93722

Dear Paula,
LABWORKS Enterprise meets Good Automated Laboratory Practices (GALP). The System Development Life Cycle (SDLC) for LABWORKS Enterprise is comprised of the following components and controls;

1. Idea Generation - New features and enhancements are continually being presented to our programming staff. The primary source is from our customers and field sales and engineer personnel. New ideas are documented and presented for consideration during our periodic management meetings. Ideas are evaluated by many factors including potential impact on our existing customers installations, consistent with our focus markets, consistent with our technical environment (Windows, COM, ODBC, ANSI SQL) and complexity to program and implement.
2. Prioritization - New programs are prioritized and integrated with current work assignments.
3. Product Development - Programmers work with System Analysts (could be end-user customer or field engineer) to design conceptual model and key features required. Programmer begins development of prototype module and performs testing throughout the prototype development process. Once a prototype is developed, the module is given to the System Analyst to perform testing. Testing parameters include accuracy, functionality, compatibility with other software and usability. Initial documentation is begun.
4. Alpha Testing - If the prototype passes initial testing by the System Analyst then it is passed through Alpha testing. A Standard Operating Procedure for Alpha testing is followed by the System Analyst. Acceptance is evaluated against documented standards.
5. Beta Testing - If the prototype passes Alpha testing then it is passed through Beta testing. A Standard Operating Procedure for Beta testing is followed by the System Analyst. Acceptance is evaluated against documented standards.
6. Field Testing - If the module passes Beta testing then it is sent to our sub group of customers for final Field testing.
7. Distribution Ready - If the module passes field testing then it is added our distribution programs.

Please contact me if you need any further assistance with this matter.

Sincerely,

Mike Lehtola
Analytical Automation Specialists, Inc.

Laboratory Control Spike Recoveries

DBCP and EDB

APPL ID **990913W-83582 LCS - 19288**
Batch ID: **$DOHS-990913A**

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
1,2,3-Trichloropropane *	0.250	0.208	0.210	83.2	84.0	NE	0.96	25
DBCP	0.250	0.252	0.256	101	102	81-131	1.6	25
EDB	0.250	0.238	0.237	95.2	94.8	76-122	0.42 **	25
Surrogate: DBP	0.250	0.231	0.218	92.4	87.2	52-149		

* $0.208 \div 0.250 \times 100 = 83.2$

** $\frac{(0.238 - 0.237)2}{0.238 + 0.237} \times 100 = 0.42$

PY 10/11/99

Comments: _____

Primary	SPK	DUP
Extraction Date :	9/13/99	9/13/99
Analysis Date :	9/15/99	9/15/99
Instrument :	ECD04	ECD04
Run :	58	59
Analyst :	ED	

Printed: 9/20/99 7:57:00 AM

Date	Air-flow measurement (Ft./Min.)	Date	Air flow measurement (Ft./Min.)
9-20-99	100		
10-4-99	80		

Data Validatable Package Final Review

ARF: _____

Client: _____

Method: _____

Case Narrative Review

YES	NO	NA	
			Does cover page have correct information?
			Do divider sheets have the correct information?
			Were the correct Labworks codes used?
			Are dates correct in case narrative?
			Does the title contain correct information?
			Are the ARF numbers listed correctly?
			Is all information in the sample receipt section correct?
			Is all information in the extraction information section correct?
			Is all information in the analysis information section correct?
			Does the case narrative explain all unusual events?
			Has the case narrative been signed?

Package Content Review

YES	NO	NA	
			Are all forms and raw data in proper order?
			Is the content of the package complete?
			Is the multilevel form complete?
			Is the Data Validatable Package Review Checklist complete?
			Does all QC pass? If not, is it noted in the case narrative.
			Is an algorithm check documented?

Name of primary reviewer and date: _____

Name of secondary reviewer and date: _____

Comments: _____

_____

Pagination checked by: _____