File # 13002.1

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November 10, 1993

Thomas Taccone, Project Manager
United States Environmental Protection Agency
26 Federal Plaza
New York, NY 10278

Re: Validated Results from Cesspool Sampling
Anchor Chemical Superfund Site
Administrative Order No. II CERCLA-90208

Dear Mr. Taccone:

As you know, on September 20th we re-sampled the abandoned cesspool area in the front of the building at the Anchor Chemical Site. The laboratory results were received from Laboratory Resources and CEIMIC Laboratories. They were forwarded to Environmental Standards Inc. for validation.

Enclosed please find a copy of the quality assurance review and the summary of the analytical results. We trust this analysis will prove comparable to the results received by your oversight contractor, Alliance Technologies.

We look forward to receiving your additional comments on the Remedial Investigation report.

If you have any questions, please call me.

Very truly yours,

Dean Anson II
Co-Facility Coordinator

cc: M. Chen, NYSDEC (Albany)
A. Shah, NYSDEC (Stony Brook)
F. Werfel, Spiegel Associates
A. Sanders, Spiegel Associates
R. Leland, Esq., Rosenman and Colin
J. Doyle, Esq., USEPA
J. O'Brien, Esq., Anchor Chemical
J. Tillotson, Newsday
J. Greco, NYSDEC (Albany)

Section 1 Quality Assurance Review

A. Organic Data

The organic analyses of four soil samples (including the matrix spike and matrix spike duplicate samples) and two aqueous samples (one trip blank and one field blank) were performed by Laboratory Resources, Inc., of Teterboro, New Jersey. These samples were collectively analyzed by CLP protocols for the Target Compound List (TCL) volatile organics, TCL semivolatile organics and TCL pesticides/PCBs. In addition, library searches were performed for 30 extraneous chromatographic peaks for the volatile and semivolatile fractions combined. The analytical results are presented in Section 2, Part A.

The findings offered in this report are based upon a review of holding times, blank analysis results, matrix spike and surrogate recoveries, GC/MS tuning, internal standard areas, target compound matching quality, calibrations, analytical sequence, GPC and Florisil cartridge check analyses, quantitation of positive results and overall system performance.

The analytical data were examined to determine data usability in accordance with the U.S. EPA Region II validation checklist SOP No. HW-6 (Revision #7) "CLP Organics Data Review and Preliminary Review." The analytical requirements and required deliverables specified in the CLP Statement of Work were met for this data set with the following exceptions and comments. It should be noted that the following items are contractual in nature and do not necessarily affect data usability. Usability is addressed in a subsequent section.

Correctable Deficiencies

1. The laboratory used abbreviated client sample numbers of all forms for the EPA Sample Number (SOW, Document OLM01.0, B-27).

2. The laboratory did not assign unique sample designations on all forms and raw data for two volatile method blanks (both VBLK23) and for two semivolatile method blanks (both SBLK01). In addition, the laboratory analysis for SBLK01 on 9/28/93 at 13:06 was designated as PBLK02 on Form V. All semivolatile method blanks should be designated using SBLK## (SOW, Document OLM01.0, B-28).

Noncorrectable Deficiency

- The laboratory did not evaluate surrogate retention times for the pesticide GPC spike sample GPC SPK9/23 and GPC Aroclor sample PCB9/23 as indicated on Form VIII Pesticide Analytical Sequence (SOW, Document OLM01.0, E-31). According to the raw data, the laboratory apparently did not add surrogates to GPC SPK9/23 and to GPC PCB9/23; however, the data reviewer did not qualify data since surrogates were added to the samples and method blanks.

Comment

- The data reviewer calculated 1-2% lower recoveries for the matrix spike/matrix spike duplicate recoveries for the volatile compounds using both the raw data and Form III. There was no impact on usability, however, since all recoveries (both reported by the laboratory and recalculated by the data reviewer) were within the specified criteria.

With regard to data usability, the principal areas of concern are blank results and calibrations. Based upon the data packages reviewed, the following organic data qualifiers are offered. It should be noted that the following organic data usability issues represent an interpretation of the quality control results obtained for the project samples. Quite often, data qualifications address issues relating to the sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

Organic Data Qualifiers

- Due to the presence of methylene chloride in the associated trip blank, the positive result for methylene chloride in sample CP#1 14-16' should be considered "not-detected" and has been flagged "U" on the data table. Since the result is reported at a concentration below the contract required quantitation limit (CRQL), the concentration that appears on the data tables has been raised to the CRQL with the appropriate "U" qualifier code.

- Although there is no direct reason to qualitatively question the positive results for bis(2-ethylhexyl)phthalate in samples CP#1 14-16' and CP#2 14-16, caution should be exercised when using these low-level results. Phthalate esters are common laboratory and field contaminants.

- The actual detection limits for chloromethane in all project samples and for 2-butanone and 4-methyl-2-pentanone in sample TB (trip blank) and FB (field blank) may be higher than reported and have been flagged "UJ" on the data tables. High percent differences (>25%) in the direction of a decrease in instrument sensitivity were observed between the response factors for these compounds in the associated continuing calibrations compared to the average response factors calculated from the associated initial multipoint calibration.

- The actual detection limits for the semivolatile compound indeno(1,2,3-cd)pyrene in all project samples may be higher than reported and have been flagged "UJ" on the data tables. A high percent difference (>25%) in the direction of an increase in instrument sensitivity was observed between the response factors for this compound in the associated continuing calibration compared to the average response factor calculated from the

Comment

- The data reviewer calculated 1-2% lower recoveries for the matrix spike/matrix spike duplicate recoveries for the volatile compounds using both the raw data and Form III. There was no impact on usability, however, since all recoveries (both reported by the laboratory and recalculated by the data reviewer) were within the specified criteria.

With regard to data usability, the principal areas of concern are blank results and calibrations. Based upon the data packages reviewed, the following organic data qualifiers are offered. It should be noted that the following organic data usability issues represent an interpretation of the quality control results obtained for the project samples. Quite often, data qualifications address issues relating to the sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

Organic Data Qualifiers

- Due to the presence of methylene chloride in the associated trip blank, the positive result for methylene chloride in sample CP#1 14-16′ should be considered "not-detected" and has been flagged "U" on the data table. Since the result is reported at a concentration below the contract required quantitation limit (CRQL), the concentration that appears on the data tables has been raised to the CRQL with the appropriate "U" qualifier code.

- Although there is no direct reason to qualitatively question the positive results for bis(2-ethylhexyl)phthalate in samples CP#1 14-16′ and CP#2 14-16, caution should be exercised when using these low-level results. Phthalate esters are common laboratory and field contaminants.

- The actual detection limits for chloromethane in all project samples and for 2-butanone and 4-methyl-2-pentanone in sample TB (trip blank) and FB (field blank) may be higher than reported and have been flagged "UJ" on the data tables. High percent differences (>25%) in the direction of a decrease in instrument sensitivity were observed between the response factors for these compounds in the associated continuing calibrations compared to the average response factors calculated from the associated initial multipoint calibration.

- The actual detection limits for the semivolatile compound indeno(1,2,3-cd)pyrene in all project samples may be higher than reported and have been flagged "UJ" on the data tables. A high percent difference (>25%) in the direction of an increase in instrument sensitivity was observed between the response factors for this compound in the associated continuing calibration compared to the average response factor calculated from the

associated initial multipoint calibration. It should be noted that since the percent difference is in the direction of an increase in instrument sensitivity, the actual detection limit may be acceptable as reported.

- Per CLP reporting conventions, all results below the quantitation limits should be considered estimated and have been flagged "J" on the data tables.

- Tentatively Identified Compounds (TICs) have been examined and the results appear on the data tables as part of Section 2. Except for the volatile TIC identification for sample CP#1 14-16', no other volatile TICs were observed in the volatile organics analysis. All of the semivolatile TICs appear to be unknowns. The volatile TIC in sample CP#1 14-16' has been identified as trichlorotrifluoroethane, a common laboratory contaminant in refrigeration units, and has been flagged "U" on the sample data tables. This TIC was observed in volatile organics method blank VBLK23.

A complete support documentation of this organic quality assurance review is presented in Section 3A of this report. The Region II organics analysis data validation SOP checklist is presented in Section 4 of this report.

B. Inorganic Data

The inorganic analyses of four soil samples (including the matrix spike and laboratory duplicate samples) were performed by Ceimic Corporation of Narragansett, Rhode Island. These samples were analyzed by CLP protocols for the Target Analyte List (TAL) metals and cyanide as specified in Table 1. In addition, the soil samples were analyzed for non-CLP parameter total phenols as specified by SW846 Method 9065.

The analytical data were examined to determine data usability in accordance with the validation checklist in the U.S. EPA Region II SOP No. HW-2 (SOW Revision X), Feb. 1990, "Evaluation of the Metals Data for the Contract Laboratory Program (CLP)" based on SOW788, Rev. 2/89. The data were also examined with respect to completeness and compliance relative to the specified analytical requirements and data package deliverables as stated in SOW ILM03.0 and SW846 Method 9065.

The findings offered in this report are based upon a rigorous review of the sample holding times, blank analysis results, pre-digestion matrix spikes, laboratory duplicate analyses, quantitation of positive results, system performance, instrument sensitivity, initial and continuing calibrations, ICP interference checks and ICP serial dilutions. The analytical results are presented in Section 2, Part B.

Contractual criteria (CLP) and reporting requirements were met with the following exceptions and comments. It should be emphasized that the following items are contractual in nature and do not necessarily affect data usability. Usability is addressed in a subsequent section.

Correctable Deficiency

- The laboratory did not provide the instrument detection limits (IDLs) summary form (Form X) for arsenic, lead, selenium and thallium (SOW, Document ILM03.0, B-32). These IDLs were obtained from the blank analysis summary forms (Form IIIs). However, it should be noted that the data reviewer could not verify that the IDLs had been determined within three months of sample analysis as required because of the missing summary forms.

Comments

1. The laboratory did not provide the raw data associated with the analysis for total phenols. Consequently, the validation of the total phenols was limited to the examination of the QC summary forms provided.

2. As mentioned in the case narrative, arsenic, lead, selenium, and thallium were determined using the ICP atomic emission spectroscopy (AES) method. These analytes were reported separately on Form IV-IN for the interference check sample for ICP analysis at a concentration of 100 μg/L. The laboratory also reported these analytes by ICP on the Form IIA initial and continuing calibration verification, Form IIB CRDL Standard for ICP, Form III Blank, Form VA Spike Sample Recovery, Form VI Duplicate, Form VII Laboratory Control Sample and Form IX ICP Serial Dilutions. The laboratory used proper quality control practices and provided the required deliverables for these analytes other than the IDL Form X mentioned previously (correctable deficiency).

3. The laboratory did not originally provide a copy of the Chain-of-Custody requesting the wet chemistry and inorganic analysis of the project samples. The date of sample receipt could not be verified, nor could the data reviewer determine if the samples were received at the proper temperature (4° $\pm$2°C) for the total phenols and cyanide analysis until the Chain-of-Custody was faxed on November 1, 1993 to the data reviewer (Project Correspondence).

With regard to data usability, the principal areas of concern include blank contamination and pre-digestion matrix spikes. Based on a rigorous review of the data provided, the following data qualifiers are offered. These data qualifiers should be considered when evaluating the data. It should be noted that the following data usability issues represent an interpretation of the quality control results obtained for the project samples. Quite often, data qualifications address issues relating to the sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

Inorganic Data Qualifiers

- Due to the presence of barium, selenium, chromium, sodium and zinc in various laboratory blanks, the results for these analytes in the following samples should be considered "not-detected" and have been flagged "U" on the data table. The analytical results below are usable to the extent that levels higher than those reported are not present in the samples. The reported positive results should now be considered the sample-specific detection limits for the analytes.

Analyte	Applicable Samples
barium	CP#1 14-16′ and CP#2 14-16
selenium	CP#1 14-16′
chromium	CP#1 14-16′ and CP#2 14-16
sodium	CP#1 14-16′ and CP#2 14-16
zinc	CP#1 14-16′ and CP#2 14-16

- The actual detection limit for silver in both project samples may be higher than reported and have been flagged "UJ" on the data tables. A low recovery (46.8%) was observed for silver in the pre-digestion matrix spike analysis associated with the project samples.

A complete support documentation for this inorganic quality assurance review is presented in Section 3B of this report. The Region II inorganics analysis data validation SOP checklist is presented in Section 5 of this report.

C. Conclusions

This quality assurance review has identified several aspects of the analytical data that have required qualification. Overall, the majority of the data appears to represent good qualitative and quantitative analyses, although some analyses were qualified. To confidently use any of the analytical results from the data sets examined, the data users should understand the qualifications and limitations stated in this report.

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Date: 10/29/93

A. ORGANIC DATA

VOLATILE ORGAN[illegible]NALYSIS					
Anson Environmen[illegible]ample Number		CP#1 14-16'	CP#2 14-16	FB	[illegible]
Laboratory Sample Number		T309261-01	T309261-02	T309261-03	T309261-04
Remarks				Field Blank	Trip Blank
Units		µg/Kg	µg/Kg	µg/Kg	µg/Kg
VOLATILE COMPOUNDS	Quantitation Limit				
Chloromethane	10	UJ	UJ	UJ	UJ
Bromomethane	10				
Vinyl Chloride	10				
Chloroethane	10				
Methylene Chloride	10	10 U			1J
Acetone	10				
Carbon Disulfide	10				
1,1-Dichloroethene	10				
1,1-Dichloroethane	10				
Total-1,2-Dichloroethene	10				
Chloroform	10				
1,2-Dichloroethane	10				
2-Butanone	10			UJ	UJ
1,1,1-Trichloroethane	10				
Carbon Tetrachloride	10				
Vinyl Acetate	10				
Bromodichloromethane	10				
1,1,2,2-Tetrachloroethane	10				
1,2-Dichloropropane	10				
Trans-1,3-Dichloropropene	10				
Trichloroethene	10				
Dibromochloromethane	10				
1,1,2-Trichloromethane	10				
Benzene	10				
cis-1,3-Dichloropropene	10				
Bromoform	10				
2-Hexanone	10				
4-Methyl-2-Pentanone	10			UJ	UJ
Tetrachloroethene	10				
Toluene	10				
Chlorobenzene	10				

VOLATILE ORGAN[illegible]NALYSIS					
Anson Environmental Sample Number		CP#1 14-16'	CP#2 14-16	FB	[illegible]
Laboratory Sample Number		T309261-01	T309261-02	T309261-03	T309261-04
Remarks				Field Blank	Trip Blank
Units		µg/Kg	µg/Kg	µg/Kg	µg/Kg
VOLATILE COMPOUNDS	Quantitation Limit				
Ethylbenzene	10				
Styrene	10				
Total Xylenes	10				
Quantitation Limit Multiplier		1.00	1.00	1.00	1.00
Date of Sample Collection		9/20/93	9/20/93	9/20/93	9/20/93
Date Sample Received by Laboratory		9/21/93	9/21/93	9/21/93	9/21/93
Date of Sample Analysis		9/23/93	9/23/93	9/23/93	9/23/93
Instrument Used for Analysis		5995-C	5995-C	5995-C	5995-C

CLP - TENTATIVELY IDENTIFIED COMPOUNDS				
Anson Environmental Sample Number	CP#1 14-16'	CP#2 14-16'	FB	TB
Laboratory Sample Number	T309261-01	T309261-02	T309261-03	T309261-04
Remarks			Field Blank	Trip Blank
Units	µg/Kg	µg/Kg	µg/L	µg/L
COMPOUNDS				
VOLATILE COMPONENTS		-	-	-
Trichlorotrifluoroethane	5 U			
SEMIVOLATILE COMPONENTS			-	NA
Unknowns (Total Number of Peaks)	840 (2) J	690 J		

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS					
Anson Environmental Sample Number			CP#1 14-16'	CP#2 14-16	FB
Laboratory Sample Number			T309261-01	T309261-02	T309261-03
Remarks					Field Blank
Units			µg/Kg	µg/Kg	µg/L
SEMIVOLATILE COMPOUNDS	Quantitation Limit (Aq)	Quantitation Limit (Sol)			
3-Nitroaniline	25	860			
Acenaphthene	10	340			
2,4-Dinitrophenol	25	860			
4-Nitrophenol	25	860			
Dibenzofuran	10	340			
2,4-Dinitrotoluene	10	340			
2,6-Dinitrotoluene	10	340			
Diethylphthalate	10	340			
4-Chlorophenylphenylether	10	340			
Fluorene	10	340			
4-Nitroaniline	25	860			
4,6-Dinitro-2-Methylphenol	25	860			
N-Nitrosodiphenylamine	10	340			
4-Bromophenylphenylether	10	340			
Hexachlorobenzene	10	340			
Pentachlorophenol	25	860			
Phenathrene	10	340			
Anthracene	10	340			
Di-n-Butylphthalate	10	340			
Fluoranthene	10	340			
Pyrene	10	340			
Butylbenzylphthalate	10	340			
3,3'-Dichlorobenzidine	10	340			
Benzo(a)anthracene	10	340			
bis(2-Ethylhexyl)phthalate	10	340	190 J	140 J	
Chrysene	10	340			
Di-n-Octylphthalate	10	340			
Benzo(b)fluoranthene	10	340			
Benzo(k)fluoranthene	10	340			
Benzo(a)pyrene	10	340			
Indeno(1,2,3-cd)pyrene	10	340	UJ	UJ	UJ

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS					
Anson Environmental Sample Number			CP#1 14-16'	CP#2 14-16	FB
Laboratory Sample Number			T309261-01	T309261-02	T309261-03
Remarks					Field Blank
Units			µg/Kg	µg/Kg	µg/L
SEMIVOLATILE COMPOUNDS	Quantitation Limit (Aq)	Quantitation Limit (Sol)			
Dibenz(a,h)anthracene	10	340			
Benzo(g,h,i)perylene	10	340			
Quantitation Limit Multiplier			1.00	1.00	1.00
Date of Sample Collection			9/20/93	9/20/93	9/20/93
Date Sample Received by Laboratory			9/21/93	9/21/93	9/21/93
Date Sample Extracted			9/23/93	9/23/93	9/23/93
Date of Sample Analysis			9/28/93	9/28/93	9/28/93
Instrument Used for Analysis			MSD/J	MSD/J	MSD/J

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS					
Anson Environmental Sample Number			CP#1 14-16'	CP#2 14-16	FB
Laboratory Sample Number			T309261-01	T309261-02	T309261-03
Remarks					Field Blank
Units			µg/Kg	µg/Kg	µg/L
PESTICIDES	Quantitation Limit (Aq)	Quantitation Limit (Sol)			
alpha-BHC	0.05	1.7			
beta-BHC	0.05	1.7			
delta-BHC	0.05	1.7			
gamma-BHC (Lindane)	0.05	1.7			
Heptachlor	0.05	1.7			
Aldrin	0.05	1.7			
Heptachlor Epoxide	0.05	1.7			
Endosulfan I	0.05	1.7			
Dieldrin	0.10	1.7	3.4	7.5	
4,4'-DDE	0.10	3.4			
Endrin	0.10	3.4			
Endosulfan II	0.10	3.4			
4,4'-DDD	0.10	3.4			
Endosulfan Sulfate	0.10	3.4			
4,4'-DDT	0.10	3.4			
Methyoxychlor	0.50	17		14 J	
Endrin Ketone	0.10	3.4			
Endrin Aldehyde	0.10	3.4			
alpha-Chlordane	.050	1.7			
gamma-Chlordane	.050	1.7			
Toxaphene	5.0	170			

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS					
Anson Environmental Sample Number			CP#1 14-16'	CP#2 14-16	FB
Laboratory Sample Number			T309261-01	T309261-02	T309261-03
Remarks					Field Blank
Units			µg/Kg	µg/Kg	µg/L
PESTICIDES	Quantitation Limit (Aq)	Quantitation Limit (Sol)			
Aroclor-1016	1.0	34			
Aroclor-1221	2.0	69			
Aroclor-1232	1.0	34			
Aroclor-1242	1.0	34			
Aroclor-1248	1.0	34			
Aroclor-1254	1.0	34			
Aroclor-1260	1.0	34			
Quantitation Limit Multiplier			1.00	1.00	1.00
Date of Sample Collection			9/20/93	9/20/93	9/20/93
Date Sample Received by Laboratory			9/21/93	9/21/93	9/21/93
Date Sample Extracted			9/23/93	9/23/93	9/23/93
Date of Sample Analysis			9/30/93	9/30/93	9/30/93

B. INORGANIC DATA

INORGANIC ANALYSIS - ANALYTICAL RESULTS				
Anson Environmental Sample Number			CP#1 14-16'	CP#2 14-16'
Laboratory Sample Number			930634-01	930634-02
Percent Solids			97.2%	97.0%
Units			mg/Kg	mg/Kg
INORGANIC ELEMENTS		Detection Limit (Sol)		
Aluminum	P	7.2	759	1120
Antimony	P	4.5		
Arsenic	P	0.2	0.88	0.81
Barium	P	0.3	3.5 U	3.7 U
Beryllium	P	0.15		0.22
Cadmium	P	0.61		
Calcium	P	3.8	4150	1030
Chromium	P	0.7	4.3 U	3.5 U
Cobalt	P	1.0	0.59	
Copper	P	0.2	2.7	2.7
Iron	P	0.9	3630	3440
Lead	P	0.1	1.9	1.9
Magnesium	P	4.0	2640	574
Manganese	P	0.1	26.5	26.7
Mercury	CV	0.04		
Nickel	P	2.6		
Potassium	P	214	101	101
Selenium	P	0.4	0.47 U	
Silver	P	0.15	UJ	UJ
Sodium	P	445	35.7 U	53.7 U
Thallium	P	0.61		
Vanadium	P	0.4	2.3	3.5
Zinc	P	0.2	4.2 U	4.2 U
Cyanide	A	0.99		
Phenols	A	2.0		