

NEW YORK STATE SUPERFUND CONTRACT

Remedial Investigation Report

Volume VI • Appendix I

United Plating Site
Remedial Investigation/Feasibility Study

Site No. 447018

Work Assignment No. D002676-10.2

DATE: April 1999



Prepared for:

**New York State
Department of
Environmental Conservation**

50 Wolf Road, Albany, New York 12233
John Cahill, Commissioner

Division of Environmental Remediation
Michael J. O'Toole, Jr., P.E., Director

By:

Lawler, Matusky & Skelly Engineers LLP

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APPENDIX I

DATA VALIDATION AND USABILITY REPORTS

SURFACE SOIL, SEDIMENT AND WATER SAMPLES

SDG No.-s UPSS01, UPSS15, UPSS25, UPFB08, UPSD01

DATA USEABILITY REPORT

This useability report covers the analytical results, submitted by E3I Environmental Laboratory (E3I), for the field sampling investigation, conducted by Lawler, Matusky & Skelly Engineers (LMS) during the months of May and June 1995 at the United Plating site. The analytical reports submitted by E3I, sample designation groups (SDGs) UPSS01, UPSS15, UPSS25, UPSD01, and USFB08 were validated by Data Validation Services (DVS). LMS reviewed the data validator's report and assessed the analytical data against the project data quality objectives (DQOs) in preparation of this report. Overall, a majority of the data submitted by E3I met the project DQOs and are useable, with the appropriate qualifiers, to determine the presence and relative magnitude of environmental contamination in samples collected from the United Plating site.

A total of 40 soil samples were collected and processed for full contract laboratory program (CLP) target compound list/target analyte list (TCL/TAL) parameters. Additionally, 15 sediment and five surface water samples were submitted to E3I for TAL metals and cyanide analyses, three of the sediment samples were also processed for toxicity characteristic leaching procedure (TCLP) metals. All of the analyses were conducted in accordance with the most recent version of the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP).

In general the analytical data submitted by E3I were compliant with the established protocols, however in some instances the reported data were noncompliant, each of those instances are described in detail in the data validator's report. This useability report presents a discussion of any impacts that noncompliant data and other quality control (QC) issues raised by the data validator have on the useability of the reported results.

SOIL

Volatile Analyses

Soil samples submitted to E3I were analyzed for TCL volatile organic compounds (VOCs) in accordance with NYSDEC ASP Method 91-1. With a few exceptions a majority of the

results reported by E3I were compliant with the ASP, analyses that were not compliant are described in the data validator's report. Where reported values were affected by QC failures the data useability is discussed below.

1. The laboratory used the incorrect percent solids to calculate the final concentrations and detection limits for sample UPSS37, this was corrected and the appropriate values have been incorporated into the summary tables. This error does not affect data useability for the VOC data reported for this sample.

2. Samples UPSS04, UPSS05RE, and UPSS06 were analyzed one day outside the 7 day holding time stipulated by NYSDEC ASP. However, these samples were analyzed within the holding time stipulated by EPA and the resulting data are useable without qualification. Sample UPSS07 was analyzed four days outside the 7 day holding time stipulated by NYSDEC ASP, therefore the reported data should be considered estimated, biased low.

3. In many of the samples analyzed for VOCs low recoveries were reported for internal standards, possibly due to instrument drift. In some instances samples were reanalyzed, denoted with the suffix "RE", and recoveries for the reanalyses were improved. Therefore, the values reported for the reanalyses should be considered more accurate. All of the VOC data should be considered estimated and possibly biased slightly low. All of the results are useable to show that elevated levels of VOCs were not present in any of the soil samples analyzed.

4. Methylene chloride, acetone and 2-butanone were detected in many of the associated blanks at concentrations similar to those reported in the samples. All three of these compounds are common laboratory contaminants and are considered the result of cross contamination. Therefore, these compounds have been removed from the data summary. Chloromethane was detected in samples UPSS22, UPSS23, and UPSS32 and also in the associated method blanks at similar concentrations. It would appear that the presence of chloromethane in these samples is the result of laboratory cross contamination. Therefore, the values reported for chloromethane have been removed from the data summary.

5. Any tentatively identified compounds (TICs) identified as siloxanes are not considered representative of the sample analyzed and is most probably an artifact of the analytical system. Therefore, these compounds have been removed from the data summary.

Semivolatile Analyses

Soil samples submitted to E3I were analyzed for TCL semivolatile organic compounds (SVOCs) in accordance with NYSDEC ASP Method 91-2. With a few exceptions a majority of the results reported by E3I were compliant with the ASP, analyses that were not compliant are described in the data validator's report. Where reported values were affected by QC failures the data useability is discussed below.

1. Sample UPSS12 reported low surrogate recoveries for the initial extraction and was reextracted 3 days beyond the holding time stipulated by NYSDEC ASP. It is unlikely that this minor holding time exceedance had any impact on the reported values. However, no TCL SVOCs were detected in this sample. Therefore, the reported results can not be used to show that no SVOCs were detected only to show that elevated levels of SVOCs were not present in the sample.

2. The medium level extraction for sample UPSS17 was performed one day outside the stipulated holding time. This exceedance will not affect the reported results and the data can be used without qualification. The low level extraction performed on sample UPSS17 produced poor surrogate recoveries, therefore the results of the medium level extraction should be considered more accurate.

3. The reextraction of UPSS15 was performed 7 days beyond the stipulated holding time, therefore the results for this sample should be considered estimated possibly biased slightly low. The results of the initial extraction showed little to no surrogate recoveries, therefore these results of the reextraction are considered more accurate and the results of the initial extraction have been removed from the data summary.

4. The reextraction of matrix spike UPSS33 was performed 7 days beyond the stipulated holding time, therefore the results for this sample should be considered estimated possibly biased slightly low. The recovery of pyrene in the spike and spike duplicate were inconsistent indicating that the sample may be slightly heterogeneous resulting in the reported variations. Therefore, the reported pyrene concentration in the unspiked sample should be considered estimated. The data reported for the unspiked sample can be used to assess the general magnitude of pyrene in the sample.

5. Compounds di-n-butylphthalate, butylbenzylphthalate, and bis-(2 ethylhexylphthalate are common laboratory contaminants and were all detected in the associated method blanks. The presence of these compounds is considered the result of laboratory contamination and have therefore been removed from the data summary.

6. Due to poor standard recoveries the quantitation of several SVOCs was affected, however only one of the compounds was detected (carbazole). Therefore, the values reported for carbazole are considered estimated and appropriately qualified on the data summary. These results can be used to indicate carbazole was detected and it's relative concentration.

Pesticide/PCB Analyses

Soil samples submitted to E3I were analyzed for TCL pesticides/PCBs (pest/PCBs) in accordance with NYSDEC ASP Method 91-3. Due to reasons described in the validator's report all of the pest/PCB data were noncompliant with the ASP. The affect of the noncompliant data and QC failures on the useability of the reported results are discussed below.

1. Several of the samples analyzed for pests/PCBs were acid washed by the laboratory in order to remove compounds that interfere with the identification and quantitation of PCBs. This procedure will remove all of the organic compounds other then PCBs, including pesticides, therefore the laboratory is required to analyzed the sample prior to acid washing to identify any pesticides that might be present. In order to condense the summary tables the results of the two analyses have been combined into one set of results per sample. The pre-

acid wash values for pesticides were combined with the PCB values reported for the post-acid wash analyses.

2. As a result of matrix interference problems (possibly the presence of polyaromatic hydrocarbons) the laboratory was obtaining very poor dual column correlation. Whenever the percent difference between the values reported from the two columns exceeded 90% the compounds affected were rejected, when the difference ranged between 50 and 90% the results were qualified as estimated with tentative identification, and the remaining results between 25 and 50% were qualified as estimated quantitative values.

In addition to the problems discussed above the pesticide results were noncompliant in several areas: GPC cleanup recoveries, endrin breakdown, and responses for continuing calibration standards. As a result of the laboratory reporting pesticides at well below the contract required detection limit (CRDL) many of the reported values were affected by these problems. However, the levels of pesticides detected are well below applicable soil criteria. Although many of the pesticide values were rejected by the data validator LMS has concluded that the reported values are useable to assess the overall magnitude of pesticide contamination and to show that levels did not exceed the applicable soil criteria.

3. The laboratory reported 4,4'-DDT in the field blank submitted with the soil samples, the concentration reported is similar to the levels detected in many of the environmental samples. Therefore, the presence of 4,4'-DDT is considered the result of either cross-contamination and/or matrix interference and has been rejected in the samples where the concentration does not exceed 1.3 times the CRDL. The remaining values reported for 4,4'-DDT are considered estimates and have been qualified as such. Those results are useable to show that 4,4'-DDT was not present above the applicable soil criteria.

4. As a result of poor isomer correlation a few of the Aroclor values reported by the laboratory should be considered estimated and have been appropriately qualified in the data summary. This problem does not significantly affect the useability of the PCB results, they can be used to determine the presence and magnitude of PCB contamination.

Metals

Soil samples submitted to E3I were analyzed for TAL metals in accordance with NYSDEC ASP CLP superfund methodologies. Due to reasons discussed in the data validator's report a majority of the metals data were noncompliant with the ASP. The affect of the noncompliant data and QC failures on the useability of the reported results are discussed below.

1. Due to high levels of interferences present and problems with the processing of many of the samples, a majority of the metals analyses were noncompliant with the ASP. Problems included improper corrective actions following calibration standards, laboratory control samples, interference check samples and calibration blanks that were outside established control limits. Additionally, many of the QC analyses showed poor correlation between duplicate analyses. As a result of these problems many of the values reported by the laboratory have been qualified as estimated and some have been rejected as unuseable. The specific details concerning which samples were noncompliant and which were rejected, are provided in the data validation report. All of the appropriate qualifiers have been added to the data summary to indicate which values are considered estimated and which were rejected. The results not rejected are useable to determine if the analytes in question were detected and their relative magnitude.

2. All the samples from SDG UPSS01 and samples UPSS06, UPSS14, and UPSS19 were noncompliant with the ASP because they were analyzed outside of the NYSDEC ASP holding time for cyanide. The samples were analyzed one to three days outside of the established holding time. All of the samples affected have been qualified as estimated, however the data are useable to determine if cyanide was detected and the relative concentration present.

3. All of the samples processed for TAL metals were analyzed outside of the NYSDEC ASP holding time for mercury. These analyses were performed one to six days beyond the established holding time resulting in the analyses being noncompliant with the ASP. A majority of the analyses only exceeded the established holding time by one day and were not

affected and are useable without qualification. The remainder of the samples may have been affected (biased slightly low) and have therefore been qualified as estimated. However, the results are useable to determine if mercury was detected in any of the samples analyzed and the relative concentration that mercury was detected at.

SEDIMENT/SURFACE WATER

Metals

Sediment and surface water samples submitted to E3I were analyzed for TAL metals and cyanide in accordance with NYSDEC ASP CLP superfund methodologies. Three of the sediment samples submitted to E3I were also processed in accordance with the toxicity characteristics leaching procedure (TCLP) Method 1311 and analyzed for RCRA metals. Due to reasons presented in the data validation report a majority of the TAL metals results reported by E3I were noncompliant with the ASP. The affect of the noncompliant data and QC failures on the useability of the reported results are discussed below.

1. Due to high levels of interferences present and problems with the processing of many of the samples, a majority of the metals data were noncompliant with the ASP. Problems included improper corrective actions following calibration standards, laboratory control samples, interference check samples and calibration blanks that were outside established control limits. Additionally, many of the QC analyses showed poor correlation between duplicate analyses. As a result of these problems many of the values reported by the laboratory have been qualified as estimated and some have been rejected as unuseable. The specific details concerning which samples were noncompliant and which were rejected, are provided in the data validation report. All of the appropriate qualifiers have been added to the data summary to indicate which values are considered estimated and which were rejected. The results not reject are useable to determine if the analytes in question were detected and their relative concentrations.
2. A few of the samples processed for mercury and cyanide were analyzed outside of the stipulated NYSDEC ASP holding time by one day, however all of these samples were

analyzed within the holding time established by EPA. These holding time exceedances do not affect the useability of any of the results reported for mercury and cyanide.

3. The analyses for selenium and thallium in the sediment samples consistently produced large negative absorbances indicating an instrumental hardware problem. This problem did not affect samples that contained either selenium and/or thallium above the CRDL. However, the reported results can not be used to show that neither selenium or thallium were not detected, but the results can be used to determine whether elevated levels of either analyte were present in the samples analyzed. The resulting values have been appropriately qualified on the data summary.

4. The field blanks associated with SDG UPFB08 contained levels of aluminum, iron, mercury, and zinc that exceed the CRDL. Surface water samples that contained these analytes at concentrations less than five times the levels detected in the field blank have been rejected and appropriately qualified on the data summary. Samples where analyte values have been rejected are useable to show that elevated levels were not present in the samples analyzed by E3I.

5. The field blank associated with SDG UPSD01 contained levels of lead and mercury that exceed the CRDL. Sediment samples that contain either analyte at concentrations less than five times the levels detected in the field blank have been rejected and appropriately qualified on the data summary. The levels of lead were all greater than five times the level detected in the field blank, therefore the results are unaffected and useable without qualification. Samples where mercury values have been rejected are useable to show that elevated levels were not present in the samples analyzed by E3I.

6. Due to the presence of selenium and cadmium in the TCLP blank that exceed the CRDL any samples that contain either analyte at a concentration less than five times the concentration detected in the blank has been rejected and appropriately qualified in the data summary. However, the rejected values can be used to show that elevated levels of selenium and cadmium were not detected in the samples analyzed by E3I.

7. Due to negative absorbance for arsenic in the TCLP blank the results for arsenic reported by E3I can not be used to show that arsenic was not detected in the TCLP extracts. However, the results can be used to show that arsenic was not detected at elevated levels in either of the TCLP extracts.

Overall, the metals data reported by E3I are useable to determine which analytes were present in soil, sediment and surface water samples collected from the site and their relative concentrations.

Data Validation Services

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LAWLER, MATUSKY & SKELLY
ENGINEERS

AUG 29 1995

August 28, 1995

Maria Heincz
LMS Engineers
One Blue Hill Plaza
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RE: Validation of United Plating Site Data Packages
E3I SDG Nos. UPSS01, UPSS15, and UPSS25

Dear Ms. Heincz:

Review has been completed for the data packages generated by E3I Labs, pertaining to samples collected at the United Plating Site. Forty soil samples were processed for full CLP TCL/TAL parameters. A field blank and trip blank were also processed. Matrix spikes/duplicates were processed for all parameters. Methodologies utilized are those of the 1991 NYSDEC ASP CLP.

Data validation was performed in accordance with the the most current editions of the USEPA CLP National Functional Guidelines for Organic and Inorganic Data Review. The following items were reviewed:

- * Data Completeness
- * Custody Documentation
- * Holding Times
- * Surrogate and Internal Standard Recoveries
- * Matrix Spike Recoveries/Duplicate Correlations
- * Preparation/Calibration Blanks
- * Control Spike/Laboratory Control Samples
- * Instrumental Tunes
- * Calibration Standards
- * Instrument IDLs
- * Method Compliance
- * Sample Result Verification

Those items showing deficiencies are discussed in the following sections of this report. All others were found to be acceptable as outlined in the above-mentioned validation procedures, and as applicable for the methodology. Unless noted specifically in the following text, reported results are substantiated by the raw data, and generated in compliance with protocol requirements.

In summary, sample processing for volatiles and semivolatiles were primarily conducted with compliance to protocol requirements and with adherence to quality criteria. Processing of metals and pesticide/PCBs included noncompliances which impacted sample reported results. These issues, which include standard/control responses and holding times, are discussed in the following analytical sections, with indicated edits and qualifications to sample reported results.

Due to client request, metals duplicate evaluations (for all but mercury and cyanide) were performed on duplicate sample matrix spikes rather than on unspiked sample duplicates for SDGs UPSS01 and UPSS15. In order to obtain a more proper evaluation, which is of particular importance for these project samples because of the high levels of metals detected in the samples, redigestion and analysis of samples and sample duplicates have been requested. The laboratory data will be provided after the issuance of this report, and duplicate precision evaluation for those SDGs will be made as an addendum to this report.

Copies of laboratory case narratives are attached to this narrative, and should be reviewed in conjunction with this narrative. A compliance chart and laboratory NYSDEC Sample Preparation and Analysis Summary Forms are also included with this report.

Data Completeness

Resubmissions include corrections to sample reported results and previously omitted documentation (including internal custodies and preparation/analysis logs). Attached to this report are copies of the communications including revised summary forms. Copies of resubmitted raw data for solids determinations, prep/analysis logs, and internal custody documentation was forwarded by the laboratory under separate cover to LMS Engineers, and are not included as attachments to this report.

The NYSDEC Sample Preparation and Analysis Summary Forms for SDG UPSS01 incorrectly show only volatile analysis required. Full TCL/TAL were actually required.

Volatile Analyses

The reported results for UPSS37 were based upon an incorrect solids content (89% was used; actual is 99%). Therefore the reported detection limits for the nondetected compounds should be edited to be "10 U ug/kg". The values for the detected compounds should be edited as follows:

<u>Compound</u>	<u>Actual value, ug/kg</u>
methylene chloride	4
trichloroethene	7
tetrachloroethene	3
toluene	2
chlorobenzene	0.9
ethylbenzene	0.9
styrene	2

Analysis contract holding times were exceeded by one day for UPSS04, UPSS06, and UPSS05RE, and by four days for UPSS07. All but the analysis of UPSS07 were within an acceptable technical holding time. The results for UPSS07 should be considered estimated.

Many samples produced outlying depressed recoveries for internal standards, although little matrix effect is evident in the chromatograms. Low internal standard recoveries is usually attributed to matrix, but it is also noted that the MSB associated with SDG UPSS01 also produced rather low (although acceptable) recoveries (66% to 72%; lower limit is 50%), indicating a possible instrument drift often associated with filament temperature. Some samples were reanalysed with acceptable responses, others produced repeated low responses. Reported results for the analytes associated with outlying internal standards are to be considered estimated, and are as follows; please note that in the cases where the suffix "-RE" is indicated, the reanalysis results showed better response, and should be used preferentially over the initial (otherwise the initial should be used):

1,1,1-trichloroethane, carbon tetrachloride, bromodichloromethane, 1,2-dichloropropane, trans-2,3-dichloropropene, trichloroethene, dibromochloromethane, 1,1,2-trichloroethane, benzene, cis-1,3-dichloropropane, bromoform, 2-hexanone, 4-methyl-2-pentanone, tetrachloroethene, 1,1,2,2-tetrachloroethane, toluene, chlorobenzene, ethylbenzene, styrene, and xylenes in sample UPSS01-RE, 2-hexanone, 4-methyl-2-pentanone, tetrachloroethene, 1,1,2,2-tetrachloroethane, toluene, chlorobenzene, ethylbenzene, styrene, and xylenes in samples UPSS02-RE, UPSS05-RE, UPSS13, UPSS19, UPSS30-RE, UPSS26, and UPSS31

Sample UPSS33 produced low responses for internal standard d5-chlorobenzene, but its matrix spikes did not. Therefore, based upon the matrix spike data, response of the *non-spiked* non-detected compounds in the sample do not need to be qualified as estimated. Analytes toluene and chlorobenzene detection limits in the sample should be considered estimated (spiked into matrix spikes).

Methylene chloride, 2-butanone and acetone were detected in certain of the method blanks, trip blanks, and field blank at concentrations similar to those of the samples. The sample reported methylene chloride and acetone results should therefore be edited to reflect nondetection at either the sample CRDL or at the originally reported value, whichever is greater. Sample UPSS32 produced detections of chloromethane at a level similar to that of its associated method blank, and the result in the sample should be edited to reflect nondetection at the sample CRDL. Samples UPSS22 and UPSS23 produced responses for chloromethane, but were analysed three and four hours before the standard of 6/08/95 22:48 which produced an elevated response for that compound which was 83% different from expected. The method blank associated with that standard also produced a response for chloromethane at 2 ug/L. The chloromethane response in samples UPSS22 and UPSS23 should be viewed with caution as possible system contamination.

Tentatively Identified Compounds (TICs) which are named siloxanes are usually artifacts of the analytical system, and should not be considered sample components.

All TICs reported with the "B" laboratory flag should be disregarded as sample components due to copresence in associated blanks.

Most samples report a TIC at about 24.44' which is also present in some of the associated blanks. This is a lab artifact, should have been flagged as "B" in many of the samples, and should be rejected as a sample component.

The following calibration standard analytes exhibited either depressed recoveries exceeding 25%D, or elevated recoveries exceeding 25%D with associated sample detections, and these parameter values should be considered estimated in associated samples (no corrective action was required):

Standard	Analyte	%D	Affected Samples
H7579	06-08-95 22:48 bromomethane	40.9	UPSS32,UPSS34,UPSS35,UPSS37
H7596	06-09-95 10:44 bromomethane	44.1	UPSS33RE,UPSS04,UPSS05RE UPSS39,UPSS30,UPSS25,UPSS31
H7616	06-12-95 10:15 bromomethane	47.6	UPSS19RE

Bromomethane responses exceeding 40%D are noncompliant, as they are above the protocol allowed limit for that compound.

Accuracy and precision data for UPSS09 and UPSS33 were acceptable.

The reported IDL summary forms for aqueous samples on instrument Elmer should state a level of 25 ng on column, not 5 ng on column.

Semivolatile Analyses

Sample UPSS12 produced unusable low surrogate recoveries on the initial extraction. The reextraction was performed three days beyond the allowable reextraction holding time. The reextract results should be used, but considered estimated.

The medium level extraction of UPSS17 was performed one day beyond the allowable 5 day from VTSR holding time (this should have been indicated on the laboratory NYSDEC Sample Preparation and Analysis Summary Forms). The extraction was one day beyond the technical holding time, and results (UPSS17-DL) should be considered estimated. The low level extraction results should not be used.

The reextraction of UPSS15 was performed beyond the allowable 10 day from VTSR holding time, at 17 days (this should have been indicated on the laboratory NYSDEC Sample Preparation and Analysis Summary Forms). The initial extraction produced no/low recovery of surrogates and should not be used. The -RE results should be considered estimated due to extended holding time.

Values for sample analytes initially flagged as "E" should be derived from the dilution analysis.

Matrix spikes of UPSS01 produced acceptable accuracy and precision values.

The matrix spikes of UPSS33 required reextraction due to GPC loss. The reextractions were performed 17 days from VTSR. Pyrene recoveries were inconsistent, at -20% and 72% (350%RPD); The sample pyrene value should be viewed with caution, as possible nonhomogeneity. Acenaphthene duplicate correlation was slightly high, at 21%RPD (above recommended limit of 19%RPD).

Tentatively Identified Compounds (TICs) which are aldols ("A" flag) are artifacts of the extraction, and should not be considered sample components. All TICs reported with the "B" laboratory flag should be disregarded as sample components due to copresence in associated blanks.

Due to copresence in project method blanks, reported levels of di-n-butylphthalate, butylbenzylphthalate, and bis-(2ethylhexyl)phthalate in the samples should be considered as possible contamination. Sample reported results should be edited to reflect nondetection at either the sample CRDL, or at the originally reported value, whichever is greater.

The following analytes produced outlying responses in the daily standards which warrant qualification of associated sample results as estimated. Outliers include depressed responses exceeding 25%D, and elevated responses exceeding 25%D for samples with detected components.

Standard	Analyte	%D	Affected Samples
K3700	06-12-95 12:05 3,3'dichlorobenzidine	28.6	UPSS01,UPSS03,UPSS04,UPSS05
K3724	06-13-95 11:12 3-nitroaniline	37.2	UPSS10,UPSS11,UPSS12,UPSS19,UPSS09
	3,3dichlorobenzidine	30.7	UPFB06,UPSS02,UPSS06,UPSS08
	carbazole	70.8	
K3776	06-16-95 11:28 3-nitroaniline	40.5	UPSS16,UPSS17
	3,3dichlorobenzidine	29.5	
K3885	06-24-95 12:59 3-nitroaniline	60.2	UPSS36,UPSS37,UPSS33,UPSS35,
	4-nitroaniline	62.8	UPSS12RE,UPSS17
	nnitrosodiphenylamine	60.5	
	carbazole	59.9	
K3799	06-19-95 12:00 3-nitroaniline	56.0	UPSS15,UPSS18,UPSS20,UPSS21
	4-nitrophenol	30.5	UPSS22,UPSS23,UPSS24,UPSS27
	nnitrosodiphenylamine	38.2	
K3827	06-20-95 15:20 4-chloroaniline	65.4	UPSS32
	3-nitroaniline	84.5	
	2,4-dinitrophenol	42.0	
	4-nitrophenol	30.5	
	nnitrosodiphenylamine	66.9	
K3906	06-26-95 14:00 nnitrosodiphenylamine	35.1	UPSS38,UPSS39,UPSS28,UPSS40
	3-nitroaniline	61.6	UPSS30
	4-nitroaniline	63.6	
	carbazole	71.2	
K3934	06-27-95 14:10 3-nitroaniline	40.9	UPSS29,UPSS25,UPSS26,UPSS31
	4-nitroaniline	56.7	
	nnitrosodiphenylamine	27.9	
	carbazole	56.8	

Bis(2-chloroethyl)ether produced elevated responses exceeding the allowable 40%D, but nondetection sample results are unaffected.

Due to elevated instrument MDLs, the reported results for di-n-butylphthalate in all samples should be considered estimated.

Certain of the sample detections are below the reported MDLs, but spectra are acceptable.

Pesticide/PCB Analyses

Please see resubmitted Form 1 for UPSS37 as regards removal of the laboratory qualifier flag "P" for endosulfan II.

Sample surrogate recoveries were acceptable with the exception of several samples with slightly depressed recoveries for one surrogate (all greater than 30%), and some with slightly elevated recoveries of one surrogate due to interferences. Sample reported results are unaffected.

Certain of the samples were analysed for pesticides and PCBs before acid wash, and again for PCBs following acid wash. Two Forms 1 were therefore provided. To be accurate, and to avoid possible mis-application of the results, the two Forms 1 for these samples should have been reported in a different format. The laboratory reported PCBs as undetected on the pre-acid-wash forms for these samples, although presence of PCBs was indicated. The lab should have produced a (qualified) value for the suspected PCB components on those Forms 1. The Forms 1 reported for the acid-washed samples (-AC suffix) report nondetections of pesticides. These forms should not report pesticides, as they are often destroyed by the acid clean-up. End-users of the data should utilize caution when evaluating the combined pesticide/PCB results for these samples. The PCB results for samples processed with and without acid cleanup should be utilized only from the "-AC" Forms 1. Pesticide results should be utilized only from the none-suffixed Forms 1.

Most of the reported pesticide analytes produced dual column percent differences exceeding 25% ("P" flag); most exceeded 90%, with some variances as high as 11,000 %D. The samples, even with cleanups, produced numerous chromatographic responses across the elution range of the pesticide/PCB analytes. These responses can be a result of non-pesticide/PCB analytes (i.e. PAHs, etc.). The greater the dual column difference, the more likely that the response being reported is from interferences rather than from target pesticide analytes. The numerous occurrences of the excessive dual column differences in these project samples results from chromatographic interferences, as well as the fact that the laboratory is reporting very low level "detections" of many pesticides, some as low as one-tenth of the sample CRDL. Some of these variances may be related to noncompliant standard responses (see later discussion). Those pesticides with percent difference values between 25% and 50% should be considered with estimated quantitative values ("J" flag); those from 50%D to 90%D should be considered estimated in value, and tentative in identification ("N"); those with variances exceeding 90%D should be rejected as qualitative identification, and reported values edited to reflect nondetection at the sample CRDL (for that specific analyte) or at the originally reported value, whichever is greater. The majority of the reported detections in these project samples fall above 90%D; most are greater than 300%D. Following the application of the above-mentioned validation evaluation for dual column difference, with rejection to CRDL (or original value) for those analytes with greater than 90%D, the pesticides listed below are those *remaining* to be reported as *detections*:

Sample ID	Pesticide	Qualification due to percent difference
UPSS01	gamma-BHC	
	4,4'-DDD	JN
UPSS02	heptachlor epoxide	
	endrin	J
	gamma-chlordane	JN
UPSS03	4,4'-DDD	
UPSS04	heptachlor epoxide	
	4,4'-DDD	
UPSS05	endosulfan II	JN
	4,4'-DDT	J
UPSS06	endrin	JN
	gamma-chlordane	
UPSS07	4,4'-DDE	
	endrin	JN
	endosulfan II	JN
UPSS08	heptachlor epoxide	J
	4,4'-DDE	
	4,4'-DDT	
UPSS11	gamma-chlordane	
UPSS12	4,4'-DDE	
UPSS13	4,4'-DDE	J
	methoxychlor	J
UPSS14	endrin	JN
	endosulfan II	JN
	alpha-chlordane	J
UPSS19	heptachlor epoxide	J
	endosulfan II	JN
	4,4'-DDT	
UPSS15	heptachlor epoxide	J
	endrin	JN
UPSS16	heptachlor epoxide	JN
UPSS17	heptachlor epoxide	J
	4,4'-DDE	
	4,4'-DDD	J
UPSS18	heptachlor epoxide	
	dieldrin	
	endrin	J
	4,4'-DDD	
UPSS20	endrin	J
	4,4'-DDT	JN
	gamma-chlordane	J

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Sample ID	Pesticide	Qualification due to percent difference
UPSS21	gamma-BHC	J
	4,4'-DDD	JN
UPSS23	endosulfan II	JN
UPSS24	4,4'-DDE	J
UPSS32	heptachlor epoxide	
	4,4'-DDE	J
	endrin	J
	endosulfan II	
UPSS33	4,4'-DDD	
	4,4'-DDT	J
	heptachlor epoxide	J
	4,4'-DDE	J
	endrin	
	4,4'-DDD	
UPSS35	4,4'-DDT	J
	4,4'-DDE	J
	endosulfan II	
UPSS36	dieldrin	JN
	gamma-chlordane	JN
UPSS37	4,4'-DDE	J
UPSS25	endosulfan II	
	heptachlor	
UPSS26	endosulfan sulfate	J
	4,4'-DDE	J
	endrin	JN
UPSS28	endosulfan sulfate	J
	dieldrin	JN
	4,4'-DDE	
	endosulfan sulfate	JN
UPSS29	4,4'-DDT	
	4,4'-DDT	
UPSS30	heptachlor	JN
	4,4'-DDE	
	endosulfan II	JN
	4,4'-DDD	J
UPSS31	4,4'-DDT	
	heptachlor	
	endrin	
	4,4'-DDD	JN
	4,4'-DDT	JN
	alpha-chlordane	

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<u>Sample ID</u>	<u>Pesticide</u>	<u>Qualification due to percent difference</u>
UPSS38	heptachlor	JN
	endrin	J
	methoxychlor	JN
UPSS39	4,4'-DDE	JN
	endrin	J
	gamma-chlordane	J
UPSS40	4,4'-DDE	
	endrin	J
	4,4'-DDT	
UPFB06	methoxychlor	JN
	4,4'-DDT	J

PCB reported detections are reviewed for identification by pattern and isomer correlation. The "P" flag indicates a consideration for reported PCB values as estimated. Additional qualifications are recommended below, and result from poor isomer correlation:

<u>Sample ID</u>	<u>Aroclor mix</u>	<u>Additional Qualification</u>
UPSS03	1242	JN*
UPSS07	1248	J
UPSS21-AC	1260	N
UPSS22	1260	Reject; edit result up to sample CRDL
UPSS23	1260	J
UPSS37	1254	N
UPSS28-AC	1254	J*

*this was already flagged as "J" by lab, although value is greater than CRDL)

A response within the retention time windows for aldrin was detected on both columns in UPSS11, above the CRDL at 4.4 ug/kg and 26.6 ug/kg. The laboratory did not report this detection. Because the dual column difference is so high, at 500%D, the identification is rejected, but the adjusted sample value for nondetection should reflect the value of 4.4 ug/kg U (as it is unknown whether the analyte is present below this level).

Reported detections of 4,4'-DDT which are below 1.3 times the sample CRDL for that analyte should not be considered a sample component, as it is also found in the field blank at 0.031 ug/L (about one third of CRDL). Reported 4,4'-DDT results for affected samples should be edited to reflect nondetection at the sample CRDL, or nondetection at the originally reported value, whichever is greater. Based upon review of only those 4,4'-DDT detections remaining after application of the dual column correlation criteria (as listed above), the detections in samples UPSS05 and UPSS29 are to be rejected due to possible contamination, as indicated by the field blank level.

Pesticide processing was noncompliant as regards recoveries for the GPC cleanup. The recovery of 4,4'-DDT was high in all three calibrations associated with project samples (147% to 200%). All detected levels of 4,4'-DDT should be considered estimated. The GPC cleanup recoveries of the calibration associated with samples in SDG UPSS25 produced outlying recoveries on both columns. Most values (10 of the twelve) were above the 110% limit (113% to 203%). Two compounds produced low responses on one column and high on the other. All detected values for the samples in SDG UPSS25 should be considered estimated due to the GPC recoveries.

Pesticide/PCB standard processing was noncompliant as regards endrin breakdown in the system. Outlying breakdown values (above 20%; up to 38%) were observed in standards which are associated with all samples. Therefore the endrin values and detection limits for all project samples should be considered estimated.

Pesticide/PCB processing was also noncompliant as regards elevated responses of analytes in continuing standards (PEMs and INDA/Bs). Most of these outliers are outlined in the attached case narratives. 4,4'-DDT was consistently above the allowable 25% RPD levels, as high as 74%RPD. Methoxychlor, delta-BHC, and 4,4'-DDE were also above the required limit (to 35%RPD). As a result, all reported detections of 4,4'-DDT in the project samples should be considered estimated (already considered estimated due to cleanup recovery). 4,4'-DDE in samples UPSS26 and UPSS30, and methoxychlor in UPSS38 and UPSS40 should be considered estimated. Sample detection limits (for nondetects) are unaffected.

The protocol baseline response requirements were not met for column DB-1701.

Accuracy and precision values for UPSS01 were acceptable. The matrix spikes of UPSS33 produced elevated recoveries for 4,4'-DDT (310% and 310%), and elevated duplicate correlation for endrin (64%RPD, above the recommended limit of 45%RPD). These analyte results are already considered estimated due to noncompliant processing.

Certain of the standards and PIBLKs were Incorrectly denoted on the Forms 8 as having outlying retention times.

Metals/CN Analyses

Holding times for cyanide analysis were exceeded for all samples in SDG UPSS01, with analyses at thirteen and fourteen days from VTSR. Samples UPSS06 through UPSS14 and UPSS19 were analysed fifteen days from collection, and reported cyanide results should be considered estimated.

Holding times for mercury analysis were exceeded for all samples in the three SDGs of this report. (the case narrative for UPSS25 incorrectly states that holding times were met), with analyses at 27 to 32 days from VTSR. The technical holding time was exceeded for all samples in SDGs UPSS01 and UPSS15, and for samples UPSS38 and UPSS39; and mercury results for those samples should be considered estimated.

Metals processing was noncompliant as regards lack of corrective action following outlying calibration standards, Laboratory Control Samples (LCSs), Interference Check Samples and calibration blanks. Numerous occurrences were observed where analysis of outlying controls was repeated until recoveries within required ranges were obtained. This is not allowed by protocol; associated samples were not reanalysed. The reported results for those elements exhibiting outlying values (outside the required 90%-110% for calibration standards and LCSs, and above +-CRDL for calibration blanks) must therefore be considered estimated in associated samples. Below are listed the outliers, and affected sample analytes:

<u>Outlying standard</u>	<u>Element</u>	<u>Recovery (limits 90%-110%)</u>
CCV2 6/28 19:47	lead	88.3
	thallium	87.3

Samples affected: UPSS-04, -05, -06, -07, -08, -09

CCV2 6/29 15:22	zinc	89.8

Samples affected: UPSS-01,-02,-03,-04,-05,-06,-07,-08,-09

CCV1 6/30 11:32	aluminum	117

	iron	114

CCV2 6/30 11:48	aluminum	112

CCV3 6/30 11:57	aluminum	112

(also reran Interference Check Samples)

Samples affected: UPSS-04 through -14, and -19

CRIF, Int Ck Spls, CCV/CCB were rerun at end of cobalt 7/5 sequence

CRI showed no recovery initially, Int. Cks were incorrect

Samples affected:UPSS10-14, and -19

CCV2 7/10 12:50	manganese	88.8

Samples affected: UPSS-34, -35, -36, -37

CCV2 7/12 15:01	aluminum	113

Samples affected: UPSS-18,-20,-21,-22,-23,-24,-27,-32,-33,-35,-36,-37

CCV1 7/21 09:36	thallium	88.7

CCV2 7/21 10:49	thallium	85.0

Samples affected: UPSS-25,-26,-28,-29,-30,-31,-38,-39,-40

<u>Outlying standard</u>	<u>Element</u>	<u>Recovery (limits 90%-110%)</u>
CCV3 7/21 17:12	selenium	88.4
Sample affected: UPSS-31		
CCV1 7/21 19:33	vanadium	115
	aluminum	112
Samples affected: UPSS-25,-26,-28,-29,-30,-38,-39,-40		
CCV3 7/21 20:01	aluminum	113
Sample affected: UPSS-31		

In addition to outlying calibration standards, certain of the LCSs produced outlying values and were reanalysed without corrective action. The LCSS (soil) for SDG UPSS15 was high for calcium, vanadium, and iron in the initial analysis; calcium was within required limits the second analysis; iron and vanadium were analysed four times before values were within limits. The reported detected values for these elements in the samples of SDG UPSS15 should be considered estimated.

The LCSW (aqueous) associated with UPFB06 had no recovery of manganese and antimony on initial analysis. Results for those two elements in the field blank are to be rejected. This same LCSW produced noncompliant elevated response for iron initially (121%, above 120% limit). The iron detected value in the UPFB06 may be biased slightly high.

The analyses for selenium and thallium consistently produced large *negative* absorbances of several times the CRDL value (some with extremely large negative absorbances) for the project samples. This can indicate an instrumental hardware problem. Most of the associated QC (standards and matrix spikes) do not reflect this problem, due to the elevated spike levels. However, the associated CRI standards (standards spiked at two times the CRDL) also showed low and/or fluctuating recoveries across the sequences (i.e. selenium at 34% to 924%; thallium at 168% to 53%). The CRI recoveries for selenium in SDGs UPSS01 and UPSS25 were extremely low, starting with the initial (CRII) at 0% and a final (CRIF) at 36% in SDG UPSS01; and the CRII at 17%, with a negative absorbance in the CRIF (negative 2% recovery) for SDG UPSS25. CRI standard recoveries are advisory only. A continuing calibration blank (CCB1) for thallium in the 6/29/95 sequence produced a noncompliant response with a value below the negative CRDL. Associated samples should have been reanalysed in a compliant sequence. Due to the total lack of recovery of the CRII in SDG UPSS01 and the CRIF in SDG UPSS25, reported nondetected selenium results for all soil samples in SDG UPSS25, and in samples UPSS01 through UPSS09 in SDG UPSS01 should be rejected. All other project detection limits and values for selenium and thallium should be considered estimated, possibly biased grossly low, especially considering that results are being reported to IDLs, even lower than the CRDLs (which are shown unreliable in that the standards at twice that level are not recovering properly).

The field blank produced values above CRDL for calcium, manganese, iron, and potassium. Sample values for manganese and iron are sufficiently above the field blank level as to be considered

- sample components. However, the levels of calcium and potassium detected in most of the samples are less than five times the field blank level, and may be a result of contamination. All potassium values for all samples in the three SDGs should be rejected. All calcium detections should also be rejected *except* for those in samples UPSS20, UPSS21, and UPSS35 through UPSS38.

Matrix spike/duplicate correlations were performed on UPSS09, UPSS33, and UPSS38.

- The following spike recovery outliers were observed, and indicate qualification of associated samples (those within the same SDG as the spike) as estimated:

SDG	Sample Spiked	Element	Recovery
UPSS01	UPSS09	Antimony	55.1
UPSS15	UPSS33	Mercury	64.8
		Zinc	167.8
		Cyanide	71.6*
UPSS25	UPSS38	Antimony	50.2
		Cadmium	62.5
		Lead	70.7
		Manganese	49.4
		Mercury	60.9

* cyanide spike performed on sample UPSS26.

- It is noted that the value for lead in sample UPSS33 is grossly higher than that in the two matrix spikes for that sample, with values of 65000 mg/kg for the sample, and 2000 and 420 mg/kg for the spikes of the sample. This may indicate very poor sample homogeneity, and the lead result for that sample should be used with caution.

- Please see the previous discussion regarding duplicate correlation for all but mercury and cyanide for samples in SDGs UPSS01 and UPSS15. Evaluation will follow at a later date. The lab qualifier asterisks should be removed from sample results in those SDGs (exception of cyanide in SDG UPSS15).

- Duplicate correlation of UPSS38 produced values for arsenic, copper, and cadmium which differed by more than $\pm$ CRDL. However, qualification of associated data is not indicated. The cyanide duplicate correlation for UPSS33 was also above the recommended limit, at 26%RPD; qualification is not recommended. The cyanide duplicate correlation of UPSS09 was good; a duplicate correlation for cyanide was also run on UPSS06 (in the same SDG as UPSS09). The correlation for UPSS06 was not as good, with values of 14.4 and 9.2 mg/kg.

- Errors were present for certain elements on the Forms 6 for UPSS33 (SDG UPSS15). This form is not used for evaluation.

- Serial dilution determinations for samples UPSS09, UPSS33, and UPSS38 produced numerous outlying percent difference correlations. Validation protocols require qualification of associated sample results as estimated, but it should be noted that recent technology has resulted in capability to obtain very low IDLs (far below CRDLs) for most elements. Consequently, application of the serial dilution criteria

(correlations greater than 10%D for sample values greater than 50 times the IDL) is now more often applied to sample detected levels than previously necessary. For example, barium CRDL is 200 ug/L, the IDL for this project analyses is 0.5 ug/L. Therefore, application of the serial dilution criteria is being made to sample values significantly below the CRDL. The following analytes produced outlying serial dilution, and reported detected values of associated samples (those soils in the same SDGs) should be considered estimated:

SDG	Element	%Difference
UPSS01	calcium	11.7
	lead	12.0
	zinc	25.8
UPSS15	aluminum	20.1
	barium	15.4
	copper	24.3
	lead	10.9
	magnesium	17.8
UPSS25	aluminum	16.0
	barium	15.0
	calcium	11.9
	iron	15.7
	lead	41.1
	magnesium	15.6
	manganese	14.6
	zinc	20.5

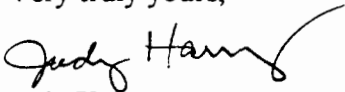
The field blank UPFB06 also produced outlying serial dilution correlations for barium (81.6%D), calcium (98.4%D), manganese (57.8%D), and potassium (100%D). Reported values for these elements in the field blank should be considered estimated.

Due to low recoveries of the chromium standards at two times CRDL (CRII and CRIF), at 59%, 40%, and 42%, the reported chromium values in the samples in SDG UPSS01 should be considered estimated. Due to elevated lead recoveries in the CRIs in SDG UPSS15 (130% to 226%), the detected values for samples in that SDG should be considered estimated.

As discussed in the resubmission communications, the sample ID denoted in the raw data for certain samples/analytes was incorrect.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,


Judy Harry

COMPLIANCY CHART

Project: LMS Engineers -United Plating Site

SDG Nos. E3I SDGs UPSS01, UPSS15, and UPSS25

Protocol: 1991 NYSDEC ASP CLP

Rec. Date	Sample ID	Matrix	VOA	BNA	PCB/Pest	Metals/CN	Other	Noncompl.
06-01-95	UPSS01	Soil	OK	OK	NO	NO	OK	3,6,10
06-01-95	UPSS02	Soil	OK	OK	NO	NO	OK	3,6,10
06-01-95	UPSS03	Soil	OK	OK	NO	NO	OK	3,6,10
06-01-95	UPSS04	Soil	NO	OK	NO	NO	OK	1,3,4,6,10
06-01-95	UPSS05	Soil	NO	OK	NO	NO	OK	1,3,4,6,10
06-01-95	UPSS06	Soil	NO	OK	NO	NO	OK	1,3,6,10
06-01-95	UPSS07	Soil	NO	OK	NO	NO	OK	1,3,6,10
06-01-95	UPSS08	Soil	OK	OK	NO	NO	OK	3,6,10
06-01-95	UPSS09	Soil	OK	OK	NO	NO	OK	3,6,10
06-01-95	UPSS10	Soil	OK	OK	NO	NO	OK	3,6,7,10
06-01-95	UPSS11	Soil	OK	OK	NO	NO	OK	3,6,7,10
06-01-95	UPSS12	Soil	OK	NO	NO	NO	OK	2,3,6,7,10
06-01-95	UPSS13	Soil	OK	OK	NO	NO	OK	3,6,7,10
06-01-95	UPSS14	Soil	OK	OK	NO	NO	OK	3,6,7,10
06-01-95	UPSS19	Soil	NO	OK	NO	NO	OK	3,4,6,7,10
06-02-95	UPSS15	Soil	OK	OK	NO	NO	OK	3,6,8
06-02-95	UPSS16	Soil	OK	OK	NO	NO	OK	3,6,8
06-02-95	UPSS17	Soil	OK	NO	NO	NO	OK	3,5,6,8
06-02-95	UPSS18	Soil	OK	OK	NO	NO	OK	3,6,8
06-02-95	UPSS20	Soil	OK	OK	NO	NO	OK	3,6,8
06-02-95	UPSS21	Soil	OK	OK	NO	NO	OK	3,6,8
06-02-95	UPSS22	Soil	OK	OK	NO	NO	OK	3,6,8
06-02-95	UPSS23	Soil	OK	OK	NO	NO	OK	3,6,8
06-02-95	UPSS24	Soil	OK	OK	NO	NO	OK	3,6,8
06-02-95	UPSS27	Soil	OK	OK	NO	NO	OK	3,6,8
06-02-95	UPSS32	Soil	NO	OK	NO	NO	OK	3,4,6,8
06-02-95	UPSS33	Soil	NO	OK	NO	NO	OK	3,4,6,8
06-02-95	UPSS34	Soil	NO	OK	NO	NO	OK	3,4,6,8
06-02-95	UPSS35	Soil	NO	OK	NO	NO	OK	3,4,6,8
06-02-95	UPSS36	Soil	OK	OK	NO	NO	OK	3,6,8
06-02-95	UPSS37	Soil	NO	OK	NO	NO	OK	3,4,6,8

<u>Rec. Date</u>	<u>Sample ID</u>	<u>Matrix</u>	<u>VOA</u>	<u>BNA</u>	<u>PCB/Pest</u>	<u>Metals/CN</u>	<u>Other</u>	<u>Noncompl.</u>
06-03-95	UPSS38	Soil	OK	OK	NO	NO	OK	3,6
06-03-95	UPSS39	Soil	NO	OK	NO	NO	OK	3,4,6
06-03-95	UPSS28	Soil	OK	OK	NO	NO	OK	3,6
06-03-95	UPSS40	Soil	OK	OK	NO	NO	OK	3,6
06-03-95	UPSS30	Soil	OK	OK	NO	NO	OK	3,4,6
06-03-95	UPSS29	Soil	OK	OK	NO	NO	OK	3,6
06-03-95	UPSS25	Soil	OK	OK	NO	NO	OK	3,4,6
06-03-95	UPSS26	Soil	OK	OK	NO	NO	OK	3,6
06-03-95	UPSS31	Soil	OK	OK	NO	NO	OK	3,4,6
06-03-95	UPFB06	Aqueous	OK	OK	NO	NO	OK	3,6,9
06-03-95	UPBL03	Aqueous	OK	NR	NR	NR	NR	

1. Volatile holding time for initial or reanalysis exceeded (1991 NYSDEC ASP pg. D-II-8).
2. BNA extraction holding time exceeded (pg. D-III-8).
3. Pesticide/PCB processing with excessive endrin breakdown (pg. E-102).
pesticide/PCB processing with outlying standard %RPD responses (pg. E-101)
pesticide/PCB processing with outlying GPC cleanup recoveries (pg. D-IV-28).
pesticide/PCB processing with noncompliant baseline response (pg. D-IV-64).
4. Volatile continuing calibration standard with outlying response for bromomethane (pg. E-50).
5. BNA holding time for medium level extraction exceeded (pg. D-III-8).
6. Metals processing with outlying standard/control responses (pgs. E-129 through E-133).
Mercury holding time exceeded (pg. D-V-10).
7. Thallium calibration blank with noncompliant response (pg. E-134).
8. LCS values for three elements outside allowable limits (pg. E-140-141).
9. LCS values for three (other) elements outside allowable limits (pg. E-140-141).
10. Cyanide holding time exceeded (pg. D-V-10).

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

August 17, 1995

Mervelina Saturno-Condon

E3I

35 Medford St.

Somerville, MA 02143

RE: LMS Engineers United Plating Project
E3I SDG Nos. UPSS01, UPSS15, UPSS25, UPSD01, and UPFB08

Dear Ms. Saturno-Condon

Review is in progress for the data packages pertaining to samples collected at the LMS Engineers United Plating Site. The following information is required prior to completion of the validation reports:

1. The inorganics data show numerous misidentifications of sample IDs and some of lab ID numbers (i.e. in SDG UPSD01:

As & Se and Cd & Ag analyses identify UPSD01 as UPSD05

As & Se " " UPSD01D as UPSD05D

Cd & Ag " " UPSD03 as UPSD04

in SDG UPSS01:

numerous elements identify UPSD19 as UPSD18, some identify UPSD19 as UPSD15

(I realize there was initial confusion on the chain-of-custody for this sample ID, but it should have been corrected through the laboratory).

Also, raw mercury data show extensive corrections regarding lab and sample IDs for the -235 and -236 series which appear to indicate confusion at analysis.

in SDG UPSD01:

The cyanide reported result for UPSD09 is recorded under the *lab ID number* associated with UPSD10 in the raw data).

It is general practice that the laboratory ID number is the governing identification for analyses. Therefore the cyanide error noted above would result in rejection of the reported data for UPSD09, with possible qualified use of the 1:1 analysis result (which is also available for UPSD09).

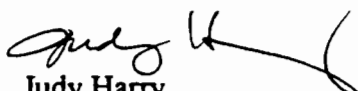
Additionally, it is of concern that the sample ID errors are so prevalent. In order to provide confidence in the lab practices, please submit a statement regarding the lab policy in recording lab/sample IDs, and explain how the errors may have occurred.

2. Solids/moisture determination raw data is provided only for the inorganics. It is observed that the organics solids values are somewhat different (which is to be expected when running separate solids determinations). However, no support raw data is submitted to verify the organics solids values. Please provide this data for all SDGs in the project.

3. **SDG UPSS01:**
Volatile page 382 (quant report for VBLKS09A) was not present in the validation copy of the data package. Please provide for review.
4. **SDG UPSS15:**
 - a. No BNA Form 5B is present for the daily analysis of 6/26/95 (tune K3905). No missing page number is present; raw tune data is present. Please forward for review and insertion into the data package.
 - b. Please review the Form 10A result for endosulfan II in sample UPSS37. The raw data shows a different value for DB-608, with a resultant change in percent difference. Please verify my findings, and submit any corrected Forms 1/10A that may result.
 - c. No (inorganics) solids/moisture raw data were included for samples 95124-001 through -005. Please forward for review.
5. **SDG UPSD01**
 - a. The lead results for UPSD08 are not legible (page 231) because they "run off the bottom" of the page. Please provide a copy of the bottom section of page 231 which includes the necessary data.
 - b. Please discuss the application of the 1:10 dilution factor in the TCLP metals. In particular, the barium and chromium results for the duplicate of UPSD08 and the serial dilution of UPSD01 seem to have been run at an additional 1:10 dilution factor, which is not clearly defined in the raw data (and not denoted on the Form 14). Please also discuss the rationale for running the duplicate of the sample at a different dilution than the sample itself.
6. **SDG UPFB08**
The potassium results for UPSW02 are not legible (page 200) because they "run off the bottom" of the page. Please provide a copy of the bottom section of page 200 which includes the necessary data.

Please copy Maria Heincz at LMS Engineers with all communications. Do not hesitate to contact me if you wish to discuss these issues. Thank you for your prompt attention to this matter.

Very truly yours,


Judy Harry

cc: Maria Heincz

Data Validation Services

Cobble Creek Road P. O. Box 208
North Creek, NY 12853
Phone and Fax (518) 251-4429

Facsimile Transmission

TO: Mervyn Condon
COMPANY: EBI
FAX NUMBER: 617 666 ~~5500~~ 5802

FROM: Judy Harry

DATE: 8-19-95

No. of pages, including cover: 1

Regarding LMS Engineers United Planting Project
SDB's UPSS01, UPSS15, UPSS25

None of the organic preparation data was included
in these data packages.

Please forward copies of all extraction logs (BNA + PIPCB),
GPC logs (BNA / PIPCB), and instrument logs (VOM, BNA
+ PIPCB), at your earliest convenience. Review of
these logs is critical for validation.

Thank you

Judy

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, NY 12853

Phone and Fax (518) 251-4429

Facsimile Transmission

TO:

Mervyn Condon

COMPANY:

E3I

FAX NUMBER:

617 666 5802

FROM:

Judy Harry

DATE:

8-18-95

No. of pages, including cover:

7

These are NYS ASP pages outlining the criteria about which we spoke earlier. As I discussed with you, the metals processing in CMS Engineers SDG's UPSS01, -SS15, -SS25, and -SD01 were not compliant. Calibration blanks, standards, LCS, and preparation blanks were frequently reanalyzed due to initial (and often continued) failure. Samples associated with failed QC were not reprocessed. Please process the 1 blank and 10.1.1 blank samples in compliance



E3I Environmental Laboratory

3 Medford Street
Somerville, MA 02143
Tel. (617) 666-5500

P.O. Box 410215
E. Cambridge, MA 02141
Fax (617) 666-5802

August 22, 1995

Judy Harry
Data Validation Services
Cobble Creek Road
P.O.Box 208
North Creek, NY 12853

Dear Ms. Harry,

Enclosed is the response to the data validation questions you sent on August 17, 1995. Also, enclosed are the missing pages of the organic reports, instrument logs, extraction logs, GPC logs and % solids/moisture logs.

If you have any questions, please feel free to call me at (617) 666-5500.

Sincerely,

Mervelina Saturno-Condon
Mervelina Saturno-Condon

Response to Data Validation

LMS United Plating Project, SDG's UPSD01 & UPSS01, (E3I Projects 951236, 951302, & 951311)

This narrative constitutes the response of E3I Environmental Laboratory to the data validation comments received from LMS on 17 August 1995. As an aside, we respectfully request that all future data validation comments reference the exact page on which the question is based. Improved specificity will improve our ability to respond to your comments.

1. We acknowledge that several sample numbers were incorrect. Pages 276, 277 and 283 are resubmitted from SDG UPSD01. Pages 132, 169 and 179 are resubmitted from SDG UPSS01. The cyanide raw data are also corrected and resubmitted.
- 4c. Inorganic percent solids data is resubmitted.
- 5a. Raw data for lead in sample UPSD08 is resubmitted.
- 5b. It is our standard practice to run all TCLP samples at a 1:10 dilution for two reasons. First, the regulatory limits for TCLP are about 1000 times our ICP detection limits (IDL's). There seems to be no reason to try to report down to the low ppb range when the regulatory limits are in the ppm range. Secondly, the high concentration of sodium in the TCLP extracts (which are 1M sodium acetate) adversely affects the ICP, thus making it prudent to dilute the samples.

Ba and Cr in sample UPSD08 and UPSD08D were analyzed at the same dilution. There may be some confusion on p. 337 of the raw data since for one sample the ICP computer calculated the concentration taking the dilution into account, and on the other sample it was done manually, resulting in one appearing to be ten times the other in the raw data when in fact the concentrations were similar. The 10X dilution factors are indicated on the raw data for both samples. I see no indication in the raw data or on Form 14 of a 100X dilution for sample UPSD08D. In a similar way the ICP computer multiplied the result for sample UPSD01 by 10 but not UPSD01L, although both were diluted 10X (and the serial dilution an additional 5X). Again, I can see no indication of a 100X dilution in the raw data. The data on the forms for all these samples is correct.

6. Raw data for potassium in sample UPSW02 is resubmitted.

I hope this answers all your questions. If you have any further comments or questions, you may direct them to Charles Wohlers at E3I.

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UPSS37

ab Name: E3I

Contract:

ab Code: E3I

Case No.: U.P.

SAS No.:

SDG No.: UPSS15

atrix: (soil/water) SOIL

Lab Sample ID: 951240-16

ample wt/vol: 30.0 (g/mL) G

Lab File ID: D210

Moisture: 1. decanted: (Y/N) N

Date Received: 06/02/95

xtraction: (SepF/Cont/Sonc) SONG

Date Extracted: 06/05/95

oncentrated Extract Volume: 5000.0 (uL)

Date Analyzed: 06/22/95

njection Volume: 1.0 (uL)

Dilution Factor: 1.0

PC Cleanup: (Y/N) Y

pH: 5.5

Sulfur Cleanup: (Y/N) Y

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.

COMPOUND

Q

319-84-6-----	ALPHA-BHC	1.7	U
319-85-7-----	BETA-BHC	1.7	U
319-86-8-----	DELTA-BHC	1.7	U
58-89-9-----	GAMMA-BHC	1.7	U
76-44-8-----	HEPTACHLOR	1.7	U
309-00-2-----	ALDRIN	.47	J P
1024-57-3-----	HEPTACHLOR EPOXIDE	1.7	U
959-98-8-----	ENDOSULFAN I	1.7	U
60-57-1-----	DIELDRIN	1.7	J P
72-55-9-----	4,4'-DDE	.85	J P
72-20-8-----	ENDRIN	.68	J P
33213-65-9-----	ENDOSULFAN II	1.1	J
72-54-8-----	4,4'-DDD	1.1	J P
1031-07-8-----	ENDOSULFAN SULFATE	3.4	U
50-29-3-----	4,4'-DDT	2.1	J P
72-43-5-----	METHOXYCHLOR	1.9	J P
53494-70-5-----	ENDRIN KETONE	3.4	U
7421-93-4-----	ENDRIN ALDEHYDE	3.4	U
5103-71-9-----	ALPHA-CHLORDANE	1.7	U
5103-74-2-----	GAMMA-CHLORDANE	.66	J P
8001-35-2-----	TOXAPHENE	170.	U
12674-11-2-----	AROCLOR-1016	34.	U
11104-28-2-----	AROCLOR-1221	67.	U
11141-16-5-----	AROCLOR-1232	34.	U
53469-21-9-----	AROCLOR-1242	34.	U
12672-29-6-----	AROCLOR-1248	34.	U
11097-69-1-----	AROCLOR-1254	12.	J P
11096-82-5-----	AROCLOR-1260	34.	U

FORM I PEST

3/90

01450

10A
PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

UPSS37

Name: E3I

Contract:

b Code: E3I

Case No.: U.P.

SAS No.:

SDG No.: UPSS15

Sample ID: 951240-16

Date(s) Analyzed: 06/22/95 06/22/95

Instrument ID (1): H589 0A

Instrument ID (2): H589 0A

Column(1): DB608 ID: .53 (mm) GC Column(2): RTX1701 ID: .53 (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%D
			FROM	TO		
ALDRIN	1	12.30	12.24	12.34	17.	3520
	2	12.84	12.78	12.88	.47	
DIELDRIN	1	16.19	16.11	16.25	4.6	170.6
	2	16.88	16.86	17.00	1.7	
4,4'-DDE	1	15.92	15.85	15.99	.85	41.2
	2	16.43	16.34	16.48	1.2	
ENDRIN	1	17.40	17.26	17.40	1.7	150.0
	2	17.55	17.50	17.64	.68	
ENDOSULFAN II	1	17.91	17.82	17.96	1.2	9.1
	2	19.04	18.98	19.12	1.1	
4,4'-DDD	1	17.67	17.58	17.72	1.1	136.4
	2	18.76	18.74	18.88	2.6	
4,4'-DDT	1	18.59	18.51	18.65	8.2	290.5
	2	19.27	19.20	19.34	2.1	
METHOXYCHLOR	1	21.44	21.34	21.48	4.8	152.6
	2	21.16	21.10	21.24	1.9	

01592

E³ I FAX COVER SHEET

35 Medford Street
Somerville, MA
02143

P.O. Box 215
E. Cambridge, MA
02141

Fax No. 617-666-5802
Tele. No. 617-666-5500

DATE: 8/23/95 NUMBER OF PAGES: 22
(INCLUDING COVER)

TO: Judy Harry TITLE _____
NAME _____
Data Validation Services (518) 251-4429
COMPANY FAX NUMBER

FROM: Merry Condon
Energy & Environmental Engineering, Inc. (E3I)
FAX: 617-666-5802
SUBJECT: - internal chain of custody
- response to your data validation questions
was sent 8/22/95. I left a message

ADDITIONAL COMMENTS: to your answering machine yesterday
before I mailed them.

CONFIDENTIAL

This facsimile contains CONFIDENTIAL INFORMATION which also may be LEGALLY PRIVILEGED and which is intended only for the use of the parties named above. If you are not the intended recipient of this facsimile, or the person responsible for delivering it to the intended recipient, you are hereby notified that any dissemination or copying of this facsimile may be strictly prohibited. If you received this facsimile in error, please notify us immediately by telephone, and return the original facsimile to us at the above address via Postal Service. Thank you.

MINORITY BUSINESS ENTERPRISE

ESI SAMPLE CONTROL FORM

ESI SAMPLE ID #	FRIDGE	# PER SAMPLE IN	LOGGED BY	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED BY	DATE RETURNED
* * VOA1								
951236	1 A 8242	1	LMT	06/01/95	MG	6/2/95	MG	6/2/95
951236	2 A 8242	1	LMT	06/01/95				
951236	3 A 8242	1	LMT	06/01/95				
951236	4 A 8242	1	LMT	06/01/95				
951236	5 A 8242	1	LMT	06/01/95				
951236	6 A 8242	1	LMT	06/01/95				
951236	7 A 8242	1	LMT	06/01/95				
951236	8 A 8242	1	LMT	06/01/95				
951236	9 A 8242	1	LMT	06/01/95				
951236	10 A 8242	1	LMT	06/01/95				
951236	11 A 8242	1	LMT	06/01/95				
951236	12 A 8242	1	LMT	06/01/95				
951236	13 A 8242	1	LMT	06/01/95				
951236	14 A 8242	1	LMT	06/01/95				
951236	15 A 8242	1	LMT	06/01/95				

06/01/95
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E3I SAMPLE CONTROL FORM

E3I SAMPLE ID #	FRIDGE	# PER SAMPLE	LOGGED IN BY	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED BY	RETL
		LMT 6/1/95						
* * INORG1								
951236	1 D 8502	1	LMT	06/01/95	TN	06/07/95	TN	06/10/95
951236	2 D 8502	1	LMT	06/01/95				
951236	3 D 8502	1	LMT	06/01/95				
951236	4 D 8502	1	LMT	06/01/95				
951236	5 D 8502	1	LMT	06/01/95				
951236	6 D 8502	1	LMT	06/01/95				
951236	7 D 8502	1	LMT	06/01/95				
951236	8 D 8502	1	LMT	06/01/95				
951236	9 D 8502	1	LMT	06/01/95				
951236	10 D 8502	1	LMT	06/01/95				
951236	11 D 8502	1	LMT	06/01/95				
951236	12 D 8502	1	LMT	06/01/95				
951236	13 D 8502	1	LMT	06/01/95				
951236	14 D 8502	1	LMT	06/01/95				
951236	15 D 8502	1	LMT	06/01/95				
951236	1 D 8702	1	LMT	06/01/95	LG,	6/20/95	LG,	6/20/95

06/01/95

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E3I SAMPLE CONTROL FORM

E3I SAMPLE ID #	FRIDGE	# PER SAMPLE IN	LOGGED BY	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED BY	DATE RETURN
* * INORG1								
951236	2 E	8702	1	LMT	06/01/95	MN	6/12/95	L.G. 0/20,
951236	3 E	8702	1	LMT	06/01/95			
951236	4 E	8702	1	LMT	06/01/95			
951236	5 E	8702	1	LMT	06/01/95			
951236	6 E	8702	1	LMT	06/01/95			
951236	7 E	8702	1	LMT	06/01/95			
951236	8 E	8702	1	LMT	06/01/95			
951236	9 E	8702	1	LMT	06/01/95			
951236	10 E	8702	1	LMT	06/01/95			
951236	11 E	8702	1	LMT	06/01/95			
951236	12 E	8702	1	LMT	06/01/95			
951236	13 E	8702	1	LMT	06/01/95			
951236	14 E	8702	1	LMT	06/01/95			
951236	15 E	8702	1	LMT	06/01/95			

ESI SAMPLE CONTROL FORM

ESI SAMPLE ID #	FRIDGE	# PER SAMPLE	LOGGED IN BY	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED DA BY	RETURN	
* * CLP1									
951236	2 B	8252	1	LMT	06/01/95	MF	6/3/95 6/2/95	MF	6/3/95 6/2/95
951236	3 B	8252	1	LMT	06/01/95				
951236	4 B	8252	1	LMT	06/01/95				
951236	5 B	8252	1	LMT	06/01/95				
951236	6 B	8252	1	LMT	06/01/95				
951236	7 B	8252	1	LMT	06/01/95				
951236	8 B	8252	1	LMT	06/01/95				
951236	9 B	8252	1	LMT	06/01/95				
951236	10 B	8252	1	LMT	06/01/95				
951236	11 B	8252	1	LMT	06/01/95				
951236	12 B	8252	1	LMT	06/01/95				
951236	13 B	8252	1	LMT	06/01/95				
951236	14 B	8252	1	LMT	06/01/95				
951236	15 B	8252	1	LMT	06/01/95				

06/01/95

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ESI SAMPLE CONTROL FORM

ESI SAMPLE ID #	FRIDGE	# PER SAMPLE	LOGGED (IN BY)	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED BY	DATE RETURN
* * CLIP1								
951236	1 C	8082	1	LMT	06/01/95	mf	6/2/95	mf 6/3/95
951236	2 C	8082	1	LMT	06/01/95			
951236	3 C	8082	1	LMT	06/01/95			
951236	4 C	8082	1	LMT	06/01/95			
951236	5 C	8082	1	LMT	06/01/95			
951236	6 C	8082	1	LMT	06/01/95			
951236	7 C	8082	1	LMT	06/01/95			
951236	8 C	8082	1	LMT	06/01/95			
951236	9 C	8082	1	LMT	06/01/95			
951236	10 C	8082	1	LMT	06/01/95			
951236	11 C	8082	1	LMT	06/01/95			
951236	12 C	8082	1	LMT	06/01/95			
951236	13 C	8082	1	LMT	06/01/95			
951236	14 C	8082	1	LMT	06/01/95			
951236	15 C	8082	1	LMT	06/01/95			
951236	1 B	8082	1	LMT	06/01/95			

LMT
6/1/95

mf

6/2/95

mf

6/3/95

06/02/95

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E3I SAMPLE CONTROL FORM

E3I SAMPLE ID #	BRIDGE	# PER SAMPLE IN	LOGGED BY	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED BY	DATE RETURNED
LMT 6/4/95 MG 6/08/95 MG 6/08/95								
• • VOA1								
951240	1 A 8242	1	LMT	06/02/95				
951240	2 A 8242	1	LMT	06/02/95				
951240	3 A 8242	1	LMT	06/02/95				
951240	4 A 8242	1	LMT	06/02/95				
951240	5 A 8242	1	LMT	06/02/95				
951240	6 A 8242	1	LMT	06/02/95				
951240	7 A 8242	1	LMT	06/02/95				
951240	8 A 8242	1	LMT	06/02/95				
951240	9 A 8242	1	LMT	06/02/95				
951240	10 A 8242	1	LMT	06/02/95				
951240	11 A 8242	1	LMT	06/02/95				
951240	12 A 8242	1	LMT	06/02/95				
951240	13 A 8242	1	LMT	06/02/95				
951240	14 A 8242	1	LMT	06/02/95				
951240	15 A 8242	1	LMT	06/02/95				
951240	16 A 8242	1	LMT	06/02/95				

06/02/95
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E3I SAMPLE CONTROL FORM

E3I SAMPLE ID #	FRIDGE	# PER SAMPLE IN	LOGGED BY	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED BY	DATE RETURNED
• • CLP2		LMT 6/2/95						
951240	1 B	0252	1	LMT	06/02/95	KP	6/5/95	KP 6/5/95
951240	2 B	0252	1	LMT	06/02/95			
951240	3 B	0252	1	LMT	06/02/95			
951240	4 B	0252	1	LMT	06/02/95			
951240	5 B	0252	1	LMT	06/02/95			
951240	6 B	0252	1	LMT	06/02/95			
951240	7 B	0252	1	LMT	06/02/95			
951240	8 B	0252	1	LMT	06/02/95			
951240	9 B	0252	1	LMT	06/02/95			
951240	10 B	0252	1	LMT	06/02/95			
951240	11 B	0252	1	LMT	06/02/95			
951240	12 B	0252	1	LMT	06/02/95			
951240	13 B	0252	1	LMT	06/02/95			
951240	14 B	0252	1	LMT	06/02/95			
951240	15 B	0252	1	LMT	06/02/95			
951240	16 B	0252	1	LMT	06/02/95			

06/02/95
PAGE 1

E31 SAMPLE CONTROL FORM

E31 SAMPLE ID #	FRIDGE	# PER SAMPLE	LOGGED IN BY	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED BY	DATE RETURNED
• • CLP?								
951240	1 C	8082	1	LMT	06/02/95	KP	6/5/95	KP 6/5/95
951240	2 C	8082	1	LMT	06/02/95			
951240	3 C	8082	1	LMT	06/02/95			
951240	4 C	8082	1	LMT	06/02/95			
951240	5 C	8082	1	LMT	06/02/95			
951240	6 C	8082	1	LMT	06/02/95			
951240	7 C	8082	1	LMT	06/02/95			
951240	8 C	8082	1	LMT	06/02/95			
951240	9 C	8082	1	LMT	06/02/95			
951240	10 C	8082	1	LMT	06/02/95			
951240	11 C	8082	1	LMT	06/02/95			
951240	12 C	8082	1	LMT	06/02/95			
951240	13 C	8082	1	LMT	06/02/95			
951240	14 C	8082	1	LMT	06/02/95			
951240	15 C	8082	1	LMT	06/02/95			
951240	16 C	8082	1	LMT	06/02/95			

06/02/95

PAGE 1

E31 SAMPLE CONTROL FORM

E31 SAMPLE ID	# PER FRIDGE	LOGGED DATE	REMOVED BY	DATE REMOVED	RETURNED DATE	DATE RETURNED
951240	1 D	8502	1 LMT	06/02/95	TN	06/07/95
951240	2 D	8507	1 LMT	06/02/95	TN	06/10/95
951240	3 D	8502	1 LMT	06/02/95		
951240	4 D	8502	1 LMT	06/02/95		
951240	5 D	8507	1 LMT	06/02/95		
951240	6 D	8502	1 LMT	06/02/95		
951240	7 D	8502	1 LMT	06/02/95		
951240	8 D	8507	1 LMT	06/02/95		
951240	9 D	8502	1 LMT	06/02/95		
951240	10 D	8502	1 LMT	06/02/95		
951240	11 D	8502	1 LMT	06/02/95		
951240	12 D	8502	1 LMT	06/02/95		
951240	13 D	8502	1 LMT	06/02/95		
951240	14 D	8502	1 LMT	06/02/95		
951240	15 D	8502	1 LMT	06/02/95		
951240	16 D	8502	1 LMT	06/07/95		

06/02/06
PAGE 2

E3I SAMPLE CONTROL FORM

E3I
SAMPLE ID # FRIDGE # PER LOGGED DATE
SAMPLE IN BY RECEIVED

REMOVED DATE RETURNED DATE
BY REMOVED BY RETURNED

* * INORG1

951240 1 E 8702 1 LMT 06/02/95

951240 2 E 8702 1 LMT 06/02/95

951240 3 E 8702 1 LMT 06/02/95

951240 4 E 8702 1 LMT 06/02/95

951240 5 L 8702 1 LMT 06/02/95

951240 6 E 8702 1 LMT 06/02/95

951240 7 E 8702 1 LMT 06/02/95

951240 8 F 8702 1 LMT 06/02/95

951240 9 E 8702 1 LMT 06/02/95

951240 10 E 8702 1 LMT 06/02/95

951240 11 F 8702 1 LMT 06/02/95

951240 12 F 8702 1 LMT 06/02/95

951240 13 E 8702 1 LMT 06/02/95

951240 14 E 8702 1 LMT 06/02/95

951240 15 L 8702 1 LMT 06/02/95

951240 16 E 8702 1 LMT 06/02/95

TUB 6/13/95 TUB 6/13/95

06/05/95
PAGE 1

E3I SAMPLE CONTROL FORM

E3I SAMPLE ID #	FRIDGE	# PER SAMPLE IN	LOGGED BY	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED BY	DATE RETURNED	
• • VOA1									
951250	10 A	8241	2	LMT	06/03/95	MC	6/09/95	MC	6/09/95
951250	11 A	8241	2	LMT	06/03/95				
951250	1 A	8242	1	LMT	06/03/95				
951250	2 A	8242	1	LMT	06/03/95				
951250	3 A	8242	1	LMT	06/03/95				
951250	4 A	8242	1	LMT	06/03/95				
951250	5 A	8242	1	LMT	06/03/95				
951250	6 A	8242	1	LMT	06/03/95				
951250	7 A	8242	1	LMT	06/03/95				
951250	8 A	8242	1	LMT	06/03/95				
951250	9 A	8242	1	LMT	06/03/95				

06/05/95
PAGE 1

ESI SAMPLE CONTROL FORM

E31	#	PER	LOGGED	DATE	REMOVED	DATE	RETURNED	DATE
SAMPLE ID #	FRIDGE	SAMPLE	IN	BY	RECEIVED	BY	REMOVED	BY
* * CLP2								
951250	10 C	8001	2	LMT	06/03/95	AM S	6-6-95	6-6-95
951250	1 C	8002	1	LMT	06/03/95			
951250	2 C	8002	1	LMT	06/03/95			
951250	3 C	8002	1	LMT	06/03/95			
951250	4 C	8002	1	LMT	06/03/95			
951250	5 C	8002	1	LMT	06/03/95			
951250	6 C	8002	1	LMT	06/03/95			
951250	7 C	8002	1	LMT	06/03/95			
951250	8 C	8002	1	LMT	06/03/95			
951250	8 C	8002	1	LMT	06/03/95			
951250	10 B	8251	2	LMT	06/03/95	KP	6-6-95	6-6-95
951250	1 B	8252	1	LMT	06/03/95			
951250	2 B	8252	1	LMT	06/03/95			
951250	3 B	8252	1	LMT	06/03/95			
951250	4 B	8252	1	LMT	06/03/95			
951250	5 B	8252	1	LMT	06/03/95			

06/05/95

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E3I SAMPLE CONTROL FORM

E3I SAMPLE ID #	FRIDGE	# PER SAMPLE IN	LOGGED BY	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED DATE BY	RETURNED DATE	
* * CLP2									
951250	6 B	8252	1	LMT	06/03/95	hms	6-6-95	hms	6-6-95
951250	7 B	8252	1	LMT	06/03/95				
951250	8 B	8252	1	LMT	06/03/95				
951250	9 B	8252	1	LMT	06/03/95				

06/05/95
PAGE 1

E31 SAMPLE CONTROL FORM

E31 SAMPLE ID #	FRIDGE	# PER SAMPLE	LOGGED IN BY	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED BY	DATE RETURNED
LMT 6/5/95								
* INORG1								
951250	10 D	8501	1	LMT	06/03/95	TN	06/07/95	TN INORG
951250	1 D	8502	1	LMT	06/03/95	TN	06/12/95	TN 06/13/95
951250	2 D	8502	1	LMT	06/03/95			
951250	3 D	8502	1	LMT	06/03/95			
951250	4 D	8502	1	LMT	06/03/95			
951250	5 D	8502	1	LMT	06/03/95			
951250	6 D	8502	1	LMT	06/03/95			
951250	7 D	8502	1	LMT	06/03/95			
951250	8 D	8502	1	LMT	06/03/95			
951250	9 D	8502	1	LMT	06/03/95			
951250	10 E	8701	1	LMT	06/03/95	MN	6/14/95	
951250	1 E	8702	1	LMT	06/03/95		L.G.	6/20/95
951250	2 E	8702	1	LMT	06/03/95			
951250	3 E	8702	1	LMT	06/03/95			
951250	4 E	8702	1	LMT	06/03/95			
951250	5 E	8702	1	LMT	06/03/95			

06/05/95
PAGE 2

E31 SAMPLE CONTROL FORM

E31 SAMPLE ID #	FRIDGE	# PER SAMPLE IN	LOGGED BY	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED DATE BY	DATE RETURNED
* * INORG1								
951250	6 E	8702	1	LMT	06/03/95	MM	6/14/95	L.G. 6-20-95
951250	7 E	8702	1	LMT	06/03/95			
951250	8 E	8702	1	LMT	06/03/95			
951250	9 E	8702	1	LMT	06/03/95			

06/16/95
PAGE 2

E3I SAMPLE CONTROL FORM

E3I SAMPLE ID #	FRIDGE	# PER SAMPLE IN	LOGGED BY	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED BY	DATE RETURNED
* * INORG1								
951311	16 A	8502	1	LMT	06/16/95	TN	06/23/95	TN 06/26/95
951311	1 B	8701	1	LMT	06/16/95	TNB	06/27/95	TNB 06/27/95
951311	2 B	8701	1	LMT	06/16/95			
951311	3 B	8701	3	LMT	06/16/95			
951311	5 B	8702	1	LMT	06/16/95			
951311	6 B	8702	1	LMT	06/16/95			
951311	7 B	8702	1	LMT	06/16/95			
951311	8 B	8702	1	LMT	06/16/95			
951311	9 B	8702	1	LMT	06/16/95			
951311	10 B	8702	1	LMT	06/16/95			
951311	11 B	8702	1	LMT	06/16/95			
951311	12 B	8702	1	LMT	06/16/95			
951311	13 B	8702	1	LMT	06/16/95			
951311	14 B	8702	1	LMT	06/16/95			
951311	15 B	8702	1	LMT	06/16/95			
951311	16 B	8702	1	LMT	06/16/95			

06/16/95
PAGE 1

E3I SAMPLE CONTROL FORM

E3I SAMPLE ID #	FRIDGE	# PER SAMPLE IN	LOGGED BY	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED BY	DATE RETURNED
* * INORG1								
951311	4 B	6525	1 LMT	06/16/95	TN	06/22/95	TN	INORG
951311	8 D	6525	1 LMT	06/16/95	↓	↓	↓	↓
951311	1 A	8501	1 LMT	06/16/95	TN	06/27/95	TN	INORG
951311	2 A	8501	1 LMT	06/16/95	↓	↓	↓	↓
951311	3 A	8501	3 LMT	06/16/95	↓	↓	↓	↓
951311	5 A	8502	1 LMT	06/16/95	TN	06/23/95	TN	06/26/95
951311	6 A	8502	1 LMT	06/16/95	↓	↓	↓	↓
951311	7 A	8502	1 LMT	06/16/95	↓	↓	↓	↓
951311	8 A	8502	1 LMT	06/16/95	↓	↓	↓	↓
951311	9 A	8502	1 LMT	06/16/95	↓	↓	↓	↓
951311	10 A	8502	1 LMT	06/16/95	↓	↓	↓	↓
951311	11 A	8502	1 LMT	06/16/95	↓	↓	↓	↓
951311	12 A	8502	1 LMT	06/16/95	↓	↓	↓	↓
951311	13 A	8502	1 LMT	06/16/95	↓	↓	↓	↓
951311	14 A	8502	1 LMT	06/16/95	↓	↓	↓	↓
951311	15 A	8502	1 LMT	06/16/95	↓	↓	↓	↓

06/15/95

PAGE 2

E3I SAMPLE CONTROL FORM

E3I SAMPLE ID #	FRIDGE	# PER SAMPLE IN	LOGGED BY	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED BY	DATE RETURNED
1 * INDRGI								
061302	8 8	8702	U	LMT 06/15/95	DN	7/12	DN	7/12

06/15/95
PAGE 1

E3I SAMPLE CONTROL FORM

E3I SAMPLE ID #	FRIDGE	# PER SAMPLE IN	LOGGED BY	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED BY	DATE RETURNED
<i>UHT 6/15/95</i>								
* * INORG								
951302	5 D	6525	1	LMT	06/15/95	TN	06/22/95	TN INORG
951302	1 A	8501	1	LMT	06/15/95	TN	06/20/95	TN INORG
951302	2 A	8501	1	LMT	06/15/95	↓	↓	↓
951302	3 A	8501	1	LMT	06/15/95	↓	↓	↓
951302	4 A	8501	1	LMT	06/15/95	↓	↓	↓
951302	5 D	8502	1	LMT	06/15/95	TN	06/21/95	TN 06/22/95
951302	6 A	8502	2	LMT	06/15/95	↓	↓	↓
951302	7 A	8502	1	LMT	06/15/95	↓	↓	↓
951302	8 A	8502	1	LMT	06/15/95	↓	↓	↓
951302	1 B	8701	1	LMT	06/15/95			
951302	2 B	8701	1	LMT	06/15/95			
951302	3 B	8701	1	LMT	06/15/95			
951302	4 B	8701	1	LMT	06/15/95			
951302	5 D	8702	1	LMT	06/15/95	DN	7/12	DN 7/12
951302	6 B	8702	2	LMT	06/15/95	DN	7/12	DN 7/12
951302	7 B	8702	1	LMT	06/15/95	↓	↓	↓

06/20/95

PAGE 1

E3I SAMPLE CONTROL FORM

E3I	# PER	LOGGED	DATE	REMOVED	DATE	RETURNED	DATE
SAMPLE ID #	FRIDGE	SAMPLE IN BY	RECEIVED	BY	REMOVED	BY	RETURNED
* * CLP2							
951302	5 C	7010	1	LMT	06/15/95	CB	6/19/95

06/16/95

PAGE 1

E31 SAMPLE CONTROL FORM

E31 SAMPLE ID #	FRIDGE	# PER SAMPLE IN	LOGGED BY	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED BY	DATE RETURNED

• • CLP2

051311	4 A	7010	1	LMT	06/16/95			

051311	8 C	7010	1	LMT	06/16/95			

SDG NARRATIVE

LAB NAME: E3I Environmental Laboratory

CASE NO.: United Plating

SDG: UPSS01

E3I Project: 951236

Statement of Work: These results are in accordance with NYSDEC ASP 12/91. These results are reported according to ASP Superfund Category "B".

SAMPLE NO.: UPSS01, UPSS02, UPSS03, UPSS04, UPSS05, UPSS06, UPSS07, UPSS08, UPSS09, UPSS10, UPSS11, UPSS12, UPSS13, UPSS14, UPSS19

Sample IDs: Due to software limitations, it was necessary to eliminate the dashes from the sample IDs.

Volatile Organics:

The results of two analyses are reported for samples UPSS01, UPSS02 and UPSS03 to demonstrate matrix effect on internal standards. The initial analysis of sample UPSS03 contained one surrogate outside the QC limit. In the reanalysis all the surrogates are within the QC limit.

Two analyses are reported for samples UPSS05, UPSS13 and UPSS19 to demonstrate matrix effect on internal standard areas. Reanalyses were performed outside of holding time.

Reanalyses do not always contain the target compounds present in the initial analyses. These are attributed to the heterogeneity of the soil samples.

The initial analyses of samples UPSS04, UPSS06 and UPSS07 had low internal standard areas. These samples were reanalyzed after holding time with acceptable internal standard areas. Only the reanalyses are reported.

It is noted that Bromomethane has >40% D in the continuing calibrations for Elmer on 6/9/95 and 6/12/95. The minimum RF requirements were met. Bromomethane was not found in any of the samples.

The following method blanks contain one or more nontarget compounds:

<u>Lab ID</u>	<u>Instrument</u>	<u>Date</u>	<u>Number of TICs</u>
VLKS061	Floyd	6/06/95	2
VLKS071	Floyd	6/07/95	3
VLKS08B	Elmer	6/08/95	1
VLKS09A	Elmer	6/09/95	1
VLKS091	Floyd	6/09/95	1
VLKS12A	Elmer	6/12/95	1
VLKS121	Floyd	6/12/95	1

Semivolatile Organics:

Samples UPSS02, UPSS06, UPSS07 and UPSS14 were analyzed at 1:2 dilutions due to the high concentrations of target compounds.

Sample UPSS08 was analyzed at a 1:10 dilution due to the high concentrations of target compounds.

Sample UPSS03 was analyzed at a 1:5 dilution due to the high concentrations of target compounds.

Sample UPSS13 was analyzed at a 1:5 dilution due to the high concentrations of nontarget compounds.

The results of two analyses are reported for sample UPSS12. In the initial analysis within the extraction holding time, all the surrogates have < 10 % recoveries. The sample analyzed outside of the extraction holding time have surrogate recoveries within the QC limit.

It is acknowledged that the method blank SBLKS032 contains two nontarget compounds.

It is acknowledged that the method blank SBLKS141 contains eight nontarget compounds.

The MS/MSD was assigned to sample UPSS01 instead of UPSS09. The client was notified.

The Matrix spike blank SS0603SB2 contains two nontarget compounds.

The %D of Bis(2-chloroethyl)ether in the continuing calibrations dated 6/23/95 and 6/24/95 on the instrument Pokey were 54.5% and 65.7% respectively. This compound was not found in any of the samples.

Pesticides/PCBs: A "Q" on a chromatogram indicates the peaks used to quantitate an aroclor and toxaphene.

Sample UPSS09 was analyzed at a 1:3 dilution due to the high concentrations of target compounds.

Recovery of the surrogate TCX is outside the advisory QC limit on the DB608 column for the following: UPSS02, UPSS05, UPSS06, UPSS07, UPSS09, UPSS10, UPSS11, UPSS12, UPSS13, UPSS14 and UPSS19.

Recovery of the surrogate TCX is outside the advisory QC limit on the RTX1701 column for the following: UPSS07, UPSS10, UPSS11, UPSS13, UPSS14 and UPSS19.

Recovery of the surrogate DCB is outside the advisory QC limit on the RTX1701 column for sample UPSS14.

The MS/MSD was assigned to sample UPSS01 instead of UPSS09.

For the analytical sequence on the DB608 column:

- PEMD7 - endrin breakdown >20%
- PEMD9 - endrin breakdown >20%
- INDAM-12 - methoxychlor has >25% RPD

For the analytical sequence on the RTX1701 column:

- PEM1 - endrin breakdown >20%; 4,4'-DDT has >25% RPD
- PEM11 - 4,4'-DDT has >25% RPD
- PEM17 - 4,4'-DDT has >25% RPD; endrin breakdown is >20%
- PEM19 - 4,4'-DDT has >25% RPD; endrin breakdown is >20%
- INDAM-10 - endrin has >25% RPD
- INDBM-12 - Delta BHC has >25% RPD

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature."

Mervelina Saturno-Condon
Mervelina Saturno-Condon
Project Manager

July 6, 1995

SDG NARRATIVE

Statement of Work: These results are in accordance with NYSDEC ASP 12/91.

Comments: All holding time and QC requirements were met with the following exceptions:

All mercury samples were analyzed past holding times, as our mercury instrument was inoperable at the time. However, all mercury samples were digested within holding times with the exceptions of UPSS5 and UPSS6.

When cyanide was initially run for these samples, several CCV's were out, and several CCB's were not run. It was therefore necessary to run these samples outside the 12 day holding time; however, they were run within 14 days from sampling.

The client requested a spike and spike duplicate to be done, which was done for all metals save mercury and cyanide. Because there is no duplicate (other than for mercury and cyanide), no "✓" qualifier could be generated, and there is no possibility for such qualifiers on the Form 1's (other than for mercury and cyanide).

It was necessary to shorten some of the client sample ID's, as they exceeded the ASP six-character limit.

Qualifier Definitions:

- B - Reported value obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).
- U - The value recorded by the instrument was less than the Instrument Detection Limit (IDL).
- E - The reported value is estimated because of the presence of interference.
- N - Spiked sample recovery not within control limits.
- * - Duplicate analysis not within control limits.

Description of Instrumentation:

1. ICP:

Leeman Labs PS-1000AT

No significant modifications.

Operating conditions:

RF Power: 1200W

Coolant gas: 17lpm

Auxiliary gas: 0.6lpm

Nebulizer gas: 59 psi pressure

Wavelengths used:

Al 396.2nm

217.6

As 193.7

Ba 455.4

Be 313.0

Cd 214.4

Ca 317.9

Cr 267.7

Co 228.6

Cu 324.7

Tl 190.8

Pb 220.3

Fe 263.1

Mg 279.1

Mn 257.6

Ni 231.6

K 766.4

Se 196.0

Ag 328.1

Na 589.6

V 292.4

Zn 206.2

Calibration Standards:

Mixed (for ICP) and single element calibration standards were made up as described in our Standards Logs from 1000ppm stock solutions. Specific sources are given in tables at the end of this narrative.

Initial and continuing calibration verification standards used were produced in-house from stock standards other than those used to prepare the standardization solutions.

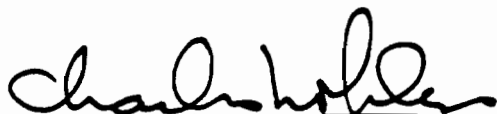
Laboratory Control Samples:

The above ICV standards were used as Laboratory Control Samples for all aqueous samples. The soil Laboratory Control Sample was from ERA.

Interference Check Sample:

The Interference Check Samples A and AB were made up by us and tested in accordance with SOW ILM02.0.

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Signature


Date

SDG NARRATIVE

LAB NAME: E3I Environmental Laboratory

CASE NO.: United Plating

SDG: UPSS15

E3I Project: 951240

Statement of Work: These results are in accordance with NYSDEC ASP 12/91. These results are reported according to ASP Superfund Category "B".

SAMPLE NO.: UPSS15, UPSS16, UPSS17, UPSS18, UPSS20, UPSS21, UPSS22, UPSS23, UPSS24, UPSS27, UPSS32, UPSS33, UPSS34, UPSS35, UPSS36, UPSS37

Sample IDs: Due to software limitations, it was necessary to eliminate the dashes from the sample IDs.

Volatile Organics:

The results of two analyses are reported for sample UPSS33 to demonstrate matrix effect on internal standard.

It is noted that Bromomethane has >40% D in the continuing calibrations for Elmer on 6/9/95 and 6/12/95. The minimum RF requirements were met. Bromomethane was not found in any of the samples.

The following method blanks contain one or more nontarget compounds:

<u>Lab ID</u>	<u>Instrument</u>	<u>Date</u>	<u>Number of TICs</u>
VBLKS08B	Elmer	6/08/95	1
VBLKS08C	Elmer	6/09/95	1
VBLKS09A	Floyd	6/09/95	1
VBLKS091	Floyd	6/09/95	1

Semivolatile Organics:

Sample UPSS16 was analyzed at a 1:5 dilution due to the high concentrations of target compounds.

Samples UPSS32 and UPSS33 were analyzed at 1:2 dilutions due to the high concentrations of target compounds.

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Sample UPSS17 was analyzed at a 1:50 dilution due to the high concentrations of target compounds. Surrogates were diluted out. A medium level extraction of the sample a day outside of the extraction holding time is also reported.

The results of two analyses are reported for sample UPSS15. The initial analysis had most surrogates outside the QC limit and low concentrations of target compounds were detected due to the extract being blown down almost to dryness. The sample was reextracted seven days outside of holding time and reanalyzed at a 1:4 dilution due to the high concentrations of target compounds.

It is acknowledged that the method blank SBLKS052 contains two nontarget compounds.

It is acknowledged that the method blank SBLKS192 contains four nontarget compounds.

The Matrix spike blank SS0619SB2 contains two nontarget compounds.

The percent recovery of one spike compound is outside the QC limit in UPSS33MS.

The percent RPD of two spike compounds are outside the QC limit for the MS/MSD.

Sample UPSS33MS was lost during the GPC clean up. It was reextracted outside of the extraction holding time on 6/15/95 together with UPSS33MSD and MSB.

The %D of Bis(2-chloroethyl)ether in the continuing calibrations dated 6/23/95 and 6/24/95 on the instrument Pokey were 54.5% and 65.7% respectively. This compound was not found in any of the samples.

Pesticides/PCBs:

The following samples were analyzed at 1:3 dilutions due to the high concentrations of target compounds: UPSS32 and UPSS33.

For the sample UPSS33 MS/MSD, delta-BHC was outside the retention window on the DB608 column due to coelution with nontarget compounds.

The following samples were acid cleaned to quantitate for PCBs: UPSS15, UPSS18 and UPSS21.

Recovery of the surrogate TCX is outside the advisory QC limit on the RTX1701 column for sample UPSS17.

Recovery of the surrogate DCB is outside the advisory QC limit on the DB608 column for the following: UPSS20, UPSS18, UPSS15, UPSS16, UPSS17, UPSS23, UPSS33 MS/MSD, UPSS32 and UPSS33.

Recovery of the surrogate DCB is outside the advisory QC limit on the RTX1701 column for sample UPSS24.

For the analytical sequence on the DB608 column:

- PEMD7 - endrin breakdown >20%
- PEMD23 - 4,4'-DDT has >25% RPD
- PEMD25 - endrin breakdown >20%, combined breakdown >30%
- INDAMD12 - methoxychlor has >25% RPD
- PEMD17 - endrin breakdown >20%
- INDAMD18 - methoxychlor has >25% RPD

For the analytical sequence on the RTX1701 column:

- PEMI - endrin breakdown >20%; 4,4'-DDT has >25% RPD
- PEMI1 - 4,4'-DDT has >25% RPD
- PEMI7 - 4,4'-DDT has >25% RPD; endrin breakdown is >20%
- PEMI11 - 4,4'-DDT has >25% RPD
- PEMI13 - 4,4'-DDT has >25% RPD
- PEMI15 - 4,4'-DDT has >25% RPD
- PEMI23 - 4,4'-DDT has >25% RPD
- INDBMI12 - Delta-BHC has >25% RPD
- INDBMI14 - Delta BHC has >25% RPD
- INDAMI24 - 4,4'-DDT has >25% RPD
- PEMI25 - 4,4'-DDT has >25% RPD; endrin breakdown >20%; combined breakdown >30%
- PEMI17 - 4,4'-DDT has >25% RPD
- INDBMI18 - Delta-BHC has >25% RPD

It is noted that the PIBLK124 was analyzed after INDBM124.

For the sequence beginning 6/14/95, there is a misinjection of AR1232 on DB608.

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Mervelina Saturno-Condon
Project Manager

July 12, 1995

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SDG NARRATIVE

Statement of Work: These results are in accordance with NYSDEC ASP 12/91.

Comments: All holding time and QC requirements were met with the following exceptions:

All mercury samples were analyzed past holding times, as our mercury instrument was inoperable at the time. However, all mercury samples were digested within holding times.

Some CCB's for lead exceeded the CRDL. However, since all samples in that run had lead concentrations in excess of 100 times the highest CCB, they were not rerun.

The client requested a spike and spike duplicate to be done, which was done for all metals save mercury. Because there is no duplicate (other than for mercury), no "w" qualifier could be generated, and there is no possibility for such qualifiers on the Form 1's (other than for mercury).

Qualifier Definitions:

- B - Reported value obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).
- U - The value recorded by the instrument was less than the Instrument Detection Limit (IDL).
- E - The reported value is estimated because of the presence of interference.
- N - Spiked sample recovery not within control limits.
- * - Duplicate analysis not within control limits.

Description of Instrumentation:

1. ICP:

Leeman Labs PS-1000AT

No significant modifications.

Operating conditions:

RF Power: 1200W

Coolant gas: 17lpm

Auxiliary gas: 0.6lpm

Nebulizer gas: 59 psi pressure

Wavelengths used:

Al 396.2nm

Sb 217.6

As 193.7

Ba 455.4

Be 313.0

Cd 214.4

Ca 317.9

Cr 267.7

Co 228.6

Cu 324.7

Tl 190.8

Pb 220.3

Fe 263.1

Mg 279.1

Mn 257.6

Ni 231.6

K 766.4

Se 196.0

Ag 328.1

Na 589.6

V 292.4

Zn 206.2

Calibration Standards:

Mixed (for ICP) and single element calibration standards were made up as described in our Standards Logs from 1000ppm stock solutions. Specific sources are given in tables at the end of this narrative.

Initial and continuing calibration verification standards used were produced in-house from stock standards other than those used to prepare the standardization solutions.

Laboratory Control Samples:

The above ICV standards were used as Laboratory Control Samples for all aqueous samples. The soil Laboratory Control Sample was from ERA.

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Interference Check Sample:

The Interference Check Samples A and AB were made up by us and tested in accordance with SOW ILM02.0.

ICP Interelement Corrections: Interelement corrections. were done off-line after the raw data was generated. For this reason the raw data will not agree with the forms where interelement corrections have been applied. The data may be checked by applying the correction factor on Form 11 to the raw data. This is done by multiplying an experimentally determined factor (the value on Form 11) times the interferant concentration and then subtracting this product from the analyte concentration. This is done before any conversions to mg/kg for soil samples. This formula can be expressed as:

$$CA_{\text{corr}} = CA_{\text{raw}} - (CI * F),$$

where CA_{corr} is the concentration of the analyte corrected for the interference; CA_{raw} is the analyte concentration as it appears in the raw data (i. e., before correction); CI is the interferant concentration in that sample (from the raw data); and F is the factor for that interference, from Form 11. For the interference of Fe on As, for example, Fe is the interferant and Zn is the analyte. Multiple IEC's (e. g., Fe and Al on Se) are assumed to be simply additive. Once the decision to do a particular IEC is made, a computer routine is used which performs the above calculation on all samples where the correction (the product of the IEC factor and the interferant concentration) is both larger than the analyte IDL and larger than 0.5% of the analyte concentration.

The corrections applied and the samples involved are:

Correction	Samples Correction Applied To:
Fe on Se	all samples; LCSS; ICS stds.
Fe on As	all samples except UPSS18 & UPSS37; ICS stds.
Fe on Tl	all samples except UPSS15, UPSS18, UPSS20, UPSS35-37; ICS stds.
Fe on Pb	UPSS23, UPSS27, UPSS34; ICS stds.
Al on Se	UPSS15-17, UPSS23, UPSS24, UPSS27, UPSS32-34; ICS stds.
Al on Tl	UPSS23; ICS stds.
Al on Pb	as above
Ca on Sb	all samples except UPSS15-18 & UPSS33; ICS stds.
Ca on Cd	as above
Ca on Zn	all samples except UPSS15-18, UPSS23, UPSS32, UPSS33; ICS stds.

"I certify that this data package is in compliance with the terms and conditions of the Protocol, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

Charles Hollen

Signature

13 July 1995

Date

00005

SDG NARRATIVE

LAB NAME: E3I Environmental Laboratory

CASE NO.: United Plating

SDG: UPSS25

E3I Project: 951250

Statement of Work: These results are in accordance with NYSDEC ASP 12/91. These results are reported according to ASP Superfund Category "B".

SAMPLE NO.: UPSS25, UPSS26, UPSS28, UPSS29, UPSS30, UPSS31, UPSS38, UPSS39, UPSS40, UPBL03, UPFB06.

Sample IDs: Due to software limitations, it was necessary to eliminate the dashes from the sample IDs.

Volatile Organics:

The results of two analyses were reported for samples UPSS26, UPSS30 and UPSS31 to demonstrate matrix effect on internal standard.

It is noted that Bromomethane has >40% D in the continuing calibrations for Elmer on 6/9/95. The minimum RF requirements were met. Bromomethane was not found in any of the samples.

The following method blanks contain one or more nontarget compounds:

<u>Lab ID</u>	<u>Instrument</u>	<u>Date</u>	<u>Number of TICs</u>
VBLKS09A	Floyd	6/09/95	1
VBLKS091	Floyd	6/09/95	1

Semivolatile Organics:

Sample UPSS31 was analyzed at a 1:2 dilution due to the high concentrations of target compounds.

It is acknowledged that the method blank SBLKW062 contains five nontarget compounds.

It is acknowledged that the method blank SBLKS062 contains two nontarget compounds.

The %D of Bis(2-chloroethyl)ether in the continuing calibrations dated 6/23/95 and 6/24/95 on the instrument Pokey were 54.5% and 65.7% respectively. This compound was not found in any of the samples.

Pesticides/PCBs:

The following samples were acid cleaned to quantitate for PCBs: UPSS25, UPSS28, UPSS30, UPSS31, UPSS38 and UPSS40.

Recovery of the surrogate TCX is outside the advisory QC limit on the RTX1701 column for sample UPSS38.

Recovery of the surrogate TCX is outside the advisory QC limit on the DB608 column for sample UPSS38.

Recovery of the surrogate DCB is outside the advisory QC limit on the DB608 column for sample UPSS28.

For the analytical sequence on the DB608 column:

- PEMD7 - endrin breakdown >20%
- PEMD17 - endrin breakdown >20%
- PEMD20 - endrin breakdown >20%
- PEMD22 - endrin breakdown >20%, combined breakdown >30%, 4,4'-DDT has >25% RPD, methoxychlor has >25% RPD
- PEMD23 - 4,4'-DDT has >25% RPD
- PEMD25 - endrin breakdown >20%, combined breakdown >30%

For the analytical sequence on the RTX1701 column:

- PEMI - endrin breakdown >20%; 4,4'-DDT has >25% RPD
- PEMI1 - 4,4'-DDT has >25% RPD
- PEMI7 - 4,4'-DDT has >25% RPD; endrin breakdown is >20%
- PEMI15 - 4,4'-DDT has >25% RPD
- PEMI17 - 4,4'-DDT has >25% RPD
- PEMI18 - 4,4'-DDT has >25% RPD
- PEMI20 - 4,4'-DDT has >25% RPD; endrin breakdown >20%; combined breakdown >30%
- PEMI22 - 4,4'-DDT has >25% RPD; endrin breakdown >20%; combined breakdown >30%
- PEMI23 - 4,4'-DDT has >25% RPD
- PEMI25 - 4,4'-DDT has >25% RPD; endrin breakdown >20%; combined breakdown >30%
- INDBMI18 - Delta-BHC has >25% RPD
- INDAMI19 - 4,4'-DDT has >25% RPD
- INDAMI21 - Delta BHC has >25% RPD; 4,4'-DDT has >25% RPD
- INDAMI24 - 4,4'-DDT has >25% RPD
- INDAMI26 - 4,4'-DDT has >25% RPD

INDAMI24 was analyzed out of the sequence.

AR1232D had misinjection and was analyzed at the end of ICAL.

00002

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature."

Mervelina Saturno-Condon

Mervelina Saturno-Condon
Project Manager

July 24, 1995

SDG NARRATIVE

Statement of Work: These results are in accordance with NYSDEC ASP 12/91.

Comments: All holding time and QC requirements were met with the following exceptions:

No matrix spike or duplicate were requested for the single aqueous sample in this case (a field blank), and none were generated or analyzed. Therefore there is no possibility for the appropriate qualifiers on the Form 1's for this sample.

Qualifier Definitions:

- B - Reported value obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).
- U - The value recorded by the instrument was less than the Instrument Detection Limit (IDL).
- E - The reported value is estimated because of the presence of interference.
- N - Spiked sample recovery not within control limits.
- * - Duplicate analysis not within control limits.

Description of Instrumentation:

1. ICP:

Leeman Labs PS-1000AT

No significant modifications.

Operating conditions:

RF Power: 1200W

Coolant gas: 17lpm

Auxiliary gas: 0.6lpm

Nebulizer gas: 59 psi pressure

Wavelengths used:

Al 396.2nm	Pb 220.3
Sb 217.6	Fe 263.1
As 193.7	Mg 279.1
Ba 455.4	Mn 257.6
Be 313.0	Ni 231.6
Cd 214.4	K 766.4
Ca 317.9	Se 196.0
Cr 267.7	Ag 328.1
Co 228.6	Na 589.6
Cu 324.7	V 292.4
Tl 190.8	Zn 206.2

Calibration Standards:

Mixed (for ICP) and single element calibration standards were made up as described in our Standards Logs from 1000ppm stock solutions. Specific sources are given in tables at the end of this narrative.

Initial and continuing calibration verification standards used were produced in-house from stock standards other than those used to prepare the standardization solutions.

Laboratory Control Samples:

The above ICV standards were used as Laboratory Control Samples for all aqueous samples. The soil Laboratory Control Sample was from ERA.

Interference Check Sample:

The Interference Check Samples A and AB were made up by us and tested in accordance with SOW ILM02.0.

ICP Interelement Corrections: Interelement corrections. were done off-line after the raw data was generated. For this reason the raw data will not agree with the forms where interelement corrections have been applied. The data may be checked by applying the correction factor on Form 11 to the raw data. This is done by multiplying an experimentally determined factor (the value on Form 11) times the interferant concentration and then subtracting this product from the analyte concentration. This is done before any conversions to mg/kg for soil samples. This formula can be expressed as:

$$CA_{\text{corr}} = CA_{\text{raw}} - (CI * F),$$

where CA_{corr} is the concentration of the analyte corrected for the interference; CA_{raw} is the analyte concentration as it appears in the raw data (i. e., before correction); CI is the interferant concentration in that sample (from the raw data); and F is the factor for that interference, from Form 11. For the interference of Fe on As, for example, Fe is the interferant and Zn is the analyte. Multiple IEC's (e. g., Fe and Al on Se) are assumed to be simply additive. Once the decision to do a particular IEC is made, a computer routine is used which performs the above calculation on all samples where the correction (the product of the IEC factor and the interferant concentration) is both larger than the analyte IDL and larger than 0.5% of the analyte concentration.

The corrections applied and the samples involved are:

Correction	Samples Correction Applied To:
Fe on Se	all soil samples; LCSS; ICS stds.
Fe on Tl	as above
Fe on As	all soil samples except UPSS26; ICS stds.
Fe on Pb	all soil samples except UPSS26, UPSS28, UPSS31, & UPSS38; ICS stds.
Al on Se	as above
Al on Pb	as above
Al on Tl	ICS stds.
Al on As	as above
Ca on Sb	all samples except UPSS29, UPSS30, & UPSS40; ICS stds.

"I certify that this data package is in compliance with the terms and conditions of the Protocol, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

Charles Wohler

Signature

24 July 1995

Date

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY VOLATILE (VOA) ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd at Lab	Date Extracted	Date Analyzed	
951236-1	Soil	5-31-95	6-1-95	N.A.	6-6-95	6-7-9
-2					6-6-95	6-7-
-3					6-6-95	6-7-
-4					6-9-95	
-5					6-7-95	6-9-
-6					6-9-95	
-7					6-12-95	
-8					6-8-95	
-9	-				6-6-95	
-10					6-8-95	
-11					6-8-95	
-12					6-8-95	
-13					6-8-95	6-9-9
-14					6-8-95	
-15	↓	↓	↓	↓	6-8-95	6-12-

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
SEMIVOLATILE (BNA)
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Recd at Lab	Date Extracted	Date Analyzed
951236-1	SOIL	5/2/95	6/1/95	6/3/95	6/12/95
-2					6/13/95
-3					6/12/95
-4					
-5					✓
-6					6/13/95
-7					6/14/95
-8					6/13/95
-9					
-10					↓
-11					
-12				6/14/95	✓ 6/14/95
-13					10/14/95
-14					✓
-15	✓	✓	✓	✓	6/13/95

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY SEMIVOLATILE (BNA) ANALYSES

	Laboratory Sample ID	Matrix	Analytical Protocol	Extraction Method	Auxiliary Cleanup	Dil/Conc Factor
UP 501	951236-01	soil	91-2	sonication	GPC	1:1
02	951236-02					1:2
03	951236-03					1:5
04	951236-04					1:1
05	951236-05					1:1
06	951236-06					1:2
07	951236-07					1:2
08	951236-08					1:10
09	951236-09					1:1
10	951236-10					1:1
11	951236-11					1:1
12	951236-12					1:1
13	951236-13					1:5
14	951236-14					1:2
19	951236-15					
	951236-16	↓	↓	↓	↓	

007

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PESTICIDE/PCB
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd at Lab	Date Extracted	Date Analyzed
051236-1	Soil	5/31/95	6/1/95	6/3/95	6/18/95
-2					
-3					
-4					
-5					
-6					
-7					
-8					↓
-9					6/19/95
-10					6/19/95
-11					↓
-12					6/19/95
-13					↓
-14					6/18/95
-15	↓	↓	↓	↓	6/19/95

008

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY PESTICIDE/PCB ANALYSES

Laboratory Sample ID	Matrix	Analytical Protocol	Extraction Method	Auxiliary Cleanup	Dil/Conc Factor
951236-1	Soil	Modified	Mod 608/8000	Florisil	1:1
951236-2		Q1-3	Sonication	and GPC	
-3				and Sulfur	
-4					
-5					
-6					
-7					
-8					↓
-9	--				1:3
-10					1:1
-11					
-12					
-13					
-14					
-15	↓	↓	↓	↓	↓

009

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

006

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd at Lab	Date Extracted	Date Analyzed
951240-1	Soil	5-31-95	6-2-95	N/A	6-8-95
-2		6-1-95			
-3					
-4					
-5					
-6					
-7					
-8					
-9	-				
-10					
-11					↓
-12					6-9-95
-13					
-14					
-15					
-16	↓	↓	↓	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
SEMIVOLATILE (BNA)
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd at Lab	Date Extracted	Date Analyzed
951240-1	Soil	5-31-95	6-2-95	6-5-95	6-19-95
-2		6-1-95			6-16-95
-3					6-16-95
-4					6-19-95
-5					6-19-95
-6					6-19-95
-7					6-19-95
-8					6-19-95
-9					6-19-95
-10					6-19-95
-11					6-20-95
-12					6-24-95
-13					6-26-95
-14					6-24-95
-15					6-24-95
-16	✓	✓	✓	✓	6-24-95

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY SEMIVOLATILE (BNA) ANALYSES

Laboratory Sample ID	Matrix	Analytical Protocol	Extraction Method	Auxiliary Cleanup	Dil/Conc Factor
951240-1	Soil	qt 2	Sonication	GPC	1:1
-2					1:5
-3					1:50
-4					1:1
-5					
-6					
-7					
-8					
-9					
-10					↓
-11					1:2
-12					1:2
-13					1:1
-14					
-15					
-16	↓	↓	↓	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PESTICIDE/PCB
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd at Lab	Date Extracted	Date Analyzed
051240-1	Soil	6/5/95	6/21/95	6/5/95	6/20/95
-2		6/1/95		6/5/95	6/20/95
-3				6/5/95	6/20/95
-4				6/5/95	6/20/95
-5				6/5/95	6/20/95
-6				6/5/95	6/19/95
-7				6/5/95	6/20/95
-8				6/5/95	6/20/95
-9				6/5/95	6/20/95
-10				6/5/95	6/21/95
-11				6/5/95	6/26/95
-12				6/5/95	6/26/95
-13				6/5/95	6/26/95
-14				6/5/95	6/21/95
-15				6/5/95	6/21/95
-16	↓	↓	↓	6/5/95	6/22/95

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY

PESTICIDE/PCB

ANALYSES

Laboratory Sample ID	Matrix	Analytical Protocol	Extraction Method	Auxiliary Cleanup	Dil/Conc Factor
951240-1	Soil	91-3	Soils-Sonja		1:1
-2					
-3				GPC florisil	
-4				Sulfur	
-5					
-6					
-7					
-8					
-9	- -				
-10					↓
-11					1:3
-12					↓
-13					1:1
-14					↓
-15					↓
-16	↓	↓	↓	↓	↓

00 09

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

[illegible]

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

[illegible]

SAMPLE PREPARATION AND ANALYSIS SUMMARY

[illegible]

SAMPLE PREPARATION AND ANALYSIS SUMMARY

SEMIVOLATILE (BNA)

ANALYSES

[illegible]

000000

SAMPLE PREPARATION AND ANALYSIS SUMMARY SEMIVOLATILE (BNA) ANALYSES

[illegible]

00007

SAMPLE PREPARATION AND ANALYSIS SUMMARY PESTICIDE/PCB ANALYSES

[illegible]

ANALYSES

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

[illegible]

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

LAWLER, MATUSKY & SKELLY
ENGINEERS

SEP 08 1995

September 7, 1995

Maria Heincz
LMS Engineers
One Blue Hill Plaza
Pearl River, NY 10965

RE: Addendum to the Validation Report for United Plating Site Data Packages
E3I SDG Nos. UPSS01, UPSS15, and UPSS25

Dear Ms. Heincz:

As indicated in the validation report for the above-mentioned project, metals duplicate evaluations for SDGs UPSS01 and UPSS15 was not previously available. Additional data packages have since been received and reviewed. These packages consisted of digestion and analysis of one sample and a lab duplicate from each of the two SDGs. The samples used (UPSS09 and UPSS33) are those for which matrix spike evaluation was performed in the initial submissions. This letter serves as an addendum to the previously submitted report, and should be used in conjunction with that report for qualification of project samples.

These samples were processed for all elements except mercury and cyanide (due to holding time constraints). The mercury results for associated samples were recommended for qualification as estimated originally due to holding time violations; the cyanide results for SDG UPSS15 were recommended as estimated originally due to spike recovery; cyanide duplicate correlations were performed with the original data packages, with acceptable results.

SDG UPSS09

Duplicate correlation for UPSS09 (SDG UPSS01) was good, and no additional qualification of associated sample results is indicated. All correlation values were within recommended limits, except that for arsenic, which produced a variance greater than $\pm$ CRDL, but less than the action level of $\pm$ two times the CRDL.

Results of the redigested sample compare favorably with those obtained in the initial analysis.

SEP 08 1995 pg. 2/2

SDG UPSS15

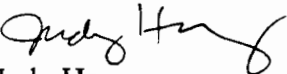
Duplicate correlation for UPSS33 (SDG UPSS15) was good, and no additional qualification of associated sample results is indicated. All correlation values were within recommended limits, except those for arsenic (which produced a variance greater than $\pm$ CRDL, but less than the action level of $\pm$ two times the CRDL), lead (28%RPD), and manganese (65%RPD) (both below the action level of 100%RPD).

However, correlation between the initially reported sample results for UPSS33 and the redigested sample results was poor for five elements:

Element	Initial Results	Redigested Result
Lead	64,500 mg/kg	376 mg/kg
Antimony	690	1.4 U
Selenium	0.59 U	2.5
Arsenic	3.4	8.8
Manganese	385	711

It was noted in the validation report that a gross variance was observed between the lead result for UPSS33 and its matrix spikes. These variances should be considered in the usability of the reported project sample results.

Very truly yours,


Judy Harry

SDG NARRATIVE

Statement of Work: These results are in accordance with NYSDEC ASP 12/91.

Comments: This package contains results for a matrix duplicate and its associated sample which had not been included with the previous submission (E3I Project number 951236).

All holding time and QC requirements were met with the following exceptions:

For the run commencing 1701 on 23 August, the final set of CRI/ICSA/ICSAB was repeated as the autosampler made an error when sampling the ICSAB.

For the run commencing 0814 on 24 August, the final set to CRI/ICSA/ICSAB was repeated as a gas supply problem arose which was fixed.

It was necessary to shorten some of the client sample ID's, as they exceeded the ASP six-character limit.

Qualifier Definitions:

- B - Reported value obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).
- U - The value recorded by the instrument was less than the Instrument Detection Limit (IDL).
- E - The reported value is estimated because of the presence of interference.
- N - Spiked sample recovery not within control limits.
- * - Duplicate analysis not within control limits.

000001

Description of Instrumentation:

1. ICP:

Leeman Labs PS-1000AT

No significant modifications.

Operating conditions:

RF Power: 1200W

Coolant gas: 17lpm

Auxiliary gas: 0.6lpm

Nebulizer gas: 59 psi pressure

Wavelengths used:

Al 396.2nm

Sb 217.6

As 193.7

Ba 455.4

Be 313.0

Cd 214.4

Ca 317.9

Cr 267.7

Co 228.6

Cu 324.7

Tl 190.8

Pb 220.3

Fe 263.1

Mg 279.1

Mn 257.6

Ni 231.6

K 766.4

Se 196.0

Ag 328.1

Na 589.6

V 292.4

Zn 206.2

Calibration Standards:

Mixed (for ICP) and single element calibration standards were made up as described in our Standards Logs from 1000ppm stock solutions. Specific sources are given in tables at the end of this narrative.

Initial and continuing calibration verification standards used were produced in-house from stock standards other than those used to prepare the standardization solutions.

Laboratory Control Samples:

The above ICV standards were used as Laboratory Control Samples for all aqueous samples. The soil Laboratory Control Sample was from ERA.

Interference Check Sample:

The Interference Check Samples A and AB were made up by us and tested in accordance with SOW ILM02.0.

"I certify that this data package is in compliance with the terms and conditions of the Protocol, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

Charles Holder

Signature

28 Aug. 1995

Date

000003

NYSDEC - ASP

COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: UPSS01

Protocol Version: 12/91

NYSDEC Sample No.

UPSS09

UPSS09D

Lab Sample ID.

95165901

95165901D

Where ICP interelement corrections applied?

Yes/No YES

Where ICP background corrections applied?

Yes/No YES

If yes-were raw data generated before
application of background corrections?

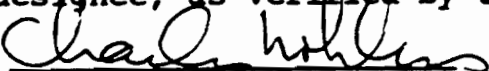
Yes/No NO

Comments:

ICP Interelement corrections were applied AFTER raw data was generated.
See narrative for further information.

I certify that this data package is in compliance with the terms and conditions of the Protocol, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature:



Name: Dr. Charles Wohlers

Date:

28 Aug. 1995

Title: Laboratory Manager

COVER PAGE - IN

000004

SDG NARRATIVE

Statement of Work: These results are in accordance with NYSDEC ASP 12/91.

Comments: This package contains results for a matrix duplicate and its associated sample which had not been included with the previous submission (E3I Project number 951236).

All holding time and QC requirements were met with the following exceptions:

For the run commencing 1701 on 23 August, the final set of CRI/ICSA/ICSAB was repeated as the autosampler made an error when sampling the ICSAB.

For the run commencing 0814 on 24 August, the final set to CRI/ICSA/ICSAB was repeated as a gas supply problem arose which was fixed.

It was necessary to shorten some of the client sample ID's, as they exceeded the ASP six-character limit.

Qualifier Definitions:

- B - Reported value obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).
- U - The value recorded by the instrument was less than the Instrument Detection Limit (IDL).
- E - The reported value is estimated because of the presence of interference.
- N - Spiked sample recovery not within control limits.
- * - Duplicate analysis not within control limits.

000001

Description of Instrumentation:

1. ICP:

Leeman Labs PS-1000AT

No significant modifications.

Operating conditions:

RF Power: 1200W

Coolant gas: 17lpm

Auxiliary gas: 0.6lpm

Nebulizer gas: 59 psi pressure

Wavelengths used:

Al 396.2nm	Pb 220.3
Sb 217.6	Fe 263.1
As 193.7	Mg 279.1
Ba 455.4	Mn 257.6
Be 313.0	Ni 231.6
Cd 214.4	K 766.4
Ca 317.9	Se 196.0
Cr 267.7	Ag 328.1
Co 228.6	Na 589.6
Cu 324.7	V 292.4
Tl 190.8	Zn 206.2

Calibration Standards:

Mixed (for ICP) and single element calibration standards were made up as described in our Standards Logs from 1000ppm stock solutions. Specific sources are given in tables at the end of this narrative.

Initial and continuing calibration verification standards used were produced in-house from stock standards other than those used to prepare the standardization solutions.

Laboratory Control Samples:

The above ICP standards were used as Laboratory Control Samples for all aqueous samples. The soil Laboratory Control Sample was from ERA.

000002

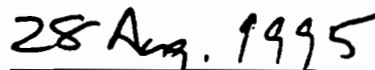
Interference Check Sample:

The Interference Check Samples A and AB were made up by us and tested in accordance with SOW ILM02.0.

"I certify that this data package is in compliance with the terms and conditions of the Protocol, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."



Signature



Date

000003

NYSDEC - ASP

COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: UPSS15

Protocol Version: 12/91

NYSDEC Sample No.
UPSS33
UPSS33D

Lab Sample ID.
95166001
95166001D

Where ICP interelement corrections applied?

Yes/No YES

Where ICP background corrections applied?

Yes/No YES

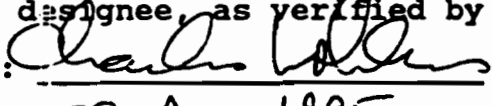
If yes-were raw data generated before
application of background corrections?

Yes/No NO

Comments:

ICP Interelement corrections were applied AFTER raw data was generated.
See narrative for further information.

I certify that this data package is in compliance with the terms and conditions of the Protocol, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: 

Name: Dr. Charles Wohlers

Date: 28 Aug. 1995

Title: Laboratory Manager

COVER PAGE - IN

000004

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

[illegible]

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

[illegible]

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

DAVID J. HANCOCK & SHELLEY
ENGINEERS

SEP 14 1995

September 14, 1995

Maria Heincz
LMS Engineers
One Blue Hill Plaza
Pearl River, NY 10965

RE: Validation of United Plating Site Data Packages
E3I SDG Nos. UPSD01 and USFB08

Dear Ms. Heincz:

Review has been completed for the data packages generated by E3I Labs, pertaining to samples collected at the United Plating Site. Sixteen soil samples and five aqueous samples were processed for TAL metal parameters. Two field blanks and soil matrix spikes/duplicates were processed. Three soil samples were also analysed for TCLP metals. Methodologies utilized are those of the 1991 NYSDEC ASP CLP.

Data validation was performed with guidance with the the most current editions of the USEPA CLP National Functional Guidelines for Inorganic Data Review and the EPA Region II SOPs HW-2 and HW-6. The following items were reviewed:

- * Data Completeness
- * Custody Documentation
- * Holding Times
- * Matrix Spike Recoveries/Duplicate Correlations
- * Preparation/Calibration Blanks
- * Control Spike/Laboratory Control Samples
- * Calibration Standards
- * Instrument IDLs
- * Method Compliance
- * Sample Result Verification

Those items showing deficiencies are discussed in the following sections of this report. All others were found to be acceptable as outlined in the above-mentioned validation procedures, and as applicable for the methodology. Unless noted specifically in the following text, reported results are substantiated by the raw data, and generated in compliance with protocol requirements.

In summary, sample processing of metals included noncompliances which impacted sample reported results. These issues, which include standard/control responses, are discussed in the following analytical section, with indicated edits and qualifications to sample reported results.

Copies of laboratory case narratives are attached to this narrative, and should be reviewed in conjunction with this narrative. A compliancy chart and laboratory NYSDEC Sample Preparation and Analysis Summary Forms are also included with this report.

Data Completeness

Resubmissions include previously omitted documentation (including internal custodies and preparation logs), and requests for clarification of Laboratory Control Sample (LCS) values. Among the resubmitted data are packages for redigestion and reanalysis of aqueous samples for certain elements (see later discussion).

No signature is present on the case narrative associated with SDG UPFB08. The narrative for SDG UPSD01, which is the same narrative, does show a signature.

The NYSDEC Sample Preparation and Analysis Summary Forms for SDG UPSD01 fail to mention the analysis and reporting of sample UPSD09. The initial page of the summary forms also fails to denote the analysis required (metals).

Metals/CN Analyses

Mercury holding time was exceeded by one day for samples UPFB08, UPFB09, UPSW01, UPSW02, UPSD01, UPSD02, UPSD03, and UPSD04. Technical holding times were met, and no qualification of reported results due to holding time exceedence is indicated. The cyanide analysis holding time for UPSD03 was just outside the required 12 days, but within technical holding time.

The following samples produced a solids content below 50%. Due to the potential for lack of representative sampling in the field and/or lab which exists for samples with low solids content, the reported results and detection limits for the samples should be considered estimated. They are the following:

<u>Sample ID</u>	<u>Solids Content, %</u>
UPSD01	19.5
UPSD03	39.9
UPSD07	39.0

The analyses for selenium and thallium in most sediment project samples consistently produced large *negative* absorbances well exceeding the absolute CRDL value. In summary, the following values were observed in the raw data:

1. Selenium (CRDL is 5 ug/L at instrument level)
 - Four samples had values between -16 and -24 ug/L
 - Six samples had values between -46 and -91 ug/L
 - Five samples had values between -110 and -147 ug/L
 - UPSD09 had a value of -1052 ug/L.
2. Thallium (CRDL is 10 ug/L at instrument level)
 - Two samples produced positive responses
 - Four samples produced responses between -1 ug/L and -24 ug/L
 - Nine samples produced responses between -30 and -110 ug/L
 - UPSD09 had a value of -506 ug/L.

As a result, the reported detection limits of the sediment samples are unreliable, and should be rejected as unusable. Reported detections should be considered possibly biased very low.

Aqueous samples produced more acceptable responses. All thallium values were reasonable, and are not considered affected. Selenium values in three of the seven samples were negative readings exceeding the CRDL. Therefore the reported results (detections and detection limits) for all samples except UPSW03 should be considered estimated (values of 0.8 ug/L to -7 ug/L); the reported results for UPSW03 (-31 ug/L) should be rejected as unusable.

Most of the associated QC (standards and matrix spikes) do not reflect this problem due to the elevated spike levels. However, the associated CRI standards (standards spiked at two times the CRDL) also showed low and/or fluctuating recoveries across the sequences (see listings below).

Metals processing was noncompliant as regards lack of corrective action following outlying calibration standards, Laboratory Control Samples (LCSs), Interference Check Samples and calibration blanks. Numerous occurrences were observed where analysis of outlying controls was repeated until recoveries within required ranges were obtained. This is not allowed by protocol; associated samples were not reanalysed. The reported results for those elements exhibiting outlying values (outside the required 90%-110% for calibration standards and LCSs, and above +-CRDL for calibration blanks) must therefore be considered estimated in associated samples. Below are listed the outliers, and affected sample analytes:

<u>Outlying standard</u>	<u>Element</u>	<u>Recovery (limits 90%-110%)</u>
CCV1 7/27 12:30	arsenic	113
	chromium	89.1

Samples affected: UPSD01, UPSD02, UPSD03, UPSD04 (and spike/duplicate/serial dilution)

CCV1 7/27 21:31	aluminum	126
	iron	118

Samples affected: UPSD03 and UPSD04

cont'd

cont'd from previous page

<u>Outlying standard</u>	<u>Element</u>	<u>Recovery (limits 90%-110%)</u>
CCV3 7/28 17:11	cadmium	116
	nickel	120
	zinc	124

Samples affected: UPSD02, UPSD04 (and serial dilution and PDS)

CCV1 7/28 18:28	aluminum	113

Samples affected: UPSD05 through UPSD11

CCV2 8-01 07:54	cobalt	122
	lead	112
	zinc	113

(also reran Interference Check samples)

Samples affected: aqueous duplicate, spike, serial dilution, and LCSW
no project sample results

CCV1 8/01 10:22	arsenic	83.5
	cadmium	86.3

Samples affected: UPSW04 and UPSW05

CCV1 8/01 13:54	thallium	89.3

Samples affected: UPSW03, UPSW04, and UPSW05 (and serial dilution and LCSW)

In addition to outlying calibration standards, certain of the LCSs produced outlying values and were reanalysed without corrective action. The aqueous LCSW (batch 302) was reanalysed for cobalt and selenium due to initial low values. Reported results for those elements in samples UPFB08, UPFB09, UPSW01 and UPSW02 should be considered estimated.

Please see the resubmission communications regarding the initially reported results for barium and antimony in the LCSW (batch 302) associated with UPFB08, UPFB09, UPSW01, and UPSW02; and the initially reported results for iron and zinc in the LCSW (batch 311) associated with UPSW03, UPSW04, and UPSW05. Manual edits were made to the theoretical values for these elements, and documentation to support these edits was requested. In summary, the edit for barium stands as reported, with resultant complaint recovery; affected samples were redigested and reanalysed for elements iron and zinc (due to initial confusion as regards the LCSW concentration level), and for antimony (due to initial inconsistent LCSW values). The digestates produced acceptable recoveries, with similar sample values, with the exception sample UPSW05. The following table summarizes the initial and reanalysis values; the reanalysis values should be utilized for the listed elements in the samples:

<u>Sample ID</u>	<u>Element</u>	<u>Initial Result, mg/kg</u>	<u>Redigested Result, mg/kg</u>
UPFB08	Antimony	13.3 U	13.3 U
UPFB09	Antimony	13.3 U	13.3 U
UPSW01	Antimony	13.3 U	13.3 U
UPSW02	Antimony	42.5 B	44.6 B

Sample ID	Element	Initial Result, mg/kg	Redigested Result, mg/kg
UPSW03	Iron	59,800	58,700
	Zinc	4,840	4,760
UPSW04	Iron	1,830	1,360
	Zinc	198	178
UPSW05	Iron	3,280	14,800
	Zinc	521	935

The inconsistent level of iron observed in UPSW05 indicates a consideration for the reported result in the sample to be considered greatly estimated. It was stated on 9-14-95 by the inorganics manager that the LCSW spike concentrations are those reported in the resubmitted packages, and, contrary to the statement in the case narrative, are *not* equal to the levels in the ICV.

The aqueous LCSW (batch 311) was reanalysed for lead due to initial high values, and silver due to a very low response for silver and a low response. The redigested LCSW recoveries were acceptable, and therefore the redigested values for these elements should be used in the associated samples UPSW03, UPSW04, and UPSW05:

Sample ID	Element	Initial Result, mg/kg	Redigested Result, mg/kg
UPSW03	Lead	5,560	6,280
	Silver	157	159
UPSW04	Lead	302	293
	Silver	9.8 B	8.2B
UPSW05	Lead	877	1,820
	Silver	22.2	42.6

In addition to the inconsistency in lead result for UPSW05, the lead accuracy and precision values in the redigested sample were out (see later listing).

The aqueous LCSW associated with UPFB08, UPFB09, UPSW01, UPSW02, and the TCLP samples was reanalysed for arsenic and selenium due to initial low responses; those element results in those samples should be considered estimated.

The soil LCSS associated with all soil samples produced elevated responses for calcium and magnesium initially, and was reanalysed. All detected soil sample calcium and magnesium values should be considered estimated.

The aqueous preparation blank was reanalysed for aluminum (initial result was 273 ug/L. greater than CRDL). The only sample with a similar aluminum concentration level is the field blank UPFB08 (208 ug/L). This field blank produced a similar level for aluminum in the redigestate, which was associated with an acceptable preparation blank. No affect on other project samples is noted.

The aqueous preparation blank was also reanalysed for chromium and lead; sample results are unaffected.

The field blank associated with the samples in SDG UPFB08 produced values above CRDL for aluminum, iron, mercury, and zinc. The following elemental reported results are less than five times the blank value, and should be rejected: iron and zinc in UPSW01; and mercury in UPSW01, UPSW02, and UPSW03

The field blank associated with the samples in SDG UPSD01 produced values above CRDL for lead and mercury. Sample lead values are sufficiently high as to not be affected. Mercury detections in all soil samples *except* UPSD06, UPSD10, UPSD13, and UPSD16 are less than five times the blank level should be rejected.

The following sample matrix spike outliers indicate a consideration reported results for those element in all samples (excluding TCLP) in the associated SDGs as estimated:

SDG	Sample Spiked	Element	Recovery
UPFB08	UPSW05	Antimony	72.7 %
		Iron	29.0**
		Lead	30.0**
UPSD01	UPSD02	Manganese	63.0
	UPSD14	Antimony	33.9
		Cadmium	60.4
		Nickel	65.5
		Zinc	70.2

**Matrix spike/duplicate evaluations for iron and lead were performed on UPSW05 in both data packages. The initial iron results showed low spike recovery, at 29%. The iron spike recovery in the redigested sample is not considered for evaluation (per protocol) due to the elevated sample concentration. The lead spike recovery was initially acceptable; that for the redigestate was 30%. The duplicate correlation of iron and lead in the initial digestates of UPSW05 was acceptable. The correlations for iron and lead in the redigested samples were slightly above the recommended limit, at 29%RPD and 23%RPD, respectively). Based upon these results, the reported results for iron and lead in the aqueous samples is recommended for consideration as estimated. The "*" flag should be added to both elements and an "N" flag should be added for lead on the aqueous Forms 1.

The aluminum recovery of the aqueous matrix spike was 74.8% (lower limit is 75%; no qualification is indicated). Matrix spike recoveries on the TCLP extracts were acceptable.

Outlying duplicate correlation values which indicate consideration of qualification of associated elements (for samples in associated SDGs) as estimated are as follows:

SDG	Sample ID	Element	Correlation
UPFB08	UPSW05	Arsenic	greater than +- CRDL
		Thallium	greater than +- CRDL
UPSD01-TCLP	UPSD01-TCLP	Chromium	50 %RPD
		Cadmium	greater than +- 2X CRDL
		Silver**	greater than +- CRDL
		Lead	200 %RPD
	UPSD08-TCLP	Selenium	200 %RPD
		Silver	24.9 %RPD

** - this should have been flagged as "*" on the corresponding Form 6.

LAWLER, MATUSKY & SKELLY
ENGINEERS

SEP 2 1 1995

Duplicate correlations for the soil sample UPSS02 produced outlying values for cadmium (49%RPD) and calcium (23 %RPD); duplicate correlation for UPSS14 produced outlying value for lead (40%RPD). No qualification is indicated.

Serial dilution determinations for samples UPSS09, UPSS33, and UPSS38 produced numerous outlying percent difference correlations. Serial dilutions are usually resultant of matrix interferences. It is true, however, that certain of the element serial diluted results may be affected by the inconsistencies observed in the CRI standards (discussed below). The following analytes produced outlying serial dilution, and reported detected values of associated samples (those samples in the same SDGs) should be considered estimated. Both SDGs had two samples undergo the serial dilution. All resultant outliers and qualifications from both samples in each SDG should be applied to all of the samples in the corresponding SDGs:

SDG	Element	%Difference
UPFB08	Cadmium	17.6
	Chromium	21.9 and 10.1
	Calcium	100 *
	Iron	10.9
	Manganese	100 *
	Nickel	13.0
	Potassium	17.5 and 19.6
	Sodium	11.2 and 18.1
	Zinc	17.8
UPSD01(soil)	Aluminum	16.3
	Barium	429
	Cadmium	60.8
	Calcium	16.0
	Copper	48.1
	Iron	22.1 and 11.4
	Lead	10.5 and 24.5
	Magnesium	21.7 and 25.8
	Manganese	15.2 and 45.5
	Nickel	94.0
	Potassium	14.9 and 12.1
	Silver	15.8
	Vanadium	43.9
	Zinc	17.4 and 63.7
UPSD01(TCLP)	Barium	49.1 and 16.2
	Chromium	16.4

(there should only be one "E" flag on the TCLP chromium result for UPSD03).

- * These responses showed high detections in the undiluted sample, but no detection in the serial dilution, although expected response is well above IDL.

Evaluation of the recoveries of the standards processed at twice the CRDL concentration (CRIs) shows poor and inconsistent responses at the low concentrations for many elements. This is particularly true of the CRIs associated with the soil sample analyses. Copies of the Forms 2B which summarize the recoveries are attached to this report and summarized below. Although no corrective action is required pertaining to CRI recoveries, the responses indicate an unreliability at the lower concentrations for those elements affected. It should be noted that sample results are reported to the IDLs, which are significantly lower than the CRDLs, and therefore even more suspect. During validation, concentrations of sample elements associated with outlying recoveries were reviewed. In many instances sample levels are sufficiently high as to not warrant concern. Those samples with concentrations up to five times that of the CRI (therefore ten times the CRDL), and associated with outlying CRI recoveries, are listed below and their reported results should be considered as biased. Those samples reporting nondetections for elements associated with low CRI recoveries are also listed below. Those elements with recoveries less than 10% may be considered for rejection of reported nondetections.

Element	Recoveries, %	Affected Samples
Chromium	60-62	UPFB08, UPFB09, UPSW01
Copper	20-79	UPFB08,UPFB09,UPSW01,UPSW04,UPSW05
Lead	122-146	UPFB09
	495-480	UPSD03
Nickel	30-65	UPFB08,UPFB09,UPSW01,UPSW04
	26-64	UPSD01 and UPSD12
Selenium	23-68	all in SDG UPFB08
	23-40	UPSD05 through UPSD10, and UPSD12 through UPSD16
	143-84	UPSD03-TCLP
Zinc	50-73	UPFB08,UPFB09,UPSW01
Arsenic	82-59;92-44	all in SDG UPFB08
	82-59;44-50	all in SDG UPSD01 except UPSD08,UPSD09, UPSD10,UPSD11, and UPSD15
Arsenic	0-50	all TCLP
Cobalt	14-14	UPSW03,UPSW04,UPSW05,UPSD01,UPSD02, UPSD03, and UPSD04
Manganese	33-37	UPSW04,UPSW05
Vanadium	12-12	UPSW03,UPSW04,UPSW05,UPSD01,UPSD02, UPSD03,UPSD04
Thallium	82-64	UPSW03,UPSW04,UPSW05
	100-24	UPSD01, UPSD02, UPSD03, UPSD04
Antimony*	22-33	UPSD01, UPSD02, UPSD03, UPSD04
Silver*	55-46	UPSD01-TCLP and UPSD03-TCLP
	60-48	UPSD01

* Antimony and CRI recoveries were acceptable in the redigestates of UPSW03 through UPSW05.

Due to the numerous errors in recorded client sample IDs and manual edits for laboratory sample IDs observed in the raw data, a statement was requested and provided (see resubmissions) to specify the laboratory procedure for identification of samples being processed. The laboratory identification numbers edited in the raw data occurred on the days of processing. In that the lab IDs are the definitive identification, the observed client ID errors (which were not corrected by the lab) are of less concern. However, due to these entry errors and to the notations of "wrong sample" observed frequently in the raw data (which may indicate a lack of proper procedure and/or review), the absolute defensibility of the metals processing may be jeopardized.

No analysis is recorded with the proper laboratory ID for the cyanide dilution analysis of UPSD09 (the result is labeled with the lab ID of UPSD10). Therefore the undiluted result, 51.5 mg/kg should be used for this sample, but qualified as estimated due to response above the calibration range.

Due to an incorrect manual edit of the laboratory ID and an unedited incorrect client ID in the raw data, the lead result for the TCLP extract of UPSD03 should be rejected.

TCLP analyses of UPSD01 were repeatedly recorded in the raw data with the laboratory ID number and client ID of UPSD05 (laboratory ID should be the definitive ID). Acceptance of the data is based upon the fact that UPSD05 did not undergo TCLP extraction (see attached resubmitted TCLP log). The TCLP extract of UPSD03 was consistently given the client ID of UPSD04 in the raw data.

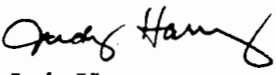
The TCLP preparation blank results for arsenic, cadmium, selenium, and lead recorded on the Form 3 should be flagged with "U" qualifiers because the responses at instrument level were at or below the IDL (reported value reflects application of a tenfold dilution factor). The TCLP extracts should be given a different lab or client ID than those of the associated soils, for processing.

There should be no "B" for the cyanide result of the soil matrix spike on the Form 5A. The concentration units denoted on the raw cyanide log incorrectly state "ppm".

Mercury IDLs are outdated, and should be regenerated.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,


Judy Harry

COMPLIANCY CHART

Project: LMS Engineers -United Plating Site

SDG Nos. E3I SDG Nos. UPFB08 and UPSD01

Protocol: 1991 NYSDEC ASP CLP-M

Rec. Date	Sample ID	Matrix	Metals	TCLP	Noncompliance
06-15-95	UPSD01	Soil	NO	NO	1,2
06-15-95	UPSD02	Soil	NO	NR	1,2
06-15-95	UPSD03	Soil	NO	NR	1,2,3
06-15-95	UPSD04	Soil	NO	NR	1,2
06-16-95	UPSD10	Soil	NO	NR	1
06-16-95	UPSD11	Soil	NO	NR	1
06-16-95	UPSD12	Soil	NO	NR	1
06-16-95	UPSD13	Soil	NO	NR	1
06-16-95	UPSD14	Soil	NO	NR	1
06-16-95	UPSD15	Soil	NO	NR	1
06-16-95	UPSD16	Soil	NO	NR	1
06-16-95	UPSD03	Soil	NR	NO	1
06-16-95	UPSD05	Soil	NO	NR	1
06-16-95	UPSD06	Soil	NO	NR	1
06-16-95	UPSD07	Soil	NO	NR	1
06-16-95	UPSD08	Soil	NO	NO	1
06-16-95	UPSD09	Soil	NO	NR	1
06-15-95	UPFB08	Aqueous	NO	NR	1,2,4
06-15-95	UPFB09	Aqueous	NO	NR	1,2,4
06-15-95	UPSW01	Aqueous	NO	NR	1,2,4
06-15-95	UPSW02	Aqueous	NO	NR	1,2,4
06-16-95	UPSW03	Aqueous	NO	NR	1,4
06-16-95	UPSW04	Aqueous	NO	NR	1,4
06-16-95	UPSW05	Aqueous	NO	NR	1,4

1. Metals processing with outlying standard/control responses (pgs. E-129 through E-133).
2. Mercury holding time exceeded (pg. D-V-10).
3. Cyanide holding time exceeded (pg. D-V-10).
4. Aqueous preparation blank with noncompliant responses (pg. E-134).

NYSDEC - ASP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: ~~UPTB08~~ **4/PSD**

AA CRDL Standard Source:

ICP CRDL Standard Source: E3I

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
	True	Found	%R	True	Initial Found	R	Final Found	%R
Aluminum				120.0	110.00	1.7	104.70	87.3
Antimony				20.0	16.32	1.6	11.88	59.4
Arsenic								
Barium								
Beryllium				10.0	9.22	92.2	8.16	81.6
Cadmium				10.0	9.91	99.1	10.67	106.7
Calcium								
Chromium				20.0	9.68	48.4	14.45	72.3
Cobalt				100.0	97.53	97.5	88.21	88.2
Copper				50.0	39.44	78.9	34.82	69.6
Iron								
Lead				6.0	29.69	494.8	28.77	479.5
Magnesium								
Manganese				30.0	26.30	87.7	23.02	76.7
Mercury								
Nickel				80.0	27.31	34.1	20.65	25.8
Potassium								
Selenium				10.0	16.88	168.8	10.55	105.5
Silver				20.0	21.43	107.2	18.64	93.2
Sodium								
Thallium				20.0	20.05	100.3	4.80	24.0
Vanadium				100.0	95.17	95.2	87.10	87.1
Zinc				40.0	21.32	53.3	41.83	104.6

FORM II (PART 2) - IN

00063

NYSDEC - ASP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Energy & Environ. Engr.

Contract:

4PS001

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: UPTB081

AA CRDL Standard Source:

CP CRDL Standard Source: E3I

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
	True	Found	%R	True	Initial Found	%R	Final Found	%R
Aluminum				120.0	39.96	33.3	29.19	24.3
Antimony				20.0	8.90	44.5	9.94	49.7
Arsenic								
Barium								
Beryllium				10.0	9.76	97.6	9.41	94.1
Cadmium				10.0	10.28	102.8	10.65	106.5
Calcium								
Chromium				20.0	14.34	71.7	9.46	47.3
Cobalt				100.0	14.84	14.8	14.16	14.2
Copper				50.0	12.56	25.1	12.15	24.3
Iron								
Lead				6.0	15.75	262.5	0.37	6.2
Magnesium								
Manganese				30.0	13.14	43.8	11.35	37.8
Mercury								
Nickel				80.0	51.61	64.5	24.27	30.2
Potassium								
Selenium				10.0	3.98	39.8	2.32	23.2
Silver				20.0	11.97	59.9	9.50	47.5
Sodium								
Thallium				20.0	18.92	94.6	15.02	75.1
Vanadium				100.0	12.39	12.4	11.31	11.3
Zinc				40.0	29.34	73.4	20.03	50.1

FORM II (PART 2) - IN

00064

NYSDEC - ASP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: WPF808

AA CRDL Standard Source:

ICP CRDL Standard Source: E3I

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
	True	Found	%R	True	Initial Found	%R	Final Found	%R
Aluminum				120.0	33.81	28.2	26.45	22.0
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium				10.0	17.16	171.6	10.88	108.8
Calcium								
Chromium				20.0	12.08	60.4	12.49	62.5
Cobalt								
Copper				50.0	14.40	28.8	9.79	19.6
Iron								
Lead				6.0	7.30	121.7	8.77	146.2
Magnesium								
Manganese				30.0	18.48	61.6	10.27	34.2
Mercury								
Nickel				80.0	34.53	43.2	24.00	30.0
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc				40.0	34.57	86.4	24.71	61.8

FORM II (PART 2) - IN

00065

NYSDEC - ASP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Energy & Environ. Engr.

Contract:

40500

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: 6PPB08,

AA CRDL Standard Source:

ICP CRDL Standard Source: E3I

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
	True	Found	%R	True	Initial Found	%R	Final Found	%R
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium				20.0	15.09	75.5	12.45	62.3
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								

FORM II (PART 2) - IN

00066

NYSDEC - ASP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: UPFB08

AA CRDL Standard Source:

ICP CRDL Standard Source: E3I

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
	True	Found	%R	True	Initial Found	%R	Final Found	%R
Aluminum				120.0	110.00	91.7	104.70	87.3
Antimony				20.0	16.32	81.6	11.88	59.4
Arsenic								
Barium				10.0	9.22	92.2	8.16	81.6
Beryllium				10.0	10.28	102.8	10.65	106.5
Cadmium								
Calcium				20.0	12.08	60.4	12.49	62.5
Chromium				100.0	97.53	97.5	88.21	88.2
Cobalt				50.0	39.44	78.9	34.82	69.6
Copper								
Iron				6.0	7.30	121.7	8.77	146.2
Lead								
Magnesium				30.0	26.30	87.7	23.02	76.7
Manganese								
Mercury				80.0	51.61	64.5	24.27	30.2
Nickel								
Potassium				10.0	3.98	39.8	2.32	23.2
Selenium				20.0	21.43	107.2	18.64	93.2
Silver								
Sodium				20.0	18.92	94.6	15.02	75.1
Thallium				100.0	95.17	95.2	87.10	87.1
Vanadium				40.0	29.34	73.4	20.03	50.1
Zinc								

FORM II (PART 2) - IN

00046

NYSDEC - ASP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: UPFB08

AA CRDL Standard Source:

P CRDL Standard Source: E3I

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
	True	Found	%R	True	Initial Found	%R	Final Found	%R
Aluminum				120.0	4.21	3.5	37.11	30.9
Antimony				20.0	18.37	91.9	8.72	43.6
Arsenic								
Barium				10.0	10.59	105.9	9.87	98.7
Beryllium				10.0	10.39	103.9	10.48	104.8
Cadmium								
Calcium				20.0	26.09	130.5	40.49	202.5
Chromium				100.0	4.07	4.1	14.70	14.7
Cobalt				50.0	14.40	28.8	9.79	19.6
Copper								
Iron				6.0	6.58	109.7	8.62	143.7
Lead								
Magnesium				30.0	11.17	37.2	9.78	32.6
Manganese								
Mercury				80.0	33.34	41.7	25.23	31.5
Nickel								
Potassium				10.0	5.87	58.7	6.83	68.3
Selenium				20.0	11.61	58.1	11.75	58.8
Silver								
Sodium				20.0	16.43	82.2	12.75	63.8
Thallium				100.0	11.62	11.6	11.65	11.7
Vanadium				40.0	50.46	126.2	92.90	232.2
Zinc								

FORM II (PART 2) - IN

00047

NYSDEC - ASP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: UPFB08

AA CRDL Standard Source:

ICP CRDL Standard Source: E3I

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
	True	Found	%R	True	Initial Found	%R	Final Found	%R
Aluminum				120.0	25.75	21.5	30.15	25.1
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt				100.0	13.86	13.9	13.75	13.8
Copper				50.0	14.36	28.7	13.84	27.7
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								

FORM II (PART 2) - IN

00048

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

August 17, 1995

Mervelina Saturno-Condon
E3I
35 Medford St.
Somerville, MA 02143

RE: LMS Engineers United Plating Project
E3I SDG Nos. UPSS01, UPSS15, UPSS25, UPSD01, and UPFB08

Dear Ms. Saturno-Condon

Review is in progress for the data packages pertaining to samples collected at the LMS Engineers United Plating Site. The following information is required prior to completion of the validation reports:

1. The inorganics data show numerous misidentifications of sample IDs and some of lab ID numbers (i.e. in SDG UPSD01:

As & Se and Cd & Ag analyses identify UPSD01 as UPSD05

As & Se " " UPSD01D as UPSD05D

Cd & Ag " " UPSD03 as UPSD04

in SDG UPSS01:

numerous elements identify UPSD19 as UPSD18, some identify UPSD19 as UPSD15 (I realize there was initial confusion on the chain-of-custody for this sample ID, but it should have been corrected through the laboratory).

Also, raw mercury data show extensive corrections regarding lab and sample IDs for the -235 and -236 series which appear to indicate confusion at analysis.

in SDG UPSD01:

The cyanide reported result for UPSD09 is recorded under the *lab ID number* associated with UPSD10 in the raw data).

It is general practice that the laboratory ID number is the governing identification for analyses. Therefore the cyanide error noted above would result in rejection of the reported data for UPSD09, with possible qualified use of the 1:1 analysis result (which is also available for UPSD09).

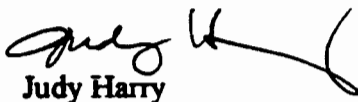
Additionally, it is of concern that the sample ID errors are so prevalent. In order to provide confidence in the lab practices, please submit a statement regarding the lab policy in recording lab/sample IDs, and explain how the errors may have occurred.

2. Solids/moisture determination raw data is provided only for the inorganics. It is observed that the organics solids values are somewhat different (which is to be expected when running separate solids determinations). However, no support raw data is submitted to verify the organics solids values. Please provide this data for all SDGs in the project.

3. **SDG UPSS01:**
Volatile page 382 (quant report for VBLKS09A) was not present in the validation copy of the data package. Please provide for review.
4. **SDG UPSS15:**
 - a. No BNA Form 5B is present for the daily analysis of 6/26/95 (tune K3905). No missing page number is present; raw tune data is present. Please forward for review and insertion into the data package.
 - b. Please review the Form 10A result for endosulfan II in sample UPSS37. The raw data shows a different value for DB-608, with a resultant change in percent difference. Please verify my findings, and submit any corrected Forms 1/10A that may result.
 - c. No (inorganics) solids/moisture raw data were included for samples 95124-001 through -005. Please forward for review.
5. **SDG UPSD01**
 - a. The lead results for UPSD08 are not legible (page 231) because they "run off the bottom" of the page. Please provide a copy of the bottom section of page 231 which includes the necessary data.
 - b. Please discuss the application of the 1:10 dilution factor in the TCLP metals. In particular, the barium and chromium results for the duplicate of UPSD08 and the serial dilution of UPSD01 seem to have been run at an additional 1:10 dilution factor, which is not clearly defined in the raw data (and not denoted on the Form 14). Please also discuss the rationale for running the duplicate of the sample at a different dilution than the sample itself.
6. **SDG UPFB08**
The potassium results for UPSW02 are not legible (page 200) because they "run off the bottom" of the page. Please provide a copy of the bottom section of page 200 which includes the necessary data.

Please copy Maria Heincz at LMS Engineers with all communications. Do not hesitate to contact me if you wish to discuss these issues. Thank you for your prompt attention to this matter.

Very truly yours,


Judy Harry

cc: Maria Heincz

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, NY 12853

Phone and Fax (518) 251-4429

Facsimile Transmission

TO:

Mervyn Condon

COMPANY:

E3I

FAX NUMBER:

617 666 5802

FROM:

Judy Harry

DATE:

8-18-95

No. of pages, including cover:

7

These are NYS ASP pages outlining the criteria about which we spoke earlier. As I discussed with you, the metals processing in CMS Engineers SDG's UPSS01, -SS15, -SS25, and -SD01 were not compliant. Calibration blanks, standards, LCS, and preparation blanks were frequently reanalysed due to initial (and often continued) failure. Samples associated with failed QC were not reprocessed. Please process samples in compliance

Data Validation Services

Cobble Creek Road P. O. Box 208
North Creek, NY 12853
Phone and Fax (518) 251-4429

Facsimile Transmission

TO: Steve Mattingly

COMPANY: E3I

FAX NUMBER: 617-666-5802

FROM: Judy Harry 

DATE: 9-4-95

No. of pages (including cover): 1

RE: LMS Engineers United Plating Site
SDG UPFB08

COMMENTS: Please respond to the following two items at your earliest opportunity, with copies of communications to Maria Heincz at LMS.

1. Please provide documentation to justify the edit for the "true" value for the aqueous LCSs in SDG UPFB08. The two LCSs are edited differently (one for antimony and barium values, the other for iron and zinc values); it is observed that the previously reported aqueous LCS (SDG UPSS25) was not edited for any element true value. Please forward the standard preparation logs that apply to these LCSs, verifying the edited value, and explain why the variance.

2. To date, no response has been received regarding item #1 of my 8-17-95 letter, which requested a statement pertaining to the lab procedure for sample identification assignments.

A hastened response to this request would greatly assist in meeting project deadlines.

Thank you.

Data Validation Services

Cobble Creek Road P. O. Box 208
North Creek, NY 12853
Phone and Fax (518) 251-4429

Facsimile Transmission

TO: Merry Condon
COMPANY: ESI
FROM: Judy Harry
DATE: 9.6.95

No. of pages, including cover: 1

Re: LMS Engineers United Plating
SDG UP5001

No (external) chain-of-custody is present
pertaining to samples UP5012 through
UP5016.

Please fax a copy to me as soon
as possible. Thank you. I will
attach it to my validation report as
a re-submission.

J.

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, NY 12853

Phone and Fax (518) 251-4429

Facsimile Transmission

TO:

Murvy Condon

COMPANY:

E3I

FAX NUMBER:

617 666 5502

FROM:

Judy Harry

DATE:

9-8-95

No. of pages (including cover):

1

COMMENTS:

RE: LMS United Flating

SDG UP5201

The TCLP preparation logs are not present in the data package (TCLP was done for SD01, -03, & -08).

Please fax them to me at your earliest opportunity.

Thanks,

Judy



E3I Environmental Laboratory

35 Medford Street
Somerville, MA 02143
tel. (617) 666-5500

P.O. Box 410215
E. Cambridge, MA 02141
Fax (617) 666-5902

August 22, 1995

Judy Harry
Data Validation Services
Cobble Creek Road
P.O.Box 208
North Creek, NY 12853

Dear Ms. Harry,

Enclosed is the response to the data validation questions you sent on August 17, 1995. Also, enclosed are the missing pages of the organic reports, instrument logs, extraction logs, GPC logs and % solids/moisture logs.

If you have any questions, please feel free to call me at (617) 666-5500.

Sincerely,

Mervelina Saturno-Condon
Mervelina Saturno-Condon

Response to Data Validation

LMS United Plating Project, SDG's UPSD01 & UPSS01, (E3I Projects 951236, 951302, & 951311)

This narrative constitutes the response of E3I Environmental Laboratory to the data validation comments received from LMS on 17 August 1995. As an aside, we respectfully request that all future data validation comments reference the exact page on which the question is based. Improved specificity will improve our ability to respond to your comments.

1. We acknowledge that several sample numbers were incorrect. Pages 276, 277 and 283 are resubmitted from SDG UPSD01. Pages 132, 169 and 179 are resubmitted from SDG UPSS01. The cyanide raw data are also corrected and resubmitted.
- 4c. Inorganic percent solids data is resubmitted.
- 5a. Raw data for lead in sample UPSD08 is resubmitted.
- 5b. It is our standard practice to run all TCLP samples at a 1:10 dilution for two reasons. First, the regulatory limits for TCLP are about 1000 times our ICP detection limits (IDL's). There seems to be no reason to try to report down to the low ppb range when the regulatory limits are in the ppm range. Secondly, the high concentration of sodium in the TCLP extracts (which are 1M sodium acetate) adversely affects the ICP, thus making it prudent to dilute the samples.

Ba and Cr in sample UPSD08 and UPSD08D were analyzed at the same dilution. There may be some confusion on p. 337 of the raw data since for one sample the ICP computer calculated the concentration taking the dilution into account, and on the other sample it was done manually, resulting in one appearing to be ten times the other in the raw data when in fact the concentrations were similar. The 10X dilution factors are indicated on the raw data for both samples. I see no indication in the raw data or on Form 14 of a 100X dilution for sample UPSD08D. In a similar way the ICP computer multiplied the result for sample UPSD01 by 10 but not UPSD01L, although both were diluted 10X (and the serial dilution an additional 5X). Again, I can see no indication of a 100X dilution in the raw data. The data on the forms for all these samples is correct.
6. Raw data for potassium in sample UPSW02 is resubmitted.

I hope this answers all your questions. If you have any further comments or questions, you may direct them to Charles Wohlers at E3L.

E3I FAX COVER SHEET

35 Modford Street
Somerville, MA
02143

P.O. Box 215
E. Cambridge, MA
02141

Fax No. 617-666-5802
Tele No. 617-666-5500

Date: 9/6/95

Number of Pages: 5
(including cover)

To: Judy Harry
Name

Title

Data Validation Serv.
Company

518 251-4429
Fax Number

From: Mervy Condon
E3I Environmental Laboratories, Inc.
Fax: 617-666-5802

Subject: external COC
internal COC (in case I did not
submit them).

Additional Comments: _____

CONFIDENTIAL.

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Env. Eng. Lab. **24**
35 Medford St., Somerville, MA 02143
P.O. Box 410215, E. Cambridge, MA 02141
Tel: (617) 666-5500
Fax: (617) 666-5802

CHAIN OF CUSTODY RECORD

CLIENT: LMS Engineers
ADDRESS: One Blue Hill Plaza
Peter River NY
PHONE #: (941) 735-8300 FAX #: (941) 735-7466
CLIENT CONTACT: MARTA HICENZ
SITE/DESCRIPTION: UP R+ES

ANALYSES

CONTAINER TYPE:
P - Plastic
G - Glass
V - VOA
B - Bacteria

SAMPLE TYPE
1. Wastewater
2. Groundwater
3. Drinking Water
4. Soil
5. Surface Water
6. Other

SPECIAL INSTRUCTIONS

☐ RUSH
____ DAY TURNAROUND

☒ ROUTINE

COMMENTS

LOCAL (SAMPLE IDENTIFICATION)	SAMPLE TYPE	CONTAINER			SAMPLING		PRESERVATIVE		ANALYSES										COMMENTS	
		SIZE	TYPE	•	DATE	TIME	AGENT	pH @ VTSP	TAL METALS (UNFIL.)	CN - (UNFILTERED)	TCLP METALS	TAL METALS / CN -								
UPSW-03	H ₂ O	12	P	2	6-15-95	11:05	WJG/ Hach		1	1										
UPSW-04	H ₂ O	12	P	2	6-15-95	11:45	WJG/ Hach		1	1										
UPSW-05	H ₂ O	12	P	6	6-15-95	12:10	WJG/ Hach		3	3										MS/MSD INCLUDED
UPSD-03	SOIL	8 ₀₂	G	1	6-15-95	10:30	WJG/ Hach	4°C			1									
UPSD-05	SOIL	8 ₀₂	G	1	6-15-95	12:30	WJG/ Hach	4°C				1								
UPSD-06	SOIL	8 ₀₂	G	1	6-15-95	11:10	WJG/ Hach	4°C				1								
UPSD-07	SOIL	8 ₀₂	G	1	6-15-95	11:15	WJG/ Hach	4°C				1								
UPSD-08	SOIL	8 ₀₂	G	1	6-15-95	12:30	WJG/ Hach	4°C				1								
UPSD-08	SOIL	8 ₀₂	G	1	6-15-95	12:30	WJG/ Hach	4°C			1									
UPSD-09	SOIL	8 ₀₂	G	1	6-15-95	13:00	WJG/ Hach	4°C				1								
UPSD-10	SOIL	8 ₀₂	G	1	6-15-95	13:10	WJG/ Hach	4°C				1								
UPSD-11	SOIL	8 ₀₂	G	1	6-15-95	13:12	WJG/ Hach	4°C				1								
RELINQUISHED BY (SIGNATURE):	DATE: 6-15-95	RECEIVED BY (SIGNATURE):						DATE: 6-16-95	COOLER TEMP @ VTSP: 9.7°C						NOTES: NO custody seal					
<i>Michael J. Hicenz</i>	TIME: 17:00	<i>Link Tongle</i>						TIME: 10:30 AM												
RELINQUISHED BY (SIGNATURE):	DATE: -	RECEIVED BY (SIGNATURE):						DATE: -												
	TIME: -							TIME: -												

REPORT TO:

LAB INVOICE TO:

* SEALED & SHIPPED
11A - - - - - 11A - - - - -

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E3I Environmental Laboratory
 35 Medford St., Somerville, MA 02143
 P.O. Box 410215, E. Cambridge, MA 02141
 Tel: (617) 666-5500
 Fax: (617) 666-5802

CHAIN OF CUSTODY RECORD

E³I

CLIENT: LMS ENGINEERS
 ADDRESS: ONE BLUE HILL PLAZA
PEARL RIVER, NY, 10965
 PHONE #: (914) 735-8300 FAX #: (914) 735-7466
 CLIENT CONTACT: MARIA HEINCE
 SITE/DESCRIPTION: UP RE/FS

CONTAINER TYPE:

P - Plastic
 G - Glass
 V - VOA
 B - Bacteria

SAMPLE TYPE

1. Wastewater
 2. Groundwater
 3. Drinking Water
 4. Soil
 5. Surface Water
 6. Other

ANALYSES

SPECIAL INSTRUCTIONS

☐ RUSH
 _____ DAY TURNAROUND

☒ FOUTINE

LOCAL (SAMPLE IDENTIFICATION)	SAMPLE TYPE	CONTAINER			SAMPLING		PRESERVATIVE		ANALYSES										COMMENTS
		SIZE	TYPE	#	DATE	TIME	AGENT	pH @ VTSR											
UPSD - 12	SOIL	8 ₀₂	G	1	6-15-95	13:15	4°C		1										
UPSD - 13	SOIL	8 ₀₂	G	1	6-15-95	13:17	4°C		1										
UPSD - 14	SOIL	8 ₀₂	G	1	6-15-95	13:20	4°C		1										
UPSD - 15	SOIL	8 ₀₂	G	1	6-15-95	13:25	4°C		1										
UPSD - 16	SOIL	8 ₀₂	G	1	6-15-95	14:30	4°C		1										
UPP - 02 (GW)	H ₂ O	12	P	1	6-15-95	8:00	NaOH			1									
UPP - 05 (GW)	H ₂ O	12	P	1	6-15-95	8:40	NaOH				1								
UPP - 20A (GW)	H ₂ O	12	P	2	6-15-95	17:10	HNO ₃ / Zn			1	1								
UPP - 20A (GW)	H ₂ O	12	P	1	6-15-95	16:25	HNO ₃					1							

RELINQUISHED BY (SIGNATURE): <i>Michael Schmitt</i>	DATE: 6-15-95	RECEIVED BY (SIGNATURE): <i>Link Tong</i>	DATE: 6-16-95	COOLER TEMP @ VTSR: 9.7°C
	TIME: 17:00		TIME: 10:30 AM	
RELINQUISHED BY (SIGNATURE):	DATE: . . .	RECEIVED BY (SIGNATURE):	DATE: . . .	NOTES: No custody seal
	TIME: . . .		TIME: . . .	

REPORT TO: _____ LAB INVOICE TO: _____

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06/16/95
PAGE 2

E3I SAMPLE CONTROL FORM

E3I SAMPLE ID #	FRIDGE	# PER SAMPLE	LOGGED IN BY	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED BY	DATE RETURNED

* INORG1

951311	16 A	8502	1	LMT	06/16/95			
951311	1 B	8701	1	LMT	06/16/95			
951311	2 B	8701	1	LMT	06/16/95			
951311	3 B	8701	3	LMT	06/16/95			
951311	5 B	8702	1	LMT	06/16/95			
951311	6 B	8702	1	LMT	06/16/95			
951311	7 B	8702	1	LMT	06/16/95			
951311	8 B	8702	1	LMT	06/16/95			
951311	9 B	8702	1	LMT	06/16/95			
951311	10 B	8702	1	LMT	06/16/95			
951311	11 B	8702	1	LMT	06/16/95			
951311	12 B	8702	1	LMT	06/16/95			
951311	13 B	8702	1	LMT	06/16/95			
951311	14 B	8702	1	LMT	06/16/95			
951311	15 B	8702	1	LMT	06/16/95			
951311	16 B	8702	1	LMT	06/16/95			

TN 06/23/95 TN 06/26/95

TNB 06/27/95 TNB 06/27/95

06/16/95
PAGE 1

E31 SAMPLE CONTROL FORM

E31 SAMPLE ID #	FRIDGE	# PER SAMPLE	LOGGED IN BY	DATE RECEIVED	REMOVED BY	DATE REMOVED	RETURNED BY	DATE RETURNED
* INORG1								
951311	4 B	6525	1	LMT	06/16/95	TN	06/22/95	TN INORG1
951311	0 D	6525	1	LMT	06/16/95			
951311	1 A	8501	1	LMT	06/16/95	TN	06/27/95	TN INORG1
951311	2 A	8501	1	LMT	06/16/95			
951311	3 A	8501	3	LMT	06/16/95			
951311	5 A	8502	1	LMT	06/16/95	TN	06/23/95	TN 06/26/95
951311	6 A	8502	1	LMT	06/16/95			
951311	7 A	8502	1	LMT	06/16/95			
951311	8 A	8502	1	LMT	06/16/95			
951311	9 A	8502	1	LMT	06/16/95			
951311	10 A	8502	1	LMT	06/16/95			
951311	11 A	8502	1	LMT	06/16/95			
951311	12 A	8502	1	LMT	06/16/95			
951311	13 A	8502	1	LMT	06/16/95			
951311	14 A	8502	1	LMT	06/16/95			
951311	15 A	8502	1	LMT	06/16/95			

E3I FAX COVER SHEET

35 Medford Street
Somerville, MA
02143

P.O. Box 215
E. Cambridge, MA
02141

Fax No. 617-666-5802
Tele. No. 617-666-5500

Date: 9/8/95

Number of Pages: 2
(including cover)

To: Judy Harry
Name

Title

Data Validation Serv

518 251 4429

Company

Fax Number

From: Mervy Condon
E3I Environmental Laboratory
Fax: 617-666-5802

Subject: TCLP Extraction log

Additional Comments: _____

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**NON-VOLATILE
TCLP EXTRACTION LOGBOOK
Energy & Environmental Engineering, Inc.**

PREP 016

Extracting Chemist: CB Date: 6/26/95

Sample ID	T0626-BK1	1302-5	1311-4	1311-8		
Subsequent Parameters	metals	→				
Sample (g)		100g	→			
Beaker (g)		115.7g	116.3g	122.2g		
Exudate(g)		47.8g	44.8g	20.8g		
% Solids		52.2%	55.2%	79.2%		
Particle Size (cm2)	< 3.1cm2	→				
Sample pH		7/1	2	6/1		
Sample Color/Texture/Descript.		Black Sludge	Brown Sand + water	→		
Sample Size (g)		100g	→			
Fluid Number	[✓] 1 [] 2	[✓] 1 [] 2	[✓] 1 [] 2	[✓] 1 [] 2	[] 1 [] 2	[] 1 [] 2
Sample Volume (mL)	2,000 ml	→				
Extractor Material	[] Glass [✓] Plast	[] Glass [✓] Plast	[] Glass [✓] Plast	[] Glass [✓] Plast	[] Glass [] Plast	[] Glass [] Plast
Start Date	6/26/95	→				
Start Time	4:15 pm	→				
End Date	6/27/95	→				
End Time	10:00am	→				
Final pH	5	6.5	3.5	6		

Fluid Ph: 4.94 → 4.49 →

Reviewer: _____ Date: _____ QA Review: _____ Date: _____

Filtration Material: _____

Page: 0088



E3I Environmental Laboratory

35 Medford Street
Somerville, MA 02143
Tel. (617) 666-5500

P.O. Box 410215
E. Cambridge, MA 02141
Fax (617) 666-5802

September 12, 1995

Ms. Judy Harry
Data Validation Services
Cobble Creek Road
P.O. Box 208
North Creek, NY 12853

Dear Ms. Harry:

At your request, the following statement regarding lab policy in recording lab/sample I.D.s is submitted.

E3I sample I.D.s are entered into the computer when the sample is analyzed. (The software will only accept one sample I.D. so the client I.D. cannot be entered at this point). The E3I sample I.D. will appear on the raw data printout. It is reviewed and any errors are corrected, initialled and dated. Then, client sample I.D.s are handwritten on the raw data. This is reviewed at the reporting stage and any errors are corrected, initialled and dated.

If you have any questions, please call me at (617) 666-5500.

Sincerely,

A handwritten signature in cursive script that reads 'Alison B. Kondylis'.

Alison B. Kondylis
Director, Quality Assurance

c. Stephen Mattingly,
Director, E3I



E3I Environmental Laboratory

35 Merford Street
Somerville, MA 02143
Tel. (617) 666-5500

P.O. Box 410215
E. Cambridge, MA 02141
Fax (617) 666-5802

September 12, 1995

Judy Harry
Data Validation Services
Cobble Creek Road
P.O. Box 208
North Creek, NY 12853

Dear Ms. Harry,

Enclosed is the response to the data validation questions you sent on September 4, 1995 to the attention of Steve Mattingly. The response to the first question was prepared by the Inorganic Manager, Charles Wohlers and the response to the second question was prepared by the QA Director, Alison Kondylis.

If you have any questions, please feel free to call me at (617) 666-5500.

Sincerely,

Mervelina Saturno-Condon
Mervelina Saturno-Condon

Response to Data Validation

LMS United Plating Project, SDG UPFB08, (E3I Projects 951302, & 951311)

The following is our response to Inorganics Data Validation for the above data package, received by us 5 Sept. 1995:

1. The two LCSW's were part of two different digestions done on two different days. ~~The corrected~~ results for the first LCSW for barium and antimony are now included in this resubmission. Since we are unable to explain the results of the second LCSW, we have chosen to redigest and reanalyze all ICP elements for the samples connected with this LCSW (UPSW03 - UPSW05, plus matrix spike and duplicate). We are now resubmitting this data.

I hope this answers all your questions. If you have any further comments or questions, you may direct them to Charles Wohlers at E3I.

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

[illegible]

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NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPSW03

Name: Energy & Environ. Engr. Contract:

Lab Code: E3I Case No: SAS No.: SDG No.: UPFB08

Matrix (soil/water): WATER Lab Sample ID: 95131101

Level (low/med): LOW Date Received: 06/16/95

Solids 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8890.00	U	N	P
7440-36-0	Antimony	94.10			P
7440-38-2	Arsenic	37.20			P
7440-39-3	Barium	395.00			P
7440-41-7	Beryllium	0.70		E	P
7440-43-9	Cadmium	538.00			P
7440-70-2	Calcium	186000.00			P
7440-47-3	Chromium	18200.00			P
7440-48-4	Cobalt	114.00		E*	P
7440-50-8	Copper	3380.00			P
7439-89-6	Iron	58700.00	U	N*	P
7439-92-1	Lead	6280.00			P
7439-95-4	Magnesium	27700.00		E	P
7439-96-5	Manganese	722.00			P
7439-97-6	Mercury	66.00			CV
7440-02-0	Nickel	990.00			P
7440-09-7	Potassium	67300.00		E	P
7782-49-2	Selenium	5.00			*
7440-22-4	Silver	159.00		E	P
7440-23-5	Sodium	199000.00			P
7440-28-0	Thallium	7.90	P		
7440-62-2	Vanadium	32.70	B	P	
7440-66-6	Zinc	4760.00		E	P
	Cyanide	1280.00			CA

Color Before: YELLOW

Clarity Before: CLOUDY

Texture:

Color After: YELLOW

Clarity After: CLEAR

Artifacts:

Comments:

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPSW04

Lab Name: Energy & Environ. Engr. Contract:

Lab Code: E3I Case No: SAS No.: SDG No.: UPFB08

Matrix (soil/water): WATER Lab Sample ID: 95131102

Level (low/med): LOW Date Received: 06/16/95

% Solids 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	232.00			P
7440-36-0	Antimony	13.30	U	N	P
7440-38-2	Arsenic	12.10			P
7440-39-3	Barium	38.90	B		P
7440-41-7	Beryllium	0.70	U		P
7440-43-9	Cadmium	23.00		E	P
7440-70-2	Calcium	47100.00			P
7440-47-3	Chromium	386.00		E	P
7440-48-4	Cobalt	7.00	B		P
7440-50-8	Copper	122.00			P
7439-89-6	Iron	1360.00		E*	P
7439-92-1	Lead	293.00		N*	P
7439-95-4	Magnesium	4770.00	B		P
7439-96-5	Manganese	24.90			P
7439-97-6	Mercury	0.48			CV
7440-02-0	Nickel	25.00	B	E	P
7440-09-7	Potassium	6510.00		E	P
7782-49-2	Selenium	6.80		*	P
7440-22-4	Silver	8.20	B		P
7440-23-5	Sodium	15500.00		E	P
7440-28-0	Thallium	7.90	U		P
7440-62-2	Vanadium	9.10	B		P
7440-66-6	Zinc	178.00		E	P
	Cyanide	32.60			CA

Color Before: YELLOW

Clarity Before: CLOUDY

Texture:

Color After: YELLOW

Clarity After: CLEAR

Artifacts:

Comments:

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPSW05

Lab Name: Energy & Environ. Engr. Contract:

Lab Code: E3I Case No: SAS No.: SDG No.: UPFB08

Matrix (soil/water): WATER Lab Sample ID: 95131103

Level (low/med): LOW Date Received: 06/16/95

Solids 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	1230.00	B U	N	P	
7440-36-0	Antimony	72.20			P	
7440-38-2	Arsenic	51.30			P	
7440-39-3	Barium	94.50			P	
7440-41-7	Beryllium	0.70			P	
7440-43-9	Cadmium	39.90			P	
7440-70-2	Calcium	94400.00			P	
7440-47-3	Chromium	34200.00			P	
7440-48-4	Cobalt	50.00			P	
7440-50-8	Copper	383.00			P	
7439-89-6	Iron	14800.00	U	E*	P	
7439-92-1	Lead	1820.00		N*	P	
7439-95-4	Magnesium	11500.00		E		P
7439-96-5	Manganese	128.00			P	
7439-97-6	Mercury	0.51			CV	
7440-02-0	Nickel	148.00			P	
7440-09-7	Potassium	6580.00			P	
7782-49-2	Selenium	5.00			P	
7440-22-4	Silver	42.60			P	
7440-23-5	Sodium	33300.00			P	
7440-28-0	Thallium	9.40	B U			P
7440-62-2	Vanadium	2.10			P	
7440-66-6	Zinc	935.00			P	
	Cyanide	50.00		E	CA	

Color Before: YELLOW Clarity Before: CLOUDY Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

E3I FAX COVER SHEET

35 Medford Street
Somerville, MA
02143

P.O. Box 215
E. Cambridge, MA
02141

Fax No. 617-666-5802
Tele. No. 617-666-5500

Date: 9/14/95

Number of Pages: 23
(including cover)

To: Judy Harry
Name

Title

Data Validation Serv. 518 251 4429
Company Fax Number

From: Mervy
E3I Environmental Laboratory
Fax: 617-666-5802

Subject: re submittal

Additional Comments:

CONFIDENTIAL

This facsimile contains CONFIDENTIAL INFORMATION which also may be LEGALLY PRIVILEGED and which is intended only for the use of the parties named above. If you are not the intended recipient of this facsimile, or the person responsible for delivering it to the intended recipient, you are hereby notified that any dissemination or copying of this facsimile may be strictly prohibited. If you received this facsimile in error, please notify us immediately by telephone, and return the original facsimile to us at the above address via Postal Service. Thank

INORGANIC ANALYSES

[illegible]

NYSDEC - ASP

COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: UPFB08

Protocol Version: 12/91

NYSDEC Sample No.

Lab Sample ID.

UPFB08

95130201

UPFB09

95130202

UPSW01

95130203

UPSW02

95130204

Where ICP interelement corrections applied?

Yes/No NO

Were ICP background corrections applied?

Yes/No YES

If yes-were raw data generated before
application of background corrections?

Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the Protocol, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature:

Charles Wohlers

Name: Dr. Charles Wohlers

Date:

14 Sept. 1995

Title: Laboratory Manager

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPFB08

Lab Name: Energy & Environ. Engr. Contract:

Lab Code: E3I Case No: SAS No.: SDG No.: UPFB08

Matrix (soil/water): WATER

Lab Sample ID: 95130201

Level (low/med): LOW

Date Received: 06/15/95

Solids 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	13.30	U		P

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

FORM I - IN

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPFB09

Lab Name: Energy & Environ. Engr. Contract:

Lab Code: E3I Case No: SAS No.: SDG No.: UPFB08

Matrix (soil/water): WATER Lab Sample ID: 95130202

Level (low/med): LOW Date Received: 06/15/95

% Solids 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	13.30	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:
 Color After: COLORLESS Clarity After: CLEAR Artifacts:
 Comments:

FORM I - IN

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPSW01

Lab Name: Energy & Environ. Engr. Contract:

Lab Code: E3I Case No: SAS No.: SDG No.: UPFB08

Matrix (soil/water): WATER Lab Sample ID: 95130203

Level (low/med): LOW Date Received: 06/15/95

% Solids 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	13.30	U		P

Color Before: COLORLESS Clarity Before: CLOUDY Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPSW02

Lab Name: Energy & Environ. Engr. Contract:

Lab Code: E3I Case No: SAS No.: SDG No.: UPFB08

Matrix (soil/water): WATER Lab Sample ID: 95130204

Level (low/med): LOW Date Received: 06/15/95

% Solids 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	44.60	B		P

Color Before: YELLOW Clarity Before: CLOUDY Texture:
Color After: YELLOW Clarity After: CLEAR Artifacts:
Comments:

FORM I - IN

SDG NARRATIVE

Statement of Work: These results are in accordance with NYSDEC ASP 12/91.

Comments: All holding time and QC requirements were met with the following exceptions:

Samples which arrived on 15 June (UPFB08, UPFB09, UPSW01, UPSW02, & UPSD01 - 04), were analyzed for mercury one day past holding times. However, all mercury samples were digested within holding times.

Some CCB's for lead exceeded the CRDL. However, since all samples in that run had lead concentrations in excess of 100 times the highest CCB, they were not rerun.

One of the two soil Laboratory Control Samples failed for cyanide. Unfortunately, this was not discovered until after holding times had expired.

Qualifier Definitions:

- B - Reported value obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).
- U - The value recorded by the instrument was less than the Instrument Detection Limit (IDL).
- E - The reported value is estimated because of the presence of interference.
- N - Spiked sample recovery not within control limits.
- * - Duplicate analysis not within control limits.

Description of Instrumentation:

1. ICP:

Leeman Labs PS-1000AT

No significant modifications.

Operating conditions:

RF Power: 1200W

Coolant gas: 17lpm

Auxiliary gas: 0.6lpm

Nebulizer gas: 59 psi pressure

Wavelengths used:

Al 396.2nm

Sb 217.6

As 193.7

Ba 455.4

Be 313.0

Cd 214.4

Ca 317.9

Cr 267.7

Co 228.6

Cu 324.7

Tl 190.8

Pb 220.3

Fe 263.1

Mg 279.1

Mn 257.6

Ni 231.6

K 766.4

Se 196.0

Ag 328.1

Na 589.6

V 292.4

Zn 206.2

Calibration Standards:

Mixed-(for ICP) and single element calibration standards were made up as described in our Standards Logs from 1000ppm stock solutions. Specific sources are given in tables at the end of this narrative.

Initial and continuing calibration verification standards used were produced in-house from stock standards other than those used to prepare the standardization solutions.

Laboratory Control Samples:

The above ICP standards were used as Laboratory Control Samples for all aqueous samples. The soil Laboratory Control Sample was from ERA.

Interference Check Sample:

The Interference Check Samples A and AB were made up by us and tested in accordance with SOW ILM02.0.

ICP Interelement Corrections: Interelement corrections were done off-line after the raw data was generated. For this reason the raw data will not agree with the forms where interelement corrections have been applied. The data may be checked by applying the correction factor on Form 11 to the raw data. This is done by multiplying an experimentally determined factor (the value on Form 11) times the interferant concentration and then subtracting this product from the analyte concentration. This is done before any conversions to mg/kg for soil samples. This formula can be expressed as:

$$CA_{\text{corr}} = CA_{\text{raw}} - (CI * F),$$

where CA_{corr} is the concentration of the analyte corrected for the interference; CA_{raw} is the analyte concentration as it appears in the raw data (i. e., before correction); CI is the interferant concentration in that sample (from the raw data); and F is the factor for that interference, from Form 11. For the interference of Fe on As, for example, Fe is the interferant and Zn is the analyte. Multiple IEC's (e. g., Fe and Al on Se) are assumed to be simply additive. Once the decision to do a particular IEC is made, a computer routine is used which performs the above calculation on all samples where the correction (the product of the IEC factor and the interferant concentration) is both larger than the analyte IDL and larger than 0.5% of the analyte concentration.

The corrections applied and the samples involved are:

Correction	Samples Correction Applied To:
Fe on Se	all soil samples, UPSW03; LCSS; ICS stds.
Fe on Tl	as above
Fe on As	all soil samples except UPSD03; ICS stds.
Fe on Pb	UPSD05, UPSD11, UPSD16; ICS stds.
Al on Se	ICS stds.
Al on Tl	as above
Al on Pb	as above
Ca on Sb	UPSW03; ICS stds.
Cr on As	all soil samples except UPSD01, UPSD06, UPSD14, & UPSD16; UPSW03, UPSW05
Cu on Pb	UPSW02, UPSD05
Ni on Pb	UPSD05, UPSD16

"I certify that this data package is in compliance with the terms and conditions of the Protocol, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

Signature

Date

SDG NARRATIVE

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Comments: All holding time and QC requirements were met with the following exceptions:

Samples which arrived on 15 June (UPFB08, UPFB09, UPSW01, UPSW02, & UPSD01 - 04), were analyzed for mercury one day past holding times. However, all mercury samples were digested within holding times.

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- N - Spiked sample recovery not within control limits.
- * - Duplicate analysis not within control limits.

Description of Instrumentation:

1. ICP:

Leeman Labs PS-1000AT

No significant modifications.

Operating conditions:

RF Power: 1200W

Coolant gas: 17lpm

Auxiliary gas: 0.6lpm

Nebulizer gas: 59 psi pressure

Wavelengths used:

Al 396.2nm

Sb 217.6

As 193.7

Ba 455.4

Be 313.0

Cd 214.4

Ca 317.9

Cr 267.7

Co 228.6

Cu 324.7

Tl 190.8

Pb 220.3

Fe 263.1

Mg 279.1

Mn 257.6

Ni 231.6

K 766.4

Se 196.0

Ag 328.1

Na 589.6

V 292.4

Zn 206.2

Calibration Standards:

Mixed (for ICP) and single element calibration standards were made up as described in our Standards Logs from 1000ppm stock solutions. Specific sources are given in tables at the end of this narrative.

Initial and continuing calibration verification standards used were produced in-house from stock standards other than those used to prepare the standardization solutions.

Laboratory Control Samples:

The above ICV standards were used as Laboratory Control Samples for all aqueous samples. The soil Laboratory Control Sample was from ERA.

Interference Check Sample:

The Interference Check Samples A and AB were made up by us and tested in accordance with SOW ILM02.0.

ICP Interelement Corrections: Interelement corrections. were done off-line after the raw data was generated. For this reason the raw data will not agree with the forms where interelement corrections have been applied. The data may be checked by applying the correction factor on Form 11 to the raw data. This is done by multiplying an experimentally determined factor (the value on Form 11) times the interferant concentration and then subtracting this product from the analyte concentration. This is done before any conversions to mg/kg for soil samples. This formula can be expressed as:

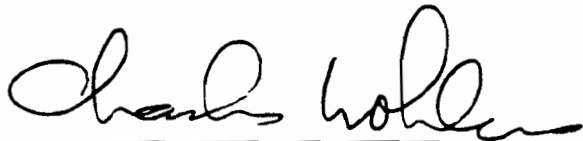
$$CA_{\text{corr}} = CA_{\text{raw}} - (CI * F),$$

where CA_{corr} is the concentration of the analyte corrected for the interference; CA_{raw} is the analyte concentration as it appears in the raw data (i. e., before correction); CI is the interferant concentration in that sample (from the raw data); and F is the factor for that interference, from Form 11. For the interference of Fe on As, for example, Fe is the interferant and Zn is the analyte. Multiple IEC's (e. g., Fe and Al on Se) are assumed to be simply additive. Once the decision to do a particular IEC is made, a computer routine is used which performs the above calculation on all samples where the correction (the product of the IEC factor and the interferant concentration) is both larger than the analyte IDL and larger than 0.5% of the analyte concentration.

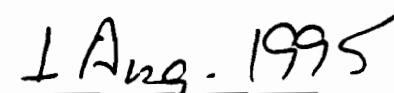
The corrections applied and the samples involved are:

Correction	Samples Correction Applied To:
Fe on Se	all soil samples, UPSW03; LCSS; ICS stds.
Fe on Tl	as above
Fe on As	all soil samples except UPSD03; ICS stds.
Fe on Pb	UPSD05, UPSD11, UPSD16; ICS stds.
Al on Se	ICS stds.
Al on Tl	as above
Al on Pb	as above
Ca on Sb	UPSW03; ICS stds.
Cr on As	all soil samples except UPSD01, UPSD06, UPSD14, & UPSD16; UPSW03, UPSW05
Cu on Pb	UPSW02, UPSD05
Ni on Pb	UPSD05, UPSD16

"I certify that this data package is in compliance with the terms and conditions of the Protocol, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."



Signature



Date

00008

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
UPFB08	95130201						
UPFB09	95130202						
UPSU01	95130203						
UPSU02	95130204						
UPSU03	95131101						
UPSU04	95131102						
UPSU05	95131103						
UPSU05A	95131103A						
UPSU05B	95131103B						
UPSU05C	95131103C						
UPSU05D	95131103D						
UPSU05E	95131103E						
UPSU05F	95131103F						
UPSU05G	95131103G						
UPSU05H	95131103H						
UPSU05I	95131103I						
UPSU05J	95131103J						
UPSU05K	95131103K						
UPSU05L	95131103L						
UPSU05M	95131103M						
UPSU05N	95131103N						
UPSU05O	95131103O						
UPSU05P	95131103P						
UPSU05Q	95131103Q						
UPSU05R	95131103R						
UPSU05S	95131103S						
UPSU05T	95131103T						
UPSU05U	95131103U						
UPSU05V	95131103V						
UPSU05W	95131103W						
UPSU05X	95131103X						
UPSU05Y	95131103Y						
UPSU05Z	95131103Z						
UPSU06	95131104						
UPSU07	95131105						
UPSU08	95131106						
UPSU09	95131107						
UPSU10	95131108						
UPSU11	95131109						
UPSU12	95131110						
UPSU13	95131111						
UPSU14	95131112						
UPSU15	95131113						
UPSU16	95131114						
UPSU17	95131115						
UPSU18	95131116						
UPSU19	95131117						
UPSU20	95131118						
UPSU21	95131119						
UPSU22	95131120						
UPSU23	95131121						
UPSU24	95131122						
UPSU25	95131123						
UPSU26	95131124						
UPSU27	95131125						
UPSU28	95131126						
UPSU29	95131127						
UPSU30	95131128						
UPSU31	95131129						
UPSU32	95131130						
UPSU33	95131131						
UPSU34	95131132						
UPSU35	95131133						
UPSU36	95131134						
UPSU37	95131135						
UPSU38	95131136						
UPSU39	95131137						
UPSU40	95131138						
UPSU41	95131139						
UPSU42	95131140						
UPSU43	95131141						
UPSU44	95131142						
UPSU45	95131143						
UPSU46	95131144						
UPSU47	95131145						
UPSU48	95131146						
UPSU49	95131147						
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UPSU59	95131157						
UPSU60	95131158						
UPSU61	95131159						
UPSU62	95131160						
UPSU63	95131161						
UPSU64	95131162						
UPSU65	95131163						
UPSU66	95131164						
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UPSU69	95131167						
UPSU70	95131168						
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UPSU74	95131172						
UPSU75	95131173						
UPSU76	95131174						
UPSU77	95131175						
UPSU78	95131176						
UPSU79	95131177						
UPSU80	95131178						
UPSU81	95131179						
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UPSU90	95131188						
UPSU91	95131189						
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UPSU93	95131191						
UPSU94	95131192						
UPSU95	95131193						
UPSU96	95131194						
UPSU97	95131195						
UPSU98	95131196						
UPSU99	95131197						
UPSU00	95131198						
UPSU01	95131199						
UPSU02	95131200						
UPSU03	95131201						
UPSU04	95131202						
UPSU05	95131203						
UPSU06	95131204						
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UPSU12	95131310						
UPSU13	95131311						
UPSU14	95131312						
UPSU15	95131313						
UPSU16	95131314						

INORGANIC ANALYSES

[illegible]

INORGANIC ANALYSES

[illegible]

00029

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCRs Method #	*Metals	*Other
UPSD001	95130205						
UPSD002	95130206						
UPSD003	95130207						
UPSD004	95130208						
UPSD005	95130209						
UPSD006	95130210						
UPSD007	95130211						
UPSD008	95130212						
UPSD009	95130213						
UPSD010	95130214						
UPSD011	95130215						
UPSD012	95130216						
UPSD013	95130217						
UPSD014	95130218						
UPSD015	95130219						
UPSD016	95130220						
UPSD017	95130221						
UPSD018	95130222						
UPSD019	95130223						
UPSD020	95130224						
UPSD021	95130225						
UPSD022	95130226						
UPSD023	95130227						
UPSD024	95130228						
UPSD025	95130229						
UPSD026	95130230						
UPSD027	95130231						
UPSD028	95130232						
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UPSD228	95130432						
UPSD229	95130433						
UPSD230	95130434						
UPSD231	95130435						
UPSD232	95130436</						

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY

INORGANIC ANALYSES

SAMPLE ID	MATRIX	METALS REQUESTED	DATE RECEIVED	DATE DIGESTED	DATE ANALYZED
95130205	SOIL	HG	06/15/95	07/11/95	07/12/95
95130206	SOIL	HG	06/15/95	07/11/95	07/12/95
95130207	SOIL	HG	06/15/95	07/11/95	07/12/95
95130208	SOIL	HG	06/15/95	07/11/95	07/12/95
95131105	SOIL	HG	06/16/95	07/12/95	07/12/95
95131106	SOIL	HG	06/16/95	07/12/95	07/12/95
95131107	SOIL	HG	06/16/95	07/12/95	07/12/95
95131108	SOIL	HG	06/16/95	07/12/95	07/12/95
95131109	SOIL	HG	06/16/95	07/12/95	07/12/95
95131110	SOIL	HG	06/16/95	07/12/95	07/12/95
95131111	SOIL	HG	06/16/95	07/12/95	07/12/95
95131112	SOIL	HG	06/16/95	07/12/95	07/12/95
95131113	SOIL	HG	06/16/95	07/12/95	07/12/95
95131114	SOIL	HG	06/16/95	07/12/95	07/12/95
95131115	SOIL	HG	06/16/95	07/12/95	07/12/95
95131116	SOIL	HG	06/16/95	07/12/95	07/12/95

INORGANIC ANALYSES

00033

TEST PIT SOIL SAMPLES

SDG No. UPTP02

DATA USEABILITY REPORT

This useability report covers the analytical results, submitted by E3I Environmental Laboratory (E3I), for the field sampling investigation, conducted by Lawler, Matusky & Skelly Engineers (LMS) in August 1995 at the United Plating site. The analytical report submitted by E3I, sample designation group (SDG) UPTP02 was validated by Data Validation Services (DVS). LMS reviewed the data validator's final report and assessed the analytical data against the project data quality objectives (DQOs) in preparation of this report. The laboratory performed all of the necessary actions in order to provide the most representative data and where resulting quality control (QC) data did not fall within protocol requirements the reported data were appropriately qualified. With a few exceptions the data submitted by E3I met the project DQOs and are useable to characterize the levels of environmental contaminants in samples collected from the United Plating site.

A total of seven (7) soil samples were collected and processed for full contract laboratory program (CLP) target compound list (TCL) volatile organic compounds (VOCs) and target analyte list metals. All of the analyses were conducted in accordance with the most recent version of New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP).

The analytical data submitted by E3I were compliant with the established protocols, however some of the values reported by the laboratory are not useable due to contamination found in the associated field blank. This report presents a discussion of any limitations associated with the reported values as a result of issues raised by the data validator.

Soil Samples

Volatile Analyses

Soil samples submitted to E3I were analyzed for TCL VOCs in accordance with NYSDEC ASP Method 91-1. The results reported by E3I were compliant with ASP. Where reported values are affected by QC issues raised by the data validator the data useability is discussed below.

1. Methylene chloride and acetone were detected in the associated blanks at concentrations similar to those reported in the samples. Both of these compounds are common laboratory contaminants and are considered the result of cross contamination. Therefore, these compounds have been removed from the data summary tables.

2. All tentatively identified compounds (TICs) that are flagged in the laboratory report with a "B" qualifier were also present in associated blanks at similar concentrations and were therefore removed from the data summary tables.

Metals

Soil samples submitted to E3I were analyzed for TAL metals in accordance with NYSDEC ASP CLP superfund methodologies. The affect of QC issues addressed by the data validator and the data useability are discussed below.

1. Mercury was detected in the field blank at concentrations above those reported in the sample. Due to the blank contamination it can not be determined with any degree of confidence whether the values reported for individual samples are representative of field conditions or the result of cross contamination. Therefore, the resulting mercury values for soil samples analyzed by the laboratory are rejected and not useable.

2. Duplicate analyses on sample UPTP06(2.5-3) resulted in low recoveries for antimony and slightly low recoveries for selenium, mercury, cyanide and zinc. As a result of the poor recoveries all reported values for the listed analytes have been qualified as considered estimated in sample UPTP06(2.5-3). These results are useable to show the whether the analyte was detected and the magnitude of analyte present if detected.

3. Due to elevated recovery of the thallium standard associated with UPTP03(4-5) the reported value is possibly biased high. Thallium was detected at a concentration below the CRDL, therefore the useability of this value is not affected.

4. Serial dilution determinations for sample UPTP-06(2.5-3) resulted in slightly elevated percent differences for several analytes. Therefore, the reported values for barium, lead,

magnesium, potassium and zinc have been qualified to indicate the results should be considered estimated. Based on the reported percent differences the resulting values reported by the laboratory are only slightly affected and can be used to show the relative levels detected for each analyte.

5. Selenium produced post-digest spike recoveries below the recommended limit (85%) for several samples and were flagged appropriately by the laboratory with a "W". These values should be considered estimated, however are only slightly affect and be used to show the relative levels detected for each analyte.

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

LAWLER, MATUSKY & SKELLY
ENGINEERS

SEP 26 1995

September 24, 1995

Maria Heincz
LMS Engineers
One Blue Hill Plaza
Pearl River, NY 10965

RE: Validation of United Plating Site Data Package
E3I SDG No. UPTP02

Dear Ms. Heincz:

Review has been completed for the data package generated by E3I Labs, pertaining to samples collected at the United Plating Site. Seven soil samples were processed for TCL VOA and TAL metals parameters. A field blank and matrix spikes/duplicates were also processed. Methodologies utilized are those of the 1991 NYSDEC ASP CLP.

Data validation was performed with guidance from the most current editions of the USEPA CLP National Functional Guidelines for Organic and Inorganic Data Review and validation SOPs HW-2 and HW-6. The following items were reviewed:

- * Data Completeness
- * Custody Documentation
- * Holding Times
- * Surrogate and Internal Standard Recoveries
- * Matrix Spike Recoveries/Duplicate Correlations
- * Preparation/Calibration Blanks
- * Control Spike/Laboratory Control Samples
- * Instrumental Tunes
- * Calibration Standards
- * Instrument IDLs
- * Method Compliance
- * Sample Result Verification

Those items showing deficiencies are discussed in the following sections of this report. All others were found to be acceptable as outlined in the above-mentioned validation procedures, and as applicable for the methodology. Unless noted specifically in the following text, reported results are substantiated by the raw data, and generated in compliance with protocol requirements.

In summary, sample processing was primarily conducted with compliance to protocol requirements and with adherence to quality criteria. Quality concerns are discussed in the following analytical sections, with indicated edits and qualifications to sample reported results.

Copies of laboratory case narratives are attached to this narrative, and should be reviewed in conjunction with this narrative. A compliancy chart and laboratory NYSDEC Sample Preparation and Analysis Summary Forms are also included with this report.

Volatile Analyses

Methylene chloride and acetone were detected in certain of the method blanks and in the field blank at concentrations similar to those of the samples. The sample reported methylene chloride and acetone results should therefore be edited to reflect nondetection at either the sample CRDL or at the originally reported value, whichever is greater.

All TICs reported with the "B" laboratory flag should be disregarded as sample components due to copresence in associated blanks.

Due to outlying linearity for acetone in soils (63%RPD; no corrective action is required), with elevated responses at lower concentrations, the reported acetone results for UPTP-07 (3.5-4) and UPTP-03 (4-5), which should be edited to nondetection at the originally reported levels (per above discussion), should also be considered estimated.

Certain of the daily calibration standards produced elevated responses for some target compounds not detected in the samples; sample reported detection limits are not affected.

Accuracy and precision data for UPTP-06 (2.5-3) were acceptable.

The aqueous IDLs reported in the data package did not apply to the instrument used in this sample batch. Batch acceptance is based upon observed sensitivity, system linearity, and spectral quality.

Metals/CN Analyses

The field blank produced values above CRDL for mercury. All sample mercury detections are at similar levels to that detected in the field blank, and may result from contamination. The reported mercury detections should be rejected, as sample mercury concentrations at or below the observed levels are suspect. Elevated detection limits (at the originally reported values) may be considered.

Accuracy and duplicate determinations were performed on UPTP06(2.5-3). The following spike recoveries were low (below the recommended limit of 75%), and reported results for these elements in the project samples should be considered estimated:

<u>Element</u>	<u>% Recovery</u>
Antimony	42%
Mercury	70
Selenium	60
Zinc	70
Cyanide	72

Duplicate correlation for chromium (38%RPD) and copper (71%RPD) were above the recommended limit of 25%RPD; sample results do not require qualification.

Several samples produced negative absorbances for thallium which were greater in absolute value than the CRDL (of 10 ug/L at the instrument level). The reported results for thallium in these samples should be considered estimated: UPTP-1(2.5-3) (-14), UPTP-2(2-3) (-23), UPTP-2(5-6) (-21), and UPTP-6(2.5-3) (-18).

Due to elevated recovery (above 125%) for thallium in the CRI (standard at twice the CRDL concentration), the reported value for thallium in UPTP-3(4-5) should be considered estimated.

Serial dilution determinations for sample UPTP-6(2.5-3) produced the following outlying percent difference correlations (above 10%D), and reported detected values of the soil samples should be considered estimated:

<u>Element</u>	<u>%Difference</u>
barium	14
lead	14
magnesium	13
potassium	18
zinc	23

Selenium produced low post-digest spike recoveries for several samples ("W" flag). The recoveries ranged from 42% to 77% (below the recommended limit of 85%). Sample selenium values flagged by the laboratory as "W" should be considered estimated.

The case narrative should have discussed those elements which were manually adjusted for the interelement correction factors.

Although the case narrative states that aqueous LCS spikes are at the ICV concentrations, those for barium, iron, and zinc differ.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,



COMPLIANCY CHART

Project: LMS Engineers -United Plating Site

SDG No. E3I SDG No. UPTP02

Protocol: 1991 NYSDEC ASP CLP

Rec. Date	Sample ID	Matrix	VOA	Metals/CN	Noncompliance
08-22-95	UPTP1(2.5-3)	Soil	OK	OK	
08-22-95	UPTP2(2-3)	Soil	OK	OK	
08-22-95	UPTP2(5-6)	Soil	OK	OK	
08-22-95	UPTP3(4-5)	Soil	OK	OK	
08-22-95	UPTP4(4-5)	Soil	OK	OK	
08-22-95	TP6(2.5-3)	Soil	OK	OK	
08-22-95	TP7(3.5-4)	Soil	OK	OK	
08-22-95	UPFB10	Aqueous	OK	OK	

Data Validation Services

Cobble Creek Road P. O. Box 208
North Creek, NY 12853
Phone and Fax (518) 251-4429

Facsimile Transmission

TO:

Mervy Condon

COMPANY:

E3I

FAX NUMBER:

617 646 5802

FROM:

Judy Harry

DATE:

9-21-95

No. of pages (including cover):

1

COMMENTS:

Re: LMS Engineers - United Plating Site
SDG UPTPO2

No raw data is present for the solids/moisture
determination for sample TP7354.

Please provide a copy for review.

Thanks,

Judy

E3I FAX COVER SHEET

35 Medford Street
Somerville, MA
02143

P.O. Box 215
E. Cambridge, MA
02141

Fax No. 617-666-5802
Tele. No. 617-666-5500

Date: <u>9/21/95</u>	Number of Pages: <u>2</u> (including cover)

To: <u>Judy Harvey</u>	
Name	Title
<u>Data Validation Services</u>	<u>518-251-4429</u>
Company	Fax Number

From: <u>Mervy Condon</u>
E3I Environmental Laboratory
Fax: 617-666-5802
Subject: <u>% solid/moisture for 951658-2</u>
<u>UPTP-07(3.5-4) on page 234.</u>

Additional Comments: The analyst made an error of
omitting '6' on E3I sample #, but the client ID
is correct. The client ID was shortened in the
final report due to computer field limitations.
Sorry about that.

CONFIDENTIAL

mervy

This facsimile contains CONFIDENTIAL INFORMATION which also may be LEGALLY PRIVILEGED and which is intended only for the use of the parties named above. If you are not the intended recipient of this facsimile, or the person responsible for delivering it to the intended recipient, you are hereby notified that any dissemination or copying of this facsimile may be strictly prohibited. If you received this facsimile in error, please notify us immediately by telephone, and return the original facsimile to us at the above address via Postal Service. Thank You.

PERCENT SOLIDS DETERMINATION
Energy & Environmental Engineering, Inc.

QA 006

START: Date: 8/28 Time: 12:30 pm Oven Temp.: 104°C (103-105°C) Analyst: WJH
END: Date: 8/29 Time: 16:00 pm Oven Temp.: 104°C (103-105°C) Analyst: WJH

BI Sample ID	Client Sample ID	Weigh Boat (g)	Wet Sample + Weigh Boat (g)	Dry Sample + Weigh Boat (g)	Percent Solids (g)
1 95165-1	B54-1-12	1.606	7.788	6.490	79.0
2 -1d	"	1.583	7.671	6.249	76.6
3 -2	B54-2-08	1.576	8.708	7.220	79.1
4 -3	B54-3-07	1.581	8.630	7.470	83.5
5 -4	B54-4-07	1.587	9.925	8.920	87.9
6 -5	B54-5-09	1.602	7.403	6.511	84.6
7 -6	FD54-1	1.609	7.720	7.152	90.7
8 -7	FD54-2	1.600	8.086	6.536	76.1
9 -8	FD54-2A	1.592	8.101	6.562	76.3
0 -9	SD54-1	1.593	7.642	6.465	80.5
1 95158-2	WTP-07(3.5-4)	1.615	8.184	7.298	86.5
2 m/c 9/21/95					
3					
4					
5					

Comments:

SDG NARRATIVE

LAB NAME: E3I Environmental Laboratory

CASE NO.: United Plating

SDG: UPTP02

E3I Project: 951650, 951658

Statement of Work: These results are in accordance with NYSDEC ASP 12/91. These results are reported according to ASP Superfund Category "B".

SAMPLE NO.: UPTP02(2-3), UPTP02(5-6), UPTP03(4-5), UPTP04(4-5), UPTP06(2.5-3), UPTP07(3.5-4), UPTP1(2.5-3), UPFB10.

Sample IDs: It was necessary to abbreviate the LMS IDs due to software limitations. Please refer to the sample ID crossreference for complete IDs.

E3I ID:	Abbreviated ID:	Client ID:
951650-1	TP1253	UPTP-1(2.5-3)
951650-2	TP0223	UPTP-02(2-3)
951650-3	TP0256	UPTP-02(5-6)
951650-4	FB10	UPFB-10
951650-5	TP0345	UPTP-03(4-5)
951650-6	TP0445	UPTP-04(4-5)
951658-1	TP06253	UPTP-06(2.5-3)
951658-2	TP07354	UPTP-07(3.5-4)

Volatile Organics:

Sample TP0345 was analyzed at a 1:5 dilution due to the high concentration of nontarget compounds.

The following method blanks contain one or more nontarget compounds:

<u>Lab ID</u>	<u>Instrument</u>	<u>Date</u>	<u>Number of TICs</u>
VBLKS25A	Elmer	8/25/95	1
VBLKS29A	Elmer	8/29/95	1

000001

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature."

Mervelina Saturno-Condon
Mervelina Saturno-Condon
Project Manager

September 5, 1995

000002

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

[illegible]

SAMPLE PREPARATION AND ANALYSIS SUMMARY

[illegible]

SDG NARRATIVE

Statement of Work: These results are in accordance with NYSDEC ASP 12/91.

Comments: All holding time and QC requirements were met with the following exceptions:

It was necessary to shorten the client sample ID's, as they exceeded the ASP six-character limit.

Qualifier Definitions:

- B - Reported value obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).
- U - The value recorded by the instrument was less than the Instrument Detection Limit (IDL).
- E - The reported value is estimated because of the presence of interference.
- N - Spiked sample recovery not within control limits.
- * - Duplicate analysis not within control limits.

000001

Description of Instrumentation:

1. ICP:

Leeman Labs PS-1000AT

No significant modifications.

Operating conditions:

RF Power: 1200W

Coolant gas: 17lpm

Auxiliary gas: 0.6lpm

Nebulizer gas: 59 psi pressure

Wavelengths used:

Al 396.2nm

Sb 217.6

As 193.7

Ba 455.4

Be 313.0

Cd 214.4

Ca 317.9

Cr 267.7

Co 228.6

Cu 324.7

Tl 190.8

Pb 220.3

Fe 263.1

Mg 279.1

Mn 257.6

Ni 231.6

K 766.4

Se 196.0

Ag 328.1

Na 589.6

V 292.4

Zn 206.2

Calibration Standards:

Mixed (for ICP) and single element calibration standards were made up as described in our Standards Logs from 1000ppm stock solutions. Specific sources are given in tables at the end of this narrative.

Initial and continuing calibration verification standards used were produced in-house from stock standards other than those used to prepare the standardization solutions.

Laboratory Control Samples:

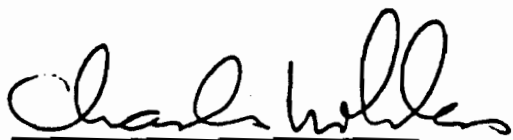
The above ICV standards were used as Laboratory Control Samples for all aqueous samples. The soil Laboratory Control Sample was from ERA.

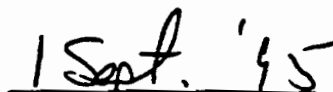
000002

Interference Check Sample:

The Interference Check Samples A and AB were made up by us and tested in accordance with SOW ILM02.0.

"I certify that this data package is in compliance with the terms and conditions of the Protocol, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."


Signature


Date

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

[illegible]

SOIL BORING SAMPLES

SDG No.-s UPMW1A, UPMW4

DATA USEABILITY REPORT

This useability report covers the analytical results, submitted by Energy & Environmental Engineering Inc. (E3I), for the soil boring installation and field sampling investigation, conducted by Lawler, Matusky & Skelly Engineers LLP (LMS) during September 1995 at the United Plating site. The analytical report submitted by E3I for sample designation groups (SDG) UPMW-1A and UPMW-4 were validated by Data Validation Services (DVS). LMS reviewed the data validator's final report and assessed the analytical data against the project data quality objectives (DQOs) in preparation of this report. Where resulting quality control (QC) data did not fall within protocol requirements the reported data have been appropriately qualified. With some exceptions, the data submitted by E3I met the project DQOs and are useable to characterize the environmental conditions of samples collected from the United Plating site.

A total of six (6) soil samples were collected from soil borings and processed for full contract laboratory program (CLP) target compound list (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides and polychlorinated biphenyls (pest/PCBs), and target analyte list (TAL) metals. All of the analyses were conducted in accordance with the most recent version of New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP).

For the most part the analytical data submitted by E3I were compliant with the established protocols, where data were found to be noncompliant the results are discussed in detail in the data validator's report. LMS has prepared this report to discuss any useability limitations associated with the reported values as a result of issues raised by the data validator.

Soil Samples

Volatile Analyses

Soil samples submitted to E3I were analyzed for TCL VOCs in accordance with NYSDEC ASP Method 91-1. The affect of QC issues addressed by the data validator and the data useability are discussed below.

1. Sample UPMW-4A was reanalyzed due to elevated concentrations (above the calibration range of the instrumentation) of trichloroethylene (TCE). The concentration of TCE derived from the reanalysis (RE-UPMW-4A at 15 mg/kg), is considered representative and other VOCs derived from the low-level analysis are considered the most representative of sample concentrations. The results of the low-level analysis are qualified as estimated due to possible system saturation.

2. Analysis of UPMW-5A followed the analysis of a sample showing saturation (UPMW-4A). A sample blank was not performed following analysis of the saturated sample to demonstrate the instrumentation was free of carryover contamination. Sample results for TCE in UPMW-5A are therefore suspect due to the possibility of sample carryover. The data tables have been edited to indicate that TCE was not detected in UPMW-5 at an elevated detection limit of 0.099 mg/kg.

3. Methylene chloride and acetone were detected in associated QC blanks at concentrations similar to those reported in the field samples. Both of these compounds are common laboratory contaminants and are considered the result of cross contamination. Therefore, the values reported by the laboratory are not considered representative of sample concentrations and were not included in the data summary tables.

4. All tentatively identified compounds (TICs) that were flagged by the laboratory with a "b" qualifier were present in associated QC blanks at similar concentrations to those reported in the sample. These compounds are considered artifacts of sample processing and not representative of environmental contamination, therefore the results have not been included in the data summary tables.

5. Samples UPMW-1A, UPMW-2A, and the matrix spike, performed on UPMW-1A, exhibited suppressed internal standards and elevated surrogate recoveries. Reported concentrations in these samples are therefore qualified as estimated. These results are useable to show that elevated levels of VOCs were not detected in the affected samples.

Semivolatile Analyses

Soil samples submitted to E3I were analyzed for TAL SVOCs in accordance with NYSDEC ASP CLP superfund methodologies. The affect of QC issues addressed by the data validator and the data useability are discussed below.

1. All reported concentrations in sample UPMW-4A are considered estimated because of an inability to evaluate surrogate recoveries due to the excessive dilution (500:1) which was performed on the sample. Reextraction of the sample at a medium level was performed 11 days outside of the 10 day ASP protocol and resulted in all non-detects. Therefore, the results of the reextraction and reanalysis are unusable. The results of the dilution analysis are useable to show that elevated concentrations of SVOCs were detected and to estimate the magnitude of contamination in the affected sample.

2. All tentatively identified compounds (TICs) that were flagged by the laboratory with a "b" qualifier were present in associated blanks at similar concentrations. These compounds are considered artifacts of sample processing and not representative of environmental contamination, therefore, the results have not been included in the data summary tables.

3. Di-n-butylphthalate, butylbenzylphthalate, and bis(2-ethylhexyl)phthalate were detected in the field blank at concentrations well above those reported for the environmental samples because most standard response outliers were elevated, non-detected results are not affected. These compounds are considered the result of cross contamination and therefore have not been included in the data summary tables for the affected samples.

Pesticides/PCB Analyses

Soil samples submitted to E3I were analyzed for TAL pest/PCBs in accordance with NYSDEC ASP CLP superfund methodologies. The affect of QC issues addressed by the data validator and the data useability are discussed below.

1. The laboratory reported many pesticide concentrations which were below their respective instrument detection limits. These results were likely due to matrix or other interferences and were misidentified as pesticides. All affected results have not been included in the data

summary tables. In addition many of those pesticides that were detected at very low-levels required additional data qualifiers.

2. Pesticide analyses for all samples within SDG UPMW-1A and UPMW-4 were processed with excessive breakdown and, in addition, samples in SDG UPMW-4 were processed with outlying performance standards. Reported pesticide concentrations in the affected samples were very low, at or near detection limits. The results are considered estimated however are useable to show the relative levels of pesticides detected.

Because most standard response outliers were elevated, non-detected results are not affected.

Metals

Soil samples submitted to E3I were analyzed for TAL metals in accordance with NYSDEC ASP CLP superfund methodologies. The affect of QC issues addressed by the data validator and the data useability are discussed below.

1. As a result of significant negative absorbance and poor standard recoveries the results for selenium and thallium have been rejected. Analytical results had large negative absorbance for these compounds which were greater (absolute value) than the contract required detection limits (CRDLs). The laboratory report indicated that neither thallium nor selenium were detected, however, based on the validators report the data are not useable to indicate that selenium or thallium was not present in the soil samples collected for analysis.

2. Standard recoveries for antimony in samples UPMW-4 - 5, and -6 were very poor (low) and all data has been rejected by the validator. The laboratory report indicated that antimony was not detected in these samples, however, based on the validators report the data is not useable to indicate that antimony was not present in the soil samples collected for analyses.

3. Standard recoveries for beryllium, vanadium, cobalt and silver in samples UPMW-4 - 5, and -6 were very low, therefore, all of these results have been qualified as estimated possibly biased low. With the exception of the levels of silver in UPMW-4, -5, and -6, all of the reported concentrations are similar to those reported in samples UPMW-1A, -2A, and -3A.

This would indicate that the affected results are potentially only biased slightly low not affecting useability. Silver was not detected in UPMW-1A, -2A and -3A but was detected in low ppm in UPMW-4, -5, and -6. These results are useable to show that silver was detected in elevated concentrations in the affected samples.

4. The laboratory had a low recovery for the final arsenic standard associated with sample UPMW-6, therefore, the reported arsenic concentration is possibly biased low. The level of arsenic reported in UPMW-6 is similar to levels reported for the other samples indicating that any bias is only slight and does not affect useability.

5. Aluminum sample results in UPMW-1A and -2A are estimated due to a possibility of external sample contamination during the analyses. Data useability is not affected because aluminum concentrations in all samples including UPMW-1A and 2A are similar and indicate little to no impact due to equipment contamination.

6. Concentrations of antimony and mercury in UPMW-1A, and chromium in UPMW-6 are qualified as estimated due to low spike recoveries of antimony and mercury and high recoveries of chromium. These results are useable to show the relative magnitude of these analytes in the affected samples.

7. Mercury analysis in UPMW-4, -5, and -6 were not compliant with ASP because of the number of sample analyses between successive standard analyses (one extra analyses than protocol allows). Sample results and data useability are, however, not affected.

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

LAWLER, MATUSKY & SKELLY
ENGINEERS

JAN 03 1996

January 1, 1996

Maria Heincz
LMS Engineers
One Blue Hill Plaza
Pearl River, NY 10965

RE: Validation of United Plating Site Data Package
E3I SDG No. UPMW1A and UPMW4

Dear Ms. Heincz:

Review has been completed for the data package generated by E3I Labs, pertaining to samples collected at the United Plating Site. Six soil samples were processed for CLP TCL/TAL parameters. A field blank and matrix spikes/duplicates were also processed. Methodologies utilized are those of the 1991 NYSDEC ASP CLP.

Data validation was performed with guidance from the most current editions of the USEPA CLP National Functional Guidelines for Organic and Inorganic Data Review and validation SOPs HW-2 and HW-6. The following items were reviewed:

- * Data Completeness
- * Custody Documentation
- * Holding Times
- * Surrogate and Internal Standard Recoveries
- * Matrix Spike Recoveries/Duplicate Correlations
- * Preparation/Calibration Blanks
- * Control Spike/Laboratory Control Samples
- * Instrumental Tunes
- * Calibration Standards
- * Instrument IDLs
- * Method Compliance
- * Sample Result Verification

Those items showing deficiencies are discussed in the following sections of this report. All others were found to be acceptable as outlined in the above-mentioned validation procedures, and as applicable for the methodology. Unless noted specifically in the following text, reported results are substantiated by the raw data, and generated in compliance with protocol requirements.

In summary, sample processing was primarily conducted with compliance to protocol requirements and with adherence to quality criteria. Exceptions include semivolatile reextraction holding times, and pesticide standard responses and breakdown. Quality concerns are discussed in the following analytical sections, with indicated edits and qualifications to sample reported results.

Copies of laboratory case narratives and resubmission communications are attached to this narrative, and should be reviewed in conjunction with this narrative. A compliancy chart and laboratory NYSDEC Sample Preparation and Analysis Summary Forms are also included with this report.

Data Completeness

Please see resubmission communications, which involve corrections to reported metals results and to a pesticide/PCB result.

Volatile Analyses

UPMW1A and UPMW2A produced low responses for internal standards 1,4-difluorobenzene and d5-chlorobenzene on multiple analyses. The samples also produced outlying surrogate recoveries (elevated values for d8-toluene in UPMW1A and depressed recoveries of BFB in UPMW2A). The initial analysis of UPMW2A is better than the reanalysis; all reported values and detection limits for the sample should be considered estimated. All detected values in UPMW1A, and the detection limits for the following compounds, should be considered estimated: 1,1,1-trichloroethane, carbon tetrachloride, bromodichloromethane, 1,2-dichloropropane, trans- and cis- 1,3-dichloropropene, trichloroethene, dibromochloromethane, 1,1,2-trichloroethane, benzene, bromoform, 2-hexanone, 4-methyl-2-pentanone, tetrachloroethene, 1,1,2,2,-tetrachloroethane, toluene, chlorobenzene, ethylbenzene, styrene, and xylenes.

Sample UPMW-4 required medium level processing due to the high content of trichloroethene. The value for trichloroethene should be derived from the medium (-RE) analysis. The low level analysis results can be used for the other analytes, but reported values and detection limits should be considered estimated due to possible purging and trapping system overload/saturation.

The analysis of UPMW5 followed immediately behind the low level analysis of UPMW4. Protocol requires analysis of a method blank following analysis of a saturated sample, or reanalysis of a subsequent sample if contamination may be possible. The trichloroethene detected in UPMW5 (99 ug/kg) may be resultant of carryover from the UPMW4 (which had 15,000 ug/kg). The sample should have been reanalysed. The result for that compound in UPMW5 should be edited to an elevated detection limit of 99 ug/kg, since the sample content below that level is unknown.

Methylene chloride and acetone were detected in certain of the method blanks and in the field blank at concentrations similar to those of the samples. The sample reported methylene chloride and acetone results should therefore be edited to reflect nondetection at either the sample CRDL or at the originally reported value, whichever is greater.

All TICs reported with the "B" laboratory flag should be disregarded as sample components due to copresence in associated blanks.

Due to low responses of acetone and 2-butanone in the daily standard of 10/05/95 (36%D and 32%D), the reported values/detection limits for these compounds in UPMW-5 and UPMW-6 should be considered estimated.

Certain of the daily calibration standards produced elevated responses for some target compounds not detected in the samples; sample reported detection limits are not affected.

Matrix spikes were performed on UPMW1A, and showed the suppressed internal standard responses that the sample exhibited. Consequently, and in addition to elevated surrogate d8-toluene recoveries, toluene spike recoveries were also high, at 141% and 169% (above recommended limit of 139%). No matrix spikes were performed for SDG UPMW4.

BNA Analyses

The reported Instrument Detection Limit (IDL) for di-n-butylphthalate for the soil samples is above the CRDL (at 456 ug/kg, 398 ug/kg, and 1200 ug/kg on various instruments). Therefore the reported detection limits for this compound in the soil samples should be considered estimated.

The field blank and some associated method blanks contained levels of di-n-butylphthalate similar to the levels of the samples. Therefore the detections in the samples should be rejected as sample components, and results edited up to the sample CRDLs.

UPMW4 was processed as a low level (although protocol requires screening to determine proper extraction level), which was analysed at a 1:500 dilution due to high levels of PAH target compounds. It was reextracted at a medium level (11 days beyond the allowable reextraction holding time of 10 days), and run at a 1:10 dilution. However, no target compounds were detected in that extract, although one would have expected responses from the PAHs, even with the delayed holding time. The medium level extract should have been reanalysed undiluted, but was not. It is noted that the laboratory and sample IDs on the medium level raw data were manually edited from another sample ID, on the day following the analysis. Only the initial extraction data should be used (that without the "-M" suffix), but all values and detection limits should be considered estimated due to possible solvency saturation, and inability to evaluate surrogates due to excessive dilution.

All TICs reported with the "B" laboratory flag should be disregarded as sample components due to copresence in associated blanks. All reported with the "A" flag are analysis artifacts and should be rejected as sample components.

Due to outlying standard responses for carbazole (elevated responses above 25%D), the reported detected values for this compound in the samples should be considered estimated; detection limits are not affected.

The following standard responses were low (greater than 25% Difference), indicating a consideration for associated sample values and detection limits as estimated:

Standard	Analyte	%D	Associated Samples
9/25/95 on Rocky	3-nitroaniline	45.7	UPMW1A, UPMW2A, UPMW3A
	4-nitroaniline	43.8	
	pentachlorophenol	27.5	
	3,3'-dichlorobenzidine	28.0	
10-19-95 on Pokey	2,4-dinitrophenol	35.5	UPMW-5, UPMW-6
	4-nitrophenol	29.1	
	4,6-dinitro-2-methylph	32.4	
10-20-95 on Pokey	2,4-dinitrophenol	36.6	UPMW-4
	4,6-dinitro-2-methylph	35.3	
	pentachlorophenol	46.4*	

* noncompliant response

Matrix spikes were performed on UPMW1A, with good accuracy and precision values. No matrix spikes were performed for SDG UPMW4.

Pesticide/PCB Analyses

The initially submitted Form 1 for UPMW6 (in the data package), and that sent in the resubmission response of 11-29-95 are incorrect. Edits should be made to the pesticide and Aroclor 1254 values for UPMW6 per the resubmission of 12-29-95 (attached).

The laboratory consistently reported responses as pesticides which are well below the reported Instrument Detection Limits. These responses (which are likely matrix or other interferences) produced, as expected, very poor dual column quantitative correlation (most values above 100% difference). Validation review included evaluation of the reported "pesticides" for level relative to IDL and for dual column correlation. All sample results initially reported as pesticide detections in the project samples should be edited to reflect nondetection at the sample component CRDL, or nondetection at the originally reported value (whichever is greater), *except* the following, which are to be reported, but should be qualified as indicated:

Sample ID	Analyte	Percent Difference	Additional Qualifier Required
UPMW2A	Dieldrin	57%D	NJ
	Methoxychlor	26	(already J)
UPMW4	Endosulfan II	46	J
UPMW5	4,4'-DDE		
UPMW6	Endrin	38	(already J)
	4,4'-DDT		

Sample processing was noncompliant; samples in both SDGs were processed with excessive breakdown, and samples in SDG UPMW4 were processed with outlying Performance standard responses (values to 38%RPD, above 25%RPD limit). Most of the standard response outliers were elevated, and nondetected sample results are not affected. The following qualifications are indicated:

UPFB11 --Endrin result considered estimated due to breakdown of 29% (exceeds 20% limit) in standard 9/23/95 at 03:38 on DB1701.

UPMW4 and UPMW5 -- Endrin result considered estimated due to breakdown of 22% in standard 10/16/95 at 14:04.

Sample processing in SDG UPMW1A was also performed with noncompliant GPC recoveries (dieldrin at 118% and endrin at 119%, greater than the 110% limit). Sample detections are already qualified and not additionally affected.

Surrogate DCB recoveries for UPFB11 were low, at 42% and 36%. Surrogate recoveries of UPMW4 were elevated, at 156% to 196%. No additional qualifications are indicated.

The baseline response of column DB-1701 in SDG UPMW1A exceeds the allowable limit, and in some cases (i.e. sample UPMW3A and PBLK920) was excessively noisy with negative absorbances. In these instances, sample result acceptance (during validation) was based upon column DB-608 results.

Sample results are not affected.

Matrix spikes were performed on UPMW1A, with acceptable accuracy and precision values. No matrix spikes were performed for SDG UPMW4.

Metals/CN Analyses

The report result Forms 1 provided for the soil samples in SDG UPMW1A are incorrect as initially reported in the sample data package, and as initially submitted (11-29-95) in response to the resubmission request of 11-20-95. Incorrect sample weights were utilized in calculated results. Results from the initially provided Forms 5 and 6 are also incorrect (in addition to incorrect calculated results, these also contain errors in certain values, i.e. thallium duplicate correlation was actually acceptable). Please see the resubmitted forms from the 12-29-95 resubmission (attached) only.

In addition, those resubmissions neglected to include the "E" qualifier for the soil samples, which should be applied to the copper and potassium results.

The resubmitted Forms 1 for UPMW1A, UPMW2A, and UPMW3A incorrectly show a "*" flag for selenium (which denotes outlying duplicate correlation). This flag should not be present of the sample report forms.

The samples produced large negative absorbances for selenium and thallium which were significantly greater in absolute value than the CRDLs (of 5 and 10 ug/L at the instrument level,

respectively). The reported results for selenium and thallium in these project soil samples should be rejected. The sample values for selenium ranged from -17 ug/L to -33 ug/L; those for thallium ranged from -22 ug/L to -36 ug/L. It is noted that in each of the thallium analysis sequences used for the two SDGs of this report, the final thallium standard run at twice the CRDL (CRIF, at 20 ug/L) failed to recover. Although CRI recoveries do not require corrective action, this indicates an instrumental problem which should have been remedied.

Due to very poor recovery of the associated antimony CRI standards (6.7% and 9.6%), the reported results for antimony in UPMW4, UPMW5, and UPMW6 should be rejected.

Due to very low recovery of the associated beryllium CRI standards (17% and 16%), the reported results for beryllium in UPMW4, UPMW5, and UPMW6 should be considered estimated, of borderline usability.

Due to very low recovery of the associated vanadium CRI standards (17% and 16%), the reported results for vanadium in UPMW4, UPMW5, and UPMW6 should be considered estimated, of borderline usability.

Due to very low recovery of the associated cobalt CRI standards (14% and 14%), the reported results for cobalt in UPMW4, UPMW5, and UPMW6 should be considered estimated, of borderline usability.

Due to low recovery of the associated silver CRI standards (28% and 26%), the reported results for silver in UPMW4, UPMW5, and UPMW6 should be considered estimated.

Due to a low recovery of the initial selenium standard at twice the CRDL (CRII), of 66%, the reported selenium result for UPMW3A should be considered estimated.

Due to a low recovery of the final arsenic standard at twice the CRDL, of 59%, the reported arsenic result for UPMW6 should be considered estimated.

The closing QC for aluminum in the analysis sequence of 9/25/95 failed and was repeated due to "contaminated tip". Samples UPMW1A and UPMW2A were analysed immediately preceeding the standards, and the reported aluminum results for these samples should be considered estimated due to possibility of contamination.

Accuracy and duplicate determinations were performed on UPMW1A and UPMW6. The following spike recoveries were low (outside the recommended limits of 75%-125%), and reported results for these elements in the associated soil samples of the same SDG should be considered estimated:

SDG	Sample ID	Element	% Recovery
UPMW1A	UPMW1A	Antimony	18%
		Mercury	21
		Cyanide	64
UPMW4	UPMW6	Antimony	38*
		Chromium	191

* these sample values rejected already due to CRI recoveries, discussed above

Duplicate correlations were above the recommended limits of 25%D (or +-CRDL) for the following elements; no additional qualification to sample reported results is indicated:

UPMW1A -mercury

UPMW6 -arsenic, chromium, copper, lead, and mercury

The reported result for the UPMW-6 Duplicate of mercury was misreported on the Form 6 as 3 mg/kg. The actual value is below the sample IDL of 1.6 mg/kg. Therefore the duplicate correlation is acceptable, and the "*" flag for thallium should be removed from all sample values in SDG UPMW4.

Serial dilution determinations for sample UPMW-1A produced the following outlying percent difference correlations (above 10%D), and reported detected values of the soil samples in SDG UPMW1A should be considered estimated:

<u>Element</u>	<u>%Difference</u>
copper	13%D
potassium	23

Serial dilution determinations for sample UPMW6 produced the following outlying percent difference correlations (above 10%D), and reported detected values of the soil samples in SDG UPMW4 should be considered estimated:

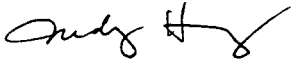
<u>Element</u>	<u>%Difference</u>
cadmium	11
lead	14
magnesium	13

As noted in the case narrative, the mercury analysis sequence in SDG UPMW4 (10/13/95) had one extra sample analysis between standards, beyond the ten allowed. No affect is indicated for sample reported results.

The case narrative should have discussed those elements which were manually adjusted for the interelement correction factors.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,



Judy Harry

COMPLIANCY CHART

Project: LMS Engineers -United Plating Site

SDG Nos. E3I SDG Nos. UPMW1A and UPMW-4

Protocol: 1991 NYSDEC ASP CLP

Rec. Date	Sample ID	Matrix	VOA	BNA	Pest/PCB	Metals/CN	Noncompliance
09-15-95	UPMW1A	Soil	OK	OK	NO	NO	4,6
09-15-95	UPMW2A	Soil	OK	OK	NO	NO	4,6
09-16-95	UPMW3A	Soil	OK	OK	NO	OK	6
09-16-95	UPFB11	Aqueous	OK	OK	NO	OK	5
09-30-95	UPMW-4	Soil	OK	NO	NO	NO	2,3,5,7
09-30-95	UPMW-5	Soil	NO	OK	NO	NO	1,3,5,7
09-30-95	UPMW-6	Soil	OK	OK	NO	NO	3,7

1. Volatile sample analysis followed saturated sample (1991 NYSDEC pg.E-52-53).
2. BNA associated with noncompliant pentachlorophenol response (pg. E-76).
BNA extraction at incorrect level; reextraction holding time exceeded (pgs. D-III-15 and D-III-8).
3. Mercury analysis with excessive number of samples between standards (pg. E-134)
4. Aluminum standard contaminated; preceeding samples not reanalysed (pg. E-133).
5. Pesticide breakdown outside allowable limit (pg. E-102).
6. Pesticide GPC calibration outside allowable limits (pg. D-IV-28).
DB-1701 baseline exceeds allowable response (pg. D-IV-58).
7. Pesticide standard responses outside allowable limits (pg. E-101).

SDG NARRATIVE

LAB NAME: E3I Environmental Laboratory

CASE NO.: United Plating

SDG: UPMW1A

E3I Project: 951843, 951844

Statement of Work: These results are in accordance with NYSDEC ASP 12/91. These results are reported according to ASP Superfund Category "B".

SAMPLE NO.: UPMW-1A(6-8), UPMW-2A(8-10), UPMW-3A(2-4), UPFB-11.

Sample IDs: It was necessary to abbreviate the LMS IDs due to software limitations. Please refer to the sample ID crossreference for complete IDs.

E3I ID:	Abbreviated ID:	Client ID:
951843-1	UPMW1A	UPMW-1A(6-8)
951843-2	UPMW2A	UPMW-2A(8-10)
951844-3	UPMW3A	UPMW-3A(2-4)
951844-4	UPFB11	UPFB-11

Volatile Organics:

The results of two analyses are reported for sample UPMW2A to demonstrate a matrix effect on the internal standard areas and surrogate recoveries.

The results of the analyses of the MS and MSD demonstrate matrix effect on the internal areas and surrogate recoveries for sample UPMW1A.

Semivolatile Organics:

It is acknowledged that the method blank SBLKW202 contains three nontarget compounds.

It is acknowledged that the method blank SBLKS191 contains four nontarget compounds.

The Matrix spike blank SS0919SB contains two nontarget compounds.

000001

The %D of Bis(2-chloroethyl)ether in the continuing calibrations dated 9/25/95 on the instrument Rocky was >40%. This compound was not found in any of the samples.

Pesticides/PCBs: A "Q" on a chromatogram indicates the peaks used to quantitate an aroclor and toxaphene.

Recovery of the surrogate TCX is outside the advisory QC limit on the DB608 column for PBLK920.

Recovery of the surrogate TCX is outside the advisory QC limit on the RTX1701 column for PBLK920.

Recovery of the surrogate DCB is outside the advisory QC limit on the DB608 column for sample UPFB11.

Recovery of the surrogate DCB is outside the advisory QC limit on the RTX1701 column for sample UPFB11.

For the analytical sequence on the RTX1701 column:

- PEMG - endrin breakdown >20%; combined breakdown >30%
- PEMG1 - endrin breakdown is >20%; combined breakdown >30%
- PEMG6 - endrin breakdown is >20%

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature."

Mervelina Saturno-Condon
Mervelina Saturno-Condon
Project Manager

October 2, 1995

000002

SDG NARRATIVE

Statement of Work: These results are in accordance with NYSDEC ASP 12/91.

Comments: All holding time and QC requirements were met with the following exceptions:

The analyst neglected to run a soil preparation blank for cyanide. However, since an aqueous preparation blank was run and the soil and aqueous preparation blanks for cyanide are completely identical, the aqueous preparation blank should be adequate for both. Also, the final CCV/CCB pair for cyanide was run in reverse order (i. e., the CCB before the CCV).

Qualifier Definitions:

- B - Reported value obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).
- U - The value recorded by the instrument was less than the Instrument Detection Limit (IDL).
- E - The reported value is estimated because of the presence of interference.
- N - Spiked sample recovery not within control limits.
- * - Duplicate analysis not within control limits.

000001

Description of Instrumentation:

1. ICP:

Leeman Labs PS-1000AT

No significant modifications.

Operating conditions:

RF Power: 1200W

Coolant gas: 17lpm

Auxiliary gas: 0.6lpm

Nebulizer gas: 59 psi pressure

Wavelengths used:

Al 396.2nm

Sb 217.6

As 193.7

Ba 455.4

Be 313.0

Cd 214.4

Ca 317.9

Cr 267.7

Co 228.6

Cu 324.7

Tl 190.8

Pb 220.3

Fe 263.1

Mg 279.1

Mn 257.6

Ni 231.6

K 766.4

Se 196.0

Ag 328.1

Na 589.6

V 292.4

Zn 206.2

Calibration Standards:

Mixed (for ICP) and single element calibration standards were made up as described in our Standards Logs from 1000ppm stock solutions. Specific sources are given in tables at the end of this narrative.

Initial and continuing calibration verification standards used were produced in-house from stock standards other than those used to prepare the standardization solutions.

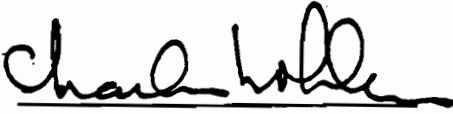
Laboratory Control Samples:

The above ICV standards were used as Laboratory Control Samples for all aqueous samples. The soil Laboratory Control Sample was from ERA.

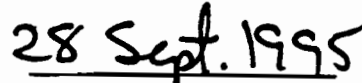
Interference Check Sample:

The Interference Check Samples A and AB were made up by us and tested in accordance with SOW ILM02.0.

"I certify that this data package is in compliance with the terms and conditions of the Protocol, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."



Signature



Date

SDG NARRATIVE

LAB NAME: E3I Environmental Laboratory

CASE NO.: United Plating

SDG: UPMW4

E3I Project: 951931

Statement of Work: These results are in accordance with NYSDEC ASP 12/91. These results are reported according to ASP Superfund Category "B".

SAMPLE NO.: UPMW-4(12-13), UPMW-5(3-5), UPMW-6(3-5)

Sample IDs: It was necessary to abbreviate the LMS IDs due to software limitations. Please refer to the sample ID crossreference for complete IDs.

E3I ID:	Abbreviated ID:	Client ID:
951931-1	UPMW4	UPMW-4(12-13)
951931-2	UPMW5	UPMW-5(3-5)
951931-3	UPMW6	UPMW-6(3-5)

Volatile Organics:

The results of two analyses are reported for sample UPMW4. The analysis at no dilution contained target compounds above the calibration limit. The sample was reanalyzed as a medium level extraction.

It is acknowledged that the medium level method blank VBLKM061 contained one nontarget compound.

Semivolatile Organics:

Sample UPMW4 was initially analyzed at a 1:500 dilution due to the high concentration of target compounds. All the surrogates were diluted out. The sample was reextracted eight days outside of the extraction holding time as a medium level and reanalyzed at a 1:10 dilution.

The continuing calibration analyzed on the instrument Pokey on 10/20/95 has a %D >40 for pentachlorophenol. The compound was not detected in any of the sample.

000001

SDG NARRATIVE

Statement of Work: These results are in accordance with NYSDEC ASP 12/91.

Comments: All holding time and QC requirements were met with the following exceptions:

There were eleven samples in between CCV's for mercury.

One CCB exceeded the CRDL for lead. However, all samples had concentrations well in excess of ten times the value for this high CCB.

Qualifier Definitions:

- B - Reported value obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).
- U - The value recorded by the instrument was less than the Instrument Detection Limit (IDL).
- E - The reported value is estimated because of the presence of interference.
- N - Spiked sample recovery not within control limits.
- * - Duplicate analysis not within control limits.

It is acknowledged that the method blank SBLKS042 contains one Aldol condensation product and two nontarget compounds.

It is acknowledged that the medium level method blank SBLKS211 contains one nontarget compound.

Pesticides/PCBs: A "Q" on a chromatogram indicates the peaks used to quantitate an aroclor and toxaphene.

Sample UPMW4 was analyzed at a 1:2 dilution due to the high concentrations of target compounds.

Recovery of the surrogates TCX and DCB are outside the advisory QC limit on the DB608 and RTX1701 columns for UPMW4.

For the analytical sequence on the DB608 column:

- PEMV10 - methoxychlor has RPD >25%

For the analytical sequence on the RTX1701 column:

- PEMV2C - combined breakdown >30%
- PEMV10C - methoxychlor has RPD >25%; combined breakdown >30%
- PEMV12C - methoxychlor has RPD >25%
- INDAMV10C - methoxychlor has RPD >25%
- INDBV10C - endrin aldehyde has RPD >25%
- INDAMV13C - methoxychlor has RPD >25%
- INDBMV13C - endrin aldehyde has RPD >25%

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature."

Mervelina Saturno-Condon

Mervelina Saturno-Condon
Project Manager

October 27, 1995

Description of Instrumentation:

1. ICP:

Leeman Labs PS-1000AT

No significant modifications.

Operating conditions:

RF Power: 1200W

Coolant gas: 17lpm

Auxiliary gas: 0.6lpm

Nebulizer gas: 59 psi pressure

Wavelengths used:

Al 396.2nm	Pb 220.3
Sb 217.6	Fe 263.1
As 193.7	Mg 279.1
Ba 455.4	Mn 257.6
Be 313.0	Ni 231.6
Cd 214.4	K 766.4
Ca 317.9	Se 196.0
Cr 267.7	Ag 328.1
Co 228.6	Na 589.6
Cu 324.7	V 292.4
Tl 190.8	Zn 206.2

Calibration Standards:

Mixed (for ICP) and single element calibration standards were made up as described in our Standards Logs from 1000ppm stock solutions. Specific sources are given in tables at the end of this narrative.

Initial and continuing calibration verification standards used were produced in-house from stock standards other than those used to prepare the standardization solutions.

Laboratory Control Samples:

The above ICV standards were used as Laboratory Control Samples for all aqueous samples. The soil Laboratory Control Sample was from ERA.

000002

Interference Check Sample:

The Interference Check Samples A and AB were made up by us and tested in accordance with SOW ILM02.0.

"I certify that this data package is in compliance with the terms and conditions of the Protocol, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

Charles Whelan

Signature

20 Oct. 1995

Date

000003

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

[illegible]

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

[illegible]

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PESTICIDE/PCB
ANALYSES

[illegible]

SAMPLE PREPARATION AND ANALYSIS SUMMARY

[illegible]

SAMPLE PREPARATION AND ANALYSIS SUMMARY SEMIVOLATILE (BNA) ANALYSES

[illegible]

SAMPLE PREPARATION AND ANALYSIS SUMMARY SEMIVOLATILE (BNA) ANALYSES

[illegible]

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

[illegible]

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

[illegible]

SAMPLE PREPARATION AND ANALYSIS SUMMARY SEMIVOLATILE (BNA) ANALYSES

[illegible]

SAMPLE PREPARATION AND ANALYSIS SUMMARY SEMIVOLATILE (BNA) ANALYSES

[illegible]

of medium

SAMPLE PREPARATION AND ANALYSIS SUMMARY

[illegible]

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

[illegible]

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

November 20, 1995

Mervelina Saturno-Condon

E3I

35 Medford St.

Somerville, MA 02143

RE: LMS Engineers United Plating Project
E3I SDG Nos. UPMW1A and UPMW4A

Dear Ms. Saturno-Condon:

Review is in progress for the data packages pertaining to samples collected at the LMS Engineers United Plating Site. The following information is required prior to completion of the validation reports:

1. The Forms 10 pertaining to the pesticide/PCB results for sample UPMW6 in SDG UPMW4A is incorrect, and therefore the resultant pest/PCB report Form 1 values are incorrect. Please forward corrected copies of these forms.

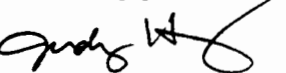
2. The Form 1E for volatile TICs of UPMW3A (in SDG UPMW1A) shows the septum air response as a TIC, but does not report the 22.68' TIC (for which the spectrum is provided). Please correct and resubmit the Form 1E for this sample.

3. Please discuss the metals digestions in SDG UPMW1A. There were two ICP digestions performed for the samples, 9/20 and 9/22. The weights of the samples used for the two digestions vary (as expected). The reported result calculations for the samples appear to be inconsistent as to which weights are used for which metal --i.e. some samples in a given element analysis use weights from the 9/20 digestion, and some from the 9/22 digestion. And a given sample is not consistent in which weight is used for varying elements. Only one LCSS was reported, although one was digested for each batch. The case narrative should be more project specific and discuss this type of situation, as well as any outlying QC results. The case narrative submitted had no project-specific discussion.

In summary, please discuss the digestions, submit the omitted Form 7 and raw data for the second LCSS, and correct any sample ICP results which were derived from an incorrect weight.

Please copy Maria Heincz at LMS Engineers with all communications. Do not hesitate to contact me if you wish to discuss these issues. Thank you for your prompt attention to this matter.

Very truly yours,



Judy Harry

cc: Maria Heincz

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, NY 12853

Phone and Fax (518) 251-4429

December 5, 1995

Steve Mattingly

E3I

35 Medford St.

Somerville, MA 02143

RE: LMS Engineers United Plating Project
E3I SDG Nos. UPMW1A and UPMW4A

Dear Steve:

I have reviewed the resubmissions dated 11-29-95 regarding the above-mentioned project, and have found errors and incompleteness in the information provided:

1. The resubmitted Form 10B pertaining to the PCB results for sample UPMW6 in SDG UPMW4 is incorrect. Two of the congener values on each column are incorrectly derived, and therefore the resultant pest/PCB report Form 1 values are incorrect. Please forward corrected copies of these forms.

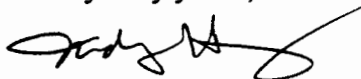
2. Please recheck the quantitative value for the resubmitted Form 1E for volatile TICs of UPMW3A (in SDG UPMW1A).

3. Again I ask that you please discuss the metals digestions in SDG UPMW1A. See my previous request of 11-20-95. Please review the sample results and see that inconsistent digestion batch weights were used in the sample determinations, even within a given element or a given sample. The resubmitted response fails to discuss the multiple digestions and to correct for true weights. The requested Form 7 was not provided. Although a corrected tracking form was provided showing even a third digestion (9/25/95) for aluminum, no digestion log or Form 13 was provided to show sample weights.

Please discuss the digestions and outline specifically which sample element results are used from which digestion. Please correct any sample ICP results which were derived from an incorrect weight. Also submit any previously omitted Forms 7, 13, digestion logs, and raw data.

Please copy Maria Heincz at LMS Engineers with all communications. Do not hesitate to contact me if you wish to discuss these issues. Thank you for your prompt attention to this matter.

Very truly yours,



Judy Harry

cc: Maria Heincz

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, NY 12853

Phone and Fax (518) 251-4429

Facsimile Transmission

TO: Steve Mattingly

COMPANY: E-I

FAX NUMBER: 617 666 5802

FROM: Judy Harry

DATE: 11-27-95

No. of pages (including cover): 2

COMMENTS: RE: Pest/PCB results for UPMW6

I went back and redid several of the sample values and have forwarded them to you, along with a few comments.

Please call if you don't concur.

LMS United Planting

SDG UPMW4

Sample ID = UPMW6 :

.4' - DDT on 1701

$$\frac{12417}{109488 / .04 \text{ ng}} \times \frac{10,000 \mu\text{L}}{1 \mu\text{L}} \times \frac{1 \mu\text{g}}{1000 \text{ ng}} \times \frac{1}{.03 \text{ kg}} \times \frac{1}{.86} = 1.8 \frac{\mu\text{g}}{\text{kg}}$$

(90% sol)

Form 10A shows 2.0

1254 on 608

12.84'

$$\frac{4628}{58161 / .1 \text{ ng}} \times \frac{10,000}{1} \times \frac{1}{1000} \times \frac{1}{.03} \times \frac{1}{.86} = 3.1 \frac{\mu\text{g}}{\text{kg}}$$

Form 10 B shows 7.1

(+ Form 1)
reflects
wrong Form 10 values

Both Endrom Form 10A (+ Form 1) values are incorrect.
Others may also be; I only checked those noted above.

case note: This sample was quant'd on 10/26
the other two were quant'd on 10/17

"Update" times are ok, but perhaps the standard
file differs somehow.

The forms 6E + 6F do reflect the raw standard data.



E3I Environmental Laboratory

3 Medford Street
Somerville, MA 02143
Tel. (617) 666-5500

P.O. Box 410215
E. Cambridge, MA 02141
Fax (617) 666-5802

November 29, 1995

Judy Harry
Data Validation Services
Cobble Creek Road
P.O. Box 208
North Creek, NY 12853

Dear Ms. Harry,

Enclosed is the response to the data validation questions you sent on November 20, 1995.

If you have any questions, please feel free to call me at (617) 666-5500.

Sincerely,

Mervelina Saturno-Condon
Mervelina Saturno-Condon

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UPMW6

Lab Name: E3I

Contract:

Lab Code: E3I

Case No.: UP

SAS No.:

SDG No.: UPMW4

Matrix: (soil/water) SOIL

Lab Sample ID: 951931-3

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: M172

Moisture: 14. decanted: (Y/N) N

Date Received: 09/30/95

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 10/04/95

Concentrated Extract Volume: 5000.0 (uL)

Date Analyzed: 10/17/95

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.0

Sulfur Cleanup: (Y/N) Y

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.

COMPOUND

319-84-6-----	ALPHA-BHC	1.9	U	
319-85-7-----	BETA-BHC	.25	J	P
319-86-8-----	DELTA-BHC	1.9	U	
58-89-9-----	GAMMA-BHC	1.9	U	
76-44-8-----	HEPTACHLOR	.27	J	P
309-00-2-----	ALDRIN	1.9	U	
1024-57-3-----	HEPTACHLOR EPOXIDE	1.9	U	
959-98-8-----	ENDOSULFAN I	.48	J	P
60-57-1-----	DIELDRIN	1.3	J	P
72-55-9-----	4,4'-DDE	3.9	U	
72-20-8-----	ENDRIN	3.4	J	P
33213-65-9-----	ENDOSULFAN II	.51	J	P
72-54-8-----	4,4'-DDD	.47	J	P
1031-07-8-----	ENDOSULFAN SULFATE	3.9	U	
50-29-3-----	4,4'-DDT	1.8	J	
72-43-5-----	METHOXYCHLOR	19.	U	
53494-70-5-----	ENDRIN KETONE	3.9	U	
7421-93-4-----	ENDRIN ALDEHYDE	3.9	U	
5103-71-9-----	ALPHA-CHLORDANE	1.9	U	
5103-74-2-----	GAMMA-CHLORDANE	1.9	U	
8001-35-2-----	TOXAPHENE	190.	U	
12674-11-2-----	AROCLOR-1016	39.	U	
11104-28-2-----	AROCLOR-1221	78.	U	
11141-16-5-----	AROCLOR-1232	39.	U	
53469-21-9-----	AROCLOR-1242	39.	U	
12672-29-6-----	AROCLOR-1248	39.	U	
11097-69-1-----	AROCLOR-1254	7.5	J	P
11096-82-5-----	AROCLOR-1260	39.	U	

See later
Submission

10A
PESTICIDE IDENTIFICATION SUMMARY
FOR SINGLE COMPONENT ANALYTES

EPA SAMPLE NO.

UPMW6

Sample Name: E3I

Contract:

Sample Code: E3I

Case No.: UP

SAS No.:

SDG No.: UPMW4

Sample ID: 951931-3

Date(s) Analyzed: 10/17/95 10/17/95

Instrument ID (1): H589 0A

Instrument ID (2): H589 0A

Column(1): DB608 ID: .53 (mm) GC Column(2): RTX1701 ID: .53 (mm)

ANALYTE	COL	RT	RT WINDOW FROM TO	CONCENTRATION	%D
B-FA-BHC	1	8.68	8.63 8.73	.25	180.0
	2	14.76	14.73 14.83	.70	
HEPTACHLOR	1	9.41	9.33 9.43	.75	177.8
	2	13.03	12.98 13.08	.27	
ENDOSULFAN I	1	13.19	13.12 13.26	.48	2400
	2	16.87	16.84 16.98	12.	
ELDRIN	1	14.12	14.06 14.20	11.	746.2
	2	17.96	17.92 18.06	1.3	
ENDRIN	1	15.29	15.16 15.30	4.7	38.2
	2	18.63	18.59 18.73	3.4	
ENDOSULFAN II	1	15.82	15.73 15.87	2.6	409.8
	2	20.15	20.05 20.19	.51	
4'-DDD	1	15.63	15.60 15.74	.60	27.7
	2	19.82	19.75 19.89	.47	
4'-DDT	1	16.58	16.49 16.63	1.8	.0
	2	20.26	20.25 20.39	1.8	

10B
PESTICIDE IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

EPA SAMPLE NO.

UPMW6

Lab Name: E3I

Contract:

Lab Code: E3I

Case No.: UP

SAS No.:

SDG No.: UPMW4

Lab Sample ID : 951931-3

Date(s) Analyzed: 10/17/95 10/17/95

Instrument ID (1): H589 0A

Instrument ID (2): H589 0A

GC Column(1): DB608

ID: .53 (mm)

GC Column(2): RTX1701

ID: .53 (mm)

ANALYTE	PEAK	RT	RT WINDOW		CONCENTRATION	MEAN CONCENTRATION	%D
			FROM	TO			
AROCLOR-1254	1	12.65	12.60	12.74	8.6	<i>disregard</i> 9.5	
	2	12.84	12.80	12.94	3.1		
	3	14.48	14.37	14.51	4.6		
	4	14.98	14.90	15.04	22.		
	5	.00	16.46	16.60	0. *		
COLUMN 1	1	15.82	15.76	15.90	3.4	7.5	26.7
	2	16.36	16.28	16.42	5.5		
	3	18.22	17.70	17.84	11.		
	4	19.94	18.16	18.30	9.7		
	5	.00	19.87	20.01	0. *		
COLUMN 2	1						
	2						
	3						
	4						
	5						
COLUMN 1	1						
	2						
	3						
	4						
	5						
COLUMN 2	1						
	2						
	3						
	4						
	5						

At least 3 peaks are required for identification of multicomponent analytes
* Peak Concentration excluded from calculation of mean due to additional flags

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

UPMW3A

Lab Name: E3I

Contract:

Lab Code: E3I

Case No.: UPRI/FS SAS No.:

SDG No.: UPMW1A

Matrix: (soil/water) SOIL

Lab Sample ID: 951844-1

Sample wt/vol: 5.000 (g/mL) G

Lab File ID: H9137

Level: (low/med) LOW

Date Received: 09/16/95

Mixture: not dec. 7.

Date Analyzed: 09/22/95

Column: CAP ID: .53 (mm)

Dilution Factor: 1.0

Extr. Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

PEAK NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.45	30 ±100.	J
2.		22.68	~ 2.2E-5	
		no peak		
5.				
8.				
11.				
12.				
14.				
15.				
17.				
18.				
19.				
21.				
22.				
23.				
25.				
26.				
27.				
28.				
29.				
30.				

INORGANIC ANALYSES

[illegible]

000006

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPMW1A

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No:

SAS No.:

SDG No.: UPMW1A

Matrix (soil/water): SOIL

Lab Sample ID: 95184301

Level (low/med): LOW

Date Received: 09/15/95

% Solids 92.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7660.00			P
7440-36-0	Antimony	3.00	B	N	P
7440-38-2	Arsenic	6.20			P
7440-39-3	Barium	57.80			P
7440-41-7	Beryllium	0.46	B		P
7440-43-9	Cadmium	0.44	B		P
7440-70-2	Calcium	32500.00			P
7440-47-3	Chromium	16.40			P
7440-48-4	Cobalt	7.90	B		P
7440-50-8	Copper	30.90	E		P
7439-89-6	Iron	23200.00			P
7439-92-1	Lead	10.90			P
7439-95-4	Magnesium	11000.00			P
7439-96-5	Manganese	521.00			P
7439-97-6	Mercury	0.28		N*	CV
7440-02-0	Nickel	24.50			P
7440-09-7	Potassium	1740.00		E	P
7782-49-2	Selenium	0.93	U		P
7440-22-4	Silver	0.28	U		P
7440-23-5	Sodium	121.00	B		P
7440-28-0	Thallium	1.50	U	*	P
7440-62-2	Vanadium	16.50			P
7440-66-6	Zinc	60.60			P
	Cyanide	0.56	U	N	CA

Color Before: BLACK

Clarity Before:

Texture: COARSE

Color After: YELLOW

Clarity After:

Artifacts:

Comments:

FORM I - IN

000033

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPMW2A

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No:

SAS No.:

SDG No.: UPMW1A

Matrix (soil/water): SOIL

Lab Sample ID: 95184302

Level (low/med): LOW

Date Received: 09/15/95

% Solids

94.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8840.00			P
7440-36-0	Antimony	2.50	U	N	P
7440-38-2	Arsenic	7.00			P
7440-39-3	Barium	64.70			P
7440-41-7	Beryllium	0.52	B		P
7440-43-9	Cadmium	0.58	B		P
7440-70-2	Calcium	33500.00			P
7440-47-3	Chromium	19.90			P
7440-48-4	Cobalt	9.10	B		P
7440-50-8	Copper	33.50		E	P
7439-89-6	Iron	25900.00			P
7439-92-1	Lead	12.70			P
7439-95-4	Magnesium	10800.00			P
7439-96-5	Manganese	494.00			P
7439-97-6	Mercury	0.09	U	N*	CV
7440-02-0	Nickel	26.60			P
7440-09-7	Potassium	2050.00		E	P
7782-49-2	Selenium	0.94	U		P
7440-22-4	Silver	0.28	U		P
7440-23-5	Sodium	132.00	B		P
7440-28-0	Thallium	1.50	U	*	P
7440-62-2	Vanadium	23.40			P
7440-66-6	Zinc	63.00			P
	Cyanide	0.55	U	N	CA

disregard
Al

Color Before: GRAY

Clarity Before:

Texture: COARSE

Color After: YELLOW

Clarity After:

Artifacts:

Comments:

FORM I - IN

000034

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPMW3A

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No:

SAS No.:

SDG No.: UPMW1A

Matrix (soil/water): SOIL

Lab Sample ID: 95184401

Level (low/med): LOW

Date Received: 09/15/95

S lids

92.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8340.00			P
7440-36-0	Antimony	2.60	U	N	P
7440-38-2	Arsenic	7.30			P
7440-39-3	Barium	90.70			P
7440-41-7	Beryllium	0.51	B		P
7440-43-9	Cadmium	0.64	B		P
7440-70-2	Calcium	36200.00			P
7440-47-3	Chromium	16.40			P
7440-48-4	Cobalt	14.00			P
7440-50-8	Copper	32.80		E	P
7439-89-6	Iron	23100.00			P
7439-92-1	Lead	12.40			P
7439-95-4	Magnesium	11300.00			P
7439-96-5	Manganese	800.00			P
7439-97-6	Mercury	0.15		N*	CV
7440-02-0	Nickel	33.70			P
7440-09-7	Potassium	1620.00		E	P
7782-49-2	Selenium	0.97	U		P
7440-22-4	Silver	0.29	U		P
7440-23-5	Sodium	129.00	B		P
7440-28-0	Thallium	1.50	U	*	P
7440-62-2	Vanadium	19.80			P
7440-66-6	Zinc	69.60			P
	Cyanide	0.58	U	N	CA

Color Before: YELLOW

Clarity Before:

Texture: COARSE

Color After: YELLOW

Clarity After:

Artifacts:

Comments:

FORM I - IN

000035

NYSDEC - ASP

6
DUPLICATES

NYSDEC SAMPLE NO.

UPMW1AD

Lab Name: Energy & Environ. Engr. Contract:

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: UPMW1A

Matrix (soil/water): SOIL

Level (low/med): LOW

% Solids for Sample: 92.3

% Solids for Duplicate: 92.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S) C	Duplicate (D) C	RPD	Q	M
Aluminum		7658.9427	7072.4535	8.7	-	P
Antimony		3.1295 B	2.5504 U	200.0		P
Arsenic	1.9	6.3280	7.6146	18.5		P
Barium	38.4	59.3103	58.2364	1.8		P
Beryllium		0.4698 B	0.4161 B	12.1		P
Cadmium		0.4468 B	0.5158 B	14.3		P
Calcium		33327.2610	32924.5726	1.2		P
Chromium		16.8343	16.8611	0.2		P
Cobalt		8.1343 B	8.5600 B	5.1		P
Copper		31.7165	30.5851	3.6		P
Iron		23777.7927	24429.7644	2.7		P
Lead		11.1890	12.0001	7.0		P
Magnesium		11275.2759	10857.2470	3.8		P
Manganese		535.1921	529.0559	1.2		P
Mercury	0.1	0.2817	0.1379	68.5	*	CV
Nickel	7.7	25.1968	25.1968	0.0		P
Potassium	958.8	1782.1839	1773.5549	0.5		P
Selenium		0.9588 U	0.9588 U			P
Silver		0.2876 U	0.2876 U			P
Sodium		123.8171 B	119.0999 B	3.9		P
Thallium	1.9	1.5149 U	2.8553	200.0	*	P
Vanadium	9.6	16.8918	17.5572	3.9		P
Zinc		62.2058	61.4963	1.1		P
Cyanide		0.5643 U	0.4841 U			CA

FORM VI - IN

000052

E3I FAX COVER SHEET

35 Medford Street
Somerville, MA
02143

P.O. Box 410215
E. Cambridge, MA
02141

Fax No. 617-666-5802
Tele. No. 617-666-5500

Date: 12/09/55

Number of Pages: 17
(including cover)

To:

Name

Title

Company

Fax Number

From:

Stephen Matthews
E3I Environmental Laboratory

Fax: 617-666-5802

Subject:

DC/Comm

Additional Comments

CONFIDENTIAL

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E3I Environmental Laboratory

35 Medford Street
Somerville, MA 02143
Tel. (617) 666-5500

P.O. Box 410215
E. Cambridge, MA 02141
Fax (617) 666-5802

December 29, 1995

Ms. Judith Harry
Data Validation Services
Cobble Creek Road
PO Box 208
North Creek, NY 12853

RE: LMS United Plating Project SDG Nos UPMW1A and UPMW4A

Dear Ms. Harry:

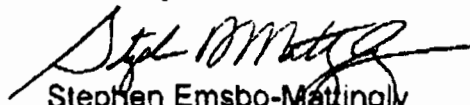
This submission constitutes the second response to your comments.

Comment

1. UPMW6 PCB Calculation
The values for AR1254 Congeners 3 and 4 should have been calibrated as Congeners 4 and 5. Corrected data is enclosed.
2. UPMW3A TIC Calculation
The values were rechecked and verified as correct.
3. SDG UPMW1A Metals
Samples were digested on 12/20/95 and 12/22/95. Redigested samples were analyzed for aluminum only after the LCSS for 12/20/95 failed for this metal. Corrected forms are submitted. Digestion logs and raw data was included in the original package.

Please call me if you have any further questions or comments.

Sincerely,


Stephen Emsbo-Mattingly
Laboratory Director

cc: Maria Heincz, LMS

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UPMW6

Lab Name: E3I

Contract:

Lab Code: E3I

Case No.: UP

SAS No.:

SDG No.: UPMW4

Matrix: (soil/water) SOIL

Lab Sample ID: 951931-3

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: M172

% moisture: 14. decanted: (Y/N) N

Date Received: 09/30/95

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 10/04/95

Concentrated Extract Volume: 5000.0 (uL)

Date Analyzed: 10/17/95

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 9.0

Sulfur Cleanup: (Y/N) Y

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/KG

Q

319-84-6-----	ALPHA-BHC	1.9	U
319-85-7-----	BETA-BHC	.25	J P
319-86-8-----	DELTA-BHC	1.9	U
58-89-9-----	GAMMA-BHC	1.9	U
76-44-8-----	HEPTACHLOR	.27	J P
309-00-2-----	ALDRIN	1.9	U
1024-57-3-----	HEPTACHLOR EPOXIDE	1.9	U
959-98-8-----	ENDOSULFAN I	.48	J P
60-57-1-----	DIELDRIN	1.3	J P
72-55-9-----	4,4'-DDE	3.9	U
72-20-8-----	ENDRIN	3.4	J P
33213-65-9-----	ENDOSULFAN II	.51	J P
72-54-8-----	4,4'-DDD	.47	J P
1031-07-8-----	ENDOSULFAN SULFATE	3.9	U
50-29-3-----	4,4'-DDT	1.8	J
72-43-5-----	METHOXYCHLOR	19.	U
53494-70-5-----	ENDRIN KETONE	3.9	U
7421-93-4-----	ENDRIN ALDEHYDE	3.9	U
5103-71-9-----	ALPHA-CHLORDANE	1.9	U
5103-74-2-----	GAMMA-CHLORDANE	1.9	U
8001-35-2-----	TOXAPHENE	190.	U
12674-11-2-----	AROCLOR-1016	39.	U
11104-28-2-----	AROCLOR-1221	78.	U
11141-16-5-----	AROCLOR-1232	39.	U
53469-21-9-----	AROCLOR-1242	39.	U
12672-29-6-----	AROCLOR-1248	39.	U
11097-69-1-----	AROCLOR-1254	8.7	J
11096-82-5-----	AROCLOR-1260	39.	U

10B
PESTICIDE IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

EPA SAMPLE NO.

UPMW6

Lab Name: E3I

Contract:

Lab Code: E3I

Case No.: UP

SAS No.:

SDG No.: UPMW4

Lab Sample ID : 951931-3

Date(s) Analyzed: 10/17/95 10/17/95

Instrument ID (1): H589 0A

Instrument ID (2): H589 0A

GC Column(1): DB608

ID: .53 (mm)

GC Column(2): RTX1701

ID: .53 (mm)

ANALYTE	PEAK	RT	RT WINDOW		CONCENTRATION	MEAN CONCENTRATION	%D
=====	=====	=====	=====	=====	=====	=====	=====
AROCLOR-1254	1	12.65	12.60	12.74	8.6	9.5	9.2
	2	12.84	12.80	12.94	3.1		
	3	14.48	14.37	14.51	4.6		
	4	14.98	14.90	15.04	22.		
	5	.00	16.46	16.60	0. *		
COLUMN 1	1	15.82	15.76	15.90	3.4	8.7	
	2	16.36	16.28	16.42	5.5		
	3	.00	17.70	17.84	0. *		
	4	18.22	18.16	18.30	18.		
	5	19.94	19.87	20.01	7.9		
COLUMN 2	1						
	2						
	3						
	4						
	5						
COLUMN 1	1						
	2						
	3						
	4						
	5						
COLUMN 2	1						
	2						
	3						
	4						
	5						
COLUMN 1	1						
	2						
	3						
	4						
	5						
COLUMN 2	1						
	2						
	3						
	4						
	5						

At least 3 peaks are required for identification of multicomponent analytes

* Peak Concentration excluded from calculation of mean due to additional flags

INORGANIC ANALYSES

[illegible]

0006

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPMW-3A

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No:

SAS No.:

SDG No.: UPMW1A

Matrix (soil/water): SOIL

Lab Sample ID: 95184401

Level (low/med): LOW

Data Received: 09/15/95

% Solids

92.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7660.00			P
7440-36-0	Antimony	4.40	B	N	P
7440-38-2	Arsenic	4.50			P
7440-39-3	Barium	89.90			P
7440-41-7	Beryllium	0.50	B		P
7440-43-9	Cadmium	0.64	B		P
7440-70-2	Calcium	35800.00			P
7440-47-3	Chromium	16.30			P
7440-48-4	Cobalt	13.90			P
7440-50-8	Copper	32.50			P
7439-89-6	Iron	22900.00			P
7439-92-1	Lead	14.00			P
7439-95-4	Magnesium	11200.00			P
7439-96-5	Manganese	793.00			P
7439-97-6	Mercury	0.15		N*	CV
7440-02-0	Nickel	33.40			P
7440-09-7	Potassium	1610.00			P
7782-49-2	Selenium	0.96	U	*	P
7440-22-4	Silver	0.29	U		P
7440-23-5	Sodium	128.00	B		P
7440-28-0	Thallium	1.50	U		P
7440-62-2	Vanadium	19.70			P
7440-66-6	Zinc	69.00			P
	Cyanide	0.58	U	N	CA

Color Before: YELLOW

Clarity Before:

Texture: COARSE

Color After: YELLOW

Clarity After:

Artifacts:

Comments:

FORM I - IN

0033

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPMW1A

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No:

SAS No.:

SDG No.: UPMW1A

Matrix (soil/water): SOIL

Lab Sample ID: 95184301

Level (low/med): LOW

Date Received: 09/15/95

Solids

92.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8840.00			P
7440-36-0	Antimony	5.80	B	N	P
7440-38-2	Arsenic	3.50			P
7440-39-3	Barium	59.50			P
7440-41-7	Beryllium	0.47	B		P
7440-43-9	Cadmium	0.45	B		P
7440-70-2	Calcium	33400.00			P
7440-47-3	Chromium	16.90			P
7440-48-4	Cobalt	8.20	B		P
7440-50-8	Copper	31.80			P
7439-89-6	Iron	23800.00			P
7439-92-1	Lead	12.90			P
7439-95-4	Magnesium	11300.00			P
7439-96-5	Manganese	537.00			P
7439-97-6	Mercury	0.28		N*	CV
7440-02-0	Nickel	25.30			P
7440-09-7	Potassium	1790.00			P
7782-49-2	Selenium	0.96	U	*	P
7440-22-4	Silver	0.29	U		P
7440-23-5	Sodium	124.00	B		P
7440-28-0	Thallium	1.50	U		P
7440-62-2	Vanadium	16.90			P
7440-66-6	Zinc	62.40			P
	Cyanide	0.56	U	N	CA

Color Before: BLACK

Clarity Before:

Texture: COARSE

Color After: YELLOW

Clarity After:

Artifacts:

Comments:

FORM I - IN

0034

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPMW2A

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No:

SAS No.:

SDG No.: UPMW1A

Matrix (soil/water): SOIL

Lab Sample ID: 95184302

Level (low/med): LOW

Date Received: 09/15/95

% Solids

94.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8340.00			P
7440-36-0	Antimony	2.50	U	N	P
7440-38-2	Arsenic	3.90			P
7440-39-3	Barium	64.40			P
7440-41-7	Beryllium	0.52	B		P
7440-43-9	Cadmium	0.58	B		P
7440-70-2	Calcium	33400.00			P
7440-47-3	Chromium	19.90			P
7440-48-4	Cobalt	9.10	B		P
7440-50-8	Copper	33.30			P
7439-89-6	Iron	25800.00			P
7439-92-1	Lead	14.50			P
7439-95-4	Magnesium	10700.00			P
7439-96-5	Manganese	492.00			P
7439-97-6	Mercury	0.09	U	N*	CV
7440-02-0	Nickel	26.50			P
7440-09-7	Potassium	2040.00			P
7782-49-2	Selenium	0.93	U	*	P
7440-22-4	Silver	0.28	U		P
7440-23-5	Sodium	131.00	B		P
7440-28-0	Thallium	1.50	U		P
7440-62-2	Vanadium	23.30			P
7440-66-6	Zinc	62.70			P
	Cyanide	0.55	U	N	CA

Color Before: GRAY

Clarity Before:

Texture: COARSE

Color After: YELLOW

Clarity After:

Artifacts:

Comments:

FORM I - IN

0035

NYSDEC - ASP

5A
SPIKE SAMPLE RECOVERY

NYSDEC SAMPLE NO.

UPMW1AS

Lab Name: Energy & Environ. Engr. Contract:

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: UPMW1A

Matrix (soil/water): SOIL

Level (low/med): LOW

* Solids for Sample: 92.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added (SA)	%R	Q	M
Aluminum							NR
Antimony	75-125	22.6944	5.7968 B	95.88	17.6	N	P
Arsenic	75-125	371.8156	3.4746	383.51	96.0		P
Barium	75-125	438.5469	59.3103	383.51	98.9		P
Beryllium	75-125	10.0404	0.4698 B	9.59	99.8		P
Cadmium	75-125	9.1870	0.4468 B	9.59	91.1		P
Calcium							NR
Chromium	75-125	55.4176	16.8343	38.35	100.6		P
Cobalt	75-125	105.1017	8.1343 B	95.88	101.1		P
Copper	75-125	83.2990	31.7165	47.94	107.6		P
Iron							NR
Lead	75-125	92.4573	12.8803	95.88	83.0		P
Magnesium							NR
Manganese		562.6133	535.1921	95.88	28.6		P
Mercury	75-125	0.3841	0.2817	0.49	20.9	N	CV
Nickel	75-125	109.9531	25.1968	95.88	88.4		P
Potassium							NR
Selenium	75-125	299.2493	0.9588 U	383.51	78.0		P
Silver	75-125	8.2359	0.2876 U	9.59	85.9		P
Sodium							NR
Thallium	75-125	375.5990	1.5149 U	383.51	97.9		P
Vanadium	75-125	111.8707	16.8918	95.88	99.1		P
Zinc	75-125	152.7723	62.2058	95.88	94.5		P
Cyanide	75-125	3.2346	0.5643 U	5.06	63.9	N	CA

Comments:

FORM V (PART 1) - IN

0049

NYSDEC - ASP

5A
SPIKE SAMPLE RECOVERY

NYSDEC SAMPLE NO.

UPFB-11

Lab Name: Energy & Environ. Engr. Contract:

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: UPMW1A

Matrix (soil/water): WATER

Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added (SA)	%R	Q	M
Aluminum							NR
Antimony							NR
Arsenic							NR
Barium							NR
Beryllium							NR
Cadmium							NR
Calcium							NR
Chromium							NR
Cobalt							NR
Copper							NR
Iron							NR
Lead							NR
Magnesium							NR
Manganese							NR
Mercury							NR
Nickel							NR
Potassium							NR
Selenium							NR
Silver							NR
Sodium							NR
Thallium							NR
Vanadium							NR
Zinc							NR
Cyanide	75-125	94.0200	10.0000 U	100.00	94.0		CA

Comments:

FORM V (PART 1) - IN

0050

NYSDEC - ASP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

NYSDEC SAMPLE NO.

UPMW1AA

Lab Name: Energy & Environ. Engr. Contract:

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: UPMW1A

Matrix (soil/water): SOIL

Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added (SA)	%R	Q	M
Aluminum		86.31	30.23	120.0	46.7		NR
Antimony							P
Arsenic							NR
Barium							NR
Beryllium							NR
Cadmium							NR
Calcium							NR
Chromium							NR
Cobalt							NR
Copper							NR
Iron							NR
Lead							NR
Magnesium							NR
Manganese							NR
Mercury							NR
Nickel							NR
Potassium							NR
Selenium							NR
Silver							NR
Sodium							NR
Thallium							NR
Vanadium							NR
Zinc							NR
Cyanide							NR

Comments:

FORM V (PART 2) - IN

0051

E3I

ID:617-666-5802

DEC 29'95

15:47 No.008 P.14

NYSDEC - ASP

6
DUPLICATES

NYSDEC SAMPLE NO.

UPMW1AD

Lab Name: Energy & Environ. Engr. Contract:

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: UPMW1A

Matrix (soil/water): SOIL

Level (low/med): LOW

% Solids for Sample: 92.3

% Solids for Duplicate: 92.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S) C	Duplicate (D) C	RPD	Q	M
Aluminum		7835.1662	7185.1120	8.7		P
Antimony		5.7968 B	3.7431 B	43.1		P
Arsenic	1.9	3.4746	4.6827	29.6		P
Barium	38.4	59.3103	58.2364	1.8		P
Beryllium		0.4698 B	0.4161 B	12.1		P
Cadmium		0.4468 B	0.5158 B	14.3		P
Calcium		33327.2610	32924.5726	1.2		P
Chromium		16.8343	16.8611	0.2		P
Cobalt		8.1343 B	8.5600 B	5.1		P
Copper		31.7165	30.5851	3.6		P
Iron		23777.7927	24429.7644	2.7		P
Lead		12.8803	13.6166	5.6		P
Magnesium		11275.2759	10857.2470	3.8		P
Manganese		535.1921	529.0559	1.2		P
Mercury	0.1	0.2817	0.1379	68.5	*	CV
Nickel	7.7	25.1968	25.1968	0.0		P
Potassium	958.8	1782.1839	1773.5549	0.5		P
Selenium		0.9588 U	0.9588 U			P
Silver		0.2876 U	0.2876 U			P
Sodium		123.8171 B	119.0999 B	3.9		P
Thallium		1.5149 U	1.5149 U			P
Vanadium	9.6	16.8918	17.5572	3.9		P
Zinc		62.2058	61.4963	1.1		P
Cyanide		0.5643 U	0.4841 U			CA

FORM VI - IN

0052

NYSDEC - ASP

6
DUPLICATES

NYSDEC SAMPLE NO.

UPFB-11

Lab Name: Energy & Environ. Engr. Contract:

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: UPMW1A

Matrix (soil/water): WATER

Level (low/med): LOW

% Solids for Sample: 0.0

% Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S) C	Duplicate (D) C	RPD	Q	M
Aluminum						NR
Antimony						NR
Arsenic						NR
Barium						NR
Beryllium						NR
Cadmium						NR
Calcium						NR
Chromium						NR
Cobalt						NR
Copper						NR
Iron						NR
Lead						NR
Magnesium						NR
Manganese						NR
Mercury						NR
Nickel						NR
Potassium						NR
Selenium						NR
Silver						NR
Sodium						NR
Thallium						NR
Vanadium						NR
Zinc						NR
Cyanide		10.0000 U	10.0000 U			CA

FORM VI - IN

0053

NYSDEC - ASP

7
LABORATORY CONTROL SAMPLE

Lab Name: Energy & Environ. Eng.

Contract:

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: UPMW1A

Solid LCS Source: ERA

Aqueous LCS Source: E3I

Analyte	Aqueous (ug/L)			Solid (mg/kg)				%R
	True	Found	%R	True	Found	C	Limits	
Aluminum	2000.0	2150.00	107.5	3490.0	4300.0		1570.0 5410.0	127.5
Antimony	1000.0	974.80	97.5	49.4	59.9		14.8 81.8	121.3
Arsenic	500.0	430.60	86.1	82.4	78.8		40.4 123.0	95.6
Barium	2000.0	1854.00	92.7	238.0	211.6		138.0 311.0	88.9
Beryllium	500.0	460.80	92.2	152.0	145.2		97.2 213.0	95.5
Cadmium	500.0	445.90	89.2	90.0	87.5		51.3 130.0	97.2
Calcium	50000.0	45680.00	91.4	2410.0	2022.0		1250.0 3400.0	83.9
Chromium	500.0	467.90	93.6	167.0	166.5		90.3 236.0	99.7
Cobalt	500.0	465.50	93.1	101.0	95.8		60.6 143.0	94.9
Copper	500.0	483.50	96.7	196.0	204.2		112.0 284.0	104.2
Iron	2000.0	1948.00	97.4	7130.0	5154.0		3480.0 10800.0	72.3
Lead	1000.0	962.20	96.2	162.0	159.7		85.8 230.0	98.6
Magnesium	25000.0	22260.00	89.0	2370.0	2086.0		1420.0 3410.0	88.0
Manganese	500.0	422.40	84.5	367.0	333.0		246.0 496.0	90.7
Mercury				1.9	1.7		0.0 3.5	89.5
Nickel	500.0	442.80	88.6	135.0	123.0		74.3 197.0	91.1
Potassium	50000.0	46580.00	93.2	2310.0	1858.0		1430.0 30500.0	80.4
Selenium	500.0	425.70	85.1	109.0	102.3		56.5 162.0	93.9
Silver	500.0	440.30	88.1	65.4	67.9		29.4 95.5	103.8
Sodium	50000.0	44640.00	89.3	502.0	338.0	B	118.0 885.0	67.3
Thallium	500.0	473.00	94.6	127.0	142.5		63.3 190.0	112.2
Vanadium	500.0	449.70	89.9	94.0	110.4		57.3 123.0	117.4
Zinc	3000.0	2701.00	90.0	199.0	194.9		103.0 296.0	97.9
Cyanide				147.0	151.7		74.0 220.0	103.2

FORM VII - IN

0054

GROUNDWATER SAMPLES

SDG No. UPMW2B-1

DATA USEABILITY REPORT

This useability report covers the analytical results, submitted by Energy & Environmental Engineering Inc. (E3I), for the groundwater sampling investigation, conducted by Lawler, Matusky & Skelly Engineers LLP (LMS) during the week of 16 October 1995 at the United Plating site. The analytical report submitted by E3I for sample designation group (SDG) UPMW2B-1 was validated by Data Validation Services (DVS). LMS reviewed the data validator's final report and assessed the analytical data against the project data quality objectives (DQOs) in preparation of this report. Where resulting quality control (QC) data did not fall within protocol requirements the reported data have been appropriately qualified. With some exceptions, the data submitted by E3I met the project DQOs and are useable to characterize the nature of the samples collected from the United Plating site.

A total of eleven (14) groundwater samples were collected from on-site monitoring wells and processed for full contract laboratory program (CLP) target compound list (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides and polychlorinated biphenyls (pest/PCBs), and target analyte list (TAL) metals. Due to poor recovery of two wells only sufficient sample was collected to perform TCL VOCs and TAL metals. All of the analyses were conducted in accordance with the most recent version of New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP).

For the most part the analytical data submitted by E3I were compliant with ASP, where data were found to be noncompliant the results are discussed in detail in the data validator's report. LMS has prepared this report to discuss any useability limitations associated with the reported values as a result of issues raised by the data validator.

Groundwater Samples

Volatile Analyses

Groundwater samples submitted to E3I were analyzed for TCL VOCs in accordance with NYSDEC ASP Method 91-1. The affect of QC issues addressed by the data validator and the data useability are discussed below.

1. Methylene chloride and toluene were detected in associated QC blanks at concentrations similar to those reported in the field samples. The presence of these compounds are considered the result of cross-contamination. Therefore, the values reported by the laboratory are not considered representative of the samples analyzed and are not included in the data summary. Acetone was detected in sample UPMW-1C and also in non associated QC blanks and the matrix spike blank at similar concentrations. Acetone is a common laboratory contaminant, therefore is considered the result of cross-contamination. The value reported is not considered representative of the sample analyzed and was not included in the data summary.

2. Detected values of benzene in UPMW-1B, -2B, and -3B have been rejected by the validator because of mass spectral interference. The validator recommended editing of results to indicate non-detect at the CRDL (10 $\mu\text{g/l}$). These results are useable to show that benzene was not detected above 10 $\mu\text{g/l}$ in the affected samples

3. Because of a high level of trichloroethylene in sample UPMW-4 ("e" qualified) dilution analysis was required to bring the sample concentration into calibration range for better resolution. The validator recommended that the concentration of trichloroethylene reported in the dilution analyses and the concentrations of all other VOCs reported during the initial undiluted analyses be considered most accurate and the values used. Therefore, the results of the dilution analysis and undiluted analysis have been combined into one sample result in the data summary using the reported values as recommended by the validator.

4. Matrix spikes and matrix spike duplicates were generally good. Matrix spikes were performed on UPMW-2C and all recovery values were acceptable. Elevated duplicate correlation for a number of the spiking compounds was evident, however, surrogate responses did not follow the same pattern indicating possible spiking variance. This spiking variance would not impact the values reported by the laboratory, therefore data useability is not affected.

Semivolatile Analyses

Groundwater samples submitted to E3I were analyzed for TCL SVOCs in accordance with NYSDEC ASP CLP superfund methodologies. The affect of QC issues addressed by the data validator and the data useability are discussed below.

1. The reextraction and reanalysis of samples UPMW-1A, -1B, -2A, -3A, -5, and -6 was performed due to laboratory contamination of the samples with 4-chloro-3-methylphenol. The values of 4-chloro-3-methylphenol reported by the laboratory are not considered representative of the samples but the result of cross-contamination, therefore, have not been included in the data summary. All other SVOC results reported during the initial analyses are useable as reported, therefore the results of the reextraction and reanalyses have not been included in the data summary.
2. Di-n-butylphthalate, butylbenzylphthalate, and bis-2-ethylhexylphthalate were all detected in the associated field and QC blanks at concentrations similar to those reported in the field samples. The presence of these compounds are considered the result of cross-contamination, therefore, the values reported by the laboratory are not considered representative of the samples analyzed and are not included in the data summary. Diethylphthalate was detected in the reextraction of sample UPMW-1B but not in the initial extraction, the presence of this compound is also likely the result of cross-contamination and therefore was also not included in the data summary.
3. All tentatively identified compounds (TICs) that were flagged by the laboratory with a "b" qualifier were detected in the associated blanks at similar concentrations. In addition, a number of TICs not flagged with a "b" qualifier were detected in the associated field blank. These compounds are considered artifacts of sample processing and not representative of environmental contamination, therefore, the results have not been included in the data summary.
4. Several nitroaromatic, and chlorinated aromatic compounds produced outlying responses in the daily standards. None of the affected compounds were detected in the samples analyzed, therefore data quality and useability are not impacted.

5. Matrix spikes and matrix spike duplicates were generally good. Some sample matrix effects were noted based on elevated recoveries of 4-nitrophenol and poor recovery of n-nitrosodi-n-propylamines, however, data quality and useability are unaffected.

Pesticides/PCB Analyses

Groundwater samples submitted to E3I were analyzed for TCL pest/PCBs in accordance with NYSDEC ASP CLP superfund methodologies. The affect of QC issues addressed by the data validator and the data useability are discussed below.

1. All reported pesticide concentrations were below their respective instrument detection limits. The validator indicated that the reported results were likely due to matrix or other interferences and were misidentified as pesticides by the laboratory. Therefore, all pesticide compounds reported by the laboratory have not been included in the data summary. The pesticide results are useable to show that no pesticides were detected above the instrument detection limit.

2. Aroclor 1254 was detected in the associated field blank at concentrations similar to those reported in the field samples. The presence of Aroclor 1254 is considered the result of cross-contamination, therefore, the values reported by the laboratory may not be representative of the samples analyzed.

3. Aroclor 1260 was detected in sample UPMW-1A at an estimated concentration of 0.59 $\mu\text{g/l}$ ("p" and "j" qualified). Due to the presence of Aroclor 1254 in the associated field blank the detection of Aroclor 1260 in sample UPMW-1A is suspect possible the result of cross-contamination, therefore the result has been qualified to so indicate.

4. Matrix spikes and matrix spike duplicates were generally good. Duplicate correlation of 4,4'DDT was slightly high (35% as opposed to the recommended limit of 27%RPD). In addition a matrix spike blank was not performed, this does not affect data quality and useability.

5. The laboratory was noncompliant with respect to continuing instrument standards for a number of the pesticide analytes, however, based on the data validation report, none of the affected compounds were detected in the samples analyzed and therefore data quality and useability are not impacted.

6. Florisil surrogate recoveries were elevated and noncompliant. Sample results are unaffected by this issue and the data are useable to show that pesticides were not detected at the instrument detection limits.

Metals

Groundwater samples submitted to E3I were analyzed for TAL metals in accordance with NYSDEC ASP CLP superfund methodologies. The affect of QC issues addressed by the data validator and the data useability are discussed below.

1. Thallium was present in the filtered fraction of field blank FB12-F but not in the unfiltered fraction and therefore considered the result of cross-contamination from the filtering apparatus. Thallium levels in filtered samples UPMW-2B-F, and 3B-F are therefore rejected and not included in the data summary. In addition, elevated recoveries of thallium standards (twice the CRDL) indicate that thallium levels in the associated samples are most likely biased high. Therefore the affected samples, UPMW-2C, -2D, -3B, -3C, -2B, and FB12, filtered and unfiltered fractions, are rejected as unusable. The laboratory report indicated that thallium was not detected in the remaining analyses, however, based on the validators report the rejected data are not useable to indicate that thallium was not present in the groundwater samples collected for analysis.

2. The arsenic value reported for the filtered fraction of UPMW-2D (blind duplicate of UPMW-2C) was greater than twice the CRDL reported for the unfiltered fraction, therefore, the data is rejected and is not useable to indicate that arsenic was not present in the groundwater sample collected for analysis. The data from the duplicate samples showed no arsenic in either the filtered or unfiltered samples.

3. Chromium values in UPMW-2C, calcium, magnesium, and sodium values in UPMW-3B and selenium in UPMW-3B and -2A produced higher results in the filtered fraction than the unfiltered (greater than 10% but less than 50%) and therefore the affected results are considered estimated. These results are useable to determine the relative magnitude of each analyte detected.

4. Analyte values flagged with a "W" qualifier by the laboratory (low post digest spike recoveries) due to matrix interferences, are considered estimated. These results are useable to show the relative magnitude of these analytes in the affected samples.

5. The selenium value in UPMW-2A is considered estimated as a result of outlying MSA correlation. The sample result is also "B" qualified which indicated the concentration is below the CRDL. This result is useable to show the relative magnitude of selenium in the affected sample.

6. All lead values have been qualified as estimated following data validation. Lead values obtained by graphite furnace analyses are qualified as estimated due to outlying standard recoveries and outlying matrix spike/duplicate recoveries. Those analyzed by ICP are qualified as estimated because of the laboratories failure to perform accuracy and precision evaluation which is noncompliant with ASP. The affected results are useable to show the relative magnitude of lead in the samples analyzed.

7. Copper values in UP-MW-2B, -2C, -2D, -3B, -3C, FB12, are considered estimated due to outlying standard recoveries. The affected results are useable to show the relative magnitude of copper in the samples.

8. All values for antimony and mercury are considered estimated due to outlying matrix spike/duplicate recoveries. The results are useable to assess the magnitude of metals contamination in the affected samples.

9. Values for calcium, magnesium, and manganese are considered estimated for all filtered samples as a result of serial dilution outliers for UPMW-1AF. These result are useable to show the relative magnitude of these analytes in the affected samples.

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

LAWLER, MATUSKY & SKELLY
ENGINEERS

JAN 23 1996

January 22, 1996

Maria Heincz
LMS Engineers
One Blue Hill Plaza
Pearl River, NY 10965

RE: Validation of United Plating Site Data Packages
E3I SDG No UPMW2B-1 (E3I project numbers 960093, 960115, and 960116)

Dear Ms. Heincz:

Review has been completed for the data packages generated by E3I, pertaining to samples collected at the United Plating Site. Eleven aqueous samples were analysed for CLP TAL/TCL; two additional samples were analysed for TCL volatiles and TAL metals/CN. Metals analyses included total and dissolved fractions. Field and trip blanks, and matrix spikes/duplicates were processed. Methodologies utilized are those of the 1991 NYSDEC ASP.

Data validation was performed with guidance from the most current editions of the USEPA CLP National Functional Guidelines for Organic and Inorganic Data Review and the USEPA SOPs HW-2 and HW-6. The following items were reviewed:

- * Data Completeness
- * Custody Documentation
- * Holding Times
- * Surrogate and Internal Standard Recoveries
- * Matrix Spike Recoveries/Duplicate Correlations
- * Preparation/Calibration Blanks
- * Control Spike/Laboratory Control Samples
- * Instrumental Tunes
- * Calibration Standards
- * Instrument IDLs
- * Method Compliance
- * Sample Result Verification

Those items showing deficiencies are discussed in the following sections of this report. All others were found to be acceptable as outlined in the above-mentioned validation procedures, and as applicable for the methodology. Unless noted specifically in the following text, reported results are substantiated by the raw data, and generated in compliance with protocol requirements.

In summary, sample processing was primarily conducted with compliance to protocol requirements and with adherence to quality criteria. Exceptions include pesticide standard responses and metals spike/duplicate processing. Certain edits to, and qualification of, reported results are indicated. These issues are discussed in the following analytical sections.

Resubmission communications and copies of laboratory case narratives are attached to this narrative, and should be reviewed in conjunction with this narrative. A compliancy chart and laboratory NYSDEC Sample Preparation and Analysis Summary Forms are also included with this report.

Data Completeness

Requested resubmissions include miscellaneous data items, clarifications, and documentation from the laboratory to distinguish between filtered and unfiltered metals results.

Volatile Analyses

Please see the attached corrected Form 1E for UPMW1A (resubmission communications).

Methylene chloride and toluene were detected in certain of the method blank and trip blanks at concentrations similar to those of the samples. The sample reported methylene chloride and toluene results should therefore be edited to reflect nondetection at the CRDL. Acetone was detected in project sample UPMW1C. Although it was not detected in the associated blanks, acetone was detected in a nonassociated blank and the matrix spike blank at concentrations similar to those of the sample. Caution should be used regarding the acetone result of UPMW1C.

Due to poor spectral quality (nonsubtractive interferences), the reported detection of benzene in UPMW1B, UPMW2B, and UPMW3B should be rejected, and the results edited to nondetection at the sample CRDLs.

Those analytes with the "E" flag should derive values from dilution analyses. Unless noted specifically within this text, all other results for a given sample can be derived from the initial (undiluted) analyses.

All TICs reported with the "B" laboratory flag should be disregarded as sample components due to copresence in associated blanks.

Matrix spikes were performed on UPMW2C. All recovery values were acceptable. Four of the five spike compounds showed elevated duplicate correlation (values of 14%RPD to 19%RPD, above limits of 11%RPD to 14%RPD). Surrogate responses do not show the same correlation, indicating a possible spiking variance.

Semivolatile Analyses

Samples UPMW1A, UPMW1B, UPMW6, and UPMW3A were reextracted at 13 days from receipt (beyond the allowable 10 day reextraction holding time) due to contamination of 4-chloro-3-methylphenol at low levels in the initial extracts and associated blank. It is appropriate to use the reported results from the initial extractions (not those with the "-RE" suffix), with an edit for 4-chloro-3-methylphenol to nondetection at the analyte CRDL.

Due to copresence in the associated field blank, and in some method blanks, the reported detections of di-n-butylphthalate, butylbenzylphthalate, and bis(2-ethylhexyl)phthalate in the samples are rejected. Reported results should be edited to reflect nondetection at either the sample CRDL, or at the originally reported value, whichever is greater. Although not detected in associated blanks, the detections of diethylphthalate in these samples is also suspect as contamination, and results should be used with caution.

Tentatively Identified Compounds (TICs) which are aldols ("A" flag) are artifacts of the extraction, and should not be considered sample components. All TICs reported with the "B" laboratory flag should be disregarded as sample components due to copresence in associated blanks.

The following TICs were detected in the associated field blank, and should be rejected as sample components:

UPMW2B	- TICs # 14 and 16 (24.71' and 28.01').
UPMW2C	- TICs # 18 and 19 (32.10' and 32.45').
UPMW2D	- TICs # 11, 15, and 16 (23.39', 28.32', and 32.41').
UPMW3C	- TICs # 17 and 18 (32.20' and 32.55').

The TIC #17 at (29.89') in sample UPMW2C does not show proper spectral correlation for the reported identification. The assigned name and CAS number should be rejected, and the compound name edited to "unknown".

The following analytes produced outlying responses in the daily standards which warrant qualification of associated sample results as estimated. Outliers include depressed responses exceeding 25%D, and elevated responses exceeding 25%D for samples with detected components.

Standard	Analyte	%D	Affected Samples
C4410 10-30-95 1642	2,4,5-trichlorophenol	34	UPMW3B, UPMW3C, UPFB12 UPMW2B, UPMW2C, and UPMW2D
	3-nitroaniline	51	
	2,4-dinitrophenol	29	
	4-nitrophenol	45	
	4-nitroaniline	71	
	3,3-dichlorobenzidine	38	
K5536 10-30-95 1051	4-chloroaniline	33	UPMW6
	3-nitroaniline	53	

Matrix spikes were performed on UPMW2C. Recoveries for 4-nitrophenol were elevated (120% and 93%, above 80% recommended limit). One recovery value (38%, below 41%) and the duplicate correlation (51%RPD, above 38%RPD limit) were out for n-nitrosodi-n-propylamine.

Pesticide/PCB Analyses

Reported pesticide detections should not be considered as sample components. The identifications of responses as pesticides are to be rejected due to responses below laboratory Instrument Detection Limit (IDL) (these should not have been reported by the lab), and/or due to poor dual column correlation (above 90%D). In addition, the field blank UPFB12 reported responses for 4,4'-DDT (0.009 ug/L) and Aroclor 1254 (0.11 ug/L) which are at similar levels to those of the samples.

In summary, following the validation review, all sample reported results for detected pesticides and Aroclors should be edited to reflect nondetection at the analyte CRDLs, with the exception of Aroclor 1260 in UPMW1A (at 0.59 ug/L). Although rejection of this PCB detection in UPMW1A is not indicated, the possibility of contamination (shown by Aroclor 1254 in the field blank) should be considered, and the end-user should view this result with extreme caution.

Standard processing was noncompliant as regards responses of several analytes in the continuing PEM and INDA/B standards. Most of these outlying responses were elevated (above 25%RPD, to 48%RPD), and affect only detected sample values (none of which remain following validation review). Those with depressed recoveries indicate qualification of reported results (detection limits) of associated samples as estimated. They are the following (with %Ds of 30%D to 38%):

alpha-BHC, gamma-BHC, 4,4'-DDT, and methoxychlor in UPFB12, UPMW2B, and UPMW2C.
methoxychlor in UPMW2D, UPMW3C, UPMW3B, UPMW3A, UPMW6, UPMW5, UPMW2A,
and UPMW1A

Florisil evaluation surrogate recoveries were noncompliant (128% and 139%, above 120% limit). Sample reported results are unaffected. The date of analysis should be noted on the florisil recovery summary form.

Matrix spikes were performed on UPMW2C, with acceptable recoveries. Duplicate correlation of 4,4'-DDT was high, at 35%RPD (above recommended limit of 27%RPD). No matrix spike blank was reported with this delivery group.

Certain of the sample surrogate recoveries were below the 60% recommended limit, but all were above the 30% qualification limit.

Raw data should show the client sample ID (per protocol required deliverables).

Metals/CN Analyses

The filtered fraction of field blank FB12-F produced thallium detection at 11.3 ug/L (this was not present in the unfiltered fraction). Therefore thallium detections in sample UPMW2B-F and UPMW3B-F are suspect as contamination. The detections are to be rejected; it is appropriate to consider elevated sample detection limits at the originally reported levels.

The arsenic result for UPMW2D was greater in the filtered sample than in the unfiltered sample by more than 50% difference, and the two arsenic values are therefore not usable for the sample.

The following sample analytes produced higher results in the filtered fraction than in the unfiltered fraction by more than 10%D, but less than 50%D. The element values in both fractions of the affected samples should be considered estimated:

chromium in UPMW2C;
calcium, magnesium, and sodium in UPMW3B
selenium in UPMW2A

Certain samples produced matrix interferences which resulted in low post-digest spike (PDS) recoveries for elements processed by graphite furnace. Outlying values (out of 85% to 115% range) are flagged as "W". Results for all elements in this delivery group reported with the "W" flag, except thallium in UPMW4, should be considered estimated. Thallium in UPMW4 produced an elevated recovery with no detection, and does not require qualification for this outlying value.

The selenium result for UPMW2A should be considered estimated due to outlying MSA correlation.

Due to outlying recoveries of the thallium standards at twice the CRDL (CRI), the reported thallium results of the associated samples should be rejected. The initial CRI recovery was 286%, the final CRI recovery was 0%. Although no corrective action was required of the lab, these recoveries indicate instrumental conditions which should have been improved prior to sample processing: Associated samples are the filtered and unfiltered fractions of UPMW2C, UPMW2D, UPMW3B, UPMW3C, UPMW2B, and FB12. Please note the above comments regarding FB12-F, and the rejection of detected values in these samples.

Due to outlying recoveries of standards at (equal to, or twice the) CRDL (CRA and CRI), the following results should be considered estimated. Although no corrective action was required of the lab, these recoveries indicate instrumental conditions which should have been improved prior to sample processing:

Element	CRI/A recoveries	Samples affected:
Lead by furnace	31% and 43%	All samples with "F" method flag.
Copper	60% and 27%	filtered and unfiltered of: UPMW2B, UPMW2C, UPMW2D, UPMW3B, UPMW3B, UPMW3C, FB12

Matrix spike/duplicate correlations were performed on UPMW2C. The following recovery outliers were observed, and reported results of these elements in the samples of this delivery group should be considered estimated:

<u>Element</u>	<u>Recovery</u>
Antimony	70%
Lead by furnace	73
Mercury	63

The duplicate correlation for thallium by ICP was out (greater than $\pm$ CRDL). Thallium results by ICP are rejected, as noted above.

No accuracy and precision evaluations were performed for lead by ICP or thallium by furnace. This is noncompliant, and reported results for these elements in those samples analysed by those methods must therefore be considered estimated: UPMW1A, UPMW1A-F, UPMW4, UPMW5, UPMW5-F, UPMW6, UPMW6-F, UPMW1B, UPMW1B-F, UPMW1C, UPMW1C-F, UPMW2A, UPMW2A-F, UPMW3A, and UPMW3A-F.

Serial dilution determinations for UPMW2C and UPMW1A produced acceptable correlations.

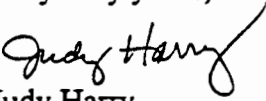
Serial dilution outliers (above 10%D) were observed for UPMW1A-F, and results for these elements in the filtered versions of the samples in this delivery group should be considered estimated:

<u>Element</u>	<u>Percent Difference</u>
calcium	18%D
magnesium	22
manganese	39

No correction was required for the sodium results of filtered and unfiltered UPMW1A (see resubmission communications). Although not discussed in the lab response, samples were switched at analysis (see raw data attached).

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,


Judy Harry

COMPLIANCY CHART

Project: LMS Engineers -United Plating Site

SDG Nos. E3I SDG No. UPMW2B-1

Protocol: 1991 NYSDEC ASP CLP

<u>Rec. Date</u>	<u>Sample ID</u>	<u>Matrix</u>	<u>VOA</u>	<u>BNA</u>	<u>Pest/PCB</u>	<u>Metals/CN</u>	<u>Fil.Met.</u>	<u>Noncompl</u>
10-18-95	UPMW3B	Aqueous	OK	OK	NO	OK	OK	3
10-18-95	UPMW3C	Aqueous	OK	OK	NO	OK	OK	3
10-18-95	UPFB12	Aqueous	OK	OK	NO	OK	OK	3
10-18-95	UPTB10	Aqueous	OK	NR	NR	NR	NR	
10-18-95	UPMW2B	Aqueous	OK	OK	NO	OK	OK	3
10-18-95	UPMW2C	Aqueous	OK	OK	NO	OK	OK	3
10-18-95	UPMW2D	Aqueous	OK	OK	NO	OK	OK	3
10-19-95	UPMW1A	Aqueous	OK	NO	NO	NO	NO	1,2,3
10-19-95	UPMW1B	Aqueous	OK	NO	NO	NO	NO	1,2,3
10-19-95	UPMW2A	Aqueous	OK	OK	NO	NO	NO	2,3
10-19-95	UPMW5	Aqueous	OK	OK	NO	NO	NO	2,3
10-19-95	UPMW6	Aqueous	OK	NO	NO	NO	NO	1,2,3
10-19-95	UPMW3A	Aqueous	OK	NO	NO	NO	NO	1,2,3
10-20-95	UPMW1C	Aqueous	OK	NR	NR	NO	NR	2
10-20-95	UPMW4	Aqueous	OK	NR	NR	NO	NR	2
10-20-95	UPTB11	Aqueous	OK	NR	NR	NR	NR	

1. BNA reextraction holding time exceeded (1991 NYSDEC ASP pg. D-III-8).
2. Metals accuracy and precision evaluation not performed for all methods used (pg. E-137).
3. Pesticide standard responses outside allowable limits (pg. E-101).
 Florisil surrogate recoveries outside allowable limits (pg. D-IV-32).
 No pesticide matrix spike blank reported (pg. D-IV-66).

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, NY 12853

Phone and Fax (518) 251-4429

December 6, 1995

Steve Mattingly

E3I

35 Medford St.

Somerville, MA 02143

RE: LMS Engineers United Plating Project
E3I SDG No. UPMW2B

Dear Steve:

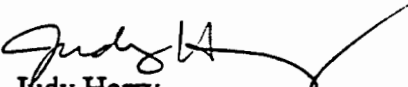
Review of the above-mentioned data package is in progress. The following items are needed prior to completion of the validation report:

1. VOA
 - a. The TIC at 9.65' for sample UPMW1A was not reported. Please provide a corrected Form 1E.
 - b. Please provide a Form 3 for the matrix spike blank VSPK251.
2. BNA
The spectrum for the TIC#3 reported for sample UPMW3C (15.81') is not included in the data package. Please provide for review.
3. PEST/PCB
The standard raw data (area count responses) for Aroclor 1260 (on both columns) is not provided. The data for 1660 does not identify this component. Please provide the area data necessary for verification of reported calibration factors for Aroclor 1260. In addition, please provide a statement explaining the lack of "detection" of this component by the software----i.e. if the software does not recognize the PCB in the standard, how are we certain that it will recognize it in the associated samples?
4. METALS/CN
 - a. The sodium results for the filtered and unfiltered analyses of UPMW1A are reversed on the Forms 1. Please provide corrected Forms 1 for these samples. Please also distinguish between filtered and unfiltered in the sample IDs on the resubmitted forms. It is not acceptable to report the same sample IDs for filtered and unfiltered versions of a sample.

- b. Similarly, no distinction is made on the cover sheet between filtered and unfiltered sample fractions. An end user of the data would be unable to differentiate without reviewing the raw data. Please provide, minimally, a corrected cover sheet; corrected Forms 1 would also be appropriate.
- c. The raw data for the cyanide results of sample UPMW2C are not available in the data package. The result should appear at the top of page 417, but "runs off the top". Please provide for review.

Please copy Maria Heincz at LMS Engineers with all communications. Do not hesitate to contact me if you wish to discuss these issues. Thank you for your prompt attention to this matter.

Very truly yours,


Judy Harry

cc: Maria Heincz

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, NY 12853

Phone and Fax (518) 251-4429

Facsimile Transmission

TO: Steve Mattingly

COMPANY: E3I

FAX NUMBER: 617 666-5802

FROM: Judy Harry

DATE:

No. of pages (including cover): 1

COMMENTS: RE: LMS United Plating SDG UPMW2B

Please include copies of the internal chain-of-custodies which are associated with the above mentioned data package, with the other outstanding resubmissions (from 12-06-95 request). Thank you.

Data Validation Services

Cobble Creek Road P. O. Box 208
North Creek, NY 12853
Phone and Fax (518) 251-4429

Facsimile Transmission

TO: Steve Mattingly

COMPANY: E3I

FAX NUMBER: 617 666-5802

FROM: Judy Harry 

DATE: 01-08-96

No. of pages (including cover): 1

COMMENTS: RE: LMS Engineers United Plating SDG UPMW2B

I have reviewed the lab responses to my request of 12-06-95, and the following issues need additional response:

Regarding item #3, raw data for Aroclor 1260 standard:

1. The submitted area counts do not support the calibration factors reported on the Forms 6F (which were used for sample value determinations)
2. The request for a statement (as discussed in the letter of 12-06) has not been met. The laboratory should address the failure of the software to detect the standard, and re-review all associated sample results for possible false negatives. Please provide assurance that this has been done.



E3I Environmental Laboratory

35 Medford Street
Somerville, MA 02143
Tel. (617) 666-5500

P.O. Box 410215
E. Cambridge, MA 02141
Fax (617) 666-5802

January 4, 1996

Judy Harry
Data Validation Services
Cobble Creek Road
P.O.Box 208
North Creek, NY 12853

RE: LMS United Plating Project SDG UPMW2B

Dear Ms. Harry.

This submission constitutes the response to your comments/requests.

Comment/Request

1. VOA
 - a. Corrected Form 1E for sample UPMW1A
 - B. Form 3 for the matrix spike blank VSPK251
2. BNA
TIC#3(15.81) for sample UPMW3C is <10% of the internal standard areas and should not be included in Form 1F for that sample. Corrected Form 1F is being submitted.
3. Pest/PCB
The standard raw data (area count responses) for Aroclor 1260 is being submitted.
4. Metals/CN
Corrected Forms are being submitted.
5. Internal chain-of-custodies are also being submitted.

If you have any questions, please feel free to call me at (617) 666-5500.

Sincerely,

Mervelina Saturno-Condon
Mervelina Saturno-Condon

cc: Maria Heincz, LMS

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EHA SAMPLE NO.

UPMW1

Name: E3I

Contract:

Code: E3I

Case No.: UP

SAS No.:

SDG No.: UPMW2B

Matrix: (soil/water) WATER

Lab Sample ID: 960115-1

Conc: 5.000 (g/mL) ML

Lab File ID: L7745

Level: (low/med) LOW

Date Received: 10/19/95

Moisture: not dec. _____

Date Analyzed: 10/25/95

Column: CAP ID: .53 (mm)

Dilution Factor: 1.0

Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 1

AS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. - -	UNKNOWN PROPANE	9.65	8.	J
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

E3I

VOLATILE MATRIX SPIKE BLANK RECOVERY

Client Project #: UP SDG: UPMW2B
Client Sample #: VSPKW251 Date Analyzed: 10/25/95

MATRIX SPIKE COMPOUNDS	SPIKE ADDED (UG/L)	BLANK CONC. (UG/L)	MSB CONC. (UG/L)	MSB % RECOV.	QC RECOV. LIMITS
1,1-Dichloroethene	50	0	48	95	65-145
Trichloroethene	50	0	42	83	71-120
Benzene	50	0	42	85	76-127
Toluene	50	0	43	86	76-125
Chlorobenzene	50	0	42	84	75-130

Spike Recovery: 0 out of 5 outside limits.

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

UPMW3C

Lab Name: E3I

Contract:

Lab Code: E3I

Case No.: UP

SAS No.:

SDG No.: UPMW2B

Matrix: (soil/water) WATER

Lab Sample ID: 960093-2

Sample wt/vol: 1000.0 (g/mL) ML

Lab File ID: C4415

Level: (low/med) LOW

Date Received: 10/18/95

Moisture: _____ decanted: (Y/N) _____

Date Extracted: 10/20/95

Concentrated Extract Volume: 1000.0 (uL)

Date Analyzed: 10/30/95

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

C Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 18

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 57-55-6	1,2-Propanediol	3.25	63.5	BJ N
2. 544-76-3	Hexadecane	15.73	6.	J N
3. - -	UNKNOWN ALKANE	16.32	5.	J
4. - -	UNKNOWN ALKANE	17.45	3.	J
5. 629-78-7	Heptadecane	19.16	10.	J N
6. - -	UNKNOWN ALKANE	19.57	2.	J
7. - -	UNKNOWN ALKANE	20.19	7.	J
8. - -	UNKNOWN ALKANE	20.58	3.	J
9. - -	UNKNOWN ALKANE	20.93	2.	J
10. - -	UNKNOWN ALKANE	21.17	3.	J
11. - -	UNKNOWN	23.16	4.	J
12. - -	UNKNOWN ALKANE	23.33	2.	J
13. - -	UNKNOWN	23.39	4.	J
14. - -	UNKNOWN ALKANE	24.17	3.	J
15. - -	UNKNOWN	26.51	9.	J
16. - -	UNKNOWN	32.20	95 300	J
17. - -	UNKNOWN	32.55	11 40	J
18. - -	UNKNOWN	34.33	6 20	J
19. - -			72 1-45	
20. - -				
21. - -				
22. - -				
23. - -				
24. - -				
25. - -				
26. - -				
27. - -				
28. - -				
29. - -				
30. - -				

NYSDEC - ASP

COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: UPMW:

Protocol Version: 12/91

NYSDEC Sample No.

Lab Sample ID.

UPFB12	96009303
UPFB12 - F	96009313 F
UPMW1A	96011501
UPMW1A - F	96011511 F
UPMW1B	96011502
UPMW1B - F	96011512 F
UPMW1C	96011601
UPMW2A	96011503
UPMW2A - F	96011513 F
UPMW2B	96009305
UPMW2B - F	96009315 F
UPMW2C	96009306
UPMW2C - F	96009316 F
UPMW2CD	96009306D
UPMW2CS	96009306S
UPMW2D	96009307
UPMW2D - F	96009317 F
UPMW3A	96011506
UPMW3A - F	96011516 F
UPMW3AD	96011506D

Where ICP interelement corrections applied?

Yes/No

Y

Were ICP background corrections applied?

Yes/No

Y

If yes-were raw data generated before
application of background corrections?

Yes/No

N

Comments:

ICP Interelement corrections were applied AFTER raw data was generated.
See narrative for further information.

I certify that this data package is in compliance with the terms and conditions of the Protocol, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature:

Charles Wohlers

Name: Dr. Charles Wohlers

Date:

1 Nov. 1995

Title: Laboratory Manager

COVER PAGE - IN

000004

NYSDEC - ASP

COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No.:

SAS No.:

SDG No.: UPMW2

Protocol Version: 12/91

NYSDEC Sample No.

Lab Sample ID.

UPMW3AS

96011506S

UPMW3B

96009301

UPMW3B - F

96009311 F

UPMW3C

96009302

UPMW3C - F

96009312 F

UPMW4

96011602

UPMW5

96011504

UPMW5 - F

96011514 F

UPMW6

96011505

UPMW6 - F

96011515 F

'F' means that the sample was filtered
in the field mxc 11/21/95

Where ICP interelement corrections applied?

Yes/No YE

Were ICP background corrections applied?

Yes/No YE.

If yes-were raw data generated before
application of background corrections?

Yes/No NO

Comments:

ICP Interelement corrections were applied AFTER raw data was generated.
See narrative for further information.

I certify that this data package is in compliance with the terms and conditions of the Protocol, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature:

Charles Wohlers

Name: Dr. Charles Wohlers

Date:

↓ Nov. 1995

Title: Laboratory Manager

COVER PAGE - IN

000005

14:44:45 27 Oct 1995

Folder: 115NA
Protocol: RNA

Page

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: 9601150RI				Seq: 11	14:44:45	27 Oct 1995	ICP	

Na2	83.13	PPB	8.537	78.26	37.77			

*** Sample ID: 9601150RW				Seq: 12	14:45:47	27 Oct 1995	ICP	

Na2	3.569	PPB	.4313	3.874	3.264			

*** Sample ID: 9601150SW				Seq: 13	14:46:49	27 Oct 1995	ICP	

Na2	56519	PPB	97.92	56456	56590			

*** Sample ID: 96011511	01 AL 1.3.96			Seq: 14	14:47:51	27 Oct 1995	ICP	

Na2	134000	PPB	1334.	133000	134900			

*** Sample ID: 96011501				Seq: 15	14:48:53	27 Oct 1995	ICP	

Na2	129000	PPB	200.7	128900	129200			

*** Sample ID: 96011512				Seq: 16	14:49:56	27 Oct 1995	ICP	

Na2	126700	PPB	2272.	125100	128300			

*** Sample ID: 96011502				Seq: 17	14:50:59	27 Oct 1995	ICP	

Na2	133500	PPB	379.1	133800	133200			

*** Sample ID: 96011513				Seq: 18	14:52:02	27 Oct 1995	ICP	

Na2	12630	PPB	445.3	12320	12950			

*** Check Standard: 2	Ck2			Seq: 19	14:53:06	27 Oct 1995	ICP	

Line	Flag	%Recv.	Found	True	Units	SD/RSD
Na2		101.4	50680	50000	PPB	19.23

*** Check Standard: 1	Ck1			Seq: 20	14:54:11	27 Oct 1995	ICP	

Line	Flag	Found	Range(+/-)	Units	SD/RSD
Na2		88.46	5000.	PPB	5.509

*** Sample ID: 96011503				Seq: 21	14:55:15	27 Oct 1995	ICP	

Na2	96790	PPB	2121.	95290	9829000			

*** Sample ID: 96011514				Seq: 22	14:56:17	27 Oct 1995	ICP	

not rep'd
A10.27.95

Samples were switched.

The explanation was submitted
to the Lab. director. Dr. C. W. Hedges.
I forgot to change it on this page.
Sorry. 1.2.96

UPMW1A

UPMW1A

UPMW1B

UPMW1B

UPMW2A

Ck1

Ck2

UPMW2A

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPFB12-F

Lab Name: Energy & Environ. Engr. Contract:

Lab Code: E3I Case No: SAS No.: SDG No.: UPMW2B

Matrix (soil/water): WATER Lab Sample ID: 96009313

Level (low/med): LOW Date Received: 10/18/95

% Solids 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	32.40	B		P
7440-36-0	Antimony	13.30	U	N	P
7440-38-2	Arsenic	5.30	U		P
7440-39-3	Barium	0.90	U		P
7440-41-7	Beryllium	0.70	U		P
7440-43-9	Cadmium	0.90	U		P
7440-70-2	Calcium	129.00	B	E	P
7440-47-3	Chromium	1.60	U		P
7440-48-4	Cobalt	3.10	U		P
7440-50-8	Copper	5.90	B		P
7439-89-6	Iron	22.40	U		P
7439-92-1	Lead	2.20	U	N	F
7439-95-4	Magnesium	38.90	B	E	P
7439-96-5	Manganese	5.50	B	E	P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	5.10	U		P
7440-09-7	Potassium	48.90	B		P
7782-49-2	Selenium	1.20	U		F
7440-22-4	Silver	1.50	U		P
7440-23-5	Sodium	162.00	B		P
7440-28-0	Thallium	11.30		*	P
7440-62-2	Vanadium	2.10	U		P
7440-66-6	Zinc	7.40	U		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

FORM I - IN

000038

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPMW1A - F

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No:

SAS No.:

SDG No.: UPMW2B

Matrix (soil/water): WATER

Lab Sample ID: 96011511

Level (low/med): LOW

Date Received: 10/19/95

% Solids 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	141.00	B	N	P
7440-36-0	Antimony	28.30	B		P
7440-38-2	Arsenic	5.30	U		P
7440-39-3	Barium	71.50	B		P
7440-41-7	Beryllium	0.70	U	E	P
7440-43-9	Cadmium	1.50	B		P
7440-70-2	Calcium	134000.00			P
7440-47-3	Chromium	1.70	B		P
7440-48-4	Cobalt	3.10	U		P
7440-50-8	Copper	9.60	B		P
7439-89-6	Iron	338.00		N	P
7439-92-1	Lead	2.60	U		P
7439-95-4	Magnesium	53600.00			P
7439-96-5	Manganese	446.00		E	P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	5.10	U	W	P
7440-09-7	Potassium	7500.00			P
7782-49-2	Selenium	2.20	B		F
7440-22-4	Silver	2.40	B		P
7440-23-5	Sodium	129000.00		*	P
7440-28-0	Thallium	0.80	U		F
7440-62-2	Vanadium	3.30	B		P
7440-66-6	Zinc	7.40	U		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

FORM I - IN

000040

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPMW1B-F

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No:

SAS No.:

SDG No.: UPMW2B

Matrix (soil/water): WATER

Lab Sample ID: 96011512

Level (low/med): LOW

Date Received: 10/19/95

% Solids

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	90.10	B		P
7440-36-0	Antimony	17.20	B	N	P
7440-38-2	Arsenic	5.30	U		P
7440-39-3	Barium	41.10	B		P
7440-41-7	Beryllium	0.70	U		P
7440-43-9	Cadmium	0.90	U		P
7440-70-2	Calcium	30800.00		E	P
7440-47-3	Chromium	1.60	U		P
7440-48-4	Cobalt	3.10	U		P
7440-50-8	Copper	3.30	B		P
7439-89-6	Iron	206.00			P
7439-92-1	Lead	2.60	U	N	P
7439-95-4	Magnesium	16400.00		E	P
7439-96-5	Manganese	69.90		E	P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	5.10	U		P
7440-09-7	Potassium	4020.00	B		P
7782-49-2	Selenium	1.20	U		F
7440-22-4	Silver	1.50	U		P
7440-23-5	Sodium	127000.00			P
7440-28-0	Thallium	0.80	U	*W	F
7440-62-2	Vanadium	2.10	U		P
7440-66-6	Zinc	7.40	U		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

FORM I - IN

000042

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPMW2A - F

Lab Name: Energy & Environ. Engr. Contract:

Lab Code: E3I

Case No:

SAS No.:

SDG No.: UPMW2B

Matrix (soil/water): WATER

Lab Sample ID: 96011513

Level (low/med): LOW

Date Received: 10/19/95

% Solids

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	106.00	B		P
7440-36-0	Antimony	13.30	U	N	P
7440-38-2	Arsenic	7.10	B		P
7440-39-3	Barium	39.60	B		P
7440-41-7	Beryllium	0.70	U		P
7440-43-9	Cadmium	0.90	U		P
7440-70-2	Calcium	104000.00		E	P
7440-47-3	Chromium	157.00			P
7440-48-4	Cobalt	3.10	U		P
7440-50-8	Copper	3.20	U		P
7439-89-6	Iron	205.00			P
7439-92-1	Lead	2.60	U	N	P
7439-95-4	Magnesium	54300.00		E	P
7439-96-5	Manganese	267.00		E	P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	5.10	U		P
7440-09-7	Potassium	35300.00			P
7782-49-2	Selenium	5.30		+	F
7440-22-4	Silver	1.50	U		P
7440-23-5	Sodium	12600.00			P
7440-28-0	Thallium	0.80	U	*	F
7440-62-2	Vanadium	3.00	B		P
7440-66-6	Zinc	20.80			P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLOUDY

Texture:

Color After: YELLOW

Clarity After: CLEAR

Artifacts:

Comments:

FORM I - IN

000045

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPMW2B-F

Lab Name: Energy & Environ. Engr. Contract:

Lab Code: E3I Case No.: SAS No.: SDG No.: UPMW2B

Matrix (soil/water): WATER Lab Sample ID: 96009315

Level (low/med): LOW Date Received: 10/18/95

% Solids 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	51.00	B		P
7440-36-0	Antimony	13.30	U	N	P
7440-38-2	Arsenic	5.30	U		P
7440-39-3	Barium	15.60	B		P
7440-41-7	Beryllium	0.70	U		P
7440-43-9	Cadmium	0.90	U		P
7440-70-2	Calcium	31700.00		E	P
7440-47-3	Chromium	43.70			P
7440-48-4	Cobalt	3.10	U		P
7440-50-8	Copper	6.90	B		P
7439-89-6	Iron	150.00			P
7439-92-1	Lead	2.20	U	NW	F
7439-95-4	Magnesium	19200.00		E	P
7439-96-5	Manganese	26.30		E	P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	5.10	U		P
7440-09-7	Potassium	6310.00			P
7782-49-2	Selenium	1.20	B	W	F
7440-22-4	Silver	1.50	U		P
7440-23-5	Sodium	69000.00			P
7440-28-0	Thallium	19.50		*	P
7440-62-2	Vanadium	2.10	U		P
7440-66-6	Zinc	7.40	U		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

FORM I - IN

000047

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPMW2C -F

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No:

SAS No.:

SDG No.: UPMW2B

Matrix (soil/water): WATER

Lab Sample ID: 96009316

Level (low/med): LOW

Date Received: 10/18/95

% Solids

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	53.40	B		P
7440-36-0	Antimony	13.30	U	N	P
7440-38-2	Arsenic	5.30	U		P
7440-39-3	Barium	18.40	B		P
7440-41-7	Beryllium	0.70	U		P
7440-43-9	Cadmium	0.90	U		P
7440-70-2	Calcium	12600.00		E	P
7440-47-3	Chromium	16.70			P
7440-48-4	Cobalt	3.10	U		P
7440-50-8	Copper	4.40	B		P
7439-89-6	Iron	252.00			P
7439-92-1	Lead	2.20	U	N	F
7439-95-4	Magnesium	13100.00		E	P
7439-96-5	Manganese	12.40	B	E	P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	5.10	U		P
7440-09-7	Potassium	10200.00			P
7782-49-2	Selenium	1.60	B	W	F
7440-22-4	Silver	1.50	U		P
7440-23-5	Sodium	78900.00			P
7440-28-0	Thallium	7.90	U	*	P
7440-62-2	Vanadium	2.60	B		P
7440-66-6	Zinc	7.40	U		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

FORM I - IN

000049

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPMW2D-F

Lab Name: Energy & Environ. Engr. Contract:

Lab Code: E3I Case No.: SAS No.: SDG No.: UPMW2B

Matrix (soil/water): WATER Lab Sample ID: 96009317

Level (low/med): LOW Date Received: 10/18/95

% Solids 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	98.80	B		P
7440-36-0	Antimony	13.30	U	N	P
7440-38-2	Arsenic	11.70			P
7440-39-3	Barium	26.00	B		P
7440-41-7	Beryllium	0.70	U		P
7440-43-9	Cadmium	0.90	U		P
7440-70-2	Calcium	15200.00		E	P
7440-47-3	Chromium	10.80			P
7440-48-4	Cobalt	3.10	U		P
7440-50-8	Copper	6.00	B		P
7439-89-6	Iron	372.00			P
7439-92-1	Lead	2.20	U	NW	F
7439-95-4	Magnesium	14500.00		E	P
7439-96-5	Manganese	4.90	B	E	P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	5.10	U		P
7440-09-7	Potassium	11700.00			P
7782-49-2	Selenium	1.20	U		F
7440-22-4	Silver	1.90	B		P
7440-23-5	Sodium	77000.00			P
7440-28-0	Thallium	7.90	U	*	P
7440-62-2	Vanadium	2.20	B		P
7440-66-6	Zinc	7.40	U		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

FORM I - IN

000051

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPMW3A-F

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No:

SAS No.:

SDG No.: UPMW2B

Matrix (soil/water): WATER

Lab Sample ID: 96011516

Level (low/med): LOW

Date Received: 10/19/95

% Solids

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	211.00	—		P
7440-36-0	Antimony	16.80	B	N	P
7440-38-2	Arsenic	5.30	U		P
7440-39-3	Barium	48.40	B		P
7440-41-7	Beryllium	0.70	U		P
7440-43-9	Cadmium	0.90	U		P
7440-70-2	Calcium	208000.00		E	P
7440-47-3	Chromium	7.30	B		P
7440-48-4	Cobalt	6.70	B		P
7440-50-8	Copper	3.20	U		P
7439-89-6	Iron	242.00			P
7439-92-1	Lead	2.60	U	N	P
7439-95-4	Magnesium	115000.00		E	P
7439-96-5	Manganese	881.00		E	P
7439-97-6	Mercury	0.26		N	CV
7440-02-0	Nickel	12.90	B		P
7440-09-7	Potassium	56900.00			P
7782-49-2	Selenium	2.70	B	W	F
7440-22-4	Silver	1.50	U		P
7440-23-5	Sodium	137000.00			P
7440-28-0	Thallium	0.80	U	*	F
7440-62-2	Vanadium	2.20	B		P
7440-66-6	Zinc	14.10	B		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

FORM I - IN

000053

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPMW3B -F

Lab Name: Energy & Environ. Engr. Contract:

Lab Code: E3I Case No.: SAS No.: SDG No.: UPMW2B

Matrix (soil/water): WATER Lab Sample ID: 96009311

Level (low/med): LOW Date Received: 10/18/95

% Solids 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	40.30	B		P
7440-36-0	Antimony	13.30	U	N	P
7440-38-2	Arsenic	5.30	U		P
7440-39-3	Barium	18.10	B		P
7440-41-7	Beryllium	0.70	U		P
7440-43-9	Cadmium	1.10	B		P
7440-70-2	Calcium	42100.00		E	P
7440-47-3	Chromium	1.70	B		P
7440-48-4	Cobalt	3.10	U		P
7440-50-8	Copper	8.80	B		P
7439-89-6	Iron	164.00			P
7439-92-1	Lead	2.20	U	N	F
7439-95-4	Magnesium	21800.00		E	P
7439-96-5	Manganese	74.30		E	P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	5.10	U		P
7440-09-7	Potassium	4390.00	B		P
7782-49-2	Selenium	1.60	B	W	F
7440-22-4	Silver	1.50	U		P
7440-23-5	Sodium	82400.00			P
7440-28-0	Thallium	16.30		*	P
7440-62-2	Vanadium	2.10	U		P
7440-66-6	Zinc	7.40	U		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

FORM I - IN

000055

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPMW3C -F

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No:

SAS No.:

SDG No.: UPMW2B

Matrix (soil/water): WATER

Lab Sample ID: 96009312

Level (low/med): LOW

Date Received: 10/18/95

% Solids

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	497.00	-		P
7440-36-0	Antimony	13.30	U	N	P
7440-38-2	Arsenic	5.30	U		P
7440-39-3	Barium	48.90	B		P
7440-41-7	Beryllium	0.70	U		P
7440-43-9	Cadmium	0.90	U		P
7440-70-2	Calcium	1670.00	B	E	P
7440-47-3	Chromium	3.20	B		P
7440-48-4	Cobalt	3.10	U		P
7440-50-8	Copper	4.30	B		P
7439-89-6	Iron	404.00			P
7439-92-1	Lead	2.80	B	N	F
7439-95-4	Magnesium	693.00	B	E	P
7439-96-5	Manganese	14.30	B	E	P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	5.10	U		P
7440-09-7	Potassium	2670.00	B		P
7782-49-2	Selenium	1.20	U	W	F
7440-22-4	Silver	1.50	U		P
7440-23-5	Sodium	145000.00			P
7440-28-0	Thallium	7.90	U	*	P
7440-62-2	Vanadium	2.10	U		P
7440-66-6	Zinc	7.40	U		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

FORM I - IN

000057

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPMW5 -F

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No:

SAS No.:

SDG No.: UPMW2B

Matrix (soil/water): WATER

Lab Sample ID: 96011514

Level (low/med): LOW

Date Received: 10/19/95

% Solids 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	257.00			P
7440-36-0	Antimony	17.30	B	N	P
7440-38-2	Arsenic	5.30	U		P
7440-39-3	Barium	51.70	B		P
7440-41-7	Beryllium	0.70	U		P
7440-43-9	Cadmium	0.90	U		P
7440-70-2	Calcium	135000.00		E	P
7440-47-3	Chromium	1680.00			P
7440-48-4	Cobalt	91.90			P
7440-50-8	Copper	3.50	B		P
7439-89-6	Iron	492.00			P
7439-92-1	Lead	2.60	U	N	P
7439-95-4	Magnesium	63300.00		E	P
7439-96-5	Manganese	290.00		E	P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	255.00			P
7440-09-7	Potassium	8930.00			P
7782-49-2	Selenium	2.00	B		F
7440-22-4	Silver	1.50	U		P
7440-23-5	Sodium	349000.00			P
7440-28-0	Thallium	0.80	U	*W	F
7440-62-2	Vanadium	2.50	B		P
7440-66-6	Zinc	7.40	U		P
	Cyanide				NR

Color Before: YELLOW

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

FORM I - IN

000060

NYSDEC-ASP

1
INORGANIC ANALYSIS DATA SHEET

NYSDEC SAMPLE NO.

UPMW6 -F

Lab Name: Energy & Environ. Engr.

Contract:

Lab Code: E3I

Case No:

SAS No.:

SDG No.: UPMW2B

Matrix (soil/water): WATER

Lab Sample ID: 96011515

Level (low/med): LOW

Date Received: 10/19/95

% Solids

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	290.00			P
7440-36-0	Antimony	41.70	B	N	P
7440-38-2	Arsenic	85.90			P
7440-39-3	Barium	24.60	B		P
7440-41-7	Beryllium	0.70	U		P
7440-43-9	Cadmium	1.10	B		P
7440-70-2	Calcium	108000.00		E	P
7440-47-3	Chromium	45000.00			P
7440-48-4	Cobalt	69.70			P
7440-50-8	Copper	35.50			P
7439-89-6	Iron	417.00			P
7439-92-1	Lead	2.60	U	N	P
7439-95-4	Magnesium	10800.00		E	P
7439-96-5	Manganese	22.70		E	P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	25.00	B		P
7440-09-7	Potassium	13700.00			P
7782-49-2	Selenium	2.60	B	W	F
7440-22-4	Silver	1.80	B		P
7440-23-5	Sodium	142000.00			P
7440-28-0	Thallium	0.80	U	*	F
7440-62-2	Vanadium	2.10	U		P
7440-66-6	Zinc	7.40	U		P
	Cyanide				NR

Color Before: YELLOW

Clarity Before: CLEAR

Texture:

Color After: YELLOW

Clarity After: CLEAR

Artifacts:

Comments:

FORM I - IN

000062



E3I Environmental Laboratory

5 Medford Street
Somerville, MA 02143
Tel. (617) 666-5500

P.O. Box 410215
E. Cambridge, MA 02141
Fax (617) 666-5802

January 10, 1996

Ms. Judith Harry
Data Validation Services
Cobble Creek Road
PO Box 208
North Creek, NY 12853

RE: LMS United Plating Project SDG No. UPMW2B

Dear Ms. Harry:

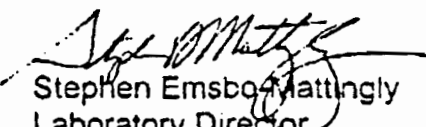
This submission constitutes the response to your comments of 8 January 1996.

Comment:

1. The corrected calibration factors are enclosed.
2. At the time of the original data package submission, E3I typically produced raw data for AR1016 and AR1260 on two separate pieces of paper. The raw data with the area counts of the AR1260 congener peaks were inadvertently omitted from the original data package. Since the time of the original data package submission, E3I developed a new method for listing AR1016 and AR1260 on the same page (see resubmitted data). No problems exist with the software. All samples were rechecked for the presence of AR1260 and no corrections were necessary.

Please call me if you have any further questions or comments.

Sincerely,


Stephen Emsbo-Mattingly
Laboratory Director

cc: Maria Heincz, LMS

SDG NARRATIVE

LAB NAME: E3I Environmental Laboratory

CASE NO.: United Plating

SDG: UPMW2B

E3I Project: 960093, 960115, 960116

Statement of Work: These results are in accordance with NYSDEC ASP 12/91. These results are reported according to ASP Superfund Category "B".

SAMPLE NO.: UPMW-1A, UPMW-1B, UPMW-1C, UPMW-2A, UPMW-2B, UPMW-2C, UPMW-2D, UPMW-3A, UPMW-3B, UPMW-3C, UPMW-4, UPMW-5, UPMW-6, UPFB-12, UPTB-10, UPTB-11,

Sample IDs: It was necessary to abbreviate the LMS IDs due to software limitations. Please refer to the sample ID crossreference for complete IDs.

E3I ID:	Abbreviated ID:	Client ID:
960093-1	UPMW3B	UPMW-3B(GW)
960093-2	UPMW3C	UPMW-3C(GW)
960093-3	UPFB12	UPFB-12
960093-4	UPTB10	UPTB-10
960093-5	UPMW2B	UPMW-2B(GW)
960093-6	UPMW2C	UPMW-2C(GW)
960093-7	UPMW2D	UPMW-2D(GW)
960115-1	UPMW1A	UPMW-1A
960115-2	UPMW1B	UPMW-1B
960115-3	UPMW2A	UPMW-2A
960115-4	UPMW5	UPMW-5
960115-5	UPMW6	UPMW-6
960115-6	UPMW3A	UPMW-3A
960116-1	UPMW1C	UPMW-1C
960116-2	UPMW4	UPMW-4
960116-3	UPTB11	UPTB-11

Volatile Organics: The initial analysis of sample UPMW4 had trichloroethene over the calibration limit. The sample was reanalyzed at a 1:5 dilution. Both analyses are reported.

It is acknowledged that the method blank VBLKW231 contains one nontarget compound.

Semivolatile Organics: The continuing calibration on Pokey on 11/6/95 has bis(-2-chloroethyl)ether with >40 %D.

The following blanks contain one or more nontarget compounds: SBLKW201, SBLKW242, SBLKW011, WS102M.

The initial extracts of the following samples were contaminated with 4-chloro-3-methylphenol and the samples were reextracted past holding time: UPMW1A, UPMW1B, UPMW2A, UPMW5, UPMW6 and UPMW3A. Both analyses are reported.

Pesticides/PCBs: A "Q" on a chromatogram indicates the peaks used to quantitate an aroclor and toxaphene.

Recovery of the surrogate TCX is outside the advisory QC limit on the DB608 column for the following: UPMW2A, UPMW3B, UPMW3C, UPMW2CMS, UPFB12, UPMW2B, UPMW2C, UPMW2CMSD.

Recovery of the surrogate TCX is outside the advisory QC limit on the RTX1701 column for the following: UPMW2A, UPMW5, UPMW3A, UPMW3B.

Recovery of the surrogate DCB is outside the advisory QC limit on the DB608 column for the following: UPMW2A, UPMW3B, UPMW3C, UPFB12, UPMW2B, UPMW2C, UPMW2CMSD.

Recovery of the surrogate DCB is outside the advisory QC limit on the RTX1701 column for the following: UPMW1A, UPMW2A, UPMW3B, UPMW3C, UPMW2D, UPFB12, UPMW2B, UPMW2C, UPMW2CMSD.

For the analytical sequence beginning 10/6/95 on the RTX1701 column:

- PEMV27 - %RPD >25 for alpha-BHC, gamma-BHC and 4,4'-DDT.
- INDAMV26 - %RPD >25 for methoxychlor.

For the analytical sequence beginning 10/6/95 on the RTX1701 column:

- PEMV2C - combined breakdown is >30%
- PEMV27C - endrin breakdown is >20%; combined breakdown >30%; beta-BHC has %RPD >25.
- INDAMV22C - %RPD >25 for endosulfan II, endosulfan sulfate, endrin aldehyde, gamma-chlordane.
- INDAMV24C - %RPD >25 for endrin and 4,4'-DDT.
- INDBMV26C - %RPD >25 for beta-BHC, heptachlor epoxide and gamma-chlordane.

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature."

Charline Smith for

Mervelina Saturno-Condon
Project Manager

November 15, 1995

SDG NARRATIVE

Statement of Work: These results are in accordance with NYSDEC ASP 12/91.

Comments: All holding time and QC requirements were met with the following exceptions:

Analysis was requested on samples for total and filtered (dissolved) metals, both of which had the same client ID. We have assigned these samples different E3I sample ID's and hope that this may ease any possible confusion. We have attempted, as much as possible, to make clear the distinction between these two types of samples with identical client ID's.

Qualifier Definitions:

- B - Reported value obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).
- U - The value recorded by the instrument was less than the Instrument Detection Limit (IDL).
- E - The reported value is estimated because of the presence of interference.
- N - Spiked sample recovery not within control limits.
- * - Duplicate analysis not within control limits.

Description of Instrumentation:

1. ICP:

Leeman Labs PS-1000AT

No significant modifications.

Operating conditions:

RF Power: 1200W

Coolant gas: 17lpm

Auxiliary gas: 0.6lpm

Nebulizer gas: 59 psi pressure

Wavelengths used:

Al 396.2nm

Sb 217.6

As 193.7

Ba 455.4

Be 313.0

Cd 214.4

Ca 317.9

Cr 267.7

Co 228.6

Cu 324.7

Tl 190.8

Pb 220.3

Fe 263.1

Mg 279.1

Mn 257.6

Ni 231.6

K 766.4

Se 196.0

Ag 328.1

Na 589.6

V 292.4

Zn 206.2

Calibration Standards:

Mixed (for ICP) and single element calibration standards were made up as described in our Standards Logs from 1000ppm stock solutions. Specific sources are given in tables at the end of this narrative.

Initial and continuing calibration verification standards used were produced in-house from stock standards other than those used to prepare the standardization solutions.

Laboratory Control Samples:

The above ICV standards were used as Laboratory Control Samples for all aqueous samples. The soil Laboratory Control Sample was from ERA.

000002

Interference Check Sample:

The Interference Check Samples A and AB were made up by us and tested in accordance with SOW ILM02.0.

"I certify that this data package is in compliance with the terms and conditions of the Protocol, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

Signature

Date

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Recd at Lab	Date Extracted	Date Analyzed
960093-1	water	10-17-95	10-18-95	NA	10-23-95
-2					10-23-95
-3					10-23-95
-4					10-23-95
-5					10-24-95
-6					10-23-95
960115-1		10-17-95	10-19-95		10-25-95
-2		10-17-95			10-24-95
-3	-	10-18-95	/		10-25-95
-4					10-25-95
-5					10-25-95
-6					10-25-95
960116-1		10-18-95	10-20-95		10-26-95
-2					10-26-95
-3					10-26-95
960093-7	water	10-17-95	10-18-95	NA	10-24-95

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
SEMIVOLATILE (BNA)
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd at Lab	Date Extracted	Date Analyzed
960073-1	water	10-17-95	10-18-95	10-20-95	10-20-95
-2					
-3					
-5					
-6					
-7					10-31-95
960115-1		10-17-95	10-19-95	10-24-95 & 11-1	10-27-95 & 11-6
-2		10-17-95		10-24 & 11-1-95	10-27 & 11-6-95
-3		10-18-95			
-4					
-5				10-24 & 11-1-95	10-30 & 11-6-95
-6	✓	✓	✓	10-24 & 11-1-95	10-27 & 11-6-95
~~960115-1~~	<del></del>	<del></del>	~~10-20-95~~	<del></del>	<del></del>
~~-2~~	<del></del>	<del></del>	<del></del>	<del></del>	<del></del>

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY SEMIVOLATILE (BNA) ANALYSES

Laboratory Sample ID	Matrix	Analytical Protocol	Extraction Method	Auxiliary Cleanup	Dil/Conc Factor
960113-1	water	91-2	1.9-11a 0 0	none	1.0
-2					
-3					
-5					
-6					
-7					
960115-1					
-2					
-3					
-4					
-5					
-6	V	V	V	V	V
960117-1					
~~2~~	~~1~~	~~V~~	~~1.9-11a~~ ~~0 0~~		

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PESTICIDE/PCB
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd at Lab	Date Extracted	Date Analyzed
41.0092-1	water	10-17-95	10-18-95	10-19-95	10-27-95
-2					
-3					
-5					
-6					
-7					
960115-1		10-17-95	10-19-95	10-22-95	10-26-95
-2		10-17-95			
-3		10-18-95			
-4					
-5					
-6					
~~960116-1~~	~~10-18-95~~	~~10-23-95~~			
~~-2~~	~~10-18-95~~	~~10-23-95~~			

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY PESTICIDE/PCB ANALYSES

Laboratory Sample ID	Matrix	Analytical Protocol	Extraction Method	Auxiliary Cleanup	Dil/Conc Factor
96.0643-1	water	10-17-95	10-18-95	Florisil 1g	1.0
-2					
-3					
-5					
-6					
-7					
96.0115-1		10-17-95	10-19-95		
-2		10-17-95			
-3	-	10-18-95			
-4					
-5					
-6					
96.0116-1			10-20-95		
-2				15-45	

006670-8

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND
ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical Requirements					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals TAL	*Other CN
UPFB12	96009303						X
	13						
UPMW1A	96011501						X
	11						
UPMW1B	02						X
	12						
UPMW1C	96011601						
UPMW2A	96011503						X
	13						
UPMW2B	96009305						X
	15						
UPMW2C	06						X
	16						
UPMW2D	07						X
	17						
UPMW3A	96011506						X
	16						
UPMW3B	96009301						X
	11						
UPMW3C	02						X
	12						
UPMW4	96011602						
UPMW5	96011504						X
	14						
UPMW6	05						X
	15					↓	

GROUNDWATER SAMPLES

SDG No.-s 55771, UPMW2B-2

DATA USEABILITY REPORT

This useability report covers the analytical results, submitted by Energy & Environmental Engineering Inc. (E3I) and Inchcape Testing Services for the second round of the groundwater sampling investigation, conducted by Lawler, Matusky & Skelly Engineers LLP (LMS) during the week of 18 December 1995 at the United Plating site. The analytical report submitted by E3I for sample designation group (SDG) UPMW2B-2 and the analytical report submitted by Inchcape Testing Services Aquatec Laboratories (Aquatec) for SDG No. 55771 were validated by Data Validation Services (DVS). LMS reviewed the data validator's final report and assessed the analytical data against the project data quality objectives (DQOs) in preparation of this report. Where resulting quality control (QC) data did not fall within protocol requirements the reported data have been appropriately qualified. With some exceptions, the data submitted by E3I met the project DQOs and are useable to characterize the nature of the samples collected from the United Plating site. Overall, the reported sample results submitted by Aquatec met the project data quality objectives and are presented with the appropriate qualifiers.

A total of sixteen (19) groundwater samples were collected from on-site monitoring wells and processed for full contract laboratory program (CLP) target compound list (TCL) volatile organic compounds (VOCs) Method 524.2 by Aquatec. In addition, a total of sixteen (16) groundwater samples were submitted to E3I and processed for polychlorinated biphenyls (PCBs), and target analyte list (TAL) metals. All of the analyses were conducted in accordance with the most recent version of New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP).

In general all of the analytical data submitted by Aquatec were in compliance with the accepted protocol of the Quality Assurance Project Plan (QAPjP). Quality control (QC) issues, certain edits and qualifications of reported results are described in detail in the validator's report and discussed in this useability report.

Due to QC issues all of the analytical data submitted by E3I were noncompliant with ASP. LMS has prepared this report to discuss any useability limitations associated with the noncompliant data.

Groundwater Samples

Volatile Analyses

Groundwater samples submitted to Aquatec were analyzed for TCL low level VOCs in accordance with EPA Method 524.2. The procedure used by Aquatec was included in the QAPjP as Appendix C. The affect of QC issues addressed by the data validator on data useability are discussed below.

1. The analysis of samples UPMW-2B and TB-12 encountered late eluting compounds which were also found in the associated method blank. These compounds were not reported by the laboratory as TICs and are considered artifacts of sample processing and not representative of environmental contamination. Therefore, they have not been included in the data summary.
2. The continuing calibration performed on 27 December 1995 yielded low response for hexachlorobutadiene and outlying Relative Percent Difference (28%) slightly above that required by protocol. This compound was not detected in the associated samples. The data useability is affected only in regards to the reported detection limit for this compound which should be considered estimated, possibly biased slightly low in samples UPMW-2B, UPMW-2C and TB-12.
3. Due to sample handling error, seven (7) samples and an additional field and trip blank sample received on 23 December 1995 were not analyzed within the analytical sequence of the initial batches of samples. These samples were recollected and received by the laboratory on 19 January 1996. However, the laboratory applied only one set of sample matrix spikes for the whole SDG which was analyzed with the initial batches of samples. The lack of a second set of sample matrix spikes does not affect data quality or useability since no significant matrix variation was observed among the nineteen (19) groundwater samples collected for this parameter.

Matrix spike and matrix spike duplicate recoveries, recoveries of all analytes in Laboratory Fortified Blanks (LFBs) and responses for routinely run low level standards were good or acceptable.

PCB Analyses

Groundwater samples submitted to E3I were analyzed for PCBs in accordance with NYSDEC ASP CLP superfund methodologies. The affect of QC issues addressed by the data validator on data useability are discussed below.

Comments made in the data validator's report concerning quality control issues associated with the PCB analyses indicate that all of the resulting values should be considered estimated for the following reasons:

- poor individual isomer correlation for Aroclors 1242 and 1254,
- possible cross contribution of common isomer during quantitation of Aroclors 1242 and 1254,
- responses corresponding to PCB isomers are a rather small contribution to the overall chromatogram.

Additionally, a comparison of the data from the first round of samples collected in October 1995 with the present round of results reveals that a wide variation in the two data sets exist. Many of the samples the laboratory reported to contain Aroclor 1254 during the first round of sampling did not have detectable levels during the second round. Aroclor 1254 was also detected in the field blank during the first round at a level similar to levels reported for samples analyzed during both rounds. It was concluded for the first round that the resulting Aroclor 1254 hits were the result of cross contamination and therefore rejected as environmental contamination. The field blank associated with the samples collected during the second round did not contain detectable levels of PCBs but the levels reported in samples MW-4, -6 and -6A (blind duplicate of MW-6) were similar to the levels detected in the field blank from the first round. Due to the sample variance and the possible cross contamination issue the results reported for the second round are highly suspect and may not be the result of environmental contamination.

This may also be true of the Aroclor 1242 and Aroclor 1260 results reported for each of the two rounds. Aroclor 1242 was not detected in any of the samples analyzed during the first round but

was reported in the same samples (UPMW-4, -6, and -6A) at similar levels that the laboratory reported to contain Aroclor 1254. Again this is highly suspect and possibly the result of cross contamination at the laboratory, e.g., use of dirty glassware previously used to extract samples containing elevated level of PCBs.

There is no direct evidence that the PCBs reported by the laboratory are the result of environmental contamination and the only evidence of cross contamination is that of the field blank collected during the first round of sampling. Therefore, a conclusion regarding the existence of PCBs in groundwater samples collected during both rounds can not be drawn and additional analyses will be required to confirm their presence or absence.

Metals

Groundwater samples submitted to E3I were analyzed for TAL metals in accordance with NYSDEC ASP CLP superfund methodologies. The affect of QC issues addressed by the data validator and the data useability are discussed below.

1. Sample UPMW-2C and the QC duplicate produced large variances for silver and zinc. The digestates were reanalyzed for these two analytes and the results were vastly different from the initial results. Due to these discrepancies the laboratory has been requested to reanalyze the spike, duplicate and original sample for zinc and silver. The results for the other samples within this SDG group are unaffected and useable without qualification. The results obtained during the redigestion/reanalysis of sample UPMW-2C were consistent with the initial data reported for this sample. Duplicate correlation was also acceptable. This information confirms the validity and useability of results initially reported for silver and zinc.

2. All selenium results have been rejected due to low negative analytical responses for the samples and poor instrument reliability for this analysis. The data are therefore unusable.

3. A thallium standard was reanalyzed due to an instrument contamination problem without corrective action taking place. Therefore, sample results for the affected samples (UPMW-3A and -4) are reported as non-detect at the CRDL indicating the data is useable to indicate that thallium was not detected in these samples at the CRDL.

4. All of the thallium results are qualified as estimated as a result of matrix interferences and outlying post-digestion spike recoveries. Overall, the thallium results are useable to show that thallium was not detected at levels that exceed the guidance value of 4.0 µg/l.

5. Cyanide analyses for samples UPMW-3B, -3C, -6, and -6A, occurred one to two days beyond the technical holding time of 12 days, therefore, sample values are qualified as estimated. The affect of this holding time violation was minimal on the values reported. The results are useable to show that cyanide concentration exceeded the standard of 100 µg/l in samples UPMW-5, and -6 and did not in the remainder of the samples.

6. Due to outlying standard recoveries and outlying matrix spike/duplicate recoveries lead values obtained by graphite furnace are qualified as estimated. In addition, all lead analysis including those performed by ICP, are considered estimated due to poor duplicate correlation. The affected results are useable to show the relative magnitude of lead in the samples analyzed and that only sample UPMW-1C exceeded the standard of 25 µg/l.

7. Arsenic values in all samples except UPMW-2B and -2C are qualified as estimated, possibly biased slightly low due to outlying standard recoveries. The affected results are useable to show the relative magnitude of arsenic in the samples analyzed and that samples UPMW-1C, and -6 exceeded the standard.

8. All antimony results are qualified as estimated, possibly biased slightly low due to outlying recoveries. The affected results are useable to show the relative magnitude of antimony in the samples analyzed.

9. Due to serial dilution outliers slightly greater than 10% all chromium, potassium, and sodium values are considered estimated. The affected results are useable to show the relative magnitude of theses analytes in the samples analyzed. With the exception of the chromium results for samples UPMW-2A, -3B, and -3C all of the resulting values for each of the three elements can be used to determine if levels exceeded established criteria.

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

LAWLER, MATUSKY & SKELLY
ENGINEERS

JAN 31 1996

January 30, 1996

Maria Heincz
LMS Engineers
One Blue Hill Plaza
Pearl River, NY 10965

RE: Validation of United Plating Site Data Packages
E3I SDG No UPMW2B-2 (E3I project numbers 960463, 960472, 960476, and 960570)

Dear Ms. Heincz:

Review has been completed for the data packages generated by E3I, pertaining to samples collected at the United Plating Site. Thirteen aqueous samples were analysed for CLP TAL metals and low level PCBs. A field blank, and matrix spikes/duplicates were processed. Methodologies for the metals analyses are those of the 1991 NYSDEC ASP. The PCBs were analysed under a modified 91-3 in which Aroclor mixtures were used for system evaluation.

Data validation was performed with guidance from the most current editions of the USEPA CLP National Functional Guidelines for Organic and Inorganic Data Review and the USEPA SOPs HW-2 and HW-6. The following items were reviewed:

- * Data Completeness
- * Custody Documentation
- * Holding Times
- * Surrogate Recoveries
- * Matrix Spike Recoveries/Duplicate Correlations
- * Preparation/Calibration Blanks
- * Control Spike/Laboratory Control Samples
- * Calibration Standards
- * Instrument IDLs
- * Method Compliance
- * Sample Result Verification

Those items showing deficiencies are discussed in the following sections of this report. All others were found to be acceptable as outlined in the above-mentioned validation procedures, and as applicable for the methodology. Unless noted specifically in the following text, reported results are substantiated by the raw data, and generated in compliance with protocol requirements.

In summary, sample processing was primarily conducted with compliance to protocol requirements and with adherence to quality criteria. Certain edits to, and qualification of, reported results are indicated. These issues are discussed in the following analytical sections.

Resubmission communications and copies of laboratory case narratives are attached to this narrative, and should be reviewed in conjunction with this narrative. A compliancy chart and laboratory NYSDEC Sample Preparation and Analysis Summary Forms are also included with this report. Please note that the preparation and analysis summary forms should show that no PCB analysis was performed on UPMW1C (due to insufficient volume).

Data Completeness

Requested resubmissions include corrections to certain reported results (see attached Form 1) and clarification of the fact that no florasil cleanup was performed for PCB analyses (see corrected NYSDEC sample prep form, attached).

PCB Analyses

Please see corrections to reported results for UPMW1C, which were originally reported at a level ten times too low.

Certain of the sample surrogate recoveries were below the 60% recommended limit, but most were above 50%, and do not require qualification. The surrogate recoveries for UPMW4 were consistently low, at 35% to 50%; the reported results for this sample should be considered as a possible low bias.

In order to provide low detection limits, the samples were concentrated to 1.0 mL (rather than the usual protocol level of 10 mL). Sample analysis was performed with a methodology in which PCB Aroclor mixtures were utilized for evaluations of linearity and daily consistency of response. Standard levels and responses were acceptable.

The sample processing was not in compliance with ASP requirements as regards the use of individual PCB congener responses for standards and samples. Calculations were made, and reported on the Forms 10B, per combined isomer responses. Therefore evaluation of individual isomer correlation (therefore PCB patterning) is not possible with the Forms 10B. However, the raw data do show this information and this evaluation was performed during validation. Final sample reported result values are not affected by the variance in determination.

The reported software deliverables do not allow for evaluation of common isomers between two Aroclor mixtures. It is appropriate to verify the integrity of quantitated values by evaluation of cross-contribution of any common isomers. This is not possible with the provided information (edited quant reports). The reported results for samples in which two Aroclor mixtures were detected, should be considered estimated, possibly biased high.

Due to poor individual isomer correlation for Aroclors 1242 and 1254 in UPMW6, the reported detections should be considered tentative and estimated in value. In addition, the software integrations appear to be producing elevated areas for certain isomers. It is also observed that the responses corresponding to PCB isomers are a rather small contribution to the overall chromatographic responses. Reported detections for this sample should be regarded with great caution.

The reported Aroclor 1254 result for UPMW6A was flagged by the laboratory with a "P" flag, indicating outlying dual column correlation (50% difference). Evaluation of the raw data show that an isomer response which includes interference (10 times the other responses) on column DB-608 was used in the final value for that column, thus falsely affecting the dual column comparison. The reported value of Aroclor 1254 (which was determined from column RTX-1701) appears to correctly reflect the sample value, and no qualification for the "P" flag is recommended.

Aroclor 1254 matrix spikes were performed on UPMW2C, with acceptable recoveries of 66% for both. The matrix spikes were performed at concentrations equal to the reported detection limits.

The analysis sequence involving all samples except UPMW1C in this delivery group was noncompliant in that an excessive timeframe was present (15 hours, beyond 12 hours allowed) between two calibration standards. No effect on sample reported results is indicated.

Raw sample data should show the client sample ID (per protocol required deliverables).

Raw standard data should show the concentrations of the solutions (this information is present on the summary standard forms).

Metals/CN Analyses

Cyanide analysis holding times (of twelve days from VTSR) were exceeded, with analyses at thirteen and fourteen days from receipt. The results for those samples which were analysed beyond a technical holding time of fourteen days from collection should be considered estimated. They are the following: UPMW3B, UPMW3C, UPMW6, and UPMW6A. The case narrative incorrectly states the month of these sample receipts.

The sample UPMW2C and its duplicate produced large variances from one another for silver (17 ug/L and 1.8 ug/L) and zinc (90 ug/L and 20 ug/L). The analyst made note to reanalyze ("probably, instrumentation error" was noted, per data package pages 101 and 102). These samples were reanalysed for the two elements, only because of the observed variance in precision (no required QC were outside limits), and other project samples were not reanalysed. The reanalyses of the two samples, which were of the same digestates (which should therefore be consistent), produced vastly different readings (silver nondetected for both; zinc at 6.1 ug/L and 6.8 ug/L). Due to these variances, all sample reported results for these two elements are suspect and possibly unusable. Protocol prohibits reanalysis due to outlying QC measurements, which means that the elements zinc and silver would have been reported with "N" and/or "*" flags (for outlying spike accuracy and duplicate precision), and recommended validation qualification would be as estimated. Reported silver and zinc values should be viewed with extreme caution. This issue, whether involving instrumental errors or other causes, also lends concern as to the integrity of other sample element results.

Thallium produced matrix interferences which resulted in outlying post-digest spike (PDS) recoveries. Thallium results for the following samples should be considered estimated: UPMW2A, UPMW2B, UPMW2C, UPMW3A, and UPMW-4 (see later discussion regarding rejection of detected values for UPMW3A and UPMW4).

The post-digest spike recovery for thallium in UPMW-5 was very low on repeated analyses (30% and 24%), and was therefore flagged as "E". This value should be considered estimated.

The thallium sequence of 1/3/96 included a reanalysis of a standard which had produced an elevated value due to "autosampler's tip is contaminated". This type of reanalysis is forbidden by protocol in two ways: no QC measurement may be repeated without the required corrective action, and, standards are being treated differently than samples ("elevated" sample values would not be observed as such due to no theoretical values for comparison). Detected values in associated samples UPMW3A and UPMW4 should be rejected; elevated detection limits corresponding to the originally reported values would be appropriate.

Due to outlying recoveries of CRI or CRA standards, the following results of associated samples should be considered estimated:

<u>Element</u>	<u>CRI/A recoveries</u>	<u>Samples affected:</u>
Lead by furnace	307% and 148%	All samples with detected values for lead
Arsenic	(84%) and 35%	All samples except UPMW2B and UPMW2C
Silver	324% and (88%)	UPMW2A, UPMW4, UPMW6, UPMW6A

The selenium analyses produced unusably low negative responses for the samples; ten of the thirteen samples produced readings which fell below the negative CRDL of 5 ug/L, ranging from -7 ug/L to -66 ug/L (most fell between -11 and -18 ug/L). Due to the unreliability of the instrumentation for this analysis, the selenium results for the samples are unusable, and should be rejected.

Matrix spike/duplicate correlations were performed on UPMW2C. The following recovery outliers were observed, and reported results of these elements in the samples of this delivery group should be considered estimated:

<u>Element</u>	<u>Recovery</u>
Antimony	69%
Thallium	68

The duplicate correlation for lead was *just* at the recommended range of $\pm$ CRDL of 3.0 ug/L, at 3.05 ug/L. It was observed that the sample lead value was below the negative CRDL (at -3.7 ug/L), creating an even greater variance between the sample and duplicate. Reported lead values for the samples should be considered estimated due to duplicate precision.

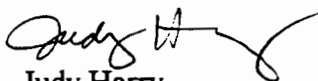
Serial dilution outliers (above 10%D) were observed for UPMW2C, and results for these elements in the samples in this delivery group should be considered estimated:

<u>Element</u>	<u>Percent Difference</u>
chromium	12%D
potassium	20
sodium	17

The raw thallium data for the matrix spike of UPMW2C denotes the incorrect sample ID. The laboratory sample number is correct.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,


Judy Harry

COMPLIANCY CHART

Project: LMS Engineers United Plating Site

SDG Nos. UPMW2B-2

Protocol: 1991 NYSDEC ASP/ Mod. 91-3

<u>Rec. Date</u>	<u>Sample ID</u>	<u>Matrix</u>	<u>Metals/CN</u>	<u>PCB</u>	<u>Noncompliance</u>
12-21-95	UPMW-2C	Aqueous	NO	NO	1,2,3
12-21-95	UPMW-2B	Aqueous	NO	NO	1,2,3
12-22-95	UPMW-6	Aqueous	NO	NO	1,2,3
12-22-95	UPMW-6A	Aqueous	NO	NO	1,2,3
12-22-95	UPMW-3B	Aqueous	NO	NO	1,2,3
12-22-95	UPMW-3C	Aqueous	NO	NO	1,2,3
12-22-95	UPMW-1A	Aqueous	NO	NO	1,2,3
12-22-95	UPMW-1B	Aqueous	NO	NO	1,2,3
12-22-95	UPMW-1C	Aqueous	NO	NR	1
12-22-95	UPMW-2A	Aqueous	NO	NO	1,2
12-22-95	UPMW-3A	Aqueous	NO	NO	1,2,3,4
12-22-95	UPMW-4	Aqueous	NO	NO	1,2,3,4
12-22-95	UPMW-5	Aqueous	NO	NO	1,2,3
12-22-95	UPFB-13	Aqueous	NO	NO	1,2,3
01-19-96	UPMW1C	Aqueous	NR	NO	2

1. Cyanide holding time exceeded (1991 NYSDEC ASP pg. D-V-11).
Silver and zinc with inconsistent results; QC reanalysed improperly pg. E-129).
2. PCB software deliverables and sample determinations not per protocol
(pg. D-IV-63 and D-IV-64).
3. PCB standard analysis at interval exceeding 12 hours (pg. E-96).
4. Thallium CCV reanalysed following outlying value (pg. E-129).

Data Validation Services

Cobble Creek Road P. O. Box 208
North Creek, NY 12853
Phone and Fax (518) 251-4429

Facsimile Transmission

TO:

Steve Mattingly

COMPANY:

E3I

FAX NUMBER:

617 666-5802

FROM:

Judy Harry

DATE:

1-29-96

No. of pages (including cover):

1

COMMENTS:

RE: LMS Engineers

United Plating Site

*SDG UPMW-2B (*2)*

Sub. # 960483, 960472, 960476

*Please provide the florasil recovery summary
and raw data associated with these
samples. We need info ASAP.*

Thanks, Judy

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, NY 12853

Phone and Fax (518) 251-4429

Facsimile Transmission

TO:

Steve Mattingly

COMPANY:

E3I

FAX NUMBER:

617 666 5802

FROM:

Judy Harry

DATE:

~~1-29-96~~ 1-30-96

No. of pages (including cover):

1

COMMENTS:

Re : United Plating Site - LMS Engineers

STDB : UPMW 2B-2

E3I Project # : 960570

Please review the reported detection limits for the sample (UPMWIC). I believe they are 10 x too low. If you agree, please fax corrected Form 1 ASAP

Thanks, Judy

E3I FAX COVER SHEET

35 Medford Street
Somerville, MA
02143

P.O. Box 410215
E. Cambridge, MA
02141

Fax No. 617-666-5802
Tele. No. 617-666-5500

Date: 1/29/96

Number of Pages: 2
(including cover)

To: Linda Herring
Name

Title

Data Validation Services
Company

518 257-4429
Fax Number

From: Mervyn

E3I Environmental Laboratory
Fax: 617-666-5802

Subject: corrected NYS DEC Form

Additional Comments

CONFIDENTIAL

This facsimile contains CONFIDENTIAL INFORMATION which also may be LEGALLY PRIVILEGED and which is intended only for the use of the parties named above. If you are not the intended recipient of this facsimile, or the person responsible for delivering it to the intended recipient, you are hereby notified that any dissemination or copying of this facsimile may be strictly prohibited. If you received this facsimile in error, please notify us immediately by telephone, and return the original facsimile to us at the above address via Postal Service. Thank You.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY

~~XXXXXXXXXX~~/PCB

ANALYSES

Laboratory Sample ID	Matrix	Analytical Protocol	Extraction Method	Auxiliary Cleanup	D2/Conc Factor
960463-1	Water	ASP 9/13	sep Fun	Sulfur	1:1
-2					
960472-1					
-2					
-3					
-4					
960476-1					
-2					
-3					
-4					
-5					
-6					
-7					
-8	✓				
9604163-1MS					
-1MSD	✓	↓	↓	↓	↓

0000 4

ESI FAX COVER SHEET

35 Medford Street
Somerville, MA
02143

P.O. Box 410215
E. Cambridge, MA
02141

Fax No. 617-666-5802
Tele. No. 617-666-5500

Date <u>1/30/96</u>	Number of Pages: <u>3</u> (including cover)

Name <u>Judy Harry</u>	Title _____
Company <u>Data Validation</u>	Fax Number <u>518 251-4429</u>

From: <u>Meroy</u> ESI Environmental Laboratory Fax: 617-666-5802	
Subject: <u>Form 1, of UPMWI-C</u>	
<u>2 copies are faxed to replace the Form 1</u>	

Additional Comments: in summary package + Form 1 in the data package.

CONFIDENTIAL

This facsimile contains CONFIDENTIAL INFORMATION which also may be LEGALLY PRIVILEGED and which is intended only for the use of the parties named above. If you are not the intended recipient of this facsimile, or the person responsible for delivering it to the intended recipient, you are hereby notified that any dissemination or copying of this facsimile may be strictly prohibited. If you received this facsimile in error, please notify us immediately by telephone, and return the original facsimile to us at the above address via Postal Service. Thank You

1 G
PCB ANALYSIS DATA SHEET

Client Sample ID

Lab Name: E3I Case No.: UP RI/FS
Lab Code: E3I SDG: UPMW2B-2

UPMW-1C

Matrix: Water Lab Sample ID: 960570-1
Extraction: SepF Lab File ID: 5JAN297.D

% Solid: 0.0 Date Received: 01/19/96
Decanted: Date Extracted: 01/21/96
Date Analyzed: 01/24/96

Sample Size: 830.0 mL
Extract Volume: 1.0 mL
Injection Volume: 1.0 uL
Dilution Factor: 1.0
pH: 12

GPC Cleanup: N Sulfur Cleanup: Y

CAS No.	Compound	Concentration Units. (ug/L)	Q
12674-11-2	Aroclor-1016	0.11	U
11104-28-2	Aroclor-1221	0.22	U
11141-16-5	Aroclor-1232	0.11	U
53469-21-9	Aroclor-1242	0.11	U
12672-29-6	Aroclor-1248	0.11	U
11097-69-1	Aroclor-1254	0.11	U
11096-82-5	Aroclor-1260	0.11	U

(Q) - Qualifiers:

- U: Analyzed for but not detected.
- B: Found in associated blank as well as sample.
- J: Estimated value, below quantitation limit.
- P: %D for concentrations between two GC columns is >25%.
- C: Confirmed by GC/MS.

SDG NARRATIVE

LAB NAME: E3I Environmental Laboratory

CASE NO.: United Plating

SDG: UPMW2B

E3I Project: 960463, 960472, 960476

Statement of Work: These results are in accordance with NYSDEC ASP 91-3 modified. These results are reported according to ASP Superfund Category "B".

SAMPLE NO.: UPMW-1A, UPMW-1B, UPMW-1C, UPMW-2A, UPMW-2B, UPMW-2C, UPMW-3A, UPMW-3B, UPMW-3C, UPMW-4, UPMW-5, UPMW-6, UPMW-6A, UPFB-13

PCBs: As per client request, the samples were extracted at 1L and concentrated at 1.0 ml to meet the required quantitation limit.

Recovery of the surrogate TCX is outside the advisory QC limit on the DB608 column for the following: ABLK1222, UPMW-2CMS, UPMW-2CMSD, W1222MSB, UPMW-6, UPMW-3B, UPMW-4, UPMW-5.

Recovery of the surrogate TCX is outside the advisory QC limit on the RTX1701 column for samples UPMW-2CMS, W1222MSB, UPMW-6, UPMW-4.

Recovery of the surrogate DCB is outside the advisory QC limit on the DB608 column for the following: ABLK1227, UPMW-2A, UPMW-4, UPFB-13.

Recovery of the surrogate DCB is outside the advisory QC limit on the RTX1701 column for samples UPMW-2A and UPMW-4.

For the analytical sequence beginning 01/05/96 on the RTX1701 column:
- AR1221 - RSD is >20 %

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature."

Mervelina Saturno-Condon

Mervelina Saturno-Condon
Project Manager

January 18, 1996

0000 1

Statement of Work: These results are in accordance with NYSDEC ASP 12/91.

Comments: All holding time and QC requirements were met with the following exceptions:

Samples which arrived on 21 January (UPMW-2C,UPMW-2B), were analyzed for cyanide two days past holding times.

Samples which arrived on 22 January (UPMW-6,UPMW-6A,UPMW-3B, UPMW-3C,UPMW-1A,UPM-1B,UPMW-1C, UPMW-2A,UPMW-3A,UPMW-4, UPM-5,UPFB-13), were analyzed for cyanide one day past holding times.

However, all cyanide samples were digested within holding times.

Qualifier Definitions:

- B - Reported value obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL).
- U - The value recorded by the instrument was less than the Instrument Detection Limit (IDL).
- E - The reported value is estimated because of the presence of interference.
- N - Spiked sample recovery not within control limits.
- * - Duplicate analysis not within control limits.

000002

Description of Instrumentation:

1. ICP:

Leeman Labs PS-1000AT

No significant modifications.

Operating conditions:

RF Power: 1200W

Coolant gas: 17lpm

Auxiliary gas: 0.6lpm

Nebulizer gas: 59 psi pressure

Wavelengths used:

Al 396.2nm

Sb 217.6

As 193.7

Ba 455.4

Be 313.0

Cd 214.4

Ca 317.9

Cr 267.7

Co 228.6

Cu 324.7

Tl 190.8

Pb 220.3

Fe 263.1

Mg 279.1

Mn 257.6

Ni 231.6

K 766.4

Se 196.0

Ag 328.1

Na 589.6

V 292.4

Zn 206.2

Calibration Standards:

Mixed (for ICP) and single element calibration standards were made up as described in our Standards Logs from 1000ppm stock solutions. Specific sources are given in tables at the end of this narrative.

Initial and continuing calibration verification standards used were produced in-house from stock standards other than those used to prepare the standardization solutions.

Laboratory Control Samples:

The above ICV standards were used as Laboratory Control Samples for all aqueous samples.

Interference Check Sample:

The Interference Check Samples A and AB were made up by us and tested in accordance with SOW ILM02.0.

000003

ICP Interelement Corrections:

Interelement corrections. were done off-line after the raw data was generated. For this reason the raw data will not agree with the forms where interelement corrections have been applied. The data may be checked by applying the correction factor on Form 11 to the raw data. This is done by multiplying an experimentally determined factor (the value on Form 11) times the interferant concentration and then subtracting this product from the analyte concentration. This formula can be expressed as:

$$CA_{\text{corr}} = CA_{\text{raw}} - (CI * F),$$

where CA_{corr} is the concentration of the analyte corrected for the interference; CA_{raw} is the analyte concentration as it appears in the raw data (i. e., before correction); CI is the interferant concentration in that sample (from the raw data); and F is the factor for that interference, from Form 11. For the interference of Fe on As, for example, Fe is the interferant and Zn is the analyte. Multiple IEC's (e. g., Fe and Al on Se) are assumed to be simply additive. Once the decision to do a particular IEC is made, a computer routine is used which performs the above calculation on all samples where the correction (the product of the IEC factor and the interferant concentration) is both larger than the analyte IDL and larger than 0.5% of the analyte concentration.

The corrections applied and the samples involved are:

Correction	Samples Correction Applied To:
Fe on Se	UPMW-1C; ICS stds.
Fe on As	UPMW-1C; ICS stds.
Fe on Pb	ICS stds.
Al on Se	UPMW-1C; ICS stds.
Al on Pb	UPMW-1C; ICS stds.
Ca on Sb	UPMW-6; UPMW-6A; UPMW-1A; UPMW-1C; UPMW-2A; UPMW-3A; UPMW-4; UPMW-5; ICS stds.

I certify that this data package is in compliance with the terms and conditions of the Protocol, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature."

V. Probenberg
Signature

01/12/96
Date

000004

SDG NARRATIVE

LAB NAME: E3I Environmental Laboratory

CASE NO.: United Plating

SDG: UPMW2B-2

E3I Project: 960570

Statement of Work: These results are in accordance with NYSDEC ASP 91-3 modified. These results are reported according to ASP Superfund Category "B".

SAMPLE NO.: UPMW-1C

PCBs: As per client request, the samples were extracted at 1L and concentrated at 1.0 ml to meet the required quantitation limit.

Sample UPMW-1C was extracted at <1L due to insufficient volume received by the laboratory.

Recoveries of the surrogates TCX and DCB are outside the advisory QC limits in both the DB608 and RTX1700 columns for UPMW-1C.

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature."

Mervelina Saturno-Condon

Mervelina Saturno-Condon

Project Manager

January 26, 1996

000001

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY

PESTICIDE/PCB ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd at Lab	Date Extracted	Date Analyzed
960463-1	Water	12/19/95	12/21/95	12/22/95	1/8/96
463-2		↓	↓	↓	↓
960472-1		12/20/95	12/22/95	12/26/95	1/8/96
472-2					1/9/96
472-3					
472-4		↓	↓	↓	↓
960476-1		12/21/95	12/22/95	12/27/95	1/9/96
476-2				↓	↓
476-3					
476-4				12/27/95	1/9/96
476-5					
476-6					
476-7					
476-8	↓	↓	↓	↓	↓
960463-1MS	Water	12/19/95	12/21/95	12/22/95	1/8/96
-1MSD	↓	↓	↓	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY

~~PCB~~ / PCB

ANALYSES

Laboratory Sample ID	Matrix	Analytical Protocol	Extraction Method	Auxiliary Cleanup	OW Conc Factor
960463-1	Water	Asp 91-3	Sep Fum	Florosil	1:1
-2				and	
960472-1				Sulfur	
-2					
-3					
-4					
960476-1					
-2					
-3	- -				
-4					
-5					
-6					
-7					
-8	✓				
960463-1MS					
-1MSD	✓	✓	✓	✓	✓

0000 4

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Customer Sample Code	Laboratory Sample Code	Analytical Measurements					Metals TAX net.	Other CDV
		*VOA GC/MS	*BNA GC/MS	*VOA GC	*Pest PCBs			
		Method	Method	Method	Method			
UPFB-13	86047608						X	
UPMU-1A	86047601							
UPMU-1B	86047602							
UPMU-1C	86047603							
UPMU-2A	86047604							
UPMU-2B	86046302							
UPMU-2C	86046301							
UPMU-2D	86046301D							
UPMU-2E	86046301S							
UPMU-3A	86047605							
UPMU-3B	86047203							
UPMU-3C	86047204							
UPMU-4	86047600							
UPMU-5	86047602							
UPMU-6	86047201							
UPMU-6A	86047202							

000005A

— 1998 —

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

000002

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PESTICIDE/PCB
ANALYSES

[illegible]

12/91

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

LAWLER, MATUSKY & SKELLY
ENGINEERS

FEB 29 1996

February 16, 1996

Maria Heincz
LMS Engineers
One Blue Hill Plaza
Pearl River, NY 10965

RE: Validation of United Plating Site Data Package
Addendum for E3I SDG No UPMW2B-2 (E3I project numbers 960463)

Dear Ms. Heincz:

Review has been completed for the data package generated by E3I, pertaining to the reanalysis of sample UPMW-2C, its duplicate, and its matrix spike for certain of the ICP elements. The reanalyses resulted from concerns in instrumentation (as discussed in the report of 1-30-96, and the attached laboratory cover letter associated with the reanalyses).

Data validation was performed with guidance from the most current editions of the USEPA CLP National Functional Guidelines for Inorganic Data Review and the USEPA SOP HW-2. The following items were reviewed:

- * Data Completeness
- * Holding Times
- * Matrix Spike Recoveries/Duplicate Correlations
- * Preparation/Calibration Blanks
- * Control Spike/Laboratory Control Samples
- * Calibration Standards
- * Instrument IDLs
- * Method Compliance
- * Sample Result Verification

Those items showing deficiencies are discussed in the following sections of this report. All others were found to be acceptable as outlined in the above-mentioned validation procedures, and as applicable for the methodology. Unless noted specifically in the following text, reported results are substantiated by the raw data, and generated in compliance with protocol requirements.

In summary, sample processing was primarily conducted with compliance to protocol requirements and with adherence to quality criteria. Certain edits to, and qualification of, reported results are indicated. These issues are discussed in the following analytical section.

Metals Analyses

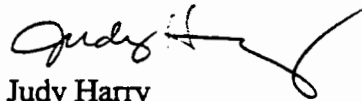
Redigestion/reanalysis of sample UPMW2C produced results consistent with those originally reported for the sample. Duplicate correlation was acceptable. Matrix spike recovery of antimony was again low, at 40% (original analyses showed 69% antimony recovery). Reported results for antimony in all samples in the original delivery group should be considered estimated. The spike recovery for chromium in the reanalyses was slightly low, at 74.4% (lower recommended limit is 75%). The original matrix spike recovery for chromium was acceptable, at 101%. A slight bias may be present for chromium reported results in the samples.

The "N" flags present for elements beryllium and silver on the resubmitted Form I-IN for UPMW2C are incorrectly applied, and should be removed.

Serial dilution was not performed for the reanalyses.

Please do not hesitate to contact me if you wish to discuss this report.

Very truly yours,

A handwritten signature in black ink, appearing to read "Judy Harry", with a long, sweeping horizontal stroke extending to the right.

Judy Harry

**E3I Environmental Laboratory**

15 Medford Street
Somerville, MA 02143
Tel. (617) 666-5500

P.O. Box 410215
E. Cambridge, MA 02141
Fax (617) 666-5802

12 February 1996

Ms. Judith Harry
Data Validation Services
Cobble Creek Road
PO Box 208
North Creek, NY 12853

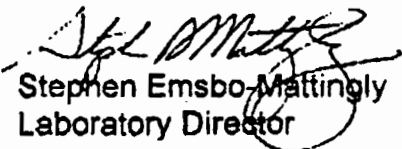
RE: LMS United Plating SDG UPMW2B

Dear Ms. Harry:

This submission constitutes a response to your concern about sample UPMW2C. This sample and associated QC were redigested and analyzed for the ICP metals in question. These results confirm the accuracy of the data submitted originally. As noted by the analyst (p.101 and 102 of the original data package), instrument error caused the anomalous results in the unreported run for sample UPMW2C. The instrument error noted on p. 101 and 102 refers to an autosampler problem which affected only sample UPMW2C; specifically, the digestate was consumed before the analysis was complete. This autosampler error did not occur with any other sample as evidenced by the lack of notation on the raw data for other samples and the presence of digestate in all the other sample cups after the analytical run.

Please call me if you have any further questions or comments.

Sincerely,


Stephen Emsbo-Mattingly
Laboratory Director

cc: Maria Heincz, LMS

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

LAWLER, MATUSKY & SKELLY
ENGINEERS

FEB 20 1996

February 16, 1996

Maria Heincz
LMS Engineers
One Blue Hill Plaza
Pearl River, NY 10965

RE: Validation of United Plating Site Data Package
Inchcape Aquatec Laboratories SDG 55771

Dear Ms. Heincz:

Review has been completed for the data package generated by Inchcape Aquatec Laboratories, pertaining to the low level volatile analyses of thirteen aqueous samples from the United Plating Site. The methodology used was a modified EPA-524.2 (as described in the project QAPP). Field and trip blanks were also processed.

Data validation was performed with guidance from the most current editions of the USEPA CLP National Functional Guidelines for Organic Data Review and the USEPA SOP HW-6. The following items were reviewed:

- * Data Completeness
- * Holding Times
- * Surrogate Recoveries
- * Matrix Spike Recoveries/Duplicate Correlations
- * Preparation/Calibration Blanks
- * Control Spike/Laboratory Control Samples
- * Calibration Standards
- * Instrumental Tunes
- * Instrument IDLs
- * Method Compliance
- * Sample Result Verification

Those items showing deficiencies are discussed in the following sections of this report. All others were found to be acceptable as outlined in the above-mentioned validation procedures, and as applicable for the methodology. Unless noted specifically in the following text, reported results are substantiated by the raw data, and generated in compliance with protocol requirements.

In summary, sample processing was primarily conducted with compliance to protocol requirements and with adherence to quality criteria. Certain edits to, and qualification of, reported results are indicated. These issues are discussed in the following analytical section.

Resubmission communications, a compliancy chart, the laboratory case narrative, and NYSDEC Sample Preparation and Analysis Summary Forms are attached to this narrative, and should be reviewed in conjunction with this report.

Volatile Analyses

Please see the attached resubmitted Form 1A for UPMW5, for which the methylene chloride result was edited to nondetection.

Due to laboratory error, samples received 12/23/95 were not processed. These samples were recollected and received on 1/19/96. Although a timeframe exceeding seven days for sample receipt was present, only one set of sample matrix spikes were processed (with the initial batch of receipts). Matrix spike recoveries of UPMW2C were acceptable. Laboratory Fortified Blanks (LFBs), spiked with all analytes at 1 ppb (5 ppb for ketones), were processed with each days analyses, with good recoveries. Low level standards at 0.5 ppb (2 ppb for ketones) were processed at the end of each day, with acceptable responses.

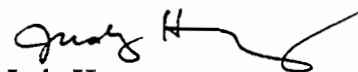
The calibration standard of 12/27/95 on M showed a low response for hexachlorobutadiene (28% difference), and the reported detection limits for this compound in samples UPMW2B, UPMW2C, and TB12 should therefore be considered estimated, possibly biased slightly low.

The method blank and samples UPMW2B and TB12, which were processed on 12/27/95, exhibited late eluting responses which were not reported as TICs. These responses do not appear to be sample constituents (as noted by presence in method blank).

The report Form 1A for UPMW6 includes an extraneous "M" which is not part of the sample ID.

Please do not hesitate to contact me if you wish to discuss this report.

Very truly yours,


Judy Harry

COMPLIANCY CHART

Project: LMS Engineers United Plating

SDG Nos.: Inchcape Aquatec SDG No. 55771

Protocol: Modified EPA-524.2

<u>Rec. Date</u>	<u>Sample ID</u>	<u>Matrix</u>	<u>LL VOA</u>	<u>Noncompliance</u>
12-20-95	UPMW2B	Aqueous	OK	
12-20-95	UPMW2C	Aqueous	OK	
12-20-95	UPTB-12	Aqueous	OK	
12-21-95	UPMW3B	Aqueous	OK	
12-21-95	UPMW3C	Aqueous	OK	
12-21-95	UPMW6	Aqueous	OK	
12-21-95	UPMW6A	Aqueous	OK	
12-21-95	UPTB13	Aqueous	OK	
01-19-96	UPFB14	Aqueous	OK	
01-19-96	UPTB15	Aqueous	OK	
01-19-96	UPMW1A	Aqueous	OK	
01-19-96	UPMW1B	Aqueous	OK	
01-19-96	UPMW1C	Aqueous	OK	
01-19-96	UPMW2A	Aqueous	OK	
01-19-96	UPMW3A	Aqueous	OK	
01-19-96	UPMW4	Aqueous	OK	
01-19-96	UPMW5	Aqueous	OK	

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, NY 12853

Phone and Fax (518) 251-4429

Facsimile Transmission

TO:

Scot Swanborn

COMPANY:

Ditch cape

FAX NUMBER:

802 635 1248

FROM:

Judy Harry

DATE:

2-1-96

No. of pages (including cover):

COMMENTS: RE: LMS Engineers
United Plating Site

SDG No. 55771

Please provide the following information (with copies to Maria Heinz at LMS):

1) Please clarify the units of the MDL Summary (provided as a resubmission on 1/26/96. The only notation for units is the "Avg. Conc." column. Are these therefore ppb?

2) Please provide spectrum for 1,1,1 TCA for upmw2c

3) Please review the reported result for methylene chloride

VOLATILE ORGANICS ANALYSIS DATA SHEET

UPMW5

Lab Name: INCHCAPE ENVIRONMENTAL Contract: 95212

Lab Code: INCHVT Case No.: 95212 SAS No.: SDG No.: 55771

Matrix: (soil/water) WATER

Lab Sample ID: 286650

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: M286650V.D

Level: (low/med) LOW

Date Received: 01/19/96

% Moisture: not dec. _____

Data Analyzed: 01/23/96

GC Column: CAP ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q

75-71-8	Dichlorodifluoromethane	0.5	U
74-87-3	Chloromethane	0.5	U
75-01-4	Vinyl Chloride	0.5	U
74-83-9	Bromomethane	0.5	U
75-00-3	Chloroethane	0.5	U
75-69-4	Trichlorofluoromethane	0.5	U
67-64-1	Acetone	5	U
75-35-4	1,1-Dichloroethene	0.5	U
156-60-5	trans-1,2-Dichloroethene	0.5	U
75-09-2	Methylene Chloride	0.5	U
75-34-3	1,1-Dichloroethane	0.5	U
156-59-2	cis-1,2-Dichloroethene	0.5	U
78-93-3	2-Butanone	5	U
590-20-7	2,2-Dichloropropane	0.5	U
67-66-3	Chloroform	0.5	U
74-97-5	Bromochloromethane	0.5	U
71-55-6	1,1,1-Trichloroethane	0.5	U
563-58-6	1,1-Dichloropropene	0.5	U
56-23-5	Carbon Tetrachloride	0.5	U
107-06-2	1,2-Dichloroethane	0.5	U
71-43-2	Benzene	0.5	U
79-01-6	Trichloroethene	6	U
72-87-5	1,2-Dichloropropane	0.5	U
75-27-4	Bromodichloromethane	0.5	U
74-95-3	Dibromomethane	0.5	U
108-10-1	4-Methyl-2-Pentanone	5	U
10061-01-5	cis-1,3-Dichloropropene	0.5	U
108-88-3	Toluene	0.5	U
10061-02-6	trans-1,3-Dichloropropene	0.5	U
79-00-5	1,1,2-Trichloroethane	0.5	U
591-78-6	2-Hexanone	5	U
142-28-9	1,3-Dichloropropane	0.5	U
127-18-4	Tetrachloroethene	0.5	U

INSTRUMENT DETECTION LIMIT SUMMARY REPORT

Method File: /chem/L.i/LCOF_524.2.b/524_2MOD.m
Batch File: /chem/L.i/LCOF_524.2.b
Inst ID: L.i
Units: ug/L

ID:	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07
FILENAME:	L246354V	L246355V	L246356V	L246357V	L246358V	L246359V	L246360V
NJ DATE:	06-JAN-95	06-JAN-95	06-JAN-95	06-JAN-95	06-JAN-95	06-JAN-95	06-JAN-95
NJ TIME:	16:40	17:58	18:31	19:05	19:37	20:11	20:43

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	AVG CONC	STD DEV	MDL
1 Dichlorodifluoromethan	1.38	1.45	1.32	1.41	1.45	1.40	1.38	1.40	0.04	0.14
2 Chloromethane	0.83	0.80	0.77	0.78	0.76	0.81	0.78	0.79	0.02	0.08
3 Vinyl Chloride	0.79	0.73	0.75	0.76	0.75	0.74	0.80	0.76	0.03	0.08
4 Bromomethane	0.85	0.92	0.84	0.95	0.96	1.07	0.86	0.92	0.08	0.25
5 Chloroethane	0.99	0.89	0.94	0.87	0.98	0.93	0.94	0.93	0.04	0.13
6 Trichlorofluoromethane	0.92	0.93	0.92	0.90	0.94	0.93	0.92	0.92	0.01	0.04
7 1,1-Dichloroethene	0.95	0.91	0.87	0.84	0.92	0.93	0.89	0.90	0.04	0.11
8 Acetone	4.88	4.44	3.99	4.54	4.25	4.66	4.50	4.47	0.29	0.90
9 Carbon Disulfide	0.87	0.84	0.82	0.80	0.82	0.80	0.78	0.82	0.03	0.09
10 Methylene Chloride	0.98	0.98	0.95	0.96	0.97	0.93	0.93	0.96	0.02	0.06
11 trans-1,2-Dichloroethe	0.92	0.90	0.87	0.81	0.87	0.90	0.87	0.88	0.03	0.11
12 Methyl-t-Butyl Ether	0.88	0.85	0.85	0.86	0.88	0.86	0.87	0.86	0.01	0.04
13 1,1-Dichloroethane	0.97	0.95	0.94	0.91	0.92	0.89	0.91	0.93	0.03	0.09
14 2,2-Dichloropropane	0.98	0.98	0.99	0.94	0.93	0.91	0.90	0.95	0.04	0.12
15 cis-1,2-Dichloroethene	0.89	0.88	0.86	0.85	0.88	0.89	0.85	0.87	0.02	0.05
16 2-Butanone	4.67	4.86	4.22	4.47	4.35	4.30	4.46	4.48	0.22	0.70

Reviewer 1 Lori Arnold Date: 2/16/95
Reviewer 2 _____ Date: _____

02/01/1996 15:46 FROM 8926551248 TO Data Validation Services P.02
P.03
8926551248
FAY NO
ACQUATEC INC

Report Date : 09-Jan-1995 12:14

Page 2

INSTRUMENT DETECTION LIMIT SUMMARY REPORT

Method File: /chem/L.i/LCOF_524.2.b/524_2MOD.m

Batch File: /chem/L.i/LCOF_524.2.b

Inst ID: L.i

Units: ug/L

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	AVG CONC	STD DEV	MDL
17 Bromochloromethane	0.85	0.83	0.81	0.81	0.84	0.83	0.85	0.83	0.02	0.06
18 Tetrahydrofuran	49.05	43.83	43.66	43.44	44.34	43.42	42.13	44.26	2.21	6.96
19 Chloroform	0.95	0.96	0.93	0.89	0.92	0.96	0.92	0.93	0.03	0.08
20 1,1,1-Trichloroethane	0.92	0.91	0.88	0.90	0.92	0.92	0.90	0.91	0.02	0.05
21 Carbon Tetrachloride	0.85	0.86	0.80	0.81	0.85	0.86	0.86	0.84	0.02	0.07
22 1,1-Dichloropropene	0.94	0.91	0.92	0.91	0.92	0.92	0.90	0.92	0.01	0.03
23 1,2-Dichloroethane-d4	1.01	0.98	0.94	0.97	1.05	0.90	0.96	0.97	0.05	0.15
24 Benzene	0.97	0.96	0.92	0.93	0.97	0.94	0.97	0.95	0.02	0.07
25 1,2-Dichloroethane	0.89	0.85	0.83	0.86	0.90	0.83	0.86	0.86	0.02	0.08
26 Fluorobenzene	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	0.00
27 Trichloroethene	0.92	0.95	0.93	0.89	0.93	0.93	0.94	0.93	0.02	0.06
28 1,2-Dichloropropane	0.93	0.93	0.87	0.88	0.96	0.91	0.93	0.92	0.03	0.10
29 Dibromomethane	0.89	0.81	0.87	0.84	0.85	0.83	0.81	0.84	0.03	0.09
30 1,4-Dioxane	42.25	36.84	36.49	37.56	37.47	35.24	37.65	37.64	2.20	6.91
31 Bromodichloromethane	0.87	0.86	0.85	0.86	0.90	0.88	0.89	0.87	0.02	0.06
32 cis-1,3-Dichloropropen	0.85	0.84	0.81	0.81	0.83	0.82	0.78	0.82	0.02	0.07
33 4-Methyl-2-Pentanone	4.98	4.61	4.48	4.59	4.51	4.47	4.38	4.57	0.20	0.61
34 Toluene	0.92	0.92	0.90	0.89	0.94	0.91	0.91	0.91	0.01	0.04
35 trans-1,3-Dichloroprop	0.86	0.82	0.79	0.79	0.77	0.79	0.78	0.80	0.03	0.09
36 1,1,2-Trichloroethane	0.97	0.88	0.85	0.83	0.89	0.87	0.84	0.88	0.05	0.15
37 Tetrachloroethene	0.88	0.89	0.86	0.89	0.88	0.88	0.86	0.88	0.01	0.04
38 1,3-Dichloropropane	0.87	0.86	0.83	0.85	0.88	0.87	0.86	0.86	0.02	0.05

Reviewer 1

Date:

Reviewer 2

Date:

INSTRUMENT DETECTION LIMIT SUMMARY REPORT

Method File: /chem/L.i/LCOP_524.2.b/524_2MOD.m

Batch File: /chem/L.i/LCOP_524.2.b

Inst ID: L.i

Units: ug/L

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	AVG CONC	STD DEV	MDL
39 2-Hexanone	5.21	4.66	4.42	4.51	4.53	4.59	4.30	4.60	0.29	0.91
40 Dibromochloromethane	0.88	0.86	0.87	0.84	0.88	0.88	0.87	0.87	0.01	0.04
41 1,2-Dibromoethane	0.95	0.89	0.89	0.87	0.93	0.92	0.94	0.91	0.03	0.09
* 42 Chlorobenzene-d5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	0.00
43 Chlorobenzene	1.01	1.04	1.01	1.02	1.07	1.03	1.06	1.03	0.02	0.07
44 1,1,1,2-Tetrachloroeth	0.97	0.99	0.92	0.94	0.94	0.94	0.96	0.95	0.02	0.08
45 Ethylbenzene	1.03	1.03	0.99	1.00	1.05	1.05	1.07	1.03	0.03	0.08
46 m- & p-Xylene	1.98	2.08	2.03	2.03	2.10	2.04	2.10	2.05	0.05	0.14
47 o-Xylene	1.00	1.04	0.97	1.04	1.03	1.03	0.97	1.01	0.03	0.10
M 48 Xylene (total)	3.06	3.21	3.08	3.16	3.22	3.15	3.17	3.15	0.06	0.19
49 Styrene	0.98	0.97	0.97	0.95	0.99	0.97	0.98	0.97	0.01	0.04
50 Bromoform	0.86	0.78	0.76	0.76	0.79	0.78	0.78	0.79	0.04	0.11
51 Isopropylbenzene	1.05	1.10	1.09	1.08	1.08	1.09	1.10	1.08	0.02	0.06
\$ 52 Bromofluorobenzene	1.11	1.10	1.08	1.12	1.09	1.06	1.10	1.09	0.02	0.06
53 Bromobenzene	1.02	1.04	0.96	0.98	1.03	1.02	1.04	1.01	0.03	0.09
54 1,1,2,2-Tetrachloroeth	1.02	0.94	0.95	0.94	0.98	0.94	0.97	0.96	0.03	0.09
55 1,2,3-Trichloropropane	0.95	0.88	0.91	0.91	0.90	0.91	0.91	0.91	0.02	0.07
56 n-Propylbenzene	1.03	1.02	0.99	1.02	1.00	1.02	1.01	1.01	0.01	0.05
57 2-Chlorotoluene	1.01	1.00	0.97	0.98	1.02	0.99	1.03	1.00	0.02	0.07
58 4-Chlorotoluene	0.93	0.96	0.97	0.95	0.96	0.99	0.96	0.96	0.02	0.07
59 1,3,5-Trimethylbenzene	0.97	0.99	0.99	0.98	1.01	1.01	1.01	0.99	0.02	0.05
60 tert-Butylbenzene	1.02	1.03	0.98	1.01	1.03	1.03	1.06	1.02	0.02	0.08

Reviewer 1 _____
Reviewer 2 _____Date: _____
Date: _____

Report Date : 09-Jan-1995 12:14

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INSTRUMENT DETECTION LIMIT SUMMARY REPORT

Method File: /chem/L.i/LCOF_524.2.b/524_2MOD.m

Batch File: /chem/L.i/LCOF_524.2.b

Inst ID: L.i

Units: ug/L

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	AVG CONC	STD DEV	MDL
61 1,2,4-Trimethylbenzene	1.00	1.00	0.97	0.98	1.00	1.00	1.02	1.00	0.01	0.05
62 sec-Butylbenzene	0.92	0.92	0.91	0.92	0.93	0.91	0.91	0.92	0.01	0.03
63 1,3-Dichlorobenzene	1.00	0.99	0.99	0.97	1.01	1.01	1.01	1.00	0.02	0.05
* 64 1,4-Dichlorobenzene-d4	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	0.00
65 p-Isopropyltoluene	1.02	1.03	1.01	1.01	1.02	1.04	1.04	1.02	0.01	0.03
66 1,4-Dichlorobenzene	1.03	1.03	1.03	1.04	1.03	1.05	1.07	1.04	0.01	0.04
\$ 67 1,2-Dichlorobenzene-d4	1.13	1.15	1.14	1.14	1.14	1.11	1.12	1.13	0.01	0.04
68 1,2-Dichlorobenzene	1.03	1.01	0.98	1.01	1.00	1.02	1.01	1.01	0.02	0.05
69 n-Butylbenzene	1.02	1.01	0.98	0.99	0.95	0.99	0.98	0.99	0.02	0.08
70 1,2-Dibromo-3-Chloropr	1.06	1.15	1.14	1.01	1.24	0.95	1.11	1.09	0.09	0.30
71 1,2,4-Trichlorobenzene	1.00	1.00	1.00	0.98	0.98	1.01	1.00	1.00	0.01	0.03
72 Hexachlorobutadiene	1.00	0.96	0.96	0.98	0.97	0.98	0.98	0.97	0.02	0.05
73 Naphthalene	1.01	0.92	0.93	0.92	0.96	0.93	0.95	0.95	0.03	0.10
74 1,2,3-Trichlorobenzene	1.01	0.97	0.99	0.99	0.99	0.97	1.00	0.99	0.02	0.05

Reviewer 1 _____ Date: _____
Reviewer 2 _____ Date: _____

Report Date : 16-Feb-1995 10:41

Page 1

INSTRUMENT DETECTION LIMIT SUMMARY REPORT

Method File: /chem/M.i/MCKG_524.2.b/524_2MOD.m
Batch File: /chem/M.i/MCKG_524.2.b
Inst ID: M.i
Units: ug/L

ID:	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07
FILENAME:	M246354V	M246355V	M246356V	M246358V	M246360V	M246357V	M246359V
INJ.DATE:	06-JAN-95	06-JAN-95	06-JAN-95	06-JAN-95	06-JAN-95	06-JAN-1995	06-JAN-1995
INJ.TIME:	17:42	18:28	19:04	20:16	21:27	19:39	20:52

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	AVG CONC	STD DEV	MDL
1 Dichlorodifluoromethan	0.71	0.64	0.61	0.67	0.63	0.63	0.66	0.65	0.03	0.10
2 Chloromethane	0.89	0.89	0.87	0.81	0.82	0.85	0.84	0.85	0.03	0.10
3 Vinyl Chloride	0.77	0.75	0.71	0.73	0.68	0.71	0.69	0.72	0.03	0.10
4 Bromomethane	0.92	0.98	0.90	0.92	1.09	0.96	1.17	0.99	0.10	0.32
5 Chloroethane	0.99	0.95	0.83	0.87	0.82	0.92	0.80	0.88	0.07	0.22
6 Trichlorofluoromethane	1.01	0.89	0.90	0.90	0.88	0.92	0.89	0.91	0.04	0.13
7 1,1-Dichloroethene	0.87	0.84	0.78	0.91	0.78	0.81	0.84	0.83	0.05	0.15
8 Acetone	6.27	7.01	7.12	6.70	6.59	8.27	6.77	6.77	0.04	2.00
9 Carbon Disulfide	0.87	0.80	0.78	0.79	0.79	0.75	0.78	0.79	0.04	0.11
10 Methylene Chloride	0.90	1.00	0.94	0.95	0.94	0.93	0.96	0.94	0.03	0.09
11 trans-1,2-Dichloroeth	0.84	0.85	0.81	0.81	0.82	0.76	0.85	0.82	0.03	0.10
12 Methyl-t-Butyl Ether	0.92	1.13	1.05	1.03	1.06	1.07	1.05	1.04	0.06	0.19
13 1,1-Dichloroethane	0.95	1.02	0.94	0.95	0.97	0.90	0.98	0.96	0.04	0.11
14 2,2-Dichloropropane	0.99	0.97	1.01	0.94	0.92	0.93	0.94	0.96	0.03	0.10
15 cis-1,2-Dichloroethene	0.87	0.96	0.88	0.92	0.90	0.86	0.93	0.90	0.04	0.11
16 2-Butanone	5.06	5.85	5.38	5.80	5.42	5.69	5.97	5.59	0.32	1.01

Reviewer 1
Reviewer 2

Lori Arnold

Date: *2/16/95*
Date:

INSTRUMENT DETECTION LIMIT SUMMARY REPORT

Method File: /chem/M.i/MCKG_524.2.b/524_2MOD.m

Batch File: /chem/M.i/MCKG_524.2.b

Inst ID: M.i

Units: ug/L

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	AVG CONC	STD DEV	MDL
17 Bromochloroethane	0.86	1.01	0.98	0.98	0.96	0.94	0.91	0.95	0.05	0.16
18 Tetrahydrofuran	51.71	59.82	57.41	59.86	56.70	62.71	61.96	58.59	3.74	11.74
19 Chloroform	0.89	1.01	0.94	0.97	0.92	0.90	0.94	0.94	0.04	0.13
20 1,1,1-Trichloroethane	0.92	0.89	0.88	0.91	0.90	0.84	0.84	0.88	0.03	0.10
21 Carbon Tetrachloride	0.83	0.89	0.80	0.80	0.82	0.77	0.84	0.82	0.04	0.12
22 1,1-Dichloropropene	0.93	0.91	0.87	0.88	0.92	0.92	0.88	0.90	0.02	0.07
* 23 1,2-Dichloroethane-d4	1.09	1.24	1.22	1.21	1.16	1.24	1.27	1.20	0.06	0.18
24 Benzene	0.97	1.02	0.94	0.99	0.97	1.00	1.01	0.99	0.03	0.09
25 1,2-Dichloroethane	0.92	1.07	1.01	1.05	1.04	1.03	1.06	1.02	0.05	0.16
* 26 Fluorobenzene	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	0.00
27 Trichloroethene	0.87	0.92	0.85	0.88	0.89	0.90	0.94	0.89	0.03	0.09
28 1,2-Dichloropropane	0.93	0.97	0.96	1.00	0.99	0.96	1.01	0.98	0.03	0.08
29 Dibromomethane	0.90	1.06	1.04	1.05	0.99	0.98	1.03	1.01	0.06	0.18
30 1,4-Dioxane	37.75	40.92	37.44	21.56	35.83	27.67	40.81	34.57	7.26	22.81
31 Bromodichloromethane	0.85	0.95	0.93	0.94	0.92	0.91	0.92	0.92	0.03	0.10
32 cis-1,3-Dichloropropene	0.87	0.96	0.91	1.00	0.90	0.93	0.94	0.93	0.04	0.13
33 4-Methyl-2-Pentanone	5.48	6.31	6.19	6.29	5.88	6.40	6.47	6.15	0.35	1.10
34 Toluene	0.90	0.90	0.92	0.93	0.89	0.90	0.92	0.91	0.01	0.05
35 trans-1,3-Dichloropropene	0.85	0.98	0.96	0.97	0.95	0.99	0.99	0.95	0.05	0.15
36 1,1,2-Trichloroethane	0.94	1.08	1.03	1.05	0.98	0.95	1.02	1.01	0.05	0.16
37 Tetrachloroethene	0.87	0.84	0.85	0.87	0.83	0.82	0.85	0.85	0.02	0.06
38 1,3-Dichloropropane	0.90	1.09	1.02	1.04	1.03	1.02	1.08	1.03	0.06	0.20

Reviewer 1

Date:

Reviewer 2

Date:

INSTRUMENT DETECTION LIMIT SUMMARY REPORT

Method File: /chem/M.i/MCKG_524.2.b/524_2MOD.m

Batch File: /chem/M.i/MCKG_524.2.b

Inst ID: M.i

Units: ug/L

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	AVG CONC	STD DEV	MDL
39 2-Hexanone	5.47	6.71	6.48	6.52	6.19	6.89	6.90	6.45	0.50	1.57
40 Dibromochloromethane	0.82	0.90	0.89	0.93	0.87	0.89	0.92	0.89	0.04	0.11
41 1,2-Dibromoethane	0.87	1.05	0.97	1.05	1.01	1.00	1.01	0.99	0.06	0.20
* 42 Chlorobenzene-d5	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	0.00
43 Chlorobenzene	0.91	0.99	0.93	0.95	0.90	0.92	0.90	0.93	0.03	0.10
44 1,1,1,2-Tetrachloroeth	0.84	0.88	0.91	0.90	0.90	0.87	0.87	0.88	0.03	0.08
45 Ethylbenzene	0.90	0.87	0.86	0.91	0.89	0.84	0.88	0.88	0.02	0.07
46 m- & p-Xylene	1.87	1.69	1.75	1.78	1.77	1.71	1.80	1.76	0.06	0.19
47 o-Xylene	0.93	0.94	0.88	0.90	0.93	0.90	0.89	0.91	0.02	0.07
M 48 Xylene (total)	2.85	2.67	2.68	2.73	2.75	2.66	2.74	2.73	0.07	0.21
49 Styrene	0.88	0.91	0.94	0.89	0.89	0.86	0.88	0.89	0.03	0.08
50 Bromoform	0.78	0.85	0.80	0.85	0.79	0.82	0.83	0.82	0.03	0.09
51 Isopropylbenzene	0.97	0.91	0.90	0.94	0.90	0.89	0.88	0.92	0.03	0.10
S 52 Bromofluorobenzene	1.08	1.07	1.09	1.11	1.09	1.09	1.09	1.09	0.01	0.04
53 Bromobenzene	0.92	1.00	0.97	0.97	0.99	0.96	0.98	0.97	0.03	0.08
54 1,1,2,2-Tetrachloroeth	1.00	1.10	1.07	1.09	1.03	1.04	1.08	1.06	0.03	0.11
55 1,2,3-Trichloropropane	0.95	1.08	1.03	1.10	1.03	1.06	1.10	1.05	0.05	0.16
56 n-Propylbenzene	0.91	0.83	0.90	0.88	0.82	0.85	0.83	0.86	0.04	0.11
57 2-Chlorotoluene	0.94	0.92	0.90	0.92	0.95	0.90	0.90	0.92	0.02	0.06
58 4-Chlorotoluene	0.90	0.89	0.89	0.93	0.94	0.91	0.85	0.90	0.03	0.09
59 1,3,5-Trimethylbenzene	0.93	0.86	0.87	0.91	0.88	0.82	0.84	0.87	0.04	0.12
60 tert-Butylbenzene	0.93	0.87	0.86	0.89	0.86	0.81	0.87	0.87	0.04	0.12

Reviewer 1

Reviewer 2

Date:

Date:

INSTRUMENT DETECTION LIMIT SUMMARY REPORT

Method File: /chem/M.i/MCKG_524.2.b/524_2MOD.m

Batch File: /chem/M.i/MCKG_524.2.b

Inst ID: M.i

Units: ug/L

Compound	MDL01	MDL02	MDL03	MDL04	MDL05	MDL06	MDL07	AVG CONC	STD DEV	MDL
61 1,2,4-Trimethylbenzene	0.93	0.92	0.90	0.92	0.91	0.89	0.88	0.91	0.02	0.06
62 sec-Butylbenzene	0.85	0.76	0.75	0.76	0.76	0.73	0.75	0.77	0.04	0.12
63 1,3-Dichlorobenzene	0.91	0.96	0.97	1.01	0.95	0.91	0.93	0.95	0.04	0.11
* 64 1,4-Dichlorobenzene-d4	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	0.00
65 p-Isopropyltoluene	0.96	0.89	0.85	0.90	0.84	0.84	0.85	0.87	0.05	0.14
66 1,4-Dichlorobenzene	0.97	0.99	1.02	1.03	1.02	0.97	1.00	1.00	0.02	0.08
\$ 67 1,2-Dichlorobenzene-d4	1.08	1.14	1.13	1.12	1.15	1.08	1.13	1.12	0.03	0.09
68 1,2-Dichlorobenzene	0.95	1.05	1.01	1.02	1.01	0.98	1.01	1.00	0.03	0.10
69 n-Butylbenzene	0.98	0.86	0.87	0.87	0.84	0.86	0.81	0.87	0.05	0.17
70 1,2-Dibromo-3-Chloropr	1.24	1.27	1.26	1.42	1.29	1.31	1.36	1.31	0.06	0.20
71 1,2,4-Trichlorobenzene	0.99	1.06	1.07	1.10	1.03	1.05	1.04	1.05	0.04	0.11
72 Hexachlorobutadiene	1.03	0.94	0.91	0.95	0.88	0.89	0.90	0.93	0.05	0.15
73 Naphthalene	1.04	1.15	1.09	1.15	1.06	1.12	1.14	1.11	0.05	0.15
74 1,2,3-Trichlorobenzene	1.05	1.07	1.06	1.09	1.08	1.10	1.14	1.08	0.03	0.09

Reviewer 1

Date:

Reviewer 2

Date:



Inchcape Testing Services

Aquatec Laboratories

55 South Park Drive
Colchester, VT 05446
Tel. 802-655-1203
Fax. 802-655-1248

January 26, 1996

Ms. Maria Heincz
Lawler, Matusky and Skelly Engineers
P.O. Box 1509
Pearl River, NY 10965

Re: Revision 1
ITS NYS ELAP ID #10391
Case No. 95212; SDG No. 55771

Dear Ms. Heincz:

Enclosed are the analytical results for samples received intact by Inchcape Testing Services Environmental Laboratories, from the United Plating site, on December 20, 21, 23, 1995 and January 19, 1996. Laboratory numbers and quality control samples were assigned as follows:

<u>Client</u> <u>Sample ID</u>	<u>Laboratory</u> <u>Number</u>	<u>Sample</u> <u>Matrix</u>

Samples Received on December 20, 1995
ETR No. 55771

UPMW-2B	282511	Liquid
UPMW-2C	282512	Liquid
UPMW-2CMS	282512MS	Liquid
UPMW-2CMSD	282512MD	Liquid
UPTB-12	282513	Liquid

Samples Received on December 21, 1995
ETR No. 55808

UPMW3B	282851	Liquid
UPMW3C	282852	Liquid
UPMW6	282853	Liquid
UPMW6A	282854	Liquid
UPTB13	282855	Liquid

Samples Received on December 23, 1995
ETR No. 55846

UPFB13	283215	Liquid
UPW1A	283216	Liquid
UPMW1B	283217	Liquid
UPMW1C	283218	Liquid
UPMW2A	283219	Liquid
UPMW3A	283220	Liquid
UPMW4	283221	Liquid
UPMW5	283222	Liquid
UPTB14	283223	Liquid

cc, Lev

Ms. Maria Heincz
January 26, 1996
Page 2

<u>Client</u> <u>Sample ID</u>	<u>Laboratory</u> <u>Number</u>	<u>Sample</u> <u>Matrix</u>

Samples Received on January 19, 1996
ETR No. 56290

UPFB14	286643	Water
UPMW1A	286644	Water
UPMW1B	286645	Water
UPMW1C	286646	Water
UPMW2A	286647	Water
UPMW3A	286648	Water
UPMW4	286649	Water
UPMW5	286650	Water
UPTB15	286651	Water

Due to a laboratory oversight, the samples received on December 23, 1995 were not analyzed. This situation was communicated to Ms. Maria Heincz by Mr. Scot Swanborn on January 15, 1996. At that time it was decided that the samples would be recollected. The new samples were received on January 19, 1996. Results for these samples have been included in this submittal

For the benefit of interested parties, documentation of sample handling and preparation is included at the end of the "Sample Data Package". A colored sheet of paper entitled "Sample Preparation Package" has been used to explicitly mark the location of these documents.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy package has been authorized by the Laboratory Manager or her designee, as verified by the following signature.

If there are any questions regarding this submittal, please contact Scot Swanborn at (802) 644-1203.

Sincerely,

Karen R. Chirgwin
Karen R. Chirgwin
Laboratory Operations Director

Enclosure

95212B26JAN96

Rev

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOA
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd At Lab	Low Level Med. Level	Date Analyz
282511	Liquid	12/19/95	12/20/95	Low	12/27
282512				"	"
282512ms					
282512min					
282513		12/13/95		Low	12/27
282851	Liquid	12/20/95	12/21/95	Low	12/28
282852				"	"
282853				"	"
282854				"	"
282855		12/13/95		"	"
283215	Liquid	12/21/95	12/23/95	WORK CONTINUED	
283216					
283217					
283218					
283219					
283220					
283221					
283222					
283223		12/13/95			
286643	Water		1/19/96	Low	1/22
286644		1/18/96		"	"
286645				"	1/23
286646				"	"
286647				"	"
286648			3-129	"	3/29
286649				"	"
286650				"	"

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SAMPLE PREPARATION AND ANALYSIS FORM

ORGANIC ANALYSES

Sample ID	Matrix	Analytical Protocol	Extraction Method	Auxiliary Clean Up	Dil/Conc Factor
282511	Liquid	524.20A	N/A	N/A	1.0
282512					"
282512ms					"
282512MD					"
282513					1.0
282851					1.0
282852					1.0
282853					3.3
282854					3.1
282855					1.0
283215					work tank/elec
283216					
283217					
283218					
283219					
283220					
283221					
283222					
283223					
286643	Water				1.0
286644					"
286645					"
286646					"
286647					"
286648					"
286649					10.0
286650					1.0
286651					1.0

B-150

9/89

mm 1.0

DATA USEABILITY REPORT

This useability report covers the analytical results, submitted by Intertek Testing Services Environmental Laboratories (ITS), for the field sampling investigation, conducted by Lawler, Matusky & Skelly Engineers LLP (LMS) between 6 and 19 November 1997 at the United Plating Site No. 447018. The analytical report submitted by ITS, sample designation group (SDG) 67366 was validated by Data Validation Services. LMS reviewed the data validator's final report and assessed the analytical data against the project data quality objectives (DQOs) in preparation of this report. The laboratory performed all the necessary actions in order to provide the most representative data and where resulting quality control (QC) data did not fall within protocol requirements the reported data were appropriately qualified. Overall, the data submitted by ITS met the project DQOs and are usable to characterize the levels of environmental contaminants in samples collected from the United Plating site.

A total of five (5) soil samples were collected and analyzed for contract laboratory program (CLP) target compound list (TCL) volatile organic compounds (VOCs) as well as for CLP target analyte list (TAL) metals and cyanide. All the analyses were conducted in accordance with the most recent version of New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP).

In general the analytical data submitted by ITS were compliant with the established protocol requirements. Those instances where the reported data were noncompliant are described in the data validator's report. This report presents a discussion of any impacts that noncompliant data and any other issues raised by the data validator may have on the useability of the reported results.

Volatile Analyses

Soil samples submitted to ITS were analyzed for TCL VOCs in accordance with NYSDEC ASP CLP Method 95-1. The affect of QC issues addressed by the data validator and the data usability are discussed below.

1. Initial analysis of MW10B(8-10) presented internal standard and surrogate recoveries outside method QC limits. As a result of acceptable recoveries in MW10B(8-10)RE, the data validator advised preferential use of the reanalysis results over the initial analytical data. Reanalysis results were selected to be included in the data summary table.

2. Acetone and methylene chloride were detected in soil samples but were not present in the associated blanks. The reported levels may be the result of laboratory cross-contamination and should be regarded accordingly.

3. Continuing calibrations associated with sample MW10B(8-10)RE, MW9B(4-6) and MW9B(6-8) presented recovery of certain compounds moderately above QC limits. None of these compounds were found in these samples and the applicable nondetects were not affected.

4. Sample MW9B(6-8) was used for the matrix spike and matrix spike duplicate. All recoveries of target volatile organic matrix spike compounds and RPDs were within the acceptance quality control limits except those of trichloroethene which was slightly below criteria. Sample results were not affected.

In every other respect of data validation and review, the TCL VOC results are usable as reported by the laboratory.

Metals and Cyanide Analyses

Soil samples submitted to ITS were analyzed for TAL metals and cyanide in accordance with methodologies of NYSDEC ASP CLP Inorganics and 335.2, respectively. The affect of QC issues addressed by the data validator and the useability of data are discussed below.

1. Significant holding time exceedance rendered the cyanide nondetection data of sample MW10B(8-10) rejected and unusable. The data was marked with a D in the summary table.

2. Field blank FB-21 showed chromium detection at a concentration of 14 µg/l. The data validator recommended editing chromium results to nondetection at the originally reported values in the affected samples MW9B(4-6), MW9B(6-8) and MW11A(1-3), respectively.

3. Sample MW9B(6-8) was utilized as spike and duplicate in the analyses of TAL metals and cyanide of this SDG. Duplicate correlations of all analytes were within control limits. Spike recoveries were within control limits except for selenium, antimony, and zinc. Selenium recoveries in the analyses of the spiked sample and the laboratory control sample exceeded the method QC limits; antimony and zinc showed outlying spike recoveries. All the selenium, antimony and zinc data have been qualified by the data validator as estimated, possibly biased slightly high and are flagged with a g in the summary table.

4. Serial dilution performed on samples MW12C(6-8) and MW9B(6-8) produced outlying percent difference (%D) values above 10%D limit for certain analytes indicating possible matrix effect. The appropriate results were qualified by the data validator as estimated, probably biased slightly low and were flagged with a g in the data summary table. The following analytes were affected: copper in sample MW12C(6-8); aluminum, barium, chromium, iron, magnesium and manganese in the remaining soil samples of the SDG.

Estimated numerical values are usable to show detection and the magnitude of the target analyte in the relevant samples. Undetected values when estimated are not suitable to demonstrate that contamination is not present in the affected samples but are useable to indicate that elevated levels of these target analytes were not present in the affected samples.

In every other respect of data validation and review, no other problems were found and the inorganic results are usable as reported by the laboratory.

LAWLER, MATUSKY &
SKELLY ENGINEERS LLP

SDG Case Narrative

JAN 08 1998

LMS Project Name: United Plating
LMS Project No.: 650-098
ITS Project No. 95212; Case 95212; SDG 67366A

For Hazardous Waste Section

<u>Lab Id</u>	<u>Client Sample ID</u>	<u>Sample Date</u>	<u>Sample Matrix</u>

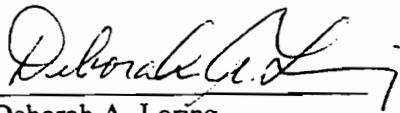
Received on: 11/07/97 ETR No. 67366

346953	MW10B 8-10	11/06/97	Soil

This sample delivery group contains the Cyanide analytical results for sample labeled MW10B 8-10. This sample was analyzed for Cyanide by NYS CLP Method CLP-M / 335.2 in accordance to the NYSDEC Analytical Services Protocol (ASP) October 1995. Data reporting for this sample delivery group (SDG) is in reference to NYS Superfund Category. TCL Volatile and TAL Metals analytical results of this sample were previously submitted under SDG 67366.

Please note that the Cyanide analysis for sample MW10B 8-10 was performed 59 days outside the method specified holding time.

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager, as verified by the following signature."



Deborah A. Loring
Laboratory Operations Manager

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

W10B810

Lab Name: ITS_ENVIRONMENTAL Contract: 95212

Lab Code: INCHVT Case No.: 95212 SAS No.: SDG No.: 67366A

Matrix (soil/water): SOIL Lab Sample ID: 350131

Level (low/med): LOW Date Received: 11/07/98

% Solids: 94.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	0.62	U		AS

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

DATA USEABILITY REPORT

This useability report covers the analytical results, submitted by Intertek Testing Services Environmental Laboratories (ITS), for the field sampling investigation conducted by Lawler, Matusky & Skelly Engineers LLP (LMS) between 9 and 19 December 1997 at the United Plating Site No. 447018. The analytical report submitted by ITS, sample designation group (SDG) 67701, was validated by Data Validation Services. LMS reviewed the data validator's final reports and assessed the analytical data against the project data quality objectives (DQOs) in preparation of this report. The laboratory performed all the necessary actions in order to provide the most representative data and where resulting quality control (QC) data did not fall within protocol requirements the reported data were appropriately qualified. Overall, the data submitted by ITS met the project DQOs and are usable to characterize the levels of environmental contaminants in samples collected from the United Plating site.

A total of twenty eight (28) groundwater samples were collected from monitoring wells. Twenty five (25) samples were analyzed for target compound list (TCL) volatile organic compounds (VOCs) according to EPA Method 524.2, for low level polychlorinated biphenyls (PCBs) following a modification of EPA SW-846 Method 8081 and for contract laboratory program (CLP) target analyte list (TAL) metals and cyanide by CLP Methods CLP-M/335.2. Two samples were analyzed for VOCs and TAL metals and cyanide and one sample was analyzed for VOCs only due to poor yield of respective monitoring wells. Field (equipment) blanks, trip blanks and two sets of QC samples were also processed. All the analyses were conducted in accordance with the most recent version of New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP).

In general the analytical data submitted by ITS were compliant with the established protocol requirements. Those instances where the reported data were noncompliant are described in the data validator's report. This report presents a discussion of any impacts that noncompliant data and any other issues raised by the data validator may have on the useability of the reported results.

Volatile Analyses

Groundwater samples and the related field (equipment) blank and trip blank samples submitted to ITS were analyzed for low level TCL VOCs in accordance with EPA Method 524.2. The affect of QC issues addressed by the data validator and the data usability are discussed below.

1. Results of 1,4 dioxane were rejected by the data validator based on overall low response factor found for this compound. Since no numerical values were reported, the nondetect data may be considered estimated, probably biased very low and used in a tentative manner to indicate lack of recognizable levels of detection.
2. Three continuing calibrations presented outlying percent difference (%D) of 4-methylpentanone and 2-hexanone above the 25% quality assurance limit. Accordingly, reported data should be considered estimated in the associated samples. None of these compounds were found in these samples and the applicable nondetects were not affected by the slight exceedance.
3. Matrix spikes performed for MW-9C provided acceptable recoveries. However, matrix spikes performed on MW-3C showed low recoveries for 1,1,2-trichloroethane, dibromomethane and hexachlorocyclobutadiene. These results have been qualified by the data validator as estimated, possibly biased slightly low in sample MW-3C and are flagged with a g in the summary table. They are useable to demonstrate detection and the magnitude of the target analyte in the affected samples. Undetected values were not affected and are useable without qualification.
4. Correlations were acceptable between field duplicates MW-2C and -2D as well as MW-10C and -10D, respectively.
5. Due to preliminary screen results, dilution analyses were performed for samples MW-4 (22.0-fold), MW-5 (2.2-fold) and MW-6 (3.2-fold). Preliminary screen results of undiluted samples were provided by the laboratory for tentative comparison. Results obtained at dilutions of 22.0, were marked with a d in the data summary table.

No other problems were found with the reported data of the samples of this SDG and the VOC results are useable as reported by the laboratory.

PCB Analyses

1. Surrogate recovery data were not available for sample MW-2A as a result of great dilution necessitated by matrix effect; therefore results should be considered estimated.

2. Results of MW-3A were qualified by the data validator as estimated, probably biased low, due to low recoveries of the first surrogate.

3. Due to low level detection of Aroclor 1260 in the related method blank, the data validator negated the reported 1260 result in sample MW-3B and recommended it to be edited to nondetection at CRQL value of 0.10 µg/l. Additionally, all surrogate recoveries were greatly over the acceptance criteria rendering reported values in MW-3B estimated.

4. Reported numerical results were qualified by the data validator as estimated in samples MW-6 and MW-7B based on insufficient Aroclor recognition, identification and characterization.

1-4. Estimated results, both numerical values and nondetects were flagged with a g in the data summary table. Estimated numerical values are usable to show detection and the magnitude of the target analyte in the relevant samples. Undetected values when estimated are not suitable to demonstrate that contamination is not present in the affected samples but are useable to indicate that elevated levels of PCBs were not present in the affected samples.

5. Matrix spike (Aroclor 1242) recoveries in samples MW-3C and MW-9C were satisfactory. Field duplicate correlations were acceptable between samples MW-2C and -2D, and MW-10C and -10D, respectively.

In every other respect of data validation and review, the PCB results are usable as reported by the laboratory.

Metals and Cyanide Analyses

Groundwater samples submitted to ITS were analyzed for TAL metals and cyanide in accordance with methodologies of NYSDEC ASP CLP Inorganics and 335.2, respectively. The affect of QC issues addressed by the data validator and the useability of data are discussed below.

1. Samples MW-3C and MW-9C were utilized as spike and duplicate in the analyses of TAL metals and cyanide of this SDG. Duplicate correlations of all analytes were within control limits. Spike recoveries were within control limits except for selenium. Selenium recoveries in the analyses of the spiked sample and the laboratory control sample were exceeding the method QC limits. All the detected selenium results have been qualified by the data validator as estimated, possibly biased slightly high and are flagged with a g in the summary table. Nondetected values were not affected.

2. Serial dilution values for samples MW-3C and MW-9C were acceptable.

3. Field duplicate correlations were acceptable between samples MW-2C and -2D, and MW-10C and -10D, respectively.

In every other respect of data validation and review, no other problems were found. All the QA/QC requirements were within acceptance limits and met the applicable criteria. Accordingly, the inorganic results are usable as reported by the laboratory.

Data Validation Services

Cobble Creek Road P. O. Box 208

North Creek, N. Y. 12853

Phone 518-251-4429

LAWLER, MATUSKY &
SKELLY ENGINEERS LLP

February 14, 1998; Revision March 10, 1998

MAR 12 1998

Maria Heincz
Lawler, Matusky & Skelly Engineers
One Blue Hill Plaza
Pearl River, NY 10965

For Hazardous Waste Section

RE: Validation of United Plating Site Data Packages
ITS SDG Nos. 67366 and 67701

Dear Ms. Heincz:

Review has been completed for the data packages generated by ITS Laboratories, pertaining to samples collected at the United Plating Site. Five soil samples were analysed for TCL volatiles and TAL metals/cyanide, and twenty five aqueous samples were processed for low level volatiles, low level PCBs, and TAL metals/cyanide. Two aqueous samples were processed for low level volatiles and TAL metals, and one aqueous sample was processed for low level volatiles. Field blanks, trip blanks, and matrix spikes/duplicates were also processed. Methodologies utilized are those of the 1995 NYSDEC ASP/SW846.

Data validation was performed with guidance from the most current editions of the USEPA CLP National Functional Guidelines for Organic and Inorganic Data Review and the USEPA SOPs HW-2 and HW-6. The following items were reviewed:

- * Data Completeness
- * Custody Documentation
- * Holding Times
- * Surrogate and Internal Standard Recoveries
- * Matrix Spike Recoveries/Duplicate Correlations
- * Preparation/Calibration Blanks
- * Control Spike/Laboratory Control Samples
- * Instrumental Tunes
- * Calibration Standards
- * Instrument IDLs
- * Method Compliance
- * Sample Result Verification

Those items showing deficiencies are discussed in the following sections of this report. All others were found to be acceptable as outlined in the above-mentioned validation procedures, and as applicable for the methodology. Unless noted specifically in the following text, reported results are substantiated by the raw data, and generated in compliance with protocol requirements.

In summary, sample processing was primarily conducted with compliance to protocol requirements and with adherence to quality criteria, and most reported results are usable with minor qualification. The exception is cyanide in sample MW10B(8-10), for which there are no usable results. Certain edits to, and qualification of, reported results are indicated. These issues are discussed in the following analytical sections.

Copies of laboratory case narratives are attached to this narrative, and should be reviewed in conjunction with this narrative. A compliance chart and laboratory NYSDEC Sample Preparation and Analysis Summary Forms are also included with this report.

Data Completeness

No resubmissions were required of the laboratory.

A laboratory receipt date was incorrectly signed as "11-1-97" rather than "11-11-97" on the external chain-of-custody in SDG 67366.

Per LMS's request, the data package SDG 67701 contains more than the protocol-defined twenty samples, collected over a timeframe exceeding one week.

Volatile Analyses 95-1 and 524.2

Due to apparent matrix effect, producing outlying recoveries for internal standard d5-chlorobenzene and surrogate standard d8-toluene, the results for the following analytes in sample MW10B(8-10) should be considered estimated ("J"). The reanalysis results for the sample should be used preferentially over the initial analysis due to better response.

2-hexanone, 4-methyl-2-pentanone, tetrachloroethene, 1,1,2,2-tetrachloroethane, toluene, chlorobenzene, ethylbenzene, styrene, and xylenes

Although methylene chloride and acetone were not detected in blanks associated with the soil samples, the levels detected in the samples are typical of contamination. The end-user of the data should use caution in the use of those detections.

Tentatively Identified Compounds (TICs) which are named siloxanes are usually artifacts of the analytical system, and should not be considered sample components.

All TICs reported with the "B" laboratory flag should be disregarded as sample components due to copresence in associated blanks.

Due to the low response factor for 1,4-dioxane (0.001 to 0.002), and the fact that it was often manually integrated in the standards and QC checks (which showed low recoveries), the result for that analyte in the aqueous samples should be rejected ("R" qualifier).

The following calibration standard analytes exhibited either depressed recoveries exceeding 25%D, or elevated recoveries exceeding 25%D with associated sample detections, and these parameter values should be considered estimated in associated samples (no corrective action was required):

Standard	Analyte	%D	Affected Samples
11-12-97 @ 2325	Acetone	48	MW10B 8-10RE
	2-Butanone	45	
	4-Methyl-2-Pentanone	29	
	2-Hexanone	45	
11-17-97 @ 2033	Acetone	30	MW12C 6-8
11-24-97 @ 1212	Acetone	31	MW9B 4-6, MW9B 6-8, MW11A1-3
12-22-97 @ 1522	4-Methyl-2-Pentanone	26	MW-6, MW-2C, MW-2D, MW-10C, TB, TB, MW-12C, MW-8C, MW1C, MW-4, MW-5, MW-10D, & MWFB
	2-Hexanone	27	

Matrix spikes of MW9B6-8 produced acceptable accuracy and precision values, with the exception of a low recovery of trichloroethene (59%, below the recommended limit of 62%). Sample results are unaffected.

Full matrix spikes were performed on MW-3C and MW-9C. Those for MW-9C produced all accuracy and precision values within range. Those for MW-3C showed low recoveries for 1,1,2,2-trichloroethane, dibromomethane, and hexachlorocyclobutadiene (ranged from 26% to 49%). Results for these three analytes in MW-3C should therefore be considered estimated ("J").

Field duplicate correlations between MW2C and MW2D, and between MW10C and MW10D were acceptable.

The holding blank associated with SDG 67366 was processed beyond an allowable holding time (samples were received 11/07/97 through 11/20/97, and the holding blank was analytes 12/10/97).

Chromatograms should have been generated to normalize peaks after the carbon dioxide response.

PCB Analyses

Sample surrogate recoveries were acceptable with the following exceptions:

- MW-2A was run at 1:50 dilution (due to matrix) and no recovery data are available; therefore results should be considered estimated ("J").
- MW-3A recoveries for surrogate TCX were low, at 22% and 25%; samples results should be considered estimated, no corrective action was required of the laboratory
- MW7B and MWFB showed one of four surrogates with low recovery; results are unaffected
- MW3B showed recoveries of all four at 262% to 336%; detected values are already qualified as stated below

The method blank PBLKU3 showed low level Aroclor 1260 which was at a level just below 1/2 the CRDL, and was therefore not reported. However, associated sample MW-3B was reported with a similar concentration. This detection should be considered possible contamination, and should be edited to nondetection ("U") at the sample CRDL of 0.10 ug/L; this sample also showed high bias with surrogate recoveries.

Sample MW-6 showed PCBs reported as a mixture of three Aroclors. Due to the possible cross-contribution to congener areas, and to the poor individual isomer proportions, the values for the detected Aroclors in the sample should be considered estimated ("J").

Due to poor individual isomer correlation to standard proportions, the result for Aroclor 1260 in MW-7B should be considered estimated ("J").

Accuracy and precision values for the Aroclor 1242 matrix spikes of MW3C and MW9C were acceptable.

Field duplicate correlations between MW2C and MW2D, and between MW10C and MW10D were acceptable.

Metals/CN Analyses

The cyanide analysis for MW10B(8-10) was performed 59 days beyond the allowable holding time, and showed nondetection. Due to possible losses, the cyanide result for this sample is rejected, and not usable ("R" qualifier).

Field blank FB21 contained low levels of four elements, three of which were at levels not affecting sample reported results (sample detections exceeded ten times the blank level). However, chromium was detected at 14 ug/L, indicating the possibility that the chromium detections in samples MW11A13, MW9B46, and MW9B68 may be contamination. Results for chromium in those three sample should be edited to nondetection at the originally reported values (i.e. add "U", creating elevated detection limits).

Selenium produced outlying recoveries in the matrix spikes of MW9B68 (133%) and MW3C (134%), and in the standard at twice the CRDL concentration (148%) and the soil spiked blank (71%) in SDG 67366. All soil selenium results, and all detected aqueous selenium results should therefore be considered estimated ("J").

Due to outlying matrix spike recoveries of antimony (38%) and zinc (133%) in MW9B68, the results for these two analytes in the soil samples should be considered estimated ("J").

With the exception of selenium in MW3C, all accuracy values for the matrix spikes of MW3C and MW9C were acceptable.

Duplicate correlations for MW9B68m MW3C, and MW9C were acceptable.

Aqueous serial dilution values for MW3C and MW9C were acceptable.

Serial dilution was performed on two soil samples. MW12C68 produced an outlying value for cobalt (14%D, above 10%D limit), and the result for that analyte in that sample should therefore be considered estimated ("J"). The serial dilution for MW9B68 showed outliers exceeding 10%D for six elements (ranging from 11%D to 38%D), indicating possible matrix effect. Results for the following analytes in all soil samples except MW12C68 should be considered estimated ("J"):

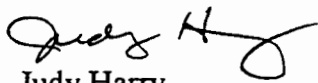
aluminum, barium, chromium, iron, magnesuim, and manganese

Field duplicate correlations between MW2C and MW2D, and between MW10C and MW10D were acceptable.

The prep log Form 13 for mercury in SDG 67366 with a date of 12/30/97 should show 12/01/97.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,


Judy Harry

COMPLIANCE CHART

LAWLER, MATUSKY &
SKELLY ENGINEERS LLP

FEB 19 1998

Project: LMS Engineers United Plating Site

For Hazardous Waste Section

SDG Nos. ITS SDG Nos. 67366 and 67701

Protocol: 1995 NYSDEC ASP/SW846

Rec. Date	Sample ID	Matrix	VOA	Metals	Noncompliance
11-07-97	UPMW10B-8-10	Soil	OK	NO	1
11-11-97	UPMW12C-6-8	Soil	OK	OK	
11-19-97	UPMW9B-4-6	Soil	OK	OK	
11-19-97	UPMW9B-6-8	Soil	OK	OK	
11-19-97	FB21	Aqueous	OK	OK	
11-20-97	UPMW11A-1-3	Soil	OK	OK	

Rec. Date	Sample ID	Matrix	VOA	PCB	Metals	Noncompliance
12-10-97	MW-9C	Aqueous	OK	OK	OK	
12-10-97	TB	Aqueous	OK	NR	NR	
12-11-97	MW-11A	Aqueous	OK	OK	OK	
12-11-97	MW-2B	Aqueous	OK	OK	OK	
12-11-97	MW-3B	Aqueous	OK	OK	OK	
12-11-97	TB	Aqueous	OK	NR	NR	
12-12-97	MW-8B	Aqueous	OK	OK	OK	
12-12-97	MW-8A	Aqueous	OK	OK	OK	
12-12-97	TB	Aqueous	OK	NR	NR	
12-12-97	MW-1B	Aqueous	OK	OK	OK	
12-13-97	MW-11B	Aqueous	OK	NR	NR	
12-13-97	MW-9B	Aqueous	OK	NR	OK	
12-13-97	MW-9A	Aqueous	OK	NR	OK	
12-13-97	MW-FB	Aqueous	OK	OK	OK	
12-13-97	MW-2A	Aqueous	OK	OK	OK	
12-13-97	MW-3A	Aqueous	OK	OK	OK	
12-13-97	MW-10B	Aqueous	OK	OK	OK	
12-13-97	MW-1A	Aqueous	OK	OK	OK	
12-13-97	TB	Aqueous	OK	NR	NR	
12-17-97	MW-7B	Aqueous	OK	OK	OK	
12-17-97	MW-7A	Aqueous	OK	OK	OK	
12-17-97	TB	Aqueous	OK	NR	NR	
12-18-97	MW-6	Aqueous	OK	OK	OK	
12-18-97	TB	Aqueous	OK	NR	NR	
12-18-97	MW-2D	Aqueous	OK	OK	OK	
12-18-97	MW-2C	Aqueous	OK	OK	OK	
12-18-97	MW-10C	Aqueous	OK	OK	OK	
12-18-97	MW-3C	Aqueous	OK	OK	OK	
12-18-97	MW-10D	Aqueous	OK	OK	OK	
12-18-97	MW-FB	Aqueous	OK	OK	OK	
12-19-97	TB	Aqueous	OK	NR	NR	
12-19-97	MW-7C	Aqueous	OK	OK	OK	
12-19-97	MW-12C	Aqueous	OK	OK	OK	
12-19-97	MW-8C	Aqueous	OK	OK	OK	
12-19-97	MW-1C	Aqueous	OK	OK	OK	
12-19-97	MW-4	Aqueous	OK	OK	OK	
12-19-97	MW-5	Aqueous	OK	OK	OK	

1. Cyanide analysis performed beyond usable holding time.

DATA QUALIFIER DEFINITIONS

The following definitions provide brief explanations of the national qualifiers assigned to results in the data review process. If the Regions choose to use additional qualifiers, a complete explanation of those qualifiers should accompany the data review.

- U** - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- J** - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- N** - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
- NJ** - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ** - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R** - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

To be included with all lab data and with each workplan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND
ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Lab Sample Code	Analytical Requirements*					
		*VOA GC/MS	BNA GC/MS	*VOA GC	*Pest PCB	*METALS	*OTHER
MW-9C	349043	✓			✓	✓	
MW-9C MS	349043MS	✓			✓	✓	
MW-9C MSD	349043MSD	✓			✓		
MW-9C EEP	349043DP					✓	
TB	349044	✓					
MW-11A	349077	✓			✓	✓	
MW-2B	349078	✓			✓	✓	
MW-3B	349079	✓			✓	✓	
TB	349080	✓					
MW-8B	349209	✓			✓	✓	
MW-8A	349173	✓			✓	✓	
TB	349174	✓					
MW-1B	349175	✓			✓	✓	
MW-11B	349253	✓					
MW-9B	349254	✓				✓	
MW-9A	349255	✓				✓	
MW-FB	349256	✓			✓	✓	
MW-7A	349257	✓			✓	✓	
TB	349258	✓					
MW-3A	349259	✓			✓	✓	
MW-10B	349260	✓			✓	✓	

*Check Appropriate Boxes

*CLP, Non-CLP (Please indicate year of protocol)

*HSL, Priority Pollutant

c/mydoc/nys sample id

0028

To be included with all lab data and with each workplan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Lab Sample Code	Analytical Requirements*					
		*VOA GC/MS	BNA GC/MS	*VOA GC	*Pest PCB	*METALS	*OTHER
MW-1A	349261	✓			✓	✓	
MW-7B	349422	✓			✓	✓	
MW-7A	349423	✓			✓	✓	
7B	349424	✓					
MW-6	349500	✓			✓	✓	
7B	349501	✓					
MW-2C	349502	✓			✓	✓	
MW-2D	349503	✓			✓	✓	
MW-10C	349504	✓			✓	✓	
MW-3C	349516	✓			✓	✓	
MW-3CMS	349516MS	✓			✓	✓	
MW-3CMSA	349516MSA	✓			✓		
MW-3CKCA	349516-1A					✓	
MW-10A	349517	✓			✓	✓	
MW-FB	349518	✓			✓	✓	
7B	349624	✓					
MW-7C	349625	✓			✓	✓	
	349625						
MW-12C	349626	✓			✓	✓	
MW-5C	349627	✓			✓	✓	
MW-1C	349628	✓			✓	✓	

*Check Appropriate Boxes

*CLP, Non-CLP (Please indicate year of protocol)

*HSL, Priority Pollutant

c/mydoc/nys sample id

0020

To be included with all lab data and with each workplan

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

[illegible]

*Check Appropriate Boxes

*CLP, Non-CLP (Please indicate year of protocol)

*HSL, Priority Pollutant

c/mydoc/nys sample id

ORD

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY

INORGANIC ANALYSES

SAMPLE ID	MATRIX	METALS REQUESTED	DATE RECEIVED	DATE ANALYZED
349043	water	CLF-M/335.2	12/10/97	12/18/97-1/17/98
349043MS	"		↓	
349043DP	"		↓	
349077	"		12/11/97	
349078	"		↓	
349079	"		↓	
349209	"		12/12/97	
349173	"		↓	
349175	"		↓	
349254	"		12/13/97	
349255	"		↓	
349256	"		↓	
349257	"		↓	
349259	"		↓	
349260	"		↓	
349261	"		↓	
349422	"		12/17/97	
349423	"		↓	
349500	"	↓	12/18/97	✓

c/mydoc/nys sample prep

002E

INORGANIC ANALYSES

c/mydoc/nys sample prep

002F

SAMPLE PREPARATION AND ANALYSIS SUMMARY

VOA ANALYSES

LAB SAMPLE ID	MATRIX	DATE COLLECTED	DATE REC'D AT LAB	LOW LEVEL MED. LEVEL	DATE ANALYZED
349043	water	12/9/97	12/10/97	Low	12/15/97
349043MS		"	↓	"	"
349043MA		"	↓	"	"
349044		"	↓	"	"
³⁴⁹⁰⁷⁷ 349047		12/10/97	12/11/97	"	"
349078		"	↓	"	"
349079		"	↓	"	"
349080		"	↓	"	"
349209		12/11/97	12/12/97	"	"
349173		"	↓	"	"
349174		"	↓	"	"
349175		"	↓	"	"
349253		12/12/97	12/13/97	"	12/18/97
349254		"	↓	"	"
349255		"	↓	"	"
349256		"	↓	"	"
349257		"	↓	"	"
349258		"	↓	"	"
349259	✓	"	↓	"	"

CMYDOC/VOA

SAMPLE PREPARATION AND ANALYSIS SUMMARY

VOA ANALYSES

LAB SAMPLE ID	MATRIX	DATE COLLECTED	DATE REC'D AT LAB	LOW LEVEL MED. LEVEL	DATE ANALYZED
349260	Water	12/12/97	12/13/97	Low	12/18/97
349261		"	"	"	"
349422		12/16/97	12/17/97	"	12/18/97
349423		"	↓	"	"
349424		"	↓	"	"
349500		12/17/97	12/18/97	"	12/22/97
349501		12/12/97	↓	"	"
349502		12/17/97	↓	"	"
349503		"	↓	"	"
349504		"	↓	"	"
349516		"	12/18/97	"	12/23/97
349516MS		"	↓	"	"
349516MD		"	↓	"	"
349517		"	↓	"	"
349518		"	↓	"	"
349624		12/18/97	12/14/97	"	12/22/97
349625		"	↓	"	12/23/97
349626		"	↓	"	12/22/97
349627	✓	"	↓	"	"

CMYDOC/VOA

002H

VOA ANALYSES

CMYDOC/VOA

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY

PESTICIDE/PCB ANALYSES

LAB SMPL ID	MATRIX	DATE COLLECTED	DATE REC'D AT LAB	DATE EXTRACTED	DATE ANALYZED
349043	water	12/9/97	12/10/97	12/12/97	1/18/98
349043MS		↓	↓	"	"
349043MA		↓	↓	"	"
349077		12/10/97	12/11/97	12/12/97	1/18/98
349079		"	↓	12/12/97	1/18/98
349209		12/11/97	12/12/97	"	"
349173		"	↓	12/12/97	1/18/98
349175		"	↓	12/12/97	1/18/98
349256		12/12/97	12/13/97	12/17/97	1/18/98
349257		"	↓	12/17/97	1/19/98
349259		"	↓	"	1/18/98
349260		"	↓	"	"
349261		"	↓	12/17/97	1/18/98
349422		12/16/97	12/17/97	"	"
349423		"	↓	12/17/97	1/18/98
349502		12/17/97	12/18/97	12/18/97	1/19/98
349502		"	↓	12/18/97	1/18/98
349503		"	↓	"	"
349504	✓	"	↓	"	"
349078	✓	12/10/97	12/11/97	12/12/97	1/18/98

CMYDOC/NYS PPCB

002M

PESTICIDE/PCB ANALYSES

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INORGANIC ANALYSES

c/mydoc/nys sample prep

02
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SAMPLE PREPARATION AND ANALYSIS SUMMARY

VOA ANALYSES

[illegible]

CAMYDOC VOA

02
A26C

SDG Case Narrative

LMS Project Name: United Plating

LMS Project No.: 650-098

ITS Project No. 95212; Case 95212; SDG 67701

Client Lab Id	Sample Sample ID	Sample Date	Matrix

Received on: 12/10/97 ETR No. 67701

349043	MW-9C	12/09/97	Water
349043MS	MW-9CMS	12/09/97	Water
349043MD	MW-9CMSD	12/09/97	Water
349043DP	MW-9CREP	12/09/97	Water
349044	TB	12/09/97	Water

Received on: 12/11/97 ETR No. 67706

349077	MW-11A	12/10/97	Water
349078	MW-2B	12/10/97	Water
349079	MW-3B	12/10/97	Water
349080	TB	12/10/97	Water

Received on: 12/12/97 ETR No. 67723

349209	MW-8B	12/11/97	Water
349173	MW-8A	12/11/97	Water
349174	TB	12/11/97	Water
349175	MW-1B	12/11/97	Water

<u>Lab Id</u>	<u>Client Sample ID</u>	<u>Sample Date</u>	<u>Sample Matrix</u>
Received on: 12/13/97 ETR No. 67737			
349253	MW-11B	12/12/97	Water
349254	MW-9B	12/12/97	Water
349255	MW-9A	12/12/97	Water
349256	MW-FB	12/12/97	Water
349257	MW-2A	12/12/97	Water
349258	TB	12/12/97	Water
349259	MW-3A	12/12/97	Water
349260	MW-10B	12/12/97	Water
349261	MW-1A	12/12/97	Water

Received on: 12/17/97 ETR No. 67769			
349422	MW-7B	12/16/97	Water
349423	MW-7A	12/16/97	Water
349424	TB	12/16/97	Water

Received on: 12/18/97 ETR No. 67782			
349500	MW-6	12/17/97	Water
349501	TB	12/12/97	Water
349502	MW-2C	12/17/97	Water
349503	MW-2D	12/17/97	Water
349504	MW-10C	12/17/97	Water

Received on: 12/18/97 ETR No. 67786			
349516	MW-3C	12/17/97	Water
349516	MS MW-3CMS	12/17/97	Water
349516MD	MW-3CMSD	12/17/97	Water
349516DP	MW-3CREP	12/17/97	Water
349517	MW-10D	12/17/97	Water
349518	MW-FB	12/17/97	Water

Received on: 12/19/97 ETR No. 67797			
349624	TB	12/18/97	Water
349625	MW-7C	12/18/97	Water
349626	MW-12C	12/18/97	Water
349627	MW-8C	12/18/97	Water
349628	MW-1C	12/18/97	Water
349629	MW-4	12/18/97	Water
349630	MW-5	12/18/97	Water

The above referenced samples were analyzed for Volatile Organics following EPA Method 524.2, Revision 4; TAL Metals plus Cyanide following NYS CLP Methods CLP-M / 335.2 and for low level Polychlorinated Biphenyls following a modification of EPA SW846 Method 8081. These samples were analyzed in accordance to the NYSDEC Analytical Services Protocol (ASP), October 1995. Data reporting is in reference to NYS Superfund Category.

Method calibration requirements for the metals analysis were satisfied. The matrix spike analysis of sample labeled MW-3C exhibited Selenium percent recoveries outside established method quality control (QC) limits. Please note that the post spike recoveries were outside QC limits for this sample.

The initial and continuing volatile organic calibration requirements specified for Method 524.2, Revision 4 were satisfied. Surrogate percent recoveries for all samples in this sample delivery group were within method QC limits. The matrix spike analysis of sample labeled MW-3C exhibited Trichloroethene and 1,1,2,2-Tetrachloroethane percent recoveries slightly above method QC limits. Chloroethane, Acetone and 1,4-Dioxane were outside method QC limits for the matrix blank spike sample labeled MBS. Please note that 1,2-Dibromo-3-Chloropropane and Chloroethane percent recoveries were outside QC limits for matrix blank spike sample labeled MBS.

Dilution analyses were performed for the volatile organic analyses of samples labeled MW-6, MW-4 and MW-5 based on target analytes reported in the preliminary screen analytical results. These samples were analyzed at dilution factors of 3.2, 22.2 and 2.2 respectively.

The PCB initial calibration requirements specified for this method were satisfied. Please note that continuing calibration check standards exhibited an increased response of Aroclor 1254 and surrogate Decachlorobiphenyl resulting in percent differences above method quality control criteria. Surrogate percent recoveries were within method advisory limits with the exception of samples labeled MW-3B, MW-3A, MW-7B and MW-FB. The laboratory believes that surrogate percent recoveries for sample labeled MW-3B may be related to possible solvent evaporation from the sample extract. Please note that the laboratory control sample labeled W5LCS and Y2LCS exhibited Aroclor 1242 percent recoveries below method QC limits.

Sample extracts associated with the PCB extraction blank labeled PBLKU3 were inadvertently concentrated to 2 milliliters (ml) rather than the standard 1.0 ml. As a result, the PCB method reporting limit for these samples was 1.0 microgram per liter (ug/l). PCB identification was performed to one-half the method reporting limit for these samples.

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager, as verified by the following signature."

Deborah A. Loring
Deborah A. Loring
Laboratory Operations Manager

SDG Case Narrative

LMS Project Name: United Plating
LMS Project No.: 650-098
ITS Project No. 95212; Case 95212; SDG 67366

<u>Lab Id</u>	<u>Client Sample ID</u>	<u>Sample Date</u>	<u>Sample Matrix</u>
Received on: 11/07/97 ETR No. 67366			
346953	MW10B 8-10	11/06/97	Soil
Received on: 11/11/97 ETR No. 67373			
347137	MW12C 6-8	11/10/97	Soil
Received on: 11/19/97 ETR No. 67458			
347778	MW9B 4-6	11/18/97	Soil
347779	MW9B 6-8	11/18/97	Soil
347779MS	MW9B 6-8MS	11/18/97	Soil
347779MD	MW9B 6-8MSD	11/18/97	Soil
347779DP	MW9B 6-8REP	11/18/97	Soil
347780	FB21	11/18/97	Water
347782	MBS		Solid
Received on: 11/20/97 ETR No. 67505			
348028	MW11A 1-3	11/19/97	Soil
Received on: 11/26/97 ETR No. 67563			
348378	TP20 4-5	11/21/97	Soil

The above referenced samples were analyzed for TCL VOCs and TAL Metals plus Cyanide by NYS CLP Methods 95-1 and CLP-M / 335.2 respectively. These samples were analyzed in accordance to the NYSDEC Analytical Services Protocol (ASP) October 1995. Data reporting for this sample delivery group (SDG) is in reference to NYS Superfund Category.

Please note that sample labeled MW10B 8-10 was inadvertently not analyzed for Cyanide. The laboratory will perform Cyanide analysis for this sample on Monday, 5 January 1998.

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Cyanide analytical results for this sample will be available on Wednesday, 7 January 1998.

Method calibration requirements for the metals analysis were satisfied. The matrix spike analysis of sample labeled MW9B 6-8 exhibited Antimony, Selenium and Zinc percent recoveries outside established method quality control (QC) criteria. All elements were within control limits for the duplicate analysis. Please note that Selenium percent recoveries were outside QC limits for the laboratory control sample.

The serial dilution analysis of sample labeled MW12C 6-8 exhibited Cobalt percent recoveries outside QC limits. The serial dilution analysis of sample labeled MW9B 6-8 resulted in percent recoveries of Aluminum, Barium, Chromium, Lead, Copper, Magnesium, Manganese, Nickel and Zinc outside method QC limits. The laboratory believes that these anomalies may be related to sample matrix interference.

The volatile organic initial and continuing calibration requirements specified for this method were satisfied. Dilution analyses were not required for samples in this sample delivery group. Please note that the initial volatile organic analysis of sample labeled MW10B 8-10 exhibited surrogate toluene-d8 and internal standards 1,4-Difluorobenzene and Chlorobenzene-d5 recoveries outside method QC limits. Reanalysis of this sample resulted in acceptable recoveries of toluene-d8 and 1,4-Difluorobenzene. Both sets of analysis are provided in this case submittal. Please note that surrogate recoveries were within QC limits for all remaining samples submitted in this SDG.

The matrix spike analysis of sample labeled MW9B 6-8 exhibited percent recoveries of target analytes within established control limits with the exception of Trichloroethene. This analyte was outside method QC limits by three percent. Please note that acceptable recoveries of target volatile organics were observed for the matrix blank spike sample.

The laboratory analyzed a volatile organic holding blank (VHBLK01) which accompanied the samples through the holding period. The data for this holding blank is included in the sample preparation section of the data package.

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager, as verified by the following signature."

Deborah A. Loring
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