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FINAL
OPERABLE UNIT 3
REMEDIAL INVESTIGATION REPORT

Sunnyside Yard
Queens, New York

Volume III

Prepared for:

NATIONAL RAILROAD PASSENGER
CORPORATION
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APPENDIX E

Data Validation and Usability Report

APPENDIX E-1

Phase I Data Validation Report

Data Validation Services
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TO: Roux Associates

FROM: Judy Harry, Data Validation Services J. Harry

DATE: 3-30-91, Revision No. 2 4-9-91

RE: Validation report for Sunnyside Yard Site project

Review has been completed on sample data collected at the Sunnyside Yard Site, and analysed by Envirosystems, Inc. Aqueous, soil, and oil samples were processed for various parameters including PCBs, TPHs, TOC, and the CLP Target Compound List. The analyses were to have been performed according to the EPA Contract Laboratory Protocol, EPA-8080, and EPA 418.1 (for TPH). Original submissions of the data packages for this project were not complete with raw data required for validation. Resubmissions were requested and submitted until verification of reported results could be made.

In summary, most of the VOA and BNA reported results are supported by the raw data and were generated in compliance with the protocol. The metals analyses were generally performed according to the required methodology, but the reporting forms submitted did not contain the required QC qualifiers. These qualifiers were added during validation. The Pesticide and PCB analyses were neither performed nor documented according to the protocol requirements. Extensive examination of the raw data resulted in the correction of many reported values. Consistent failure of QC criteria necessitated that all reported results above contract required detection limit for pesticides and PCBs be considered estimated. Total Petroleum Hydrocarbon data is generally compliant, but should be reported to not more than two significant figures due to blank and methodology limitations. The figure reported for Total Organic Carbon for sample MW-16(6-8) was not generated by a method applicable to TOC determinations. Noncompliancies for each analysis fraction are discussed in more detail in the subsections below.

Reported result forms included with the data packages have been edited with corrected values and additional QC qualifiers, and are attached to this report. All organic values on the reporting forms in this report are based on wet-weight and have not been corrected for sample percent solids.

GENERAL COMMENTS AND NONCOMPLIANCIES

All results and detection limits for the organic parameters were reported on an as-received, wet-weight basis. Because solids determinations were not available during this review, this validation report will also report organic values and corrections thereof on a wet-weight basis. The metals analyses results are on a dry-weight basis.

No pH determinations were included or reported for the samples in this project.

The chain-of-custody for samples collected 10/5/90 did not contain a signature indicating receipt of the samples at the laboratory. In house chain-of-custody is not included in the data package.

NYSDEC tracking forms were not included with the data packages.

The attached case narratives outline many specific QC considerations. Others are outlined in the subsections below:

VOLATILE ANALYSES

Holding times were met for the volatile analyses.

Sample S-82(0-2) R reported toluene at a level of "2.5 J." The spectrum is not included for review, and the hit was rejected upon lab review. This sample should show "5.0 U" for the toluene result.

Surrogate standard recoveries were good for the aqueous samples. Sample MW-13 exhibited elevated recovery of surrogate d4-dichloroethane for two analyses, but sample reported results are not affected. Several soil samples (S-22(0-2), S-82(0-2), S-80(2-4), and S-90) showed repeated failure of surrogate d8-toluene. The surrogate was falsely elevated in recovery, above the allowable limit of 117%, due to the low recovery of its associated internal standards in these samples. Although the sample matrix is often the cause of depressed internal standard recoveries, it should be noted that the method blank run with the latter two samples produced a d8-toluene recovery of 116%, just within the allowable limit. The surrogate and internal standard failures in these samples cause the reported toluene values within to be considered estimated.

Aqueous and soil matrix spike recoveries and relative percent differences were all within recommended limits except the toluene (and d8-toluene surrogate) recoveries in sample S-22(0-2), mentioned above.

Instrument tunes and method blanks were performed in compliance with the protocol.

Calibration standards met the required performance criteria, which pertain only to certain of the parameters, but percent differences (%Ds) of some continuing calibration factors were often over 30%. Some of the elevated % Ds in the 5 point calibrations are due to errors in standard spiking. The compounds showing extreme %Ds (such as carbon tetrachloride at 100%D and 81%D) were not detected in the samples, and detection limits were not made suspect. Consequently, these standard variances do not affect reported results for this project.

Tentative Identification Compound lists were provided when requested under separate cover.

BASE/NEUTRAL/ACID ANALYSES

Holding times for the start of the initial extractions were met for all samples except S-90, which was extracted 1 day beyond the allowable holding time. The results and detection limits for S-90 are flagged as estimated, and could be biased low. Although the extractions were initiated within the required time, in some cases the final concentration step was not performed until a week later.

Benzo(b)fluoranthene and benzo(k)fluoranthene are reported as a combined number in this data package.

The surrogate recoveries of the soil extracts were reported incorrectly in the data package summaries. Recoveries are actually twofold higher for all samples and blanks except S-90, S-80 (2-4), and Method Blank 10-9-90. The recoveries were quite low as originally reported; this correction shows the results to be more acceptable. Samples S-41A(3-5), S-43(0-2), S-61(5-7), S-62(0-2), and S-64(2-3) had elevated backgrounds which necessitated dilution prior to analysis. In these cases, surrogate recovery cannot be determined accurately.

The aqueous samples produced inconsistent surrogate recoveries in several instances (Field Blank #3, MW-26, MW-29, and MS-9), where initial extractions produced failing surrogate recoveries, but the recoveries upon reextraction were within allowable ranges. Th original extract data is unusable; the reextractions of these samples occured 5 days beyond the holding time and the results have been flagged as estimated, and should be considered biased low. Many aqueous surrogate recoveries are just above the lower allowable limit. Two trip blanks produced base/neutral surrogate outliers.

Samples MW-23 and MW-29 produced no recovery of acid surrogates with repeated extraction. Consequently the results for acidic components in these samples have been flagged as inconclusive. The base/neutral surrogates produced acceptable recovery. The reextractions of these samples were performed beyond the allowable holding time and the base/neutral parameters have thusly been flagged as estimated.

Sample MW-26(9-11) produced no recovery of acid surrogates during its first extraction. Its associated method blank also produced very low surrogate recoveries, and the sample was reextracted. The surrogate recoveries were acceptable for the second extraction, but it was performed 29 days from sample receipt (protocol requires a 5 day holding time). The results of this sample have been flagged as unusable for both analyses.

Samples MW-1 and MW-25 produced surrogate recoveries less than 10% Recovery, and should have been repeated.

Method blanks from extractions on 10/18/90, 12/4/90, and 1/3/91 each had a surrogate outlier, which is prohibited by protocol. Samples associated with these blanks should have been reextracted and reanalysed, but were not.

Aqueous matrix spike recoveries were good. The soil matrix spikes produced six outlying recoveries, including pyrene.

Sample S-22(0-2) 1:5 dilution should have reported benzo(b and k)fluoranthene at a level of 4595 ug/kg, as the raw data indicates.

There should not have been a reported value for N-nitrosodiphenylamine for sample S-43(0-2). It should be reported as "3300 U".

Samples S-22(0-2), S-49(2-4), S-47(2-4), and S-17(0-2) did not recover internal standard areas within acceptable range upon repeated analyses. The analyses were performed in compliance with protocol, and the outliers are matrix related. The detected target compound values should be considered estimated due to the quantitative effect of potentially inaccurate internal standard areas.

Instrumental tunes and method blanks were performed and documented in compliance with protocol.

The initial multipoint and the daily continuing calibration standards met criteria as outlined in the protocol. However, many continuing standards had % differences from the 5 point curve that exceeded recommended criteria. Acidic components, none of which were detected in any of the samples, had %Ds consistently over 40% (a value above 30% is considered out of control). The aniline compounds often had %Ds from 60-80%. The polynuclear hydrocarbon (PAH) standards, some of which were detected in some samples, produced %Ds 30-50%.

The aqueous Tentatively Identified Compound (TIC) lists were provided under separate cover.

PCB/PESTICIDE ANALYSES

All PCB and pesticide results, where detected above the detection limit, should be considered estimated due to noncompliant methodology. Although the laboratory indicates that EPA CLP was followed, noncompliancies exist in the analysis procedure. The nature of these noncompliancies are quality control violations which necessitate qualifying the reported values of the samples. Documentation of the Pest/PCB data is insufficient. No summary data is provided, and there was incomplete review of standard and system criteria. Chromatograms were not labeled with standard IDs and levels, and many of the copies were abbreviated and did not contain all raw data retention times and areas necessary for the validation calculation corrections.

Quality control criteria required by EPA CLP and 8080 protocols were violated during the course of this project. System linearity, degradation, retention time, and calibration factor consistency criteria were not monitored and were not within the allowable limits for sample processing. The retention times on the DB-1701 column, used for confirmation, and in a few cases primary, analyses were drifting beyond the allowable limit. Where data for system linearity was available, it was shown to be noncompliant. Degradation calculations were not available, but visual inspection of the standard chromatograms indicate breakdown over the 20% allowable limit. Continuing calibration standards were not monitored for consistency, and inspection shows most to have %Differences of more than 50% (allowable limit of 15%). These violations reflect an inconsistent analysis system, and quantitative values generated from this processing must all be considered estimated. The qualitative identification, with the exception of the Aroclors discussed below, and most detection limit values are not affected. However, it should be noted that protocol requires the 15 % Difference limit to be adhered to even for a judgement as to presence/absense of a component.

Protocol requires that a standard be run every 5 samples in order to verify system integrity. Aqueous samples were processed sequentially for more than 40 analysis runs without a standard interspersed. All aqueous reported quantitative values should be considered estimated.

Because 4,4'-DDT and 4,4'-DDE are indistinguishable from some of the Aroclor components on both GC columns utilized in this project, samples that contain Aroclor mixtures have inconclusive results for DDT and DDE. It is not possible in those cases to determine if those two compounds are present and masked by the Aroclor PCBs. Attached results forms have been edited during validation where appropriate.

Although required by protocol, confirmation GC analyses were not always performed when PCBs were detected and reported. Pattern recognition was utilized to confirm presence.

Due to the complexity of PCB components, and the degradation that can occur over time in the field, it is often difficult to resolve the exact nature and proportion of the Aroclor mixtures detected in samples. Most samples analysed for this project that had PCBs present that were identified and reported by the laboratory as Aroclor 1260. Some samples processed in a certain timeframe were identified as Aroclor 1254. Because the validator believes that Aroclor 1260 is a more accurate characterization of the sample components, those previously reported as Aroclor 1254 have been recalculated and reported as Aroclor 1260 in this report. Appropriate edits have been made to the attached results forms.

In addition to the change in Aroclor identity, other changes have been made in the laboratory reported PCB results during this data review. Some target compounds had not been reported although they were actually present, and some calculation errors had resulted in incorrect reported values.

No method blanks were processed on the confirmation column. Some blanks indicated a presence of endosulfate on the primary column, and were not run for confirmation. Because samples did not contain endosulfate, there was no effect on reported results.

As with the BNA analyses, the holding time of 5 days for extraction was utilized only for the start of the extraction, and extracts were held up to 11 days before concentration. PCB/Pesticide results are already flagged as estimated due to concerns discussed above.

Surrogate and matrix spike recoveries for the samples are within recommended range with the exception of one soil matrix spike duplicate percent difference.

PCB-ONLY ANALYSES

All quality concerns mentioned above in the pesticide/PCB section apply to the PCB-only analyses as well. Calculation corrections, appropriate qualifiers, and Aroclor identity edits have been made to the attached results forms. The detection limits of the oil samples have also been changed to reflect the actual dilution level of the samples. Sample S-84(0-2) produced a chromatogram too dirty to provide conclusive results at the submitted dilution. It should have been flagged as inconclusive.

As with other organic extracts, some of the PCB extracts were held up to twelve days between extraction and concentration. Because the reported results for PCBs in this project are considered estimated due to standard and system noncompliancies, no additional flagging was required as a result of this finding.

The method blank for soil samples extracted 10/31/90 contained Aroclor 1260 at a level of 191 ug/kg, although it was not reported as such. PCB data for all samples associated with that method blank, S-67(0-2), S-68(0-2), MW-17(0-2), S-6(0-2), S-1(0-2), and S-1(2-3), are consequently considered unusable.

METALS ANALYSES

Protocol was followed in part for the metals processing, but the report forms were not flagged with the required QC qualifiers, and have been edited upon validation. The most common omissions were the "N" flag for spike recovery out of range, "*" for inconsistent duplicate results, "W" indicating that the post-digest spike for graphite furnace (GFAA) analyses did not recover within a 85-115% range, and "B" to indicate that the reported value is higher than the instrument detection limit, but less than the contract required detection limit (CRDL).

General noncompliancies in the metals analysis include failure to repeat method blanks, Laboratory Control Samples, and some samples when the post digest spike of GFAA elements were not within required range.

It is of note that lead and chromium were detected in the field blanks and trip blanks at levels above CRDL and comparable with other sample reported results. The source of the lead and chromium in these blanks is not known, and provides concern regarding other sample results for these elements. The method blanks did not contain levels above CRDL for these elements. However, standards at CRDL analyzed for lead did not produce good recovery, and in fact produced values similar to those in the method blanks.

Holding times for mercury analysis were violated in samples S-43(0-2), S-53(5-7), and S-41A(3.5-5.5), having been processed 6-8 days over the allowable holding time of 28 days.

Some sample results have been changed as a result of review, including the calcium results of sample MW-23, which should have been reported as 70,300 ug/l rather than 10,300 ug/l.

The method blank associated with the selenium analysis of samples MW-33, MW-32, and MW-29 produced values above the CRDL, and the samples should have been redigested and analysed. They were not, and the reported value for MW-33 is considered unusable.

The chromium analysis of sample S-38(2-4) should have been repeated due to inconsistent results during analysis, and its reported result is considered unusable.

The reported nickel result for sample MW-26(9-11) is actually that of the sample duplicate run at the same time. The original MW-26(9-11) data was not used because its duplicate injection precision was not met.

Sample MW-33 produced inconsistent lead results during multiple analyses.

Matrix spike recoveries for the aqueous samples were out of preferred limits for aluminum (0% recovery), selenium (29% rec.), lead (168% rec.), thallium (189% rec), and manganese (66% rec.). Soil matrix spike recovery outliers were antimony at 63%, chromium at 38%, and selenium at 59%. Mercury recovery data for soil matrix spikes was not included in the data package.

Samples S-60(4-6) amd S-33(4-6) were not processed in compliance with protocol. No post-digest spikes were performed for antimony, arsenic, chromium, lead, silver, or thallium. Consequently reported results for these elements must be considered estimated. No method blank appears on the ICP digestion log for these samples. Therefore potential procedural contamination cannot be eliminated for those elements, and the reported results will also be considered estimated. Additionally, the Laboratory Control Sample produced a recovery out of range for antimony, and the samples should have been redigested and reanalyzed for that element.

TOTAL PETROLEUM HYDROCARBON (TPH) ANALYSES

The holding time of 28 days for TPH analysis indicated in the Work Plan was violated for the samples indicated on the attached compliancy charts. Those samples were extracted two and three months after sample receipt, and the results and detection limits should be considered biased low.

Standards, both multipoint and as continuing calibrations, were analysed periodically throughout the sample processing. The IR system was not linear in some cases, and sample results were calculated by comparison with a standard in the same range. Due to the nonlinear nature of the system, quantitation inaccuracies should be taken into account when evaluating sample and method blank data near the detection limit.

Although the reported detection limit for the soils is 10 mg/kg, only three of the fourteen soil method blanks processed with the samples produced results less than that value. The others ranged from 18 to 234 mg/kg. The cause of the detected blank levels is not known. It occurs primarily in the soil matrix, which can be due to a matrix extraction contribution. However, the same aqueous blank extract produced different readings when run twice, which can imply inconsistencies in the analysis procedures. The reported sample results for the TPHs had been corrected for the associated method blank level. That is to say, when a method blank produced a reading above the CRDL, the blank value was subtracted from each associated sample. Because the cause of the blank "contamination" is not known, its applicablity to sample results is not predictable. Protocol does not outline specific criteria for TPH method blanks. Samples in this project with values near the detection limit and samples which were run at a dilution have values that are suspect due to the blank value subtraction. In addition, samples that have been reported as <10 mg/kg may have shown a real value, but one less than its method blanks. As a result of these sometimes nonreproducible blank values, all TPH values should be considered estimated, and not accurate beyond two significant figures. The attached forms reflect corrections determined by validation.

Sample S-65(0-2) was extracted using only 15 rather than 30 grams, and its result should have been reported as 4300 mg/kg.

Insufficient data was available to verify TPH results for samples MW-25(6-8) and MW-24(15-17).

Matrix spikes were performed for the TPH analysis. Recoveries ranged between 43 and 243%, with most falling between 60 and 160%. Recommended criteria have not been established for TPH matrix spikes.

TOTAL ORGANIC CARBON

Sample MW-16(6-8) was to have been analysed for TOC. About 90 days after sample receipt, which is beyond the 28 day allowable limit, the sample was processed for % moisture at 103 deg C. and total solids at 550 deg C. A calculation was made to determine the difference in these two parameters for a total volatile solid figure. This statistic is not generated in compliance with methodology for total organic carbon.

COMPLIANCY SUMMARY

Project: National Railroad Passenger Corporation
Sunnyside Yard, Queens, NY

Rec Date	Spl ID	Matrix	VOA	BNA	Pest/PCB	PCB ONLY	Metals	TPH	Noncompl.
10-03-90	S-85	Soil	NR	NR	NR	NR	NR	OK	
10-03-90	S-86	Soil	NR	NR	NR	NR	NR	OK	
10-03-90	S-87	Soil	NR	NR	NR	NR	NR	OK	
10-03-90	S-88	Soil	NR	NR	NR	NR	NR	OK	
10-03-90	S-89	Soil	NR	NR	NR	NR	NR	OK	
10-03-90	S-90	Soil	OK	NO	NO	NR	OK	OK	1,2
10-03-90	S-91	Soil	NR	NR	NR	NR	NR	OK	
10-03-90	S-92	Soil	NR	NR	NR	NR	NR	OK	
10-03-90	S-27	Soil	NR	NR	NR	NR	NR	OK	
10-05-90	S-29(0-2)	Soil	NR	NR	NR	NR	NR	OK	
10-05-90	S-79(0-2)	Soil	NR	NR	NR	NR	NR	OK	
10-05-90	S-80 0-2	Soil	NR	NR	NR	NR	NR	OK	
10-05-90	S-80 2-4	Soil	OK	OK	NO	NR	OK	NR	1
10-05-90	MW-32 0-2	Soil	NR	NR	NR	NR	NR	OK	
10-05-90	S-71 0-2	Soil	NR	NR	NR	NR	NR	OK	
10-05-90	S-71 6-8	Soil	NR	NR	NR	NR	NR	OK	
10-05-90	S-70 0-2	Soil	NR	NR	NR	NR	NR	OK	
10-05-90	S-70 6-8	Soil	NR	NR	NR	NR	NR	OK	
10-05-90	S-72 0-2	Soil	NR	NR	NR	NR	NR	OK	
10-05-90	S-72 6-8	Soil	NR	NR	NR	NR	NR	OK	
10-05-90	S-73 0-2	Soil	NR	NR	NR	NR	NR	OK	

Rec Date	Spl ID	Matrix	VOA	BNA	Pest/PCB	PCB ONLY	Metals	TPH	Noncompl.
10-0?-90	S-21 0-2	Soil	NR	NR	NR	NR	NR	OK	
10-0?-90	S-21 6-8	Soil	NR	NR	NR	NR	NR	OK	
10-0?-90	S-23 0-2	Soil	NR	NR	NR	NR	NR	OK	
10-0?-90	S-23 8-10	Soil	NR	NR	NR	NR	NR	OK	
10-10-90	S-24 0-2	Soil	NR	NR	NR	NR	NR	NO	11
10-10-90	S-24 9-11	Soil	NR	NR	NR	NR	NR	NO	11
10-10-90	S-74 0-2	Soil	NR	NR	NR	NO	NR	NO	1,11
10-10-90	S-74 6-8	Soil	NR	NR	NR	NR	NR	NO	11
10-10-90	S-74 12-14	Soil	NR	NR	NR	NR	NR	NO	11
10-10-90	S-77 0-2	Soil	NR	NR	NR	NO	NR	NO	1,11
10-10-90	S-77 13-15	Soil	NR	NR	NR	NR	NR	NO	11
10-10-90	S-75 0-2	Soil	NR	NR	NR	NO	NR	NO	1,11
10-10-90	S-81 0-2	Soil	NR	NR	NR	NR	NR	NO	11
10-10-90	S-28 0-2	Soil	NR	NR	NR	NR	NR	NO	11
10-12-90	S-3 0-2	Soil	NR	NR	NR	NO	NR	OK	1
10-12-90	S-4 0-2	Soil	NR	NR	NR	NO	NR	OK	1
10-12-90	S-9 0-2	Soil	NR	NR	NR	NO	NR	OK	1
10-12-90	S-66 0-2	Soil	NR	NR	NR	NR	NR	OK	
10-12-90	S-69 0-2	Soil	NR	NR	NR	NR	NR	OK	
10-12-90	S-3 3-5	Soil	NR	NR	NR	NO	NR	NR	1
10-12-90	S-9 3-4.5	Soil	NR	NR	NR	NO	NR	NR	1
10-12-90	S-66 3-5	Soil	NR	NR	NR	NO	NR	NR	1
10-16-90	S-54 0-2	Soil	NR	NR	NR	NR	NR	OK	
10-16-90	S-54 7-9	Soil	NR	NR	NR	NR	NR	OK	
10-16-90	S-55 0-2	Soil	NR	NR	NR	NR	NR	OK	

Rec Date	Spl ID	Matrix	VOA	BNA	Pest/PCB	PCB ONLY	Metals	TPH	Noncompl.
10-16-90	S-55 7-9	Soil	NR	NR	NR	NR	NR	OK	
10-16-90	S-56 0-2	Soil	NR	NR	NR	NR	NR	OK	
10-16-90	S-56 7-9	Soil	NR	NR	NR	NR	NR	OK	
10-18-90	S-82 0-2	Soil	OK	NO	NO	NR	OK	OK	1,8
10-18-90	S-82 6-8	Soil	NR	NR	NR	NR	NR	OK	
10-18-90	S-30 0-2	Soil	OK	NO	NO	NR	OK	OK	1,8
10-18-90	S-30 4-6	Soil	NR	NR	NR	NR	NR	OK	
10-18-90	S-10 0-2	Soil	NR	NR	NR	NO	Pb-OK	OK	1
10-18-90	S-59 0-2	Soil	NR	NR	NR	NO	NR	OK	1
10-18-90	S-58 0-2	Soil	NR	NR	NR	NR	NR	OK	
10-18-90	S-40 0-2	Soil	NR	NR	NR	NR	NR	OK	
10-18-90	S-22 0-2	Soil	OK	NO	NO	NR	OK	OK	1,8
10-18-90	S-31 0-2	Soil	NR	NR	NR	NO	NR	OK	1
10-18-90	S-84 0-2	Soil	NR	NR	NR	NO	NR	OK	1,10
10-18-90	S-83 0-2	Soil	NR	NR	NR	NO	NR	OK	1
10-19-90	S-94 0-2	Soil	NR	NR	NR	NR	NR	NO	11
10-19-90	S-94 2-3	Soil	NR	NR	NR	NO	NR	NR	1
10-19-90	S-93 0-2	Soil	NR	NR	NR	NR	NR	NO	11
10-19-90	S-93 18-20	Soil	NR	NR	NR	NR	NR	NO	11
10-19-90	S-25 0-2	Soil	NR	NR	NR	NR	NR	CA	cancelled
10-19-90	S-95 0-2	Soil	NR	NR	NR	NR	NR	NO	11
10-19-90	S-64 0-2	Soil	NR	NR	NR	NR	NR	NO	11
10-19-90	S-64 2-3	Soil	OK	OK	NO	NR	OK	NR	1
10-20-90	S-17 0-2	Soil	OK	OK	NO	NR	OK	OK	1
10-20-90	S-49 0-2	Soil	NR	NR	NR	NR	NR	OK	

Rec Date	Spl ID	Matrix	VOA	BNA	Pest/PCB	PCB ONLY	Metals	TPH	Noncompl.
10-20-90	S-49 2-4	Soil	OK	OK	NO	NR	OK	NR	1
10-20-90	S-49 4-6	Soil	NR	NR	NR	NR	NR	OK	
10-20 90	S-49 8-10	Soil	NR	NR	NR	NR	NR	OK	
10-20-90	S-48 0-2	Soil	NR	NR	NR	NR	NR	OK	
10-20-90	S-48 2-4	Soil	NR	NR	NR	NR	NR	OK	
10-20-90	S-48 11-13	Soil	NR	NR	NR	NR	NR	OK	
10-20-90	S-47 0-2	Soil	NR	NR	NR	NR	NR	OK	
10-20-90	S-47 2-4	Soil	OK	OK	NO	NR	OK	NR	1
10-20-90	S-47 7-9	Soil	NR	NR	NR	NR	NR	OK	
10-20-90	S-47 11-13	Soil	NR	NR	NR	NR	NR	OK	
10-22-90	MW-22 0-2	Soil	NR	NR	NR	NO	NR	OK	1
10-22-90	MW-13 0-2	Soil	NR	NR	NR	NO	NR	OK	1
10-26-90	S-2 0-2	Soil	NR	NR	NR	NO	Pb-OK	OK	1
10-26-90	S-65 0-2	Soil	NR	NR	NR	NR	NR	OK	
10-26-90	S-62 0-2	Soil	OK	OK	NO	NR	OK	OK	1
10-26-90	S-61 0-1.1	Soil	NR	NR	NR	NR	NR	OK	
10-26-90	S-61 5-7	Soil	OK	OK	NO	NR	OK	NR	1
10-26-90	S-63 0-2	Soil	NR	NR	NR	NO	NR	OK	1
10-26-90	S-7 0-2	Soil	NR	NR	NR	NO	NR	OK	1
10-26-90	S-8 0-2	Soil	NR	NR	NR	NO	NR	OK	1
10-26-90	S-76 0-0.7	Soil	NR	NR	NR	NO	NR	OK	1
10-29-90	S-67 0-2	Soil	NR	NR	NR	NO	NR	OK	1,4
10-29-90	S-68 0-2	Soil	NR	NR	NR	NO	NR	OK	1,4
10-29-90	S-45 0-2	Soil	NR	NR	NR	NR	NR	OK	
10-29-90	S-45 2-4	Soil	NR	NR	NR	NR	NR	OK	

Rec Date	Spl ID	Matrix	VOA	BNA	Pest/PCB	PCB ONLY	Metals	TPH	Noncompl.
10-29-90	S-1 0-2	Soil	NR	NR	NR	NO	NR	OK	1,4
10-29-90	S-1 2-3	Soil	NR	NR	NR	NO	NR	OK	1,4
10-29-90	MW-17 0-2	Soil	NR	NR	NR	NO	NR	OK	1,4
10-29-90	S-5 0-2	Soil	NR	NR	NR	NO	NR	OK	1,4
11-07 90	S-44 0-2	Soil	NR	NR	NR	NR	NR	OK	
11-07-90	S-44 4-6	Soil	NR	NR	NR	NR	NR	OK	
11-07-90	S-43 0-2	Soil	OK	OK	NO	NR	NO	OK	1,3
11-07-90	S-41 0-2	Soil	NR	NR	NR	NR	NR	OK	
11-07-90	S-42 0-2	Soil	NR	NR	NR	NR	NR	OK	
11-07-90	S-41 2-4	Soil	NR	NR	NR	NR	NR	OK	
11-09-90	MW-31 0-2	Soil	NR	NR	NR	NO	Pb-OK	OK	1
11-09-90	MW-31 1012	Soil	NR	NR	NR	NR	NR	OK	
11-09-90	MW-16 0-2	Soil	NR	NR	NR	NO	NR	OK	1
11-09-90	MW-16 6-8	Soil	NR	NR	NR	NR	NR	NR	TOC-NO 9
11-09-90	MW-16 1012	Soil	NR	NR	NR	NO	NR	NR	1
11-09-90	S-41A(3-5)	Soil	OK	NO	NO	NR	NO	NR	1,3,13
11-09-90	S-46 0-2	Soil	NR	NR	NR	NR	NR	OK	
11-09-90	S-46 7-9	Soil	NR	NR	NR	NR	NR	OK	
11-10-90	MW-28 0-2	Soil	NR	NR	NR	NR	NR	OK	
11-10-90	MW-28 6-8	Soil	NR	NR	NR	NR	NR	OK	
11-12-90	S-50 0-2	Soil	NR	NR	NR	NO	NR	OK	1
11-12-90	S-51 0-2	Soil	NR	NR	NR	NO	NR	OK	1
11-12-90	S-52 0-2	Soil	NR	NR	NR	NO	NR	OK	1
11-12-90	S-52 10-12	Soil	NR	NR	NR	NR	NR	OK	
11-12-90	S-51 12-14	Soil	NR	NR	NR	NR	NR	OK	

Rec Date	Spl ID	Matrix	VOA	BNA	Pest/PCB	PCB ONLY	Metals	TPH	Noncompl.
11-13-90	S-6 0-2	Soil	NR	NR	NR	NO	NR	OK	1
11-13-90	S-6 8-9	Soil	NR	NR	NR	NR	NR	OK	
11-13-90	S-16 0-2	Soil	NR	NR	NR	NO	NR	OK	1
11-13-90	S-16 10-12	Soil	NR	NR	NR	NR	NR	OK	
11-13-90	S-20 0-2	Soil	NR	NR	NR	NR	NR	OK	
11-17-90	MW-23 9-11	Soil	NR	NR	NR	NR	NR	OK	
11-19-90	MW-29 0-2	Soil	NR	NR	NR	NR	NR	OK	
11-19-90	S-34 0-2	Soil	NR	NR	NR	NO	Pb-OK	OK	1
11-19-90	S-26 0-2	Soil	NR	NR	NR	NO	Pb-OK	OK	1
11-19-90	S-26 4-6	Soil	NR	NR	NR	NR	NR	OK	
11-19-90	MW-25 0-2	Soil	NR	NR	NR	NR	NR	OK	
11-19-90	MW-25 4-6	Soil	OK	OK	NO	NR	OK	NR	1
11-19-90	MW-25 6-8	Soil	NR	NR	NR	NR	NR	NO	12
11-28-90	S-78 0-2	Soil	NR	NR	NR	NO	NR	OK	1
12-13-90	S-78 8-9	Soil	NR	NR	NR	NO	NR	NR	1
11-28-90	S-60 0-2	Soil	NR	NR	NR	NR	NR	OK	
12-13-90	S-60 4-6	Soil	OK	OK	NO	NR	NO	NR	5
11-28-90	S-57 0-2	Soil	NR	NR	NR	NR	NR	OK	
11-20-90*	MW-33 0-2	Soil	NR	NR	NR	NR	NR	NP	
11-20-90*	MW-33 8-10	Soil	NR	NR	NR	NR	NR	NP	
11-21-90	S-53 0-2	Soil	NR	NR	NR	NO	NR	NO	1,11
11-21-90	S-53 3-5	Soil	NR	NR	NR	NO	NR	NR	1
11-21-90	S-53 5-7	Soil	OK	OK	NO	NR	NO	NR	1,3
11-21-90	S-53 8-10	Soil	NR	NR	NR	NR	NR	NO	11

* Samples received 6 days after collection, and were not processed.

Rec Date	Spl ID	Matrix	VOA	BNA	Pest/PCB	PCB ONLY	Metals	TPH	Noncompl.
11-28-90	MW-24 0-2	Soil	NR	NR	NR	NR	NR	OK	
11-30-90	MW-34 0-2	Soil	OK	NO	NO	NR	OK	OK	1,8
11-30-90	MW-34 1012	Soil	NR	NR	NR	NR	NR	OK	
11-30-90	S-38 0-2	Soil	NR	NR	NR	NR	NR	OK	
11-30-90	S-38 2-4	Soil	OK	NO	NO	NR	OK	NR	1,8
11-30-90	S-38 10-12	Soil	NR	NR	NR	NR	NR	OK	
11-30-90	S-38 12-14	Soil	NR	NR	NR	NR	NR	OK	
11-30-90	S-39 0-2	Soil	NR	NR	NR	NR	NR	OK	
11-30-90	S-39 2-4	Soil	OK	NO	NO	NR	OK	NR	1,8
11-30-90	S-39 8-10	Soil	NR	NR	NR	NR	NR	OK	
11-30-90	MW-24 1517	Soil	NR	NR	NR	NR	NR	NO	12
12-01-90	MW-30 0-2	Soil	NR	NR	NR	NO	NR	OK	1
12-01-90	MW-30 6-8	Soil	NR	NR	NR	NR	NR	OK	
12-01-90	MW-30 1113	Soil	NR	NR	NR	NR	NR	OK	
12-01-90	S-35 0-2	Soil	NR	NR	NR	NR	NR	OK	
12-01-90	S-35 8-10	Soil	OK	NO	NO	NR	OK	NR	1,8
12-03 90	S-36 0-2	Soil	NR	NR	NR	NO	Pb-OK	OK	1
12-03-90	S-36 6-8	Soil	NR	NR	NR	NR	NR	OK	
12-03-90	S-37 0-2	Soil	NR	NR	NR	NR	NR	OK	
12-03-90	S-37 4-6	Soil	OK	NO	NO	NR	OK	NR	1,8
12-03-90	S-37 8-10	Soil	NR	NR	NR	NR	NR	OK	
12-03-90	S-37 14-16	Soil	NR	NR	NR	NR	NR	OK	
12-03-90	MW-27 0-2	Soil	NR	NR	NR	NR	NR	OK	
12-03-90	MW-27 7-9	Soil	NR	NR	NR	NR	NR	OK	
12-03-90	MW-27 1416	Soil	NR	NR	NR	NR	NR	OK	

Rec Date	Spl ID	Matrix	VOA	BNA	Pest/PCB	PCB ONLY	Metals	TPH	Noncompl.
12-06-90	S-32 0-2	Soil	NR	NR	NR	NO	Pb-OK	OK	1
12-06-90	S-19 0-2	Soil	NR	NR	NR	NR	NR	OK	
12-06-90	S-25 0-2	Soil	NR	NR	NR	NR	NR	OK	
12-06-90	S-25 12-14	Soil	NR	NR	NR	NR	NR	OK	
12-06-90	S-25 19-21	Soil	NR	NR	NR	NR	NR	OK	
12-06 90	MW-26 0-2	Soil	NR	NR	NR	NR	NR	OK	
12-06-90	S-19 9-11	Soil	NR	NR	NR	NR	NR	OK	
12-06-90	MW-26 9-11	Soil	OK	NO	NO	NR	OK	NR	1,2,8
12-06-90	MW-26 1214	Soil	NR	NR	NR	NR	NR	OK	
12-08-90	MW-21 0-2	Soil	NR	NR	NR	NO	Pb-OK	OK	1
12-08-90	MW-19 0-2	Soil	NR	NR	NR	NO	Pb-OK	OK	1
12-13-90	MW-20 0-2	Soil	NR	NR	NR	NO	Pb-OK	OK	1
12-14-90	S-33 0-2	Soil	NR	NR	NR	NR	NR	OK	
12-14-90	S-33 4-6	Soil	OK	OK	NO	NR	NO	NR	1,5

Rec Date	Spl ID	Matrix	VOA	BNA	Pest/PCB	PCB ONLY	Metals	TPH	Noncompl.
10-29-90	WM	Aqueous	NR	NR	NR	NO	NR	NR	1,4
11-09-90	S-41 A	Aqueous	OK	NR	NR	NR	NR	NR	
11-17-90	UST-1	Aqueous	OK	NR	NR	NR	NR	NR	
10-10-90	FB-1-SS	Aqueous	OK	NR	NR	NR	NR	NR	
10-10-90	FB-2-PD	Aqueous	OK	NR	NR	NR	NR	NR	
10-10-90	TB-1	Aqueous	OK	NR	NR	NR	NR	NR	
10-18-90	FB-3-SS	Aqueous	OK	NR	NR	NR	NR	NR	
10-18-90	FB-4-PD	Aqueous	OK	NR	NR	NR	NR	NR	
10-18-90	TB-2	Aqueous	OK	NR	NR	NR	NR	NR	
10-29-90	FB-5-SS	Aqueous	OK	NR	NR	NR	NR	NR	
10-29-90	FB-6-PD	Aqueous	OK	NR	NR	NR	NR	NR	
10-29-90	TB-3	Aqueous	OK	NR	NR	NR	NR	NR	
11-07-90	FB-7-SS	Aqueous	OK	NR	NR	NR	NR	NR	
11-07-90	FB-8-PD	Aqueous	OK	NR	NR	NR	NR	NR	
11-07-90	TB-4	Aqueous	OK	NR	NR	NR	NR	NR	
12-03-90	FB-9-SS	Aqueous	OK	NR	NR	NR	NR	NR	
12-03-90	FB-10-PD	Aqueous	OK	NR	NR	NR	NR	NR	
12-03-90	TB-5	Aqueous	OK	NR	NR	NR	NR	NR	

Rec Date	Spl ID	Matrix	VOA	BNA	Pest/PCB	PCB ONLY	Metals	TPH	Noncompl.
1-04-91	MW-32	Aqueous	OK	OK	NO	NR	NO	OK	1,6
1-04-91	MW-26	Aqueous	OK	NO	NO	NR	OK	OK	1,2
1-04-91	MW-29	Aqueous	OK	NO	NO	NR	NO	OK	1,2,6
1-05-91	MW-19	Aqueous	OK	OK	NO	NR	OK	OK	1
1-05-91	MW-25	Aqueous	OK	NO	NO	NR	OK	OK	1,7
1-08-91	MW-13	Aqueous	OK	OK	NO	NR	OK	OK	1
1-08-91	MW-23	Aqueous	OK	OK	NO	NR	OK	OK	1
1-08-91	MW-1	Aqueous	OK	NO	NO	NR	OK	OK	1,7
1-08-91	MW-9	Aqueous	OK	NO	NO	NR	OK	OK	1,2
1-05-91	MW-33	Aqueous	OK	OK	NO	NR	NO	OK	1,6
1-04-91	TB-1	Aqueous	OK	OK	NO	NR	OK	OK	1
1-05-91	TB-2	Aqueous	OK	OK	NO	NR	OK	OK	1
1-08-91	TB-3	Aqueous	OK	OK	NO	NR	OK	OK	1
1-04-91	FB-1	Aqueous	OK	OK	NO	NR	OK	OK	1
1-05-91	FB-2	Aqueous	OK	OK	NO	NR	OK	OK	1
1-08-91	FB-3	Aqueous	OK	NO	NO	NR	OK	OK	1,2
1-05-91	REP-3	Aqueous	OK	OK	NO	NR	OK	NR	1
1-04-91	MW-28	Aqueous	NR	OK	NO	NR	NR	NR	1
1-04-91	MW-28*	Aqueous	OK	NR	NR	NR	OK	OK	
1-08-91	Tank 1	Aqueous	NR	NR	NR	NO	NR	NR	1
1-08-91	Tank 2	Aqueous	NR	NR	NR	NO	NR	NR	1

* MW-28 submitted as two different sample identification numbers.

Rec Date	Spl ID	Matrix	VOA	BNA	Pest/PCB	PCB ONLY	Metals	TPH	Noncompl.
2-22-91	MW-3	Aqueous	NR	NR	NR	NO	NR	NR	1
1-08-91	MW-5	Aqueous	NR	NR	NR	NO	NR	NR	1
1-08-91	MW-7	Aqueous	NR	NR	NR	NO	NR	NR	1
1-08-91	MW-16	Aqueous	NR	NR	NR	NO	NR	NR	1
1-08-91	MW-17	Aqueous	NR	NR	NR	NO	NR	NR	1
1-08-91	MW-20	Aqueous	NR	NR	NR	NO	NR	NR	1
1-04-91	MW-30	Aqueous	NR	NR	NR	NO	NR	OK	1
1-04-91	MW-34	Aqueous	NR	NR	NR	NO	NR	OK	1
1-04-91	MW-24	Aqueous	NR	NR	NR	NO	NR	OK	1
1-05-91	MW-21	Aqueous	NR	NR	NR	NO	NR	OK	1
1-05-91	MW-27	Aqueous	NR	NR	NR	NO	NR	OK	1
1-05-91	MW-31	Aqueous	NR	NR	NR	NO	NR	OK	1
1-08-91	MW-22	Aqueous	NR	NR	NR	NO	NR	OK	1
1-05-91	REP-1	Aqueous	NR	NR	NR	NO	NR	OK	1
1-05-91	REP-2	Aqueous	NR	NR	NR	NO	NR	OK	1
1-08-91	REP-4	Aqueous	NR	NR	NR	NO	NR	OK	1

1. PCB analysis noncompliant due to standard linearity, reproducibility, breakdown and retention time criteria failures. No confirmation performed for any method blanks, and for some PCB hits. 4,4'-DDT and 4,4'-DDE inconclusive in samples with PCBs detected.
2. Holding time exceeded for BNA extraction.
3. Holding time exceeded for mercury analysis.
4. Unusable PCB data due to presence of Aroclor 1260 greater than CRDL in the method blank.
5. PDSs not performed for Sb, As, Cr, Ag, Tl; method blank not performed with ICP digestion; LCS value for antimony out of acceptable range.
6. Selenium detected in method blank above CRDL.
7. BNA sample analysis should have been repeated due to noncompliant surrogate recovery.
8. Associated BNA method blank has surrogate recovery out of acceptable range.
9. TOC analysis not according to protocol.
10. Inconclusive PCB result due to chromatographic interferences.
11. Holding time exceeded for TPH extraction/analysis.
12. Insufficient raw data to validate TPH result.
13. BNA analysis occured beyond allowable 12 hour timeframe from instrument tune.

APPENDIX E-2

Phase I Data Usability Report

ENVIRONMENTAL CONSULTING & MANAGEMENT
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October 9, 1991

Mr. James Quinn
Environmental Engineer I
Bureau of Eastern Remedial Action
Division of Hazardous Waste Remediation
New York State Department of
Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010

Re: AMTRAK - Sunnyside Yard (No. 241006)
Revised Data Usability Report

Dear Mr. Quinn:

Roux Associates, Inc. (Roux Associates) has prepared this revised data usability report, at the request of the New York State Department of Environmental Conservation (NYSDEC), for the Remedial Investigation (RI) at the Sunnyside Yard. This usability report has been developed from the data validation report prepared by Data Validation Services (Appendix F of the June 28, 1991 Roux Associates RI report entitled "Remedial Investigation, Sunnyside Yard, Queens, New York") in which the analytical data were evaluated and professional judgment was rendered on the acceptability (usability) of the results. The locations of the sampling points discussed below are shown on Plates 1 and 2.

Per your request dated September 6, 1991, a summary of the usability of these data (each sampling point) has been provided in Table 1.

Volatile Organic Compounds (VOCs)

There does not appear to be any incidences of noncompliancy in the analysis of the VOCs. Toluene values for four soil samples (S-22, S-80, S-82, S-90) were considered estimated due to surrogate and internal standards failure from matrix interference. However, these data may be used qualitatively.

The variation in the detection limits is due to the fact that the limits are reported on a wet-weight basis. If the results were corrected for sample percent solids the limit would be the same (i.e., less than 10 parts per billion [ppb]).

Semi-Volatile Organic Compounds (SVOCs)
Although these compounds do not appear to be constituents of concern for this site, noncompliancy was attributed to the following:

- exceeding the holding time;
- noncompliant surrogate recovery; and
- exceeding the 12-hour time frame for instrument recovery.

Holding times were exceeded when re-extraction was performed due to low surrogate recoveries. However, the holding times did not exceed 10 days (the previous holding time for soils). Although these results may be biased low, the difference in time (i.e., 5 to 7 days) should not render the data unusable. The data obtained from the re-extraction are considered estimated.

Ground-water sample MW-26 produced no recovery during the initial extraction, and re-extraction was not performed until 29 days after sample receipt. The exceeded holding time combined with inconsistent surrogate recoveries makes these data unusable.

Surrogate recoveries were outside of the acceptable range for several samples. In most cases the outliers are within five percentage points of the acceptable range, therefore the associated results are considered estimated. The estimated values can be used to define the area and extent of the contamination.

There were no acid recoveries for ground-water samples MW-23 and MW-29, therefore the acid compounds may not have been detected. These compounds do not appear to be constituents of concern based on the other monitoring well results, however MW-23 will be resampled for SVOCs in ground water.

The exceedance of the 12-hour time frame for instrument recovery occurred in only one sample. The sample results were not affected.

Polychlorinated Biphenyl (PCB) Data
As stated in the data validation report, the following quality control criteria were noncompliant:

- system linearity, degradation, retention time and calibration factor consistency criteria were not monitored, and were not within the limits of sample processing;
- no confirmation was performed on method blanks;
- standards were not run according to protocol for the aqueous samples;

- extracts were not analyzed within 5 days; and
- method blank contamination existed.

The majority of the sample results are flagged estimated. Sample results associated with the contaminated method blank are considered unusable.

The quality control violations, and insufficient documentation, do not allow quantitative use of these results. Although the data are qualified as estimated, the results are considered questionable. Roux Associates proposes to use this data, in conjunction with the existing data from previous studies, as a screening tool. The comparison with these studies is presented below. Confirmation sampling will be performed so that these data may be used in the Feasibility Study.

The PCB soil data in Area 1 have been compared to the existing data (Geraghty & Miller, 1985; Atlantic Environmental, 1985) in Plate 5. These previous sampling results correspond well with the results obtained by Roux Associates. The existing data will supplement Roux Associates' data to define the area and extent of contamination.

Existing soil data corresponding to the other Areas of Concern and facility-wide locations are presented in the National Railroad Passenger Corporation letter report (1983). The locations of sampling were not clearly defined, however there are only three locations where the PCB concentrations exceed 50 parts per million (ppm). These areas include the Boiler House Spoils (Area 4), under Honeywell Avenue near the YMCA (Area 5) and the 68 Spur Spoils Pile (Area 17). Although the concentrations from the 1983 results are significantly higher, the piles from which these samples were taken have been removed.

Although the Roux Associates' sampling results are estimated due to various compliancy deviations, the similarity with the existing data supports the use of these results as a screening tool. It should also be noted that even with a 10 percent variation, the data will remain under 50 ppm with few exceptions. Additional sampling has been proposed for soil and ground water. The location and number of samples are presented in Table 1.

Metals
General noncompliance in the metals analysis include:

- failure to repeat method blanks;
- post digestion spikes out of range;
- matrix spike recoveries outside limits; and
- exceeding the holding times for mercury.

In addition, there was contamination of the field and trip blanks for the aqueous samples.

Method blanks should have been repeated for selenium, however selenium is not a constituent of concern at the site. The reported result for ground-water sample MW-33 is considered unusable.

No post digestion spikes were performed for antimony, arsenic, chromium, lead, silver or thallium for soil samples S-60 (4-6) and S-33 (4-6). Although these sample results are considered estimated, they are in general agreement with samples taken in the surrounding area. One soil boring sample will be taken adjacent to S-60 to confirm these results.

Matrix spike recoveries for aqueous samples were outside of the limits for aluminum, selenium, lead, thallium, and manganese. Results for lead and thallium are biased high, while aluminum, selenium and manganese bias the results low. These results should be considered usable.

Holding times for mercury were exceeded in three soil samples (S-43, S-41A, S-53). All of the results for mercury in these compounds were below the detection limit. To confirm the reliability of this data, a soil sample will be taken adjacent to S-43.

Lead and chromium contamination were present in the field and trip blanks for the aqueous samples taken on January 4, 1991 and January 8, 1991. The functional guidelines for evaluating inorganics states that "Action levels should be calculated that are 5 times the maximum concentration of each contaminant detected in any blank. No positive sample results should be reported unless the concentration of the analyte in the sample exceeds 5 times the amount detected in any blank." Because most of the sample results are less than 5 times the amount found in the blank, confirmation sampling in MW-1, MW-29 and MW-25 has been proposed.

Total Petroleum Hydrocarbons (PHC)

The majority of PHC soil sampling locations were biased to known or suspected petroleum source areas. Consequently, the results reflect soil quality at locations where surficial petroleum impacts were clearly evident (spillage, staining).

Because of the inconsistencies in the analytical procedures (holding times, system linearity, blank contamination), the values presented may be considered as qualitative indicators of potentially impacted areas. For the most part the results are considered biased low, except where system linearity is reasonable, the method blank was zero, and the sample was diluted. These sample results are considered biased high.

In samples with several protocol deviations, the results may be considered usable for screening purposes when used in conjunction with existing data or photoionization detector readings.

Pesticides

As stated in the validation report, the noncompliant factors do not affect detection limit values. However, the presence of 4,4-DDT and 4,4-DDE is indistinguishable from Aroclor on the gas chromatography (GC) columns. These values were below the detection limits and may be used as qualitative. Pesticides do not appear to be constituents of concern as there is only one detection present.

Summary

The VOC data were generally supported by the raw data and were generally generated in compliance with the protocol.

The SVOC data were, with some exceptions, supported by the raw data and generated in compliance with the protocol. Ground-water sample MW-29 will be resampled to confirm the validity of the results received where holding times and the recovery of acid surrogates varied from the protocol.

Metals analyses were generally performed according to the required methodology. However, the contamination of the trip and field blanks associated with the aqueous samples has made those results questionable. For this reason it is proposed that 30 percent of the shallow wells be resampled for verification.

Although the pesticide data were not performed according to the protocol requirements, detection limits were not affected. The limited number of positive samples are considered estimated due to compliancy deviations.

PCB analyses were neither performed, nor documented, according to protocol requirements. These analyses may be used to screen for impacted areas as discussed earlier in this letter. Confirmation samples are proposed in the following section.

PHC data had blank and method limitations. These data are acceptable for the purpose of screening for future sampling.

Recommendations

Supplemental RI sampling has been proposed in the RI report (Table 2). In addition, the confirmation sampling described below (and listed in Table 2) is proposed. The locations of the proposed samples are shown in Plates 3 and 4.

- PCB-soil samples in areas where previous sampling exhibited high concentrations (Areas 4, 5, 17), areas adjacent to unusable results (S-67, S-68, S-60, S-1), and in areas where high concentrations are expected (Plates 3 and 4);

- PCB-ground-water samples in MW-1, MW-23, and MW-27;

- Metals-ground-water samples in MW-1, MW-25, and MW-29; and
- SVOCs-ground-water sample in MW-23.

The confirmatory results will be used in conjunction with the existing results (where there is good correlation), and the results from the sampling proposed in the RI, to define the nature and extent of contamination. These data will be the basis of the Feasibility Study.

Should you have any comments or questions, please do not hesitate to call.

Very truly yours,

ROUX ASSOCIATES, INC.

Michael A. DeCillis

Michael A. DeCillis
Quality Assurance Officer

Paul H. Roux
President

cc: Robert Noonan, AMTRAK
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Table 1. Summary of Data Usability, Sunnyside Yard, Queens, NY

Rec Date	Sample ID	Matrix	VOA	BNA	Pest/ PCB	PCB Only	Metals	PHC
10/3/90	S-85	Soil	NR	NR	NR	NR	NR	JL
10/3/90	S-86	Soil	NR	NR	NR	NR	NR	JL
10/3/90	S-87	Soil	NR	NR	NR	NR	NR	JL
10/3/90	S-88	Soil	NR	NR	NR	NR	NR	JL
10/3/90	S-89	Soil	NR	NR	NR	NR	NR	JL
10/3/90	S-90	Soil	A1	JL	S	NR	JL	JL
10/3/90	S-91	Soil	NR	NR	NR	NR	NR	JL
10/3/90	S-92	Soil	NR	NR	NR	NR	NR	JL
10/3/90	S-27	Soil	NR	NR	NR	NR	NR	JL
10/5/90	S-29 0-2	Soil	NR	NR	NR	NR	NR	JH
10/5/90	S-79 0-2	Soil	NR	NR	NR	NR	NR	JH
10/5/90	S-80 0-2	Soil	NR	NR	NR	NR	NR	JL
10/5/90	S-80 2-4	Soil	A1	A	S	NR	A	NR
10/5/90	MW-32 0-2	Soil	NR	NR	NR	NR	NR	JL
10/5/90	S-71 0-2	Soil	NR	NR	NR	NR	NR	JH
10/5/90	S-71 6-8	Soil	NR	NR	NR	NR	NR	JL
10/5/90	S-70 0-2	Soil	NR	NR	NR	NR	NR	JL
10/5/90	S-70 6-8	Soil	NR	NR	NR	NR	NR	JL
10/5/90	S-72 0-2	Soil	NR	NR	NR	NR	NR	JL
10/5/90	S-72 6-8	Soil	NR	NR	NR	NR	NR	JL
10/5/90	S-73 0-2	Soil	NR	NR	NR	NR	NR	JH
10/6/90	S-21 0-2	Soil	NR	NR	NR	NR	NR	JL
10/6/90	S-21 6-8	Soil	NR	NR	NR	NR	NR	JL
10/6/90	S-23 0-2	Soil	NR	NR	NR	NR	NR	JL
10/6/90	S-23 8-10	Soil	NR	NR	NR	NR	NR	JL
10/10/90	S-24 0-2	Soil	NR	NR	NR	NR	NR	JL
10/10/90	S-24 9-11	Soil	NR	NR	NR	NR	NR	JL
10/10/90	S-74 0-2	Soil	NR	NR	NR	S	NR	JL
10/10/90	S-74 6-8	Soil	NR	NR	NR	NR	NR	JL
10/10/90	S-74 12-14	Soil	NR	NR	NR	NR	NR	JL
10/10/90	S-77 0-2	Soil	NR	NR	NR	S	NR	JL
10/10/90	S-77 13-15	Soil	NR	NR	NR	NR	NR	JL
10/10/90	S-75 0-2	Soil	NR	NR	NR	S	NR	JL
10/10/90	S-81 0-2	Soil	NR	NR	NR	NR	NR	JL
10/10/90	S-28 0-2	Soil	NR	NR	NR	NR	NR	JL

Table 1. Summary of Data Usability, Sunnyside Yard, Queens, NY

Rec Date	Sample ID	Matrix	VOA	BNA	Pest/ PCB	PCB Only	Metals	PHC
10/12/90	S-3 0-2	Soil	NR	NR	NR	S	NR	S
10/12/90	S-4 0-2	Soil	NR	NR	NR	S	NR	S
10/12/90	S-9 0-2	Soil	NR	NR	NR	S	NR	S
10/12/90	S-66 0-2	Soil	NR	NR	NR	NR	NR	S
10/12/90	S-69 0-2	Soil	NR	NR	NR	NR	NR	S
10/12/90	S-3 3-5	Soil	NR	NR	NR	S	NR	NR
10/12/90	S-9 3-4.5	Soil	NR	NR	NR	S	NR	NR
10/12/90	S-66 3-5	Soil	NR	NR	NR	S	NR	NR
10/16/90	S-54 0-2	Soil	NR	NR	NR	NR	NR	JL
10/16/90	S-54 7-9	Soil	NR	NR	NR	NR	NR	JL
10/16/90	S-55 0-2	Soil	NR	NR	NR	NR	NR	JL
10/16/90	S-55 7-9	Soil	NR	NR	NR	NR	NR	JL
10/16/90	S-56 0-2	Soil	NR	NR	NR	NR	NR	JL
10/16/90	S-56 7-9	Soil	NR	NR	NR	NR	NR	JL
10/18/90	S-82 0-2	Soil	A1	JL	NR	NR	A	S
10/18/90	S-82 6-8	Soil	NR	NR	NR	NR	NR	S
10/18/90	S-30 0-2	Soil	A	JL	S	NR	A	S
10/18/90	S-46 4-6	Soil	NR	NR	NR	NR	NR	S
10/18/90	S-10 0-2	Soil	NR	NR	NR	S	A	S
10/18/90	S-59 0-2	Soil	NR	NR	NR	S	NR	S
10/18/90	S-58 0-2	Soil	NR	NR	NR	NR	NR	S
10/18/90	S-40 0-2	Soil	NR	NR	NR	NR	NR	S
10/18/90	S-22 0-2	Soil	A1	JL	NR	NR	A	JL
10/18/90	S-31 0-2	Soil	NR	NR	NR	S	NR	JL
10/18/90	S-84 0-2	Soil	NR	NR	NR	U	NR	JL
10/18/90	S-83 0-2	Soil	NR	NR	NR	S	NR	S
10/19/90	S-94 0-2	Soil	NR	NR	NR	NR	NR	JL
10/19/90	S-94 2-3	Soil	NR	NR	NR	S	NR	NR
10/19/90	S-93 0-2	Soil	NR	NR	NR	NR	NR	JL
10/19/90	S-93 18-20	Soil	NR	NR	NR	NR	NR	JL
10/19/90	S-25 0-2	Soil	NR	NR	NR	NR	NR	ND
10/19/90	S-95 0-2	Soil	NR	NR	NR	NR	NR	JL
10/19/90	S-64 0-2	Soil	NR	NR	NR	NR	NR	JL
10/19/90	S-64 2-3	Soil	A	A	S	NR	A	NR

Table 1. Summary of Data Usability, Sunnyside Yard, Queens, NY

Rec Date	Sample ID	Matrix	VOA	BNA	Pest/ PCB	PCB Only	Metals	PHC
10/20/90	S-17 0-2	Soil	A	JL	S	NR	A	JL
10/20/90	S-49 0-2	Soil	NR	NR	NR	NR	NR	JL
10/20/90	S-49 2-4	Soil	A	JL	S	NR	A	JL
10/20/90	S-49 4-6	Soil	NR	NR	NR	NR	NR	JL
10/20/90	S-49 8-10	Soil	NR	NR	NR	NR	NR	JL
10/20/90	S-48 0-2	Soil	NR	NR	NR	NR	NR	JL
10/20/90	S-48 2-4	Soil	NR	NR	NR	NR	NR	JL
10/20/90	S-48 11-13	Soil	NR	NR	NR	NR	NR	JL
10/20/90	S-47 0-2	Soil	NR	NR	NR	NR	NR	JL
10/20/90	S-47 2-4	Soil	A	JL	S	NR	A	NR
10/20/90	S-47 7-9	Soil	NR	NR	NR	NR	NR	JL
10/20/90	S-47 11-13	Soil	NR	NR	NR	NR	NR	JL
10/22/90	MW-22 0-2	Soil	NR	NR	NR	S	NR	JL
10/22/90	MW-13 0-2	Soil	NR	NR	NR	S	NR	JL
10/26/90	S-2 0-2	Soil	NR	NR	NR	S	A	JL
10/26/90	S-65 0-2	Soil	NR	NR	NR	NR	NR	JL
10/26/90	S-62 0-2	Soil	A	A	S	NR	A	JL
10/26/90	S-61 0-1.1	Soil	NR	NR	NR	NR	NR	JL
10/26/90	S-61 5-7	Soil	A	A	S	NR	A	JL
10/26/90	S-63 0-2	Soil	NR	NR	NR	S	NR	JL
10/26/90	S-7 0-2	Soil	NR	NR	NR	S	NR	JL
10/26/90	S-8 0-2	Soil	NR	NR	NR	S	NR	JL
10/26/90	S-76 0-0.7	Soil	NR	NR	NR	S	NR	JL
10/29/90	S-67 0-2	Soil	NR	NR	NR	U	NR	S
10/29/90	S-68 0-2	Soil	NR	NR	NR	U	NR	S
10/29/90	S-45 0-2	Soil	NR	NR	NR	NR	NR	S
10/29/90	S-45 2-4	Soil	NR	NR	NR	NR	NR	S
10/29/90	S-1 0-2	Soil	NR	NR	NR	U	NR	S
10/29/90	S-1 2-3	Soil	NR	NR	NR	U	NR	S
10/29/90	MW-17 0-2	Soil	NR	NR	NR	U	NR	S
10/29/90	S-5 0-2	Soil	NR	NR	NR	S	NR	S
11/7/90	S-44 0-2	Soil	NR	NR	NR	NR	NR	S
11/7/90	S-44 4-6	Soil	NR	NR	NR	NR	NR	S
11/7/90	S-43 0-2	Soil	A	A	S	NR	A2	S
11/7/90	S-41 0-2	Soil	NR	NR	NR	NR	NR	S
11/7/90	S-42 0-2	Soil	NR	NR	NR	NR	NR	JL

Table 1. Summary of Data Usability, Sunnyside Yard, Queens, NY

Rec Date	Sample ID	Matrix	VOA	BNA	Pest/ PCB	PCB Only	Metals	PHC
11/7/90	S-41 2-4	Soil	NR	NR	NR	NR	NR	JL
11/9/90	MW-31 0-2	Soil	NR	NR	NR	S	A	JL
11/9/90	MW-31 10-12	Soil	NR	NR	NR	NR	NR	JL
11/9/90	MW-16 0-2	Soil	NR	NR	NR	S	NR	JL
11/9/90	MW-16 6-8	Soil	NR	NR	NR	NR	NR	NR
11/9/90	MW-16 10-12	Soil	NR	NR	NR	S	NR	NR
11/9/90	S-41A 3-5	Soil	A	A	S	NR	A2	NR
11/9/90	S-46 0-2	Soil	NR	NR	NR	NR	NR	JL
11/9/90	S-46 7-9	Soil	NR	NR	NR	NR	NR	JL
11/10/90	MW-28 0-2	Soil	NR	NR	NR	NR	NR	JL
11/10/90	MW-28 6-8	Soil	NR	NR	NR	NR	NR	JL
11/12/90	S-50 0-2	Soil	NR	NR	NR	S	NR	JL
11/12/90	S-51 0-2	Soil	NR	NR	NR	S	NR	JL
11/12/90	S-52 0-2	Soil	NR	NR	NR	S	NR	JL
11/12/90	S-52 10-12	Soil	NR	NR	NR	NR	NR	JL
11/12/90	S-52 12-14	Soil	NR	NR	NR	NR	NR	JL
11/13/90	S-6 0-2	Soil	NR	NR	NR	U	NR	JL
11/13/90	S-6 8-9	Soil	NR	NR	NR	NR	NR	JL
11/13/90	S-16 0-2	Soil	NR	NR	NR	S	NR	JL
11/13/90	S-16 10-12	Soil	NR	NR	NR	NR	NR	JL
11/13/90	S-20 0-2	Soil	NR	NR	NR	NR	NR	JL
11/17/90	MW-23 9-11	Soil	NR	NR	NR	NR	NR	JL
11/19/90	MW-29 0-2	Soil	NR	NR	NR	NR	NR	JL
11/19/90	S-34 0-2	Soil	NR	NR	NR	S	A	JL
11/19/90	S-26 0-2	Soil	NR	NR	NR	S	A	JL
11/19/90	S-26 4-6	Soil	NR	NR	NR	NR	NR	JL
11/19/90	MW-25 0-2	Soil	NR	NR	NR	NR	NR	JL
11/19/90	MW-25 4-6	Soil	A	A	S	NR	A	NR
11/19/90	MW-25 6-8	Soil	NR	NR	NR	NR	NR	JL
11/28/90	S-78 0-2	Soil	NR	NR	NR	S	NR	JL
12/13/90	S-78 8-9	Soil	NR	NR	NR	S	NR	NR
11/28/90	S-60 0-2	Soil	NR	NR	NR	NR	NR	JL
12/13/90	S-60 4-6	Soil	A	A	S	NR	JL	NR
11/28/90	S-57 0-2	Soil	NR	NR	NR	NR	NR	JL
11/20/90	MW-33 0-2	Soil	NR	NR	NR	NR	NR	JL
11/20/90	MW-33 8-10	Soil	NR	NR	NR	NR	NR	JL

Table 1. Summary of Data Usability, Sunnyside Yard, Queens, NY

Rec Date	Sample ID	Matrix	VOA	BNA	Pest/ PCB	PCB Only	Metals	PHC
11/21/90	S-53 0-2	Soil	NR	NR	NR	S	NR	JL
11/21/90	S-53 3-5	Soil	NR	NR	NR	S	NR	NR
11/21/90	S-53 5-7	Soil	A	A	S	NR	A2	NR
11/21/90	S-53 8-10	Soil	NR	NR	NR	NR	NR	JL
11/28/90	MW-24 0-2	Soil	NR	NR	NR	NR	NR	JL
11/30/90	MW-34 0-2	Soil	A	A	S	NR	A	JL
11/30/90	MW-34 10-12	Soil	NR	NR	NR	NR	NR	JL
11/30/90	S-38 0-2	Soil	NR	NR	NR	NR	NR	JL
11/30/90	S-38 2-4	Soil	A	A	S	NR	A	NR
11/30/90	S-38 10-12	Soil	NR	NR	NR	NR	NR	JL
11/30/90	S-38 12-14	Soil	NR	NR	NR	NR	NR	JL
11/30/90	S-39 0-2	Soil	NR	NR	NR	NR	NR	JL
11/30/90	S-39 2-4	Soil	A	A	S	NR	A	NR
11/30/90	S-39 8-10	Soil	NR	NR	NR	NR	NR	JL
11/30/90	MW-24 15-17	Soil	NR	NR	NR	NR	NR	ND
12/1/90	MW-30 0-2	Soil	NR	NR	NR	S	NR	S
12/1/90	MW-30 6-8	Soil	NR	NR	NR	NR	NR	S
12/1/90	MW-30 11-13	Soil	NR	NR	NR	NR	NR	S
12/1/90	S-35 0-2	Soil	NR	NR	NR	NR	NR	S
12/1/90	S-35 8-10	Soil	A	A	S	NR	A	NR
12/3/90	S-36 0-2	Soil	NR	NR	NR	S	A	S
12/3/90	S-36 6-8	Soil	NR	NR	NR	NR	NR	S
12/3/90	S-37 0-2	Soil	NR	NR	NR	NR	NR	S
12/3/90	S-37 4-6	Soil	A	A	S	NR	A	NR
12/3/90	S-37 8-10	Soil	NR	NR	NR	NR	NR	S
12/3/90	S-37 14-16	Soil	NR	NR	NR	NR	NR	S
12/3/90	MW-27 0-2	Soil	NR	NR	NR	NR	NR	S
12/3/90	MW-27 7-9	Soil	NR	NR	NR	NR	NR	S
12/3/90	MW-27 14-16	Soil	NR	NR	NR	NR	NR	S
12/6/90	S-32 0-2	Soil	NR	NR	NR	S	A	S
12/6/90	S-19 0-2	Soil	NR	NR	NR	NR	NR	S
12/6/90	S-25 0-2	Soil	NR	NR	NR	NR	NR	S
12/6/90	S-25 12-14	Soil	NR	NR	NR	NR	NR	S
12/6/90	S-25 19-21	Soil	NR	NR	NR	NR	NR	S
12/6/90	MW-26 0-2	Soil	NR	NR	NR	NR	NR	S
12/6/90	S-19 9-11	Soil	NR	NR	NR	NR	NR	S

Table 1. Summary of Data Usability, Sunnyside Yard, Queens, NY

Rec Date	Sample ID	Matrix	VOA	BNA	Pest/ PCB	PCB Only	Metals	PHC
12/6/90	MW-26 9-11	Soil	A	U	S	NR	A	NR
12/6/90	MW-26 12-14	Soil	NR	NR	NR	NR	NR	S
12/8/90	MW-21 0-2	Soil	NR	NR	NR	S	A	S
12/8/90	MW-19 0-2	Soil	NR	NR	NR	S	A	S
12/13/90	MW-20 0-2	Soil	NR	NR	NR	S	A	S
12/14/90	S-33 0-2	Soil	NR	NR	NR	NR	NR	S
12/14/90	S-33 4-6	Soil	A	A	S	NR	JL	S
10/29/90	WM	Aqueous	NR	NR	NR	NR	NR	NR
11/9/90	S-41A	Aqueous	A	NR	NR	NR	NR	NR
11/17/90	UST-1	Aqueous	NR	NR	NR	NR	NR	NR
10/10/90	FB-1-SS	Aqueous	NR	NR	NR	NR	NR	NR
10/10/90	FB-2-PD	Aqueous	NR	NR	NR	NR	NR	NR
10/10/90	TB-1	Aqueous	NR	NR	NR	NR	NR	NR
10/18/90	FB-3-SS	Aqueous	NR	NR	NR	NR	NR	NR
10/18/90	FB-4-PD	Aqueous	NR	NR	NR	NR	NR	NR
10/18/90	TB-2	Aqueous	NR	NR	NR	NR	NR	NR
10/29/90	FB-5-SS	Aqueous	NR	NR	NR	NR	NR	NR
10/29/90	FB-6-PD	Aqueous	NR	NR	NR	NR	NR	NR
10/29/90	TB-3	Aqueous	NR	NR	NR	NR	NR	NR
11/7/90	FB-7-SS	Aqueous	NR	NR	NR	NR	NR	NR
11/7/90	FB-8-PD	Aqueous	NR	NR	NR	NR	NR	NR
11/7/90	TB-4	Aqueous	NR	NR	NR	NR	NR	NR
12/3/90	FB-9-SS	Aqueous	NR	NR	NR	NR	NR	NR
12/3/90	FB-10-PD	Aqueous	NR	NR	NR	NR	NR	NR
12/3/90	TB-5	Aqueous	NR	NR	NR	NR	NR	NR
1/4/91	MW-32	Aqueous	A	NR	S	NR	A4	JL
1/4/91	MW-26	Aqueous	A	U	S	NR	A4	JL
1/4/91	MW-29	Aqueous	A	JL	S	NR	A4	JL
1/5/91	MW-19	Aqueous	A	A	S	NR	A	JL
1/5/91	MW-25	Aqueous	A	JL	S	NR	A	JL
1/8/91	MW-13	Aqueous	A	A	S	NR	A4	JL
1/8/91	MW-23	Aqueous	A	JL	S	NR	A4	JL
1/8/91	MW-1	Aqueous	A	JL	S	NR	A4	JL
1/8/91	MW-9	Aqueous	A	JL	S	NR	A4	JL
1/5/91	MW-33	Aqueous	A	A	S	NR	A	JL

Table 1. Summary of Data Usability, Sunnyside Yard, Queens, NY

Rec Date	Sample ID	Matrix	VOA	BNA	Pest/ PCB	PCB Only	Metals	PHC
1/4/91	MW-28	Aqueous	NR	A	S	NR	NR	NR
1/4/91	MW-28	Aqueous	A	NR	NR	NR	A	JL
1/8/91	Tank 1	Aqueous	NR	NR	NR	S	NR	NR
1/8/91	Tank 2	Aqueous	NR	NR	NR	S	NR	NR

Data Qualifiers

A = (usable) - data generated in compliance with the protocol and used as quantitative (actual).
A1 = Sample estimated high for toluene only.
A2 = Sample estimated high for mercury only.
A3 = Sample unusable for selenium.
A4 = Sample estimated high for lead and chromium.
JH = Estimated biased high - these data have recoveries (matrix spike or surrogate spike) greater than required range, or method blanks contained high concentrations of a compound.
JL = Estimated biased low - these data indicate that holding times or reextraction time have been exceeded; recoveries are lower than the required range for matrix or surrogate spike recovery; matrix interference; PHC method blank concentration is greater than 0, and system linearity is reasonable.
S = Usable as a screening technique - these data are nocompliant with several protocol requirements, but correspond to other methods of testing (i.e., TPH uses PID readings) or previous sampling results (PCB data).
U = Unusable - these data exceed protocol requirements for several parameters.
ND = No data.
NR = Not required.

Table 2. Summary of Proposed Work.

Supplemental RI Work Proposed in the RI Report			Proposed
Area		Media/Analytes	Additional/Confirmatory Samples
1	Install 3 deep monitoring wells (MW-38, MW-39, MW-40) adjacent to MW-19, MW-9, MW-2. Resample MW-23.	Water/VOCs, PCBs	Resample MW-1 - PCBs/Metals Hand boring S-105 adjacent to S-1 (0-2') - PCBs Resample MW-23 for SVOCs Hand boring S-107 adjacent to S-76 (0-2') - PCBs
2	Install shallow monitoring well MW-41 and 3 soil borings (S-96, S-97, S-98) for UST investigation	Water/VOCs Soil/VOCs	Hand boring S-117 adjacent to S-43 (0-2') - PCBs/Mercury Resample MW-29 - Metals
4	Install shallow monitoring well MW-42	Water/VOCs, SVOCs	One soil sample MW-42 (2'-4') - PCBs
5	No proposed work		Hand borings in 2 locations - S-108, S-109 (0-2') - PCBs
7	Install upgradient shallow monitoring well MW-37	Water/VOCs, SVOCs	Hand boring S-106 adjacent to S-67 and S-68 (0-2') - PCBs
8	Six perimeter hand borings (S-99, S-100, S-101, S-102, S-103, S-104)	Soil/PCBs	Hand borings S-112, S-111, S-110 adjacent to S-6, S-52, S-53 (0-2') - PCBs
9	No proposed work		Resample MW-27 - PCBs Hand boring S-115 adjacent to S-58 (0-2') - PCBs
10	No proposed work		Hand boring S-114 adjacent to S-83 (0-2') - PCBs
13	No proposed work		Hand boring S-116 adjacent to S-74 (0-2') - PCBs
15	Field filter sample MW-25	Water/PCBs	Sample MW-25 - Metals (unfiltered)
16	Install shallow monitoring well MW-43	Water/VOCs, SVOCs	One soil sample MW-43 (1'-3')- PCB
17*	No proposed work		One soil boring S-113 adjacent to S-60 (0-2') - PCBs

* Proposed area of concern

PLATES

1. Area 1 Site Map . . . . See Phase RI Plate 1

2. Sunnyside Yard Site Map . . . . See Phase RI Plate 2

3. Area 1 Proposed Additional Delineation and Confirmatory Sampling Locations . . . . In Pocket

4. Proposed Additional Delineation and Confirmatory Sampling Locations . . . . In Pocket

5. Area 1 Concentrations of PCBs Detected in Soil . . . . In Pocket

APPENDIX E-3

Phase II Remedial Investigation and Addendum Data Validation Report

Data Validation Services

Cobble Creek Road P. O. Box 208
North Creek, N. Y. 12853
Phone 518-251-4429

TO: Roux Associates

FROM: Judy Harry, Data Validation Services J. Harry

DATE: 02-12-93

RE: Validation Report for Analyses of MW-25, MW-25A, and MW-47
Amtrak Project
IEA SDG Nos. 0053 and 0086

Review has been completed on data packages pertaining to PCB and metals analyses of aqueous samples collected at the Amtrak Site. A field blank, and matrix spike/duplicates were processed for both types of analyses. The samples were processed for PCBs according to the protocols/modifications as outlined in the IEA letter of 1-22-93, and the metals by 1991 NYSDEC ASP. In summary, the analyses were conducted in compliance with the described procedures, and laboratory reported results are supported by the raw data.

Recommended edits to the sample reported results are as follows:

1. The field blank contained zinc at a level of 55.9 ug/L. Because the sample (MW-25) result was less than five times the value in the field blank, the reported value for zinc in the sample is rejected.

2. The reported value for iron in the field blank, which is above the IDL and below the CRDL, is to be considered estimated, as the recovery in the associated standard run at CRDL is elevated (155%).

PCB ANALYSES

Holding times and surrogate recoveries (dibutylchorendate) were acceptable for both samples, the preparation blank, and the matrix spikes. Matrix spikes (on MW-25A), matrix spike blank, and QC check standards were performed using Aroclor mixes, and produced good recoveries.

The analyses were performed on a modification of 1989 NYSDEC protocol, and confirmation was performed only on samples which indicated target compounds on primary analysis. The sample, MW-25A, which produced a detectable level of Aroclor 1260, also showed an indication of the Aroclor on confirmation. The detected level is just above CRDL on primary analysis, and because the sensitivity of the confirmation analysis is slightly less than that of the primary, the relative peak proportions were less ideal on confirmation. Two confirmation analyses were provided, as the sample was reanalysed due to outlying standard response factors in the initial confirmation.

All instrumental criteria was met, and acceptable for sample analysis. The method blank and field blank contained no target compounds.

Because the Aroclor calibration standards are not run at CRDL with the utilized methodology, the lab was requested to provide chromatograms associated with the December 1992 IDL study. These standards are run at a level of 0.1 ng on column; sample reported detection limits are 0.067 ng on column (assuming 100% extraction efficiency). Inspection of the submitted chromatograms indicate sufficient sensitivity for the reported Aroclor detection limits; however, the Aroclor 1221 response is projected to be quite borderline at that level.

The analysis run date for the preparation blank should be denoted as 1/26/93 on the primary sequence summary form. The calibration factor recorded for Aroclor 1260 on the Form 9 for the primary analysis is incorrect; the sample calculations were performed correctly as compared to the standard raw data.

METALS ANALYSES

All protocol criteria were reviewed for compliance and found acceptable unless noted elsewhere in this text. Please see the above discussions for qualification of sample reported results.

Matrix spike/duplicate evaluations, performed on sample MW-25, produced all values within recommended criteria. The serial dilution for zinc indicated an elevated correlation of 10.8%, just above the limit of 10%. Sample reported results for zinc are already rejected due to the field blank level.

Sample reported results are substantiated by the raw data.

COMPLIANCY CHART

Project:	Amtrak Site
SDG Nos:	IEA SDG Nos. 0053 and 0086
Protocol:	1989 modification and 1991 NYSDEC ASP

RecDate	Sample ID	Matrix	PCB	Metals	Other	Noncompl
01-16-93	MW-25	Aqueous	NR	OK	OK	
01-16-93	Fld Blk	Aqueous	NR	OK	OK	
01-25-93	MW-25A	Aqueous	OK	NR	OK	
01-25-93	MW-47	Aqueous	OK	NR	OK	
01-25-93	Fld Blk	Aqueous	OK	NR	OK	

IEA
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MEMO

01/22/93

To: J. Duminuco, Roux Associates
J. Harry, Data Validation Services
C. Lin, Amtrak
J. Quinn, NYSDEC
B. Seeley, NYSDEC

From: J. Curran, IEA-CT Jeff

re: PCB Analyses for Sunnyside Yard Project.

After discussions with Ms. Seeley of the NYSDEC, Mr. Duminuco of Roux Associates IEA-CT, and Ms. Harry of DVS the following was agreed to concerning the Sunnyside Yard Project.

1. The project calls for a low level detection limit for PCB's in aqueous samples. In order to achieve this IEA-CT will be employing a modified procedure based upon method 89-3 from the NYSDEC ASP. The reporting limit for each aroclor will be 0.065 ug/L based upon one liter of sample extracted.

2. The modifications to the protocol are as follows:
   a) A final volume of 1.0 mL will be used in lieu of 10.0 mLs.
   b) A PCB spike (MS/MSD) will be employed (Aroclor-1260).
   c) DBC will be used as the surrogate at a reduced concentration to reflect the lower extract final volume.
   d) Category B deliverables will be supplied. Note that the QC check standard will also be an aroclor standard.

3. All field blanks associated with aqueous sampling will be analyzed by this low detection limit method. All field blanks associated with soil samples will be analyzed using ASP method 91-3 with the 91-3 detection limits. Field crews must note on the chain of custody forms which matrix the field blanks apply to.

All soil samples will be analyzed using the '91 ASP methods. Aqueous samples for other parameters (ie. volatiles, semi-volatiles, metals, etc.) will also be analyzed using the '91 ASP protocols. All deliverables are Category B. In order to facilitate data validation seperate data packages will be supplied for the aqueous PCB data.

IEA
An Aquarion Company

200 Monroe Turnpike
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30930-0086
ROUX ASSOCIATES

Case Narrative

PCB's - The continuing standards in the initial confirmation run from 01/27/93 on the RTX-35 column did not meet QC criteria, therefore the samples were reanalyzed on 01/28/93. The first ending standard had alpha-BHC just outside of retention time windows. The reanalysis has been reported as the confirmation run; the first analysis has been included in the package.

The following standards did not meet NYSDEC '89 continuing standard criteria. After each listed standard the run was stopped and any affected samples were reanalyzed.

Date	Time	GC #	Standard	Comments
01/27/93	12:44	4B	Ind B	All compounds out of RT windows
01/27/93	13:37	4B	Ind A	All compounds out of RT windows
01/29/93	14:51	1B	Ind B	alpha-BHC out of RT window
01/28/93	08:59	1B	Ind B	Most compounds >20% difference
01/28/93	12:31	1B	Ind A	Most compounds >20% difference
01/28/93	13:25	1B	Ind B	Compounds out of RT windows
01/28/93	14:18	1B	AR1260	Out of RT window
01/28/93	15:12	1B	AR1242	Out of RT window
01/28/93	16:05	1B	AR1248	Out of RT window
01/28/93	16:58	1B	AR1254	Out of RT window

Percent RSD of 4,4'DDT was >10 percent on the 01/28/93 RTX-35 confirmation run. No calculations were done from this run.

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

Jeffrey C. Curran
Laboratory Manager

Feb. 1, 1993
Date

IEA
An Aquarion Company

200 Monroe Turnpike
Monroe, Connecticut 06468

Phone 203·261·4458
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30930-0053
ROUX ASSOCIATES

SDG Narrative

Metals - IEC's are electronically employed by the TJA ICAP-61. However the ICSA is utilized as a monitoring device to detect any additional adjustments that may be required. These modifications are calculated and applied manually. They are so noted in the raw data.

One "E" flag occurred from serial dilution of sample MW-25 for zinc. There appears to be no obvious reason why this resulted. Further study would be required to determine the cause.

No other problems were encountered.

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

Jeffrey C. Curran
Laboratory Manager

Feb. 1, 1993
Date

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND
ANALYTICAL REQUIREMENT SUMMARY

JOB # : 3093-0086

CUSTOMER SAMPLE CODE	LABORATORY SAMPLE CODE	ANALYTICAL REQUIREMENTS*						
		*VOA GC/MS	*BNA GC/MS	*VOA GC	*PEST PCB	*METALS	*OTHER	*OTHER
MW-25A	0086001				X			
MW-47	0086002				X			
FIELD BLANK 1/22/93	0086003				X			

Check Appropriate Boxes

CLP, Non-CLP
HSL, Priority Pollutant

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PCB
ORGANIC ANALYSIS

JOB # : 3093-0086

SAMPLE ID	MATRIX	ANALYTICAL PROTOCOL	EXTRACTION METHOD	AUXILARY CLEAN UP	DIL/CONC FACTOR
MW-25A	Aqueous	NYSDEC 89	SEP FUNNEL	Alumina	1.0
MW-47	Aqueous	↓	↓	↓	↓
FIELD BLANK 1/22/93	Aqueous	↓	↓	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PCB
ANALYSIS

JOB # : 3093-0086

SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECVD AT LAB	DATE EXTRACTED	DATE ANALYZED
MW-25A	Aqueous		01/25/93	1/25/93	1/26/93
MW-47	Aqueous		01/25/93	↓	1/25/93
FIELD BLANK 1/22/93	Aqueous		01/25/93		1/26/93

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND
ANALYTICAL REQUIREMENT SUMMARY

JOB # : 30930~~000~~ 0053

CUSTOMER SAMPLE CODE	LABORATORY SAMPLE CODE	ANALYTICAL REQUIREMENTS*						
		*VOA GC/MS	*BNA GC/MS	*VOA GC	*PEST PCB	*METALS	*OTHER	*OTHER
MW-25	0053001					X		
FIELD BLANK 01/15/93	0053002					X		

* Check Appropriate Boxes

* CLP, Non-CLP
* HSL, Priority Pollutant

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

JOB # : 3093-0053

ICAP

SAMPLE ID	MATRIX	METALS REQUESTED	DATE RECEIVED	DATE DIGESTED	DATE ANALYZED
[illegible]5	Aqueous	TAL METALS	01/16/93	1/18/93	1/22/93
FIELD BLANK 01/15/93	Aqueous	TAL METALS	01/16/93	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

JOB # : 3093-0053

Furnace

SAMPLE ID	MATRIX	METALS REQUESTED	DATE RECEIVED	DATE DIGESTED	DATE ANALYZED
[illegible]-15	Aqueous	TAL METALS	01/16/93	1/18/93	1/20,21/93
FIELD BLANK 01/15/93	Aqueous	TAL METALS	01/16/93	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

JOB # : 3093-0053

Mercury

SAMPLE ID	MATRIX	METALS REQUESTED	DATE RECEIVED	DATE DIGESTED	DATE ANALYZED
[illegible]	Aqueous	TAL METALS	01/16/93	1/18/93	1/19/93
[illegible] BLANK 01/15/93	Aqueous	TAL METALS	01/16/93	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
TAL METALS
INORGANIC ANALYSIS

JOB # : 3093-0053

ICAP

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
[illegible]-15	Aqueous	CLP	HNO_3, HCl.	N/A	1:1
FIELD BLANK 01/15/93	Aqueous	↓	↓	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
TAL METALS
INORGANIC ANALYSIS

JOB # : 3093-0053

Furnace: As, Se

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
[illegible]	AQUEOUS	CLP	HNO_3, H_2O_2	Nickel Nitrate	1:1
[illegible] BLANK 01/15/93	AQUEOUS	↓	↓	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVAT

SAMPLE PREPARATION AND ANALYSIS SUMMARY
TAL METALS
INORGANIC ANALYSIS

JOB # : 3093-0053

Furnace - Tl

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
[illegible]	AQUEOUS	CLP	HNO_3, H_2O_2	H_2SO_4	1:1
BLANK 01/15/93	AQUEOUS	↓	↓	↓	↓

0009

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
TAL METALS
INORGANIC ANALYSIS

JOB # : 3093-0053

Furnace · Pb

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
[illegible]	Aqueous	CLP	HNO_3, H_2O_2	Mg Nitrate, Amm Phos	1:1
BLANK 01/15/93	Aqueous	↓	↓	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
TAL METALS
INORGANIC ANALYSIS

JOB # : 3093-0053

Mercury

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
[illegible]	Aqueous	CLP	Manual Cold Vapor	NA	1:1
BLANK 01/15/93	Aqueous	↓	↓	↓	↓

Data Validation Services
Cobble Creek Road P. O. Box 208
North Creek, N. Y. 12853
Phone 518-251-4429

TO: Roux Associates

FROM: Judy Harry, Data Validation Services J Harry

DATE: 03-01-93

RE: Validation of Amtrak-Sunnyside Yard data packages-Volatile samples
IEA SDG No. 30930-0099

Review has been performed on the data packages generated by IEA Labs pertaining to two volatile samples collected at the Amtrak Sunnyside Yard Project Site. The two samples were analysed for the CLP TCL volatiles, by 1991 NYSDEC ASP. Field and trip blanks were also processed.

In summmary, the samples were analysed in compliance with the protocol. The detected target compounds reported in the samples are rejected for consideration as sample components due to their presence in the associated blanks. The Tentatively Identified Compounds (TICs) for the samples are accurate as reported.

Recommended edits/qualification of samples reported results are as follows:

1. The methylene chloride, acetone, and toluene values reported for sample TW-2 are to be rejected due to their presence at similar levels in the field blank (acetone), trip blank (methylene chloride), and method blank (methylene chloride and toluene). The reported values for these compounds should be edited to reflect:
   "13 U ug/L" for acetone
   "10 U ug/L" for methylene chloride and toluene.

2. The reported detection limit for choroethane for TW-1, TW-2, Field Blank, and Trip Blank should be qualified as estimated, due to low response for this compound in the 10 ppb standard of the initial calibration. The %RSD for the linearity determination of chloroethane was 43%, and the response of the 10 ppb standard for that compound produced a response factor only about 25% of the mean response factor, suggesting poor sensitivity to the compound at the reported detection limit.

Sample surrogate recoveries were acceptable. The Matrix Spike Blank (MSB) and sample matrix spikes (performed on TW-1) produced outlying surrogate recoveries, but the variances in recovery were not observed in the spike compounds, and do not reflect on sample reported results.

Spike recoveries in the matrix spikes and MSB were all within recommended/required ranges, and duplicate precision correlation was good. Instrumental tune, method blank, system calibration, and internal standard areas/retention time requirements were met for sample processing. All reported results are substantiated by the raw data. See above recommended qualifications.

COMPLIANCY CHART

Project:	Amtrak -Sunnyside Yard
SDG Nos:	IEA SDG No. 30930-0099
Protocol:	1991 NYSDEC ASP

RecDate	Sample ID	Matrix	TCL VOA	Other	Noncompl
01-27-93	TW-1	Aqueous	OK	OK	
01-27-92	TW-2	Aqueous	OK	OK	
01-27-93	Fld Blk	Aqueous	OK	OK	
01-27-93	Trp Blk	Aqueous	OK	OK	

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

JOB # : 3093-0099

CUSTOMER SAMPLE CODE	LABORATORY SAMPLE CODE	ANALYTICAL REQUIREMENTS*						
		*VOA GC/MS	*BNA GC/MS	*VOA GC	*PEST PCB	*METALS	*OTHER	*OTHER
[illegible]	0099001	X						
[illegible]	0099002	X						
[illegible]	0099003	X						
[illegible]	0099004	X						

Appropriate Boxes

Non-CLP
Priority Pollutant

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

003

[illegible] SUMMARY

[illegible]

JOB # : [illegible]

SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECEIVED AT LAB	DATE EXTRACTED	DATE ANALYZED
[illegible]	AQUEOUS	01/26/93	01/27/93	NA	02/01/93
[illegible]	AQUEOUS		01/27/93		02/02/93
[illegible]	AQUEOUS		01/27/93		02/01/93
[illegible]	AQUEOUS		01/27/93		02/02/93

IEA
An Aquarion Company

200 Monroe Turnpike
Monroe, Connecticut 06468

Phone 203·261·4458
Fax 203·268·5346

30930-0099
ROUX ASSOCIATES

SDG Narrative

Volatile Organics - No problems were encountered.

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

Jeffrey C. Curran
Laboratory Manager

Date Feb. 19, 1993

Data Validation Services

Cobble Creek Road P. O. Box 208
North Creek, N. Y. 12853
Phone 518-251-4429

TO: Roux Associates

FROM: Judy Harry, Data Validation Services J. Harry

DATE: 5-3-93 Revised 5-11-93

RE: Validation of data for the Amtrak Sunnyside Yard Site
IEA SDG Nos. 30930-0060, -0060A, -0148, and -0148A

Review is complete for the data packages generated by IEA Labs, pertaining to samples collected at the Amtrak Sunnyside Yard Site. Sixteen soil, eighteen aqueous, and one oil sample were processed for CLP TCL/TAL (excluding pesticides) or PCB-only parameters. Methodologies utilized were those of the 12/91 NYSDEC ASP for all analyses except aqueous PCBs. In order to achieve the desired detection limits for the aqueous PCB analysis, a modified 1989 NYSDEC ASP PCB method was used. Matrix spikes/duplicates, two trip blanks, and six field blanks were also processed.

In summary, the analyses were conducted in compliance with the protocol, and package submissions were complete with deliverable requirements. In order to verify final reported dilutions, copies of the applicable laboratory instrument logbook pagess were requested and submitted.

Certain qualifications of reported results, which are based upon indicated matrix effects or (compliant) analytical system response, are outlined below. Other concerns or comments regarding quality are noted in the subsequent sections. Attached to this report are a compliancy chart, and copies of the laboratory resubmissions, case narratives, and preparation/analysis summary forms.

Recommended edits or qualification of sample results are noted below:

1. Reported values of acetone, methylene chloride, 2-hexanone, 4-methyl-2-pentanone, and phthalates in the volatile and semivolatile results should not be considered as sample components, as indicated by their presence in associated blanks. The reported detection limits for these compounds in the samples with detected values should be raised to either the CRDL, or to the value initially reported, whichever is greater. Similarly, the reported values for toluene in S-99, S-100, and S-101 should be rejected for consideration as a sample component.

2. For the volatile and semivolatile analyses, the Tentatively Identified Compounds (TICs) which are flagged as "B", as well as the siloxane compounds, should be rejected for consideration as sample components, as indicated by their presence in asssociated blanks. In addition, the TICs reported for the semivolatile analysis of MW-48 and the FldBlk (Sewer 2/9/93) should also be rejected as sample components.

3. The semivolatile analyses of samples S-100, S-101, and S-102 produced consistently depressed response for internal standards, indicating a matrix effect which may also affect target compound response in these samples. Consequently, detected values for these samples should be considered estimated, and reported detection limits for these samples should be considered estimated, possibly biased low. This applies to the initial and reanalysis data.

4. 3-nitroaniline and 4-chloroaniline reported detection limits in sample S-99 should be considered estimated as indicated by the daily standard response (80% and 65% differences from the initial calibration curve).

5. Similarly, 2,2'-oxybis(1-chloropropane), 4-chloroaniline, and 2,4-dinitrophenol reported detection limits in the following samples should be considered estimated (51%, 70%, and 59% differences):
MW-45, MHW-1, MW-43, MW-44, MW-46, and MW-47

6. A TIC for the volatile analysis of sample MW-41 should have been reported for retention time 23.37', with an identification of "Unknown C3alkylbenzene." Insufficient data is available in the package for an estimated concentration, but examination of the chromatogram indicates potential concentration greater than 150 ppb.

7. Due to detection of Aroclor 1260 at 0.20 ug/L in Field Blank 2/8/93, the following samples, which have reported values less than five times that of the field blank, are suspect for Aroclor content, and should have reported values rejected, with the detection limit raised to those values originally reported:

Sample ID	Aroclor to be edited
MHW-6	1254 and 1260
MHW-3	1254 and 1260
MHW-1	1254 and 1260

Similarly, the reported values of Aroclors 1254 and 1260 in sample MHW-2 should be considered estimated.

8. The reported detection limit of Aroclor 1221 in sample MW-23 should be considered estimated due to matrix interference.

9. Due to possible matrix effect, as indicated by the instrumental output, the mercury reported value for MHW-1 should be considered estimated.

10. In cases where the PCB analyses were reported at two different dilutions, the reported values for the detected Aroclors are more accurate in those of greater dilution, with the following exceptions:

S-102 -use the 1:10 reported results
S-113 -use the 1:10 reported results, but qualify estimated due to matrix
MHS-3 -use the 1:100 reported results
MHS-2 -use the 1:100 reported results for Aroclors 1254 and 1260

11. The field blank associated with sewer samples collected 2/9/93 produced a value for mercury exceeding CRDL, at 1.7 ug/L. As a result, the reported values of mercury in samples MHW-1, MHW-2, MW-35, and MW-46, which were collected and/or prepared/analysed with the field blank, and are at levels less than five times that determined in the field blank, should be rejected, and the detection limit raised to those values initially reported.

12. Due to response outside the calibration range for the Aroclors 1254 and 1260 in MHW-8, the reported values should be considered estimated.

13. The 1:10 dilution for PCB analysis of sample MHS-8 should be used, but the Aroclor 1254 result should be considered estimated, possibly biased slightly high, due to interference in the isomer at 27.16'.

14. Due to matrix effect indicated by the spike recoveries of sample S-100, the following results for these elements should be considered estimated:

Element	Spike Recovery	Affected Samples
Copper	54%	S-99, S-100, S-101, and S-102
Selenium	45%	S-99, S-100, S-101, and S-102

VOLATILE ANALYSES

Holding times were met for all sample processing. Surrogate recoveries and matrix spike blank recoveries met protocol requirements. Sample matrix spikes and duplicates were performed on aqueous sample MW-45 and soil sample S-100. All recoveries and duplicate correlation values were within recommended limits.

Initial and continuing calibration standards, and standard area responses/retention times were within required limits. Method blanks and instrumental tunes were compliant with protocol requirements. As noted in the case narrative, a field and trip blank were processed under the soil curve of the samples for which they are associated. There is no effect on the reported results.

SEMIVOLATILE RESULTS

Holding times were met for all sample processing. Surrogate recoveries and matrix spike blank recoveries met protocol requirements. Sample matrix spikes and duplicates were performed on aqueous sample MW-45 and soil sample S-100. All recoveries and duplicate correlation values were within recommended limits, with the exception of the recovery of 4-nitrophenol in the matrix spike of MW-45 (whose recovery at 104%, is above the limit of 80%, but is in keeping with the methodology). No Form 3 was reported for the matrix spike blank in SDG 0148; review of the raw data indicates acceptable recoveries.

Initial and continuing calibration standards, and standard area responses/retention times were within required limits, with exceptions noted in item #3 above. Method blanks and instrumental tunes were compliant with protocol requirements, although numerous TICs were detected in the soil method blank.

Certain sample report forms in SDG 0148 incorrectly denote a receive data of 2-02-93; most, but not all, were manually corrected by the laboratory to reflect the actual date of 2-10-93.

The reported values for 3-nitroaniline in the QC check standards are not that determined by the raw data; recoveries would be elevated even above those reported. Sample reported results are not affected.

PCB ANALYSES

Holding times were met for all sample processing. Surrogate recoveries were outlying from the recommended ranges in numerous samples, some with depressed recovery for one of the two surrogates, others elevated due to interferences. No qualification of sample results was made based upon the surrogate recoveries; no recoveries were extremely low. Sample matrix spikes and duplicates were performed on aqueous sample MW-45 and soil samples S-100, S-107, and CS-43. All recoveries and duplicate correlation values were within recommended limits for the aqueous sample. Soil spike recoveries and duplicate correlation could not be evaluated due to matrix effect or high levels of target compounds. Matrix spike blank (Aroclor 1260) and QC check standard (Aroclors 1242 and 1260) recoveries were good, all falling above 60%, with most recovering above 80%.

Analytical system requirements were met for sample processing. In addition to the pesticide continuing calibration standards, Aroclor continuing calibration standards were also processed. Those associated with aqueous samples were summarized for correlation (percent difference from the initial values), and produced acceptable variance. Those associated with the soil analyses were not summarized for response correlation (not a protocol requirement). Review of the response of Aroclor 1260 continuing standards indicates acceptable correlation, with the exception of the standard run on RTX-35 on 2/19/93 at 21:25, which produced values 177% of the initial responses. Samples were processed at least three days prior to this outlying standard.

Many samples produced a variance in Aroclor quantitative values between the two columns used for analysis. This is related to matrix interferences in some samples, and also seems to be system related in other cases. When the variance exceeds 25% Difference, the value is flagged as "P" on the report Form I. As required by the 12/91 protocol, the lower of the two values determined in each PCB analysis is always reported. Many samples in this project, as well as some of the spiked blanks, produced a depressed isomer response on one column for Aroclor 1260. Although the lower value reflects this depressed value, (which may be system related, as indicated by spiked blank response), examination of the raw data and area integrations indicates that the reported (lower) values are a better representation of the PCB content than those of the alternate column. Reported values from each column are determined from an average three different isomers per column, which balances deviations resulting from weathering, etc.

GC/MS confirmation was performed on several samples, and PCB isomers were detected and documented.

METALS ANALYSES

All protocol requirements for sample processing and surrounding quality control were evaluated, and found to be compliant and acceptable, unless noted specifically in this text. Matrix spikes were performed on samples S-100 and MW-45. All spike recoveries, duplicate correlation, and serial dilution values were acceptable for MW-45 evaluation. In addition to those spike outliers noted earlier for S-100, arsenic recovered at 69%. Duplicate and serial dilution values were good for S-100.

Holding times were met for all sample processing. Sample reported results are substantiated by the raw data, and determined in compliance with protocol.

COMPLIANCY CHART

Project: Amtrak- Sunnyside Yard Site

SDG Nos: IEA SDG Nos 30930-0060, -0060A, -0148, and -0148A.

Protocol: *1991 NYSDEC ASP; modified 1989 NYSDEC ASP PCB*

RecDate	Sample ID	Matrix	VOA	BNA	PCB	Metals	Other	Noncompl
01-19-93	S-99	Soil	OK	OK	OK	OK	OK	
01-19-93	S-100	Soil	OK	OK	OK	OK	OK	
01-19-93	S-101	Soil	OK	OK	OK	OK	OK	
01-19-93	S-102	Soil	OK	OK	OK	OK	OK	
01-21-93	S-103	Soil	NR	NR	OK	NR	OK	
01-21-93	S-115	Soil	NR	NR	OK	NR	OK	
01-21-93	S-113	Soil	NR	NR	OK	NR	OK	
01-21-93	S-111	Soil	NR	NR	OK	NR	OK	
01-21-93	S-114	Soil	NR	NR	OK	NR	OK	
01-21-93	S-112	Soil	NR	NR	OK	NR	OK	
01-27-93	S-104	Soil	NR	NR	OK	NR	OK	
01-27-93	S-107	Soil	NR	NR	OK	NR	OK	
01-27-93	S-108	Soil	NR	NR	OK	NR	OK	
01-27-93	S-105	Soil	NR	NR	OK	NR	OK	
01-27-93	S-106	Soil	NR	NR	OK	NR	OK	
02-09-93	MHW-5	Aqueous	NR	NR	OK	NR	OK	
02-09-93	MHW-3	Aqueous	NR	NR	OK	NR	OK	

RecDate	Sample ID	Matrix	VOA	BNA	PCB	Metals	Other	Noncompl
02-09-93	MHW-7	Aqueous	NR	NR	OK	NR	OK	
02-09-93	MHW-6	Aqueous	NR	NR	OK	NR	OK	
02-09-93	MHS-3	Soil	NR	NR	OK	NR	OK	
02-09-93	MW-36	Oil	NR	NR	OK	NR	OK	
02-09-93	MW-27	Aqueous	NR	NR	OK	NR	OK	
02-10-93	MW-45	Aqueous	OK	OK	OK	OK	OK	
02-10-93	MHW-1	Aqueous	OK	OK	OK	OK	OK	
02-10-93	MW-43	Aqueous	OK	OK	OK	OK	OK	
02-10-93	MW-44	Aqueous	OK	OK	OK	OK	OK	
02-10-93	MW-46	Aqueous	OK	OK	OK	OK	OK	
02-10-93	MW-35	Aqueous	OK	OK	OK	OK	OK	
02-10-93	MW-42	Aqueous	OK	OK	NR	NR	OK	
02-10-93	MHW-2	Aqueous	OK	OK	OK	OK	OK	
02-10-93	REPLICATE	Aqueous	OK	OK	OK	OK	OK	
02-10-93	MW-23	Aqueous	OK	NR	OK	NR	OK	
02-10-93	MW-47	Aqueous	OK	OK	OK	OK	OK	
02-10-93	MW-48	Aqueous	OK	OK	OK	OK	OK	
02-10-93	MHW-8	Aqueous	NR	NR	OK	NR	OK	
02-10-93	MHS-8	Soil	NR	NR	OK	NR	OK	
02-10-93	MHS-2	Soil	NR	NR	OK	NR	OK	
02-10-93	MW-41	Aqueous	OK	NR	NR	NR	OK	

RecDate	Sample ID	Matrix	VOA	BNA	PCB	Metals	Other	Noncompl
01-19-93	TRPBLK	Aqueous	NO	NR	NR	NR	OK	1
01-19-93	FLDBLK	Aqueous	NO	OK	OK	OK	OK	1
01-21-93	FLDBLK	Aqueous	NR	NR	OK	NR	OK	
01-27-93	FLDBLK	Aqueous	NR	NR	OK	NR	OK	
02-09-93	FB 2/08/93	Aqueous	NR	NR	OK	NR	OK	
02-10-93	TB 2/9/93	Aqueous	OK	NR	NR	NR	OK	
02-10-93	FBS 2/9/93	Aqueous	OK	OK	OK	OK	OK	
02-10-93	FBW 2/9/93	Aqueous	OK	OK	OK	OK	OK	

1. Volatile analysis performed by soil methodology.

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Fax 203-268-5346

30930-0060
ROUX ASSOCIATES

SDG Narrative

Volatile Organics - In order to meet the 7-day from receipt holding time, the field blanks and the trip blank were analyzed along with the soil sample on a soil calibration curve.

Extractions - Sample S-100 for PCB's was inadvertently spiked with the incorrect concentration of the standard solution. The sample was re-extracted on 02/01/93 using the correct solution.

Semi-Volatile Organics - Samples S-101, S-100, S-100 MS, S-100 MSD and S-102 exhibited internal standard area suppression. Samples S-101 and S-102 were reanalyzed with similar results, therefore proving matrix interference. Samples S-100 MS and S-100MSD confirmed the matrix interference for sample S-100. Both analyses have been reported with the reanalysis designated with the suffix "RE".

PCB's - Samples S-100, S-100 MS, S-00 MSD, S-101, CS-75, S-103, CS-51, CS-50, S115, S-113, S-111, CS-49, S-114 and S-112 required dilutions because of the high concentration of aroclor 1260.

The third peak used for calculation of aroclor 1260 in sample S-112 was outside of RT windows due to matrix interference.

Samples S-102 and CS-43 required dilutions due to the sample matrix. The third peak used for calculation or aroclor 1260 in sample CS-43 was outside of RT windows.

After sample CS-43 was diluted, the aroclor present was indistinguishable on the RTX-35 column, therefore the results reported are from column DB-1701. The third peak of aroclor 1260 was outside of RT windows.

Samples CS-75 and CS-49 were confirmed by GC/MS for aroclor 1260.

There was no aroclor 1242 injected within 72 hours of the QC check standard on column 2, however the aroclors run every 72 hours are not used for quantitation, only for pattern recognition. Since this is a spike sample, aroclor 1242 is a known compound.

Because of the very high concentration of aroclor 1260 in sample S-100 and the dilution required, the spike percent recovery could not be calculated.

All samples with dilution factors of 100 and higher had surrogates diluted out.

In sample CS-50 and CS-50 DL, DCB was lost in matrix and is not reported.

DCB was below advisory QC limits on column 1 in samples FB 011893 and FB 012093 and method blank PBLK40.

DCB was below advisory QC limits on column 2 in sample FB 011893 and method blanks PBLK53, PBLk40 and PBLK51 and on column 1 in sample S-111 DL.

TCX was below advisory QC limits on column 2 in sample S-99 and method blanks PBLK44 and PBLK51.

DCB had high recovery because of interference with aroclors on column 1 in samples CS-43, S-100 MSD, CS-5-1 DL, CS-51, S-115 DL, S-113 and on column 2 in samples S-102, S-100 MS, S-100 MSD, CS-51 DL, CS-51, S-115 DL, S-111 DL, CS-49 and S-112 DL.

Many results have "P" flags due to the large percent RPD between column concentrations. This is believed to be due to the sample matrix.

Metals - IEC's are electronically employed by the TJA ICAP-61. However, the ICSA is utilized as a monitoring device to detect any additional adjustments that may be required. These modifications are calculated and applied manually. They are so noted in the raw data.

Copper, arsenic and selenium failed the control limits for spike recovery analysis of sample S-100, resulting in three "N" flags. It was noted during sample digestion that the sample contained numerous rocks. A problem with sample homogeneity appears to be the cause for the resultant flags.

No other problems were noted.

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

Jeffrey C. Curran

Jeffrey C. Curran
Laboratory Manager

March 5, 1993
Date

IEA
An Aquarion Company

200 Monroe Turnpike
Monroe, Connecticut 06468

Phone 203·261·4458
Fax 203·268·5346

March 10, 1993

Mr. Harry Gregory
Roux Associates
775 Park Avenue, Suite 255
Huntington, NY 11743

Dear Mr. Gregory:

Please find enclosed the analytical results of 1 aqueous, 2 oil and 10 soil samples received at our laboratory on January 27, 1993. This report contains sections addressing the following information at a minimum:

- sample summary
- analytical methodology
- state certifications
- definitions of data qualifiers and terminology
- analytical results
- chain-of-custody

IEA Report #30930-0060A	Purchase Order #05526.Y
Project ID: Amtrak Sunnyside	

Copies of this analytical report and supporting data are maintained in our files for a minimum of five years unless special arrangements have been made. Unless specifically indicated, all analytical testing was performed at this laboratory location and no portion of the testing was subcontracted.

We appreciate your selection of our services and welcome any questions or suggestions you may have relative to this report. Please contact your customer service representative at (203) 261-4458 for any additional information. Thank you for utilizing our services; we hope you will consider us for your future analytical needs.

I have reviewed and approved the enclosed data for final release.

Very truly yours,

for

Jeffrey C. Curran
Laboratory Manager

JCC/mt

cc: J. Harry

Sunrise, Florida 05·846·1730
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30930-0148
ROUX ASSOCIATES

SDG Narrative

Volatile Organics - No problems were encountered.

Semi-Volatile Organics - No problems were encountered.

PCB's - Sample MW-27 required sulfur cleanup; samples MHW-1, MW-35, MHW-2 and method blank PBLK06 required acid and sulfur cleanup.

Sample MHW-7 was diluted 1:5.

DBC recovery was out of advisory QC limits for samples MHW-7, MW-47, MW-45 STD and method blank PBLK00.

Aroclor-1248 was out of RT windows on the confirmation run (column RTX-35) in sample MHW-7, but in the analyst's opinion, it is present.

Aroclor-1260 was out of RT windows on the confirmation run (column RTX-35) in sample MW-1, but in the analyst's opinion, it is present.

DDT linearity on confirmation runs 0308GC1B and D309GC1B was greater than 10 percent, however no calculations were done from this run.

The following standard did not meet NYSDEC '89 criteria:

Date	Time	GC #	Standard	Comments
03/09/93	06:04	GC1B	Ind B	Endrin ketone out of required criteria, C_f >20% difference

The client's samples, before this affected standard, were run for PCB's only. Since the samples had been run primary twice, some samples required previous reruns due to cleanups or continuing standards out of criteria. Only enough extract remained to run the samples once on the confirmation run. The ending PCB's following the ending pesticide mixes were within continuing standard criteria.

Due to high levels of Aroclors, samples MW-36 and MHS-3 required a dilution.

The surrogates were diluted out for all samples with a dilution factor of 100 or higher.

Due to the sample matrix, TCX percent recovery could not be determined in samples MW-36, MW-36 MS and MW-36 MSD.

DCB was below advisory QC limits in method blank PBLK05 on column 2 and in sample MW-36 MS on column 1.

Due to matrix interference, TCX was above advisory QC limits in sample MW-36 DL on both columns.

DCB was above advisory QC limits in sample MW-36 DL on column 1 and in samples MW-36 MS and MW-36 MSD on column 2.

Due to the matrix interference in samples MW-36, MW-36 MS and MW-36 MSD, two different sets of peaks were chosen for column RTX-35 for the calculation of Aroclor-1260. Two separate Form 6F's have been submitted. The second peak was out of RT windows on column RTX-35 for Aroclor-1260 in samples MW-36 and MW-36 MSD.

Metals - IEC's are electronically employed by the TJA ICAP-61. However, the ICSA is utilized as a monitoring device to detect any additional adjustments that may be required. These modifications are calculated and applied manually. They are so noted in the raw data.

No problems were encountered.

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

Jeffrey C. Curran

Jeffrey C. Curran
Laboratory Manager

Date March 17, 1993

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30930-0148A
ROUX ASSOCIATES

SDG Narrative

Volatile Organics - No problems were encountered.

Extractions - No problems were encountered.

Semi-Volatile Organics - No problems were encountered.

PCB's - IDL's for both columns and forms indicating mass injected are enclosed in the package.

Sample MHW-8 was diluted 1:5 and required acid and sulfur cleanup. Method blank PBLK06 required acid and sulfur cleanup.

Percent RSD of DDT on the confirmation run (RTX-35 column) from 03/08/93 and 03/09/93 was >10 percent; no calculations were done from this run.

The following standard did not meet NYSDEC '89 criteria.

Date	Time	GC #	Standard	Comments
03/09/93	06:04	GC1B	Ind B	Endrin ketone >20 percent difference

Sample MHW-8 was the only sample affected by the above standard. Since this sample was run primary prior to acid cleanup and primary after acid cleanup, only enough extract remained to run the confirmation run once. This sample was for PCB's only and the Aroclors which followed the above standard were within criteria.

Due to the matrix of the sample, DBC was out of advisory criteria for sample MHW-8.

Decachlorobiphenyl was outside the advisory QC limits on both columns for samples FBS 020993 and MHS-8 and method blank PBLK04.

Tetrachloro-m-xylene was diluted out of sample MHS-2.

To accommodate software specifications, the sample ID's were truncated as follows in the data package.

Sample ID	Truncated ID
FBS 020993	FBS2/9/93
MHS-2	MHS2
MHS-8	MHS8

It was necessary to use an alternate peak in calculation of Aroclor 1254 on the DB-1701 column for sample MHS-2 DL. This additional peak was also added to Form 6F.

<u>Metals</u> - IEC's are electronically employed by the TJA ICAP-61. However the ICSA is utilized as a monitoring device to detect any additional adjustments that may be required. These modifications are calculated and applied manually. They are so noted in the raw data.

No problems were encountered.

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

Jeffrey C. Curran
Laboratory Manager

March 18, 1993
Date

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND
ANALYTICAL REQUIREMENT SUMMARY

JOB # : 5093-0060

CUSTOMER SAMPLE CODE	LABORATORY SAMPLE CODE	ANALYTICAL REQUIREMENTS*						
		*VOA GC/MS	*BNA GC/MS	*VOA GC	*PEST PCB	*METALS	*OTHER	*OTHER
S-99	0060001	X	X		X	X		
S-100	0060002	X	X		X	X		
S-101	0060003	X	X		X	X		
S-102	0060004	X	X		X	X		
CS-43	0060005		X		X	X		
FIELD BLANK	0060006	X	X		X	X		
TRIP BLANK 1/18/93	0060007	X						
CS-75	0060008		X		X			
S-103	0060009				X			
CS-51	0060010		X		X			
CS-50	0060011		X		X			
S-115	0060012				X			
S-113	0060013				X			
S-111	0060014				X			
CS-49	0060015		X					
FIELD BLANK 1/20/93	0060016				X			
S-114	0060017				X			
S-112	0060018				X			

* Check Appropriate Boxes

* CLP, Non-CLP
* HSL, Priority Pollutant

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL-CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOA - TCL + TIC's
ANALYSIS

JOB # : 3093-0060

SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECVD AT LAB	DATE EXTRACTED	DATE ANALYZED
S-99	Soil	01/18/93	01/19/93	N/A	01/26/93
S-100	Soil		01/19/93		
S-101	Soil		01/19/93		
S-102	Soil		01/19/93		
FIELD BLANK	Aqueous		01/19/93		
TRIP BLANK 1/18/93	Aqueous		01/19/93		

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
B/N-A - TCL + TIC's
ANALYSIS

JOB # : 3093-0060

SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECVD AT LAB	DATE EXTRACTED	DATE ANALYZED
S-99	Soil	01/18/93	01/19/93	01/20/93	02/02/93
S-100	Soil	↓	01/19/93	↓	02/01/93
S-101	Soil	↓	01/19/93	↓	02/01/93
S-102	Soil	↓	01/19/93	↓	01/29/93
FIELD BLANK	Aqueous	01/18/93	01/19/93	01/21/93	02/01/93
S-100MS	SOIL	01/18/93	01/19/93	01/20/93	02/02/93
S-100MSD	↓	↓	↓	↓	↓
S-101RE	↓	↓	↓	↓	02/02/93
S-102RE	↓	↓	↓	↓	02/01/93
S-100MSB	↓	NA	↓	↓	02/01/93
~~S~~QC CHECK	↓	NA	↓	↓	02/01/93

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
B/N-A - TCL + TIC's
ORGANIC ANALYSIS

JOB # : 3093-0060

SAMPLE ID	MATRIX	ANALYTICAL PROTOCOL	EXTRACTION METHOD	AUXILARY CLEAN UP	DIL/CONC FACTOR
S-99	Soil	NYSDEC '91	SONC	GPC	1.0
S-100	Soil	↓	↓	↓	1.0
S-101	Soil	↓	↓	↓	8.0
S-102	Soil	↓	↓	↓	1.0
FIELD BLANK	Aqueous	↓	CONT	NONE	↓
S-100MS	SOIL	↓	SONC	GPC	↓
S-100MSD	↓	↓	↓	↓	↓
S-101RE	↓	↓	↓	↓	8.0
S-102RE	↓	↓	↓	↓	1.0
S-100MSB	↓	↓	↓	↓	↓
SQC CHECK	↓	↓	↓	↓	↓

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
S-99	SOIL	01/18/93	01/19/93	01/21/93	02/~~23~~ 10/93
S-100					02/10/93
S-100DL					
S-100MS					02/12/93
S-100MSD					02/13/93
S-100 MSK					02/10/93
QC CHECK STD					02/12/93
S-101					02/10/93
S-101 DL					
S-102					
S-102 DL					
CS-43					
CS-43 DL					
CS-75		01/19/93	01/21/93	01/22/93	02/11/93
CS-75DL					
S-103					
S-103 DL					02/16/93
CS-51		01/20/93			02/13/93
CS-51 DL					
CS-50					
CS-50DL					

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
S-115	SOIL	01/20/93	01/21/93	01/22/93	02/13/93
S-115DL	↓	↓	↓	↓	↓
S-113	↓	↓	↓	↓	↓
S-113DL	↓	↓	↓	↓	02/20/93
S-111	↓	↓	↓	↓	02/14/93
S-111DL	↓	↓	↓	↓	↓
CS-49	↓	↓	↓	↓	↓
CS-49DL	↓	↓	↓	↓	02/20/93
S-114	↓	↓	↓	↓	02/16/93
S-114DL	↓	↓	↓	↓	↓
S-112	↓	↓	↓	↓	↓
S-112DL	↓	↓	↓	↓	↓
FIELD bl 1/18	WATER	01/18/93	01/19/93	01/19/93	02/11/93
FIELD Bl. 1/20	↓	01/20/93	01/21/93	01/22/93	02/11/93

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

JOB # : 3093-0060

ICAP

SAMPLE ID	MATRIX	METALS REQUESTED	DATE RECEIVED	DATE DIGESTED	DATE ANALYZED
S-99	Soil	TAL METALS	01/19/93	1/28/93	2/19/93
S-100	Soil	TAL METALS	01/19/93	↓	↓
S-101	Soil	TAL METALS	01/19/93	↓	↓
S-102	Soil	TAL METALS	01/19/93	↓	↓
FIELD BLANK	Aqueous	TAL METALS	01/19/93	1/26/93	2/22/93

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

JOB # : 3093-0060

Furnace

SAMPLE ID	MATRIX	METALS REQUESTED	DATE RECEIVED	DATE DIGESTED	DATE ANALYZED
S-99	Soil	TAL METALS	01/19/93	1/28/93	2/1-3, 5-6/93
S-100	Soil	TAL METALS	01/19/93		
S-101	Soil	TAL METALS	01/19/93		
S-102	Soil	TAL METALS	01/19/93		
FIELD BLANK	Aqueous	TAL METALS	01/19/93	1/26/93	2/1-3, 5/93

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

JOB # : 3093-0060

Mercury

SAMPLE ID	MATRIX	METALS REQUESTED	DATE RECEIVED	DATE DIGESTED	DATE ANALYZED
S-99	Soil	TAL METALS	01/19/93	1/28/93	1/28/93
S-100	Soil	TAL METALS	01/19/93	↓	↓
S-101	Soil	TAL METALS	01/19/93	↓	↓
S-102	Soil	TAL METALS	01/19/93	↓	↓
FIELD BLANK	Aqueous	TAL METALS	01/19/93	2/2/93	2/2/93

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
TAL METALS
INORGANIC ANALYSIS

JOB # : 3093-0060

ICAP

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
S-99	Soil	CLP	HNO_3, HCl	N/A	1:1
S-100	Soil				
S-101	Soil				
S-102	Soil				
FIELD BLANK	Aqueous				

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
TAL METALS
INORGANIC ANALYSIS

JOB # : 3093-0060

Furnace : As, Se

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
S-99	Soil	CLP	HNO3, H2O2	Nickel Nitrate	1:1
S-100	Soil	↓	↓	↓	1:1
S-101	Soil				As 1:4 Se 1:1
S-102	Soil				As 1:4 Se 1:1
FIELD BLANK	Aqueous				1:1

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
TAL METALS
INORGANIC ANALYSIS

JOB # : 3093-0060

Furnace - Tl

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
S-99	Soil	CLP	HNO_3, H_2O_2	H_2SO_4	1:1
S-100	Soil	↓	↓	↓	↓
S-101	Soil	↓	↓	↓	↓
S-102	Soil	↓	↓	↓	↓
FIELD BLANK	Aqueous	↓	↓	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
TAL METALS
INORGANIC ANALYSIS

JOB # : 3093-0060

Furnace - Pb

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
S-99	Soil	CLP	HNO_3, H_2O_2	Mg Nitrate, Amm Phos	1:50
S-100	Soil	↓	↓	↓	1:50
S-101	Soil	↓	↓	↓	1:100
S-102	Soil	↓	↓	↓	1:100
FIELD BLANK	Aqueous	↓	↓	↓	1:1

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
TAL METALS
INORGANIC ANALYSIS

JOB # : 3093-0060

Mercury

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
S-99	Soil	CLP	Manual Cold Vapor	N/A	1:1
S-100	Soil	↓	↓	↓	↓
S-101	Soil	↓	↓	↓	↓
S-102	Soil	↓	↓	↓	↓
FIELD BLANK	Aqueous	↓	↓	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND
ANALYTICAL REQUIREMENT SUMMARY

JOB # : 3093-0060A

CUSTOMER SAMPLE CODE	LABORATORY SAMPLE CODE	ANALYTICAL REQUIREMENTS*						
		*VOA GC/MS	*BNA GC/MS	*VOA GC	*PEST PCB	*METALS	*OTHER	*OTHER
S-104	0060019				X			
CS-6	0060020		X		X			
S-107	0060021				X			
S-108	0060022				X			
S-105	0060023				X			
S-106	0060024				X			
CS-83	0060025		X		X			
CS-76	0060026		X		X			
CS-1	0060027		X		X			
CS-64	0060028							
FIELD BLANK	0060029				X			
MW-7	0060030				X			
FILL CAP	0060031				X			

* Check Appropriate Boxes

* CLP, Non-CLP
* HSL, Priority Pollutant

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
CS-1	SOIL	01/26/93	01/27/93	01/28/93	02/26/93
CS-1DL					
CS-6		01/25/93			
CS-6DL					02/18/93
~~CS-64~~					~~02/19/93~~
~~CS-64DL~~					~~02/17/93~~
CS-76		01/26/93			
CS-76DL					
CS-83		01/25/93			
CS-83DL					
S-104					
S-104DL					02/16/93
S-105					02/17/93
S-105DL					02/20/93
S-106					02/18/93
S-106DL					02/20/93
S-107					02/17/93
S-107DL					
S-108					
S-108DL					
S-107MS				02/01/93	02/18/93

ab 2/9

ab 3/9

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
S-107MSB	SOIL	—	~~01/27/93~~	02/01/93	02/18/93
S-107MSD	|	01/25/93	01/27/93	|	|
S-107STD	ϕ	—	—	|	ϕ
FIELD Blank	WATER	01/26/93	01/27/93	ϕ	02/11/93
MW-7DL	OIL	|	|	02/12/93	02/26/93
FILL CAP	|	|	|	|	ϕ
FILL CAPDL	ϕ	ϕ	ϕ	ϕ	02/20/93

02/9

SEMIVOLATILE ANALYSES

Holding times, method blanks, and instrumental tune requirements were met for sample processing. With the exceptions of those samples noted earlier, surrogate recoveries met the criteria.

The matrix spikes of sample MW-57 produced acceptable recoveries and duplicate correlation values. The associated matrix spike blank produced compliant recoveries.

Calibration standards met protocol requirements for response and correlation, although erratic lack of response was noted for several compounds in isolated standards (i.e. 4,6-dinitro-2-methylphenol in the 160 ppm standard of 3/9/9, 4-chlorophenylphenylether in the 120 ppm standard of 3/15/94, and others). Numerous compounds produced elevated %RSD values for the curve and elevated %D values for the daily standards. In each case, specific review was performed during validation to determine if sample reported results are affected. Please see the above qualification for 4-chloroaniline and 4,6-dinitro-2-methylphenol responses, which did not required corrective action.

Please see the above discussion regarding depressed internal standard areas for certain samples. In addition, sample MW-39D produced a low recovery (45%; limit of 50%) for d12-perylene. Examination of the chromatogram does not show any apparent matrix effect contributing to this suppression of response. Due to sensitivity of system, and nondetection of associated compounds, no qualification is recommended.

PCB ANALYSES

Holding times, surrogate recoveries, and method blank criteria were met for sample processing.

Sample matrix spikes of Aroclor 1260 were performed on MW-57, with precision and duplicate correlation values as discussed earlier. The aqueous matrix spike blank produced recovery for Aroclor 1260 of 84% (not 110%, as reported). A full matrix spike was also performed with Aroclors 1242 and 1260, with recoveries of 77% and 74%, respectively. The matrix spikes of batch QC of oil dilution were produced 120% recovery for Aroclor 1260; the associated matrix spike blank had 140% recovery.

Linearity and breakdown requirements were met.

Standard processing was not in compliance with protocol requirements as relates to pesticide responses. Some of the analysis sequences involved primary column standard responses which exceed the limit of 15% Difference (up to 49%D), and/or confirmation column standards which exceeded the limit of 20%D (up to 37%D). In most cases, pesticide responses were elevated, so adequate sensitivity of the analytical system was not compromised. It is observed that although certain sequences produced outlying responses for one or more pesticides, the responses of Aroclor mixtures which were also run as intermittant standards provided good correlation (%D values). Consequently, the reported PCB values for the samples processed in these noncompliant sequences have not been recommended for qualification.

Please see the discussion in the qualification section regarding background interferences. These interferences were more prevalent in those samples of SDG Z0120, which were not noted on the raw data as having gone through the sulfur and acid cleanups. Most of those of SDG Z0121 were processed through the cleanups. All sample reported values were verified for qualitative identification and quantitative calculation and transcription.

METALS ANALYSES

Holding times were met. All protocol requirements for sample processing were reviewed for compliancy and were found to be acceptable unless noted specifically within this text.

The precision and accuracy determinations were performed on sample MW-57, and resulted in all values within recommended ranges. Serial dilution evaluations of MW-57 and MW-37 were also acceptable.

Please see the above discussions regarding outlying furnace post-matrix spike (PDS) recoveries. Although outlying recoveries are often matrix related, certain of the sequences in which samples produced low recoveries (i.e. arsenic and lead on 3/14/94) also had low recoveries for the prep blanks. The prep blanks were reanalysed in later sequences with acceptable recoveries. Although the samples were processed in compliance with the protocol, and it is acceptable to reanalyse a blank one time, it would have been preferable to also reanalyse the samples which were processed in the conditions which produced outlying recoveries for the blanks.

TOTAL PETROLEUM HYDROCARBONS

As discussed in the case narrative, the characterization of the hydrocarbons in the samples was difficult due to weathering. The quantitative values were determined from a comparison to kerosene, which produced the best match of those evaluated.

Standard linearity was good. All reported values were verified for calculation and transcription. Although dilution factors were not present on the submitted raw data, the laboratory verified that those used in the reported values are accurate. No report forms were present in the data packages; values were verified to those reported in the separate project summary Table GC-2.0.

COMPLIANCY CHART

Project: Roux Associates

SDG Nos: IEA SDG Nos. Z0120 and Z0121

Protocol: SW846 by 1991 and 1989 NYSDEC ASP

RecDate	Sample ID	Matrix	VOA	BNA	PCB	Metals	Other	Noncompl
02-18-94	MW-46	Aqueous	NR	NR	NO	NR	OK	1
02-18-94	MW-37	Aqueous	OK	OK	NO	OK	OK	1
02-18-94	MW-38D	Aqueous	OK	OK	NO	NR	OK	1
02-18-94	MW-39D	Aqueous	OK	OK	NO	NR	OK	1
02-18-94	MW-35	Aqueous	NR	NR	NO	NR	OK	1
02-18-94	MW-40D	Aqueous	OK	OK	NO	NR	OK	1
02-18-94	MW-62D	Aqueous	OK	OK	NO	OK	OK	1
02-18-94	MW-61	Aqueous	OK	OK	NO	OK	OK	1
02-18-94	MW-49	Aqueous	OK	OK	NO	OK	OK	1
02-18-94	MW-63	Aqueous	OK	OK	NO	OK	OK	1
02-18-94	MW-57	Aqueous	OK	OK	NO	OK	OK	1
02-18-94	MW-59	Aqueous	OK	OK	NO	OK	OK	1
02-18-94	REPLICATE	Aqueous	OK	OK	NO	OK	OK	1
02-18-94	MW-53	Oil	NR	NR	NO	NR	OK	1
02-18-94	MW-54	Oil	NR	NR	NO	NR	OK	1
02-18-94	MW-60	Oil	NR	NR	NO	NR	OK	1
02-18-94	MW-50	Oil	NR	NR	NO	NR	OK	1
02-18-94	FB-021794	Aqueous	OK	OK	NO	OK	OK	1
02-18-94	TB-021794	Aqueous	OK	NR	NR	NR	OK	

1. Pesticide/PCB calibration standards with outlying differences for primary and/or confirmation analyses.

Data Validation Services

Cobble Creek Road P. O. Box 208
North Creek, N. Y. 12853
Phone 518-251-4429

FACSIMILE TRANSMISSION

Date: 4-7-94

To: Marsha Culik

Company: IEA

From: Judy Harry

Number of pages including cover: 1

Comments: Re: Roux Associates
SDG 30940-Z0121
The TPH results for the 4 oil samples are reported in the Project Summary Tables with dilution factors incorporated as 1:50. The raw chromatograms show only MW-53 with a dilution factor. No other documentation is present to indicate other than a 1:1 dilution for the other three samples. Can you please clarify?

Thanks,
Judy

IEA
An Aquarion Company

200 Monroe Turnpike
Monroe, Connecticut 06468

Phone 203·261·4458
Fax 203·268·5346

30940-0121
ROUX ASSOCIATES

SDG Narrative

Volatile Organics - The ratio of cis-1,3-dichloropropene versus trans-1,3-dichloropropene is 47 and 53 percent, respectively.

Extractions - The client requested low level PCB analysis on the aqueous samples. These extracts were concentrated to 1 mL rather than the usual final volume of 10 mLs. Therefore, the surrogate mass added was decreased to keep the surrogate concentration in the linear range.

The GC/MS group reported low surrogate recoveries on sample MW-49 and MW-63. The client requested re-extraction past holding time to confirm matrix interferences. The samples were re-extracted on 03/08/94.

Semi-Volatile Organics - Samples MW-49 and MW-63 exhibited poor acid surrogate recoveries. The samples were re-extracted on 03/08/94 and reanalyzed with similar results, therefore proving matrix interference. Both sets of data have been submitted with the reanalyses designated with the suffix "RE".

Samples MW-49 and MW-57 exhibited internal standard area suppression.

Metals - No problems occurred during analysis. All appropriate protocols were employed. All data appears to be consistent.

PCB's - Acid and sulfur cleanup was required on all samples. Surrogate recovery was high due to coelution of DBC with Aroclor-1260 in samples MW-50 and MW-57 MSB.

Petroleum Hydrocarbon Scan - The samples exhibited a series of peaks indicating a petroleum hydrocarbon material was present. The chromatograms were compared to a series of standards. The data indicated a probable mixture of products present in the same distillation range as kerosene and diesel fuel.

The samples were quantitated against kerosene and reported as such. All samples required a dilution due to the concentrations present.

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

for

Jeffrey C. Curran
Laboratory Manager

3/18/94
Date

IEA
An Aquarion Company

200 Monroe Turnpike
Monroe, Connecticut 06468

Phone 203·261·4458
Fax 203·268·5346

30940-0120
ROUX ASSOCIATES

SDG Narrative

Volatile Organics - The ratio of cis-1,3-dichloropropene versus trans-1,3-dichloropropene is 47 and 53 percent respectively.

Extractions - The client requested low level PCB analysis on all samples. The extracts were concentrated to 1 mL rather than the usual final volume of 10 mLs. Therefore, the surrogate mass added was decreased to keep the surrogate concentration in the linear range.

The GC/MS group reported low surrogate recoveries on sample MW-40D. The client requested re-extraction past holding time to confirm matrix interferences. The sample was re-extracted on 03/08/94.

Semi-Volatile Organics - Sample MW-40D exhibited poor acid surrogate recoveries upon analysis of the original extract. The sample was re-extracted on 03/08/94 and reanalyzed with similar results, therefore proving matrix interference with the reanalysis designated with the suffix "RE".

PCB's - Forms indicating mass injected for both evaulation and Individual mixes have been submitted.

Metals - No problems occurred during analysis. All appropriate protocols were employed. All data appears to be consistent.

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

Jeffrey C. Curran
Laboratory Manager

March 17, 1994
Date

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND
ANALYTICAL REQUIREMENT SUMMARY

JOB # : 3094-0121

CUSTOMER SAMPLE CODE	LABORATORY SAMPLE CODE	ANALYTICAL REQUIREMENTS*						
		*VOA GC/MS	*BNA GC/MS	*VOA GC	*PEST PCB	*METALS	*OTHER	*OTHER
MW-62D	0121001	X	X		X	X		
MW-61	0121002	X	X		X	X		
MW-49	0121003	X	X		X	X		
MW-63	0121004	X	X		X	X		
FB 021794	0121005	X	X		X	X		
MW-57	0121006	X	X		X	X		
MW-59	0121007	X	X		X	X		
REPLICATE	0121008	X	X		X	X		
MW-53	0121009				X			
MW-54	0121010				X			
MW-60	0121011				X			
MW-50	0121012				X			
TB 021794	0121013	X						

* Check Appropriate Boxes

* CLP, Non-CLP
* HSL, Priority Pollutant

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATIO

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOA - TCL + TIC's
ANALYSIS

JOB # : 3094-0121

SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECVD AT LAB	DATE EXTRACTED	DATE ANALYZED
MW-62D	Aqueous	02/17/94	02/18/94	N/A	02/21/94
MW-61	Aqueous		02/18/94		
MW-49	Aqueous		02/18/94		
MW-63	Aqueous		02/18/94		
FB 021794	Aqueous		02/18/94		02/22/94
MW-57	Aqueous		02/18/94		
MW-59	Aqueous		02/18/94		
REPLICATE	Aqueous		02/18/94		
TB 021794	Aqueous		02/18/94		

0004

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
B/N-A - TCL + TIC's
ANALYSIS

JOB # : 3094-0121

SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECVD AT LAB	DATE EXTRACTED	DATE ANALYZED
MW-62D	Aqueous	02/17/94	02/18/94	02/22/94	03/04/94
MW-61	Aqueous		02/18/94		
MW-49	Aqueous		02/18/94		
MW-63	Aqueous		02/18/94		
FB_021794	Aqueous		02/18/94		
MW-57	Aqueous		02/18/94		↓
MW-59	Aqueous		02/18/94		03/16/94
REPLICATE	Aqueous		02/18/94	↓	↓
MW-49RE				03/08/94	03/16/94
MW-63RE				↓	↓
MW-57MS				02/22/94	03/15/94
MW-57MSD		↓			↓
MW-57MSB		NA			03/16/94
0222-B01FMB	↓	NA	↓	↓	03/15/94

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
B/N-A - TCL + TIC's
ORGANIC ANALYSIS

JOB # : 3094-0121

SAMPLE ID	MATRIX	ANALYTICAL PROTOCOL	EXTRACTION METHOD	AUXILARY CLEAN UP	DIL/CONC FACTOR
MW-620	Aqueous	SW846	SEPF	NONE	1.0
MW-61	Aqueous				
MW-49	Aqueous				
MW-63	Aqueous				
FB 021794	Aqueous				
MW-57	Aqueous				
MW-59	Aqueous				
REPLICATE	Aqueous				
MW-49 RE					
MW-63RE					
MW-57MS					
MW-57MSD					
MW-57MSB					
0222-B01FMS					

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PCB
ORGANIC ANALYSIS

JOB # : 3094-0121

SAMPLE ID	MATRIX	ANALYTICAL PROTOCOL	EXTRACTION METHOD	AUXILARY CLEAN UP	DIL/CONC FACTOR
MW-62D	Aqueous	NYSDEC-89	SEPF	ACID+ SULFUR	1.0
MW-61	Aqueous				
MW-49	Aqueous				
MW-63	Aqueous				
FB 021794	Aqueous				
MW-57	Aqueous				
MW-59	Aqueous				
REPLICATE	Aqueous		↓		
MW-53	OIL		BAL		
MW-54					
MW-60					
MW-50	↓	↓	↓	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PCB
ANALYSIS

JOB # : 3094-0121

SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECVD AT LAB	DATE EXTRACTED	DATE ANALYZED
MW-62D	Aqueous		02/18/94	02-22-94	03-07-94
MW-61	Aqueous		02/18/94	↓	↓
MW-49	Aqueous		02/18/94	↓	↓
MW-63	Aqueous		02/18/94	↓	↓
FB 021794	Aqueous		02/18/94	↓	03-08-94
MW-57	Aqueous		02/18/94	↓	↓
MW-59	Aqueous		02/18/94	↓	↓
REPLICATE	Aqueous		02/18/94	↓	↓
MW-53	OIL		02/18/94	02-22-94	03-04-94
MW-54	↓		02/18/94	↓	↓
MW-60	↓		02/18/94	↓	↓
MW-50	↓		02/18/94	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
HYDROCARBON SCAN
ORGANIC ANALYSIS

JOB # : 3094-0121

SAMPLE ID	MATRIX	ANALYTICAL PROTOCOL	EXTRACTION METHOD	AUXILARY CLEAN UP	DIL/CONC FACTOR
MW-53	Oil	NYSDEC-89	BAL		50
MW-54	↓	↓	↓		↓
MW-60	↓	↓	↓		↓
MW-50	↓	↓	↓		20

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
HYDROCARBON SCAN
ANALYSIS

JOB # : 3094-0121

SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECVD AT LAB	DATE EXTRACTED	DATE ANALYZED
MW-53	Oil		02/18/94	2/22/94	3/11/94
MW-54	↓		02/18/94	↓	↓
MW-60	↓		02/18/94	↓	↓
MW-50	↓		02/18/94	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

JOB # : 3094-0121

ICAP

SAMPLE ID	MATRIX	METALS REQUESTED	DATE RECEIVED	DATE DIGESTED	DATE ANALYZED
MW-62D	Aqueous	TAL METALS	02/18/94	3/10/94	3/14/94
MW-61	Aqueous	TAL METALS	02/18/94		
MW-49	Aqueous	TAL METALS	02/18/94		
MW-63	Aqueous	TAL METALS	02/18/94		
FB 021794	Aqueous	TAL METALS	02/18/94		
MW-57	Aqueous	TAL METALS	02/18/94		
MW-59	Aqueous	TAL METALS	02/18/94		
REPLICATE	Aqueous	TAL METALS	02/18/94		

002

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND
ANALYTICAL REQUIREMENT SUMMARY

JOB # : 3094-0120

CUSTOMER SAMPLE CODE	LABORATORY SAMPLE CODE	ANALYTICAL REQUIREMENTS*						
		*VOA GC/MS	*BNA GC/MS	*VOA GC	*PEST PCB	*METALS	*OTHER	*OTHER
MW-46	0120001				X			
MW-37	0120002	X	X		X	X		
MW-36D	0120003	X	X		X			
MW-39D	0120004	X	X		X			
MW-35	0120005				X			
MW-40D	0120006	X	X		X			

* Check Appropriate Boxes

* CLP, Non-CLP
* HSL, Priority Pollutant

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOA - TCL + TIC's
ANALYSIS

JOB # : 3094-0120

SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECVD AT LAB	DATE EXTRACTED	DATE ANALYZED
MW-37	Aqueous	02/17/94	02/18/94	N/A	02/21/94
MW-38D	Aqueous	↓	02/18/94	↓	↓
MW-39D	Aqueous	↓	02/18/94	↓	↓
MW-40D	Aqueous	↓	02/18/94	↓	↓

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
B/N-A - TCL + TIC's
ANALYSIS

JOB # : 3094-0120

SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECVD AT LAB	DATE EXTRACTED	DATE ANALYZED
MW-37	Aqueous	02/17/94	02/18/94	02/22/94	03/04/94
MW-38D	Aqueous	↓	02/18/94	↓	↓
MW-39D	Aqueous	↓	02/18/94	↓	↓
MW-40D	Aqueous	↓	02/18/94	↓	↓
MW-40DRE	↓	↓	↓	03/08/94	03/10/94
0222-B01FMS	↓	NA	NA	02/22/94	03/15/94

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
B/N-A - TCL + TIC's
ORGANIC ANALYSIS

JOB # : 3094-0120

amc 3/16/94

SAMPLE ID	MATRIX	ANALYTICAL PROTOCOL	EXTRACTION METHOD	AUXILARY CLEAN UP	DIL/CONC FACTOR
MW-37	Aqueous	~~NYS~~ SW846	SEPF	NONE	1.0
MW-38D	Aqueous				1.0
MW-39D	Aqueous				1.0
MW-40D	Aqueous				1.0
mw-40D RE					1.0
0222-B01FMS	↓	↓	↓	↓	1.0

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PCB
ANALYSIS

JOB # : 3094-0120

SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECVD AT LAB	DATE EXTRACTED	DATE ANALYZED
MW-46	Aqueous	02/17/94	02/18/94	0222-94	03-04-94
MW-37	Aqueous	↓	02/18/94	02-22-94	03-09-94
MW-38D	Aqueous	↓	02/18/94	02-22-94	03-09-94
MW-39D	Aqueous	↓	02/18/94	02-22-94	03-09-94
MW-35	Aqueous	↓	02/18/94	02-22-94	03-09-94
MW-40D	Aqueous	↓	02/18/94	02-22-94	03-09-94

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PCB
ORGANIC ANALYSIS

JOB # : 3094-0120

SAMPLE ID	MATRIX	ANALYTICAL PROTOCOL	EXTRACTION METHOD	AUXILARY CLEAN UP	DIL/CONC FACTOR
MW-46	Aqueous	NYSDEC 89	SEPF	N/A	1.0
MW-37	Aqueous				
MW-38D	Aqueous				
MW-39D	Aqueous				
MW-35	Aqueous				
MW-40D	Aqueous				

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

JOB # : 3094-0120

ICAP

SAMPLE ID	MATRIX	METALS REQUESTED	DATE RECEIVED	DATE DIGESTED	DATE ANALYZED
MW-37	Aqueous	TAL METALS	02/18/94	03/10/94	03/14/94

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

JOB # : 3094-0120

Furnace

SAMPLE ID	MATRIX	METALS REQUESTED	DATE RECEIVED	DATE DIGESTED	DATE ANALYZED
MW-37	Aqueous	TAL METALS	02/18/94	03/10/94	03/14-16/94

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

JOB # : 3094-0120

mercury

SAMPLE ID	MATRIX	METALS REQUESTED	DATE RECEIVED	DATE DIGESTED	DATE ANALYZED
MW-37	Aqueous	TAL METALS	02/18/94	03/09/94	03/10/94

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
TAL METALS
INORGANIC ANALYSIS

JOB # : 3094-0120

ICAP

LABORATORY SAMPLE CODE	MATRIX	ANALYTICAL PROTOCOL	DIGESTION PROCEDURE	MATRIX MODIFIER	DIL/CONC FACTOR
MW-37	Aqueous	CLP	HNO_3, HCL	NA	1.1

IEA
An Aquarion Company

200 Monroe Turnpike
Monroe, Connecticut 06468

Phone 203·261·4458
Fax 203·268·5346

April 14, 1994

Ms. Linda Wilson
Roux Associates, Inc.
1377 Motor Parkway
Islandia, New York 11798

Dear Ms. Wilson:

The laboratory received a data validation from Data Validation Services for the Amtrak Site data packages, IEA SDG Nos. 3093-1274 and 3093-1332. The following is a response to the issues raised in the validation report.

<u>Issues:</u>

1. The low surrogate recoveries for samples MW-54(3-5) and MW-129(3-5) and associated method blank may have been a result of the acid clean-up procedure employed on these samples.

2. The Form I for the MSB has been resubmitted.

3. The Form I for sample MW-58(2-3) has been resubmitted with the CRQL adjusted to account for the reduced final volume. The reported values are above the CRQL levels and do not require a "J" qualifier.

4. The Form I for sample TW-3 has been resubmitted with the CRQL adjusted to account for the reduced final volume.

5. No action required, a matrix interference is present.

6. Sample S-135(3-3.5) exhibited a matrix interference which resulted in a suppressed Perylene-d12 internal standard response. The low response was the result of a matrix interference which is indicated by the sample chromatography, therefore, no reanalysis is necessary as per Method 8270.

7. No action required, all Method 8270 calibration criteria was achieved.

8. The laboratory utilizes a manual integration procedure for the four volatile gases to accurately quantitate the peaks. The manual integration procedure is not used for qualitative purposes to identify the gases. The laboratory's IDfiles which are used to identify the presence of the gases is set up to favor false positives. The four gases will correctly be identified if they are in a sample, therefore, a manual review of each for each

sample is not necessary.

9. No action required.

10. The significant figures presented on the Form I's are the result of the software the laboratory utilizes. The protocol specifies the significant figures to be used and all data is report to these, however, the presentation on the Form I adds additional zeros to completely fill in the field. The data is correctly rounded to the proper number of significant figures prior to the Form I presentation.

11. No action required.

12. No action required.

13. No action required.

14. No action required.

15. No action required.

16. The Form I for VBLKBW has been resubmitted.

Volatile Analyses

All calibration standards met the Method 8240 protocol requirements, as well as, NYSDEC 91-1 requirements. The minimum response factor requirement for 1,1,2,2-tetrachloroethane in Method 8240 is 0.300, which was achieved in the referenced calibration standards on 11/12/93 and 11/13/93 (at 0.471 and 0.475).

Semivolatile Analyses

The laboratory does not believe there was a spiking error for matrix spike sample. The phenol spike recovery was 58% and the phenol-d5 surrogate recovery was 70%, both within reason for the protocol. The extraction protocols require spiking the acid matrix spike compounds at concentrations above the upper calibration range of Method 8270. The soil samples were reduced to a final volume that was one-half of the usual final volume due to the GPC clean-up procedure used and the desire to maintain normal detection limits. The laboratory compensated for this by only spiking one-half the usual amount of surrogate and matrix spike solution. This maintains the protocol required on-column spiking levels for the surrogates and matrix spike compounds.

The low level soil method blanks contained the usual number of TICs for the sonication procedure required.

The 11/25/93 IDL has been resubmitted to correctly reflect the sample analysis period covered.

The full matrix spike recovery form has been resubmitted.

PCB Analyses

Calibration standard responses were in compliance with protocol requirements as relates to the pesticide responses, even though the sample analyses were for PCB only. The analytical sequence was stopped immediately after any continuing calibration standard which did not meet criteria, as per protocol requirements. The PCB continuing calibration standards which were intermittantly analyzed all had good correlation.

Metals Analyses

No action required.

Total Petroleum Hydrocarbons

No action required.

Very truly yours,

Marsha K. Culik
Quality Assurance Manager

Enclosure

cc: Judy Harry (DV Services)
Jeff Curran (IEA)
Larry Lewis (IEA)

1D
PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S-134, 2-4' MSB

3/22/94

Lab Name: IEA Contract: ______

Lab Code: IEA Case No.: 1274 SAS No.: ______ SDG No.: Z1274

Matrix: (soil/water) SOIL Lab Sample ID: 1274003MSB

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ______

Level: (low/med) LOW Date Received: 11/10/93

% Moisture: not dec. 0 dec. ______ Date Extracted: 11/15/93

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 11/17/93

GPC Cleanup: (Y/N) Y pH: Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	80 ~~160.~~	U
11104-28-2	Aroclor-1221	~~160.~~	U
11141-16-5	Aroclor-1232	~~160.~~	U
53469-21-9	Aroclor-1242	~~160.~~	U
12672-29-6	Aroclor-1248	~~160.~~	U
11097-69-1	Aroclor-1254	160 ~~320.~~	U
11096-82-5	Aroclor-1260	280.	X

12/13/93

FORM I PCB 1/87 Rev.

1D
PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
MW-58 (2-3')

Lab Name: IEA Contract: ____________

Lab Code: IEA Case No.: 1332 SAS No.: ________ SDG No.: Z1332

Matrix: (soil/water) SOIL Lab Sample ID: 1332007

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ____________

Level: (low/med) LOW Date Received: 12/08/93

% Moisture: not dec. 9 dec. _______ Date Extracted: 12/10/93

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/15/93

GPC Cleanup: (Y/N) Y pH: 6.2 Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	-------Aroclor-1016	88 ~~180.~~	U
11104-28-2	-------Aroclor-1221	~~180.~~	U
11141-16-5	-------Aroclor-1232	~~180.~~	U
53469-21-9	-------Aroclor-1242	~~180.~~	U
12672-29-6	-------Aroclor-1248	100.	
11097-69-1	-------Aroclor-1254	340.	
11096-82-5	-------Aroclor-1260	290.	

3/28/94

FORM I PCB 1/87 Rev.

1D
PCB ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TW-3

Lab Name: IEA Contract: ____________

Lab Code: IEA Case No.: 1332 SAS No.: ________ SDG No.: Z1332

Matrix: (soil/water) WATER Lab Sample ID: 1332010

Sample wt/vol: 450. (g/mL) ML Lab File ID: ____________

Level: (low/med) LOW Date Received: 12/08/93

% Moisture: not dec. _____ dec. _____ Date Extracted: 12/09/93

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 12/15/93

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	0.072 ~~0.14~~	U
11104-28-2	Aroclor-1221	~~0.14~~	U
11141-16-5	Aroclor-1232	~~0.14~~	U
53469-21-9	Aroclor-1242	~~0.14~~	U
12672-29-6	Aroclor-1248	~~0.14~~	U
11097-69-1	Aroclor-1254	2.4	
11096-82-5	Aroclor-1260	1.9	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKBW

Lab Name: IEA
Contract:
Lab Code:
Case No.: 1332
SAS No.:
SDG No.: Z1332
Matrix: (soil/water) SOIL
Lab Sample ID: VBLKBW
Sample wt/vol: 5 (g/mL) G
Lab File ID: >B8048
Level: (low/med) LOW
Date Received:
% Moisture: not dec. 0
Date Analyzed: 12/10/93
Column: (pack/cap) CAP
Dilution Factor: 1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10.000	U
74-83-9	Bromomethane	10.000	U
75-01-4	Vinyl Chloride	10.000	U
75-00-3	Chloroethane	10.000	U
75-09-2	Methylene Chloride	2.000	J
67-64-1	Acetone	10.000	U
75-15-0	Carbon Disulfide	5.000	U
75-35-4	1,1-Dichloroethene	5.000	U
75-34-3	1,1-Dichloroethane	5.000	U
540-59-0	1,2-Dichloroethene (total)	5.000	U
67-66-3	Chloroform	5.000	U
107-06-2	1,2-Dichloroethane	5.000	U
78-93-3	2-Butanone	10 ~~0.300~~	~~J~~ u
71-55-6	1,1,1-Trichloroethane	5.000	U
56-23-5	Carbon Tetrachloride	5.000	U
108-05-4	Vinyl Acetate	10 ~~0.300~~	~~J~~ u
75-27-4	Bromodichloromethane	5.000	U
78-87-5	1,2-Dichloropropane	5.000	U
10061-01-5	cis-1,3-Dichloropropene	5.000	U
79-01-6	Trichloroethene	5.000	U
124-48-1	Dibromochloromethane	5.000	U
79-00-5	1,1,2-Trichloroethane	5.000	U
71-43-2	Benzene	5.000	U
10061-02-6	trans-1,3-Dichloropropene	5.000	U
75-25-2	Bromoform	5.000	U
108-10-1	4-Methyl-2-Pentanone	10.000	U
591-78-6	2-Hexanone	10.000	U
127-18-4	Tetrachloroethene	5.000	U
79-34-5	1,1,2,2-Tetrachloroethane	5.000	U
108-88-3	Toluene	5.000	U
108-90-7	Chlorobenzene	5.000	U
100-41-4	Ethylbenzene	5.000	U
100-42-5	Styrene	5.000	U
1330-20-7	Xylene (total)	5.000	U

3/28/94

INSTRUMENT DETECTION LIMITS

Instrument C
Date: 11/25/93

UNITS: UG/L

	IDL
Phenol	2
bis(2-Chloroethyl)ether	1
2-Chlorophenol	1
1,3-Dichlorobenzene	2
1,4-Dichlorobenzene	1
Benzyl alcohol	1
1,2-Dichlorobenzene	1
2-Methylphenol	2
bis(2-Chloroisopropyl)ether	1
4-Methylphenol	3
N-Nitroso-Di-N-propylamine	1
Hexachloroethane	3
Nitrobenzene	4
Isophorone	3
2-Nitrophenol	2
2,4-Dimethylphenol	2
Benzoic acid	1
bis(2-Chloroethoxy)methane	3
2,4-Dichlorophenol	1
1,2,4-Trichlorobenzene	2
Naphthalene	3
4-Chloroaniline	2
Hexachlorobutadiene	1
4-Chloro-3-methylphenol	2
2-Methylnaphthalene	5
Hexachlorocyclopentadiene	9
2,4,6-Trichlorophenol	1
2,4,5-Trichlorophenol	2
2-Chloronaphthalene	5
2-Nitroaniline	2
Dimethylphthalate	2
Acenaphthylene	2
2,6-Dinitrotoluene	1
3-Nitroaniline	4
Acenaphthene	3
2,4-Dinitrophenol	2
4-Nitrophenol	2
Dibenzofuran	3
2,4-Dinitrotoluene	1
Diethylphthalate	3
4-Chlorophenyl-phenylether	3
Fluorene	3
4-Nitroaniline	3
4,6-Dinitro-2-methylphenol	3
N-Nitrosodiphenylamine(1)	1
4-Bromophenyl-phenylether	2
Hexachlorobenzene	2
Pentachlorophenol	5

INSTRUMENT DETECTION LIMITS

Instrument C
Date: 11/25/93

UNITS: UG/L

	IDL
Phenanthrene	1
Anthracene	3
Di-N-butylphthalate	1
Fluoranthene	3
Pyrene	5
Butylbenzylphthalate	2
3,3'-Dichlorobenzidine	1
Benzo(a)anthracene	2
Chrysene	2
bis(2-Ethylhexyl)phthalate	3
Di-N-octylphthalate	1
Benzo(b)fluoranthene	3
Benzo(k)fluoranthene	4
Benzo(a)pyrene	2
Indeno(1,2,3-cd)pyrene	1
Dibenzo(a,h)anthracene	1
Benzo(g,h,i)perylene	4
Nitrobenzene-d5	4
2-Fluorobiphenyl	1
Terphenyl-d14	4
Phenol-d5	1
2-Fluorophenol	2
2,4,6-Tribromophenol	4

3093-1332
FMS form 3

0387

I E A

BNA BLANK SPIKE RECOVERY REPORT

LAB NAME : I E A OF CT
BATCH # :
LAB FILE ID : >C8858
LAB SAMPLE ID: 1203-B05FM
MATRIX :
INST. ID : MSC
DATE ANALYZED: 12/20/93
TIME ANALYZED: 1856

Compound	% Recovery	Limits	Status
Acenaphthene	65.9	47.0 <-> 145.0	
Acenaphthylene	61.4	33.0 <-> 145.0	
Anthracene	75.0	27.0 <-> 133.0	
Benzo(a)anthracene	101.8	33.0 <-> 143.0	
Benzo(b)fluoranthene	89.0	24.0 <-> 159.0	
Benzo(k)fluoranthene	175.7	11.0 <-> 162.0	OUT
Benzo(a)pyrene	92.4	17.0 <-> 163.0	
Benzo(g,h,i)perylene	37.0 ~~3~~	.1 <-> 219.0	
Benzyl alcohol	74.3	0.0 <-> 999.9	
Butylbenzylphthalate	85.5	.1 <-> 152.0	
bis(2-Chloroethyl)ether	53.5	12.0 <-> 158.0	
bis(2-Chloroethoxy)methane	61.2	33.0 <-> 184.0	
bis(2-Chloroisopropyl)ether	67.7	36.0 <-> 166.0	
bis(2-Ethylhexyl)phthalate	83.8	8.0 <-> 158.0	
4-Bromophenyl-phenylether	81.2	53.0 <-> 127.0	
4-Chloroaniline	66.9	0.0 <-> 999.9	
2-Chloronaphthalene	67.6	60.0 <-> 118.0	
4-Chlorophenyl-phenylether	74.7	25.0 <-> 158.0	
Chrysene	71.4	17.0 <-> 168.0	
Dibenzo(a,h)anthracene	56.0 ~~4~~	.1 <-> 227.0	
Di-n-butylphthalate	95.7	1.0 <-> 118.0	
1,2-Dichlorobenzene	57.3	32.0 <-> 129.0	
1,3-Dichlorobenzene	55.3	.1 <-> 172.0	
1,4-Dichlorobenzene	59.1	20.0 <-> 124.0	
Diethylphthalate	83.4	.1 <-> 114.0	
Dimethylphthalate	80.2	.1 <-> 112.0	
2,4-Dinitrotoluene	89.4	39.0 <-> 139.0	
2,6-Dinitrotoluene	87.2	50.0 <-> 158.0	
Di-n-octylphthalate	114.8	4.0 <-> 146.0	
Fluoranthene	112.3	26.0 <-> 137.0	
Fluorene	74.8	59.0 <-> 121.0	
Hexachlorobenzene	89.5	.1 <-> 152.0	
Hexachlorobutadiene	62.2	24.0 <-> 166.0	
Hexachlorocyclopentadiene	21.7	0.0 <-> 999.9	
Hexachloroethane	53.7	40.0 <-> 113.0	
Indeno(1,2,3-cd)pyrene	42.4	.1 <-> 171.0	
Isophorone	75.4	21.0 <-> 196.0	
2-Methylphenol	70.4	0.0 <-> 999.9	
4-Methylphenol	73.9	0.0 <-> 999.9	
2-Methylnaphthalene	64.4	0.0 <-> 999.9	
Naphthalene	55.9	21.0 <-> 133.0	
Nitrobenzene	85.7	35.0 <-> 180.0	
N-Nitroso-di-n-propylamine	81.2	.1 <-> 230.0	
Phenanthrene	86.9	54.0 <-> 120.0	
Pyrene	83.4	52.0 <-> 115.0	
1,2,4-Trichlorobenzene	58.6	0.0 <-> 999.9	
2,4,6-Trichlorophenol	78.2	37.0 <-> 144.0	
2,4,5-Trichlorophenol	73.6	0.0 <-> 999.9	
4-Chloro-3-methylphenol	76.6	22.0 <-> 147.0	

3/28/94

```
2-Chlorophenol                   63.1    23.0 <-> 134.0
2,4-Dichlorophenol               66.5    39.0 <-> 135.0
2,4-Dimethylphenol               70.4    32.0 <-> 119.0
2,4-Dinitrophenol                70.8      .1 <-> 191.0
2-Nitroaniline                   78.7     0.0 <-> 999.9
N-Nitrosodiphenylamine (1)       55.9     0.0 <-> 999.9
4,6-Dinitro-2-methylphenol       69.4      .1 <-> 181.0
2-Nitrophenol                    63.2    29.0 <-> 182.0
4-Nitrophenol                   116.2      .1 <-> 132.0
Pentachlorophenol               104.8    14.0 <-> 176.0
Phenol                           62.3     5.0 <-> 112.0
```

3093-1332
FMS form 3

>C8858

0388

1203-B05 FMS

12/20/93
18:56

Data Validation Services
Cobble Creek Road P. O. Box 208
North Creek, N. Y. 12853
Phone 518-251-4429

TO: Roux Associates

FROM: Judy Harry, Data Validation Services J. Harry

DATE: 5-17-94

RE: Validation of Amtrak Site data package
IEA SDG No. Z0298

Review is complete for the data package generated by IEA Labs pertaining to the sample collected at the Amtrak Site. A soil sample and a field blank were processed for TCL volatiles and semivolatiles, TAL metals, and TCL PCBs. A trip blank was also analysed. Matrix spikes/duplicate were performed on the soil sample S-122 (7.5'-8.5'). Methodologies utilized are EPA-8240, EPA-8270, CLP-M, and a modified EPA-8080.

In summary, the samples were processed in general compliance with protocol criteria, with any exceptions noted below and on the attached compliancy chart. Any qualifications indicated by review of the quality issues are noted in the numbered section immediately following. Other quality concerns are discussed in the subsequent analysis sections.

1. The acetone detected in the soil sample should be rejected for consideration as a sample component, as indicated by its presence in the associated method blank. The reported result should be edited to "29 U".

2. Due to low response in the associated daily calibration standard (45%D), the chloromethane detection limit for the sample should be considered estimated, possibly biased low. No corrective action was required of the laboratory.

3. Due to low response in the associated daily calibration standard (39%D; RRF of 0.08), the 2,4-dinitrophenol detection limit for the sample should be considered estimated, possibly biased low. No corrective action was required of the laboratory.

4. The bis(2-ethylhexyl)phthalate reported in the sample should be rejected for consideration as a sample component, as indicated by its presence in the associated method blank. The reported result should be edited to nondetection at the sample CRDL.

5. All Tentatively Identified Compounds (TICs) flagged as "B" should be rejected for consideration as sample components due to their copresence in the associated blank.

6. Cadmium reported results for the sample and field blank should be considered estimated due to a low recovery of the standard at CRDL (CRI) of 52%. No corrective action was required of the laboratory.

7. The reported result for sodium in sample S-122(7.5-8.5) should be flagged as "B" to indicate that the value is above the IDL, but below the CRDL.

8. The reported values/detection limits for the volatile and semivolatile target compounds contain an excessive number of significant figures.

9. The value for 1,2,4-trichlorobenzene in the matrix spike duplicate should be 2400 ug/kg, not 1900 ug/kg. The value on the summary Form 3 is correct.

VOLATILE ANALYSES

Holding times were met for sample processing, with the exception of the analysis of the matrix spike, which was performed one day beyond allowable holding time. Surrogate, matrix spike, and matrix spike blank recoveries were within required/recommended limits. Duplicate correlation values were good.

With the exception of the chloromethane response noted earlier, initial and continuing calibration standard data was acceptable. Internal standard areas and retention times were within required ranges. Sample reported results are supported by the raw data.

SEMIVOLATILE ANALYSES

Holding times were met for sample processing. Surrogate, matrix spike (on SBLKRH), and matrix spike blank recoveries were within required/recommended limits. Duplicate correlation values were good, although that for acenaphthene was 21%RPD, above the recommended limit of 19%RPD.

Please note the earlier discussion regarding 2,4-dinitrophenol response. Responses for several target compounds in the standard of 4/25/94, associated only with the method blank, were also depressed. Sample reported results are not affected. Protocol requirements for the standards were met. Internal standard areas and retention times were within required ranges. Sample reported results are substantiated by the raw data.

The reported detection of di-n-butylphthalate in the matrix spike of SBLKRH was rejected from the quant report by the lab technician. That compound in the matrix spike duplicate was not reported, but appeared on the quant report and was not rejected by the technician.

PCB ANALYSES

Holding times were met for sample processing. Surrogate recoveries were good. Batch QC Aroclor 1260 matrix spike accuracy and precision values were acceptable.

Linearity of the the EVAL mixes was good, and breakdown values were acceptable. Dieldrin responses in the continuing standards of the primary column were slightly depressed, at 24%D and 21%D. Sample PCB reported results are not affected. Responses of the continuing Aroclor standards showed good consistency.

Certain typos existed on the standard summary forms (i.e. Endo I response on RTX-35 on 4/19/94 is actually 0.2%D, not 301%D).

Sample reported results are supported by the raw data.

METALS ANALYSES

All data were reviewed for compliance with the protocol requirements, and for technical validity, and were found acceptable unless noted specifically within this text.

Matrix spike recoveries of the soil sample were good. That for lead was 71%, below the recommended limit of 75%, but the sample is just below the evaluation limit of greater than four times the spike added, and qualification is not recommended. Duplicate and serial dilution correlation values are also good.

Raw data support sample reported values. It should be noted that the recoveries of the copper standards were acceptable, at 96%, rather than being the values of about 185% reported on the Forms 2A. The method denoted for lead, arsenic, and selenium on some of the blank summary Forms 3 should indicate "F", rather than "P". This correction was made by the laboratory to certain of the Forms, but not all.

IEA
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Monroe, Connecticut 06468

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30940-0298
ROUX ASSOCIATES

SDG Narrative

Volatile Organics - The ratio of cis-1,3-dichloropropene versus trans-1,3-dichloropropene is 47 and 53 percent respectively.

Semi-Volatile Organics - All samples were extracted and concentrated without any apparent problems.

Sample SBLKRH FMS exhibited internal standard area suppression. The extract was analyzed several times with similar results. The MS and MSD were also extracted with the same reagent water, however they did not exhibit suppression. The FMS has been reported as is.

PCB's - All samples were extracted and concentrated without any apparent problems.

All samples required GPC cleanup prior to analysis.

On the RTX-35 column analysis from 04/19/94-04/20/94 linearity was greater than 10 percent for aldrin, endrin and DBC. The only sample analyzed on this run was method blank PBLK45. Since the client samples were PCB's only, the method blank was not reanalyzed.

Petroleum Hydrocarbon Scan - No problems were encountered.

Since the samples did not contain any hydrocarbons, quantitation was not necessary.

Metals - No problems occurred during analysis. All appropriate protocols were employed. All data appears to be consistent.

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

Jeffrey C. Curran
Jeffrey C. Curran
Laboratory Manager

May 4, 1994
Date

IEA
An Aquarion Company

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Monroe, Connecticut 06468

Phone 203·261·4458
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30940-0298
<u>ROUX ASSOCIATES</u>

<u>SDG Narrative</u>

<u>Volatile Organics</u> - The ratio of cis-1,3-dichloropropene versus trans-1,3-dichloropropene is 47 and 53 percent respectively.

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<u>PCB's</u> - All samples were extracted and concentrated without any apparent problems.

All samples required GPC cleanup prior to analysis.

On the RTX-35 column analysis from 04/19/94-04/20/94 linearity was greater than 10 percent for aldrin, endrin and DBC. The only sample analyzed on this run was method blank PBLK45. Since the client samples were PCB's only, the method blank was not reanalyzed.

<u>Petroleum Hydrocarbon Scan</u> - No problems were encountered.

Since the samples did not contain any hydrocarbons, quantitation was not necessary.

<u>Metals</u> - No problems occurred during analysis. All appropriate protocols were employed. All data appears to be consistent.

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

Jeffrey C. Curran
Laboratory Manager

May 4, 1994
Date

02

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND
ANALYTICAL REQUIREMENT SUMMARY

JOB # : 3094-0298

CUSTOMER SAMPLE CODE	LABORATORY SAMPLE CODE	ANALYTICAL REQUIREMENTS*						
		*VOA GC/MS	*BNA GC/MS	*VOA GC	*PEST PCB	*METALS	*OTHER	*OTHER
S-122,7.5-8.5 FEET	0298001	X	X		X	X		
FIELD BLANK 040994	0298002	X	X		X	X		
TRIP BLANK 040994	0298003	X						

Check Appropriate Boxes

CLP, Non-CLP
HSL, Priority Pollutant

COMPLIANCY CHART

Project:	Roux Associates
SDG Nos:	IEA SDG No. Z0298
Protocol:	SW846

RecDate	Sample ID	Matrix	VOA	BNA	PCB	Metals	Other	Noncompl
04-11-94	S-122(7.5-8.5)	Soil	OK	OK	OK	OK	OK	
04-11-94	Field Blank	Aqueous	OK	OK	OK	OK	OK	
04-11-94	Trip Blank	Aqueous	OK	NR	NR	NR	OK	

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
B/N-A - TCL + TIC's
ANALYSIS

JOB # : 3094-0298

SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECVD AT LAB	DATE EXTRACTED	DATE ANALYZED
S-122,7.5-8.5 FEET	Soil	4/09/94	04/11/94	~~4b~~ 4/13/94	4/20/94
FIELD BLANK 040994	Aqueous	↓	04/11/94	↓	↓

LHD
04/29/94

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOA - TCL + TIC's
ANALYSIS

JOB # : 3094-0298

SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECVD AT LAB	DATE EXTRACTED	DATE ANALYZED
S-122.7.5-8.5 FEET	Soil	04/09/94	04/11/94	N/A	04/13/94
FIELD BLANK 040994	Aqueous	↓	04/11/94		04/14/94
TRIP BLANK 040994	Aqueous		04/11/94	↓	04/14/94

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
PCB
ANALYSIS

JOB # : 3094-0298

SAMPLE ID	MATRIX	DATE COLLECTED	DATE RECVD AT LAB	DATE EXTRACTED	DATE ANALYZED
S-122,7.5-8.5 FEET	Soil		04/11/94	04/13/94	04/22/94
FIELD BLANK 040994	Aqueous		04/11/94	04/12/94	04/21/94

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
INORGANIC ANALYSIS

JOB # : 3094-0296

ICAP

SAMPLE ID	MATRIX	METALS REQUESTED	DATE RECEIVED	DATE DIGESTED	DATE ANALYZED
7.5-8.5 FEET	Soil	TAL METALS	04/11/94	4/21/94	4/25/94
BLANK 040994	Aqueous	TAL METALS	04/11/94	4/19/94	4/19/94

APPENDIX E-4

Phase II Remedial Investigation and
Addendum Data Usability Report

The Phase II Remedial Investigation (RI) and Addendum to the Phase II RI for the Sunnyside Yard, Queens, New York Site (Yard) was conducted by Roux Associates, Inc. between August 1992 and August 1994. The methods of analysis used to determine chemical constituents detected in samples collected, and the protocols used to determine the validity of these data are described in the Phase II RI report, and are summarized below.

Chemical analyses for the investigations were performed by Industrial and Environmental Analysis, Inc. (IEA) of Monroe, Connecticut. Analytical protocols from the New York State Analytical Services Protocol (ASP) and Test Methods for Evaluating Solid Wastes (SW-846) were utilized for volatile organic compound (VOC) analyses by USEPA Method 8240, semivolatile organic compound (SVOC) analyses by USEPA Method 8270, polychlorinated biphenyls (PCBs) by modified USEPA Method 8080, ASP 89-3, and metals analysis by USEPA Methods 6010 and 7000 series.

Data validation for the chemical data generated by IEA was performed by Data Validation Services of Riparius, New York (DVS). DVS performed the data validation using the USEPA Region II CLP Organics Data Review and Preliminary Review (SOP No. HW-6, Revision #8) and the Evaluation of Metals Data for the Contract Laboratory Program (SOP No. HW-2, Revision #11).

Based on the analytical results obtained, and the review performed by DVS, an evaluation of the overall quality and usability of the data are addressed below. A summary of the usability of these data (each sampling point) for constituents of concern is provided in Table G-1.

Volatile Organic Compounds (VOCs)

Holding times were met for all sample processing (with few exceptions). Surrogate recoveries, matrix spike blank (MSB) recoveries, matrix spike (MS) and duplicate (MSD) correlation values, instrumental tunes, and internal standard areas/retention times met protocol requirements. The exceptions and their effects are included below.

- Low recovery of 1,1-Dichloroethene in the MSB and MS in soil samples MW-54, MW-58, and S-129. 1,1-Dichloroethene is considered estimated biased low in these samples.

- Nonlinear response for chloromethane in aqueous samples MW-37, MW-38D, MW-39D, MW-35, MW-40D, MW-61, MW-49, MW-63, MW-57, MW-59, results in reported detection limits biased low.

- Detections of acetone, methylene chloride, toluene, 2-butanone, and methyl ethyl ketone in method, field, and/or trip blanks are edited to reflect nondetection at either the Contract Required Quantitation Limit (CRQL), or originally reported value, whichever is greater.

Semivolatile Organic Compounds (SVOCs)

Holding times and instrument tune requirements were met for all sample processing. Surrogate and MSB recoveries, MS and MSD correlation values, and internal standards and retention times met protocol requirements with the exceptions stated below.

- Recoveries were elevated for 4-nitrophenol (139% and 214%) and pyrene (194% and 144%) and duplicate recoveries for 1,2,4-trichlorobenzene (26% Relative Percent Difference [RPD]) and acenaphthene (25% RPD) in Sample S-134 and a non project MS sample. Sample S-134 is estimated high for these constituents.

- Depressed internal standards for samples S-100, S-101, and S-102 results in detection limits and detected values as estimated low.

- Depressed internal standards for d-12 perylene in soil sample S-135, and aqueous samples MW-57 and MW-49 results in the detection limits and results being estimated low for di-n-octylphthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene.

- Three out of six internal standards for sample S-134 had depressed responses (as low as 6 percent) resulting in a low bias to reported results and detection limits.

- Aqueous sample MW-39D produced a low recovery (45% versus 50%) for d-12 perylene, however, due to the sensitivity of the system and no detects for associated compounds, no qualification is deemed necessary.

- No recovery for two acid surrogates in samples MW-63, MW-49, and MW-40D therefore all acid extractable compounds are considered unusable (demonstrated as matrix effect).

- Detections of di-n-butyl phthalate and bis(2-ethylhexyl)phthalate in method or field blanks are edited to reflect nondetection at either the CRQL, or the originally reported value, whichever is greater.

- Continuing calibration standards for 3-nitroaniline produced low responses in soil samples S-135, S-139, MW-54 and MW-58, therefore all reported detection limits for 3-nitroaniline are considered estimated low.

- 4,6-dinitro-2-methylphenol produced erratic responses in calibration curve, therefore the detection limits for these compounds in aqueous samples MW-46, MW-37, MW-38D, MW-35, MW-40D, MW-62D, MW-61, MW-49, MW-63 and MW-57 are estimated.

Polychlorinated Biphenyls (PCBs)

Holding times, linearity and breakdown requirements, and method blank criteria were met for all sample processing. Surrogate recoveries, MS and MSD correlation values, MSB and initial calibration verification (ICV) and continuing calibration verification (CCV) standards met protocol requirements, with the exceptions listed below.

- Poor surrogate recoveries in samples MW-54 and MW-59 result in sample results and detection limits estimated as much as 10 fold below actual. (Method blank also had depressed recovery.)

- Pesticide responses were not in compliance (elevated) but system is not compromised. The responses for Aroclor mixtures provided good correlation values, therefore PCB values are not qualified.

- Interferences in the spiked blank (aqueous) for Aroclor-1260 (MW-46, MW-38), Aroclor-1254 (MW-40D) and Aroclor species (MW-35) results in these results being estimated.
- Cross-contribution of Aroclor mixtures for sewer-sediment samples results in reported values considered as estimated.

- Poor surrogate recoveries in low-level reanalysis of sewer-water samples MHWF-2, MHW-2(N), CBW-28, MW-43, and MHWF-52 result in the detection level considered as estimated.

Metals

Holding times were met for all sample processing, spike recoveries, duplicate correlation, post digestion spike recoveries, serial dilutions and blank recoveries met protocol requirements with the exceptions listed below.

- Low spike recoveries in S-134 for chromium and mercury result in these compounds being estimated low.

- Post digestion spike recoveries were outside recommended limits, therefore the detection limits and reported values are estimated for arsenic, lead (MW-37), lead and selenium (MW-59, MW-62D, MW-49, MW-63) and selenium (MW-57).

- Serial dilution of barium in S-134 had elevated correlation (19.9%) therefore the barium result is estimated.

Total Petroleum Hydrocarbons

Quantitative values were determined from comparison to No. 2 fuel oil. The standard linearity was good.

Table G-1. Summary of Phase II RI and Addendum Data Usability, Sunnyside Yard, Queens, New York

Sampling Date	Sampling Location	Sample ID	Sample Depth	Matrix	VOC	SVOC	PCB Only	Metals	PHC
4/9/94	Area 1	S-122	7.5-8.5	Soil	A	A	A	A	A
11/29/93	Area 1	S-129	3-5	Soil	JL[1]	A	JL[2]	A	A
11/8/93	Area 1	S-134	2-4	Soil	A	JL[3]	A	JL[4]	A
12/7/93	Area 1	S-135	3-3.5	Soil	A	JL[5]	A	A	A
12/7/93	Area 1	S-139	3-3.1	Soil	A	A	A	A	A
11/29/93	Area 1	MW-54	3-5	Soil	JL[1]	A	JL[2]	A	A
12/7/93	Area 1	MW-58	2-3	Soil	JL[1]	A	A	A	A
1/26/93	Area 1	CS-1	0-2	Soil	NR	NR	A	NR	NR
11/2/93	Area 1	CS-3	3-5	Soil	NR	NR	A	NR	NR
11/8/93	Area 1	CS-5	0-2	Soil	NR	NR	A	NR	NR
11/8/93	Area 1	CS-10	0-2	Soil	NR	NR	A	NR	NR
1/26/93	Area 1	CS-76	0-0.5	Soil	NR	NR	A	NR	NR
11/8/93	Area 1	CMW-20	0-2	Soil	NR	NR	A	NR	NR
11/8/93	Area 1	CMW-22	0-2	Soil	NR	NR	A	NR	NR
12/15/93	Area 2	CS-41A	3.5-5.5	Soil	NR	NR	JH	NR	NR
1/18/93	Area 2	CS-43	0-2	Soil	NR	NR	A	A	NR
12/15/93	Area 4	CS-47	2-4	Soil	NR	NR	A	NR	NR
2/1/93	Area 4	CS-49	2-4	Soil	NR	NR	A	NR	NR
2/1/93	Area 4	CMW-31	0-2	Soil	NR	NR	A	NR	NR
1/20/93	Area 5	CS-50	0-2	Soil	NR	NR	A	NR	NR
1/20/93	Area 5	CS-51	0-2	Soil	NR	NR	A	NR	NR
11/8/93	Area 6	CS-61	5-7	Soil	NR	NR	A	NR	NR
2/1/93	Area 6	CS-64	2-3	Soil	NR	NR	A	NR	NR
1/18/93	Area 7	S-99	0-2	Soil	A	A	A	JL[4]	NR
11/8/93	Area 7	CS-67	0-2	Soil	NR	NR	A	NR	NR
1/20/93	Area 8A	S-111	0-2	Soil	NR	NR	A	NR	NR
1/20/93	Area 8A	S-112	0-2	Soil	NR	NR	A	NR	NR
1/20/93	Area 8A	S-113	0-2	Soil	NR	NR	JL[2]	NR	NR
1/20/93	Area 8A	S-114	0-2	Soil	NR	NR	A	NR	NR
1/20/93	Area 8A	S-115	0-2	Soil	NR	NR	A	NR	NR
1/25/93	Area 8C	S-104	0-2	Soil	NR	NR	A	NR	NR
1/25/93	Area 8C	S-105	0-2	Soil	NR	NR	A	NR	NR
1/25/93	Area 8C	S-106	0-2	Soil	NR	NR	A	NR	NR
1/25/93	Area 8C	S-107	0-2	Soil	NR	NR	A	NR	NR
1/25/93	Area 8C	S-108	0-2	Soil	NR	NR	A	NR	NR
2/1/93	Area 8C	CS-53	0-2	Soil	NR	NR	A	NR	NR

Table G-1. *Summary of Phase II RI and Addendum Data Usability, Sunnyside Yard, Queens, New York*

Sampling Date	Sampling Location	Sample ID	Sample Depth	Matrix	VOC	SVOC	PCB Only	Metals	PHC
1/25/93	Area 8C	CS-6	0-2	Soil	NR	NR	A	NR	NR
1/19/93	Area 9	S-103	0-2	Soil	NR	NR	A	N	NR
11/9/93	Area 9	CS-59	0-2	Soil	NR	NR	A	NR	NR
1/25/93	Area 10	CS-83	0-2	Soil	NR	NR	A	NR	NR
1/18/93	Area 13	S-100	0-2	Soil	A	JL[2]	A	J[5]	NR
1/19/93	Area 13	CS-75	0-2	Soil	NR	NR	A	NR	NR
11/9/93	Area 13	CS-77	0-2	Soil	NR	NR	A	NR	NR
11/9/93	Area 15	CS-82	0-2	Soil	NR	NR	A	NR	NR
1/18/93	Area 17	S-101	0-2	Soil	A	JL[2]	A	J[5]	NR
1/18/93	Area 17	S-102	0-2	Soil	A	JL[2]	A	J[5]	NR
12/16/93	Facility Wide	CS-16	0-2	Soil	NR	NR	A	NR	NR
12/15/93	Facility Wide	CS-22	0-2	Soil	NR	NR	A	NR	NR
12/15/93	Facility Wide	CMW-30	0-2	Soil	NR	NR	A	NR	NR
12/15/93	Facility Wide	CMW-34	0-2	Soil	NR	NR	A	NR	NR
2/9/93	Area 1	MW-23D	NA	Aqueous	A	A	A	NR	NR
2/17/94	2/9/93	MW-35	NA	Aqueous	A	A	JL[5]	A	NR
2/17/94	2/9/93	MW-37	NA	Aqueous	A	A	A	JL[8]	NR
2/17/94	2/9/93	MW-38D	NA	Aqueous	A	A	JL[5]	NR	NR
2/17/94	2/9/93	MW-39D	NA	Aqueous	A	A	A	NR	NR
2/17/94	2/9/93	MW-40D	NA	Aqueous	A	A/R	JL[5]	NR	NR
2/17/94	2/9/93	MW-49	NA	Aqueous	A	A/R	A	JL[7]	NR
2/17/94	2/9/93	MW-57	NA	Aqueous	A	JL[6]	A	JL[7]	NR
2/17/94	2/9/93	MW-59	NA	Aqueous	A	JL[6]	A	JL[7]	NR
2/17/94	2/9/93	MW-63	NA	Aqueous	A	A/R	A	JL[7]	NR
2/9/93	Area 2	MW-41	NA	Aqueous	A	NR	NR	NR	NR
1/26/93	Area 2	TW-1	NA	Aqueous	A	NR	NR	NR	NR
1/26/93	Area 2	TW-2	NA	Aqueous	A	NR	NR	NR	NR
2/9/93	Area 4	MW-42	NA	Aqueous	A	A	NR	NR	NR
2/9/93	Area 9	MW-45	NA	Aqueous	A	A	A	A	NR
2/9/93	Area 11	MW-46	NA	Aqueous	A	A	JL[5]	A	NR
2/17/93	Area 12	TW-3	NA	Aqueous	NR	A	A	NR	NR
1/15/93	Facility Wide	MW-25	NA	Aqueous	NR	NR	NR	A	NR
1/22/93	Facility Wide	MW-25A	NA	Aqueous	NR	NR	A	NR	NR

Table G-1. Summary of Phase II RI and Addendum Data Usability, Sunnyside Yard, Queens, New York

Sampling Date	Sampling Location	Sample ID	Sample Depth	Matrix	VOC	SVOC	PCB Only	Metals	PHC
2/9/93	Facility Wide	MW-29	NA	Aqueous	NR	NR	NR	A	NR
2/9/93	Facility Wide	MW-43	NA	Aqueous	A	A	A	A	NR
2/9/93	Facility Wide	MW-44	NA	Aqueous	A	A	A	A	NR
1/22/93	Facility Wide	MW-47	NA	Aqueous	A	A	A	NR	NR
2/9/93	Facility Wide	MW-48D	NA	Aqueous	A	A	A	A	NR
2/17/94	Facility Wide	MW-61	NA	Aqueous	A	A	A	JL[8]	NR
2/17/94	Facility Wide	MW-62D	NA	Aqueous	A	A	A	JL[8]	NR
2/9/93	Facility Wide	MHS-2	NA	Solid	NR	NR	A	NR	NR
2/8/93	Area 1	MHS-3	NA	Solid	NR	NR	A	NR	NR
2/9/93	Area 1	MHS-8	NA	Solid	NR	NR	A	NR	NR
2/17/93	Area 1	MW-36	NA	Aqueous	NR	NR	A	NR	NR
2/17/93	Area 1	MW-50	NA	Aqueous	NR	NR	A	NR	NR
2/17/93	Area 1	MW-53	NA	Aqueous	NR	NR	A	NR	NR
2/17/93	Area 1	MW-54	NA	Aqueous	NR	NR	A	NR	NR
2/17/93	Area 1	MW-60	NA	Aqueous	NR	NR	A	NR	NR
2/9/93	Area 1	MHW-1	NA	Aqueous	A	A	A	JL[8]	NR
2/9/93	Area 1	MHW-2	NA	Aqueous	A	A	JH	A	NR
2/8/93	Area 1	MHW-3	NA	Aqueous	NR	NR	A	NR	NR
2/8/93	Area 1	MHW-5	NA	Aqueous	NR	NR	A	NR	NR
2/8/93	Area 1	MHW-6	NA	Aqueous	NR	NR	A	NR	NR
2/8/93	Area 1	MHW-7	NA	Aqueous	NR	NR	A	NR	NR
2/9/93	Area 1	MHW-8	NA	Aqueous	NR	NR	JH	NR	NR
4/26/94	Facility Wide	MHW-52 (18) SE	NA	Aqueous	NR	NR	A	NR	NR
4/26/94	Facility Wide	MHW-52 (18) SW	NA	Aqueous	NR	NR	A	NR	NR
4/26/94	Facility Wide	MHW-52 (10) N	NA	Aqueous	NR	NR	A	NR	NR
4/26/94	Facility Wide	MHWF-2	NA	Aqueous	NR	NR	JL[2]	NR	NR
4/26/94	Facility Wide	MHWF-52 (42) SW	NA	Aqueous	NR	NR	A	NR	NR
4/25/94	Facility Wide	MHW-40 (48) E	NA	Aqueous	NR	NR	JL[2]	NR	NR

Table G-1. Summary of Phase II RI and Addendum Data Usability, Sunnyside Yard, Queens, New York

Sampling Date	Sampling Location	Sample ID	Sample Depth	Matrix	VOC	SVOC	PCB Only	Metals	PHC
4/25/94	Facility Wide	MHW-40 (4x8) S	NA	Aqueous	NR	NR	A	NR	NR
4/25/94	Facility Wide	MHWF-40 (48) E	NA	Aqueous	NR	NR	A	NR	NR
4/26/94	Facility Wide	MHW-2 (N)	NA	Aqueous	NR	NR	JL^2	NR	NR
4/26/94	Facility Wide	MHW-39	NA	Aqueous	NR	NR	JL^2	NR	NR
4/26/94	Facility Wide	MHW-39 (24) S	NA	Aqueous	NR	NR	A	NR	NR
4/26/94	Facility Wide	MHS-55	NA	Soil	NR	NR	J	NR	NR
4/26/94	Facility Wide	MHS-52	NA	Soil	NR	NR	J	NR	NR
4/26/94	Facility Wide	MHS-42	NA	Soil	NR	NR	J	NR	NR
4/25/94	Facility Wide	MHS-40 (48) E	NA	Soil	NR	NR	J	NR	NR
4/25/94	Facility Wide	MHS-40 (4x8) S	NA	Soil	NR	NR	J	NR	NR
4/26/94	Facility Wide	MHS-2	NA	Soil	NR	NR	J	NR	NR
4/28/94	Facility Wide	MHS-45	NA	Soil	NR	NR	J	NR	NR
4/28/94	Facility Wide	MHS-1	NA	Soil	NR	NR	J	NR	NR
4/28/94	Facility Wide	MHS-65	NA	Soil	NR	NR	J	NR	NR
4/28/94	Facility Wide	CBS-28	NA	Soil	NR	NR	J	NR	NR
4/28/94	Facility Wide	MHS-59	NA	Soil	NR	NR	-	NR	NR
4/28/94	Facility Wide	MHS-21	NA	Soil	NR	NR	J	NR	NR
4/27/94	Facility Wide	MHS-38	NA	Soil	NR	NR	-	NR	NR
4/28/94	Facility Wide	MHS-37	NA	Soil	NR	NR	-	NR	NR
4/28/94	Facility Wide	MHS-35	NA	Soil	NR	NR	J	NR	NR
4/27/94	Facility Wide	MHS-72	NA	Soil	NR	NR	-	NR	NR
4/28/94	Facility Wide	MHS-69 (18)	NA	Soil	NR	NR	J	NR	NR
4/28/94	Facility Wide	MHS-69 (36)	NA	Soil	NR	NR	A	NR	NR
4/27/94	Facility Wide	MHS-29	NA	Soil	NR	NR	A	NR	NR

Table G-1. Summary of Phase II RI and Addendum Data Usability, Sunnyside Yard, Queens, New York

Sampling Date	Sampling Location	Sample ID	Sample Depth	Matrix	VOC	SVOC	PCB Only	Metals	PHC
4/28/94	Facility Wide	MHW-1	NA	Aqueous	NR	NR	A	NR	NR
4/28/94	Facility Wide	MHWF-1	NA	Aqueous	NR	NR	A	NR	NR
4/28/94	Facility Wide	CBW-28	NA	Aqueous	NR	NR	JL^2	NR	NR
4/28/94	Facility Wide	MHW-59	NA	Aqueous	NR	NR	A	NR	NR
4/28/94	Facility Wide	MHW-43	NA	Aqueous	NR	NR	JL^2	NR	NR
4/28/94	Facility Wide	MHW-69	NA	Aqueous	NR	NR	A	NR	NR
4/27/94	Facility Wide	MHW-29	NA	Aqueous	NR	NR	A	NR	NR

J - estimated where Aroclor mixtures exist due to cross contribution
JL^1 - estimated biased low for 1,1-Dichloroethene
JL^2 - estimated biased low due to poor surrogate recoveries/matrix effect
JL^3 - estimated biased low due to depressed response of internal standards
JL^4 - estimated biased low for mercury, antimony, selenium and chromium
JL^5 - estimated biased low for copper and selenium
JL^6 - estimated biased low due to background interferences
JL^7 - estimated biased low for di-n-octyl phthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene
JL^8 - estimated biased low for lead and/or selenium
JL^9 - estimated biased low for mercury
JH - estimated biased high

A/R - Base neutrals acceptable/Acid extractables unusable
NA - Not applicable
NR - Not requested
PHC - Petroleum Hydrocarbon Scan
— - sample saturated; insufficient volume

APPENDIX E-5

OU-3 Remedial Investigation
Data Validation

1.0 INTRODUCTION

The following is an assessment and validation of analytical results reported by Chemtech Consulting Group of Edison, New Jersey for 32 soil samples and 3 groundwater samples collected from October 23, 2000 to October 31, 2000 at the Amtrak Sunnyside Yard in Queens New York.

All 32 soil samples were analyzed for polychlorinated biphenyls (PCBs) using Analytical Services Protocol (ASP) Method 95-3. A total of four soil samples were analyzed for carcinogenic polycyclic aromatic hydrocarbons (cPAH) by ASP Method 95-2, lead (Pb) by Contract Laboratory Program (CLP) Statement of Work (SOW) Method ILM04.0, Characteristics using the United States Environmental Protection Agency (USEPA) Toxicity Characteristic Leachate Procedure (TCLP) for Resource Conservation and Recovery Act (RCRA) Metals (USEPA Method 1311/6010/7471), TCLP base neutral aromatics (BNA) (USEPA Methods 1311/8270), Ignitability (USEPA Method 1010), and Reactivity (USEPA Methods 9010A and 9030A). In addition, a total of four soil samples were analyzed for total petroleum hydrocarbons (TPH) using USEPA Method 418.1, total organic carbon (TOC) using USEPA Method 9060, chemical oxygen demand (COD) using HACH Method 8000, biological oxygen demand usinf USEPA 405.1, and nutrients (nitrates and nitrites) using USEPA Method 353.2.

Three unfiltered groundwater samples were analyzed for volatile organic compounds (VOCs) using ASP Method 95-1, semivolatile organic hydrocarbons (SVOC) using ASP Method 95-2, metals using CLP Method ILM04.0 and Method 245.1, PCBs using ASP Method 95-3, total dissolved solids (TDS) using USEPA Method 160.1, and chloride using USEPA Method 325.3. Tentatively identified compounds (TICs) were also listed for the VOC and SVOC analyses. The three groundwater samples were also filtered and analyzed for PCBs using ASP Method 95-3 and metals using CLP Method ILM04.0 and Method 245.1. A sample key for specific laboratory and field identifications is presented in Table 1.

The quality assurance project plan (QAPP) defining the data quality objectives (DQOs) have been defined in the remedial action work plan (RAWP), "Work Plan for the Operable Unit 3

Remedial Investigation", June 23, 1997 (revised January 13, 1999), Roux Associates, Inc. Quality Assurance/Quality Control (QA/QC) criteria used to assess these data are based on information summarized in the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (October, 1995) and are also outlined in the following methods and documents:

- "USEPA Contract Laboratory Program National and Functional Guidelines for Organic Data Review," February 1994, EPA 540/R-94/012;
- "USEPA Contract Laboratory Program National and Functional Guidelines for Organic Data Review," February 1994, EPA 540/R-94/012;
- "USEPA Region II CLP Organics Data Review and Preliminary Review," June 1996, USEPA SOP HW-6, Revision 11; and
- "Evaluation of Metals Data for the Contract Laboratory Program," January 1992, USEPA SOP HW-2, Revision 11.

2.0 OVERALL DATA QUALITY ASSESSMENT

The data produced by Chemtech were assessed for their completeness and for whether the data are compliant with the applicable ASP/CLP guidelines. Each data package was generally considered complete and contained the necessary support information. The data were produced in a manner consistent with the DQOs defined in the workplan and laboratory subcontract. All data are acceptable with the qualifications noted below. Individual data quality parameters related to the overall DQOs are discussed in the following sections.

Copies of laboratory case narratives are attached to this narrative, and should be reviewed in conjunction with this narrative. Resubmission communications are also included with this report.

2.1 Precision

The laboratory precision review was based on laboratory control and duplicate samples. It should be noted that the results for soils are expected to exhibit variability due to the difficulty in collecting identical field samples and the inherent heterogeneity of the sample matrix. A review of laboratory duplicate samples as measured by the laboratory sample duplicates and MS/MSD results demonstrates adequate reproduction of most sample results when detectable concentrations of analytes were present except as listed in Sections 4.5, 4.6, and 4.7.

2.2 Accuracy

The accuracy of the chemical data generated was reviewed based on the results for holding times, spiked blanks and samples, and surrogate standard additions. Based upon this review, the accuracy of the chemical analyses is acceptable in comparison to the DQOs except where sample results have been qualified as described in Sections 4.3, 4.4, and 4.5.

2.3 Completeness

The data completeness as measured by the percentage of overall usable data is considered acceptable. A review of the results demonstrated that 100 percent of all data were considered acceptable, with the noted qualifications.

3.0 COMPLETENESS

The following eight components have been evaluated to determine the level of completeness within each of the submitted data packages.

3.1 Chain of Custody

The chain of custody forms for the samples analyzed were all present and the data contained within are acceptable with the following exceptions.

- Samples TSB-8(0-1), TSB-8(2.5-3.5), TSB-8(10-11), TSB-16(0-1), and TSB-16(3-4) were listed on the COC without indication of the analysis to be performed.
- Sample TSB-16(18-19) was included in the sample shipment but not indicated on the COC. A record of communication was provided documenting this fact and was to be analyzed for PCBs. Date and time of collection were not indicated.
- Date of collection was not indicated for TSB-9, TSB-10(2-3), TSB-10(12-13), and TSB-10.

3.2 Case Narrative and Sample Analysis Summary Forms

The case narratives for each data package were present including the sample analysis summary forms.

3.3 Quality Assurance/Quality Control

The quality assurance/quality control (QA/QC) summaries in addition to the supporting documentation were present for each data package.

3.4 Calibration Data

All relevant calibration data were present.

3.5 Instrument and Method Performance

Summaries for the instrument and method performance have been included for each data package.

3.6 Instrument and Method Detection Limits (Metals Only)

Documentation exhibiting the laboratory's ability to attain the contract specified detection limits has been included for the target analytes in both soil and aqueous matrices.

3.7 Data Report Forms

Data report forms are present for each sample analyzed over the target compounds.

3.8 Raw Data

All raw data used in the identification and quantification of the contract specified target compounds has been included.

4.0 COMPLIANCE

In order to determine that the laboratory-produced data are compliant with the work plan, certain criteria have to be met in addition to the above-defined level of completeness. The data should be consistent with the requirements of the DQO outlined in the RAWP and that all QA/QC criteria have been met.

4.1 Sample Holding Times

The sample holding time criteria for this program where specified were as follows. The ignitability, reactivity, TOC, BOD, COD, TPH, and nutrient analyses had no designated holding time in the RAWP.

Matrix	Analyte	Collection to Analysis	Collection to Extraction	Collection to TCLP Extraction	TCLP Extraction to Preparative Extraction	Extraction to Analysis
Aqueous	VOCs	14 days				
	SVOCs		7 days			40 days
	PCBs		7 days			40 days
	Metals	180 days				
	Mercury	26 days				
	Chloride	28 days				
	TDS	7 days				
Soil	cPAHs		14 days			40 days
	PCBs		14 days			40 days
	Lead	180 days				
	TCLP Metals			180 days		180 days
	TCLP Mercury			None specified		
	TCLP BNA			14 days	7 days	40 days

- All samples were extracted and/or analyzed within the above holding times with the following exception.
    1) ASP holding times for TCLP mercury are listed at 5 days from validated time of sample receipt (VTSR) to TCLP extraction, 28 days from extraction to analysis. USEPA Method 1311 (TCLP) holding times are 28 days from sample collection to TCLP extraction, 28 days from sample extraction to analysis. Holding times for this analysis were not specified in the RAWP but should have been included.

4.2 Calibration

Instrument Performance Check: To ensure that the GC/MS instruments are properly tuned over the mass range of interest, tuning compounds are analyzed on a regular basis by the laboratory. The results of these analyses must meet the relative ion abundance criteria specified in the analytical methods.

- VOCs, SVOCs, cPAH, and TCLP BNA: Tuning compounds were analyzed at the required frequency and all abundance criteria were met.

Initial Calibration: Typically, a five-point calibration curve is analyzed on each instrument to provide a means for quantitating analyte concentrations in the samples. The calibration curve must be linear and must show acceptable sensitivity for all analytes of interest.

- Acceptable calibration curves were established for all analytes of interest (VOCs, SVOCs, cPAH, TCLP BNA, and Aroclors). Instrument sensitivity and linearity were also acceptable for all compounds of interest with the following exceptions.
    1) The ICAL (10/17/00) for TCLP BNA hexachloroethane in data package L1912ASP and L1973ASP failed to meet the percent relative standard deviation criteria (%RSD), however since there are no field samples associated with this ICAL, qualification is not necessary.
- Calibration was performed daily for the lead, TCLP metals, and Metals analyses utilizing a blank and at least one calibration standard.
- The CRI (an ICP standard solution) was prepared and analyzed at the proper concentration (twice the contract required detection limit (CRDL)) and frequency for all analyses and recoveries were acceptable with the following exceptions.
    1) Selenium in one of the CRI (Dissolved Metals, data package L1912ASP) was in excess of control limits (>120%). Since the analyte is over-recovered at low limits, non-detects need not be qualified, all positive results within the range of the true value ± 2xCRDL are qualified as estimate ("J") (i.e. TSB-16).
    2) Lead in all of the CRI (Lead, data package L1973ASP) was in excess of control limits. All sample results however are above the range of the true value ± 2xCRDL, thus no qualification of the sample data are necessary.

Continuing Calibration: A calibration check standard is analyzed on a regular basis by the laboratory to verify the continued validity of the calibration curve. The results of this must show acceptable instrument stability and sensitivity for all analytes of interest.

- Calibration checks were analyzed at the proper frequency for the analyses (i.e., VOCs, SVOCs, cPAH, TCLP BNAs, Aroclors, Metals, Lead, and TCLP Metals). The results showed acceptable instrument sensitivity for all analytes of interest with the following exceptions.

1) The continuing calibration (CONCAL) check for SVOC hexachloroethane (file BK110403.D) in data package L1912ASP failed to meet the maximum percent difference (%D) criteria, however since there are no field samples associated with this calibration check standard qualification is not necessary.
2) The %D for benzo[k]fluoranthene (cPAH CONCAL, file BK110804.D, data package L1973ASP) was in excess of control limits, associated samples (TSB-2(0-2)RE and TSB18(0-1)DL) are qualified with "J".

- ICP interference check samples (ICS) for lead, TCLP Metals, and Metals were analyzed at the proper frequency for the analyses and results showed acceptable instrument sensitivity.

4.3 Blanks

Contamination introduced by the laboratory or field activities is characterized by the analysis of blanks. These include method blanks (laboratory), trip blanks, and field blanks, where applicable.

- There was no trip blank associated with the water samples analyzed for VOCs in data package L1912ASP although this is stated in the RAWP. This has a direct effect on the ability to accurately evaluate external contamination of project samples, and low level detections in the samples have not been eliminated from that consideration. These include TSB-9 (ethyl benzene, m&p-xylenes, and o-xylene), TSB-10 (acetone and 2-hexanone).

- There was no collection of field blanks although it is stated in the RAWP to collect 1/20 for the cPAH, PCBs, Pb, in soil and 1/20 for the VOCs, SVOCs, PCBs, and Metals in water samples.

- Method and instrument blanks were prepared and analyzed at the required frequency with results of non-detect for all compounds of interest (i.e., VOCs, SVOCs, cPAHs, TCLP BNAs, and Aroclors).

- Initial calibration, continuing calibration, and preparation blanks were prepared and analyzed at the required frequency and proper sequencing with results of non-detect for lead, TCLP Metals, and Metals.

- GPC blanks and equipment blanks, where applicable were prepared and analyzed at the required frequency with results of non-detect for all compounds of interest (i.e., cPAHs and TCLP BNA).

4.4 Surrogate Spike Recovery, Retention Times, and Internal Standard Areas

Surrogate compounds were added to all samples prior to preparative extraction and/or analysis to assess the effects of individual sample matrices on analytical efficiency. Retention times and areas of internal standards (IS) are also used to assess the effects of the sample matrix on instrumental analysis.

- The appropriate surrogates were added to all samples and all recoveries were adequate for the VOC, SVOC, cPAH, TCLP BNA, and Aroclor analyses with the following exceptions.
    1) In sample TSB-11(2.5-3.5) cPAH analysis (L1943ASP), recovery of nitrobenzene-d5 (129%) was in excess of control limits (120%).
    2) In sample TSB-14(2.5-3.5) 20x and TSB-14(4.5-5.5) 20x PCB analysis (L1943ASP), there were no recoveries of surrogate compounds due to a 20 fold dilution.
    3) The lower limit for TCMX retention time (RT) in data packages L1912ASP, L1943ASP, and L1973ASP should be listed as 3.98, not 3.93. There were no samples with RTs outside this criterion.
    4) In sample TSB-2(0-2) and TSB-18(0-1) (L1973ASP), the surrogate recovery of terphenyl-d14 (139% and 151%, respectively) was in excess of control limits (137%).
    5) In sample TSB-2(0-2)MS (L1973ASP), recovery of 2-fluorobiphenyl (42%) was below criteria range (43%).
- The appropriate internal standards (IS) were added to all samples and IS areas and retention times were within required control limits with the following exception.
    1) In sample TSB-2(0-2) and TSB-18(0-1) (L1973ASP), the IS perylene-d12 was below control limits, upon reanalysis (sample IDs TSB-2(0-2)RE and TSB-18(0-1)DL) the IS was still below control limits, but the surrogate recovery of terphenyl-d14 was inside control limits (previously it was not). Positive results for compounds quantitated using this IS (benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, indeno[1,2,3-cd]pyrene, dibenz[a,h]anthracene, and benzo[g,h,i]perylene are qualified with "J", non-detects as "UJ". Results for the reanalysis (sample IDs TSB-2(0-2)RE and TSB-18(0-1)DL) should be used for both samples since the surrogates are within acceptable criteria.

4.5 Matrix Spike (MS), Matrix Spike Duplicate (MSD) and Blank Spike (BS) Analyses

MS/MSD and BS analyses are one method to assess the analytical accuracy and precision. They specifically serve as an indicator of the effect a particular matrix has on the analytical accuracy and precision.

- VOC, SVOC, cPAH, TCLP BNA, and Aroclors: MS/MSD pairs and BS samples were prepared and analyzed at the required frequency and all recoveries and RPDs were acceptable with the following exceptions.
  1) A SVOC blank spike/blank spike duplicate (BS/BSD) was performed instead of a sample spike/spike duplicate (MS/MSD) in data package L1912ASP due to the lack of sample spiking matrix.
  2) In cPAH QC batch sample L1826-04 MS and MSD (L1973ASP and L1912ASP), recovery of pyrene 0% and 15%, respectively) was below recovery limits (35%) based on an initial spiking level of 2000 µg/kg. The associated BS met the recovery requirements, therefore it is likely that the errant MS/MSD recoveries are the result of matrix interference in this particular sample in addition to an aberrant spiking level.
- Metals, Lead, and TCLP Metals: Spike samples were prepared and analyzed at the required frequency and recoveries were acceptable with the following exceptions.
  1) In unfiltered water sample TSB-10 (L1912ASP), spike recovery of mangenese (127.5%) was in excess of required criteria (125%) but the post-digestion spike was not. This indicates the recovery of Mn has been affected by the digestion process. All unfiltered water sample data for manganese have been qualified with "J" as estimated concentrations (i.e., TSB-10, TSB-16, and TSB-9).
  2) In soil sample TSB-18(0-1) recovery of lead was in excess of acceptable criteria, however the concentration of lead in the sample is well in excess of 4 times the spike concentration. No qualification of data are necessary.

4.6 Field Duplicate Samples

Field duplicates are one method used to assess the sampling and analytical accuracy and precision.

- There is no evidence that there were field duplicates collected or analyzed, although the RAWP states that 1/20 were to be collected for each of the soil cPAH, Aroclor and lead analyses and for 1/20 to be collected for the water VOC, SVOC, PCB, Metals, TDS, and Chloride.

4.7 Laboratory Duplicate and Control Samples

Laboratory duplicates and control samples are one way to assess accuracy and precision, specifically for inorganic analyses.

- Lead, TCLP Metals, and Metals samples were prepared and analyzed at the required frequency and all recoveries were acceptable for all analytes with the following exceptions.
  1) Arsenic and selenium in QC batch duplicate SSF-DP-P1/0-12D for TCLP Metal analysis (L1943ASP and L1912ASP) RPDs (200% each) were outside control limits

(>20%). Each duplicate/sample pairing had a detection (qualified "B") and non-detection (qualified "U") for each compound. Therefore any low level data for both of these elements are to be qualified as estimated with a "J" in the associated field samples TSB-11(2.5-3.5) and TSB-9(2.5-3.5) to reflect the uncertainty in the analysis.

2) Arsenic and selenium in sample TSB-2(0-2) and its duplicate (L1973ASP) had an RPD (200% each) outside control limits (>20%). Data are to be qualified as estimated with a "J" in the associated field samples TSB-2(0-2) and TSB-18(20-1) for the reason describe above in 1).

4.8 ICP Serial Dilutions

- ICP dilutions for the lead, TCLP metals, and Metals analyses were acceptable with the following exceptions.
    1) In QC batch sample SSF-DP-P1/0-12L (L1943ASP TCLP metals), cadmium was detected in the initial sample, but upon dilution it was not present. The same occurred with sample pairing TSB-10L/TSB-10DL (L1912ASP) for several analytes in the metals analysis (Al, As, Cu, Ni, Tl, and V) and in sample TSB-2(0-2)TL (1973ASP TCLP Metals) with arsenic, cadmium, and silver. Since none of the elements were detected in the initial sample at 50 times the instrument detection limit, qualification is not necessary.

4.9 Sample Quantitation

- Sample results for the VOC, cPAH, TCLP BNA, and SVOC analyses were quantitated using internal standards as specified in the analytical methods and all results were calculated correctly using the appropriate internal standard responses.
    1) Any sample analytes initially flagged with "E" should use replacement values from the dilution analysis for the affected analytes (i.e., TSB-18(0-1)DL).
- Sample results for the Aroclors were quantitated using the external standard technique as specified in the analytical methods with all results correctly calculated.
    1) Sample 1943-07 (TSB-14(23-24)) appears to contain a pattern consistent with the Aroclor 1260 identified in the other samples in the SDG. Although the low level detection is likely below the quantitation limit (whether present from carryover or at actual levels), the sample was originally not quantitated and should be qualified as "UJ" to reflect the uncertainty in the detection limit.
- Sample results for the Lead, TCLP Metals, and Metals were calculated correctly.

4.10 Tentatively Identified Compounds (TICs)

Tentatively identified compounds (TICs) were reported for the VOC and SVOC analyses. Laboratory identifications and quantifications were acceptable with the following exceptions.

- When a TIC is identified and quantified, the qualifier used is "NJ" describing the tentative identification and quantitative estimation. Unknowns are qualified with "J".
- Compounds that are properly reported in another fraction are not to be reported as a TIC.
    1) In sample TSB-16, 2-methylnaphthalene was reported as a VOC TIC but is a reported SVOC. The TIC is to be qualified with an "R".
- Changes to identifications of TICs are as follows.
    1) In sample TSB-9 a VOC and SVOC TIC reported as 1-methyl naphthalene is actually 2-methyl naphthalene and is to be qualified with "R".
    2) In sample TSB-9, an unknown VOC and SVOC TIC is actually 1-methyl naphthalene and to be qualified with "NJ".
    3) In sample TSB-9DL, a SVOC TIC reported as 2-methyl naphthalene is actually 1-methyl naphthalene and is to be qualified with "NJ".
- Possible laboratory artifact identified as a TIC are as follows.
    1) In sample TSB-10, a SVOC TIC reported as trimethyl(2-phenylethyl)silane is a likely a laboratory artifact and is qualified with "R".

4.11 General Chemistry

This section encompasses a variety of analyses that were performed, including chloride, TDS, Nitrate-Nitrite, Chemical Oxygen Demand, Total Petroleum Hydrocarbons, Biochemical Oxygen Demand, Total Organic Carbon, Ignitability, Reactivity, and Percent Solids.

- QA/QC data such as matrix spikes, duplicates, and blanks were within acceptable limits.

Table 1. Soil Sample Collection and Analysis Summary for Amtrak, Queens, New York.

Laboratory Identification	Client Identification	Matrix	Sample Date	Collection Time	Analysis (Method)
L1943-01	TSB-15(0-1)	Soil	10/25/2000	0830	PCB (ASP-95-3)
L1943-02	TSB-15(2.5-3.5)	Soil	10/25/2000	0855	PCB (ASP-95-3)
L1943-03	TSB-15(19-20)	Soil	10/25/2000	1000	PCB (ASP-95-3)
L1943-04	TSB-11(2.5-3.5)	Soil	10/25/2000	1020	cPAH (ASP 95-2), PCB (ASP 95-3), Pb (ILM04.0), TCLP BNA (USEPA 1311,8270), TCLP MET (USEPA 1311, 6010, 7471), IGN (USEPA 1010), REAC (USEPA 9010A and 9030A)
L1943-05	TSB-14(2.5-3.5)	Soil	10/25/2000	1105	PCB (ASP-95-3)
L1943-06	TSB-14(4.5-5.5)	Soil	10/25/2000	1110	PCB (ASP-95-3)
L1943-07	TSB-14(23-24)	Soil	10/25/2000	1345	PCB (ASP-95-3)
L1943-08	TSB-13(2.5-3.5)	Soil	10/25/2000	1415	PCB (ASP-95-3)
L1943-09	TSB-12(2.5-3.5)	Soil	10/25/2000	1430	PCB (ASP-95-3)
L1973-01	TSB-2(0-2)	Soil	10/31/2000	0845	cPAH (ASP 95-2), PCB (ASP 95-3), Pb (ILM04.0), TCLP BNA (USEPA 1311,8270), TCLP MET (USEPA 1311, 6010, 7471), IGN (USEPA 1010), REAC (USEPA 9010A and 9030A)
L1973-02	TSB-4(0-2)	Soil	10/31/2000	0810	PCB (ASP-95-3)
L1973-03	TSB-5(0-2)	Soil	10/31/2000	0820	PCB (ASP-95-3), TPH (USEPA 418.1), TOC (USEPA 9060), BOD (USEPA 405.1), COD (HACH 8000), NTR (USEPA 353.2)
L1973-04	TSB-6(0-2)	Soil	10/31/2000	0825	PCB (ASP-95-3)
L1973-05	TSB-7(0-2)	Soil	10/31/2000	0830	PCB (ASP-95-3)
L1973-06	TSB17(0-1)	Soil	10/30/2000	0840	PCB (ASP-95-3)
L1973-07	TSB17(3-4)	Soil	10/30/2000	0845	PCB (ASP-95-3)
L1973-08	TSB17(24-25)	Soil	10/30/2000	1330	PCB (ASP-95-3), TPH (USEPA 418.1), TOC (USEPA 9060), BOD (USEPA 405.1), COD (HACH 8000), NTR (USEPA 353.2)
L1973-09	TSB18(0-1)	Soil	10/30/2000	1400	cPAH (ASP 95-2), PCB (ASP 95-3), Pb (ILM04.0), TCLP BNA (USEPA 1311,8270), TCLP MET (USEPA 1311, 6010, 7471), IGN (USEPA 1010), REAC (USEPA 9010A and 9030A)
L1973-10	TSB18(3.5-4.5)	Soil	10/30/2000	1410	PCB (ASP-95-3)
L1973-11	TSB18(19-20)	Soil	10/30/2000	1520	PCB (ASP-95-3)
L1912-01	TSB-10	Water	10/23/2000	1330	VOC (ASP 95-1), SVOC (ASP 95-2), MET (ILM04.0), PCB (ASP 95-3), TDS (USEPA 160.1), CHL (325.3), TICs
L1912-02	TSB-16	Water	10/24/2000	1455	VOC (ASP 95-1), SVOC (ASP 95-2), MET (ILM04.0), PCB (ASP 95-3), TDS (USEPA 160.1), CHL (325.3), TICs
L1912-03	TSB-9	Water	10/24/2000	1045	VOC (ASP 95-1), SVOC (ASP 95-2), MET (ILM04.0), PCB (ASP 95-3), TDS (USEPA 160.1), CHL (325.3), TICs
L1912-04	TSB-10(F or D)	Water	10/23/2000	1330	PCB (ASP 95-3), MET (ILM04.0)

Table 1. ***Soil Sample Collection and Analysis Summary for Amtrak, Queens, New York.***

Laboratory Identification	Client Identification	Matrix	Sample Date	Collection Time	Analysis (Method)
L1912-05	TSB-16(F or D)	Water	10/24/2000	1455	PCB (ASP 95-3), MET (ILM04.0)
L1912-06	TSB-9(F or D)	Water	10/24/2000	1045	PCB (ASP 95-3), MET (ILM04.0)
L1912-07	TSB-10(0-1)	Soil	10/23/2000	1110	PCB (ASP-95-3)
L1912-08	TSB-10(2-3)	Soil	10/23/2000	1120	PCB (ASP-95-3)
L1912-09	TSB-10(12-13)	Soil	10/23/2000	1300	PCB (ASP-95-3)
L1912-10	TSB-8(2.5-3.5)	Soil	10/24/2000	1125	PCB (ASP-95-3)
L1912-11	TSB-8(10-11)	Soil	10/24/2000	1200	PCB (ASP-95-3)
L1912-12	TSB-16(0-1)	Soil	10/24/2000	1330	PCB (ASP-95-3)
L1912-13	TSB-16(3-4)	Soil	10/24/2000	1355	PCB (ASP-95-3)
L1912-14	TSB-9(0-1)	Soil	10/24/2000	0840	PCB (ASP-95-3)
L1912-15	TSB-9(16-17)	Soil	10/24/2000	1045	PCB (ASP-95-3)
L1912-16	TSB-16(18-19)	Soil	10/24/2000	1455	PCB (ASP-95-3)
L1912-17	TSB-8(0-1)	Soil	10/24/2000	1055	PCB (ASP-95-3), TPH (USEPA 418.1), TOC (USEPA 9060), COD (HACH 8000), NTR (USEPA 353.2)
L1912-18	TSB-9(2.5-3.5)	Soil	10/24/2000	0855	cPAH (ASP 95-2), PCB (ASP 95-3), Pb (ILM04.0), TCLP BNA (USEPA 1311,8270), TCLP MET (USEPA 1311, 6010, 7471), IGN (USEPA 1010), REAC (USEPA 9010A and 9030A), TPH (USEPA 418.1), TOC (USEPA 9060), BOD (USEPA 405.1), COD (HACH 8000), NTR (USEPA 353.2)

Notes:

Pb -	Lead	VOC -	Volatile Organic Compounds
MET -	Metals	SVOC -	*Semivolatile Organic Compounds*
IGN -	Ignitability	cPAH -	Carcinogenic Polycyclic Aromatic Hydrocarbons
REAC -	Reactivity	PCB -	Polychlorinated Biphenyls
TOC -	Total Organic Carbon	TCLP -	Toxicity Characteristic Leachate Procedure
TDS -	Total Dissolved Solids	BNA -	Base Neutral Acid Extractable Aromatic Compounds
CHL -	Chloride	TPH -	Total Petroleum Hydrocarbons
NTR -	Nutrients: *Nitrate and Nitrite*	BOD -	*Biochemical Oxygen Demand*
COD -	Chemical Oxygen Demand	TICs -	Tentatively Identified Compounds (VOCs and SVOCs)
ASP -	Analytical Services Protocol	USEPA -	United States Environmental Protection Agency

ATTACHMENT

December 1, 2000

Kurt Humler
CHEMTECH
205 Campus Plaza
Edison, NJ 08837
Fax 732.225.4110

RE: Roux Associates – Amtrak #05545Y03/04
CHEMTECH Project Nos. L1912ASP and L1973ASP

Dear Kurt:

Thank you for the update regarding the previous request. I had one more issue that needs to be commented on.

II. SDG L1912ASP and L1973ASP

1) In cPAH QC batch sample L1826-04 MS and MSD (L1973ASP), lists an initial spiking level of 2000 ug/kg. However, in cPAH QC batch sample L1826-04 MS and MSD (L1912ASP) the spiking levels are listed as 980 ug/kg. Please verify spiking levels

Thank you for your prompt attention to this request. If you have any questions do not hesitate to call. Please forward copies of all communications to my attention.

Best Regards,

Stephen E. Graham, Ph.D.
Project Toxicologist

December 1, 2000

Kurt Humler
CHEMTECH
205 Campus Plaza
Edison, NJ 08837
Fax 732.225.4110

RE: Roux Associates – Amtrak #05545Y03/04
CHEMTECH Project Nos. L1912ASP, L1943ASP, and L1973ASP

Dear Kurt:

Review of the above mentioned project data packages is currently being performed. Prior to completion of the validation report, the following items are needed or are to be commented on.

I. All SDG

1) Record of cooler temperature at time of sample receipt is not indicated.
2) Provide the Aroclor quantitation results and chromatograms for the single level formulations (Aroclors 1221, 1232, 1242, 1248, and 1254) and response factors.
3) Please explain why the CRI and ICS were not prepared at the required frequency for the TCLP Metals analysis. It was not analyzed at the end of the run or at a minimum of twice per 8 hour working shift.
4) Note: the lower limit for TCMX retention time (following the criteria of ±0.05) is 3.98, not 3.93.
5) Provide a NYDEC Sample Preparation and Analysis Summary Form (if one exists) or at a minimum TCLP preparation forms to verify certain extraction dates for samples.

II. SDG 1912ASP

1) Provide SVOC TIC library search area percent report and integrated chromatogram for water samples TSB-10 (file BK110218.D), TSB-16 (file BK110217.D), and TSB-9 (file BK110219.D).
2) Provide the instrument run log for 10/27/00 (TCLP BNA analysis, instrument MSBNA"K"5.
3) The response factors for the 50ng solution (BS101903.D, 10/19/00) in the cPAH initial calibration (ICAL) were all calculated incorrectly, ranging from –2.3 to 7.3 %D in comparison with the correct RFs. Please submit an updated form VIB to reflect the changes.
4) Lead concentrations were calculated incorrectly for sample TSB-9(2.5-3.5), its duplicate, and dilution. The dry weight was not taken into account. I calculated 20.27 mg/kg for TSB-9(2.5-3.5), 21.97 mg/kg for its duplicate, and

20.72 mg/kg for the dilution. Please submit a corrected Form I, Form VI, and Form IX to reflect these changes.

III. SDG 1973ASP

1) Two TCLP BNA continuing calibration (CONCAL) files (BK110902.D and BK110919.D) were compared with the incorrect ICAL run on 10/17/00. Please submit an updated form VIIB comparing the CONCAL with the ICAL run on 11/3/00.

Thank you for your prompt attention to these requests. If you have any questions do not hesitate to call. Please forward copies of all communications to my attention.

Regards,

Stephen E. Graham, Ph.D.
Project Toxicologist

CHEMTECH 205 Campus Plaza 1 • Edison, NJ 08837 Phone: 732.225.4111 Fax: 732.225.4110

June 28, 2000

Roux Associates, Inc.
1377 Motor Parkway
Islandia, NY 11749

ATTN: Stephen Graham

Re: Client project L1912ASP, L1943ASP, L1973ASP

Enclose please find corrections for the above referenced projects. Corrections are setup in the same order that they were requested in the fax. Please replace these pages on your hard copy.

Please do not hesitate to contact us if we can be of further service. We appreciate your patience in this matter.

Sincerely

Mildred V. Reyes
Mildred V. Reyes
QA/QC Coordinator

sensitive element. For optimization in the axial mode, follow the instrument manufacturer's instructions.

7.2.3.4 The instrument operating condition finally selected as being optimum should provide the lowest reliable instrument detection limits and method detection limits.

7.2.3.5 If either the instrument operating conditions, such as incident power or nebulizer gas flow rate are changed, or a new torch injector tube with a different orifice internal diameter is installed, the plasma and viewing height should be re-optimized.

→ 7.2.3.6 After completing the initial optimization of operating conditions, but before analyzing samples, the laboratory must establish and initially verify an interelement spectral interference correction routine to be used during sample analysis. A general description concerning spectral interference and the analytical requirements for background correction in particular are discussed in the section on interferences. Criteria for determining an interelement spectral interference is an apparent positive or negative concentration for the analyte that falls within ± one reporting limit from zero. The upper control limit is the analyte instrument detection limit. Once established the entire routine must be periodically verified every six months. Only a portion of the correction routine must be verified more frequently or on a daily basis. Initial and periodic verification of the routine should be kept on file. Special cases where continual verification is required are described elsewhere.

7.2.3.7 Before daily calibration and after the instrument warmup period, the nebulizer gas flow rate must be reset to the determined optimized flow. If a mass flow controller is being used, it should be set to the recorded optimized flow rate. In order to maintain valid spectral interelement correction routines the nebulizer gas flow rate should be the same (< 2% change) from day to day.

7.2.4 For operation with organic solvents, use of the auxiliary argon inlet is recommended, as are solvent-resistant tubing, increased plasma (coolant) argon flow, decreased nebulizer flow, and increased RF power to obtain stable operation and precise measurements.

7.2.5 Sensitivity, instrumental detection limit, precision, linear dynamic range, and interference effects must be established for each individual analyte line on each particular instrument. All measurements must be within the instrument linear range where the correction equations are valid.

7.2.5.1 Method detection limits must be established for all wavelengths utilized for each type of matrix commonly analyzed. The matrix used for the MDL calculation must contain analytes of known concentrations within 3-5 times the anticipated detection limit. Refer to Chapter One for additional guidance on the performance of MDL studies.

7.2.5.2 Determination of limits using reagent water represent a best case situation and do not represent possible matrix effects of real world samples.

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y03/04
Chemtech # L1912ASP

A. Number of Samples and Date of Sample Receipt:
3 Aqueous plus 12 soil Sample were delivered to the laboratory intact on 10/23 and 10/24.

B. Parameters:
Tests requested on the Chain of Custody were Volatile Organics, Semivolatile Organics, TCLP Semivolatile Organics, PCBs, Metals, Lead, Dissolved Metals, TCLP Metals & General Chemistry. This data package contains results for Volatile Organics.

C. Analytical Techniques:
Samples were analyzed for Volatile Organics according to CLP Methodology. The analyses were performed on instruments VOA 10 "N", using GC column DB624 which is 75 meters, 0.53mm ID, 3.0mm df (crossbond 6% cyanopropylphenyl-94% dimethylpolysiloxane). The Purge Trap was supplied by Supelco, VO CARB 3000, Tekmar 3000.

D. QA/ QC Samples:
System Monitoring Compound met requirements. MS/MSD recoveries and RPDs met requirements. Tuning Checks met requirements. Internal Standard Areas and Retention Times met criteria. Calibrations met requirements. Blank analyses did not indicate the presence of contamination.

I certify that the 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 hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature Mildred V. Reyes   Name: Mildred V. Reyes

Date: 11/13/00   Title: QA/QC

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y03/04
Chemtech # L1912ASP

A. Number of Samples and Date of Sample Receipt:
3 Aqueous plus 12 soil Sample were delivered to the laboratory intact on 10/23 and 10/24.

B. Parameters:
Tests requested on the Chain of Custody were Volatile Organics, Semivolatile Organics, TCLP Semivolatile Organics, PCBs, Metals, Lead, Dissolved Metals, TCLP Metals & General Chemistry. This Case Narrative reviews results for Semivolatile Organics.

C. Analytical Techniques:
The analysis of Semivolatile Organics is based on CLP Methodology. The samples were analyzed on instrument MSBNA "K"5, using GC Column RTX-5 which is 30 meters, 0.25mm ID, 0.25mm df (crossbond 5% diphenyl-95% dimethyl polysiloxane).

D. QA/ QC Samples:
Surrogate recoveries met requirements. Sample TSB-9 was diluted due to high concentration of target Compounds. MS/MSD recoveries and RPDs met requirements. Internal Standard Areas and Retention Times were acceptable. Blank analyses did not indicate the presence of contamination.

I certify that the 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 hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature Mildred V. Reyes Name: Mildred V. Reyes

Date: 11/13/00 Title: QA/QC

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y03/04
Chemtech # L1912ASP

A. Number of Samples and Date of Sample Receipt:
3 Aqueous plus 12 soil Sample were delivered to the laboratory intact on 10/23 and 10/24.

B. Parameters:
Tests requested on the Chain of Custody were Volatile Organics, Semivolatile Organics, TCLP Semivolatile Organics, PCBs, Metals, Lead, Dissolved Metals, TCLP Metals & General Chemistry. This Case Narrative reviews results for TCLP Semivolatile Organics.

C. Analytical Techniques:
The analysis of TCLP Semivolatile Organics is based on CLP Methodology. The samples were analyzed on instrument MSBNAS 6 and MSBNA "K"5, using GC Column RTX-5 which is 30 meters, 0.25mm ID, 0.25mm DF (crossbond 5% diphenyl-95% dimethyl polysiloxane).

D. QA/ QC Samples:
Surrogate recoveries met requirements. MS/MSD recovery meets requirements. RPDs recoveries met requirements except for the Pyrene. Internal Standard Areas and Retention Times were acceptable. Blank analyses did not indicate the presence of contamination.

I certify that the 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 hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature Mildred V. Reyes Name: Mildred V. Reyes

Date: 11/15/00 Title: QA/QC

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y03/04
Chemtech # L1912ASP

A. Number of Samples and Date of Sample Receipt:
3 Aqueous plus 12 soil Sample were delivered to the laboratory intact on 10/23 and 10/24.

B. Parameters:
Tests requested on the Chain of Custody were Volatile Organics, Semivolatile Organics, TCLP Semivolatile Organics, PAH, PCBs, Metals, Lead, Dissolved Metals, TCLP Metals & General Chemistry. This Case Narrative reviews results for PAH.

C. Analytical Techniques:
The analysis of PAH is based on 8270. The samples were analyzed on instrument MSBNAS 6 and MSBNA "K"5, using GC Column RTX-5 which is 30 meters, 0.25mm ID, 0.25mm DF (crossbond 5% diphenyl-95% dimethyl polysiloxane).

D. QA/ QC Samples:
Surrogate recoveries met requirements. MS/MSD recovery of Acenaphthene and Pyrene did not meet requirements. RPDs recoveries met requirements except for the Pyrene. Internal Standard Areas and Retention Times were acceptable. Blank analyses did not indicate the presence of contamination.

I certify that the 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 hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature________________ Name: Mildred V. Reyes

Date: 11/13/00 Title: QA/QC

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y03/04
Chemtech # L1912ASP

A. Number of Samples and Date of Sample Receipt:
3 Aqueous plus 12 soil Sample were delivered to the laboratory intact on 10/23 and 10/24.

B. Parameters:
Tests requested on the Chain of Custody were Volatile Organics, Semivolatile Organics, TCLP Semivolatile Organics, PCBs, Metals, Lead, Dissolved Metals, TCLP Metals & General Chemistry. This data package contains results for PCBs.

C. Analytical Techniques:
The analysis of PCBs is based on Method 8082 on instrument CS01 GCPST-8. The front column is RTX-5 which is 30 meters, DF= 0.5, ID= 0.53mm, Catalog # 10240. The rear column is RTX-1701, 30 meters, DF= 0.5, ID= 0.53mm, Catalog # 12040.

D. QA/ QC Samples
Surrogate recoveries met QC limits. MS/MSD recoveries and RPDs met requirements. Calibrations met requirements. Surrogate Retention Times were within QC limits. Blank analyses did not indicate the presence of contamination.

I certify that the 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 hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature Mildred V. Reyes Name: Mildred V. Reyes

Date 11/13/02 Title: QA/QC

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y03/04
Chemtech # L1912ASP

A. Number of Samples and Date of Sample Receipt:
3 Aqueous plus 12 soil Sample were delivered to the laboratory intact on 10/23 and 10/24.

B. Parameters:
Tests requested on the Chain of Custody were Volatile Organics, Semivolatile Organics, TCLP Semivolatile Organics, PCBs, Metals, Lead, Dissolved Metals, TCLP Metals & General Chemistry. This data package contains results for Metals.

C. Analytical Techniques:
The analysis of Metals is based on CLP Methodology and Mercury by Method 245.1.

D. QA/ QC Samples
Calibrations met requirements. Blank analyses did not indicate the presence of contamination. Interference Check Sample, Laboratory Control Sample recoveries were within QC limits. Spike Sample recovery met requirements except for the Manganese. Duplicate recoveries met requirements. Serial Dilution met requirements.

I certify that the 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 hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature Mildred V. Reyes Name: Mildred V. Reyes

Date 11/13/00 Title QA/QC

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y03/04
Chemtech # L1912ASP

A. Number of Samples and Date of Sample Receipt:
3 Aqueous plus 12 soil Sample were delivered to the laboratory intact on 10/23 and 10/24.

B. Parameters:
Tests requested on the Chain of Custody were Volatile Organics, Semivolatile Organics, TCLP Semivolatile Organics, PCBs, Metals, Lead, Dissolved Metals, TCLP Metals & General Chemistry. This data package contains results for Lead.

C. Analytical Techniques:
The analysis of Lead is based on CLP Methodology.

D. QA/ QC Samples
Calibrations met requirements. Blank analyses did not indicate the presence of contamination. Interference Check Sample, Laboratory Control Sample recoveries were within QC limits. Spike Sample recovery met requirements. Duplicate recoveries met requirements. Serial Dilution met requirements.

I certify that the 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 hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature Mildred V. Reyes Name: Mildred V. Reyes

Date 11/13/02 Title QA/QC

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y03/04
Chemtech # L1912ASP

A. Number of Samples and Date of Sample Receipt:
3 Aqueous plus 12 soil Sample were delivered to the laboratory intact on 10/23 and 10/24.

B. Parameters:
Tests requested on the Chain of Custody were Volatile Organics, Semivolatile Organics, TCLP Semivolatile Organics, PCBs, Metals, Lead, Dissolved Metals, TCLP Metals & General Chemistry. This data package contains results for Dissolved Metals.

C. Analytical Techniques:
The analysis of Dissolved Metals is based on CLP Methodology and Mercury by Method 245.1.

D. QA/ QC Samples
Calibrations met requirements. Blank analyses did not indicate the presence of contamination. Interference Check Sample, Laboratory Control Sample recoveries were within QC limits. Spike Sample recovery met requirements. Duplicate recoveries met requirements. Serial Dilution met requirements.

I certify that the 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 hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature Mildred V. Reyes Name: Mildred V. Reyes

Date 11/13/08 Title QA/QC

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y03/04
Chemtech # L1912ASP

A. Number of Samples and Date of Sample Receipt:
3 Aqueous plus 12 soil Sample were delivered to the laboratory intact on 10/23 and 10/24.

B. Parameters:
Tests requested on the Chain of Custody were Volatile Organics, Semivolatile Organics, TCLP Semivolatile Organics, PCBs, Metals, Lead, Dissolved Metals, TCLP Metals & General Chemistry. This data package contains results for TCLP Metals.

C. Analytical Techniques:
The analysis of TCLP Metals is based on Method 6010 and Mercury by Method 7471.

D. QA/ QC Samples
Calibrations met requirements. Blank analyses did not indicate the presence of contamination. Interference Check Sample, Laboratory Control Sample recoveries were within QC limits. Spike Sample recovery met requirements. Duplicate recoveries met requirements except for the Arsenic and Selenium. Serial Dilution met requirements.

I certify that the 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 hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature Mildred V. Reyes Name: Mildred V. Reyes

Date 11/13/00 Title QA/QC

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y03/04
Chemtech # L1912ASP

A. Number of Samples and Date of Sample Receipt:

3 Aqueous plus 12 soil Sample were delivered to the laboratory intact on 10/23 and 10/24.

B. Parameters:

Tests requested on the Chain of Custody were Volatile Organics, Semivolatile Organics, TCLP Semivolatile Organics, PCBs, Metals, Lead, Dissolved Metals, TCLP Metals & General Chemistry. This Case Narrative reviews results for General Chemistry.

C. Analytical Techniques

The analysis of Chloride is based on Method 325.3, Total Dissolved Solids by Method 160.1, Nitrate-Nitrite As Nitrogen by Method 353.2, Chemical Oxygen Demand by Method 8000, Total Petroleum Hydrocarbons by Method 418.1, BOD by Method 405.1, Total Organic Carbon by Method 9060, Ignitability by Method 1010, Reactive Cyanide by Method 9010A, Reactive Sulfide by Method 9030A and Percent Solids by Method 160.3.

D. QA/ QC Samples

A Method Blank, Spike and Duplicate sample were analyzed along with the samples.

Blank analysis did not indicate the presence of contamination. Calibrations met requirements. Holding Times were met except for BOD.

I certify that the 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 hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature_______________ Name: Mildred V. Reyes

Date: 11/15/00 Title: QA/QC

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y04
Chemtech # L1973ASP

A. Number of Samples and Date of Sample Receipt:
11 Soil Samples were delivered to the laboratory intact on 11/01/00.

B. Parameters:
Tests requested on the Chain of Custody were Semivolatile Organics (PAH), TCLP Semivolatile Organics, PCBs, Lead, TCLP Metals & General Chemistry. This Case Narrative reviews results for Semivolatile Organics (PAH).

C. Analytical Techniques:
The analysis of Semivolatile Organics (PAH) is based on Method 8270. The samples were analyzed on instrument MSBNA "K"5 and MSBNAS 6, using GC Column RTX-5 which is 30 meters, 0.25mm ID, 0.25mm df (crossbond 5% diphenyl-95% dimethyl polysiloxane).

D. QA/ QC Samples:
Surrogate recoveries met requirements except for the TSB-2 0-2 and TSB18 0-1, Sample TSB18 0-1 was diluted due to the high concentration of target compounds. MS/MSD and RPDs recovery of Pyrene did not meet requirements. Internal Standard Areas met requirements except for the TSB-2 0-2 and TSB18 0-1, Samples were re-run for conformation. Retention Times were acceptable. Blank analyses did not indicate the presence of contamination.

I certify that the 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 hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature________ Name: Mildred V. Reyes

Date: 11/14/00 Title: QA/QC

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y04
Chemtech # L1973ASP

A. Number of Samples and Date of Sample Receipt:
11 Soil Samples were delivered to the laboratory intact on 11/01/00.

B. Parameters:
Tests requested on the Chain of Custody were Semivolatile Organics (PAH), TCLP Semivolatile Organics, PCBs, Lead, TCLP Metals & General Chemistry. This Case Narrative reviews results for TCLP Semivolatile Organics.

C. Analytical Techniques:
The analysis of TCLP Semivolatile Organics is based on Method 8270. The samples were analyzed on instrument MSBNA "K"5, using GC Column RTX-5 which is 30 meters, 0.25mm ID, 0.25mm df (crossbond 5% diphenyl-95% dimethyl polysiloxane).

D. QA/ QC Samples:
Surrogate recoveries met requirements except for the TSB-2 0-2MS. MS/MSD recoveries and RPDs met requirements. Blank Spike recovery summary met requirements. Internal Standard Areas and Retention Times were acceptable. Blank analyses did not indicate the presence of contamination.

I certify that the 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 hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature Mildred V. Reyes Name: Mildred V. Reyes

Date: 11/14/00 Title: QA/QC

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y04
Chemtech # L1973ASP

A. Number of Samples and Date of Sample Receipt:
11 Soil Samples were delivered to the laboratory intact on 11/01/00.

B. Parameters:
Tests requested on the Chain of Custody were Semivolatile Organics (PAH), TCLP Semivolatile Organics, PCBs, Lead, TCLP Metals & General Chemistry. This data package contains results for PCBs.

C. Analytical Techniques:
The analysis of PCBs is based on Method 8082 on instrument CS01 GCPST-8. The front column is RTX-5 which is 30 meters, DF= 0.5, ID= 0.53mm, Catalog # 10240. The rear column is RTX-1701, 30 meters, DF= 0.5, ID= 0.53mm, Catalog # 12040.

D. QA/ QC Samples
Surrogate recoveries met requirements. MS/MSD recoveries and RPDs met requirements. Calibrations met requirements. Surrogate Retention Times were within QC limits. Blank analyses did not indicate the presence of contamination.

I certify that the 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 hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature ____________ Name: Mildred V. Reyes

Date 11/14/00 Title QA/QC

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y04
Chemtech # L1973ASP

A. Number of Samples and Date of Sample Receipt:
11 Soil Samples were delivered to the laboratory intact on 11/01/00.

B. Parameters:
Tests requested on the Chain of Custody were Semivolatile Organics (PAH), TCLP Semivolatile Organics, PCBs, Lead, TCLP Metals & General Chemistry. This data package contains results for Lead.

C. Analytical Techniques:
The analysis of Lead is based on CLP Methodology.

D. QA/ QC Samples
Calibrations met requirements. Blank analyses did not indicate the presence of contamination. Interference Check Sample, Laboratory Control Sample recoveries were within QC limits. Spike Sample recovery met requirements. Duplicate recoveries met requirements. Serial Dilution met requirements.

I certify that the 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 hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature Mildred V. Reyes Name: Mildred V. Reyes

Date 11/14/00 Title QA/QC

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y04
Chemtech # L1973ASP

A. Number of Samples and Date of Sample Receipt:
11 Soil Samples were delivered to the laboratory intact on 11/01/00.

B. Parameters:
Tests requested on the Chain of Custody were Semivolatile Organics (PAH), TCLP Semivolatile Organics, PCBs, Lead, TCLP Metals & General Chemistry. This data package contains results for TCLP Metals.

C. Analytical Techniques:
The analysis of TCLP Metals is based on Method 6010 and Mercury by Method 7471.

D. QA/ QC Samples
Calibrations met requirements. Blank analyses did not indicate the presence of contamination. Interference Check Sample, Laboratory Control Sample recoveries were within QC limits. Spike Sample recovery met requirements. Duplicate recoveries met requirements except for the Arsenic and Selenium. Serial Dilution met requirements.

I certify that the 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 hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature Mildred V. Reyes Name: Mildred V. Reyes

Date 11/14/00 Title QA/QC

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y04
Chemtech # L1973ASP

A. Number of Samples and Date of Sample Receipt:
11 Soil Samples were delivered to the laboratory intact on 11/01/00.

B. Parameters:
Tests requested on the Chain of Custody were Semivolatile Organics (PAH), TCLP Semivolatile Organics, PCBs, Lead, TCLP Metals & General Chemistry. This Case Narrative reviews results for General Chemistry.

C. Analytical Techniques
The analysis of Ignitability is based on Method 1010, Reactive Cyanide by Method 9010A, Reactive Sulfide by Method 9030A, BOD by Method 405.1, Chemical Oxygen Demand by Method 8000, Nitrate-Nitrite As Nitrogen by Method 353.2, Total Organic Carbon by Method 9060, Total Petroleum Hydrocarbons by Method 418.1 and Percent Solids by Method 160.3.

D. QA/ QC Samples
A Method Blank, Spike and Duplicate sample were analyzed along with the samples.

Blank analysis did not indicate the presence of contamination. Calibrations met requirements. Holding Times were met.

I certify that the 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 hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature Mildred V. Reyes Name: Mildred V. Reyes

Date: 11/14/00 Title: QA/QC

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y04
Chemtech # L1943ASP

A. Number of Samples and Date of Sample Receipt:
9 Soil Samples were delivered to the laboratory intact on 10/27/00.

B. Parameters:
Tests requested on the Chain of Custody were Semivolatile Organics, TCLP Semivolatile Organics, PCBs, Lead, TCLP Metals & General Chemistry. This Case Narrative reviews results for Semivolatile Organics.

C. Analytical Techniques:
The analysis of Semivolatile Organics is based on Method 8270. The samples were analyzed on instrument MSBNA "K"5 and MSBNAS 6, using GC Column RTX-5 which is 30 meters, 0.25mm ID, 0.25mm df (crossbond 5% diphenyl-95% dimethyl polysiloxane).

D. QA/ QC Samples:
Surrogate recoveries met requirements. MS/MSD recoveries and RPDs did not meet requirements. Blank Spike recovery summary met requirements. Internal Standard Areas and Retention Times were acceptable. Blank analyses did not indicate the presence of contamination.

I certify that the 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 hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature__________ Name: Mildred V. Reyes

Date: 11/10/00 Title: QA/QC

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y04
Chemtech # L1943ASP

A. Number of Samples and Date of Sample Receipt:
9 Soil Samples were delivered to the laboratory intact on 10/27/00.

B. Parameters:
Tests requested on the Chain of Custody were Semivolatile Organics, TCLP Semivolatile Organics, PCBs, Lead, TCLP Metals & General Chemistry. This Case Narrative reviews results for TCLP Semivolatile Organics.

C. Analytical Techniques:
The analysis of TCLP Semivolatile Organics is based on Method 8270. The samples were analyzed on instrument MSBNA "K"5, using GC Column RTX-5 which is 30 meters, 0.25mm ID, 0.25mm df (crossbond 5% diphenyl-95% dimethyl polysiloxane).

D. QA/ QC Samples:
Surrogate recoveries met requirements. MS/MSD recoveries and RPDs met requirements. Blank Spike recovery summary met requirements. Internal Standard Areas and Retention Times were acceptable. Blank analyses did not indicate the presence of contamination.

I certify that the 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 hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature Mildred V. Reyes Name: Mildred V. Reyes

Date: 11/10/00 Title: QA/QC

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y04
Chemtech # L1943ASP

A. Number of Samples and Date of Sample Receipt:
9 Soil Samples were delivered to the laboratory intact on 10/27/00.

B. Parameters:
Tests requested on the Chain of Custody were Semivolatile Organics, TCLP Semivolatile Organics, PCBs, Lead, TCLP Metals & General Chemistry. This data package contains results for PCBs.

C. Analytical Techniques:
The analysis of PCBs is based on Method 8082 on instrument CS01 GCPST-8. The front column is RTX-5 which is 30 meters, DF= 0.5, ID= 0.53mm, Catalog # 10240. The rear column is RTX-1701, 30 meters, DF= 0.5, ID= 0.53mm, Catalog # 12040.

D. QA/ QC Samples
Surrogate recoveries met requirements except for the 1943-05 20X and 1943-06 20X. MS/MSD recoveries and RPDs met requirements. Calibrations met requirements. Surrogate Retention Times were within QC limits except for the 1943-05 20X and 1943-06 20X. Blank analyses did not indicate the presence of contamination.

I certify that the 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 hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature Mildred V. Reyes Name: Mildred V. Reyes

Date 11/10/00 Title QA/QC

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y04
Chemtech # L1943ASP

A. Number of Samples and Date of Sample Receipt:
9 Soil Samples were delivered to the laboratory intact on 10/27/00.

B. Parameters:
Tests requested on the Chain of Custody were Semivolatile Organics, TCLP Semivolatile Organics, PCBs, Lead, TCLP Metals & General Chemistry. This data package contains results for Lead.

C. Analytical Techniques:
The analysis of Lead is based on CLP Methodology.

D. QA/ QC Samples
Calibrations met requirements. Blank analyses did not indicate the presence of contamination. Interference Check Sample, Laboratory Control Sample recoveries were within QC limits. Spike Sample recovery met requirements. Duplicate recoveries met requirements. Serial Dilution met requirements.

I certify that the 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 hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature Mildred V. Reyes Name: Mildred V. Reyes

Date 11/10/00 Title QA/QC

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y04
Chemtech # L1943ASP

A. Number of Samples and Date of Sample Receipt:
9 Soil Samples were delivered to the laboratory intact on 10/27/00.

B. Parameters:
Tests requested on the Chain of Custody were Semivolatile Organics, TCLP Semivolatile Organics, PCBs, Lead, TCLP Metals & General Chemistry. This data package contains results for TCLP Metals.

C. Analytical Techniques:
The analysis of TCLP Metals is based on Method 6010 and Mercury by Method 7471.

D. QA/ QC Samples
Calibrations met requirements. Blank analyses did not indicate the presence of contamination. Interference Check Sample, Laboratory Control Sample recoveries were within QC limits. Spike Sample recovery met requirements. Duplicate recoveries met requirements except for the Arsenic and Selenium. Serial Dilution met requirements.

I certify that the 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 hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

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Date 11/10/00 Title QA/QC

CHEMTECH

CASE NARRATIVE

Roux Associates.
Project Name: Amtrak
Project # 05545Y04
Chemtech # L1943ASP

A. Number of Samples and Date of Sample Receipt:
9 Soil Samples were delivered to the laboratory intact on 10/27/00.

B. Parameters:
Tests requested on the Chain of Custody were Semivolatile Organics, TCLP Semivolatile Organics, PCBs, Lead, TCLP Metals & General Chemistry. This Case Narrative reviews results for General Chemistry.

C. Analytical Techniques
The analysis of Ignitability is based on Method 1010, Reactive Cyanide by Method 9010A, Reactive Sulfide by Method 9030A and Percent Solids by Method 160.3.

D. QA/ QC Samples
A Method Blank, Spike and Duplicate sample were analyzed along with the samples.

Blank analysis did not indicate the presence of contamination. Spike Sample recoveries were within QC limits. Holding Times were met.

I certify that the 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 hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature Mildred V. Reyes Name: Mildred V. Reyes

Date: 11/10/00 Title: QA/QC

APPENDIX E-6

OU-3 Remedial Investigation
Data Usability

1.0 INTRODUCTION

Roux Associates, Inc. (Roux Associates) has prepared this data usability report in accordance with the Remedial Investigation/Feasibility Study (RI/FS) Work Plan for the Operable Unit 3, Sunnyside Yard, in Queens, New York. This usability report has been developed using the data validation report prepared by Roux Associates (Appendix C of the RI report). Validation was performed using the guidance provided in United States Environmental Protection Agency Contract Laboratory Program (CLP) National Functional Guidelines for Organic and Inorganic Data Review and within the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP).

The analytical data and validation report comments were evaluated and professional judgement was rendered to determine the acceptability of these soil and groundwater results.

1.1 Volatile Organic Compounds

The noncompliances addressed in the validation report and the usability of the data based on the noncompliances for volatile organic compounds (VOCs) are presented below.

- There was no trip blank associated with the water samples analyzed for VOCs. This has a direct effect on the ability to accurately evaluate external contamination of project samples, and low level detections in the samples have not been eliminated from that consideration. These include TSB-9 (ethyl benzene, m&p-xylenes, and o-xylene), TSB-10 (acetone and 2-hexanone), and TSB-16 (no detected VOCs).

1.2 Semivolatile Organic Compounds

The noncompliances addressed in the validation report and the usability of the data based on the noncompliances for semivolatile organic compounds (SVOCs), toxicity characteristic leachate procedure (TCLP) base neutral aromatics (BNA), and carcinogenic polycyclic aromatic compounds (cPAH) are presented below.

- In sample TSB-2(0-2) and TSB-18(0-1) (L1973ASP), the internal standard perylene-d12 was below control limits (and in the reanalysis). Results for compounds quantitated using this IS (benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, indeno[1,2,3-cd]pyrene, dibenz[a,h]anthracene, and benzo[g,h,i]perylene were qualified as estimated.
- In cPAH QC batch sample L1826-04 MS and MSD (L1973ASP and L1912ASP), recovery of pyrene 0% and 15%, respectively) was below recovery limits (35%). The associated blank spike met recovery requirements, therefore it is likely that the errant

MS/MSD recoveries are the result of matrix interference in this particular sample in addition to an aberrant spiking level. No qualifications of data were necessary.

1.3 Polychlorinated Biphenyls

There were no noncompliances addressed in the validation report associated with the PCB analysis.

1.4 Metals

The noncompliances addressed in the validation report and the usability of the data based on the noncompliances for metals, dissolved metals, lead, and TCLP metals are presented below.

- In water sample TSB10 (L1912ASP), spike recovery of manganese was in excess of required criteria (125%) but the post-digestion spike was not. This indicated that the digestion process has affected the recovery of manganese. All sample data for manganese (i.e., TSB-10, TSB-16, and TSB-9) were considered estimated.

- In soil sample TSB-18(0-1) recovery of lead was in excess of acceptable criteria, however the concentration of lead in the sample was in excess of 4 times the spike concentration. No qualification of data was necessary.

- Selenium in one of the CRI (Dissolved Metals, data package L1912ASP) was in excess of control limits (120%). Since the analyte is over-recovered at low limits, non-detects were not be qualified, however all positive results within the range of the true value ± 2xCRDL were considered estimated and apply to sample TSB-16D.

- Low levels of arsenic and selenium in a QC batch duplicate for TCLP Metal analysis (L1943ASP and L1912ASP) and in sample TSB-2(0-2) and its duplicate (L1973ASP) had RPDs in excess of control limits (20%). Low level data for both of these elements were considered estimated samples TSB-11(2.5-3.5), TSB-9(2.5-3.5), TSB-2(0-2) and TSB-18(20-1) to reflect the uncertainty in the analysis.

- Lead in all of the CRI (Lead, data package L1973ASP) was in excess of control limits (20%). All sample results however are well above the range of the true value ± 2xCRDL, thus no qualifications of the sample data were necessary.

1.5 Total Petroleum Hydrocarbons and General Chemistry

The were no noncompliances addressed in the validation for the general chemistry parameters including the total petroleum hydrocarbons (TPH), total organic carbon (TOC), chemical oxygen demand (COD), biochemical oxygen demand (BOD), nutrients (nitrate-nitrite), ignitability, reactive cyanide, reactive sulfide, chloride and total dissolved solids (TDS).

APPENDIX E-7

OU-3 Remedial Investigation
Addendum Data Validation Report

Data Validation Services
120 Cobble Creek Road P. O. Box 208
North Creek, N. Y. 12853
Phone 518-251-4429
Facsimile 518-251-4428

February 27, 2004

Harry Gregory
Roux Associates
209 Shafter St.
Islandia, NY 11749

RE: Validation of Sunnyside Yard Amtrak site data package
STL-CT SDG Nos. 205214, 205399, 205424, 205557, and 205719

Dear Mr. Gregory:

Review has been completed for the data packages generated by Severn Trent Laboratories, Inc. that pertain to soil samples collected 11/3/03 through 12/19/03 at the Sunnyside Yard Amtrak site. Sixteen samples were analyzed for TCL volatiles, TCL semivolatiles, and TCL PCBs; fifteen of these were also processed for TAL metals. Twenty three samples were analyzed for PAHs, TCL PCBs, and total lead; four of these were also processed for TCL volatiles. Two samples were analyzed for TCL semivolatiles; one of these was also processed for TCL volatiles. Fourteen samples were analyzed only for TCL PCBs. Methods used are those of the NYSDEC ASP/USEPA SW846 methods EPA8260B, EPA8270C, EPA8082, and EPA6010B, and EPA7471.

Data validation was performed in accordance with the NYSDEC RI/FS Validation Scope of Work, with guidance from the most current editions of the USEPA National Functional Guidelines for Organic and Inorganic CLP Data Review and USEPA Region II validation SOPs HW-24, HW-23, HW-22, HW-2, and HW-6, and with consideration for the specific requirements of the methodology. The following items were reviewed:

- Data Completeness
- Case Narrative
- Custody Documentation
- Holding Times
- Surrogate and Internal Standard Recoveries
- Matrix Spike Recoveries and Duplicate Correlations
- Preparation/Calibration Blanks
- Laboratory Control Samples (LCS)/Matrix Spike Blanks (MSB)
- Instrumental Tunes
- Calibration/CRI Standards
- Instrument Detection Limits (IDLs)
- ICP Serial Dilution
- ICP Interference Check Samples
- Method Compliance
- Sample Result Verification

Those items listed above that show 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 project requirements.

In summary, sample processing was conducted primarily in compliance with protocol requirements. Most sample reported results are usable, either as reported, or with minor qualification of reported values due to typical processing variances or matrix effects. The following exceptions are noted:

a. There are no usable results for benzoic acid due to a lack of recovery through the extraction process that is inherent in the methodology.
b. The analysis of HD-8D/36-38 for the semivolatile parameters was requested 59 days following sample collection, beyond the usable holding time of 28 days from collection. The sample shows no detections, but the results for that fraction of the sample are not usable ("R" validation qualifier) due to potential losses during the interim hold.
c. There are no usable results for bromomethane in seven samples due to poor calibration standard response.

Copies of the laboratory case narratives are attached to this text, and should be reviewed in conjunction with this report. Also included in this submission are client results tables with recommended qualifiers and edits applied in red ink.

Data Completeness

No matrix spikes were performed for the volatile fraction. Therefore the effect of sample matrix on analyte recovery is not evaluated. The results of the evaluation of surrogate and internal standard responses in the samples, as well as the matrix spike/duplicate evaluations performed for the other matrices show that there is not a significant matrix effect from the samples.

The semivolatile matrix spike frequency meets overall percentage requirements, but not the requirements for timeframe of sample collection. There is no adverse effect on results expected.

Laboratory resubmissions include metals preparation logs and a revised case narrative.

Volatile Analyses by EPA 8260B

In accordance with USEPA SW846 and NYSDEC ASP requirements, reporting limits for nondetected analytes should be derived from the "RL" column of the report page, not the "MDL" column.

Holding times, instrument tunes, and sample surrogate and internal standard recoveries were acceptable.

Detections of methylene chloride and acetone in the project samples that are flagged by the laboratory as "B" have been edited to reflect nondetection ("U") due to presence in associated method blanks. Those not flagged "B" are at levels also suspect as external contamination, and should be used with caution.

Bromomethane showed very poor response in the calibration standards processed 12/23/03 on instrument M (mean RRF of 0.012). Results for that analyte in HD-1/4-6, HD-11/13-15, HD-14/4-6, HD-14/6-8, HD-16/9-11, HD-16/13-15, and HD-19/2-4 are therefore not usable ("R").

Initial and continuing calibration standards show responses within protocol requirements. However, the following analytes guidelines, and results in associated samples are therefore qualified as estimated in ("UJ" and "J") in value:

a. bromomethane (26%D) and 2-butanone (25%D) in HD-10/8-10, HD-10/6-8, and HD-6/9-11
b. methylene chloride (27%D) in HD-8D/20-22, HD-8/20-22, HD-7/21-23, HD-10/16-18, and HD-6/18-20
c. 2-butanone (31%D) and tetrachloroethene (22%D) in HD-4/8-10
d. acetone (55%RSD) and methylene chloride (28%RSD and 27%D) in HD-1/4-6, HD-11/13-15, HD-14/4-6, HD-14/6-8, HD-16/9-11, HD-16/13-15, and HD-19/2-4

No project matrix spikes were processed, and therefore the effect of the sample matrix on target analyte recovery has not been evaluated.

Spiked blanks (MSBs) show acceptable recoveries for all spiked analytes with the exception of bromomethane in the MSB processed with outlying standard responses (discussed above).

Some of the samples were analyzed at initial dilution due to high concentrations of nontarget analytes. Therefore, reporting limits for the target analytes, most of which show no detection, are elevated. Review of the chromatograms show that the sample matrix prohibits achieving the desired reporting limits for these samples.

Semivolatile Analyses by EPA 8270C

In accordance with USEPA SW846 and NYSDEC ASP requirements, reporting limits for nondetected analytes should be derived from the "RL" column of the report page, not the "MDL" column.

Two report forms were provided for HD-11/8-10. The one reporting no detection of n-nitrosodiphenylamine should be used.

Benzoic acid failed to recover (8% and 9%) in the LCSs, and data for this analyte are therefore not usable ("R" qualifier).

2,4-Dinitrophenol failed to recover (5%) in the LCS reported in SDG 205557, and results for this analyte in associated samples HD-11/4-6, HD-11/8-10, HD/11-13/15, HD-16/9-11, and HD-16/13-15 are rejected ("R").

Due to outlying technical holding time (13 days from VTSR, 14 from collection, beyond the allowable 10 days from VTSR), results for the following seven samples are qualified as estimated ("UJ" or "J"), with a low bias: HD-6/9-11, HD-6/18-20, HD-9/8-10, HD-9/13-15, HD-12/6-8, HD-12/14-16, and HD-20/6-8. This should have been discussed in the case narrative.

Instrument tunes, and sample surrogate and internal standard recoveries were acceptable.

Due to poor spectral quality, results for fluorene in HD-4/8-10, benzo(a)anthracene in HD-3/5-7, and 2-methylnaphthalene in HD-2/9-11 are qualified as tentative in identification and estimated in value ("NJ").

Detected results of bis(2-ethylhexyl)phthalate and di-n-butylphthalate that are flagged by the laboratory with a "B" are considered external contamination due to presence in the associated method blank, and are edited to nondetection ("U"). Other detections of these analytes are also suspect, and should be used with caution.

Initial and continuing calibration standards show responses within protocol requirements. However, the following analytes guidelines, and results in associated samples are therefore qualified as estimated in ("UJ" and "J") in value:

a. 2-chlorophenol (29%D), 2,2'-oxybis(1-chloropropane) (34%D), and 2-nitroaniline (27%D) in HD-8D/20-22
b. hexachlorocyclopentadiene (35%D and 27%RSD) in HD-6/9-11, HD-10/6-8, HD-10/8-10, HD-16/9-11, and HD-16/13-15

Matrix spikes of TCL analytes on HD-7/21-23 show acceptable recoveries and duplicate correlations, with the exception of those for pyrene and phenol, each of which shows one recovery within the recommended range and one recovery below acceptable limits (at 59%, below 66%, and 38%, below 57%, respectively). Results for those two analytes in the parent sample should be used with caution.

Matrix spikes of PAHs analytes on HD-2/13-15 show acceptable recoveries and duplicate correlations, with the exception of those for benzo(b)fluoranthene and fluoranthene, each of which shows one recovery within the recommended range and one recovery below acceptable limits (at 57%, below 62%, and 66%, below 67%, respectively). Results for those two analytes in the parent sample should be used with caution.

Due to outlying recoveries in the associated spiked blanks (LCSs), the following analyte results are qualified as esimtated ("J" or "UJ").

c. bis(2-ethylhexyl)phthalate (128%, above 125%) in HD-8D(20-22) and HD-8D(7-9)
d. pyrene (49%, below 66%) in samples HD-5B/9-11, HD-5B/15-16, HD-10/6-8, HD-10/8-10, HD-10/16-18, HD-7/8-10, HD-7/21-23, HD-15C/6-8, HD-15C/20-22, and HD-15C/28-30

TCL PCBs by EPA 8082

In accordance with USEPA SW846 and NYSDEC ASP requirements, reporting limits for nondetected analytes should be derived from the "RL" column of the report page, not the "MDL" column.

The PCB Aroclor 1260 in HD-6/9-11 shows outlying dual column quantitative correlation (80%D), and that result is qualified as estimated ("J"):

The detection of Aroclor 1248 in S-153/0-2 has a very poor pattern match (congener proportions) as well as elevated dual column correlation (84%D), and is qualified as tentative in identification ("NJ").

The detection of Aroclor 1260 in HD-3/5-7 has a very poor pattern match (congener proportions) as well as elevated dual column correlation (201%D), and is qualified as tentative in identification ("NJ").

Some of the samples exhibit elevated recoveries for one surrogate on one column, or were diluted; no qualification is required.

Holding times were met and blanks show no contamination. Calibration standards show acceptable responses for Aroclors. Some of the surrogate responses in the calibration standards were slightly above the 15%D limit; sample reported results are unaffected.

Matrix spike evaluations for accuracy and precision of Aroclor 1260 in HD-14/6-8, HD-8D/20-22, and HD-7/21-23 were acceptable. Those for S-161/0-2 could not be properly evaluated due to elevated sample concentrations.

Sample results were reported from the primary column in most cases. The confirmation column results were used when the primary column showed interferences.

TAL Metals and Total Lead Analyses by EPA 6010B and 7471

Samples were processed at a fivefold dilution, with a resulting proportional elevation in reporting limits.

Sample matrix spike and duplicate evaluations were performed for ICP elements on HD-8D/7-9, and show outlying recoveries below 75% for calcium (37%), antimony (35%), arsenic (137%), and manganese (-116%). Results for these four elements in the samples collected in November (reported in SDG 205399 and 205424) are therefore qualified as estimated ("J" or "UJ"). The manganese recovery was not correctly denoted as an outlier by the laboratory. The responses used in some of the recovery evaluations were not entirely accurate due to low responses resulting from the fivefold dilution.

Sample matrix spike and duplicate evaluations were performed for ICP elements and mercury on HD-11/4-6, and show outlying recoveries below 75% for antimony (19%) and mercury (134%). All results for antimony and detected results for mercury in the samples collected in December (reported in SDG 205557) are therefore qualified as estimated ("J" or "UJ").

Duplicate evaluations were within validation guidelines, although the parent sample results exceed those of the duplicate by about 50%.

ICP serial dilution evaluations were performed for HD-20/6-8, HD-3/8-10, and HD-14/4-6, and show acceptable correlations. Copper should not have been denoted as an outlier for HD-20/6-8.

The metals analysis summary Forms 14 do not accurate indicate the elements processed in each sequence.

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

Very truly yours,

Judy Harry

SAMPLE INFORMATION

Date: 02/12/2004

Job Number.: 205214
Customer...: ROUX ASSOCIATES
Attn.......: Harry Gregory

Project Number.........: 20000437
Customer Project ID....: AMTRAK 05545Y08
Project Description....: Amtrak

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
205214-1	S-161/0-2	Soil	11/03/2003	09:00	11/04/2003	11:10
205214-2	S-162/0-2	Soil	11/03/2003	09:10	11/04/2003	11:10
205214-3	S-163/0-2	Soil	11/03/2003	09:20	11/04/2003	11:10
205214-4	S-156/0-2	Soil	11/03/2003	09:35	11/04/2003	11:10
205214-5	S-157/0-2	Soil	11/03/2003	09:45	11/04/2003	11:10
205214-6	S-159/0-2	Soil	11/03/2003	10:00	11/04/2003	11:10
205214-7	S-160/0-2	Soil	11/03/2003	10:10	11/04/2003	11:10
205214-8	S-158/0-2	Soil	11/03/2003	10:25	11/04/2003	11:10
205214-9	S-155/0-2	Soil	11/03/2003	11:00	11/04/2003	11:10
205214-10	S-154/0-2	Soil	11/03/2003	11:10	11/04/2003	11:10
205214-11	S-153/0-2	Soil	11/03/2003	11:20	11/04/2003	11:10
205214-12	S-152/0-2	Soil	11/03/2003	11:30	11/04/2003	11:10
205214-13	S-150/0-3	Soil	11/03/2003	11:45	11/04/2003	11:10
205214-14	S-151/0-2	Soil	11/03/2003	11:55	11/04/2003	11:10

SAMPLE INFORMATION

Date: 12/18/2003

Job Number.: 205399
Customer...: ROUX ASSOCIATES
Attn.......: Harry Gregory

Project Number.........: 20000437
Customer Project ID....: AMTRAK
Project Description....: Amtrak

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
205399-1	HD-8D/7-9	Soil	11/24/2003	11:05	11/24/2003	18:25
205399-2	HD-8D/20-22	Soil	11/24/2003	13:05	11/24/2003	18:25
205399-3	HD-8D/36-38	Soil	11/24/2003	15:10	11/24/2003	18:25
205399-4	HD-5B/9-11	Soil	11/25/2003	08:30	11/25/2003	19:20
205399-5	HD-5B/15-16	Soil	11/25/2003	09:45	11/25/2003	19:20
205399-6	HD-15C/6-8	Soil	11/25/2003	10:10	11/25/2003	19:20
205399-7	HD-15C/20-22	Soil	11/25/2003	10:45	11/25/2003	19:20
205399-8	HD-15C/28-30	Soil	11/25/2003	11:05	11/25/2003	19:20
205399-9	HD-10/6-8	Soil	11/25/2003	12:00	11/25/2003	19:20
205399-10	HD-10/8-10	Soil	11/25/2003	12:10	11/25/2003	19:20
205399-11	HD-10/16-18	Soil	11/25/2003	12:30	11/25/2003	19:20
205399-12	HD-7/8-10	Soil	11/25/2003	14:40	11/25/2003	19:20
205399-13	HD-7/21-23	Soil	11/25/2003	15:00	11/25/2003	19:20
205399-14	HD-12/6-8	Soil	11/25/2003	17:00	11/26/2003	18:15
205399-15	HD-12/14-16	Soil	11/25/2003	17:15	11/26/2003	18:15
205399-16	HD-6/9-11	Soil	11/26/2003	08:20	11/26/2003	18:15
205399-17	HD-6/18-20	Soil	11/26/2003	08:40	11/26/2003	18:15
205399-18	HD-9/8-10	Soil	11/26/2003	10:00	11/26/2003	18:15
205399-19	HD-9/13-15	Soil	11/26/2003	10:10	11/26/2003	18:15
205399-20	HD-20/6-8	Soil	11/26/2003	10:40	11/26/2003	18:15

SAMPLE INFORMATION
Date: 12/12/2003

Job Number.: 205424
Customer...: ROUX ASSOCIATES
Attn.......: Harry Gregory

Project Number.........: 20000437
Customer Project ID....: AMTRAK 05545Y08
Project Description....: Amtrak

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
205424-1	HD-20/10-12	Soil	11/26/2003	10:50	11/26/2003	18:15
205424-2	HD-4/8-10	Soil	11/26/2003	11:30	11/26/2003	18:15
205424-3	HD-4/14-16	Soil	11/26/2003	11:45	11/26/2003	18:15
205424-4	HD-3/5-7	Soil	11/26/2003	12:45	11/26/2003	18:15
205424-5	HD-3/8-10	Soil	11/26/2003	12:50	11/26/2003	18:15
205424-6	HD-3/20-22	Soil	11/26/2003	13:00	11/26/2003	18:15

SAMPLE INFORMATION

Date: 01/06/2004

Job Number.: 205557	Project Number.........: 20000437
Customer...: ROUX ASSOCIATES	Customer Project ID....: AMTRAK
Attn.......: Harry Gregory	Project Description....: Amtrak

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
205557-1	HD-14/4-6	Soil	12/18/2003	09:10	12/18/2003	17:00
205557-2	HD-14/6-8	Soil	12/18/2003	09:45	12/18/2003	17:00
205557-3	HD-17/4-6	Soil	12/18/2003	10:35	12/18/2003	17:00
205557-4	HD-17/8-10	Soil	12/18/2003	10:40	12/18/2003	17:00
205557-5	HD-11/4-6	Soil	12/18/2003	11:50	12/18/2003	17:00
205557-6	HD-11/8-10	Soil	12/18/2003	11:55	12/18/2003	17:00
205557-7	HD-11/13-15	Soil	12/18/2003	12:30	12/18/2003	17:00
205557-8	HD-18/4-6	Soil	12/18/2003	13:45	12/18/2003	17:00
205557-9	HD-1/4-6	Soil	12/18/2003	14:25	12/18/2003	17:00
205557-10	HD-2/9-11	Soil	12/18/2003	15:00	12/20/2003	11:15
205557-11	HD-2/13-15	Soil	12/18/2003	15:35	12/20/2003	11:15
205557-12	HD-13/3-5	Soil	12/19/2003	08:15	12/20/2003	11:15
205557-13	HD-16/9-11	Soil	12/19/2003	09:40	12/20/2003	11:15
205557-14	HD-16/13-15	Soil	12/19/2003	09:45	12/20/2003	11:15
205557-15	HD-19/2-4	Soil	12/19/2003	10:50	12/20/2003	11:15

SAMPLE INFORMATION

Date: 02/05/2004

Job Number.: 205719	Project Number.........: 20000437
Customer...: ROUX ASSOCIATES	Customer Project ID....: AMTRAK
Attn.......: Harry Gregory	Project Description....: Amtrak

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
205719-1	HD-8D/36-38	Soil	11/24/2003	15:10	11/24/2003	18:25

STL Report : 205214
ROUX ASSOCIATES, INC. – AMTRAK – SUNNYSIDE YARD
05545Y08

Case Narrative

Sample Receipt – Samples received on 11/04/03 were in good condition and at the proper temperature of 4.0°C.

Organic Extraction - Samples were extracted according to method 3550B. Samples were cleaned-up using procedures outlined in method 3665A (acid clean-up). No problems were encountered.

Polychlorinated Biphenyls (PCB's) - PCB samples were analyzed by GC/ECD using guidance provided in Method 8082. The instrumentation used was a Hewlett-Packard Gas Chromatograph equipped with an Electron Capture Detector (Ni63).

The continuing calibration check analyzed on the RTX-CLPesticides column at 7:13 on 11/07/03
did not meet QC criteria for the surrogate Decachlorobiphenyl. This was the end bracketing standard for 24668-1MB and 24668-2LCS.

The surrogates were diluted out of samples S-161/0-2, S-162/0-2, S-157/0-2, S-159/0-2, S-160/0-2, S-158/0-2, S-161/0-2MS and S-161/0-2MSD.

The result for Aroclor-1254 was reported from the RTX-CLPesticides column in samples S-155/0-2 and S-152/0-2. There was less matrix interference present on this column.

The % recoveries and RPD were outside of QC limits in S-161/0-2MS and S-161/0-2MSD due to the presence of Aroclors in the unspiked sample.

Manual integrations were performed if required, and any affected peaks were designated with an "M" on the quantitation report. Manual integrations were initialed by the analyst that performed the integration.

Sample Calculation:

Sample ID-S-153/0-2
Compound-Aroclor1248 peak at retention time 4.713

$$\frac{(2766518\text{area})(10000\text{ul})}{(28867140\text{area/ng})(30.4\text{g})(0.817)(1\text{ul})} = 38.6\text{ug/kg}$$

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative.

I certify that this data package is in compliance with the terms and conditions of this contract, 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 diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Daniel Helfrich
Technical Director

Nov 11 2003
Date

SEVERN TRENT STL

STL Report : 205399
ROUX ASSOCIATES, INC. – SUNNYSIDE YARD, QUEENS
05545Y08

Case Narrative

Sample Receipt – Samples received on 11/24/03, 11/25/03, and 11/26/03 were in good condition and at the proper temperatures of 1.2°C, 0.8°C, and 4.0°C.

Organic Extraction - Samples were extracted according to methods 3541/3550B. Samples for 8082 analysis were cleaned-up using procedures outlined in method 3665A (acid clean-up). Sample HD-8D/7-9 was re-extracted four days out of hold for 8082 analysis to confirm the presence of AR1254.

Volatile Organics – Volatile organics were determined by purge and trap GC/MS using guidance provided in Method 5030B/8260B.

The spike compound percent recoveries were within the laboratory generated guidelines in the independent source quality control sample.

The following samples were analyzed at dilutions due to high non-target compound concentrations:

HD-8D/7-9	1:10
HD-6/9-11	1:5

Sample Calculation:

Sample ID-HD-8D/7-9
Compound-Ethylbenzene

$$\frac{(16190)(125)(10)(1000)(10)}{(308533)(.598)(5)(100)(.882)} = 2487.22 = 2500 \text{ UG/L.}$$

Metals – ICAP metals were determined using a JA61E trace ICAP; mercury was determined by cold vapor technique using a Perkin Elmer mercury analyzer; following guidance provided in SW846 according to methods: ICAP – 3050B/6010B; mercury-7471A.

Thirteen "*" flags resulted from duplicate analysis of soil QC sample 205399-1 for aluminum, barium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, sodium, vanadium, and zinc.

Antimony, arsenic, and calcium failed the controls for soil QC sample 205399-1 resulting in three "N" flags.

One "E" flag resulted from serial dilution of sample 205399-20 for copper, not indicated on the result forms.

Samples 205399-14 to 205399-20 were analyzed on a different day than samples 205399-1 to 205399-13 so the flags associated with this batch are not indicated on the result pages.

No other problems occurred during analysis. All appropriate protocols were employed. All data appears to be consistent.

Polychlorinated Biphenyls (PCB's) - PCB samples were analyzed by GC/ECD using guidance provided in Method 8082. The instrumentation used was a Hewlett-Packard Gas Chromatograph equipped with an Electron Capture Detector (Ni63).

Samples 25960-SBLK, 26060-SBLK, HD-8D/7-9, HD-5B/9-11, HD-5B/15-16, HD-15C/28-30, HD-10/6-8, HD-10/16-18, HD-7/8-10, HD-7/21-23, HD-7/21-23MS, HD-7/21-23MSD, HD-12/6-8, HD-12/14-16, HD-6/18-20, HD-9/8-10, HD-9/13-15 and HD-20/6-8 required sulfur cleanup prior to analysis.

Surrogates were diluted out of samples HD-15C/6-8 and HD-12/6-8.

The surrogate recovery for Decachlorobiphenyl was above QC limits in HD-7/8-10 on the RTX-CLPesticidesII column.

Surrogate recoveries for Tetrachloro-m-xylene were above QC limits in HD-8D/7-9, HD-5B/9-11, HD-5B/15-16, HD-10/6-8, HD-10/8-10, HD-7/8-10, HD-6/9-11, and HD-20/6-8 on the RTX-CLPesticides column.

The % difference for Decachlorobiphenyl was below QC limits in the AR16603 standard analyzed at 23:33 on 12/4/03, at 04:39 on 12/07/03, and at 22:49 on 12/11/03 on the RTX-CLPesticidesII column. These were the end standards for samples 25960-1MB, 25960-3LCS, HD-8D/20-22, HD-8D/20-22MS, HD-8D/20-22MSD, HD-8D/36-38, HD-9/8-10, HD-7/21-23MS, and HD-7/21-23MSD.

The % difference for Decachlorobiphenyl was below QC limits in the AR16603 standard analyzed at 04:39 on 12/07/03 on the RTX-CLPesticidesII column. This was the end standard for samples HD-8D/20-22, HD-8D/20-22MS, HD-8D/20-22MSD, and HD-8D/36-38.

Manual integrations were performed if required, and any affected peaks were designated with an "M" on the quantitation report. Manual integrations were initialed by the analyst that performed the integration.

Sample Calculation:

Sample ID – HD-8D/7-9
Compound – Aroclor-1254 peak 5.77 on the RTX-CLPesticidesII column

$$\frac{(2545438\text{area})(10000\text{ul})}{(17739991.5\text{area/ng})(30.1\text{g})(0.882)(1\text{ul})} = 54\text{ ug/Kg}$$

Semi-Volatile Organics - Semi-volatile organic samples were analyzed by capillary GC/MS according to NYSDEC Protocols using guidance provided in Method 8270C. The instrumentation used was a Hewlett-Packard Gas Chromatograph interfaced with a Mass Selective Detector.

A 2ul injection was used for all samples and standards. The instrument was calibrated at 10ng/ul (20 ng), 25 ng/ul(50 ng), 40ng/ul(80ng), 60ng/ul(120ng) and 80ng/ul(160ng). Internal standards were added to all samples and standards were at 20ng/ul(40ng).

The spike recovery for the compound, bis(2-ethylhexyl)phthalate, was above recovery limits for 25658-2LCS. The recovery for pyrene was below the limits for 26014-2LCS.

The spike recovery for the compound phenol was below limits and pentachlorophenol was above limits for HD-7/21-23MS. The spike recovery for the compound pyrene was below limits and pentachlorophenol was above limits for HD-7/21-23MSD.

The %RPD for the compound, phenol, was above acceptance criteria for HD-7/21-23MS/MSD.

The following samples were analyzed at dilutions due to the presence of high levels of target compounds:

HD-7/8-10	1:25		HD-12/6-8	1:40
HD-6/9-11	1:50		HD-20/6-8	1:50
HD-9/8-10	1:10		HD-8D/7-9	1:100
HD-5B/9-11	1:50		HD-5B/15-16	1:50
HD-15C/6-8	1:50		HD-10/6-8	1:25
HD-10/8-10	1:10			

Sample Calculation:

Sample ID – HD-8D/20-22
Compound – 2-methylnaphthalene

$$\frac{(46476)(40)(500)(1.0)}{(726343)(.565)(2.0)(15.4)(.921)} = 79.8 = 80\text{ ug/kg}$$

SEVERN TRENT **STL**

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative.

I certify that this data package is in compliance with the terms and conditions of this contract, 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 diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Daniel Helfrich
Technical Director

Dec 18 2003
Date

STL Report : 205424
ROUX ASSOCIATES, INC. – SUNNYSIDE YARD
05545Y08

Sample Receipt Samples received on 11/26/03 were in good condition and at the proper temperature of 4.0°C

Case Narrative

Organic Extraction - Samples were extracted according to methods 3541/3550B. Samples for 8082 analysis were cleaned-up using procedures outlined in method 3665A (acid clean-up). Sample HD-3/5-7 would not concentrate to 0.5 mls for 8270 analysis and was brought to a final volume of 1 ml. No other problems were encountered.

Polychlorinated Biphenyls (PCB's) - PCB samples were analyzed by GC/ECD using guidance provided in Method 8082. The instrumentation used was a Hewlett-Packard Gas Chromatograph equipped with an Electron Capture Detector (Ni63).

Surrogate recovery for Tetrachloro-m-xylene was above QC limits in HD-4/8-10 and HD-3/5-7 on the RTX-CLPesticides column.

The % difference for Decachlorobiphenyl was below QC limits in the AR16603 standards analyzed at 23:33 on 12/4/03 and at 04:39 on 12/7/03 on the RTX-CLPesticidesII column. These were the end standards for all samples.

The % difference for Decachlorobiphenyl was below QC limits in the AR16603 standard analyzed at 04:39 on 12/7/03 on the RTX-CLPesticides column. This was the end standard for samples HD-20/10-12, HD-4/8-10, HD-4/14-16, HD-3/5-7 and HD-3/8-10.

Manual integrations were performed if required, and any affected peaks were designated with an "M" on the quantitation report. Manual integrations were initialed by the analyst that performed the integration.

Sample Calculation:

Sample ID – HD-3/5-7
Compound – Aroclor-1260 peak 9.28 on the RTX-CLPesticidesII column

$$\frac{(1031160\text{area})(10000\text{ul})}{(50627008.5\text{area/ng})(30.4\text{g})(1\text{ul})(0.849)} = 7.89\ \text{ug/Kg}$$

Volatile Organics – Volatile organics were determined by purge and trap GC/MS using guidance provided in Method 5030B/8260B

The spike compound percent recoveries were within the laboratory generated guidelines in the independent source quality control sample

Sample "HD-4/8-10" was analyzed as a medium level soil due to high non-target compound concentrations

Sample Calculation:

Sample ID-HD-4/14-16
Compound-Methylene chloride

$$\frac{(62289)(125)}{(2201688)(.280)(5)(.891)} = 2.83 = 3 \text{ UG/L}$$

Semi-Volatile Organics - Semi-volatile organic samples were analyzed by capillary GC/MS according to NYSDEC Protocols using guidance provided in Method 8270C. The instrumentation used was a Hewlett-Packard Gas Chromatograph interfaced with a Mass Selective Detector.

A 2ul injection was used for all samples and standards. The instrument was calibrated at 10ng/ul (20 ng), 25 ng/ul(50 ng), 40ng/ul(80ng), 60ng/ul(120ng) and 80ng/ul(160ng). Internal standards were added to all samples and standards were at 20ng/ul(40ng).

Sample HD-3/5-7 was analyzed at a 1:5 dilution due to the presence of high levels of target compounds.

Sample Calculation:

Sample ID – HD-3/5-7
Compound - phenanthrene

$$\frac{(335442)(40)(1000)(5.0)}{(525667)(.932)(2.0)(15.7)(.849)} - 5136 = 5100 \text{ ug/kg}$$

Metals – ICAP metals were determined using a JA61E trace ICAP; mercury was determined by cold vapor technique using a Perkin Elmer mercury analyzer; following guidance provided in SW846 according to methods: ICAP – 3050B/6010B; mercury-7471A.

Antimony, arsenic, copper, potassium, and selenium failed the controls for soil QC sample 205433-11 resulting in five "N" flags.

No other problems occurred during analysis. All appropriate protocols were employed All data appears to be consistent.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative.

I certify that this data package is in compliance with the terms and conditions of this contract, 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 diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

2/16/04
Date

Daniel Helfrich
Technical Director

STL Report : 205557
ROUX ASSOCIATES – AMTRAK
05545Y08

Case Narrative

Sample Receipt – Samples received on 12/18/03 and 12/20/03 were in good condition and at the proper temperatures of 0.7°C and 1.4°C.

Organic Extraction - Samples were extracted according to method 3541/3550B. No problems were encountered.

Polychlorinated Biphenyls (PCB's) - PCB samples were analyzed by GC/ECD using guidance provided in Method 8082. The instrumentation used was a Hewlett-Packard Gas Chromatograph equipped with an Electron Capture Detector (Ni63).

Samples HD-14/4-6, HD-14/6-8, HD-14/6-8MS, HD-14/6-8MSD, HD-17/4-6, HD-17/8-10, HD-11/4-6, HD-2/9-11, HD-16/9-11, and 26688-3SBLK were sulfur cleaned up.

The recovery of the surrogate, Tetrachlorometaxylene, was over QC limits in HD-11/4-6 and HD-2/9-11 on the RTX-CLPesticides column.

Manual integrations were performed if required, and any affected peaks were designated with an "M" on the quantitation report. Manual integrations were initialed by the analyst that performed the integration.

Sample Calculation:

Sample ID –HD-11/4-6
Compound – Aroclor 1260 peak 9.61 on the RTX-CLPesticidesII column.
(28065833area)(10000ul) 183ug/kg
(57844198area/ng)(30.3g)(.875)(1ul)

Volatile Organics – Volatile organics were determined by purge and trap GC/MS using guidance provided in Method 5030B/8260B.

The spike compound percent recoveries were within the laboratory-generated guidelines in the independent source quality control sample except for bromomethane.

Sample HD-16/4-6 was analyzed at a 1:5 dilution due to high target compound concentrations.

Samples HD-11/4-6 and HD-11/8-10 were analyzed as medium level soils due to high target compound concentrations.

Sample Calculation:

Sample ID-HD-14/6-8
Compound-Acetone

$$\frac{(635614)(125)}{(2397360)(.081)(5)(.747)} = 109.5 = 110 \text{ UG/KG.}$$

Metals – ICAP metals were determined using a JA61E trace ICAP; mercury was determined by cold vapor technique using a Perkin Elmer mercury analyzer; following guidance provided in SW846 according to methods: ICAP – 3050B/6010B; mercury-7471A.

Four "*" flags resulted from duplicate analysis of sample 205557-1 for calcium, lead, manganese, and nickel.

Antimony failed the controls for spike recovery analysis of sample 205557-1 resulting in one "N" flag.

No other problems occurred during analysis. All appropriate protocols were employed. All data appears to be consistent.

Semi-Volatile Organics - Semi-volatile organic samples were analyzed by capillary GC/MS according to NYSDEC Protocols using guidance provided in Method 8270C. The instrumentation used was a Hewlett-Packard Gas Chromatograph interfaced with a Mass Selective Detector.

A 2ul injection was used for all samples and standards. The instrument was calibrated at 10ng/ul (20 ng), 25 ng/ul(50 ng), 40ng/ul(80ng), 60ng/ul(120ng) and 80ng/ul(160ng). Internal standards were added to all samples and standards were at 20ng/ul(40ng).

The spike recovery for the compound, 2,4-dinitrophenol, was below recovery limits for 26689LCS. The recovery for benzo(b)fluoranthene was below limits for HD-2/13-15MS and fluoranthene was below limits for HD-2/13-15MSD.

Sample HD-11/4-6 was analyzed at a 1:25 dilution and HD-11/8-10 at a 1:50 dilution due to the presence of high levels of target compounds.

Sample Calculation:

Sample ID – HD-11/8-10
Compound - phenanthrene

$$\frac{(513208)(40)(500)(50)}{(1433992)(1.111)(2.0)(15.3)(.855)} = 12312 = 12000 \text{ ug/kg}$$

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative.

I certify that this data package is in compliance with the terms and conditions of this contract, 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 diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Mary Widomski for
Daniel Helfrich
Technical Director

1/6/04
Date

STL Report : 205719
ROUX ASSOCIATES – AMTRAK
05545Y08

Case Narrative

Sample Receipt – Samples received on 11/24/03 were in good condition and at the proper temperature of 1.2°C. Sample HD-8D / 36-38 was activated for SVOA analysis on 01/22/04 by ROUX. Sample will be run out of holding time.

Organic Extraction - Samples were extracted according to method 3541. No problems were encountered.

Semi-Volatile Organics - Semi-volatile organic samples were analyzed by capillary GC/MS according to NYSDEC Protocols using guidance provided in Method 8270C. The instrumentation used was a Hewlett-Packard Gas Chromatograph interfaced with a Mass Selective Detector.

A 2ul injection was used for all samples and standards. The instrument was calibrated at 10ng/ul (20 ng), 25 ng/ul(50 ng), 40ng/ul(80ng), 60ng/ul(120ng) and 80ng/ul(160ng). Internal standards were added to all samples and standards were at 20ng/ul(40ng).

The spike recovery for the compound, anthracene, was slightly above recovery limits for 27638-2LCS.

Sample Calculation:

Sample ID – HD-8D/36-38
Compound – terphenyl-d14

$$\frac{(1065461)(40)(500)(1.0)}{(931951)(.749)(2.0)(15.3)(.876)} = 1138 = 1100 \text{ ug/kg}$$

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative.

I certify that this data package is in compliance with the terms and conditions of this contract, 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 diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Daniel Helfrich
Technical Director

Feb 5, 2004
Date

APPENDIX E-8

OU-3 Remedial Investigation Addendum Data Usability Report

Usability Report

1.0 Introduction

Soil samples from area Unit 3 were collected in November and December of 2003 by Roux Associates, Inc. The methods of analysis used to determine chemical constituents detected in those samples, and the protocols used to determine the validity of these data, are summarized below.

Chemical analyses for the investigations were performed by Severn Trent Laboratories, Inc. (STL). Analytical methods that were used are modifications of the United States Environmental Protection Agency (USEPA) Test Methods for the Evaluation of Solid Wastes (SW-846) as recommended by the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP) for the volatile organic compounds (Method 8260B), semivolatile organic compounds (Method 8270C), polychlorinated biphenyls (Method 8082) and metals (methods 6010B/7471).

Data validation of the chemical data generated by STL was performed by Data Validation Services (DVS) of North Creek, New York. DVS performed the data validation using the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic and Inorganic Data Review, the USEPA Region 2 Standard Operating Procedures (SOPs) HW-2, HW-6, HW-22, HW-23, and HW-24, and the specific method and NYSDEC ASP requirements.

Based on the analytical results obtained, the review performed by DVS, and the chemical data generated, an evaluation of the overall quality and usability of the data is addressed in the following sections.

2.0 Results and Qualifiers

2.1 Volatile Organic Compounds

Holding times were met for all sample processing. System monitoring compounds, matrix spike blank (MSB) recoveries, instrumental tunes, and internal standard areas/retention times met protocol requirements.

Most of the detections of methylene chloride and acetone in the samples are edited to reflect nondetection at the CRDL, or at the originally reported concentration, whichever is greater. The detections of those two compounds that are not edited accordingly are suspect as being external contamination. They are at levels below the NYSDEC Remedial Soil Cleanup Objective (RSCO) concentrations.

Bromomethane showed very low response in the calibration standard associated with seven of the samples, and the results for that analyte in those samples is not usable. The affected samples are HD-1/4-6, HD-11/13-15, HD-14/4-6, HD-14/6-8, HD-16/9-11, HD-16/13-15, and HD-19/2-4. There is no RSCO available for this compound, and it is not a constituent of concern for this project.

Calibration standards also produced low responses for a limited number of analytes such that associated sample results for specific analytes are considered estimated, with a potential low bias. They are as follows:

- bromomethane and 2-butanone in HD-10/8-10, HD-10/6-8, and HD-6/9-11
- methylene chloride in HD-8D/20-22, HD-8/20-22, HD-7/21-23, HD-10/16-18, and HD-6/18-20
- 2-butanone and tetrachloroethene (22%D) in HD-4/8-10
- acetone and methylene chloride in HD-1/4-6, HD-11/13-15, HD-14/4-6, HD-14/6-8, HD-16/9-11, HD-16/13-15, and HD-19/2-4

There is no significant adverse effect on the usability of those data.

No sample matrix spikes were performed. The spiked blanks show acceptable processing.

The sample from location HD-6/9-11 required processing at excessive dilution due to the matrix of the sample. The sample shows no detections above the resulting elevated volatile reporting limits; these limits are above the RSCOs. The semivolatile fraction of this sample, also processed at dilution, shows detections of several polynuclear aromatic hydrocarbons (PAHs), with one concentration falling above the RSCO.

2.2 Semivolatile Organic Compounds

Holding time, recoveries of system monitoring compounds, matrix spike blank (MSB) recoveries, matrix spike (MS) and matrix spike duplicate (MSD) recoveries and correlation values, instrumental tunes, and internal standard areas/retention time met protocol requirements with exceptions as noted below.

The semivolatile analysis of HD-8D/36-38 was requested and conducted well beyond a usable holding time for sample preparation, and there are therefore no usable results for this sample.

Samples HD-6/9-11, HD-6/18-20, HD-9/8-10, HD-9/13-15, HD-12/6-8, HD-12/14-16, and HD-20/6-8 were also processed beyond the allowable ASP holding time, with the results are therefore considered as usable, but qualified as estimated, with a potential low bias due to losses.

Benzoic acid failed to recover in the spiked blanks and the data for this analyte are therefore not usable in all samples. There is no RSCO available for this compound, and it is not a constituent of concern for this project.

Analyte 2,4-dinitrophenol failed to recover in one of the Laboratory Control Samples (LCSs), and results for this analyte in associated samples HD-11/4-6, HD-11/8-10, HD/11-13/15, HD-16/9-11, and HD-16/13-15 are not usable. This compound is not a constituent of concern for this project.

Most of the detections of di-n-butylphthalate and bis(2-ethylhexyl)phthalate in the samples are edited to reflect nondetection at the CRDL. The detections of those two compounds that are not edited accordingly are suspect as being external contamination. They are at levels below the NYSDEC Remedial Soil Cleanup Objective (RSCO) concentrations.

Calibration standards also produced low responses such that associated sample results for specific analytes are considered estimated. They are as follows:

- 2-chlorophenol, 2,2'-oxybis(1-chloropropane), and 2-nitroaniline in HD-8D/20-22
- hexachlorocyclopentadiene in HD-6/9-11, HD-10/6-8, HD-10/8-10, HD-16/9-11, and HD-16/ 13-15

The samples show no detections of these compounds. There is no significant adverse effect on the usability of those data.

Due to outlying recoveries in the associated LCSs, the results for pyrene in samples HD-5B/9-11, HD-5B/15-16, HD-10/6-8, HD-10/8-10, HD-10/16-18, HD-7/8-10, HD-7/21-23, HD-15C/6-8, HD-15C/20-22, and HD-15C/28-30 are qualified as estimated. The bias is not expected to be more than twofold, and detected results in the samples are well below the RSCO for that compound.

The fluorene detection in HD-4/8-10 and 2-methylnaphthalene detection in HD-2/9-11 were qualified to indicate that the identifications are tentative, and that the reported concentrations are estimated in value. Those concentrations are well below the RSCO, and usability is not affected.
The detection of benzo(a)anthracene in HD-3/5-7 is similarly qualified as tentative and estimated. This analyte concentration in the sample is the only one above the RSCO, and caution should be used in the interpretation of this result.

Matrix spike evaluation for accuracy and precision of TCL analytes was performed on HD-7/21-23, and show acceptable recoveries and duplicate correlations, or slightly outlying values not indicating a significant matrix effect on the usability of the sample results.

Matrix spike evaluation for accuracy and precision of PAHs analytes was performed on HD-2/13-15, and show acceptable recoveries and duplicate correlations, or slightly outlying values not indicating a significant matrix effect on the usability of the sample results.

Some of the samples required processing at excessive dilution due to the matrix.

2.3 Polychlorinated Biphenyls

Holding time, recoveries of system monitoring compounds, matrix spike blank (MSB) recoveries, matrix spike (MS) and matrix spike duplicate (MSD) recoveries and correlation values, and calibration standard responses met protocol/validation requirements.

The detected results for Aroclor mixtures in three samples show poor pattern matches to the standards, including possible matrix interferences and/or weathering of the PCBs. The affected samples are Aroclor 1248 in S-153/0-2, Aroclor 1260 in HD-3/5-7, and Aroclor 1260 in HD-6/9-11. These concentrations are considered quantitatively estimated. The qualitative identifications of Aroclor 1248 in S-153/0-2 and Aroclor 1260 in HD-3/5-7 are also considered as tentative in identification.

2.4 Metals

Holding time, LCS recoveries, matrix spike (MS) and duplicate correlation values, calibration standard recoveries, blank responses, and ICP serial dilution correlations met requirements with exceptions as noted below.

Sample matrix spike recoveries for HD-8D/7-9 show low outlying recoveries for calcium, antimony, arsenic, and manganese. Results for these four elements in the samples collected in November are therefore considered quantitatively estimated.

Sample matrix spike recoveries for HD-11/4-6 show outlying recoveries for antimony and mercury. Results for these two elements in the samples collected in December are therefore considered quantitatively estimated.

3.0 Overall data Quality/Usability Assessment

Based upon the evaluation of the data and a review of the validation report, the chemical data generated generally enable evaluation of sample constituency at RSCO levels, as permitted by the specific analysis methodologies. Individual data quality parameters are discussed in the following sections.

3.1 Precision

The laboratory overall precision review was based upon laboratory duplicate samples. It should be noted that there is an inherent variability in soil sample precision due to the difficulty in collecting identical field samples. A review of the laboratory duplicate samples as measured by the sample duplicate (for inorganics) and MS/MSD results (for semivolatiles and PCBs) demonstrates adequate reproduction of sample results, with correlations falling within validation guidance criteria.

3.2 Accuracy

The accuracy of the chemical data generated was reviewed based upon the results for holding times, LCSs, spiked samples, surrogate recoveries, and calibration standard recoveries. Based upon this review, the accuracy of the chemical analyses is acceptable for all sample constituents of concern, with the exceptions of the semivolatile fraction of sample HD-8D/36-38 and analytes benzoic acid and 2,4-dinitrophenol.

3.3 Completeness

The data completeness as measured by the percentage of overall data is considered acceptable based on the data review. A review of the results demonstrated that all data are usable except those for the semivolatile sample noted above, and those for analytes benzoic acid and 2,4-dinitrophenol (neither of which is a constituent of concern at this site).

APPENDIX F

Results of Previous Investigations
of Subsurface Structures

APPENDIX F-1

Engine House

NATIONAL RAILROAD PASSENGER CORPORATION

INTEROFFICE MEMO

DATE: October 23, 1985

TO: J. P. DeVito

FROM: R. M. Lavell R. M. Lavell

SUBJECT: Drop Table Pit Cleanup

After being advised that the drop table pit had a PCB level of 235 ppm, as scrapings off the wall indicated, I arranged for my forces to perform a cleanup of the walls to reduce the level of exposure to my employees.

As per instruction, three (3) of my employees were outfitted with protective clothing and respirators. The walls of the drop table pit were then scrubbed by brush with kerosene by the three employees under my supervision. When this was completed, all the liquid waste was then soaked up with absorbant padding which is normally used to catch oil spills in the engine house. No waste was able to escape pit since the sump pump at the lowest point in the pit was not operating during time of cleanup. A small amount of rags were also used to pick up the waste.

The kerosene waste was then placed in an EPA approved disposal drum for PCB solids along with the absorbant padding, rags and protective gear worn during the cleanup. The drum was then disposed of under purchase requisition #GMN-4139. It was picked up by Price Trucking and was brought to the SCA Services disposal site in Model City, N. Y.

The cleanup was performed on May 23, 1985 and the waste was shipped on June 18, 1985. The Manifest Document Number is NYA 1073898 for this disposal.

Telecopied to
C. Lux 11/7/85
1:35 pm

Amtrak

NATIONAL RAILROAD PASSENGER CORPORATION
PURCHASING DEPARTMENT

1617 JOHN F. KENNEDY BLVD.
ROOM 822
PHILADELPHIA, PA. 19103

PURCHASE ORDER COPY

[redacted]

VENDOR NUMBER	PURCHASE ORDER N
14760-0019	GM 4 8315

SEE BELOW FOR REQ. NO.
SHOW THESE NUMBERS ON INVOICES AND SHIPPING DOCUM

S. ANDERSON 215-557-12
BUYERS NAME PHONE N

F.O.B.
NOT APPLICABLE

CAR/W.O. NUMBER

TERMS NET INV DAYS

DELIVERY AT DESTINATION SEE BELOW

SCA CHEMICAL SERVICES INC.
1550 BALMER ROAD
P.O. BOX 200
MODEL CITY NY 14107

NATIONAL RAILROAD PASSENGER CORPORATION
C/O AMTRAK-OPERATIONS & MAINT DEPT
MAINTENANCE-EAST
SUNNYSIDE YARDS
39-29 HONEYWELL STREET
LONG ISLAND CITY NY 11101

MARK AND SHIP TO

DROP TABLE PIT
CLEAN UP

SHIP VIA:
NOT APPLICABLE ON THIS ORDER

SELLER PLEASE FURNISH AMTRAK THE FOLLOWING MATERIALS AND/OR SERVICES AND SHIP AS SPECIFIED AB

QUANTITY	UNIT	SHOW THESE NUMBERS ON INVOICES AND SHIPPING DOCUMENTS AMTRAK STOCK NO.	LINE NO.	ITEM DESCRIPTION AND PRICE	
				TOTAL FIXED PRICE FOR THIS ORDER NOT SUBJECT TO ESCALATION CONFIRMATION OF OUR TELEPHONE AWARD TO YOUR MR. W. MAGEE BY OUR MR. W. BROOME DATED 6/17/85.	$403.
1	DR	51 831 5101M	1	LANDFILL ONE DRUM (55 GAL. SIZE) OF PCB SOLID WASTE (SCA CODE 3606-F) AT VENDOR'S SECURE, EPA APPROVED LANDFILL, MODEL CITY, NEW YORK. WASTE CONSISTS OF CLOTHING, RAGS, PADS AND THE LIKE. $100.0000 DR REQN NO GMN4139	100.
1	LO	51 831 5102M	2	TRANSPORT THE LINE ITEM 1 WASTE FROM LONG ISLAND CITY, N.Y. (AMTRAK'S SUNNYSIDE YARD) TO VENDOR'S SECURE LANDFILL, MODEL CITY, NEW YORK. $300.0000 LO REQN NO GMN4139	300.

EFFECTIVE OCTOBER 1, 1981, PUBLIC LAW 97-257 EXEMPTS AMTRAK FROM ALL STATE AND LOCAL TAXES OR FEES. THEREFORE, NO STATE OR LOCAL TAXES OR FEES ARE TO BE INCLUDED ON BILLINGS TO AMTRAK.

THIS PURCHASE ORDER IS SUBJECT TO THE TERMS AND CONDITIONS AS DETAILED IN NRPC FORM NUMBERS 69-REV. 4/75, 69-1A; 69-1B; 69-1C; 69-1D; 1483 AND 1358A, AS ATTACHED ( ) ALREADY IN YOUR POSSESSION ( ) OR AS OTHERWISE NOTED IN BODY OF PURCHASE ORDER( ).

RENDER INVOICE TOGETHER WITH ORIGINAL SHIPPING DOCUMENTS ★ AT TIME OF SHIPMENT SHOWING REQUISITION AND ORDER NUMBER TO: AMTRAK ACCOUNTS PAYABLE - P.O. BOX 8518 • PHILADELPHIA, PA. 19101

INVOICE TO

NATIONAL RAILROAD PASSENGER CORPORATION
PURCHASING DEPARTMENT

Scott H. Anderson /10/16/

AUTHORIZED DATE

BUYER	SR. BUYER	PURCHASING AGENT	MANAGER II	MANAGER I	DIRECTO
	SHA				

★ **TRANSPORTATION CHARGES:** IF TRANSPORTATION CHARGES ARE PAYABLE BY THE BUYER (I.E. PREPAY AND INVOICE) A COPY OF THE FREIGHT COMPANY'S BILL OF LADING AND INVOICE MUST ACCOMPANY THE SELLER'S INVOICE. FAILURE TO FORWARD THIS DATA MAY RESULT IN DELAYED PAYMENT OF THE SELLER'S INVOICE.

NRPC 30 (9/83)

CONTINUED PAGE 1

CONSIGNEE COPY

Amtrak

NATIONAL RAILROAD PASSENGER CORPORATION
PURCHASING DEPARTMENT

1617 JOHN F. KENNEDY BLVD.
ROOM 822
PHILADELPHIA, PA. 19103

PURCHASE ORDER COPY

SCA CHEMICAL SERVICES INC.
1550 BALMER ROAD
P.O. BOX 200
MODEL CITY NY 14107

	VENDOR NUMBER	PURCHASE ORDER NUM
[redacted]	14760-0019	GM 4 83151

SEE BELOW FOR REQ. NO.
SHOW THESE NUMBERS ON INVOICES AND SHIPPING DOCUME

S. ANDERSON — BUYERS NAME
215-557-120 — PHONE NUM

F.O.B.
NOT APPLICABLE

CAR/W.O. NUMBER

TERMS NET INV DAYS

DELIVERY AT DESTINATION SEE BELOW

NATIONAL RAILROAD PASSENGER CORPORATION
C/O AMTRAK-OPERATIONS & MAINT DEPT
MAINTENANCE-EAST
SUNNYSIDE YARDS
39-29 HONEYWELL STREET
LONG ISLAND CITY NY 11101

← MARK AND SHIP TO

SHIP VIA:
NOT APPLICABLE ON THIS ORDER

SELLER PLEASE FURNISH AMTRAK THE FOLLOWING MATERIALS AND/OR SERVICES AND SHIP AS SPECIFIED ABO

QUANTITY	UNIT	AMTRAK STOCK NO. (SHOW THESE NUMBERS ON INVOICES AND SHIPPING DOCUMENTS)			LINE NO.	ITEM DESCRIPTION AND PRICE	
1	LO	51	831	5103M	3	NEW YORK STATE HAZARDOUS WASTE TAX, AS APPLICABLE TO DISPOSAL AT VENDOR'S MODEL CITY, N.Y. SECURE LANDFILL.	
						$3.0000 LO	3.0
						REQN NO GMN4139	
						PERFORMANCE AS PER PREVIOUS AGREEMENTS, IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES, AND REGULATIONS.	

EFFECTIVE OCTOBER 1, 1981, PUBLIC LAW 97-257 EXEMPTS AMTRAK FROM ALL STATE AND LOCAL TAXES OR FEES. THEREFORE, NO STATE OR LOCAL TAXES OR FEES ARE TO BE INCLUDED ON BILLINGS TO AMTRAK.

THIS PURCHASE ORDER IS SUBJECT TO THE TERMS AND CONDITIONS AS DETAILED IN NRPC FORM NUMBERS 89-REV. 4/75, 89-1A; 89-1B; 89-1C; 89-1D; 1483 AND 1358A, AS ATTACHED ( ) ALREADY IN YOUR POSSESSION ( ) OR AS OTHERWISE NOTED IN BODY OF PURCHASE ORDER( ).

RENDER INVOICE TOGETHER WITH ORIGINAL SHIPPING DOCUMENTS ★ AT TIME OF SHIPMENT SHOWING REQUISITION AND ORDER NUMBER TO: AMTRAK ACCOUNTS PAYABLE - P.O. BOX 8518 • PHILADELPHIA, PA. 19101

← INVOICE TO

NATIONAL RAILROAD PASSENGER CORPORATION
PURCHASING DEPARTMENT

AUTHORIZED — DATE 10/1/

BUYER	SR. BUYER	PURCHASING AGENT	MANAGER II	MANAGER I	DIRECTOR

★ **TRANSPORTATION CHARGES:** IF TRANSPORTATION CHARGES ARE PAYABLE BY THE BUYER (I.E. PREPAY AND INVOICE) A COPY OF THE FREIGHT COMPANY'S BILL OF LADING AND INVOICE MUST ACCOMPANY THE SELLER'S INVOICE. FAILURE TO FORWARD THIS DATA MAY RESULT IN DELAYED PAYMENT OF THE SELLER'S INVOICE.

National Railroad Passenger Corporation, 400 North Capitol St., NW, Washington, DC 20001 • (202) 383-3000

Amtrak

June 13, 1985

FILE COPY

Mr. Albert J. Mullin
U.S. EPA Region I
Woodbridge Avenue - Building 209
Edison, NJ 08837

Dear Mr. Mullin:

Per your request of June 12, 1985, attached is a copy of the analysis report for the grab samples taken from the engine house in Amtrak's Sunnyside Maintenance Yard.

If you require any additional information, please contact us at (202) 383-2583.

Very truly yours,

RT Noonan

R. T. Noonan
Senior Director
Safety and Environmental Control

Attachment

bc: C. T. Prehm

dc: JPD
6/21

RECEIVED
JUN 14 1985

RMC ENVIRONMENTAL SERVICES
Environmental Chemistry Laboratory, Fricks Lock Rd., RD # 1, Pottstown, PA 19464 (215) 326-9662

CERTIFICATE OF ANALYSIS

LABORATORY NO: See Below **RECEIVED:** 20 February 1985 **REPORTED:** 5 March 1985

CLIENT:
AMTRAK
Sunnyside Yards
39-29 Honeywell Street
Long Island City, NY 11101

SAMPLE DESCRIPTION:

Floor-wall Scraping Dry oil - Grease

Liquid Sample oil-water for PCB level of contamination

Parameter	Sample A RMC#377-85 (mg/kg)	Sample B RMC#378-85 (mg/kg)	Sample C RMC#379-85 (mg/l)
Polychlorinated Biphenyl (PCB) as Aroclor 1254	235	5.2	0.020

Approved by: Richard S. Rodgers
Richard S. Rodgers, Manager
Environmental Chemistry Laboratory

A. SAMPLE - SCRAPING OF #2 PIT WALL. E.H. - (SOLID

B " " " #2 PIT FLOOR. SOLID

C LIQUID SAMPLE OF #2 PIT. LOWER LEVEL. - TAKEN. 2/19/85

A - Sample - scraping of #2 PIT wall eng house - (Solid)
B - " " " " floor " " - "
C - liquid sample of #2 pit floor level - taken 2/19/85

Devito

National Railroad Passenger Corporation, 400 North Capitol Street, N.W., Washington, D.C. 20001 Telephone (202) 383-3000

Amtrak

December 26, 1985

Mr. Stewart R. Deans, Esquire
Waste & Toxic Substances Branch
Office of Regional Counsel
U.S. Environmental Protection Agency
Region II
26 Federal Plaza
New York, N.Y. 10278

Re: Docket # II TSCA-PCB-85-0256

Dear Mr. Deans:

Confirming our phone conversation of November 15, 1985, we have the following to offer with regard to the information and additional action which you requested at our informal hearing on October 22, 1985. Please excuse the delay in responding. Due to vacations, job reorganizations and the heavy press of work during the holiday season we had a difficult time coordinating all the data.

Item: Drop table pit decontamination procedure and disposal of the collected waste.

Enclosed is an October 23, 1985 memo covering the procedure used and a copy of our purchase requisition and manifest covering the disposal of the collected waste. (Attachment #1)

Item: Retest of the drop table pit area.

On November 12, 1985, Radiation Management Corporation resampled and analyzed the pit area. Results: Wall - 7.0 ppm; Floor - 14.3 ppm
Attached is a copy of their test report. (Attachment #2)

Item: Stop inflow of water into drop pit and seal the pit walls.
<u>Wall leakage:</u>

The solicitation for quotes is in process to seal the pit wall cracks and coat the pit with a PCB resistant epoxy paint. Bids will be due by January 15, 1986, and contract award would therefore be by January 22, 1986. The actual work should be done during February 1986.

Surface runoff:
Because of sand fouling the ballast in the tracks east of the shop surface runoff in this area runs over the edge of the doorway and flows into the pit during heavy rainfalls. A project is currently underway to excavate the fuel oil contaminated soil/ballast in this track area. This area will be backfilled with clean ballast to promote better surface drainage. This work should be completed by March, 1986.

Item: Submit copies of all PCB disposal manifests for the years 1982, 1983 and 1984.

These are attached. In collecting, errors were found in the annual reports for these years. Amended annual reports are attached. (Attachment #3)

Item: New York Division stationary transformers.

In order to ensure proper future inspection and recordkeeping of all stationary PCB transformers, all oil filled and PCB transformers were sampled and tested for PCB levels. Attached are the Radiation Management Corporation results. The tests show that we in fact only have nine (9) PCB transformers with six (6) of which are greater than 6% PCBs and three (3) with greater than 500 but less than 6% PCBs. Sixty-six (66) transformers are non PCB and five (5) are PCB contaminated. (Attachment #4)

Item: Sunnyside Yard soil tests.

Attached are copies of all our PCB soil test records of tests made at Sunnyside Yard. The spoils piles referred to in my letter of December 28, 1983 to Mr. Zimmerman came from excavation work done on tracks 3 and 4 before the soil tests were made. All soil greater than or equal to 50 ppm was disposed of in an EPA approved landfill. (Attachment #5)

Item: Organization charts to show management responsibility for TSCA compliance.

As I indicated at our October 23, 1985 meeting, we have recently reorganized several Amtrak groups and the new structure will ensure better local control for TSCA compliance. Because of the newness of the structure, approved organization charts have not yet been issued. Where available, charts or memos are enclosed which cover these changes. (Attachment #6) Key items include:

1. All mechanical, engineering, train operations, etc. personnel now report to the division general superintendent. This means that all PCB transformer concerns, whether they come under the electric traction, communication and signal, bridge and building departments or mechanical department, all come under the overall responsibility of general superintendent. For the New York Division, that would be Mr. R. A. Herman (202)560-7531, whose office is in Penn Station, New York. The day-to-day direct responsibility to coordinate the PCB transformer handling rests with the Division Engineer, Mr. Joel Zimmerman, (212) 560-7340.

2. Mr. Herman reports through Messrs Cannito, Sharp, VanderClute and ultimately to Mr. D. F. Sullivan, who is

3. The Safety Department and Environmental Control Department have been combined, now enabling us to better monitor field handling of our recordkeeping and reporting under TSCA. The Division Rules and Safety Officer, Mr. Jim Kuebler (212)560-7249, reports directly to the division superintendent, and indirectly to the Manager of Safety, Mr. John D. Skinner, (202)383-2175, and the Manager of Environmental Control Mr. Charles C. Lin (202)383-2599. These changes will allow us to better monitor field compliance with TSCA and to correct any discrepancies found.

Item: Inspection Reports.

Copies of all stationary transformer inspection reports are attached. Attached for your information is a copy of the revised form which we also are now using. (Attachment #7)

Item: Soil analysis.

Attached is a copy of all soil analysis done at Sunnyside. Where contamination over 50 ppm was found, the soil was removed and placed in an EPA approved landfill. (Attachment #8)

Item: Employee Training.

Attached is Mr. C. C. Lin's note on the PCB training he did on June 26, 1985, as well as a list of attendees. Attached also are copies of memos, agendas, lists of attendees and some of the handouts used at our PCB training done in 1981. Training is an ongoing effort and we intend to continue to train our N.Y. employees and others on the proper handling of PCBs and other hazardous materials. (Attachment #9)

I hope the foregoing answers all the questions which you raised in our meeting. If any additional questions arise, please contact me at the above address or call me on (202) 383-2583.

Sincerely,

Robert T. Noonan
Sr. Director, Safety
and Environmental Control

cc: J. I. Roberts
A. F. Edelston

bcc: J. Zimmerman
J. Devito
C. Bianco
J. Kuebler

National Railroad Passenger Corporation, 400 North Capitol Street, N.W., Washington, D.C. 20001 Telephone (202) 383-3000

Amtrak

January 22, 1986

Stewart R. Deans, Esq.
Waste & Toxic Substances Branch
Office of Regional Counsel
Environmental Protection Agency
Region II
26 Federal Plaza
New York, NY 10278

Dear Mr. Deans:

Further in regard to our PCB problem at Sunnyside, on January 16, 1986 additional samples were taken by RMC Labs and analyzed for PCB content to determine potential exposure for our employees. The following are the results of these tests:

1. Drop table sump floor - Oil sample - 29.5 ppm
2. #3 Track Inside Pit - Oil sample - 0.74 ppm
3. Collection well outside engine house - Oil Sample - 22 ppm.
4. Wipe sample drop pit wall - Middle of east wall - 1.2 $\mu g/cm^2$
5. Wipe sample drop pit wall - North side of east wall - 1.7$\mu g/cm^2$

The PCB levels of the oil collecting in the new collection well and in the pit are both less than 50 ppm. The initial high levels from the well may have been an isolated hot spot exposed during the track excavation work which uncovered the oil.

Based on our information to date we are doing the following:

1. A request for proposals and bids is out for a consultant to study the soil and groundwater in this area for both possible fuel oil and PCB contamination. A pre-bid meeting well be held on January 24, 1986 at the site. Bid award is expected within 10 days of this meeting.

2. Employees working in the engine house were trained on January 21, 1986 on the hazards of PCBs and how to properly handle PCB contaminated material.

PREHM ✓
KUEBLER

As Info
R.A. Herman

RECEIVED
JAN 23

GENERAL SUPERINTENDENT
RECEIVED
JAN 23 1986
AMTRAK
NEW YORK, N.Y.

3. The drop pit is being recleaned to remove the low level PCB contamination found in these tests. Waste materials will be disposed of as PCB contaminated materials.

4. As an extra precaution employees entering the drop pit will wear PCB protective disposable suits, gloves and boots. Pit usage will also be minimized until the pit can be coated and sealed to stop any infiltration of oil or water.

5. Bids are being received to pressure grout around the pit to stop the infiltration of water and/or oil and to coat the pit interior with PCB resistant epoxy paint (on a sandblasted surface). This contract will be awarded within one week and will eliminate possible employee contact with even trace levels of PCB contaminated oil.

We will continue to keep you informed of our progress in the matter.

Very truly yours,

R. T. Noonan

R. T. Noonan

cc: Jared Roberts
R. A. Herman
Eugene Sullivan - State DEP
Charles Abner - City DEP
Chief Butler - City Fire Dept.

NATIONAL RAILROAD PASSENGER CORPORATION
INTEROFFICE MEMO

DATE: January 31, 1986

TO: Ron Clark
FROM: J. DeVito J DeVito
SUBJECT: Test Results

Attached you will find the results of the most recent samples taken in the engine house territory per your request.

I have forwarded a copy of your letter to R. T. Noonan for clarification and response to your other concerns.

If local management can be of any further assistance, please let us know.

jav

cc: C. T. Prehm

RMC ENVIRONMENTAL SERVICES
Fricks Lock Rd., RD # 1, Pottstown, PA 19464 (215) 326-9662

CERTIFICATE OF ANALYSIS

Laboratory No: See Below

Client: AMTRAK
39-29 Honeywell St.
Long Island City, NY 11101
Attention: Harry McCall

Sample Date: 1/16/86
Sampled By: S. Furdyna
Received: 1/16/86
Reported: 1/21/86

Sample Description: See Below

Parameter	XX-1 Well Outside Engine House RMC#147-86	XX-2 East End Wall Middle Section RMC#148-86	XX-3 East End Wall North Section RMC#149-86
Polychlorinated Biphenyls (PCBs)	22.2 mg/kg As Aroclor 1260	1.29 µg/cm^2 Wiped As Aroclor 1260	1.74 µg/cm^2 Wiped As Aroclor 1260
Analysis Method	*	**	**

Parameter	XX-4 Sump Pump For Drop Table RMC#150-86	XX-5 #3 Track Inside Pit RMC#151-86
Polychlorinated Biphenyls (PCBs)	29.5 mg/kg As Aroclor 1254	0.74 mg/kg As Aroclor 1254
Analysis Method	*	**

*USEPA, The Determination of Polychlorinated Biphenyls in Transformer Fluid and Waste Oils.

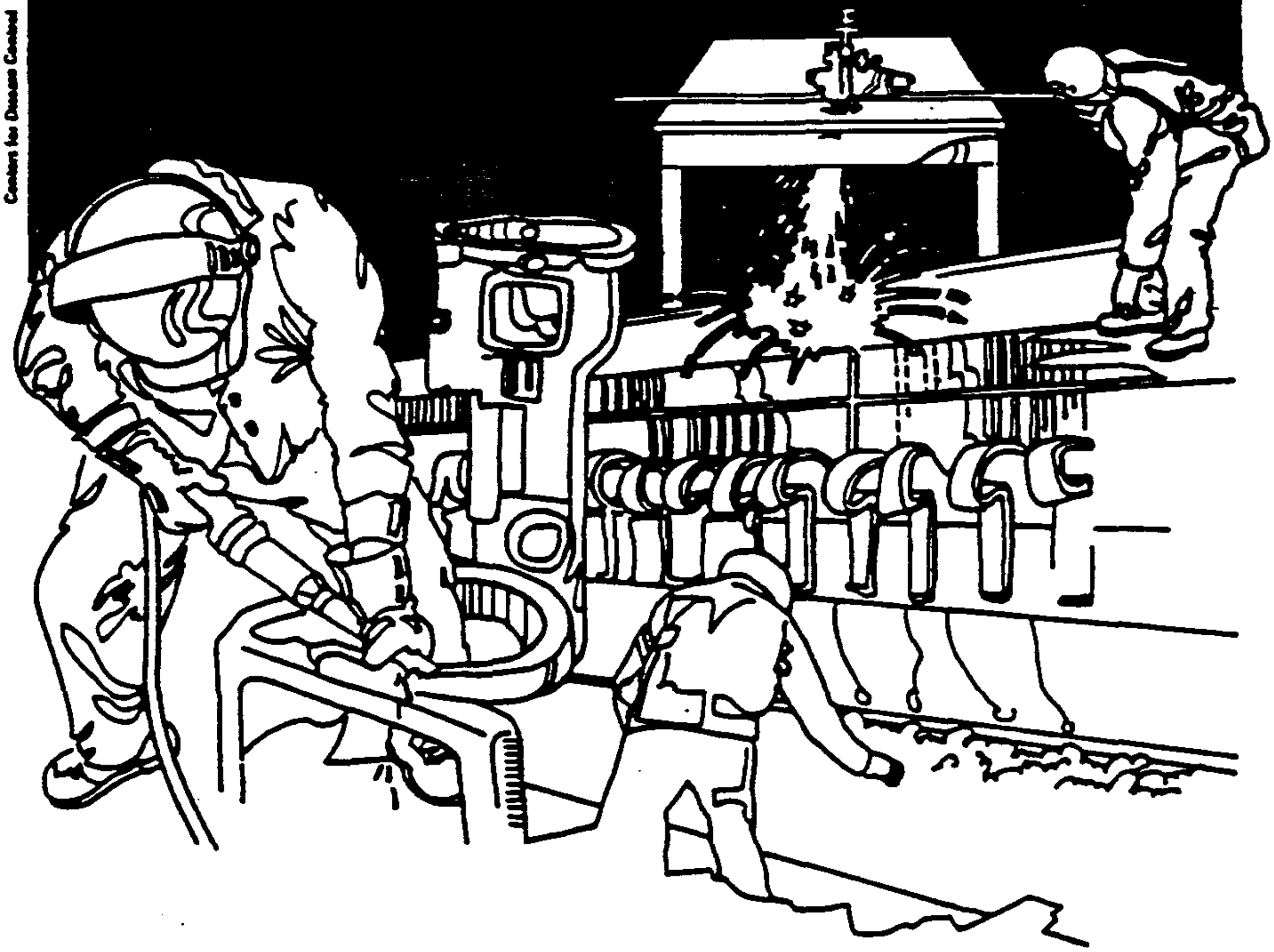
**USEPA, The Analysis of Organochlorine Pesticides and PCB's in Sediment and Soil, June 15, 1982.

Cleanup Method - Sodium Sulfate - Fluorisil

Approved By: Kyle F. Gross
Kyle F. Gross, Supervisor
Environmental Chemistry Laboratory

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES • Public Health Service
Centers for Disease Control • National Institute for Occupational Safety and Health

NIOSH



Health Hazard Evaluation Report

HETA 86-184-1719
AMTRAK
LONG ISLAND CITY, NEW YORK

PREFACE

The Hazard Evaluations and Technical Assistance Branch of NIOSH conducts fiel investigations of possible health hazards in the workplace. These investigations are conducted under the authority of Section 20(a)(6) of the Occupational Safety and Health Act of 1970, 29 U.S.C. 669(a)(6) which authorizes the Secretary of Health and Human Services, following a written request from any employer or authorized representative of employees, to determine whether any substance normally found in the place of employment has potentially toxic effects in such concentrations as used or found.

The Hazard Evaluations and Technical Assistance Branch also provides, upon request, medical, nursing, and industrial hygiene technical and consultative assistance (TA) to Federal, state, and local agencies; labor; industry and other groups or individuals to control occupational health hazards and to prevent related trauma and disease.

HETA 86-184-1719
August 1986
AMTRAK
LONG ISLAND CITY, NEW YORK

NIOSH INVESTIGATOR:
Richard W. Hartle

I. SUMMARY

On February 4, 1986, the National Institute for Occupational Safety and Health (NIOSH) received a request for a Health Hazard Evaluation from the International Brotherhood of Electrical Workers Local 817 for evaluation of potential occupational exposure of Engine House employees to polychlorinated biphenyls (PCBs) at the AMTRAK New York Maintenance Facilities in Long Island City, New York.

An environmental evaluation was conducted at the Engine House on April 29-30, 1986. Results of 12 airborne samples collected from the breathing zone of employees and 10 from the general work areas were below the analytical limit of detection (0.03 microgram/sample). Fourteen wipe samples collected from various work surfaces, office areas, locker/lunch room, and tools to determine relative PCB contamination of surfaces were reported at levels from 1.8 to 760 microgram PCB/square meter (ug/m^2). The highest levels of contamination were found on the walls of maintenance and inspection pits.

Based upon results of the environmental air samples collected during this evaluation, there does not appear to be a potential health hazard associated with airborne exposure to PCB within or near the AMTRAK Engine House. However, wipe samples indicate the presence of PCBs on various surfaces, particularly within the maintenance and access pits. Recommendations for the control of potential dermal exposures and methods for limiting the spread of the PCB contamination to other areas of the maintenance facility and to the homes of the employees are made in Section VII of this report. These include clean up of the contaminated areas and use of disposable protective clothing.

KEYWORDS: (SIC - 4011) Polychlorinated biphenyls (PCB), locomotive and rail-car maintenance

II. INTRODUCTION/BACKGROUND

The Engine House at the Sunny Side AMTRAK maintenance and repair yard is a large, open-ended building with two rail tracks running its entire length (tracks #1 and #2) on one side, with the other side housing various mechanical rooms, a locker/lunch area, and offices. These internal tracks are used for entry of self-powered electrical passenger cars maintained under contract by AMTRAK for the New Jersey Transit Authority. Two external tracks (tracks #3 and #4; "inboard inspection pit") parallel the building and are used for inboard or "pre-inspection" of AMTRAK electrical powered locomotives. The tracks within the Engine House were constructed with access pits between the rails running their entire length. These pits are approximately three feet deep, which allows worker access to the underside of cars and locomotives for inspection and repair. The tracks at the inboard inspection site also have access pits approximately three feet deep and 40 feet long. A total of 12 employees, consisting of electrical mechanics, pipefitters, locomotive tenders, and laborers work in and near the Engine House.

Historically, the Engine House area was subjected to PCB contamination through maintenance of PCB-containing capacitors or, as stated in an Environmental Protection Agency (EPA) inspection report, "transformer drippings". A "drop table" is located near the east entrance of the Engine House below track #2 which is used to remove and repair or replace the under carriage (wheel assembly) of the passenger cars. The drop table pit is approximately 15 feet deep, and persistent drainage problems from rain water runoff in the area frequently resulted in as much as three feet of water collecting in the pit. Ground water was contaminated by passing through PCB-contaminated soil, thus contaminating the pit area. The EPA sampled soil and water in this area, and subsequently a large amount of soil near the entrance to the Engine House was removed and replaced.

Remedial efforts to decontaminate and seal the pit area from ground water seepage were recently undertaken by AMTRAK. On February 4, 1986, NIOSH received a request from Local 817 of the International Brotherhood of Electrical Workers for a health hazard evaluation at the Engine House to determine if these remedial efforts were effective in reducing PCB contamination to acceptable levels. Particular concern was expressed for potential airborne and dermal exposures to PCBs within the drop table pit area and at the inboard locomotive inspection site.

III. EVALUATION DESIGN AND METHODS

Environmental monitoring was conducted during the day shift of April 29 and 30, 1986. To determine the potential for airborne exposures to PCBs, general area and breathing zone (personal) air samples were collected by drawing air through 150 milligram (mg) florisil tubes attached to battery operated sampling pumps at a pre-calibrated flow rate of one liter per minute for the duration of the shift. To determine the potential for dermal exposure from skin contact of contaminated surfaces, a number of wipe samples were obtained from various working surfaces and tools. These samples were collected by using 3"x3" gauze swatches wetted with 8 milliliter (ml) of hexane, and wiping a 0.25 m^2 area. Bulk samples of soil, floor scrapings, and material from within the pits were obtained and analyzed for PCB content.

For analysis, the florisil tubes were separated into their primary and backup sections. Each section was desorbed in one ml of hexane with sonication for one hour. Gas chromatographic (GC) analysis was performed on a Hewlett-Packard Model 5711A GC equipped with an electron capture detector and accessories for capillary column capabilities. A 25m x 0.31 millimeter fused silica WCOT capillary column coated internally with DB-5 was used with temperature programming from 210°C (held for two minutes) to 310°C at a rate of 8°C/minute. Five percent methane in argon was used as the carrier gas. The injector was operated in the splitless mode of operation. The presence of an Aroclor was determined by comparison with standard samples of Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260 obtained from the EPA. Quantitation was performed by summing the peak heights of the five major peaks of the standards and comparing those sums of the same peak heights in the sample. The instrumental limit of detection was 0.03 micrograms (ug)/sample.

A bulk oil sample from the drop table pit area was prepared for analysis by initially weighing a 15 milliliter (ml) screw cap test tube. One-tenth ml of the oil was added to the tared test tube. The test tube was weighed a second time and the weight of the oil was calculated. Iso-octane was added to make a 20 mg/ml solution of oil in iso-octane. Two drops of concentrated sulfuric acid were added to the solution and mixed with an evapo-mix for about three minutes. The solution was allowed to stand undisturbed for one hour permitting the sulfuric acid and particulates to settle out. An aliquot of the solution was decanted into a 1 ml GC vial sealed with a Teflon-lined screw cap. The remaining bulk samples (soil, floor scrapings, etc.) were prepared according to Method SW 846 then transferred to GC vials. Subsequent GC analysis was identical to that previously described for the environmental air samples.

The gauze samples were prepared for analysis by extraction in 40 ml of hexane with shaking for 30 minutes. The hexane was transferred to a concentrator tube and the gauze was rinsed twice with 10 ml of hexane. The concentrated hexane eluent was cleaned on a florisil column and the sample was brought to a final volume of three ml. GC analysis was the same as previously described.

IV. EVALUATION CRITERIA

A. Toxicology

PCBs are chlorinated aromatic hydrocarbons that were manufactured in the United States from 1929 to 1977 and marketed under the trade name Aroclor.[1] PCBs found wide use because they are heat stable, resistant to chemical oxidation, acids, bases and other chemical agents, stable to oxidation and hydrolysis in industrial use, have low solubility in water, low flammability and favorable dielectric properties. Additionally, they have low vapor pressure at ambient temperatures and viscosity-temperature relationships which were suitable for a wide variety of industrial applications. PCBs have been used commercially for insulating fluids for electrical equipment, hydraulic fluids, heat transfer fluids, lubricants, plasticizers, and components of surface coatings and inks.[2]

The different PCB mixtures marketed under different trade names are often characterized by a four-digit number. The first two digits denote the type of compound, with "12" indicating biphenyl, and the latter two digits giving the weight percentage of chlorine, with the exception of Aroclor 1016. In other commercial preparations the number code may indicate the approximate mean number of chlorine atoms per PCB molecule (Phenoclor, Clophen, Kanechlor) or the weight percentage of chlorine (Fenclor). All positive results of samples collected within the AMTRAK facility were mixtures of Aroclors 1254 and 1260, which had historical use in electrical capacitors, electrical transformers, and hydraulic fluids.

PCB residues are detectable in various tissues of persons without known occupational exposure to PCBs. Mean whole blood PCB levels range from 1.1 to 8.3 parts per billion (ppb), while mean serum PCB levels range from 2.1 to 24.2 ppb.[3] Mean serum PCB levels among workers in one capacitor manufacturing plant studied by NIOSH ranged from 111 to 546 ppb, or approximately 5 to 22 times the background level in the community. Mean serum PCB levels among workers in transformer maintenance and repair typically range from 12 to 51 ppb, considerably lower than among workers at capacitor manufacturing plants.[4]

PCBs' toxicity is complicated by the presence of highly toxic impurities, especially the polychlorinated dibenzofurans (PCDFs)[5], which vary in amount between PCBs from different manufacturers,[6] and PCBs of different percent chlorination,[7] and which are found in increased concentration when PCBs undergo incomplete pyrolysis.[8,9] As well, different animal species, including man, vary in their pattern of biologic response to PCB exposure.[10]

Two human epidemics of chloracne, "Yusho" and "Yu-cheng," from ingestion of cooking oil accidentally contaminated by a PCB heat-exchange fluid used in the oil's pasteurization, have been described in detail.[11,12] Although PCBs were initially regarded as the etiologic agent of Yusho, analyses of the offending cooking oil demonstrated high levels of polychlorinated dibenzofurans and polychlorinated quarterphenyls, as well as other unidentified chlorinated hydrocarbons, in addition to PCBs.[13]

The results of individual studies of PCB-exposed workers are remarkably consistent. Among the cross-sectional studies of the occupationally exposed, a lack of clinically apparent illness in situations with high PCB exposure seems to be the rule. Chloracne was observed in recent studies of workers in Italy,[14] but not among workers in Australia,[15] Finland,[15] or the United States.[4,17-19] Weak positive correlations of PCB exposure or serum PCB levels have been reported with SGOT[14,16-18], GGTP(4,14,18,19), and plasma triglycerides.[4,20,21] Correlations with plasma triglycerides[22] and with GGTP[23] are also found among community residents with low level PCB exposures. Causality cannot necessarily be imputed to PCBs in these cross-sectional studies.

The International Agency for Research on Cancer has concluded that the evidence for PCBs' carcinogenicity to animals and to humans is limited. "Certain polychlorinated biphenyls are carcinogenic to mice and rats after their oral administration, producing benign and malignant liver neoplasms. Oral administration of polychlorinated biphenyls increased the incidence of liver neoplasms in rats previously exposed to N-nitrosodiethylamine"[24].

In a mortality study among workers at two capacitor manufacturing plants in the United States[25] a greater than expected number of observed deaths from cancer of the liver and cancer of the rectum were noted. Neither increase was statistically significant for both study sites combined. However, in a recent unpublished update of this study, with follow-up through 1982, the excess in liver/biliary tract cancer was statistically significant (5 observed vs. 1.9 expected)/ whereas, the excess in cancer of the rectum was still elevated but not statistically significant. In a mortality study among workers at a capacitor manufacturing plant in Italy[26] males had a statistically significant increased number of deaths from all neoplasms. When analyzed separately by organ system, death from neoplasms of the digestive organs and peritoneum (3 observed vs. 0.88 expected) and from lymphatic and hematopoietic tissues (2 observed vs. 0.46 expected) were elevated. This study was recently expanded to include all workers with one week or more of employment with vital status follow-up through 1982. In the updated results, there was a statistically singificant excess in cancer among both females (12 observed vs. 5.3 expected) and males (14 observed vs. 7.6 expected). In both groups there were non-significant excesses in lymphatic/hematopoietic cancer and a statistically significant excess in digestive cancer among males (6 observed vs. 2.2 expected). Unfortunately, not enough information is provided to determine the risk specifically for liver cancer.

B. Occupational Criteria

As a guide to the evaluation of the hazards posed by work place exposures, NIOSH field staff employ environmental evaluation criteria for assessment of a number of chemical and physical agents. These criteria are intended to suggest levels of exposure to which most workers may be exposed up to 10 hours per day, 40 hours per week for a working lifetime without experiencing adverse health effects. It is, however, important to note that not all workers will be protected from adverse health effects if their exposures are maintained below these levels. A small percentage may experience adverse health effects because of individual susceptibility, a pre-existing medical condition, and/or a hypersensitivity (allergy). In addition, some hazardous substances may act in combination with other work place exposures, the general environment, or with medications or personal habits of the worker to produce health effects even if the occupational exposures are controlled at the level set by the evaluation criterion. These combined effects are often not considered in the evaluation criteria. Also, some substances are absorbed by direct contact with the skin and mucous membranes, and thus potentially increase the overall exposure. Finally, evaluation criteria may change over the years as new information on the toxic effects of an agent become available.

The primary sources of environmental evaluation criteria for the work place are: 1) NIOSH Criteria Documents and recommendations, 2) the American Conference of Governmental Industrial Hygienists' (ACGIH) Threshold Limit Values (TLV's), and 3) the U.S. Department of Labor (OSHA) occupational health standards. Often, the NIOSH recommendations and ACGIH TLV's are lower than the corresponding OSHA standards. Both NIOSH recommendations and ACGIH TLV's usually are based on more recent information than are the OSHA standards. The OSHA standards also may be required to take into account the feasibility of controlling exposures in various industries where the agents are used; the NIOSH-recommended exposure limits, by contrast, are based primarily on concerns relating to the prevention of occupational disease. In evaluating the exposure levels and the recommendations for reducing these levels found in this report, it should be noted that industry is legally required to meet those levels specified by an OSHA standard.

A time-weighted average (TWA) exposure refers to the average airborne concentration of a substance during a normal 8- to 10-hour workday. Some substances have recommended short-term exposure limits or ceiling values which are intended to supplement the TWA where there are recognized toxic effects from high short-term exposures.

NIOSH recommends that airborne exposure to PCBs in the work place be limited to at or below the minimum reliable detectable concentration of 1 microgram of PCB per cubic meter of air (ug/m^3) (using the recommended sampling methods) determined as a TWA for up to a 10-hr workday, 40-hr workweek. The NIOSH Recommended Exposure Limit (REL) was based upon the findings of adverse reproductive effects in experimental animals, on the conclusion that PCBs are carcinogenic in rats and mice and, therefore, potential human carcinogens in the work place, and on the conclusion that human and animal studies have not demonstrated a level of exposure to PCBs that will not subject workers to possible liver injury.[27]

The Occupational Safety and Health Administration (OSHA) promulgated its permissible exposure limit (PEL) of 1 mg/m^3 for airborne chlorodiphenyl products (PCBs) containing 42% chlorine and 0.5 mg/m^3 for chlorodiphenyl products containing 54% chlorine determined as 8-hr time-weighted average (TWA) concentrations based on the 1968 Threshold Limit Values (TLVs) of the American Conference of Governmental Industrial Hygienists (ACGIH).[28] The TLVs, which have remained unchanged at 1 mg/m^3 and 0.5 mg/m^3 through 1986, are based on the prevention of liver injury in exposed workers. The ACGIH Short Term Exposure Limits (STEL) for airborne chlorodiphenyls are 2 mg/m^3 and 1 mg/m^3 for 42% and 54% chlorine products, respectively. The OSHA PEL and the ACGIH TLV and STEL values include a "Skin" notation which refers to the potential contribution to overall exposure by the cutaneous route, including the mucous membranes and eyes, by either airborne or direct skin contact with PCBs.

There are no standard evaluation criteria (RELs, PELs, or TLVs) for industrial surfaces contaminated with PCBs. In July of 1985, an advisory panel was convened to provide guideline recommendations for air and surface clean up for PCBs, dioxins, and furans for the State Highway Department Building in Santa Fe, New Mexico. Both NIOSH and the Environmental Protection Agency were represented on this panel. These guidelines were based in part on similar guidelines for other office buildings in Binghamton, New York, and San Francisco, California, and recent scientific estimates of the health risks for exposure to these compounds. They were intended to maintain the risk for developing cancer below one in one million for individuals spending a working lifetime (30 years) in the contaminated building. These guidelines included specifications for PCB concentrations not to exceed 50 ug/m^2 on "working" surfaces. Examples of working surfaces included "high contact" items such as desk tops and chairs. However, application of these guidelines to the industrial environment is difficult. Recent recommendations by NIOSH (June 1986) for surface clean up of PCBs in an aircraft maintenance facility proposed 250 ug/m^2 for low contact surfaces, and 100 ug/m^2 for actual aircraft parts. In interpretation of these guidelines and proposals, it should be noted that there is a great deal of scientific uncertainty about the potential human risks from exposure to PCBs.

C. Environmental Criteria

Prior to September 7, 1973, PCBs were not controlled or listed as "priority" toxic pollutants. At that time, a list of toxic pollutants was published by the Environmental Protection Agency (EPA) (38 FR 24344) and subsequently, proposed toxic pollutant effluent standards affecting that list were published. At the same time, NIOSH published its initial Toxic Substances List which essentially paralleled the EPA effort. In 1976, the EPA published a list of Policies and Procedures for a Continuing Planning Process on which designation of agencies, areas, and standards were set forth. Following this, further standards and definitions were published (1977) in which ambient water criteria in navigable waters were set at 0.001 ug PCBs/liter. In 1978, the PCB section was designated 40 CFR part 761 and expanded to cover capacitors, pesticides, tobacco products, food, drug, food additive, cosmetic or devices that may be contaminated with PCBs. Distribution in commerce, disposal, municipal solid wastes, fluorescent light ballasts, and many other items which might involve PCBs were introduced and elaborated upon.

At roughly the same time, the EPA established the Toxic Substances Control Act (TSCA; PL94-469). The standards set forth in the TSCA (Section 6(e)) prohibit the manufacture, processing, distribution, and most uses of PCBs (40 CFR 761). Distribution and use are permitted for "totally enclosed" transformers and capacitors, chemical substances containing less than 50 ppm PCBs, and certain authorized uses in "non-totally enclosed" systems.

V. RESULTS AND DISCUSSION

Twelve full-shift breathing zone and 10 general area environmental air samples were collected over the duration of the day shifts on March 29 and 30. A representative number of employees working near and in the drop table pit area, the inboard inspection area, and at other areas throughout the Engine House were monitored. All results were reported as below the analytical limit of detection (0.03 ug for the seven aroclors). Based upon the average volume of air sampled, this represents airborne concentrations (if at all present) of less than roughly 0.08 ug/m^3, or less than 10% of the NIOSH Recommended Exposure Limit (NIOSH REL = 1 ug/m^3). Table 1 presents sample locations and volumes of sampled air.

Fourteen wipe samples were collected to determine relative degrees of surface PCB contamination. Table 2 presents sample locations and levels of contamination, in ug PCB/m^2. The areas of highest surface contamination were the wall of the drop table pit, and the wall of the service pit for track #2, near the center of the Engine House, both reported at 760 ug/m^2. These samples were collected from locations which were visibly contaminated with a viscous, oily residue apparently seeping from small cracks and other defects in the walls. A bulk sample of this oily material showed a PCB content of 240 ppm. A wipe sample collected from the drop table pit wall (west side) which was not contaminated with the oily substance showed a contamination level of 172 ug/m^2.

East wall
Drop table
pit
oil seeping
thru cracks
#3 service
pit

Prior to the NIOSH evaluation, the drop table pit area had undergone clean up, with the pit walls and floor receiving two coats of primer paint and one coat of epoxy. The area surrounding the pit had been pressure grouted and cracks in the pit walls were repaired. However, results of the wipe sampling and visual observation of the drop table pit walls, (particularly the east wall) and certain areas of the service pits for tracks #2 and #3 indicate that PCB contaminated residue is continuing to penetrate into these areas.

One additional wipe sample showed a relatively high PCB level of 252 ug/m^2. This sample was collected on the floor outside the supervisor's office on the second level of the engine house from a visibly dirty area. The PCB contamination was most likely due to a history of tracking contaminated soil and oils from the higher contaminated areas, possibly prior to the clean up efforts.

All other wipe samples collected from the locker/lunch room, mechanical rooms, desk tops, and tools were reported at significantly lower concentrations (less than 100 ug/m^2; Table II).

Results of nine bulk samples are presented in Table III. The only bulk with significant PCB content was the oily substance collected from the wall of the drop table pit (240 ppm). All other samples, primarily scrape and soil samples from the Engine House area, ranged from 10 to 36 ppm.

Based upon the results of the personal and general area environmental air samples, there does not appear to be a hazard associated with airborne PCBs within or near the AMTRAK Engine House. Wipe and bulk sample results indicate that certain areas of the Engine House continue to contain relatively high levels of PCB surface contamination (drop table pit area and access pits between tracks within the building). A wipe sample collected from a visibly dirty hallway indicates that tracking of PCBs from contaminated work areas has contaminated the floors. This is likely to be the case for most of the floor surfaces in the offices, hallways, and equipment rooms within the Engine House.

Recent renovations of the drop table will reportedly reduce or eliminate the necessity for workers to enter the drop table pit area. However, if unusual circumstances or maintenance activities require their entry, appropriate measures for protection against skin exposure must be taken. Routine maintenance activities requiring entry into the access pits for the tracks inside the Engine House will also require protective measures. These protective measures will be pre-empted if the surfaces within the pit areas are decontaminated. Contamination of floors and hallways within the Engine House probably do not present a significant PCB exposure situation to the Engine House employees, because these are primarily considered as low contact surfaces for bare skin. However, unnecessary spread of PCBs to other areas of the Maintenance and Repair facility may result from these contaminated floors, including other offices and automobiles. Also, the possibility of the spread of PCBs to the home environment warrants consideration.

VI. RECOMMENDATIONS

Further clean up efforts of the drop table pit and the access pit for tracks #2 and #3 should be made. Although there is considerable uncertainty surrounding the potential health effects of PCBs, in addition to the problems of assigning an appropriate level of acceptable PCB surface contamination, these clean-up efforts should be made to minimize any unnecessary employee exposures and reduce the potential for spreading PCBs to other work areas and homes of employees. Clean up should be aimed primarily at locations with oily residues seeping from the pit walls, and floors which are visibly contaminated with tracked material. In the interim, disposable coveralls, boots, and gloves made of material impervious to PCBs, such as Tyvek™ should be provided to employees when entrance to the drop table pit and the access pits inside the Engine House is necessary. Waste receptacles for the disposable garments, placed near the site of use, should protect against the spread of PCBs through tracking and clothing contamination.

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28. American Conference of Governmental Industrial Hygienists. Threshold limit values for chemical substances and physical agents in the workroom environment and biological exposure indices with intended changes for 1984-85. Cincinnati, Ohio: ACGIH, 1984.

VIII. AUTHORSHIP AND ACKNOWLEDGEMENTS

Report Prepared by:	Richard W. Hartle Industrial Hygienist Industrial Hygiene Section
Originating Office:	Hazard Evaluations and Technical Assistance Branch Division of Surveillance, Hazard Evaluations, and Field Studies
Report Typed By:	Kathy Conway Clerk-typist Industrial Hygiene Section

IX. DISTRIBUTION AND AVAILABILITY OF REPORT

Copies of this report are currently available upon request from NIOSH, Division of Standards Development and Technology Transfer, Publications Dissemination Section, 4676 Columbia Parkway, Cincinnati, Ohio 45226. After 90 days, the report will be available through the National Technical Information Service (NTIS), 5285 Port Royal, Springfield, Virginia 22161. Information regarding its availability through NTIS can be obtained from NIOSH Publications Office at the Cincinnati address. Copies of this report have been sent to:

1. AMTRAK
2. International Brotherhood of Electrical Workers Local 817
3. NIOSH, Region II
4. OSHA, Region II

For the purpose of informing affected employees, copies of this report shall be posted by the employer in a prominent place accessible to the employees for a period of 30 calendar days.

TABLE I

AIRBORNE PCBs
AMTRAK - SUNNY SIDE YARD
LONG ISLAND CITY, NEW YORK

HETA 86-184
MARCH 29-30, 1986

Operation/Location	Date	Volume (l)	Concentration
<u>Personal (Breathing Zone) Samples</u>			
Foreman/All Engine House Areas	6/29/86	391	ND*
Machinist/Inboard Inspection	6/29/86	388	ND
Machinist/Inside Engine House	6/29/86	381	ND
Electrician/Inside Engine House	6/29/86	401	ND
Laborer/Inboard Inspection	6/29/86	385	ND
Machinist/Inboard Inspection	6/29/86	383	ND
Pipefitter/Inside Engine House	6/29/86	385	ND
Engine Attendant/Inboard Inspection	6/29/86	382	ND
Electrician/Inboard Inspection	6/30/86	371	ND
Machinist/Inboard Inspection	6/30/86	364	ND
Machinist/Inside Engine House	6/30/86	362	ND

(Cont.)

TABLE I (Cont.)

AIRBORNE PCBs
AMTRAK - SUNNY SIDE YARD
LONG ISLAND CITY, NEW YORK

HETA 86-184
MARCH 29-30, 1986

Operation/Location	Date	Volume (1)	Concentration
Electrician/Inside Engine House	6/30/86	367	ND
General Area Samples			
Drop Table/North Side	6/29/86	385	ND
Inboard Inspection/Between tracks	6/29/86	357	ND
Drop Table/North Side	6/30/86	359	ND
Lunch Table/Locker Room	6/30/86	366	ND
Inboard Inspection/Between tracks	6/30/86	356	ND
Inboard Inspection/In #4 pit	6/30/86	354	ND
Inboard Inspection/In #3 pit	6/30/86	355	ND
Near Drop Table/Between Tracks	6/30/86	321	ND
Drop Table/In Pit, South End	6/30/86	325	ND
Drop Table/In Pit, North End	6/30/86	324	ND

*ND = None Detected; based upon sampled air volumes, this corresponds to airborne concentrations of less than 0.08 - 0.09 ug/m^3 (NIOSH REL = 1.0 ug/m^3).

TABLE II

SURFACE SAMPLE RESULTS FOR PCBs
AMTRAK - SUNNY SIDE YARD
LONG ISLAND CITY, NEW YORK

HETA 86-184
MARCH 29-30, 1986

Location	Concentration (ug/m^2)
Administrative Offices - lunch table	7.6
Administrative Offices - desk top	1.8
Engine House - lunch table	5.2
Engine House - refrigerator door in locker/lunch room	10.4
Engine House - upstairs floor outside supervisor's office	252
Engine House - upstairs; supervisor's desk	7.2
Engine House - inspection pit wall (#2 track, west end)	760
Engine House - drop table pit wall (east)	760
Engine House - drop table pit wall (west)	172
Engine House - hand rail to drop pit (not m^2 surface)	64
Inboard inspection - hand rail to upper engine access stand	34.4
Inboard inspection - handle of brush used to wash windows	11.6
Engine House - surface of work bench located between tracks	92
Engine House - electricians work bench	34

TABLE III

BULK SAMPLE RESULTS FOR PCBs
AMTRAK - SUNNY SIDE YARD
LONG ISLAND CITY, NEW YORK

HETA 86-184
MARCH 29-30, 1986

Location	Concentration (PPM)
Floor scrape at East end of Engine House; between tracks	36
Wall of drop table pit; oil seeping from crack	240
Floor scrape in drop table pit - south end near wall	25
Soil from 15' outside east end of Engine House near track #2	16
Soil from 30' outside east end of Engine House near track #2	21
Soil near inboard inspection next to track #3	21
Soil near inboard inspection next to track #4	21
Sediment from inboard inspection pit on track #3	9.6
Sediment from inboard inspection pit on track #4	18

FAX TRANSMITTAL MEMO
COVER SHEET

TO: Richard

COMPANY:

TELEPHONE NO:

FAX NO:

NO. PAGES: 3

COMMENTS: The attached is the latest analytical PCB results at the Engine House pits

FROM:

SAFETY AND ENVIRONMENTAL CONTROL
NATIONAL RAILROAD PASSENGER CORP.
400 N. Capitol Street, NW, 6th Floor
Washington, DC 20001
PHONE: 202-906-______ FAX NO: 202-906-4944

SENDER'S NAME: Charles DATE: 8/9

Amtrak

C:\WP51\DOCS\FRM\FAX.SET

ENVIRONMENTAL CONSULTING & MANAGEMENT
ROUX ASSOCIATES INC

ROUX
1377 MOTOR PARKWAY
ISLANDIA, NEW YORK 11788
TEL 516 232-2600 FAX 516 232-9898

Ck - see me on this
ASAP
MT
1/4/94

December 29, 1993

Mr. Joseph DeVito
National Railroad Passenger Corporation
Penn Station
7th Avenue & 31st Street
New York, New York 10001

Re: Summary of Engine House Jack-Pit Clean-Out Activities and Analytical Results

Dear Mr. DeVito:

As you are aware, Roux Associates, Inc. (Roux Associates) was retained by the National Railroad Passenger Corporation (AMTRAK) to transfer the water accumulating in the west jack-pit and rail-pits at the Engine House, Sunnyside Yard, Queens, New York (Yard) to the east jack-pit, and to determine the source of the water (i.e., ground-water infiltration, broken pipe, etc.). In addition, samples of oil and sludge were collected from the west jack-pit for polychlorinated biphenyl (PCB) analysis.

Work for this project commenced on December 3, 1993, and consisted of the following tasks:

- measurements of the oil thickness at various locations in the west jack-pit;
- skimming floating oil from the water surface using a filter scavenger and oil sorbent pads;
- transferring the water from the rail-pits and the west jack-pit to the larger east jack-pit;
- collection of oil and sludge samples for PCB analysis from the west jack-pit;

- consolidate and containerize oil sorbent pads and personnel protective equipment for proper disposal by AMTRAK; and
- follow-up inspection to evaluate the oil/water infiltration rate and compare the stabilized water level in the rail-pits with ground-water level in surrounding monitoring wells.

On December 3, 1993, oil thickness measurements (using an electronic oil/water interface probe) from several locations in the west jack-pit and south rail-pit indicated an accumulation of oil at all locations varying in thickness between 0.01 and 0.1 feet. The floating oil was removed using oil sorbent pads and the pads were containerized. Water was transferred from the west jack-pit using a portable gas-powered centrifugal pump to the larger east jack-pit. Oil and sludge samples were collected from the west jack-pit and submitted via overnight delivery to IEA Laboratory, Monroe, Connecticut for PCB analysis on a 48-hour turnaround basis. The piping within the jack-pit was visually inspected for leaks, but none were observed. Water infiltration was noted only at the bottom of the west jack-pit. Water accumulating in the west jack-pit overflowed into the north and south rail-pits and equilibrated with ground-water levels in surrounding monitoring wells (i.e., MW-13, MW-52 and RW-2) as measured on December 6 through 10, 1993.

Results of the field investigation indicate that the water accumulating in the west jack-pit is the result of ground-water infiltration. This was confirmed by water-level measurements in the surrounding monitoring wells being similar to the equilibrated water level measured in the rail-pits.

Results of the laboratory analyses indicated PCBs were present in both samples. The concentrations of the PCB Aroclors detected are presented below and are shown in parts per million (ppm).

PCB Aroclor	Sample #1 (Oil)	Sample #2 (Sludge)
Aroclor 1248	86 ppm	320 ppm
Aroclor 1254	350 ppm	170 ppm
Aroclor 1260	76 ppm	27 ppm

Based upon our discussions with Mr. Robert T. Noonan, Senior Director of Environmental Control for AMTRAK, no additional work is scheduled by Roux Associates at this time. Roux Associates will provide further assistance to AMTRAK for this project, if requested.

If you have any questions or require further assistance, please do not hesitate to call.

Sincerely,

ROUX ASSOCIATES, INC.

Harry Gregory

Harry Gregory
Project Hydrogeologist

Joseph D. Du

Joseph D. Duminuco
Senior Hydrogeologist/
Project Manager

cc: R. Noonan, AMTRAK
C. Lin, AMTRAK

National Railroad Passenger Corporation, 400 North Capitol St., NW, Washington, DC 20001 • (202) 383-3000

Amtrak

June 13, 1985

FILE COPY

Mr. Albert J. Mullin
U.S. EPA Region I
Woodbridge Avenue - Building 209
Edison, NJ 08837

Dear Mr. Mullin:

Per your request of June 12, 1985, attached is a copy of the analysis report for the grab samples taken from the engine house in Amtrak's Sunnyside Maintenance Yard.

If you require any additional information, please contact us at (202) 383-2583.

Very truly yours,

R. T. Noonan
Senior Director
Safety and Environmental Control

Attachment

bc: C. T. Prehm

cc: JPD
6/21

RECEIVED
JUN 14 1985

RMC ENVIRONMENTAL SERVICES
Environmental Chemistry Laboratory, Fricks Lock Rd., RD # 1, Pottstown, PA 19464 (215) 326-9662

CERTIFICATE OF ANALYSIS

LABORATORY NO: See Below **RECEIVED:** 20 February 1985 **REPORTED:** 5 March 1985

CLIENT: AMTRAK
Sunnyside Yards
39-29 Honeywell Street
Long Island City, NY 11101

SAMPLE DESCRIPTION:

Floor & wall Scraping Dry oil & Grease

Liquid Sample oil & water for PCB level of contamination

Parameter	Sample A RMC#377-85 (mg/kg)	Sample B RMC#378-85 (mg/kg)	Sample C RMC#379-85 (mg/l)
Polychlorinated Biphenyl (PCB) as Aroclor 1254	235	5.2	0.020

Approved by: Richard S. Rodgers
Richard S. Rodgers, Manager
Environmental Chemistry Laboratory

A. SAMPLE - SCRAPING OF #2 PIT WALL. E.H. - SOLID

B " " " #2 PIT FLOOR. SOLID

C LIQUID SAMPLE OF #2 PIT. FLOOR LEVEL. - TAKEN. 2/19/85

A - Sample - scraping of #2 Pit wall eng house - (Solid)

B - " " " " floor " " - "

C - liquid sample of #2 pit floor level - taken 2/19/85

APPENDIX F-2

Oil House

1980 - oil House

F. Disposal

Disposal of PCB contaminated liquids by land-fill is approved by the EPA in 40CER 761.10 if the concentration does not exceed 500 ppm. For purposes of this quotation it is assumed that all liquid is less than 500 ppm therefore will be buried at a chemical waste site operated by Chemical Waste Management, Inc. located at Emelle, Alabama. A copy of their permit no. 78-1 and a letter from the EPA to Chemical Waste Management dated October 9, 1979 authorizing the disposal of non-ignitable liquid wastes not exceeding 500 ppm of PCB's is enclosed.

If analyses reveals levels in excess of 500 ppm, disposal by land fill is unauthroized according to 40CFR 761.10. In this case the waste will be sent to an authorized storage site in Ohio operated by SEP, Inc. whose offices are in Waukesha, Wisconsin.

III. Approach

DTK's approach, in general, will be to develop the logistics, for the removal and disposal of PCB contaminated liquids and materials, in conjunction with a sampling program which will be representative to determine the concentrations of PCB present. The sampling and analysis program will be designed by an industrial hygienist to insure liability protection for Amtrak and DTK in the proper disposal of all PCB contaminated wastes. As mentioned earlier, in the section entitled "Sampling" (Section II.A.), further analyses are not required in the specifications nor is it included in the quotation but due to factors evident in the conditions present, it is virtually impossible to accept the analysis as complete confirmation that all the liquid would be less than 500 ppm. The results of the analyses (310 and 390 ppm) are too close to 500 ppm considering that the gradient of PCB contamination could vary as much as a factor of 4.

Appendix A

Scope of Work

The work to be performed includes the removal and disposal of PCB contaminated oil and facility upgrading, as detailed below, at the Amtrak Sunnyside Yard, New York, New York.

1. Remove fluid waste contaminated with PCB from oil house at Sunnyside Yards, Long Island City, New York.

   Note: The oil house (lamp house) is a deteriorated structure part of which has a roof - size is 60' x 45'. The part under roof (45' x 20') is used now as a storage area for oil sorbents. The part without a roof (45' x 40') is practically an open dump for any kind of scrap materials, rugs, lubricants, etc. (see plan). Depth of the oil is approximately 3.5'. Total amount of liquid and debris to be removed and disposed of in a controlled landfill (chemical) is: 45' x 60' x 3.5 x 7.48 = 70,868 Gallons or 1300 drums (55 gallon).

2. Decontaminate basement of building and remove residue.

3. Fill basement with sand a cap with a layer of concrete.

NATIONAL RAILROAD PASSENGER CORPORATION
PROCUREMENT DEPARTMENT

1617 JOHN F. KENNEDY BLVD.
PHILADELPHIA, PA 19103

Amtrak

INVOICING: ALL INVOICES ARE TO BE MAILED TO: ACCOUNTS PAYABLE DEPARTMENT AT THE ABOVE ADDRESS.

PAGE 1 OF

PURCHASE ORDER
NO. NRPC-0294-1501 SUPP. 000

D.T.K. INCORPORATED
P.O. BOX A
PARK RIDGE, NJ 07656
201-391-1111

ATTN: DOUGLAS R. FUHRMAN

ITEM	I.C.C.	SUB.	RES/LOC CENTER	FUNC.	WORK ORDER	ORIG. DEPT.	ORDER DATE
01		172	7713	1305			NOV 6 198

APPROVED C.A.R.

F.O.B. ON SITE

DATE MATERIAL REQUIRED	VENDOR'S PROMISED DELIVERY	METHOD OF SHIPMENT	CLASS EXP.	CLASS CAP.	CLASS INV.
AS BELOW	AS BELOW	VENDOR TRUCK	XX		

ITEM	ITEM DIST.	QUANTITY	U/M	DESCRIPTION	UNIT PRICE	NET PRICE
				CONTAMINATED WASTE/N.E.C.		
				TOTAL FIXED PRICE FOR THIS ORDER NOT SUBJECT TO ESCALATION ----------------------		304,500.00

******************** SPECIAL INSTRUCTIONS ********************
THIS PURCHASE ORDER IS SUBJECT TO THE TERMS + CONDITIONS AS DETAILED IN N.R.P.C. FORM NO'S. 69-REV 4/75; 69-1A; 69-1B; 69-1C; 69-1D; 1483 AND 1356A ALREADY IN YOUR POSSESSION.

THIS PURCHASE ORDER AUTHORIZES DTK INCORPORATED (CONTRACTOR) TO PROCEED WITH THE REQUIRED WORK AND SERVICES TO DISPOSE OF 1300 FIFTY-FIVE (55) GALLON DRUMS OF CONTAMINATED FLUIDS FROM AMTRAK'S SUNNYSIDE YARDS, 39-29 HONEYWELL STS., LONG ISLAND CITY, NY 11101

ALL WORK, SERVICES AND COSTS SHALL BE IN ACCORDANCE WITH THE FOLLOWING DOCUMENTS LISTED HEREIN AND THE ARTICLES WRITTEN HEREIN.

DOCUMENTS:
1. AMTRAK SPECIFICATION FOR
(CONTINUED)

To be retained by Receiving Department

a. PROPERTY FOR ROLLING STOCK —
THIS PURCHASE ORDER IS TAXABLE ( ), EXEMPT ( ).
REFER TO ADDENDUM No. 1 TO N.R.P.C. TERMS AND CONDITIONS (FORM 69).

b. OTHER PURCHASES —
THIS PURCHASE ORDER IS TAXABLE (X), EXEMPT ( ), REFER TO RESALE CERTIFICATE ATTACHED (N) OR PREVIOUSLY SUBMITTED IN BLANKET FORM (N).

RFQ NUMBER	REQUISITION NUMBER I-1317-1723	TERMS SEE SPECIAL INSTRUC.
ADDRESS ALL COMMUNICATIONS TO:	BUYER (NAME AND NO.) [illegible] R. [illegible]	TELEPHONE 215-395-7747

CONDITIONS FORMING PART OF THIS ORDER ARE ON ATTACHED AMTRAK FORM NO. AS ABOVE REV.

Joseph Sousa for
F.S. Malefatto
MANAGING DIRECTOR
MATERIALS MANAGEMENT

AUTHORIZED TITLE

BUYER	PURCHASING AGENT	MANAGER	DIRECTOR	MANAGING DIRECTOR
	RBG	E.W.		

MARK EACH PACKAGE, CONTAINER, PACKING SLIP AND INVOICE WITH OUR ORDER NUMBER AND ITEM NUMBER WHEN DESIGNATED ON THE ORDER. IF TRANSPORTATION IS CHARGEABLE TO BUYER, DO NOT INSURE OR DECLARE VALUE ON ANY SHIPMENT EXCEPT PARCEL POST. IF VALUE OF INDIVIDUAL SHIPMENT IS IN EXCESS OF $200.00, DO NOT SHIP PARCEL POST.

NRPC 30 (REV. 11/76)

IF YOU APPRECIATE OUR BUSINESS - RIDE AND SHIP VIA RAIL

NATIONAL RAILROAD PASSENGER CORPORATION
PROCUREMENT DEPARTMENT

1517 JOHN F. KENNEDY BLVD.
PHILADELPHIA, PA 19103

Amtrak

INVOICING: ALL INVOICES ARE TO BE MAILED TO: ACCOUNTS PAYABLE DEPARTMENT AT THE ABOVE ADDRESS.

PAGE	PURCHASE ORDER NO.	SUPP.
2 OF	NERC-0294-1501	000

D.T.K. INCORPORATED
P.O. BOX A
PARK RIDGE, NJ 07656
201-391-1111

ATTN: DOUGLAS R. FUHRMAN

ITEM	I.C.C.	SUB.	RES/LOC CENTER	FUNC.	WORK ORDER	ORIG. DEPT.	ORDER DATE
01		172	7713	1306			

APPROVED C.A.R.

F.O.B. ON SITE

DATE MATERIAL REQUIRED	VENDOR'S PROMISED DELIVERY	METHOD OF SHIPMENT	CLASS EXP.	CLASS CAP.	CLASS INV.
AS BELOW	AS BELOW	VENDOR TRUCK	XX		

ITEM	ITEM DIST.	QUANTITY	U/M	DESCRIPTION	UNIT PRICE	NET PRICE
				PCB CONTAMINATED OIL DISPOSAL AND FACILITY UPGRADING, SUNNYSIDE YARDS, NY. DATED OCTOBER 23, 1980. 2. CONTRACTOR'S PROPOSAL DATED OCTOBER 29, 1980 AS REVISED NOVEMBER 4, 1980. 3. AMTRAK'S GENERAL REQUIREMENTS, MAY, 1977. 4. BULLETIN NO. [illegible] DATED NOVEMBER 3, 1980. THE ABOVE SHALL BE HELD TO BE AND ARE HEREBY MADE A PART OF THE PURCHASE ORDER BY SPECIFIC REFERENCE THERETO AS IF COPIED AT LENGTH HEREIN. IN ADDITION, CONTRACTOR AGREES TO FORWARD TO FOLLOWING ADDRESSEE PRIOR TO THE START OF ANY WORK A COPY OF THE CONTRACTOR'S LICENSE(S) AND A CERTIFICATE OF INSURANCE FROM ITS INSURANCE COMPANY OR (CONTINUED)		

RECEIVING DEPARTMENT COPY

To be retained by Receiving Department

a. PROPERTY FOR ROLLING STOCK — THIS PURCHASE ORDER IS TAXABLE ( ), EXEMPT ( ). REFER TO ADDENDUM No. 1 TO N.R.P.C. TERMS AND CONDITIONS (FORM 69).

b. OTHER PURCHASES — THIS PURCHASE ORDER IS TAXABLE ( ), EXEMPT ( ), REFER TO RESALE CERTIFICATE ATTACHED ( ) OR PREVIOUSLY SUBMITTED IN BLANKET FORM ( ).

RFQ NUMBER	REQUISITION NUMBER	TERMS
ADDRESS ALL COMMUNICATIONS TO:	BUYER (NAME AND NO.)	TELEPHONE

CONDITIONS FORMING PART OF THIS ORDER ARE ON ATTACHED AMTRAK FORM NO. REV.

AUTHORIZED TITLE

BUYER	PURCHASING AGENT	MANAGER	DIRECTOR	MANAGING DIRECTOR

MARK EACH PACKAGE, CONTAINER, PACKING SLIP AND INVOICE WITH OUR ORDER NUMBER AND ITEM NUMBER WHEN DESIGNATED ON THE ORDER. IF TRANSPORTATION IS CHARGEABLE TO BUYER, DO NOT INSURE OR DECLARE VALUE ON ANY SHIPMENT EXCEPT PARCEL POST. IF VALUE OF INDIVIDUAL SHIPMENT IS IN EXCESS OF $200.00, DO NOT SHIP PARCEL POST.

NRPC 30 (REV. 11/76)

IF YOU APPRECIATE OUR BUSINESS - RIDE AND SHIP VIA RAIL

NATIONAL RAILROAD PASSENGER CORPORATION
PROCUREMENT DEPARTMENT

1617 JOHN F. KENNEDY BLVD.
PHILADELPHIA, PA 19103

Amtrak

INVOICING: ALL INVOICES ARE TO BE MAILED TO: ACCOUNTS PAYABLE DEPARTMENT AT THE ABOVE ADDRESS.

PAGE 3 OF

PURCHASE ORDER
NO. NERC-0294-1601
SUPP. 00

O.T.K. INCORPORATED
P.O. BOX A
PARK RIDGE, NJ 07656
201-391-1111

ATTN: DOUGLAS R. FUHRMAN

ITEM	I.C.C.	SUB.	RES/LOC CENTER	FUNC.	WORK ORDER	ORIG. DEPT.	ORDER DATE
01		172	7713	1306			

APPROVED C.A.R.

F.O.B. ON SITE

DATE MATERIAL REQUIRED	VENDOR'S PROMISED DELIVERY	METHOD OF SHIPMENT	CLASS EXP.	CAP.
AS BELOW	AS BELOW	VENDOR TRUCK	XX	

ITEM	ITEM DIST.	QUANTITY	U/M	DESCRIPTION	UNIT PRICE	NET PRICE
				AUTHORIZED AGENT WITH SPECIFIC ENDORSEMENT ATTACHED: AMTRAK-PROCUREMENT 822 SUBURBAN STATION BLDG. 1617 J. F. KENNEDY BLVD. PHILADELPHIA, PA 19103 ATTN: R. L. GIONTA VENDOR DELIVERY PROMISE: CONTRACTOR SHALL NOTIFY THE AMTRAK CHIEF MECHANICAL OFFICER PRIOR TO COMMENCING WORK, OF THE CONTEMPLATED STARTING DATE. THIS MAY BE DONE BY TELEPHONE: (212) 560-7566, (J. CONNORS). SUBMIT ALL INVOICES TO: AMTRAK - CHIEF MECHANICAL OFFICER 522 SUBURBAN STATION BLDG. 1617 J. F. KENNEDY BLVD. PHILADELPHIA, PA 19103 ATTN: R. MCGOWAN INVOICES SHALL BE APPROVED BY THE AMTRAK CHIEF MECHANICAL OFFICER OR HIS DELEGATED (CONTINUED)		

To be retained by Receiving Department

a. PROPERTY FOR ROLLING STOCK —
THIS PURCHASE ORDER IS TAXABLE ( ), EXEMPT ( ).
REFER TO ADDENDUM No. 1 TO N.R.P.C. TERMS AND CONDITIONS (FORM 69).

b. OTHER PURCHASES —
THIS PURCHASE ORDER IS TAXABLE ( ), EXEMPT ( ) REFER TO RESALE CERTIFICATE ATTACHED ( ) OR PREVIOUSLY SUBMITTED IN BLANKET FORM ( ).

RFQ NUMBER	REQUISITION NUMBER	TERMS
ADDRESS ALL COMMUNICATIONS TO:	BUYER (NAME AND NO.)	TELEPHONE

CONDITIONS FORMING PART OF THIS ORDER ARE ON ATTACHED AMTRAK FORM NO. REV.

AUTHORIZED TITLE

BUYER	PURCHASING AGENT	MANAGER	DIRECTOR	MANAGING DIRECTOR

MARK EACH PACKAGE, CONTAINER, PACKING SLIP AND INVOICE WITH OUR ORDER NUMBER AND ITEM NUMBER WHEN DESIGNATE THE ORDER. IF TRANSPORTATION IS CHARGEABLE TO BUYER, DO NOT INSURE OR DECLARE VALUE ON ANY SHIPMENT EXCEPT PA POST. IF VALUE OF INDIVIDUAL SHIPMENT IS IN EXCESS OF $200.00, DO NOT SHIP PARCEL POST.

NRPC 30 (REV. 11/76)

IF YOU APPRECIATE OUR BUSINESS - RIDE AND SHIP VIA RAIL

NATIONAL RAILROAD PASSENGER CORPORATION
PROCUREMENT DEPARTMENT

1617 JOHN F. KENNEDY BLVD.
PHILADELPHIA, PA 19103

INVOICING: ALL INVOICES ARE TO BE MAILED TO: ACCOUNTS PAYABLE DEPARTMENT AT THE ABOVE ADDRESS.

PAGE 4 OF

PURCHASE ORDER
NO. NERG-0294-1601 SUPP. 000

D.T.K. INCORPORATED
P.O. BOX A
PARK RIDGE, NJ 07656
201-391-1111

ATTN: DOUGLAS R. FUHRMAN

ITEM	I.C.C.	SUB.	RES/LOC CENTER	FUNC.	WORK ORDER	ORIG. DEPT.	ORDER DATE
01		172	7713	1306			

APPROVED C.A.R.

F.O.B. ON SITE

DATE MATERIAL REQUIRED	VENDOR'S PROMISED DELIVERY	METHOD OF SHIPMENT	CLASS EXP.	CAP.	INV
AS BELOW	AS BELOW	VENDOR TRUCK	XX		

ITEM	ITEM DIST.	QUANTITY	U/M	DESCRIPTION	UNIT PRICE	NET PRICE
				REPRESENTATIVE PRIOR TO PAYMENT. ALL EXTRA WORK IN CONNECTION WITH THIS CONTRACT REQUIRE PROPER APPROVAL OF BOTH THE AMTRAK CHIEF MECHANICAL OFFICER AND AMTRAK PROCUREMENT DEPARTMENT. AUTHORIZATION TO PROCEED WITH EXTRA WORK WILL BE IMPLEMENTED BY A "SUPPLEMENT" TO THIS ORDER. TERMS: NET 5 (END OF ORDER, PAGE 4 OF 4)		

a. PROPERTY FOR ROLLING STOCK — THIS PURCHASE ORDER IS TAXABLE ( ), EXEMPT ( ). REFER TO ADDENDUM No. 1 TO N.R.P.C. TERMS AND CONDITIONS (FORM 69).

b. OTHER PURCHASES — THIS PURCHASE ORDER IS TAXABLE ( ), EXEMPT ( ). REFER TO RESALE CERTIFICATE ATTACHED ( ) OR PREVIOUSLY SUBMITTED IN BLANKET FORM ( ).

RFQ NUMBER	REQUISITION NUMBER	TERMS
ADDRESS ALL COMMUNICATIONS TO:	BUYER (NAME AND NO.)	TELEPHONE

CONDITIONS FORMING PART OF THIS ORDER ARE ON ATTACHED AMTRAK FORM NO. REV.

AUTHORIZED TITLE

BUYER	PURCHASING AGENT	MANAGER	DIRECTOR	MANAGING DIRECTOR

MARK EACH PACKAGE, CONTAINER, PACKING SLIP AND INVOICE WITH OUR ORDER NUMBER AND ITEM NUMBER WHEN DESIGNATED ON THE ORDER. IF TRANSPORTATION IS CHARGEABLE TO BUYER, DO NOT INSURE OR DECLARE VALUE ON ANY SHIPMENT EXCEPT PARCEL POST. IF VALUE OF INDIVIDUAL SHIPMENT IS IN EXCESS OF $200.00, DO NOT SHIP PARCEL POST.

NRPC 30 (REV. 11/76)

IF YOU APPRECIATE OUR BUSINESS - RIDE AND SHIP VIA RAIL

October 23, 1980

Subject: PCB contaminated oil disposal and facility upgrading, Sunnyside Yard, New York, New York.

1. Remove fluid waste and solids contaminated with PCB from oil house and adjacent area at Sunnyside Yards, Long Island City, New York.

   NOTE: The oil house (lamp house) is a deteriorated structure part of which has a roof - size is 60' x 45'. The part under roof (45' x 20') is used now as a storage area for oil sorbents. The part without a roof (45' x 40') is practically an open dump for any kind of scrap materials, rugs, lubricants, etc. (see plan). Depth of the oil is approximately 3.5'. Total amount of liquid and debris to be removed and disposed of in a controlled landfill (chemical) is: 45' x 60' x 3.5 x 7.48 = 70,868 Gallons or 1300 drums (55 gallon).

2. Decontaminate basement of building and adjacent area and remove residue using steam which will be provided by Amtrak.

3. Fill basement with sand and cap with a 6" layer of concrete constructed for 250 lbs./sq. ft. Also install a perforated stand pipe 6" in diameter.

Gollob Analytical Service

MOLININI GOLLOB, INC.

47 INDUSTRIAL ROAD, BERKELEY HEIGHTS, NEW JERSEY 07922 • TEL. (201) 464-3331

TO:
D.L. Muyskens - Manager
Sunnyside Yards-Amtrak
39-29 Honeywell Street
Long Island City, N.Y. 11101

G.A.S. REPORT No.	46631
Date Reported:	9/2/80
Date Requested:	8/22/80
P. O. No.	SSDM-0231-1310

MATERIAL SUBMITTED: 2 (Two) Oil Samples-From Sunnyside Yark 39-29 Honeywell St. Long Island City, N.Y.

INFORMATION REQUESTED: Gas Chromatography Analysis

NOTEBOOK REFERENCE: MT 657 page 66

RESULT OF INVESTIGATION

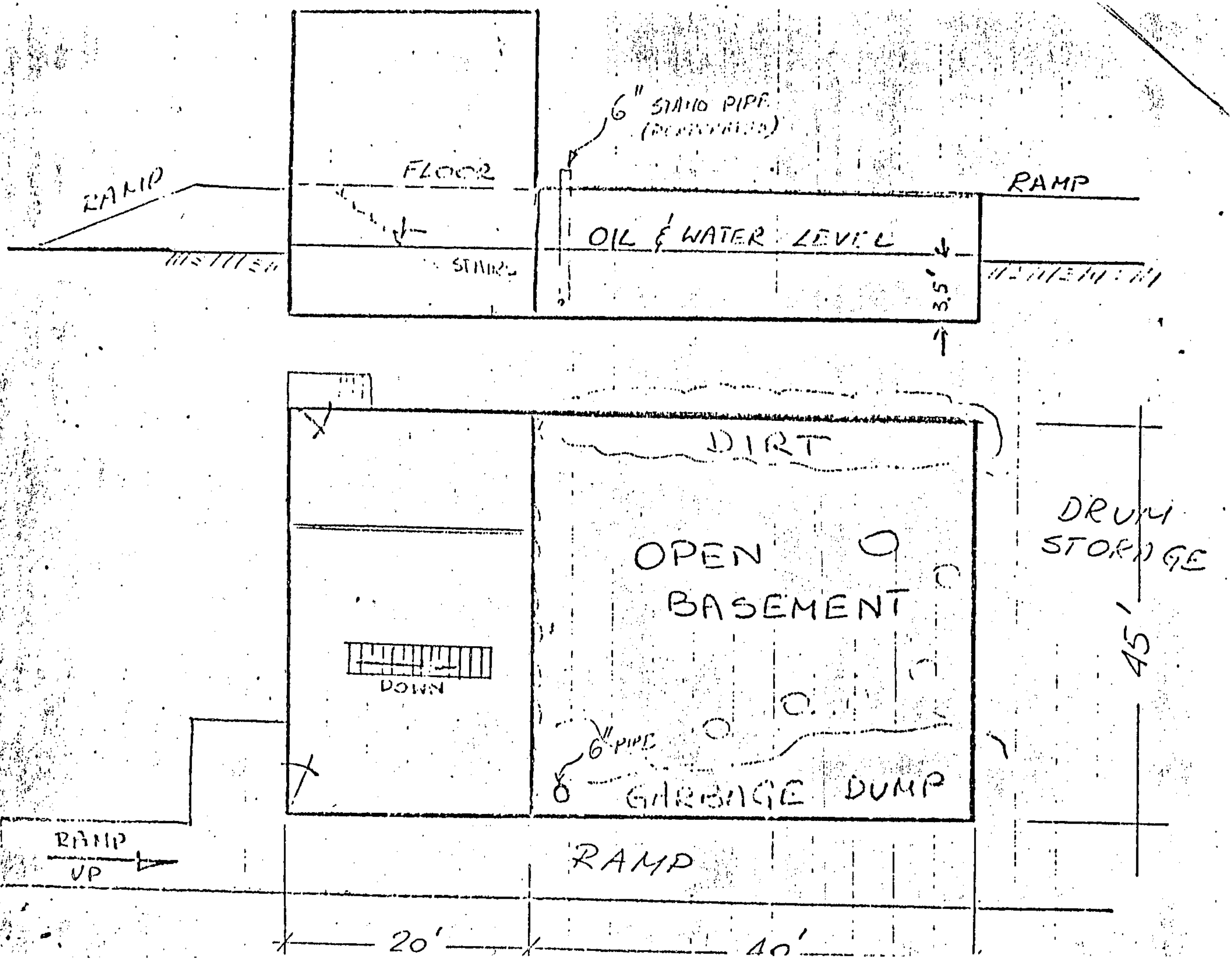
Constituent: Sample Identity	Polychlorinated Biphenyls* Concentration ppm by Weight
Oil #1	310
Oil #2	390

* Arochlor 1254

cc:D.E. McHugh
t 9280

By ______
GOLLOB ANALYTICAL SERVICE

AIHA CERTIFIED *MASS SPECTROMETRY* *GAS ANALYSIS* *GAS CHROMATOGRAPHY* *LIQUID CHROMATOGRAPHY*


6" STAND PIPE
RAMP
FLOOR
RAMP
OIL & WATER LEVEL
STAIRS
3.5'
DIRT
DRUM STORAGE
OPEN BASEMENT
45'
DOWN
6" PIPE
GARBAGE DUMP
RAMP UP
RAMP
20'
40'

RECEIVED
PROCUREMENT

1980 OCT 30 A 11: 30

Disposal of PCB Contaminated Fluid
from
Amtrak Sunnyside Yard, New York

Prepared by

Douglas R. Fuhrman, President

Date:

October 29, 1980

Prepared for
Amtrak - Procurement Dept.
Attn: R.L. Gionta
822 Suburban Station Bldg.
1617 JFK. Blvd.
Philadelphia, PA. 19103

DTK, Incorporated
P.O. Box A
Park Ridge, N.J. 07656
201-391-1111

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Appendix B: Certificate of Insurance
Appendix C: Transportation Permits
Appendix D: Disposal Permits

DTK, inc.

Executive Offices: P.O. BOX A • PARK RIDGE • NEW JERSEY 07656 [201] 391-1111

Midwest Regional Office:
219 FREMONT AVENUE
SANDUSKY, OHIO 44870
419-625-3753

I. Purpose

The purpose of this contract is to perform a three (3) phase project for Amtrak at the Sunnyside Yard, New York, New York as detailed in the Scope of Work below. Work must be performed in a timely and efficient manner with consideration of performing in accordance with regulations set forth by all federal, state and local regulations.

II. Precautions and Limitations

It is imperative, in a project with this level of sensitivity, that the work being performed is accomplished within the legal bounds of all regulatory agencies. The following are certain factors which must be considered:

A. Sampling

Even though sampling is not required and analyses has already been performed by Gollob Analytical Services indicating concentrations of less than 500 ppm, the gradient may vary extensively from point to point depending on many factors (e.g. location of a specific spill, floor pitch, mixing conditions, etc.) Sampling will be performed, as described in the "Approach" to ensure disposal compliance with EPA regulations, but quotations are based on the specifications <u>only</u>.

B. Personnel Protection

Personnel protection must be insured by utilizing appropriate industrial hygiene practices to avoid the uptake of PCB contaminated liquids or vapors. Proper protective clothing and respirators, if necessary, during various phases of the operation will be determined by an Industrial Hygienist.

Personnel protection will also be considered from the standpoint of OSHA regulations in the proper handling of equipment and materials.

C. Environmental Control

In any project involving hazardous or toxic materials, proper controls must be developed to avoid releases to the environment. An Industrial Hygienist will institute whatever controls are necessary to avoid any releases and stay well within limits set forth by the EPA and N.Y. State DEC (Department of Environmental Conservation).

D. Packaging

Containerizing PCB contaminated liquids or other items must be performed in accordance with DOT and disposal site regulations. Improper packaging can result in liability in case of accident or return of the waste.

E. Transportation

Transportation of PCB waste must be accomplished by an authorized carrier who has the appropriate permits both from EPA and the N.Y. State DEC. Transportation must also be accomplished in accordance with any DOT regulations. DTK anticipates using Lorbor Truck Service (Permit No5-7026enclosed).

F. Disposal

Disposal of PCB contaminated liquids by land-fill is approved by the EPA in 40CER 761.10 if the concentration does not exceed 500 ppm. For purposes of this quotation it is assumed that all liquid is less than 500 ppm therefore will be buried at a chemical waste site operated by Chemical Waste Management, Inc. located at Emelle, Alabama. A copy of their permit no. 78-1 and a letter from the EPA to Chemical Waste Management dated October 9, 1979 authorizing the disposal of non-ignitable liquid wastes not exceeding 500 ppm of PCB's is enclosed.

If analyses reveals levels in excess of 500 ppm, disposal by land fill is unauthroized according to 40CFR 761.10. In this case the waste will be sent to an authorized storage site in Ohio operated by SEP, Inc. whose offices are in Waukesha, Wisconsin.

III. Approach

DTK's approach, in general, will be to develop the logistics, for the removal and disposal of PCB contaminated liquids and materials, in conjunction with a sampling program which will be representative to determine the concentrations of PCB present. The sampling and analysis program will be designed by an industrial hygienist to insure liability protection for Amtrak and DTK in the proper disposal of all PCB contaminated wastes. As mentioned earlier, in the section entitled "Sampling" (Section II.A.), further analyses are not required in the specifications nor is it included in the quotation but due to factors evident in the conditions present, it is virtually impossible to accept the analysis as complete confirmation that all the liquid would be less than 500 ppm. The results of the analyses (310 and 390 ppm) are too close to 500 ppm considering that the gradient of PCB contamination could vary as much as a factor of 4.

To insure an efficient and timely removal of all wastes, DTK has available one day analytical capabilities by air freighting samples to our laboratories in Sandusky, Ohio. In addition, if necessary, DTK can make available a gas chromatograph for on-site sample analyses.

IV. Cost Propsal

The following cost propsal is segregated according to the three phases as described in the "Scope of Work".

Description	Total Fixed Price
Phase I.	$260,000
Phase II.	30,000
Phase III.	9,500
Grand Total	$299,500

Supplements:

1. Insurance (additional rider $2,000.00)
2. Additional costs as may be agreed on by Amtrak and DTK due to:
    a. Work requested by Amtrak which is not included in the "Scope of Work".
3. b. Costs incurred by DTK due to the discovery of concentrations in excess of 500 ppm.

Terms and Conditions:

1. Invoices for Phase I will be submitted on each truckload with a copy of the manifest verifying disposal site receipt. Payment terms or Net 5 days from date of invoice.
2. Invoice for Phase II will be submitted upon completion of the project or bi-weekly whichever is less. Payment terms are Net 5 days from date of invoice.
3. Invoice for Phase III will be submitted upon completion of the project or bi-weekly whichever is less. Payment terms are Net 5 days from date of invoice.

Appendix A

Scope of Work

Appendix A

Scope of Work

The work to be performed includes the removal and disposal of PCB contaminated oil and facility upgrading, as detailed below, at the Amtrak Sunnyside Yard, New York, New York.

1. Remove fluid waste contaminated with PCB from oil house at Sunnyside Yards, Long Island City, New York.

   Note: The oil house (lamp house) is a deteriorated structure part of which has a roof - size is 60' x 45'. The part under roof (45' x 20') is used now as a storage area for oil sorbents. The part without a roof (45' x 40') is practically an open dump for any kind of scrap materials, rugs, lubricants, etc. (see plan). Depth of the oil is approximately 3.5'. Total amount of liquid and debris to be removed and disposed of in a controlled landfill (chemical) is: 45' x 60' x 3.5 x 7.48 = 70,868 Gallons or 1300 drums (55 gallon).

2. Decontaminate basement of building and remove residue.

3. Fill basement with sand a cap with a layer of concrete.

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Appendix B

Certificate of Insurance

Certificate of Insurance

ACORD

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES LISTED BELOW.

NAME AND ADDRESS OF AGENCY

R. H. Gruninger Agency, Inc.
287 Lackawanna Ave.
West Paterson, NJ 07424

NAME AND ADDRESS OF INSURED

D. T. K., Inc.
102 Pascack Road
Park Ridge, NJ 07656

COMPANIES AFFORDING COVERAGES

COMPANY LETTER A USF&G
COMPANY LETTER B American Mutual Liability
COMPANY LETTER C
COMPANY LETTER D
COMPANY LETTER E

This is to certify that policies of insurance listed below have been issued to the insured named above and are in force at this time.

COMPANY LETTER	TYPE OF INSURANCE	POLICY NUMBER	POLICY EXPIRATION DATE	Limits of Liability in Thousands (000)		
					EACH OCCURRENCE	AGGREGATE
A	GENERAL LIABILITY ☐ COMPREHENSIVE FORM ☐ PREMISES—OPERATIONS ☐ EXPLOSION AND COLLAPSE HAZARD ☐ UNDERGROUND HAZARD ☐ PRODUCTS/COMPLETED OPERATIONS HAZARD ☐ CONTRACTUAL INSURANCE ☐ BROAD FORM PROPERTY DAMAGE ☐ INDEPENDENT CONTRACTORS ☐ PERSONAL INJURY	B147-37-830	5/23/81	BODILY INJURY	$300,000	$300,000
				PROPERTY DAMAGE	$	$
				BODILY INJURY AND PROPERTY DAMAGE COMBINED	$	$
				PERSONAL INJURY		$
	AUTOMOBILE LIABILITY ☐ COMPREHENSIVE FORM ☐ OWNED ☐ HIRED ☐ NON-OWNED			BODILY INJURY (EACH PERSON)	$	
				BODILY INJURY (EACH OCCURRENCE)	$	
				PROPERTY DAMAGE	$	
				BODILY INJURY AND PROPERTY DAMAGE COMBINED	$	
	EXCESS LIABILITY ☐ UMBRELLA FORM ☐ OTHER THAN UMBRELLA FORM			BODILY INJURY AND PROPERTY DAMAGE COMBINED	$	$
B	WORKERS' COMPENSATION and EMPLOYERS' LIABILITY	WC 359448-01-80-C	4/21/81	STATUTORY		
					$	(EACH ACCIDENT)
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES

Cancellation: Should any of the above described policies be cancelled before the expiration date thereof, the issuing company will endeavor to mail _____ days written notice to the below named certificate holder, but failure to mail such notice shall impose no obligation or liability of any kind upon the company.

NAME AND ADDRESS OF CERTIFICATE HOLDER:

Amtrak
822 Suburban Station
1617 JFK Blvd.
Philadelphia, PA 19003

DATE ISSUED 10/28/80

AUTHORIZED REPRESENTATIVE

Appendix C

Transportation Permits
(Lorber Truck Service, Inc.)

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233 - Room 401

Robert F. Flacke
Commissioner

October 23, 1980

Lorber Truck Sales and Service, Inc.
1140 Military Rd.
Kenmore, NY 14217

Gentlemen:

Due to the large number of vehicles utilized in your operation, this letter will serve as your Septic Tank Cleaner and Industrial Waste Collector Permit. Your permit number, 9A-080, must be displayed in a prominent location on both sides and the rear of each vehicle, with numerals at least three inches high and of a color that will contrast sharply with the background. This permit is valid only for those vehicles with the following license plate numbers:

14BMB4
CP15257
CM72630
5693TO
8937TV
K16741
K66861
N73834
TME837
876719
131055
499279
CR13091
7590TV
N68265
N72551
N68270
N68269
K66865
TB319K
888Y12
8521TU
499275
499278
114822
N68226
13BN95
6318TT
K60478
K60789
7ME886
N74048
83080
536L12
N70621
499277
013684
14L159
15463
6318TV
82323
TB317K
K66832
N68201
TB269T
N68271
475904
TM305V
1581TS
4641TV
14L181
76666TT
K59400
K60792
K66830
N68224
8952TV
N68267
499276
30666
8531TV
9265TV
12L181
15BR46
K59396
K66786
K66833
N74848
8921TV
49817
K66864
N70620
2949TV
8921YV
12L143
15X659
K59393
K65531
N74049
N68227
8532TV
130776
N68225
H70705
9325TV
4591TV
13DD36
7743TT
K60791
K97186
N68228
6777TT
874089
TB330K
499280
M19044
47590
48397
TB330
88397
13105
87803
16557
49928
475903
49926
49926
499267
50082
M54847
M54848

The vehicles are permitted to transport the following wastes to the respective disposal facilities:

<u>WASTES</u>: Industrial wastes including PCB solids, that can be accepted by CECOS or SCA pursuant to their Part 360 Permit

<u>FACILITY</u>: CECOS International, Inc., Niagara Falls, NY and SCA Chemical Waste Services Inc., Model City. NY, Also, sludges, paints, oil, laboratory chemicals, plating wastes and chlorinated solvents to Frontier Chemical Waste Process, Niagara Falls,

A copy of this permit must be carried in each vehicle and presented upon demand to any Law Enforcement Officer or any representative of the Department of Environmental Conservation. This permit will expire on March 31, 1981. Should you have any questions pertaining to this permit, please contact this office at (518) 457-3254.

Sincerely,

David L. Archibald
Sanitary Engineer
Bureau of Hazardous Waste
Division of Solid Waste

NOTE: THIS APPROVAL DOES NOT RELIEVE THE APPLICANT OF THE RESPONSIBILITY OF COMPLYING WITH ANY OTHER APPLICABLE FEDERAL, STATE OR LOCAL ORDINANCES REGULATIONS AND LAWS.

DLA:jb

INSTALLATION'S EPA I.D. NO.: NJT000009910

I. NAME OF INSTALLATION: ~~LORBER LEONARD J~~

II. INSTALLATION MAILING ADDRESS:
1140 MILITARY ROAD
BUFFALO, NY 14217

III. LOCATION OF INSTALLATION:
1140 MILITARY ROAD
BUFFALO, NJ 14217

nformation on the label is incorrect, draw a line hrough it and supply the correct information n the appropriate section below. If the label is omplete and correct, leave Items I, II, and III elow blank. If you did not receive a preprinted ıbel, complete all items. "Installation" means a ingle site where hazardous waste is generated, reated, stored and/or disposed of, or a transorter's principal place of business. Please refer the *INSTRUCTIONS FOR FILING NOTIFIATION* before completing this form. The nformation requested herein is required by law *Section 3010 of the Resource Conservation and ecovery Act).*

FOR OFFICIAL USE ONLY

COMMENTS

INSTALLATION'S EPA I.D. NUMBER | APPROVED | DATE RECEIVED (yr., mo., & day)

T/A C: 1

I. NAME OF INSTALLATION

LORBER TRUCK SALES + SERVICE INC

II. INSTALLATION MAILING ADDRESS

STREET OR P.O. BOX: 1140 MILITARY RD

CITY OR TOWN: BUFFALO ST.: NY ZIP CODE: 14217

III. LOCATION OF INSTALLATION

STREET OR ROUTE NUMBER: 1140 MILITARY ROAD

CITY OR TOWN: BUFFALO ST.: NY ZIP CODE: 14217

IV. INSTALLATION CONTACT

NAME AND TITLE *(last, first, & job title)*: LEONARD LORBER OWNER

PHONE NO. *(area code & no.)*: 716-873-9703

V. OWNERSHIP

A. NAME OF INSTALLATION'S LEGAL OWNER: LEONARD LORBER

B. TYPE OF OWNERSHIP *(enter the appropriate letter into box)*
F = FEDERAL
M = NON–FEDERAL
M

VI. TYPE OF HAZARDOUS WASTE ACTIVITY *(enter "X" in the appropriate box(es))*

☐ A. GENERATION
☒ B. TRANSPORTATION *(complete item VII)*
☐ C. TREAT/STORE/DISPOSE
☐ D. UNDERGROUND INJECTION

VII. MODE OF TRANSPORTATION *(transporters only – enter "X" in the appropriate box(es))*

☐ A. AIR ☐ B. RAIL ☒ C. HIGHWAY ☐ D. WATER ☐ E. OTHER *(specify)*:

VIII. FIRST OR SUBSEQUENT NOTIFICATION

Mark "X" in the appropriate box to indicate whether this is your installation's first notification of hazardous waste activity or a subsequent notification. If this is not your first notification, enter your Installation's EPA I.D. Number in the space provided below.

☐ A. FIRST NOTIFICATION ☒ B. SUBSEQUENT NOTIFICATION *(complete item C)*

C. INSTALLATION'S EPA I.D. NO.: NJT000009910

IX. DESCRIPTION OF HAZARDOUS WASTES

Please go to the reverse of this form and provide the requested information.

EPA Form 8700-12 (6-80)

CONTINUE ON REVERSE

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
IVISION OF ENVIRONMENTAL QUALITY/SOLID WASTE ADMINISTRATION

S-7026		NY
REGISTRATION NO.	LICENSE NO.	STATE

AUTHORIZED FOR SPECIAL WASTE

This is to certify that: 160833455

LORBER LEONARD J
LORBER TRUCK-SALES & SERVICE
1140 MILITARY ROAD
BUFFALO NY 14217

has an approved registration for a Solid/Liquid Waste Collector or Hauler issued by N.J.D.E.P. ~~(Except Special Waste)~~

COMMISSIONER, DEPT. OF ENVIRONMENTAL PROTECTION

S-7026AE
CERT. NO.

AUTHORIZED FOR SPECIAL WASTE

3/31/81
EXPIRATION DATE

STATE OF ALABAMA)
MONTGOMERY COUNTY)

HAZARDOUS WASTE DISPOSAL
FACILITY PERMIT NO. 78-1

P E R M I T

KNOW ALL MEN BY THESE PRESENTS, That by and under the authority of § 22-27-1, et seq., Code of Alabama, 1975, the State Board of Health hereby grants to Waste Management of Alabama, Inc., f/k/a Alabama Solid Waste Systems, Inc., a subsidiary of Waste Management, Inc., a Corporation, a non-transferable permit to operate and maintain a facility for the collection, treatment, storage, resource recovery, and ultimate disposal of industrial wastes and certain potentially hazardous wastes. The facility, presently known as Resource Industries of Alabama, Inc., is located in parts of Sections 8, 16, 17, 20, and 21 of Township 21 North, Range 3 West, Sumter County, Alabama, known as the Pucetti property, encompassing some 340 acres, more or less.

The permitee is authorized to collect, treat, store, recover any resources contained in and dispose of all solid and liquid industrial wastes, and all wastes categorized as potentially hazardous or toxic except wastes requiring incineration for final disposal, permits for which may be obtained from the Alabama Air Pollution Control Commission and except radioactive wastes, pathological wastes and normal commercial and domestic wastes.

This permit shall be in effect at 1:00 P.M. on the 23rd day of February, 1978, and shall remain in force five years from that date unless replaced by subsequent legislation or revoked for cause.

The permitee shall fully comply with the rules and regulations of the State Board of Health, as have been or may be adopted or promulgated hereinafter, and shall comply with all engineering plans, specifications, narratives and procedures presented by the permitee or its predecessor and approved by the Board.

Issued this the 10th day of February, 1978, in Montgomery, Alabama.

Alfred S. Chipley

Alfred S. Chipley
Director, Division of Solid
Wastes and Vector Control
State of Alabama
Department of Public Health

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30308

OCT - 9 1979

REF: 4AH-RM

Rodger Henson, Ph.D.
Technical Manager
Waste Management of Alabama
P.O. Box 55
Emelle, Alabama

Dear Dr. Henson:

In accordance with regulations published May 31, 1979 (40CFR 761) EPA hereby approves your operating plan to dispose of non-ignitable liquid wastes containing low level concentrations of polychorinated biphenyls (PCB's) in your chemical waste landfill (CWLF) in Emelle, AL. This approval is subject to the conditions prescribed in the attachment.

Nothing in this approval relieves the applicant of compliance with conditions of any prior permits or approvals. Furthermore, nothing in this approval relieves the applicant of compliance with any provision of the PCB disposal, marking, storage or manufacturing ban regulations outlined in the May 31, 1979 regulations. Any violation of the conditions of this approval will be subject to enforcement action under the authority of the Toxic Substances Control Act of 1976 (PL 94-469).

I appreciate your cooperation throughout this approval process. If you have any questions regarding any of the conditions of this approval, please contact John Herrmann of my staff at 404-881-3016. If no question, you may consider the effective date of this approval to be upon receipt of this letter.

Sincerely yours,

John C. White

John C. White
Regional Administrator

Enclosure

FORM 4400–7

State of Wisconsin
Dept. of Natural Resources

SOLID WASTE COLLECTION AND TRANSPORTING SERVIC
LICENSE

For the period OCTOBER 1, 1979 THROUGH SEPTEMBER 30, 1980

NAME OF OPERATION: SAFETY ENGINEERED DISPOSAL, INC., TRANSPORT DIVISION =FULL SERVICE CONTRACTOR

MUNICIPALITIES SERVED: STATEWIDE

SITES WHICH LICENSEE IS AUTHORIZED TO USE FOR DISPOSAL PURPOSES:

ONLY THOSE SITES LICENSED BY THE DEPT. OF NATURAL RESOURCES

THE COLLECTION AND TRANSPORTATION OF THE FOLLOWING TYPES OF WASTE IS AUTHORIZED:

PCB CONTAMINATED OILS PCB MIXTURES

Under this license the solid waste collecting and transporting service shall comply with Chapter NR 151, Wisconsin Administrative Coc

THIS LICENSE IS CONDITIONED UPON AND SUBJECT TO COMPLIANCE WITH THE PROVISIONS OF ANY ORDER ISSUED TO THE LICENSEE BURING THE TERM OF THE LICENSE. IN ADDITION, DISPOSAL IS AUTHORIZED AT LICENSED SITES ONLY FOR THE PERIOD FOR WHICH THE SITE(S) IS/AUTHORIZED TO OPERATE.

JAMES B CALDWELL, PRESIDENT
SAFETY ENGINEERED DISPOSAL, TRANSPORT
DIVISION
P O BOX 1306
WAUKESHA, WI 53018

ROBERT F WINNIE, DISTRICT DIRECTOR
D N R SOUTHEASTERN DISTRICT

LICENSE NO. 0952
DATE OF ISSUANCE FEBRUARY 29, 1980

REV. 11-77 (2) WAUKESHA

Bu 10:00 a A: 10:30 a Bu 1:55 a [illegible] 11:30 a [illegible] 12:50

western union **Telegram**

(Amtraise TWX)

PHC101(0952)(4-006254S309)PD 11/04/80 0951
ICS IPMMTZZ CSP
2013911111 TDMT PARKRIDGE NJ 18 11-04 0951A EST
PMS AMTRAK ATTN R L GIONTA, TLX 7106700731 AMTRAK NEC PHA RPT DLY MGM
822 SUBURBAN STATION BLDG 1617 JFK BLVD
PHILADELPHIA PA 19103

DEAR MR GIONTA THIS IS TO CONFIRM DTK'S FIRM FIXED PRICE FOR INSURANCE PREMIUM RIDERS AT $ 5,000 SINCERELY

DOUGLAS R FUHRMAN DTK INC
PO BOX A
PARKRIDGE NJ 07656

NNNN

National Railroad Passenger Corporation, Suburban Station Bldg., 1617 J. F. Kennedy Blvd., Philadelphia, Penna. 19103

Amtrak

Bulletin No. 1 Date: November 3, 1980

TO

Amtrak Purchase Order NERG-0294-1601
Company DTK Incorporation

FOR

Revisions and/or deletions to the Amtrak General Requirements, May, 1977

Delete the following articles in their entirety: 12, 15.1.4, and 22.4

Ronald L Gionta
Ronald L. Gionta
Purchasing Agent

APPENDIX F-3

Metro Shed

CleanHarbors
ENVIRONMENTAL SERVICES, INC.
3 SUTTON PLACE • EDISON, NJ 08817
(908) 248-1997 • FAX (908) 248-4414

March 13, 1997

Mr. Augie Juliano
AMTRAK-National Railroad Passenger Corp.
3929 Honeywell Street
Long Island City, New York 11101

Re: Clean 600 foot PCB Contaminated Trench.

Dear Mr. Juliano,

Clean Harbors Environmental Services Inc. (CHESI) is pleased to submit this Work and Cost Plan for the clean up of the PCB contaminated contaminated trench at your Sunnyside Facility in Long Island City, New York.

The below listed Scope of Work, Work Plan, and Pricing Summary are based upon the information gathered during our recent site walk and our vast experience with similar projects.

SCOPE OF WORK

CHESI upon arrival will conduct a Health and Safety meeting. The appropriate Personal Safety equipment will be donned and the following work will commence.

TASKS

1. Remove all free liquids from the 600 foot trench using a compressor and vacuum drum loader.
2. Remove and drum all debris.
3. Label and stage drums for disposal.
4. Pull a sample from the liquid drums and analyze for total PCB's.
5. A separate work cost plan will be initiated upon receipt of the analytical for transportation and disposal.

PROJECT SCHEDULE

Clean Harbors estimates that this project will completed in 8 hours.

"People and Technology Creating a Better Environment"

PRICING SUMMARY

For the services described in the Scope of Work, we offer the Cost estimate:

1. Site Work labor and equipment, and analytical to perform the above tasks.................................... $ 1019.00
2. 17H drums as needed.................................$ 35.00/ea

Cost will be adjusted if project is completed prior to eight hours.

Assumptions:

o The volume of material is estimated, actual volumes may vary and may impact the project schedule and cost.

o CHESI will perform this project using non union labor.

o Any extreme conditions beyond the control of Clean Harbors, i.e., weather, acts of God, ~~riots~~, etc., will result in a price change.

Should you wish to meet with us to discuss this Work and Cost Plan, or encounter any questions during your review process please contact me at (908) 248-1997.

Sincerely,

Larry P. Pedersen
Field Specialist
Clean Harbors Environmental Services Inc.

Re:- Work and Cost Plan For Waste Disposal for PCB contaminated soil located at the Sunnyside Facility.

AMTRAK - I have reviewed this Work and Cost Plan and agree with the Scope of Work and Assumptions. I understand this is only an estimate for the work to be performed. Actual invoicing will be based on the daily worksheets, which itemize the resources utilized. (Including transportation pricing.) All invoicing will be in accordance with terms and conditions outlined in our Nationwide Environmental Service Contract.

I agree with the above statement and I have the authority to and agree to issue a release number against Blanket Purchase Order B083 04796 upon completion of work.

Amtrak Representative

Augie Juliano
Name - Printed

Project Engineer
Title

10-3-97
Date

✓

TOTAL P.02

CleanHarbors

OFFICE COPY

Clean Harbors Analytical Services, Inc., 325 Wood Rd., Braintree, MA 02184	CHAIN OF CUSTODY RECORD	Sample Custodian — (617) 849-1800	Page of

Client: Clean Harbors Project Name: Sunnyside/Amtrak Work Order/P.O. #: Date: 7/31/97

Report To: Larry Pedersen Address: 3 Sutton Place Edison NJ 08817 Phone #: 908 248 1997

FX 248-444

Date Samples Collected: 7/31/97 by: Larry Pedersen Date Samples Received:

Airbill/Bill of Lading? Y N

NOTE: Samples received unpreserved will be preserved upon arrival at CHAS. Samples were: Preserved Unpreserved

Sample I.D.	Date	Time	Station Location	Sample Matrix	PCB	PH							# of con.	CHAS Sample #
AS-1	7/31	1200		LIQ										
9713908					x	p								
														C-5963

Sampling Information: Date, Time, Station Location, Sample Matrix — Analysis

Relinquished by: Date: 8/1/97 Time: 1050

Received by: Date: 8/1/97 Time: 10:50

Relinquished by: Date: 8/1/97 Time: 12:20

Received by: Date: 8/1/97 Time: 14:40

VOA Vial

Glass Bottle

Plastic Bottle

Pres.

Volume

Preservation Key: A — Acidified with ________
B — Filtered, C — Sample chilled, D— NaOH,
E — NaThiosulfate, W — Sample Ambient, F — Other

REMARKS/COMMENTS: (Sample storage, nonstandard bottles, cautions, special instructions)

Need results
Faxed by
Aug 8, 1997
908-248-4417

Standard laboratory turnaround time is 2 weeks from date of receipt. Accelerated turnaround may be assessed a surcharge.
Accelerated turnaround requested: ________
Confirmed by: ________ Surcharge: ________

Location of samples: ________

Turnaround: 24 Hrs. 48 Hrs. 1 Week [✓ 2 Weeks] Other: ________

CHI 119

ACCREDITED LABORATORIES, INC
PCB ORGANIC ANALYSIS DATA

CASE NUMBER	5963	MATRIX	Aqueous
SAMPLE NUMBER	9713908	DILUTION FACTOR	1
DATA FILE	>A1513	DATE EXTRACTED	08/04/97
CLIENT NAME	CH	DATE ANALYZED	08/07/97
FIELD ID	AS-1	ANALYZED BY	MARK

CAS#	COMPOUND	UG/L		MDL
12674112	Aroclor-1016	U		.500
11104282	Aroclor-1221	U		.500
11141165	Aroclor-1232	U		.500
53469219	Aroclor-1242	U		.500
12672296	Aroclor-1248	U		.500
11097691	Aroclor-1254	U		.500
11096825	Aroclor-1260	.714	W	.500

B - Indicates compound found in associated blank.
J - Indicates compound concentration found below MDL.
U - Indicates compound analyzed for but not detected.
E - Indicates result exceeds highest calibration standard.
D - Indicates result is based on a dilution.
W - Result exceeds specific ground water quality criteria.*

* Flags are based on Specific Ground Water Quality Criteria from New Jersey Register dated February 1, 1993.

Do write up

United States Testing Company, Inc.
Environmental Sciences Division
1415 PARK AVENUE • HOBOKEN, NEW JERSEY 07030 • 201-792-2400

RECEIVED
SAFETY AND ENVIRONMENTAL CONTR.
OCT 16 1991
AMTRAK
NEW YO

REPORT OF TEST

A Polychlorinated Biphenyl
Sampling Survey

Conducted at

The Metro Shed Pit
Sunnyside Yard
Queens, New York

for

Amtrak
Dept. of Safety and Environmental Control
8th Avenue and West 31st Street
New York, New York 10001

Date: 10/07/91

TEST REPORT NO. 159013

SIGNED FOR THE COMPANY

BY

David L Hansen

David L. Hansen
Senior Vice President

EST. 1880

Prepared by

William Barber

William Barber
Project Manager

WB:nt

Laboratories in: New York • Chicago • Los Angeles • Houston • Tulsa • Memphis • Reading • Richland

United States Testing Company, Inc.

Client: Amtrak Dept. of Safety and
Environmental Control
8th Avenue and West 31st Street
New York, New York 10001

Number: 159013
Date: 10/07/91

Subject:

A polychlorinated biphenyl sampling survey was conducted by the United States Testing Co., Inc. in the Metro Shed Pit, at the Sunnyside Train Yard, Queens, New York, on September 18, 1991.

Project:

The purpose of this survey was to determine the concentration of polychlorinated biphenyls (PCB's) at various locations along the length of the pit.

Procedure:

Wipe samples were collected by swabbing a 15 cm^2 surface area with a hexane treated gauze pad. The pad was then placed in a clean glass jar and returned to the laboratory for analysis.

Bulk samples of the residue in the pit were collected by placing the material directly into a clean glass jar and returning it to the laboratory for analysis.

Upon returning to the laboratory the samples were extracted using hexane and analyzed in accordance with U.S. EPA Method SW 846 8080 and the PCB concentrations calculated on the dry weight of material washed off the gauze pad.

Client: Amtrak Dept. of Safety and
Environmental Control

Number: 159013
Date: 10/07/91

RESULTS:

SAMPLE LOCATION	PCB IDENTIFIED	CONCENTRATION PARTS PER MILLION
1. Wipe sample from center of pit, approximately 10 feet from east end.	Aroclor 1260	76.0
2. Wipe sample from center of pit, approximately 50 feet from east end.	Aroclor 1260	15.0
3. Wipe sample from center of pit, approximately 120 feet from east end.	Aroclor 1260	170
4. Wipe sample from center of pit at column 11.	Aroclor 1260	9.0
5. Residue sample from drain trough at column 14.	Aroclor 1016 Aroclor 1260	400 1600
6. Residue sample from drain trough at column 17.	Aroclor 1260	190
7. Wipe sample from center of pit at column 20.	Aroclor 1260	350
8. Residue sample from drain trough at column 23.	Aroclor 1260	380
9. Wipe sample from center of pit at column 26.	Aroclor 1260	590
10. Wipe sample from center center of pit, approximately 10 feet from west end.	Aroclor 1260	31.0

Conclusion:

Detectable levels of polychlorinated biphenyls were present at each location sampled.

United States Testing Company, Inc.
Environmental Sciences Division
1415 PARK AVENUE • HOBOKEN, NEW JERSEY 07030 • 201-792-2400

REPORT OF TEST

An Air and Soil Sampling Survey

conducted at

The Sunnyside Train Yard

for

Amtrak
Department of Safety
8th Avenue and 31st Street
New York, New York 10001

Amended December 4, 1989

156587

TEST REPORT NO.

SIGNED FOR THE COMPANY

BY

H.W. Lamann

Howard W. Lamann
Vice President

Prepared by

William Barber

William Barber
Scientist

WB:nt

United States Testing Company, Inc.

Client: Amtrak
Department of Safety
8th Avenue and 31st Street
New York, New York 10001

Number: 156587
Date: 12/04/89

Subject:

An air and soil sampling survey was conducted by the United States Testing Company at the Sunnyside Train Yard facility located in Queens, New York on August 18, 1989.

Project:

The purpose of this survey was to determine the airborne concentrations of total volatile organic compounds, hydrogen sulfide, and combustible gases and the total petroleum hydrocarbons and PCB's in the soil of the repair pit in the MU car shop.

Procedure:

Air samples were collected from five equidistant locations along the length of the pit, moving west to east with the exhaust fans running and east to west with the exhaust fans off. Soil samples were collected from the western end of the repair pit.

Airborne organics are sampled by the use of a Portable Photoionization Analyzer (PI 101). The analyzer employs the principle of photoionization. This process involves the absorption of ultraviolet light (a photon) by a gas molecule leading to ionization. Ions formed by the absorption of photons are driven to the collector electrode. The current produced is then measured and the corresponding concentration displayed on a meter directly in parts per million (ppm).

Sampling for Hydrogen Sulfide concentrations is accomplished by drawing a known volume of air through a Drager indicator tube. The presence of carbon monoxide causes a discoloration of the tube. The concentration is measured by reading the total length of discoloration. Vacuum is provided by a Drager Multi Gas Detector pump.

Client: Amtrak
Department of Safety

Number: 156537
Date: 12/04/89

Combustible gas levels were measured using a Mine Safety Appliances (MSA) explosive meter.

Soil samples were analyzed in accordance with the following methods:

> "Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration," USEPA Current Statement of Work
>
> Methods for Chemical Analysis of Water and Waste, "USEPA, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio, March 1979, EPA-600/4-79-020 (Method 418.1 modified for soil).

United States Testing Company, Inc.

Client: Amtrak
Department of Safety

Number: 156587
Date: 12/04/89

Results:

Air Samples

Location	Hydrogen Sulfide Concentration	Total Volatile Organic Concentration	Explosive Gas Level
1 (see drawing)	<.5 ppm	<2 mg/m^3	<.5% LEL
2	<.5 ppm	<2 mg/m^3	<.5% LEL
3	<.5 ppm	<2 mg/m^3	<.5% LEL
4	<.5 ppm	<2 mg/m^3	<.5% LEL
5	<.5 ppm	<2 mg/m^3	<.5% LEL
6	<.5 ppm	<2 mg/m^3	<.5% LEL
7	<.5 ppm	<2 mg/m^3	<.5% LEL
8	<.5 ppm	<2 mg/m^3	<.5% LEL
9	<.5 ppm	<2 mg/m^3	<.5% LEL
10	<.5 ppm	<2 mg/m^3	<.5% LEL

The concentrations of all airborne contaminants sampled was below the detection limit of the respective analysis method employed.

Petroleum Hydrocarbon

[illegible]	Concentration
1) Soil taken from repair pit	242,718 mg/kg
2) Soil taken from repair pit	323,798 mg/kg

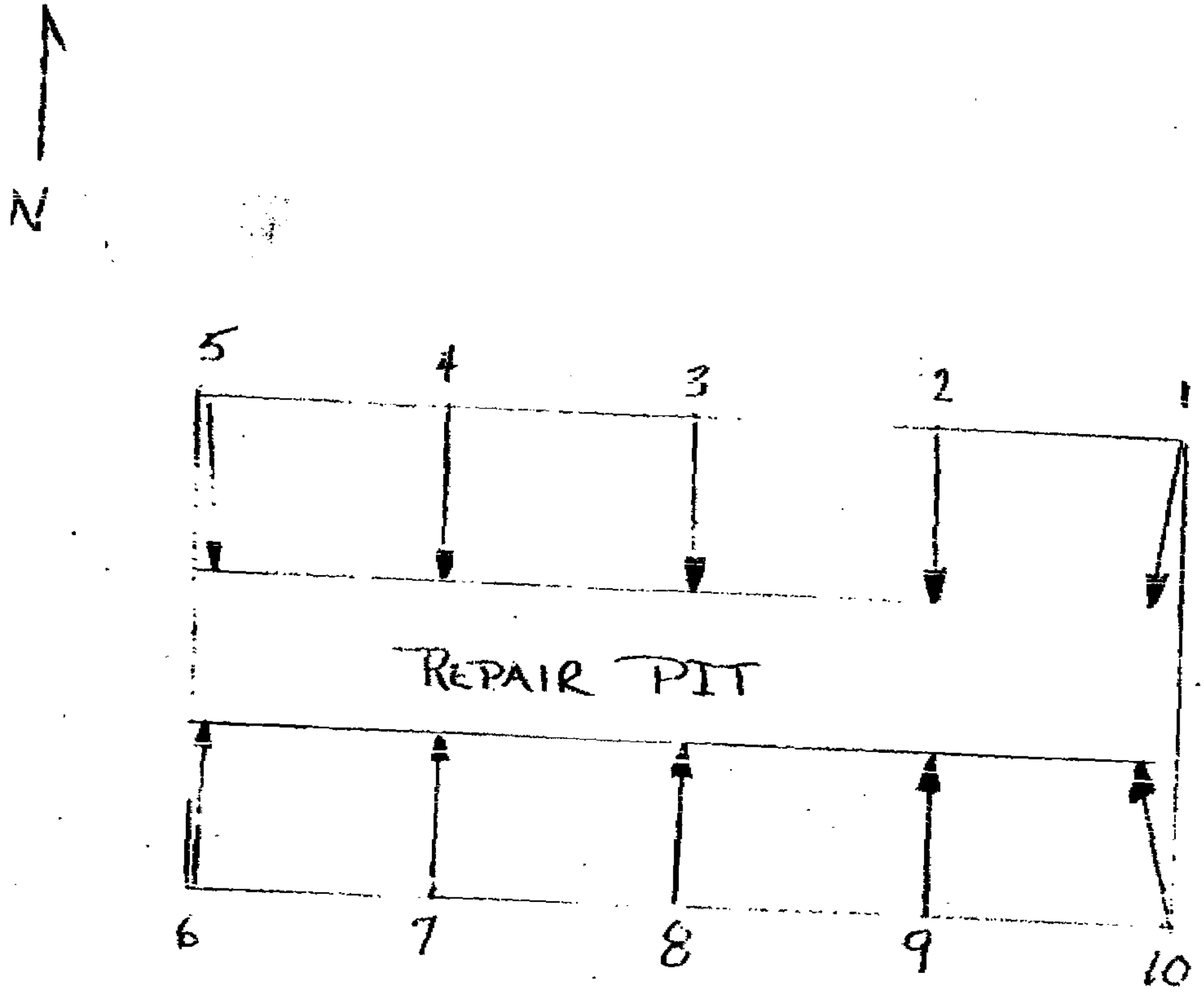
Client: Amtrak

Number: 156587
Date: 12/04/89

Results: (continued)

PCB's

Sample ID		Concentration
1) Soil taken from repair pit	Aroclor 1016	< 6.7 ug/kg
	Aroclor 1221	< 6.7 ug/kg
	Aroclor 1232	< 6.7 ug/kg
	Aroclor 1242	< 6.7 ug/kg
	Aroclor 1254	<13.3 ug/kg
	Aroclor 1260	9261.3 ug/kg
2) Soil taken from repair pit	Aroclor 1016	< 79.4 ug/kg
	Aroclor 1221	< 79.4 ug/kg
	Aroclor 1232	< 79.4 ug/kg
	Aroclor 1242	< 79.4 ug/kg
	Aroclor 1254	<158.7 ug/kg
	Aroclor 1260	134682.5 ug/kg



AIR SAMPLE LOCATIONS MU CAR SHOP

APPENDIX G

Summary of Brooks-Corey
Capillary Pressure Results
Model Operable Unit 3

May 27, 2005

SUMMARY OF BROOKS-COREY CAPILLARY PRESSURE MODEL RESULTS, OPERABLE UNIT 3

Sunnyside Yard
Queens, New York

Prepared for

NATIONAL RAILROAD PASSENGER
CORPORATION
Washington, D.C. 20002

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

ROUX *209 Shafter Street, Islandia, New York 11749 ◆ 631-232-2600*

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5. LNAPL Saturation Distribution for Brooks and Corey Model - .075 ft
6. LNAPL Saturation Distribution for Brooks and Corey Model - .050 ft
7. LNAPL Distribution for Varying Soil Types Below the Groundwater Table

INTRODUCTION

This summary of Brooks-Corey Capillary Pressure Results for Operable Unit 3 (OU-3) has been prepared by Roux Associates, Inc. on behalf of the National Railroad Passenger Corporation (Amtrak) and New Jersey Transit (NJT). The findings in this report supplements those included in the draft IRM Conceptual Design Plan. The draft IRM Plan was submitted to the New York State Department of Environmental Conservation (NYSDEC) on July 1, 2004. The proposed IRM remedial approach includes the following elements:

- Excavation of soil and removal of separate phase hydrocarbon (SPH) in the area of maximum accumulation;
- Excavation and removal of grossly contaminated surficial soil; and
- Former fuel pump structure removal, as required within the soil excavation area.

A meeting was held at NYSDEC's office to discuss the IRM Plan on September 23, 2004. A major part of the discussion focused on the proposed depth of excavation in the area of maximum accumulation. The IRM Plan proposes to limit this depth of excavation to one foot below the average annual low water table elevation for a number of environmental and practical reasons, as justified in the Plan. At the meeting, Roux Associates presented a further analysis of the proposed excavation depth based on a widely used free-product modeling program. The NYSDEC requested further documentation of this modeling approach. A background description of the modeling approach and the model results are provided in this document.

BACKGROUND

In an effort to estimate the thickness of SPH saturated soil (i.e., mobile free-product) that extends below the groundwater table, Roux Associates utilized the Brooks-Corey capillary pressure model. The American Petroleum Institute (API) recommends the Brooks and Corey model for calculating free-product distribution within the subsurface and supplies an analytical spreadsheet model, which was used in the free-product saturation analysis for the Site. A brief overview of multi-phase fluid dynamics is presented below to outline the important factors, which affect free-product saturation.

The presence of two immiscible fluids, such as free-product and groundwater, in direct contact with each other in the subsurface forms a multi-phase system, governed by the principles of multi-phase fluid mechanics. Multi-phase fluid mechanics in the subsurface are dependent on both hydrogeologic properties and properties of the fluids involved. Hydrogeologic properties include soil texture, grain size distribution, porosity, wettability, and intrinsic permeability. Important fluid properties include density, surface tension, and interfacial tension. The combination of these properties in the subsurface determines the capillary pressure, or pressure difference between the two fluids in the subsurface. With regards to a free-product/groundwater system, the magnitude of this capillary pressure determines the vertical distribution of free-product in the soil matrix.

Capillary pressure is a function of the saturation of the fluid phases that are present (Charbeneau et al., 1999). The saturation of a particular fluid at a certain location in the subsurface is defined as the ratio of the volume of that fluid that is present in the soil pore space to the total volume of the soil pore space. Capillary pressure is inversely proportional to fluid saturation; therefore, when the capillary pressure is low, the saturation of a particular fluid in the subsurface is high and vice versa. Capillary pressure is also inversely proportional to grain size. Thus, fine-grained soils exhibit higher capillary pressures than coarse-grained soils. Therefore, it follows that in a free-product/groundwater system, the high capillary pressures limit the saturation of free-product within fine-grained soils.

The thickness of free-product observed in a monitoring well does not directly correspond to the thickness of free-product present in the subsurface immediately adjacent to the well. Due to capillary forces, the amount of free-product present, or free-product saturation in the subsurface, varies with depth over the elevations that free-product is measured in the well. In order to better describe the occurrence and migration of free-product in the subsurface, the currently accepted practice for determining free-product/groundwater system characteristics utilizes the capillary pressure relationship models developed by Brooks and Corey (1964). Based on the Brooks-Corey capillary pressure model, the free-product thickness in a monitoring well determines the vertical distribution of mobile free-product, or free-product saturation curve, in the vicinity of the that monitoring well for a given set of soil and fluid conditions.

MODEL RESULTS

For the initial analysis of the free-product saturation of the Site, fluid and soil parameters were estimated from published sources (Charbeneau *et al.*, 1999), based on observations made during monitoring well installation. The geologic matrix that was observed at the water table was identified as fine-grained sand with varying amounts of silt. The soil type classification of sandy loam as identified by Charbeneau *et al.* (1999) most closely corresponded to the soil type present in the subsurface in OU-3. These soil parameters as well as the fluid parameters of a weathered diesel fuel were used for the input of the model for the initial run.

Using published values for fluid and soil input parameters for the Site, the model was used to calculate the thickness of soil saturated with free-product beneath the water table. Free-product thicknesses as observed in monitoring wells were analyzed with a range of 0.5 to 3.0 feet. The results of the model indicate that the depth of free-product saturation below the water table varies directly with the measured product thickness in the monitoring well. At low free-product thicknesses (i.e., 0.5 feet or less as observed in monitoring wells) the Brooks and Corey model is unable to estimate the saturation within the surrounding formation. The depth of free-product saturation below the water table where well thicknesses are 0.5 feet or less are considered minimal. In turn, the SPH saturation is not sufficient to overcome soil capillary pressure and is considered not mobile. Therefore, the extent of mobile SPH lies within the extent of delineated 0.5 feet SPH apparent thickness. For an observed free-product thickness of 3.0 feet in a monitoring well, the surrounding formation would be saturated with free-product to a depth of 2.1 feet below the water table (i.e., corrected for presence of SPH). This maximum depth of free-product saturation was presented to the NYSDEC at the meeting on September 23, 2004.

To estimate a more accurate representation of the subsurface, the free product from three monitoring wells (MW-16, MW-50, and MW-77) was sampled on September 28, 2004, and sent to Torkelson Geotechnical Laboratories of Tulsa, Oklahoma for analysis to determine the in situ fluid parameters. The results of the analysis showed that the free-product from the three monitoring wells was relatively uniform and would be classified as a weathered diesel fuel (Table 1). Upon performing the free-product saturation analysis again using the site-specific in situ fluid parameters as input into the model, it was determined that an observed free-product thickness of 3.0 feet in a monitoring well would correspond to a free-product saturation of

2.2 feet below the water table in the surrounding formation. This result is very similar to the initial model run that produced the depth value of 2.1 feet using published values. The comparison of the model results varying fluid parameters is shown in Figure 1. The free-product saturation distribution curves using site-specific parameters for varying measured well thicknesses are provided as Figures 2 through 6.

While the geologic conditions beneath the Site are relatively uniform, a sensitivity analysis was performed with a range of soil types to determine the maximum free-product saturation that could potentially be present in the formation. To complement the analysis of the sandy loam as detailed above, two additional soil types; homogenous medium sand and loam were input in the Brooks and Corey model as variables (Charbeneau *et al.*, 1999). The site-specific fluid parameters (Table 1) were held constant for the model runs to test the sensitivity of the soil types. It was determined that for an observed free-product thickness of 3.0 feet in a monitoring well with the surrounding formation composed of sand, a maximum free-product saturation of 2.43 feet below the water table would be present. If the surrounding formation were composed of loam, a maximum free-product saturation of 1.75 feet below the water table would be present. The comparison of the model results varying soil characteristics is shown in Figure 7.

As stated above, a sandy loam soil type classification is the most representative of site subsurface conditions in OU-3 and therefore the maximum depth of free-product saturation is 2.2 feet below the water table. Based on practical limits of excavation equipment, especially below the water table, a maximum conservative target depth of 2.5 feet below the water table would remove all recoverable free-product in the IRM excavation area. The depth of excavation would vary from the water table at the fringe of the IRM excavation to a maximum of 2.5 feet below water table within the 3-foot free-product contour area.

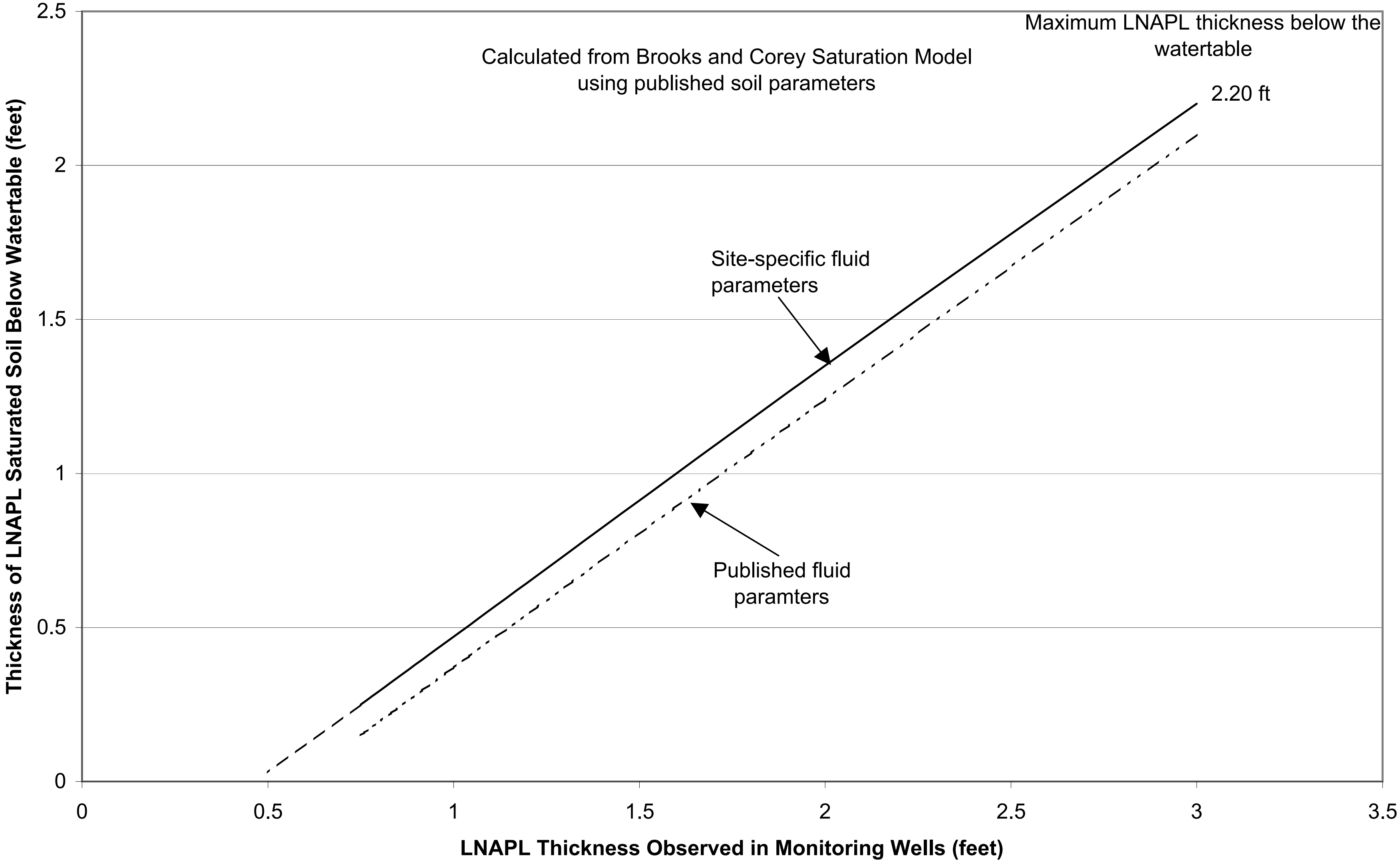
Table G-1. Summary of Separate-Phase Hydrocarbon Physical Properties
Supplement to Interim Remedial Measure Conceptual Design Plan
Sunnyside Yard, Queens, New York

Sample Designation	Sample Date	Density (gm/ml)	Viscosity (centipoise)	Surface Tension Air/Water (dynes/cm)	Interfacial Tension NAPL/Water (dynes/cm)	Surface Tension Air/NAPL (dynes/cm)	Temperature of Measurements (Fahrenheit)
MW-16	9/28/2004	0.8837	6.94	64.70	12.70	23.70	60
MW-50	9/28/2004	0.8868	9.96	65.20	11.70	26.90	60
MW-77	9/28/2004	0.8856	10.92	62.50	9.40	27.10	60
Average	--	0.8850	9.27	64.10	11.30	25.90	60
Published Value	--	0.87	--	50.00	12.00	25.00	--

Notes:

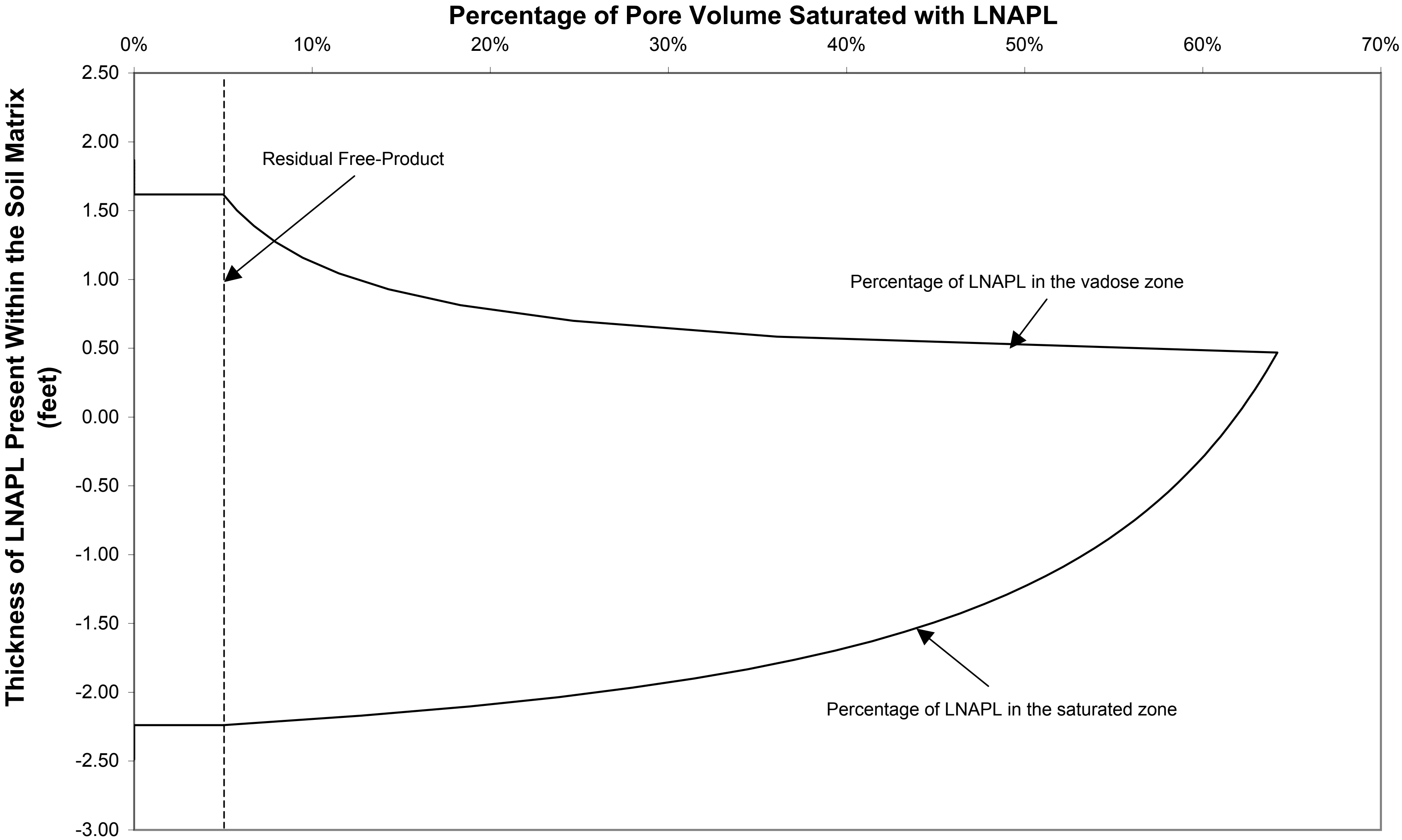
gm/ml = gram per milliliter
dynes/cm = dynes per centimeter

Figure 1 - LNAPL Distribution Below the Groundwater Table



ROUX ASSOCIATES, INC.

Figure 2 - LNAPL Saturation Distribution for Brooks and Corey Model - 3.00 ft



ROUX ASSOCIATES, INC.

Figure 3 - LNAPL Saturation Distribution for Brooks and Corey Model - 2.00 ft

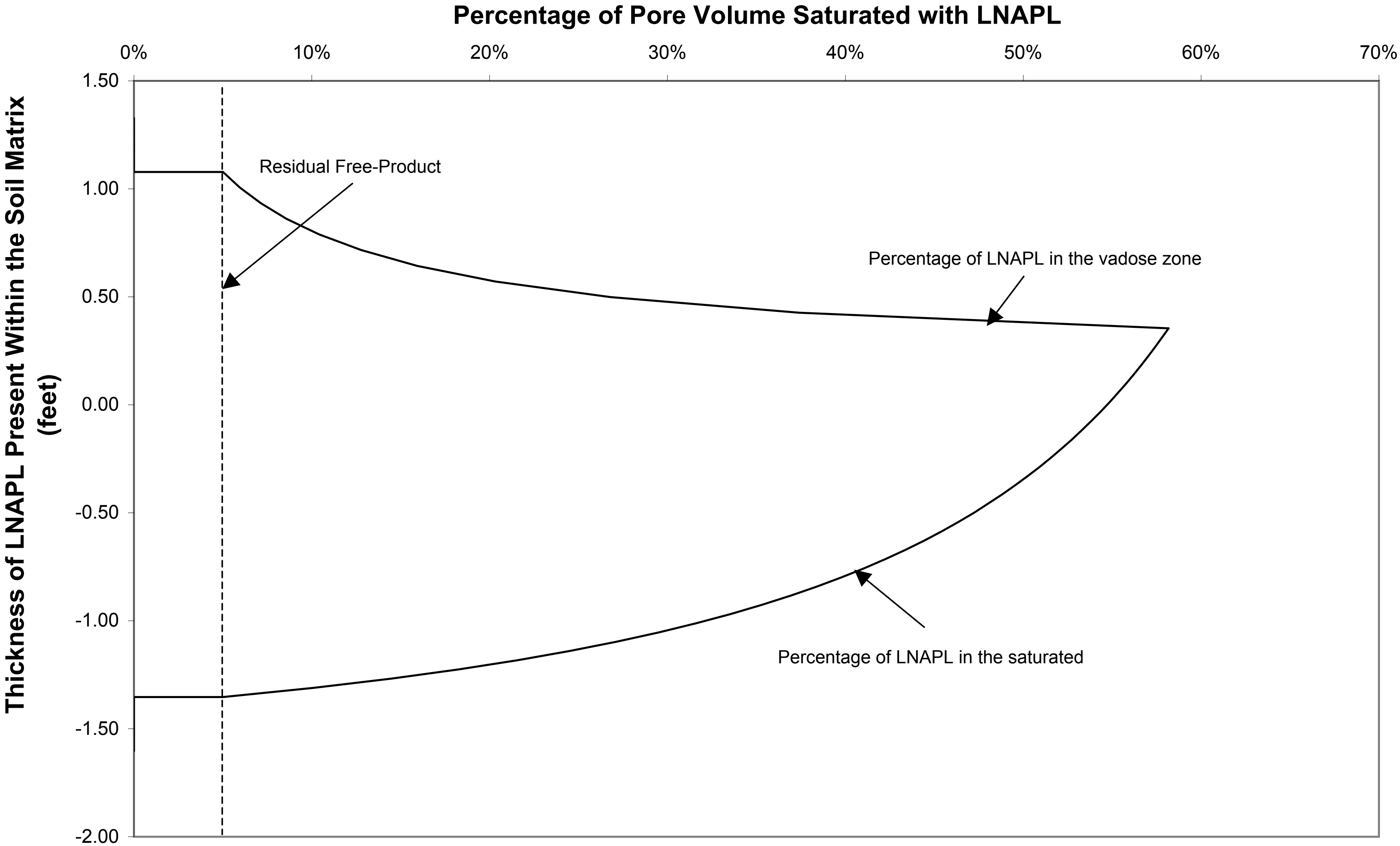


Figure 4 - LNAPL Saturation Distribution for Brooks and Corey Model - 1.00 ft

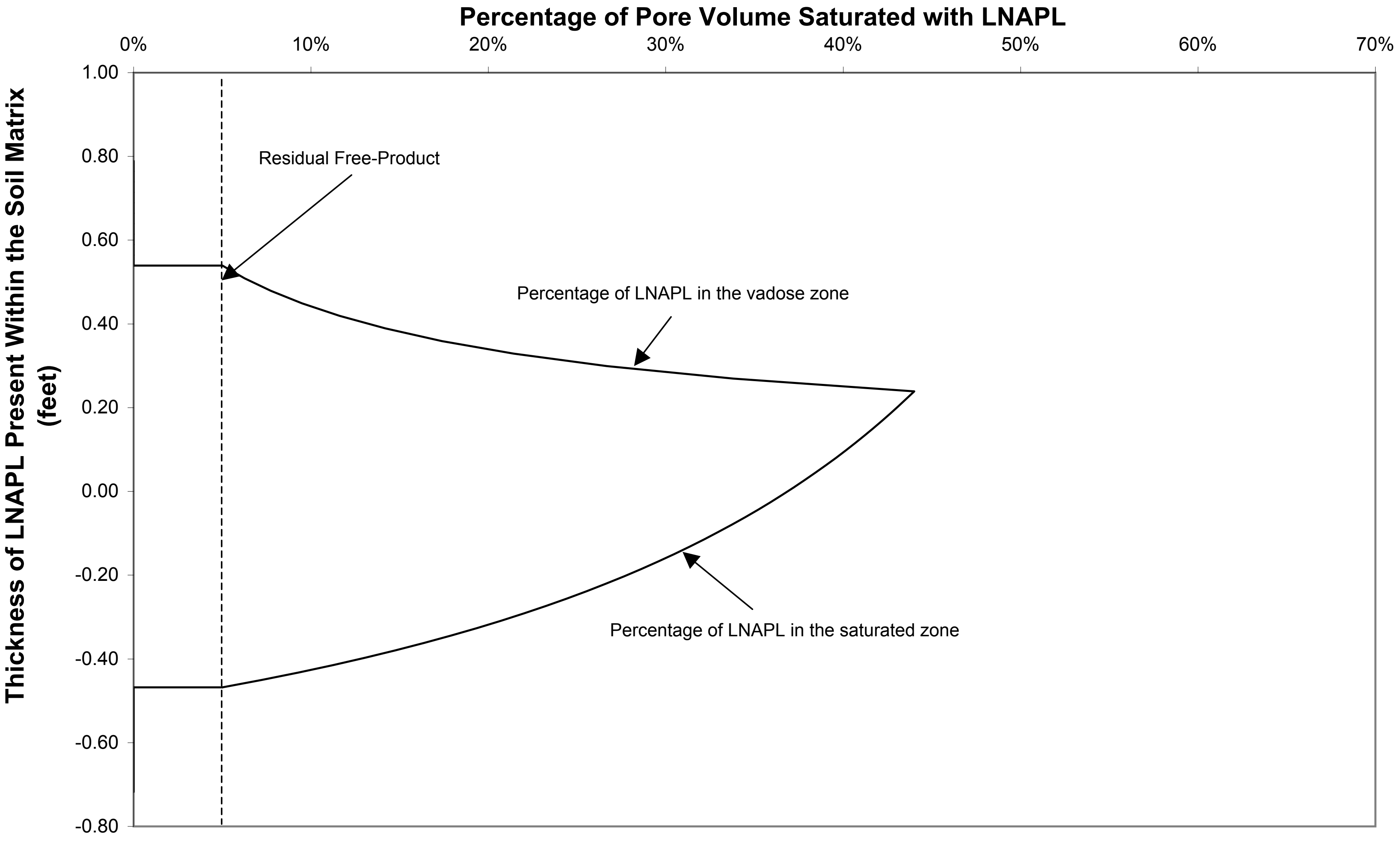


Figure 5 - LNAPL Saturation Distribution for Brooks and Corey Model - 0.75 ft

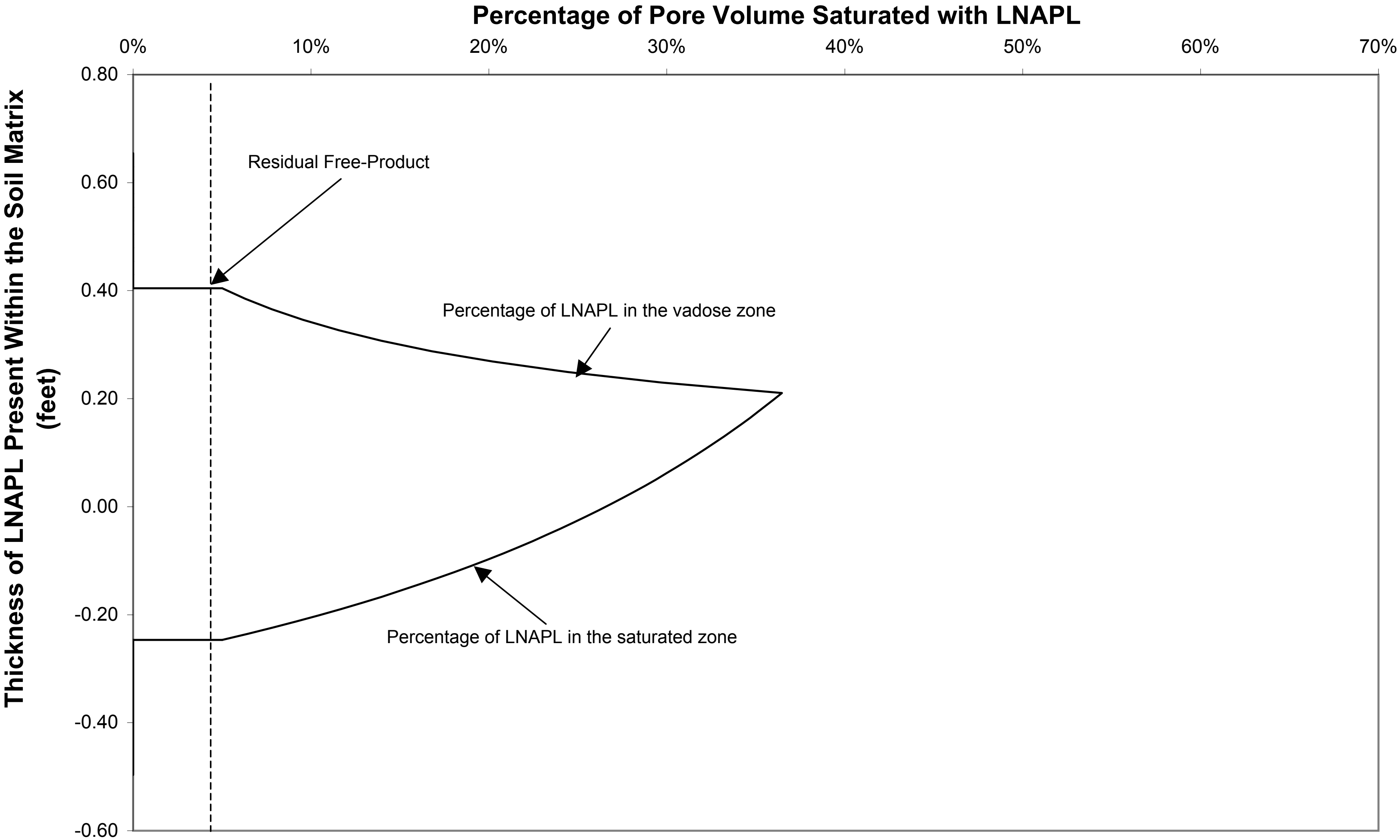


Figure 6 - LNAPL Saturation Distribution for Brooks and Corey Model - 0.50 ft

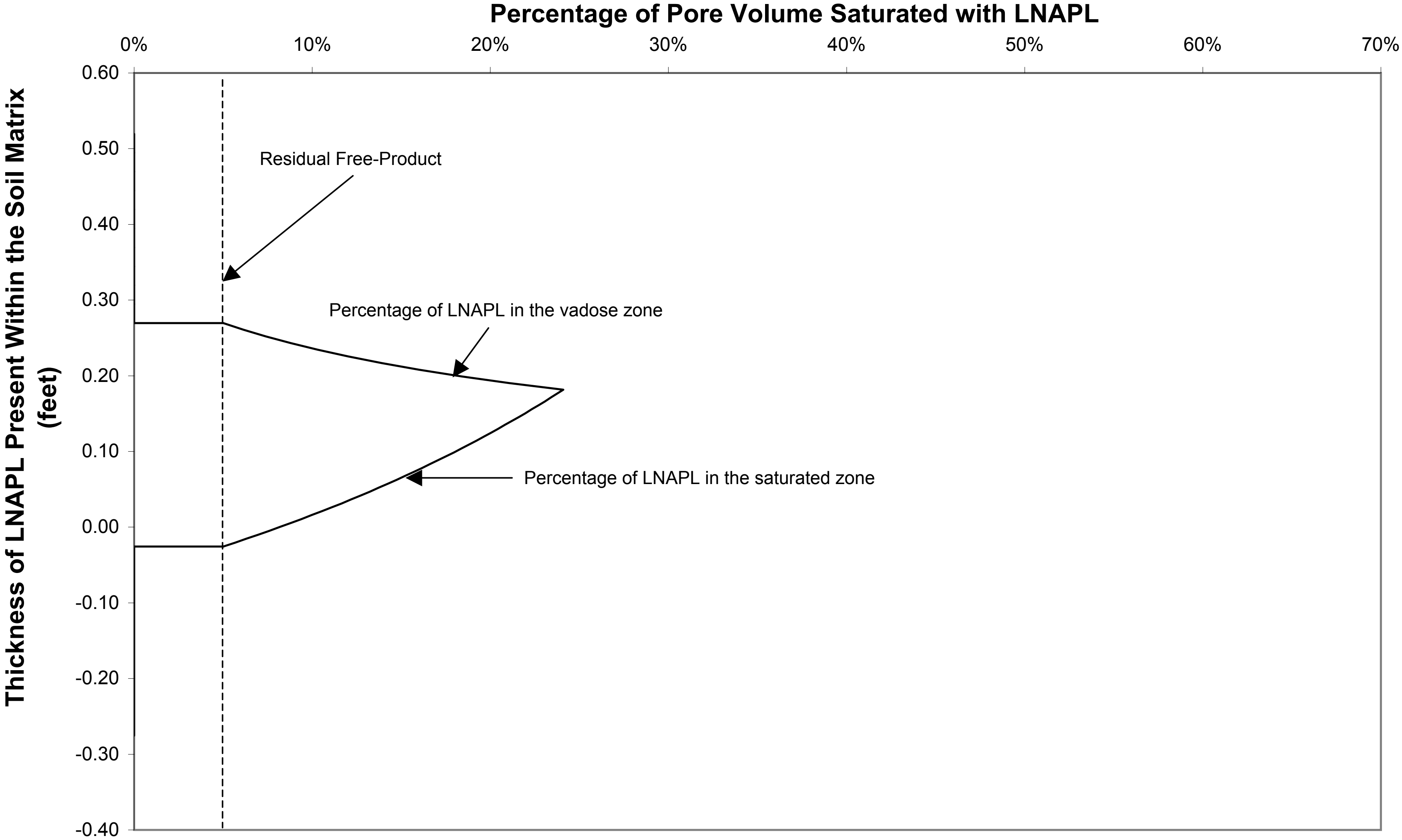
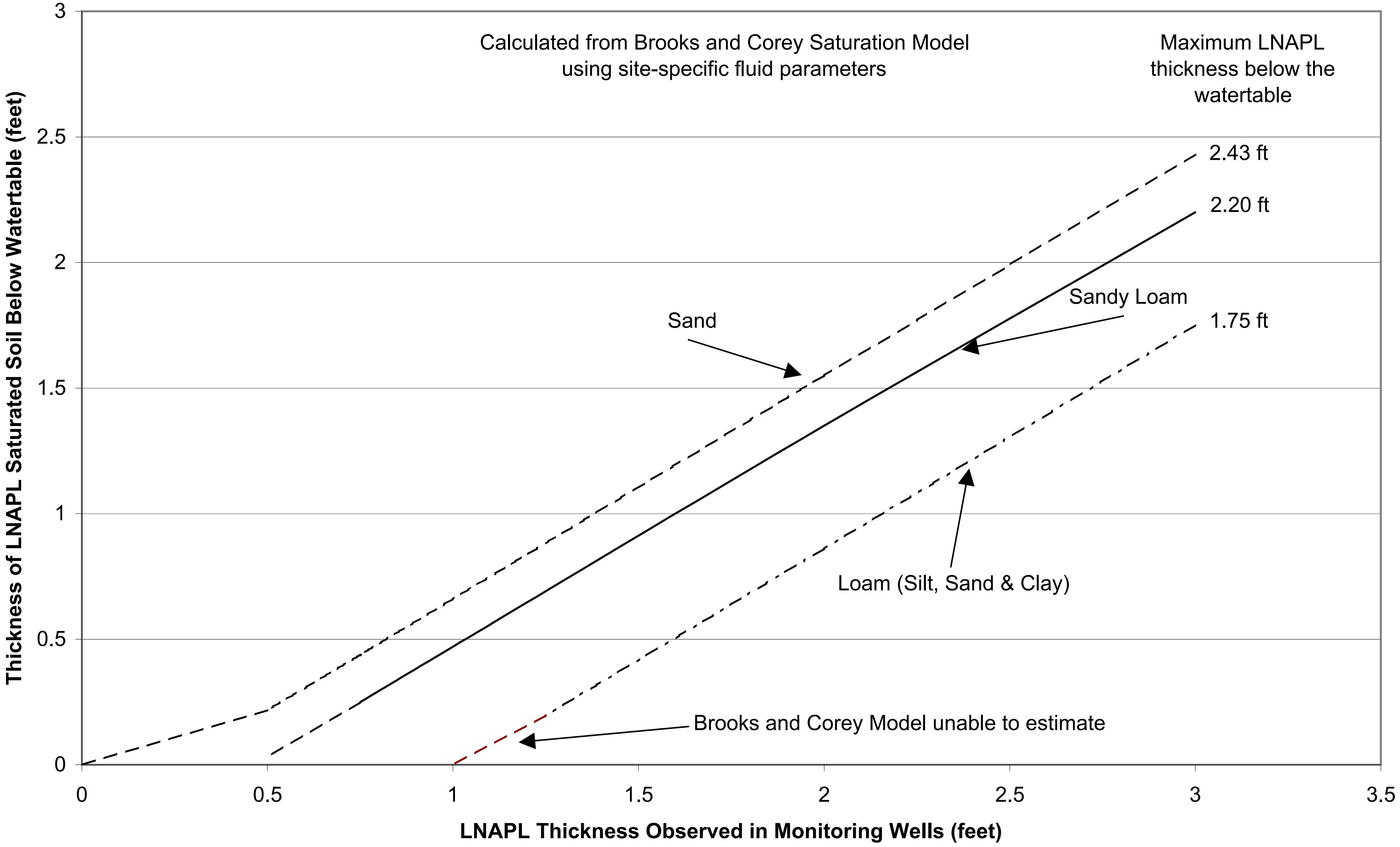


Figure 7 - LNAPL Distribution for Varying Soil Types Below the Groundwater Table



APPENDIX H

Data Evaluation Report for Exposure Assessment

May 27, 2005

DATA EVALUATION REPORT FOR EXPOSURE ASSESSMENT

Sunnyside Yard
Queens, New York

Prepared for

NATIONAL RAILROAD PASSENGER CORPORATION
Washington, D.C. 20002

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

ROUX *209 Shafter Street, Islandia, New York 11749 ♦ 631-232-2600*

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1.0 INTRODUCTION

The purpose of the data evaluation was to consolidate the various data for conducting the Exposure Assessment, in Section 12.0 of the Final OU-3 RI Report, and to facilitate the New York State Department of Conservation's (NYSDEC) task of evaluating the planned remediation (proposed IRM) discussed in Section 12.0 of the Final OU-3 Report.

2.0 DATA EVALUATION

This data evaluation focuses exclusively on soil samples collected within OU-3 between August 1985 and December 2003. All analytical data included in this evaluation have previously been submitted to the NYSDEC. The following data summaries were included in the analysis:

- Total PCBs at each sampling location and interval;
- Summary of lead concentrations detected in all surface soil samples and in soils to a depth of four feet;
- Total cPAHs at each sampling location and interval;
- Benzo(a)pyrene equivalents (B(a)P equivalents for cPAHs at each sampling location and interval;
- Total PAHs at each sampling location and interval;
- Total VOCs at each sampling location and interval;
- Total SVOCs at each sampling location and interval;
- Statistical summary of all metals detected in each horizon; and
- Statistical summary of all SVOCs and VOCs in each horizon.

Analytical data for samples collected from the following three soil horizons were considered for the data analysis: surface soil (0 to 2 feet bls); shallow soil (2 to 4 feet bls); deep soil (greater than or equal to 4 feet bls). In addition, the surface and shallow horizons were combined to form a fourth soil horizon (surface/shallow horizon) for analyzing construction work, which would likely entail soil excavation activity in the combined soil horizon. This was done for the purposes of evaluating remedial alternatives.

The following sections describe the technical approach for summarizing and evaluating the soil data.

2.1 Developing a Summary of Analytical Data

Samples collected from August 1985 to December 2003 generated an analytical database of chemicals within the soil in OU-3. Samples were analyzed for VOCs, SVOCs (including cPAHs), metals, and PCBs.

The following list details information within the master database that is relevant to this data evaluation for OU-3:

- Sample identification;
- Date sampled;
- QA information;
- Analyte grouping;
- Subgroups for PAHs and cPAHs;
- Media;
- Top and bottom of depth interval of sample collected;
- Analyte;
- Concentration;
- Laboratory qualifier;
- Detection limit; and
- Units of measurement.

The following sections describe the procedures utilized to resolve data associated with laboratory qualifiers in the Site analytical database.

2.1.1 Resolution of Data Qualifiers

As part of any data quality review process, the laboratory conducting the analyses of environmental samples attaches various qualifiers to the data. Since the qualifiers may indicate uncertainties regarding the chemical identity and chemical concentrations, the effect of data qualifiers on the data must be considered prior to evaluating the data. The qualifiers encountered in the analytical data and the impacts of these qualifiers on the statistical analysis of the data are described below.

A total of 45 unique qualifier combinations occur in the analytical database for OU-3. The key qualifiers are B, D, J, M, N, P, R, S, U, and V. A discussion of the qualifiers is presented below.

When present with organic data, the “B” qualifier indicates that the organic analyte was found in the associated laboratory blank as well as the sample. When present with inorganic data, the “B” qualifier indicates that the sample is below the contract required detection limit (CRDL), but greater than the instrument detection limit (IDL). Consistent with USEPA (1989) guidance, any “B” qualified data were considered to be confirmed detections and were therefore used in the statistical calculations at the reported concentrations.

The “D” qualifier indicates that a sample dilution occurred. The methodology for addressing dilutions is described in Section 2.1.2 below.

The “J” qualifier indicates that the associated numerical value is an estimated quantity (USEPA, 1989). For purposes of statistical calculations, all concentrations associated with the “J” qualifier were considered to be confirmed detections and were therefore used at the reported concentrations.

The “M”, “N”, “P” and “S” qualifiers all relate to laboratory methods for reporting the data and have no affect on the outcome of the analysis. All data associated with any of these qualifiers were considered to be confirmed detections and were therefore used at the reported concentrations.

The “R” qualifier indicates that a data validator rejected the specific data value reported in the database. A total of 42 data points had “R” qualifiers. In each case the chemical involved was an Aroclor (a PCB species). All data associated with an “R” qualifier was removed from the final working database.

The “U” qualifier indicates that the chemical was analyzed for but not detected in that sample. All samples with “U” qualifiers were retained and a discussion of the handling of the “U” qualifier is provided in Section 2.1.4.

Multiple qualifiers were associated with some records within the database. Except for those that had a “D” qualifier, the additional qualifiers were not used in this data analysis.

With the exception of the "D" qualifier and the "U" qualifier that were handled according to specific rules described in Sections 2.1.2 and 2.1.4, respectively, all remaining qualifiers were assumed to indicate representative concentrations at each location. Thus, the remaining qualifiers (other than "D" or "U") were not used for the purposes of this data analysis, and were removed from the working database using a series of update queries.

2.1.2 Resolution of Sample Dilutions

Because a minimal number of samples had results associated with sample dilution (i.e., indicated by "D"), the result associated with the dilution was compared with the original analysis for the same chemical in that sample. A manual adjustment was made to the database to reflect the following:

- If both qualifiers were "U", then the lower of the two detection limits was assigned to the sample, and the "U" qualifier was retained;
- If one sample had a "U" qualifier and the other sample had no qualifier or a "J" qualifier (indicating a detection), then the sample that did not have the "U" qualifier was retained with the appropriate qualifier; and
- If both samples were without qualifiers (indicating detections of the chemical), then the higher of the two analyses was retained and used in the data summary.

2.1.3 Handling of "U" Qualifier

The numerical value associated with the "U" qualifier is the sample quantitation limit (SQL). Any chemicals that were not detected in any soil samples in a specific horizon were removed from the working database. If a chemical was recorded with at least one detection in any sample in a given soil horizon, then that chemical was retained as a constituent of interest in that specific horizon. Thus, tables were created in the working database that contained only chemicals that were detected at least one time in a given soil horizon.

2.1.4 Frequency of Detection

The frequency of detection of each chemical in each soil horizon was determined for statistical purposes. As previously noted, any chemical that had no detections in a given soil horizon were not retained for additional analysis. For example, in the surface soil, only 48 of the 131 chemicals for which analysis was conducted were retained. These 48 constituents included three different Aroclor compounds (i.e., PCBs), certain PAHs, several metals, and a limited number of VOCs and SVOCs (non PAHs). Similar results were obtained in the shallow (51 constituents out of 136 chemicals retained) and deep soil (50 constituents out of 137 chemicals retained); however, the suite of constituents (i.e., with at least one detection) did change slightly between the different horizons. Thus, in the surface/shallow horizon 54 unique chemicals were retained out of a total of 138 constituents.

2.1.5 Range of Concentrations

The range of concentrations presented in the statistical summary provides the minimum and maximum concentrations of a given chemical in a given soil horizon. Following the count of the frequency of detection, all chemicals that were undetected in samples were subsequently assumed not to be present at that sampling location and depth interval for purposes of displaying the minimum, maximum and average concentrations.

2.1.6 Range of Sample Quantitation Limits (SQLs)

For metals, individual VOCs, and individual SVOCs in each soil horizon, the range of sample quantitation limits (SQLs) associated with analytical results reported to be non-detects is provided. Where a given chemical had a frequency of detection of 100 percent (i.e., detected in all samples), no SQLs are available.

2.2 Data Consolidation (Total Concentrations)/Range of Total Concentrations

At the request of the NYSDEC, for the purpose of this data evaluation, the concentrations of individual chemical species were totaled (consolidated) for each chemical grouping (e.g., total PCBs, total cPAHs, total PAHs, total VOCs and total SVOCs) at each sampling location.

Individual compounds flagged as not detected were regarded as not being present in a sample, and were not included in the total concentration. Ranges of concentration of each chemical grouping are also included for each soil horizon at the end of this subsection. However, as explained below, B(a)P equivalents were handled differently than the chemical groupings mentioned above and will be explained below.

The concentration values used in the summary tables in this EA are presented in the scientific notation format. For example, a concentration of 10,000 (1×10^4) mg/kg is expressed as 1.0E+4.

To be consistent with the computer-generated format shown in the accompanying tables, any numbers presented in the text of this data evaluation are presented in the same way.

Data tables summarizing the total concentrations of each chemical grouping for the three soil horizons (0 to 2 feet, 2 to 4 feet, and greater than or equal to four feet) for each sample collected during the referenced period (August 1985 to December 2003) are presented in Tables 12-1 to 12-18. Statistical summaries of the data from Tables 12-1 to 12-18 are provided for the three soil horizons in Tables 12-19 to 12-22 for VOCs, SVOCs, and metals, and a summary of the average concentrations for the three soil horizons for PCBs, total B(a)P equivalents, cPAHs, and PAHs is provided in Table 12-23.

The following sections present tables showing the range of total concentrations for each chemical grouping (PCBs, cPAHs, B(a)P equivalents, and all PAHs [both cPAHs and non-carcinogenic PAHs combined]) for each soil horizon. These tables are derived from the Tables 12-19 to 12-22. Total VOC and SVOC concentrations are not particularly useful parameters from the perspective of potential exposure and are therefore provided in text summaries only.

2.2.1 Total PCBs

As shown in Tables 12-1 to 12-4, Aroclor 1260 was present in the majority of the samples. The only other Aroclors detected were Aroclor 1248 and Aroclor 1254. The following table provides a summary of the range of total PCB concentrations detected in each horizon:

Soil Horizon	Range	Table
Surface soil (0 – 2 ft bls)	2.7E-2 – 1.4E+1	12-1
Shallow soil (2 – 4 ft bls)	1.2E-2 – 1.5E+0	12-2
Surface/shallow soil (0 – 4 ft bls)	1.2E-2 – 1.4E+1	12-3
Deep soil (>4 ft bls)	6.7E-3 – 5.7E+0	12-4

2.2.2 Total cPAHs

Detected cPAHs in each sampling location/horizon were totaled for presentation in the data summary. As shown in Table 12-5 to 12-8 there are seven cPAHs that have been detected in some or, all sampling locations. The following provides a summary of the range of total cPAH concentrations detected in each horizon:

Soil Horizon	Range	Table
Surface soil (0 – 2 ft bls)	9.7E-2 – 9.6E+0	12-5
Shallow soil (2 – 4 ft bls)	1.2E-1 –5.3E+0	12-6
Surface/shallow soil (0 – 4 ft bls)	9.7E-2 – 9.6E+0	12-7
Deep soil (>4 ft bls)	2.4E-2 – 6.7E+0	12-8

2.2.3 Benzo(a)pyrene Equivalents

Numerous scientific studies evaluating the potency of various cPAHs have reached the conclusion that carcinogenic potency can vary between these constituents by at least two orders of magnitude. Furthermore, the availability of toxicological studies is highly variable but it is generally agreed that the most extensively studied cPAH is B(a)P. The USEPA has therefore concluded that the most effective manner for evaluating cPAHs is to compare the potencies of individual cPAHs to the potency of B(a)P. This is known as B(a)P equivalents. The following table shows the relevant potencies:

Analyte	B(a)P Equivalent
Benzo[a]anthracene	0.1
Benzo[a]pyrene	*1.0*
Benzo[b]fluoranthene	0.1
Benzo[k]fluoranthene	0.01
Chrysene	0.001
Dibenzo[a,h]anthracene	1.0
Indeno[1,2,3-cd]pyrene	0.1

For each soil horizon and at each sampling point the concentrations of each individual cPAH was converted to a B(a)P equivalent. The B(a)P equivalents were then totaled for each sampling point to give a single B(a)P equivalent that represented the concentration of all detected concentrations of cPAHs at that specific location.

As shown in Tables 12-9 to 12-12, there are seven cPAHs that have been detected in some, or all sampling locations. The following provides a summary of the range of total B(a)P equivalent concentrations detected in each horizon:

Soil Horizon	Range	Table
Surface soil (0 – 2 ft bls)	8.6E-3 – 2.0E+0	12-9
Shallow soil (2 – 4 ft bls)	8.2E-3 – 1.4E+0	12-10
Surface/shallow soil (0 – 4 ft bls)	8.2E-3 – 2.0E+0	12-11
Deep soil (>4 ft bls)	2.4E-5 – 2.0E+0	12-12

2.2.4 Total PAHs

Detected PAHs from each sampling location/horizon were totaled for presentation in the data summary. As shown in Tables 12-13 to 12-16, 17 PAHs were detected in some, or all, sampling locations. The following provides a summary of the range of total PAH concentrations detected in each horizon:

Soil Horizon	Range	Table
Surface soil (0 – 2 ft bls)	1.3E-1 – 1.1E+2	12-13
Shallow soil (2 – 4 ft bls)	3.1E-2 – 7.3E+1	12-14
Surface/shallow soil (0 – 4 ft bls)	3.1E-2 – 1.1E+2	12-15
Deep soil (>4 ft bls)	3.9E-2 – 2.0E+2	12-16

2.2.5 Lead

Lead was detected in all soil horizons; however, for the purposes of this data summary, data analysis focused on the surface soil and the surface/shallow soil horizons. The rationale for this approach is that lead is considered to be relatively immobile such that concentrations in the surface and shallow horizons are unlikely to migrate. Also, lead-based paint impacts from the New York City Department of Transportation Bridges that span the Yard would be surficial. The following provides a summary of the range of lead concentrations detected in the surface and surface/shallow horizons:

Soil Horizon	Range	Table
Surface soil (0 – 2 ft bls)	8.1E+0 – 9.9E+2	12-17
Surface/shallow soil (0 – 4 ft bls)	2.6E+0 – 9.9E+2	12-18

2.2.6 Other Constituents

In addition to the primary constituents addressed above, there are additional chemicals that have been identified in soil associated with OU-3. These constituents include a limited number of VOCs, several SVOCs that are not classified as PAHs, and metals. The data are summarized in Tables 12-19 to 12-22.

With the exception of the deep soil horizon, no VOC concentrations exceed 1 mg/kg. In the deep soil horizon the maximum concentrations of 2-butanone, ethyl benzene and xylenes ranged from 2.5E+0 to 1.8E+1 mg/kg. These are considered to be low concentrations.

SVOCs were detected in all soil horizons. Maximum concentrations (not including PAHs – see separate summaries above) range from 1.1E-2 to 1.1E+1 for diethyl phthalate in shallow soil and dibenzofuran in shallow soil, respectively.

Metals are naturally occurring constituents in soil. The number of metals detected varied slightly by horizon but the count was between 19 to 23 constituents per horizon. The key metals (based on potential toxicity) and their respective concentrations are summarized below:

Metal	Surface soil (0 – 2 ft bls) Table 12-19	Shallow soil (2 – 4 ft bls) Table 12-20	Surface/shallow soil (0 – 4 ft bls) Table 12-21	Deep soil (>4 ft bls) Table 12-22
Arsenic	3.0E+0 – 1.7E+1	3.7E-1 – 8.9E+0	3.7E-1 – 1.7E+1	1-6E+0 – 5.0E+0
Beryllium	2.2E-1	3.1E-1	2.2E-1 - 3.1E-1	4.6E-1 – 6.3E-1
Cadmium	---	2.1E+0 – 3.7E+0	2.1E+0 – 3.7E+0	7.2E-1
Chromium	1.9E+1 – 3.9E+1	5.1E+0 – 6.6E+1	5.1E+0 – 6.6E+1	4.4E+0 – 1.6E+1
Lead	8.1E+0 – 9.9E+2	2.6E+0 – 5.9E+2	2.6E+0 – 9.9E+2	1.5E+0 – 1.8E+2

Metal	Surface soil (0 – 2 ft bls) Table 12-19	Shallow soil (2 – 4 ft bls) Table 12-20	Surface/shallow soil (0 – 4 ft bls) Table 12-21	Deep soil (>4 ft bls) Table 12-22
Mercury	2.0E-1	1.2E-1 – 3.7E-1	1.2E-1 – 3.7E-1	9.7E-2 – 1.7E-1
Thallium	---	2.1E-1 – 2.4E-1	2.1E-1 – 2.4E-1	---

Interpretation of the range of concentrations for metals will form part of the discussion in the EA (Section 12).

2.2.7 Total VOCs

A limited number of VOCs were detected at only a few sample locations. At the request of NYSDEC, the VOCs were totaled by individual sampling location. The total values have little meaning for evaluating potential exposure or any possible short or long term toxicity because of the variability in both physicochemical and toxicological properties. Range of total VOCs by horizon are summarized below:

Soil Horizon	Range
Surface soil (0 – 2 ft bls)	4.7E-2 – 2.5E-1
Shallow soil (2 – 4 ft bls)	1.0E-3 – 6.4E-1
Surface/shallow soil (0 – 4 ft bls)	1.0E-3 – 6.4E-1
Deep soil (>4 ft bls)	1.0E-3 – 2.5E+1

2.2.8 Total SVOCs

A limited number of SVOCs were detected at only a few sample locations. The total values have little meaning for evaluating potential exposure or any possible short or long term toxicity because of the variability in both physicochemical and toxicological properties. Range of total SVOCs by horizon are summarized below:

Soil Horizon	Range
Surface soil (0 – 2 ft bls)	8E-3 – 1.1E+1
Shallow soil (2 – 4 ft bls)	1.7E-2 – 1.0E+0
Surface/shallow soil (0 – 4 ft bls)	8E-3 – 1.1E+1
Deep soil (>4 ft bls)	1.5E-2 – 2.9E+0