MAY 1993 (11)

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT 142902

2. (Receiving Organization) F d File	3. From: (Originating Organization) Environmental Restoration Engineering	4. Related EDT No.: N/A
5. Proj./Prog./Dept./Div.: 100-NR-1 Remedial Investigation	6. Cog. Engr.: A. D. Krug	7. Purchase Order No.: N/A
8. Originator Remarks: Release to Distribution		9. Equip./Component No.: N/A
		10. System/Bldg./Facility: N/A
11. Receiver Remarks:		12. Major Assm. Dwg. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: N/A

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Impact Level	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	WHC-SD-EN-TI-156		0	Data Validation Report for 100-NR-1 Operable Unit Bore Hole Samples	3Q	1/2	1	

16. KEY

Impact Level (F)	Reason for Transmittal (G)	Disposition (H) & (I)
1, 2, 3, or 4 (see MRP 5.43)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Impact Level for required signatures)

(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.
1/2	1	Cog.Eng. A. D. Krug		5-12-93	H6-02	EDMC (2)			H6-08 ~~H6-22~~	3	
1/2	1	Cog. Mgr. R. P. Hencke		5-12-93	H6-02	Central Files (2)			L8-04	3	
1/2	1	QA G. S. Corrigan		5-12-93	H4-16						
		Safety									
		Env.									
						F. Stone			H6-01	3	
						ERC			H6-07	3	

18.	19.	20.	21. DOE APPROVAL (if required)
A. D. Krug 5-12-93 Signature of EDT Originator Date	Authorized Representative for Receiving Organization Date	R. P. Hencke 5-12-93 Cognizant/Project Engineer's Manager Date	Ltr. No. [] Approved [] Approved w/comments [] Disapproved w/comments

BD-7400-172-2 (07/91) GEF097

BD-7400-172-1 (02/89)

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(13)	Permit/Permit Application No.	• Enter applicable permit or permit application number, if appropriate.
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	(C)* Sheet No.	• Enter the sheet number of the information being transmitted. If no sheet number, leave blank.
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*Asterisk denote the required minimum items checked by Configuration Documentation prior to release; these are the minimum release requirements.

SUPPORTING DOCUMENT

1. Total Pages 207

2. Title

DATA VALIDATION REPORT FOR THE 100-NR-1 OPERABLE UNIT BOREHOLE SAMPLES

3. Number

WHC-SD-EN-TI-156

4. Rev No.

0

5. Key Words

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6. Author

Name: A. D. Krug

Alan D. Krug 5/4/93

Signature

Organization/Charge Code

81310/PG3EB

APPROVED FOR PUBLIC RELEASE

V. Buckland 5/4/93

7. Abstract

Krug, A. D., 1993, Data Validation Report for the 100-NR-1 Operable Unit Borehole Samples, WHC-SD-EN-TI-156, Rev. 0, prepared by A. T. Kearney, Inc. for Westinghouse Hanford Company, Richland, Washington.

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DISCLM-4.CHP (1-91)

ACRONYMS

%D	Percent difference
AA	Atomic absorption
BFB	Bromofluorobenzene
BNA	Base/neutral and acid (equivalent to semi-volatiles)
CCV	Continuing calibration verification
CLP	Contract Laboratory Program
CRDL	Contract required detection limit
CRQL	Contract required quantitation limit
DBC	Dibutylchlorendate
DFTPP	Decafluorotriphenylphosphine
DQO	Data quality objectives
EPA	U.S. Environmental Protection Agency
GC/MS	Gas chromatography/mass spectrometry
GC	Gas chromatography
GFAA	Graphite furnace atomic absorption
GPC	Gel permeation chromatography
ICP	Inductively coupled plasma emission spectrometry
ICS	ICP interference check sample
ICV	Initial calibration verification
IDL	Instrument detection limit
MSA	Method of standard addition
MS/MSD	Matrix spike/matrix spike duplicate
PCB	Polychlorinated biphenyl
PEM	Performance evaluation mixture
QA	Quality assurance
QC	Quality control
RF	Response factor
RIC	Reconstructed ion chromatogram
RPD	Relative percent difference
RRF	Relative response factor
RRT	Relative retention time
RSD	Relative standard deviation
RT	Retention time
SDG	Sample delivery group
SOW	Statement of work
TAL	Target analyte list
TCL	Target compound list
TIC	Tentatively identified compounds
TOC	Total organic carbon
TOX	Total organic halides
VOC	Volatile organic compounds

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CONTENTS

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1.0 INTRODUCTION

Since Westinghouse-Hanford has requested that a minimum of 20% of the total number of Sample Delivery Groups must be reported the data from the chemical analysis of twenty-three samples from the 100-NR-1 Operable Unit Borehole Samples Remedial Investigation and their related quality assurance samples were reviewed and validated to verify that reported sample results were of sufficient quality to support decisions regarding remedial actions performed at this site. The samples were analyzed by Thermo-Analytic Laboratories (TMA) and Roy F. Weston Laboratories (WESTON) using U.S. Environmental Protection Agency (EPA) CLP protocols.

Sample analyses included:

- Volatile organics
- Semi-volatile organics
- Pesticide/PCB organics
- Inorganics
- General chemical parameters.

The following samples are in the 100-NR-1 Borehole Samples operable unit:

B07Q83	B07Q95	B07QB7	B07QW9	B07WV4
B07Q84	B07Q96	B07QB8	B07SX0	B07WV5
B07Q85	B07Q97	B07QB9	B07SX1	B07WV6
B07Q86	B07Q98	B07QC0	B07SX2	B07WV7
B07Q87	B07Q99	B07QD7	B07SX3	B07WV8
B07Q88	B07QB0	B07QD8	B07SX4	B07WV9
B07Q89	B07QB1	B07QD9	B07WX5	B07WX0
B07Q90	B07QB2	B07QF0	B07WX6	B07WX1
B07Q91	B07QB3	B07QF1	B07WV0	B07WX2
B07Q92	B07QB4	B07QF2	B07WV1	B07WX3
B07Q93	B07QB5	B07QW7	B07WV2	B07WX4
B07Q94	B07QB6	B07QW8	B07WV3	B07WX5

Of the above samples a minimum of 20% of the total number of data packages were validated. The table below lists the Sample Delivery Groups (data packages) that were validated and included in this report.

SDG Package No.	Matrix	No. of Samples Analyzed	Parameters
B07Q93	Soil	13	VOC, BNA, Pest/PCB, Inorganics, Wet Chem
B07Q97	Soil	1	VOC, BNA, Pest/PCB, Inorganics, Wet Chem
B07QB4	Soil	1	VOC, BNA, Pest/PCB, Inorganics, Wet Chem
B07QB5	Soil	6	VOC, BNA, Pest/PCB, Inorganics, Wet Chem
B07WV6	Soil	2	VOC, BNA, Pest/PCB, Inorganics, Wet Chem

Seven samples were analyzed for radiochemical parameters by Teledyne Isotopes and TMA. Analytical protocols specified in the *Westinghouse Hanford Company Statement of Work for Nonradioactive Inorganic/Organic and Radiochemical Analytical Services* were used. Sample analyses included the following:

- Gross alpha and gross beta determination
- Alpha spectroscopy
- Gamma spectroscopy
- Strontium-90
- Carbon-14.

SDG Package No.	Matrix	No. of Samples Analyzed	Parameters
B07QB8	Soil	7	Radiochemistry

The radiochemical data summary tables can be found at the end of Section 11.0.

All of the data were analyzed by TMA. Data quality was reviewed and analytical results validated using Westinghouse-Hanford procedures and related EPA CLP protocols and guidelines. Data were qualified based upon their quality and the guidance provided by these sources. In instances where the two protocols differed, the Westinghouse-Hanford guidance was followed.

One set of split samples was submitted to TMA as shown below:

B07Q96 B07Q97

Sample results were compared for their accuracy using sample guidelines for determining the RPD between a sample and its duplicate. All results fell within the required control limits with the following exceptions: aluminum with an RPD of 57.6%, iron with an RPD of 66.0% and manganese with an RPD of 60.1%.

The report is broken down into sections for each chemical analysis and radiochemical analysis type. Each section addresses the data package completeness, holding time adherence, instrument calibration and tuning acceptability, blank results, accuracy, precision, system performance, as well as the compound identification and quantitation. In addition, each section has an overall assessment and summary for the data packages reviewed for the particular chemical/radiochemical analyses. Detailed backup information is provided to the reader by SDG No. and sample number. For each data package, a matrix of chemical analysis per sample number is presented, as well as data qualification summaries.

Laboratory and data validation personnel added qualifiers to the reported data based on specified data quality objectives. The data reporting qualifiers are summarized as follows:

U - Indicates the analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for dilutions and moisture content. It should be noted that the sample quantitation limit may be higher or lower than the contract or method required detection limit, depending on instrumentation, matrix and concentration factors.

J - Indicates the analyte was analyzed for and detected. However, the associated value is considered to be an estimate due to identified QC deficiencies. Data flagged with a "J" may be usable for decision making purposes, depending upon the DQOs of the project. Laboratories qualify all reported organic detects below CRQL with a "J" per the CLP procedures.

UJ - Indicates the analyte was analyzed for and not detected. However, the associated detection limit is considered to be an estimate due to identified QC deficiencies. Detection limits flagged with a "UJ" may be usable for decision making purposes, depending upon the DQOs of the project.

JN - Indicates the analyte was analyzed for and that there is presumptive evidence of the presence of the

compound. The concentration reported is considered an estimate which should be used for informational purposes only.

E - Indicates the analyte was analyzed for and detected at a concentration outside of the calibration range of the instrument. All reported concentrations flagged with an "E" are estimates which may contain significant error.

R - Indicates the analyte was analyzed for and due to a significant QC deficiency, the data are deemed unusable. Analytic results flagged "R" are invalid and provide no information as to whether or not the analyte is present.

The results of data validation performed for the 100-NR-1 Operable Unit Borehole Samples Remedial Investigation are contained in the tables following each of the chapters in this report.

Several general quality trends which resulted in data qualification were observed. These included:

- Minor blank contamination was noted in the volatile and semi-volatile results for several samples. The contaminants were compounds commonly found in analytical laboratories and the corresponding sample results were flagged accordingly.

- The holding time from extraction to analysis was exceeded, though not grossly, for several BNA and pesticide/PCB samples. The associated results were flagged accordingly.

- The initial calibration recovery results for several pesticide/PCB compounds did not meet QC limits. The associated data were qualified as estimates and flagged "J".

- The precision results for several BNA compounds did not meet QC limits for one sample. All associated results were qualified as estimates and flagged "J".

- The pesticide surrogate recovery results for several samples in one data package did not meet QC limits. All associated sample results were qualified as estimates and flagged "J".

- The metal analysis showed minor matrix spike accuracy problems, ICP serial dilution RPD results outside of QC and analytical spike recoveries below the QC limit. Approximately 30 percent of the metals results were flagged "J" due to these factors.

- Some blank contamination was noted in the inorganics analysis. Associated results were flagged accordingly.

- The holding time from sample collection to preparation and analysis was exceeded for fluoride, sulfate, electrical conductivity and pH and grossly exceeded for phosphate in several wet chemistry data packages. Associated results were flagged accordingly.

- Insufficient continuing calibration verification (CCV) and continuing calibration blank (CCB) data for fluoride and sulfate analyses were provided. Associated results were qualified as estimates.

- Due to low efficiencies, gross alpha results in most samples were rejected and flagged "R".

- Due to low chemical yields, all isotopic Plutonium results for one sample were rejected and flagged "R".

- Due to low precision recovery results, all Uranium-238 sample results in one data package were qualified as estimates and flagged "J".

In general, the protocol-specific QA/QC requirements were met for the samples analyzed in this investigation with the exceptions noted above and discussed in detail in the chapters to follow. All requested analyses were performed.

With the exceptions noted above, the protocol-specific data quality objectives in terms of precision, accuracy, completeness, representativeness, and comparability have been met.

WELL AND SAMPLE INFORMATION				SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	VOLATILES
199-N-84	B07Q83	S	11/30/92	2-5
	B07Q84	S	11/30/92	2-5
	B07Q85	S	11/30/92	2-5
	B07Q86	S	11/30/92	2-5
199-N-88	B07Q87	S	12/03/92	2-6
	B07Q88	S	12/03/92	2-6
	B07Q90	S	12/04/92	2-7
	B07Q91	S	12/04/92	2-7
	B07Q92	S	12/04/92	2-7
	B07Q93	S	12/07/92	2-8
	B07Q94	S	12/07/92	2-8
	B07Q95	S	12/08/92	2-8
	B07Q96	S	12/08/92	2-8
	B07Q97	S	12/08/92	2-12
	B07Q98	S	12/08/92	2-8
	B07Q99	S	12/08/92	2-8
	B07QB0	S	12/09/92	2-8
	B07QB1	S	12/09/92	2-8
	B07QB2	S	12/10/92	2-8
	B07QB3	S	12/10/92	2-8
	B07QB4	S	12/14/92	2-15
199-N-89	B07QB5	S	12/17/92	2-16
	B07QB6	S	12/17/92	2-16
	B07QF1	S	12/17/92	2-19
	B07QF2	S	01/05/92	2-19
	B07SW7	S	01/04/93	2-19
	B07SW8	S	01/04/93	2-19
	B07SW9	S	01/04/93	2-19
	B07SX0	S	01/05/93	2-19
	B07SX1	S	01/05/93	2-19
	B07SX2	S	01/06/93	2-19
	B07SX3	S	01/06/93	2-19
	B07WV0	S	01/06/93	2-20
	B07WV2	S	01/07/93	2-20
	B07WV3	S	01/07/93	2-20
	B07WV4	S	01/07/93	2-20
	B07WV6	S	01/08/93	2-21
	B07WV8	S	01/11/93	2-24
	B07WV9	S	01/12/93	2-24

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WELL AND SAMPLE INFORMATION				SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	VOLATILES
199-N-85	B07QB7	S	01/05/93	2-19
	B07SX4	S	01/06/93	2-20
	B07WV1	S	01/06/93	2-20
	B07WV5	S	01/07/93	2-20
	B07WV7	S	01/08/93	2-21
	B07WX0	S	01/18/93	2-25
	B07WX1	S	01/18/93	2-25
	B07WX2	S	01/20/93	2-26
	B07WX3	S	01/20/93	2-26
	B07WX4	S	01/20/93	2-26
	B07WX5	S	01/22/93	2-27
	B07WX6	S	01/22/93	2-27
199-N-86	B07QB8	S	12/09/92	2-9
	B07QB9	S	12/09/92	2-9
	B07QC0	S	12/09/92	2-9
199-N-87	B07QD7	S	12/16/92	2-16
	B07QD8	S	12/16/92	2-16
	B07QD9	S	12/17/92	2-16
	B07QF0	S	12/17/92	2-16

2.0 VOLATILE ORGANIC DATA VALIDATION

2.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted and found to be complete:

B07Q93	B07QB4	B07WV6
B07Q97	B07QB5	

2.2 HOLDING TIMES

Analytical holding times were assessed to ascertain whether the Westinghouse-Hanford holding time requirements for volatile organic analyses were met by the laboratory. The Westinghouse-Hanford holding time requirements for volatile organic analyses are as follows: soil samples must be analyzed within 14 days of the date of sample collection; aqueous samples must be analyzed within seven days of the date of sample collection (if unpreserved); and all samples must be shipped on ice to the laboratory and stored at 4°C until analysis.

Holding times for all samples were met.

2.3 INSTRUMENT CALIBRATION AND TUNING

Instrument calibration is performed to establish that the GC/MS instrument is capable of producing acceptable and reliable analytical data over a range of concentrations. The initial and continuing calibrations are to be performed according to CLP protocols. An initial multipoint calibration is performed prior to sample analysis to establish the linear range of the GC/MS instrument. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

All initial and continuing calibration results were acceptable.

2.3.1 GC/MS Tuning/Instrument Performance Check

Tuning is performed to ensure that mass resolution, identification, and, to some degree, sensitivity of the GC/MS instrument have been established. When analyzing for volatile

organics, instrument tuning is performed with BFB. Instrument tuning must be performed prior to the analysis of either standards or samples and must meet the criteria for acceptable GC/MS instrument tuning using BFB as outlined in Westinghouse-Hanford (WHC 1991) and in EPA (EPA 1988a and 1988b) criteria.

The original data were checked for transcription and calculation errors to verify that tuning criteria were met. Prior to calibration and sample analysis, all tuning criteria were met.

All GC/MS tuning data are acceptable.

2.4 BLANKS

Method blank and field blank analyses are performed to determine the extent of laboratory or field contamination of samples. No contaminants should be present in the blanks. Analytical results for analytes present in any sample at less than 5 times the concentration of that analyte found in associated blanks should be qualified as non-detects; common laboratory contaminants present at less than 10 times the concentration of that analyte are qualified as non-detects.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for methylene chloride:

- Sample number B07Q97 in SDG No. B07Q97.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for acetone:

- All samples in SDG No. B07Q93.
- Sample number B07Q97 in SDG No. B07Q97.
- All samples in SDG No. B07QB5.
- Sample number B07WV6 in SDG No. B07WV6.

All other laboratory blank results were acceptable.

2.5 ACCURACY

Accuracy was assessed by evaluating the recoveries of stable isotopically labeled surrogate compounds added to all samples and blanks, and by the analysis of a representative sample which was spiked with a variety of volatile organic compounds.

2.5.1 Matrix Spike Recovery

Matrix spike compounds are added to a sample which is representative of the sample delivery group. Matrix spike analyses are performed in duplicate using five compounds and should be within the established quality control limits (EPA 1988b). The matrix spike analyses estimate how much the target compounds are interfered with, either positively or negatively, by the sample matrix.

All MS/MSD results were acceptable.

2.5.2 Surrogate Recovery

Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. When a surrogate compound recovery is out of the control window, all positively identified target compounds associated with the unacceptable surrogate recoveries are qualified as estimates (J). Undetected compounds are qualified as having an estimated detection limit (UJ).

All surrogate recovery results are acceptable.

2.6 PRECISION

Precision is expressed by the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. Field precision is measured by analyzing duplicate samples taken in the field.

All matrix spike/matrix spike duplicate RPD results were acceptable.

2.7 INTERNAL STANDARDS PERFORMANCE

Internal standard performance was assessed to determine whether abrupt changes in instrument response and sensitivity occurred that may have affected the reliability of the analytical data. The response (area or height) of the internal standards must not vary by more than 100 percent or -50 percent from the response of the internal standard that was used to calculate the upper and lower bounds. The upper and lower bounds define the range for acceptable internal standard response (area/height) for the sample analyses.

All internal standard recovery results were acceptable.

2.8 COMPOUND IDENTIFICATION AND QUANTITATION

The identity of detected compounds was confirmed to investigate the possibility of false positives. The confirmation of compound identification during the quality assurance review focuses on false positives because only mass spectra for positive identifications are submitted. However, target compounds that are reported as undetected are also evaluated to investigate the possibility of false negatives. Confirmation of possible false negatives is addressed by reviewing other factors relating to analytical sensitivity (e.g., relative response factors, detection limits, linearity, analytical recovery).

Compound quantitations and reported detection limits were recalculated for a minimum of 20 percent of the samples in each case to verify that they are accurate and are consistent with CLP requirements.

Below the CRQL, instrument precision becomes more variable as the instrument detection limit is approached. Therefore, the concentration of any compound that was detected below the CRQL was qualified as an estimate (J).

The reported results and quantitation limits were verified as correct in all cases.

2.9 OVERALL ASSESSMENT AND SUMMARY

A thorough review of ongoing data acquisition and instrument performance criteria was made to assess overall GC/MS instrument performance. No changes in instrument performance were noted that would result in the degradation of data quality. No indications of unacceptable instrument performance (i.e., shifts in baseline stability, retention time shifts, extraneous peaks, or sensitivity) were found during the quality assurance review.

In general, the volatile data presented in this report met the protocol-specified QA/QC requirements. Minor blank contamination was detected in several samples. The data are considered valid and usable within the standard error associated with the method. All other results are considered to be acceptable and usable for all purposes.

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q83																				
Sample Number		B07Q83		B07Q84		B07Q85		B07Q86													
Location		199-N-84		199-N-84		199-N-84		199-N-84													
Remarks		NV		NV		NV		NV													
Sample Date		11/30/92		11/30/92		11/30/92		11/30/92													
Analysis Date		12/08/92		12/08/92		12/08/92		12/08/92													
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	11	U	11	U	10	U	11	U												
Bromomethane	10	11	U	11	U	10	U	11	U												
Vinyl Chloride	10	11	U	11	U	10	U	11	U												
Chloroethane	10	11	U	11	U	10	U	11	U												
Methylene Chloride	10	2	J	11	U	2	J	11	U												
Acetone	10	23		22		22		19													
Carbon Disulfide	10	11	U	11	U	10	U	11	U												
1,1-Dichloroethene	10	11	U	11	U	10	U	11	U												
1,1-Dichloroethane	10	11	U	11	U	10	U	11	U												
1,2-Dichloroethene (total)	10	11	U	11	U	10	U	11	U												
Chloroform	10	11	U	11	U	10	U	11	U												
1,2-Dichloroethane	10	11	U	11	U	10	U	11	U												
2-Butanone	10	11	U	11	U	10	U	11	U												
1,1,1-Trichloroethane	10	11	U	11	U	10	U	11	U												
Carbon Tetrachloride	10	11	U	11	U	10	U	11	U												
Vinyl Acetate	10	11	U	11	U	10	U	11	U												
Bromodichloromethane	10	11	U	11	U	10	U	11	U												
1,2-Dichloropropane	10	11	U	11	U	10	U	11	U												
cis-1,3-Dichloropropene	10	11	U	11	U	10	U	11	U												
Trichloroethene	10	11	U	11	U	10	U	11	U												
Dibromochloromethane	10	11	U	11	U	10	U	11	U												
1,1,2-Trichloroethane	10	11	U	11	U	10	U	11	U												
Benzene	10	11	U	11	U	10	U	11	U												
trans-1,3-Dichloropropene	10	11	U	11	U	10	U	11	U												
Bromoform	10	11	U	11	U	10	U	11	U												
4-Methyl-2-pentanone	10	11	U	11	U	10	U	11	U												
2-Hexanone	10	11	U	11	U	10	U	11	U												
Tetrachloroethene	10	11	U	11	U	10	U	11	U												
1,1,2,2-Tetrachloroethane	10	11	U	11	U	10	U	11	U												
Toluene	10	11	U	11	U	10	U	11	U												
Chlorobenzene	10	11	U	11	U	10	U	11	U												
Ethylbenzene	10	11	U	11	U	10	U	11	U												
Styrene	10	11	U	11	U	10	U	11	U												
Xylene (total)	10	11	U	11	U	10	U	11	U												

Not Validated

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE - HANFORD																						
Laboratory: TMA																						
Case	SDG: B07Q87																					
Sample Number		B07Q87		B07Q88																		
Location		199-N-8		199-N-8																		
Remarks		NV		NV																		
Sample Date		12/03/92		12/03/92																		
Analysis Date		12/10/92		12/10/92																		
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	11	U	11	U																	
Bromomethane	10	11	U	11	U																	
Vinyl Chloride	10	11	U	11	U																	
Chloroethane	10	11	U	11	U																	
Methylene Chloride	10	23		17																		
Acetone	10	6	J	13																		
Carbon Disulfide	10	11	U	11	U																	
1,1-Dichloroethene	10	11	U	11	U																	
1,1-Dichloroethane	10	11	U	11	U																	
1,2-Dichloroethene (total)	10	11	U	11	U																	
Chloroform	10	11	U	11	U																	
1,2-Dichloroethane	10	11	U	11	U																	
2-Butanone	10	11	U	11	U																	
1,1,1-Trichloroethane	10	11	U	11	U																	
Carbon Tetrachloride	10	11	U	11	U																	
Vinyl Acetate	10	11	U	11	U																	
Bromodichloromethane	10	11	U	11	U																	
1,2-Dichloropropane	10	11	U	11	U																	
cis-1,3-Dichloropropene	10	11	U	11	U																	
Trichloroethene	10	11	U	11	U																	
Dibromochloromethane	10	11	U	11	U																	
1,1,2-Trichloroethane	10	11	U	11	U																	
Benzene	10	11	U	11	U																	
trans-1,3-Dichloropropene	10	11	U	11	U																	
Bromoform	10	11	U	11	U																	
4-Methyl-2-pentanone	10	11	U	11	U																	
2-Hexanone	10	11	U	11	U																	
Tetrachloroethene	10	11	U	11	U																	
1,1,2,2-Tetrachloroethane	10	11	U	11	U																	
Toluene	10	3	J	2	J																	
Chlorobenzene	10	11	U	11	U																	
Ethylbenzene	10	11	U	11	U																	
Styrene	10	11	U	11	U																	
Xylene (total)	10	11	U	11	U																	

NV = Not Validated

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q90																				
Sample Number		B07Q90		B07Q91		B07Q92															
Location		199-N-88		199-N-88		199-N-88															
Remarks		NV		NV		NV															
Sample Date		12/04/92		12/04/92		12/04/92															
Analysis Date		12/11/92		12/11/92		12/11/92															
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	11	U	11	U	11	U														
Bromomethane	10	11	U	11	U	11	U														
Vinyl Chloride	10	11	U	11	U	11	U														
Chloroethane	10	11	U	11	U	11	U														
Methylene Chloride	10	11	U	3	J	3	J														
Acetone	10	54		28		25															
Carbon Disulfide	10	11	U	11	U	11	U														
1,1-Dichloroethene	10	11	U	11	U	11	U														
1,1-Dichloroethane	10	11	U	11	U	11	U														
1,2-Dichloroethene (total)	10	11	U	11	U	11	U														
Chloroform	10	11	U	11	U	11	U														
1,2-Dichloroethane	10	11	U	11	U	11	U														
2-Butanone	10	11	U	11	U	11	U														
1,1,1-Trichloroethane	10	11	U	11	U	11	U														
Carbon Tetrachloride	10	11	U	11	U	11	U														
Vinyl Acetate	10	11	U	11	U	11	U														
Bromodichloromethane	10	11	U	11	U	11	U														
1,2-Dichloropropane	10	11	U	11	U	11	U														
cis-1,3-Dichloropropene	10	11	U	11	U	11	U														
Trichloroethene	10	11	U	11	U	11	U														
Dibromochloromethane	10	11	U	11	U	11	U														
1,1,2-Trichloroethane	10	11	U	11	U	11	U														
Benzene	10	11	U	11	U	11	U														
trans-1,3-Dichloropropene	10	11	U	11	U	11	U														
Bromoform	10	11	U	11	U	11	U														
4-Methyl-2-pentanone	10	11	U	11	U	11	U														
2-Hexanone	10	11	U	11	U	11	U														
Tetrachloroethene	10	11	U	11	U	11	U														
1,1,2,2-Tetrachloroethane	10	11	U	11	U	11	U														
Toluene	10	11	U	8	J	11	U														
Chlorobenzene	10	11	U	11	U	11	U														
Ethylbenzene	10	11	U	11	U	11	U														
Styrene	10	11	U	11	U	11	U														
Xylene (total)	10	11	U	11	U	11	U														

NV ot Validated

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q93																				
Sample Number		B07Q93		B07Q94		B07Q95		B07Q96		B07Q98		B07Q99		B07QB0		B07QB1		B07QB2		B07QB3	
Location		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88	
Remarks																					
Sample Date		12/07/92		12/07/92		12/08/92		12/08/92		12/08/92		12/08/92		12/09/92		12/09/92		12/10/92		12/10/92	
Analysis Date		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92	
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	11	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
Bromomethane	10	11	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
Vinyl Chloride	10	11	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
Chloroethane	10	11	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
Methylene Chloride	10	10	J	9	J	3	J	3	J	2	J	3	J	9	J	10	J	4	J	9	J
Acetone	10	42	U	41	U	24	U	19	U	17	U	27	U	35	U	25	U	27	U	44	U
Carbon Disulfide	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
1,1-Dichloroethene	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
1,1-Dichloroethane	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
1,2-Dichloroethene (total)	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
Chloroform	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
1,2-Dichloroethane	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
2-Butanone	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
1,1,1-Trichloroethane	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
Carbon Tetrachloride	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
Vinyl Acetate	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
Bromodichloromethane	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
1,2-Dichloropropane	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
cis-1,3-Dichloropropene	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
Trichloroethene	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
Dibromochloromethane	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
1,1,2-Trichloroethane	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
Benzene	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
trans-1,3-Dichloropropene	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
Bromoform	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
4-Methyl-2-pentanone	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
2-Hexanone	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
Tetrachloroethene	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
1,1,2,2-Tetrachloroethane	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
Toluene	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
Chlorobenzene	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
Ethylbenzene	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
Styrene	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U
Xylene (total)	10	10	U	10	U	11	U	10	U	10	U	10	U	10	U	10	U	10	U	12	U

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q93																				
Sample Number		B07QB8		B07QB9		B07QC0															
Location		199-N-86		199-N-86		199-N-86															
Remarks																					
Sample Date		12/09/92		12/09/92		12/09/92															
Analysis Date		12/21/92		12/21/92		12/21/92															
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	11	U	10	U	11	U														
Bromomethane	10	11	U	10	U	11	U														
Vinyl Chloride	10	11	U	10	U	11	U														
Chloroethane	10	11	U	10	U	11	U														
Methylene Chloride	10	6	J	6	J	5	J														
Acetone	10	23	U	22	U	11	U														
Carbon Disulfide	10	11	U	10	U	11	U														
1,1-Dichloroethene	10	11	U	10	U	11	U														
1,1-Dichloroethane	10	11	U	10	U	11	U														
1,2-Dichloroethene (total)	10	11	U	10	U	11	U														
Chloroform	10	11	U	10	U	11	U														
1,2-Dichloroethane	10	11	U	10	U	11	U														
2-Butanone	10	11	U	10	U	11	U														
1,1,1-Trichloroethane	10	11	U	10	U	11	U														
Carbon Tetrachloride	10	11	U	10	U	11	U														
Vinyl Acetate	10	11	U	10	U	11	U														
Bromodichloromethane	10	11	U	10	U	11	U														
1,2-Dichloropropane	10	11	U	10	U	11	U														
cis-1,3-Dichloropropene	10	11	U	10	U	11	U														
Trichloroethene	10	11	U	10	U	11	U														
Dibromochloromethane	10	11	U	10	U	11	U														
1,1,2-Trichloroethane	10	11	U	10	U	11	U														
Benzene	10	11	U	10	U	11	U														
trans-1,3-Dichloropropene	10	11	U	10	U	11	U														
Bromoform	10	11	U	10	U	11	U														
4-Methyl-2-pentanone	10	11	U	10	U	11	U														
2-Hexanone	10	11	U	10	U	11	U														
Tetrachloroethene	10	11	U	10	U	11	U														
1,1,2,2-Tetrachloroethane	10	11	U	10	U	11	U														
Toluene	10	11	U	10	U	11	U														
Chlorobenzene	10	11	U	10	U	11	U														
Ethylbenzene	10	11	U	10	U	11	U														
Styrene	10	11	U	10	U	11	U														
Xylene (total)	10	11	U	10	U	11	U														

BLANK AND SAMPLE DATA SUMMARY

SDG: B07Q93	REVIEWER: RB			DATE: 4/09/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
VBLK	Acetone	19			ug/kg	95	190	All	U

DATA QUALIFICATION SUMMARY

SDG: B07Q93	REVIEWER: RB	DATE: 04/09/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Acetone	U	All	Lab Blank Contamination

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: Roy F. Weston																					
Case	SDG: B07Q97																				
Sample Number		B07Q97																			
Location		199-N-88																			
Remarks		Split																			
Sample Date		12/08/92																			
Analysis Date		12/17/92																			
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U																		
Bromomethane	10	10	U																		
Vinyl Chloride	10	10	U																		
Chloroethane	10	10	U																		
Methylene Chloride	10	10	U																		
Acetone	10	15	U																		
Carbon Disulfide	10	10	U																		
1,1-Dichloroethene	10	10	U																		
1,1-Dichloroethane	10	10	U																		
1,2-Dichloroethene (total)	10	10	U																		
Chloroform	10	10	U																		
1,2-Dichloroethane	10	10	U																		
2-Butanone	10	10	U																		
1,1,1-Trichloroethane	10	10	U																		
Carbon Tetrachloride	10	10	U																		
Vinyl Acetate	10	10	U																		
Bromodichloromethane	10	10	U																		
1,2-Dichloropropane	10	10	U																		
cis-1,3-Dichloropropene	10	10	U																		
Trichloroethene	10	10	U																		
Dibromochloromethane	10	10	U																		
1,1,2-Trichloroethane	10	10	U																		
Benzene	10	10	U																		
trans-1,3-Dichloropropene	10	10	U																		
Bromoform	10	10	U																		
4-Methyl-2-pentanone	10	10	U																		
2-Hexanone	10	10	U																		
Tetrachloroethene	10	10	U																		
1,1,2,2-Tetrachloroethane	10	10	U																		
Toluene	10	10	U																		
Chlorobenzene	10	10	U																		
Ethylbenzene	10	10	U																		
Styrene	10	10	U																		
Xylene (total)	10	10	U																		

BLANK AND SAMPLE DATA SUMMARY

SDG: B07Q97	REVIEWER: SC			DATE: 4/21/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
VBLK	Methylene chloride	6	J		ug/kg	30	60	B07Q97	U
VBLK	Acetone	14			ug/kg	70	140	B07Q97	U

DATA QUALIFICATION SUMMARY

SDG: B07Q97	REVIEWER: SC	DATE: 4/21/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Methylene chloride	U	B07Q97	Lab blank contamination
Acetone	U	B07Q97	Lab blank contamination

VOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07QB4																				
Sample Number		B07QB4																			
Location		199-N-88																			
Remarks																					
Sample Date		12/14/92																			
Analysis Date		12/18/92																			
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U																		
Bromomethane	10	10	U																		
Vinyl Chloride	10	10	U																		
Chloroethane	10	10	U																		
Methylene Chloride	10	10	U																		
Acetone	10	13																			
Carbon Disulfide	10	10	U																		
1,1-Dichloroethene	10	10	U																		
1,1-Dichloroethane	10	10	U																		
1,2-Dichloroethene (total)	10	10	U																		
Chloroform	10	10	U																		
1,2-Dichloroethane	10	10	U																		
2-Butanone	10	10	U																		
1,1,1-Trichloroethane	10	10	U																		
Carbon Tetrachloride	10	10	U																		
Bromodichloromethane	10	10	U																		
1,2-Dichloropropane	10	10	U																		
cis-1,3-Dichloropropene	10	10	U																		
Trichloroethene	10	10	U																		
Dibromochloromethane	10	10	U																		
1,1,2-Trichloroethane	10	10	U																		
Benzene	10	10	U																		
trans-1,3-Dichloropropene	10	10	U																		
Bromoform	10	10	U																		
4-Methyl-2-pentanone	10	10	U																		
2-Hexanone	10	10	U																		
Tetrachloroethene	10	10	U																		
1,1,2,2-Tetrachloroethane	10	10	U																		
Toluene	10	10	U																		
Chlorobenzene	10	10	U																		
Ethylbenzene	10	10	U																		
Styrene	10	10	U																		
Xylene (total)	10	10	U																		

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07QB5																				
Sample Number		B07QB5		B07QB6		B07QD7		B07QD8		B07QD9		B07QF0									
Location		199-N-89		199-N-89		199-N-87		199-N-87		199-N-87		199-N-87									
Remarks																					
Sample Date		12/17/92		12/17/92		12/16/92		12/16/92		12/17/92		12/17/92									
Analysis Date		12/23/92		12/23/92		12/23/92		12/23/92		12/23/92		12/23/92									
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	11	U	10	U	11	U	10	U	10	U	10	U								
Bromomethane	10	11	U	10	U	11	U	10	U	10	U	10	U								
Vinyl Chloride	10	11	U	10	U	11	U	10	U	10	U	10	U								
Chloroethane	10	11	U	10	U	11	U	10	U	10	U	10	U								
Methylene Chloride	10	2	J	2	J	2	J	2	J	12	U	13	U								
Acetone	10	11	U	12	U	12	U	14	U	10	U	10	U								
Carbon Disulfide	10	11	U	10	U	11	U	10	U	10	U	10	U								
1,1-Dichloroethene	10	11	U	10	U	11	U	10	U	10	U	10	U								
1,1-Dichloroethane	10	11	U	10	U	11	U	10	U	10	U	10	U								
1,2-Dichloroethene (total)	10	11	U	10	U	11	U	10	U	10	U	10	U								
Chloroform	10	11	U	10	U	11	U	10	U	10	U	10	U								
1,2-Dichloroethane	10	11	U	10	U	11	U	10	U	10	U	10	U								
2-Butanone	10	11	U	10	U	11	U	10	U	10	U	10	U								
1,1,1-Trichloroethane	10	11	U	10	U	2	J	10	U	10	U	10	U								
Carbon Tetrachloride	10	11	U	10	U	11	U	10	U	10	U	10	U								
Vinyl Acetate	10	11	U	10	U	11	U	10	U	10	U	10	U								
Bromodichloromethane	10	11	U	10	U	11	U	10	U	10	U	10	U								
1,2-Dichloropropane	10	11	U	10	U	11	U	10	U	10	U	10	U								
cis-1,3-Dichloropropene	10	11	U	10	U	11	U	10	U	10	U	10	U								
Trichloroethene	10	11	U	10	U	11	U	10	U	10	U	10	U								
Dibromochloromethane	10	11	U	10	U	11	U	10	U	10	U	10	U								
1,1,2-Trichloroethane	10	11	U	10	U	11	U	10	U	10	U	10	U								
Benzene	10	11	U	10	U	11	U	10	U	10	U	10	U								
trans-1,3-Dichloropropene	10	11	U	10	U	11	U	10	U	10	U	10	U								
Bromoform	10	11	U	10	U	11	U	10	U	10	U	10	U								
4-Methyl-2-pentanone	10	11	U	10	U	11	U	10	U	10	U	10	U								
2-Hexanone	10	11	U	10	U	11	U	10	U	10	U	10	U								
Tetrachloroethene	10	11	U	10	U	11	U	10	U	10	U	10	U								
1,1,2,2-Tetrachloroethane	10	11	U	10	U	11	U	10	U	10	U	10	U								
Toluene	10	4	J	11		11	U	1	J	10	U	10	U								
Chlorobenzene	10	11	U	10	U	11	U	10	U	10	U	10	U								
Ethylbenzene	10	11	U	10	U	11	U	10	U	10	U	10	U								
Styrene	10	11	U	10	U	11	U	10	U	10	U	10	U								
Xylene (total)	10	11	U	10	U	11	U	10	U	10	U	10	U								

BLANK AND SAMPLE DATA SUMMARY

SDG:B07QB5	REVIEWER: RB			DATE: 4/15/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
VBLK	Acetone	14			ug/kg	70	140	All	U

DATA QUALIFICATION SUMMARY

SDG: B07QB5	REVIEWER: RB	DATE: 4/15/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Acetone	U	All	Lab Blank Contamination

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07QB7																				
Sample Number		B07QB7		B07QF1		B07QF2		B07SW7		B07SW8		B07SW9		B07SX0		B07SX1		B07SX2		B07SX3	
Location		199-N-85		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89	
Remarks		NV		NV, TB		NV, EB		NV		NV		NV		NV		NV		NV		NV	
Sample Date		1/5/93		1/5/93		1/5/93		1/4/93		1/4/93		1/4/93		1/5/93		1/5/93		1/5/93		1/6/93	
Analysis Date		1/15/93		1/15/93		1/15/93		1/14/93		1/15/93		1/15/93		1/15/93		1/15/93		1/15/93		1/14/93	
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Vinyl Chloride	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Acetone	10	8	J	14		7	J	15		15		17		11		12		10	J	15	
Carbon Disulfide	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethene	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethane	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloroethene (total)	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Chloroform	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloroethane	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Butanone	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	4	J
1,1,1-Trichloroethane	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbon Tetrachloride	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloropropane	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
cis-1,3-Dichloropropene	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Trichloroethene	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Dibromochloromethane	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloroethane	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzene	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
trans-1,3-Dichloropropene	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Bromoform	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-pentanone	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	1	J
Tetrachloroethene	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Toluene	10	11	U	10	U	10	U	1	J	10	U	10	U	10	U	10	U	10	U	2	J
Chlorobenzene	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Ethylbenzene	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Styrene	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Xylene (total)	10	11	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	2	J

N t Validated, EB=Equipment Blank, TB=Trip Blank

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																						
Laboratory: TMA																						
Case	SDG: B07QB7																					
Sample Number		B07SX4		B07WV0		B07WV1		B07WV2		B07WV3		B07WV4		B07WV5								
Location		199-N-85		199-N-89		199-N-85		199-N-89		199-N-89		199-N-89		199-N-85								
Remarks		NV		NV		NV		NV		NV		NV		NV								
Sample Date		1/6/93		1/6/93		1/6/93		1/6/93		1/7/93		1/7/93		1/7/93								
Analysis Date		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93								
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
Bromomethane	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
Vinyl Chloride	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
Chloroethane	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
Methylene Chloride	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
Acetone	10	11		12		16		10	J	8	J	13		13							
Carbon Disulfide	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
1,1-Dichloroethene	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
1,1-Dichloroethane	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
1,2-Dichloroethene (total)	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
Chloroform	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
1,2-Dichloroethane	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
2-Butanone	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
1,1,1-Trichloroethane	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
Carbon Tetrachloride	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
Bromodichloromethane	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
1,2-Dichloropropane	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
cis-1,3-Dichloropropene	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
Trichloroethene	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
Dibromochloromethane	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
1,1,2-Trichloroethane	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
Benzene	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
trans-1,3-Dichloropropene	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
Bromoform	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
4-Methyl-2-pentanone	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
2-Hexanone	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
Tetrachloroethene	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
1,1,2,2-Tetrachloroethane	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
Toluene	10	1	J	10	U	11	U	1	J	10	U	2	J	11	U						
Chlorobenzene	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
Ethylbenzene	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
Styrene	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						
Xylene (total)	10	10	U	10	U	11	U	10	U	10	U	10	U	11	U						

NV=Not Validated

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE - HANFORD																						
Laboratory: TMS																						
Case	SDG: B07WV6																					
Sample Number		B07WV6		B07WV7																		
Location		199-N-89		199-N-85																		
Remarks																						
Sample Date		01/08/93		01/08/93																		
Analysis Date		01/18/93		01/18/93																		
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	10	U																
Bromomethane	10	10	U	10	U																
Vinyl Chloride	10	10	U	10	U																
Chloroethane	10	10	U	10	U																
Methylene Chloride	10	10	U	10	U																
Acetone	10	16	U	10	U																
Carbon Disulfide	10	10	U	10	U																
1,1-Dichloroethene	10	10	U	10	U																
1,1-Dichloroethane	10	10	U	10	U																
1,2-Dichloroethene (total)	10	10	U	10	U																
Chloroform	10	10	U	10	U																
1,2-Dichloroethane	10	10	U	10	U																
2-Butanone	10	10	U	4	J																
1,1,1-Trichloroethane	10	10	U	10	U																
Carbon Tetrachloride	10	10	U	10	U																
Vinyl Acetate	10	10	U	10	U																
Bromodichloromethane	10	10	U	10	U																
1,2-Dichloropropane	10	10	U	10	U																
cis-1,3-Dichloropropene	10	10	U	10	U																
Trichloroethene	10	10	U	10	U																
Dibromochloromethane	10	10	U	10	U																
1,1,2-Trichloroethane	10	10	U	10	U																
Benzene	10	10	U	10	U																
trans-1,3-Dichloropropene	10	10	U	10	U																
Bromoform	10	10	U	10	U																
4-Methyl-2-pentanone	10	10	U	10	U																
2-Hexanone	10	10	U	10	U																
Tetrachloroethene	10	10	U	10	U																
1,1,2,2-Tetrachloroethane	10	10	U	10	U																
Toluene	10	10	U	10	U																
Chlorobenzene	10	10	U	10	U																
Ethylbenzene	10	10	U	10	U																
Styrene	10	10	U	10	U																
Xylene (total)	10	10	U	10	U																

BLANK AND SAMPLE DATA SUMMARY

SDG: B07WV6	REVIEWER: RB			DATE: 4/15/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
VBLK	Acetone	14			ug/kg	70	140	B07WV6	U

DATA QUALIFICATION SUMMARY

SDG: B07WV6	REVIEWER: RB	DATE: 4/15/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Acetone	U	B07WV6	Lab blank contamination

9 3 1 2 9 1 6 1 9 6

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07WV8																				
Sample Number		B07WV8		B07WV9																	
Location		199-N-89		199-N-89																	
Remarks		NV		NV																	
Sample Date		1/11/93		1/12/93																	
Analysis Date		1/20/93		1/20/93																	
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	11	U	12	U																
Bromomethane	10	11	U	12	U																
Vinyl Chloride	10	11	U	12	U																
Chloroethane	10	11	U	12	U																
Methylene Chloride	10	3	J	5	J																
Acetone	10	16		23																	
Carbon Disulfide	10	11	U	12	U																
1,1-Dichloroethene	10	11	U	12	U																
1,1-Dichloroethane	10	11	U	12	U																
1,2-Dichloroethene (total)	10	11	U	12	U																
Chloroform	10	11	U	3	J																
1,2-Dichloroethane	10	11	U	12	U																
2-Butanone	10	11	U	12	U																
1,1,1-Trichloroethane	10	11	U	12	U																
Carbon Tetrachloride	10	11	U	12	U																
Bromodichloromethane	10	11	U	12	U																
1,2-Dichloropropane	10	11	U	12	U																
cis-1,3-Dichloropropene	10	11	U	12	U																
Trichloroethene	10	11	U	12	U																
Dibromochloromethane	10	11	U	12	U																
1,1,2-Trichloroethane	10	11	U	12	U																
Benzene	10	11	U	12	U																
trans-1,3-Dichloropropene	10	11	U	12	U																
Bromoform	10	11	U	12	U																
4-Methyl-2-pentanone	10	11	U	12	U																
2-Hexanone	10	11	U	12	U																
Tetrachloroethene	10	11	U	12	U																
1,1,2,2-Tetrachloroethane	10	11	U	12	U																
Toluene	10	11	U	1	J																
Chlorobenzene	10	11	U	12	U																
Ethylbenzene	10	11	U	12	U																
Styrene	10	11	U	12	U																
Xylene (total)	10	11	U	12	U																

NV=Not Validated

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07WX0																				
Sample Number		B07WX0		B07WX1																	
Location		199-N-85		199-N-85																	
Remarks		NV		NV																	
Sample Date		1/18/93		1/18/93																	
Analysis Date		1/29/93		1/29/93																	
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	1200	U	1300	U																
Bromomethane	10	1200	U	1300	U																
Vinyl Chloride	10	1200	U	1300	U																
Chloroethane	10	1200	U	1300	U																
Methylene Chloride	10	1200	U	1300	U																
Acetone	10	1200	U	1300	U																
Carbon Disulfide	10	1200	U	1300	U																
1,1-Dichloroethene	10	1200	U	1300	U																
1,1-Dichloroethane	10	1200	U	1300	U																
1,2-Dichloroethene (total)	10	1200	U	1300	U																
Chloroform	10	1200	U	1300	U																
1,2-Dichloroethane	10	1200	U	1300	U																
2-Butanone	10	1200	U	1300	U																
1,1,1-Trichloroethane	10	1200	U	1300	U																
Carbon Tetrachloride	10	1200	U	1300	U																
Bromodichloromethane	10	1200	U	1300	U																
1,2-Dichloropropane	10	1200	U	1300	U																
cis-1,3-Dichloropropene	10	1200	U	1300	U																
Trichloroethene	10	1200	U	1300	U																
Dibromochloromethane	10	1200	U	1300	U																
1,1,2-Trichloroethane	10	1200	U	1300	U																
Benzene	10	1200	U	190	J																
trans-1,3-Dichloropropene	10	1200	U	1300	U																
Bromoform	10	1200	U	1300	U																
4-Methyl-2-Pentanone	10	1200	U	1300	U																
2-Hexanone	10	1200	U	1300	U																
Tetrachloroethene	10	1200	U	1300	U																
1,1,2,2-Tetrachloroethane	10	1200	U	1300	U																
Toluene	10	1200	U	1300	U																
Chlorobenzene	10	1200	U	1300	U																
Ethylbenzene	10	1200	U	1300	U																
Styrene	10	1200	U	1300	U																
Xylene (total)	10	1200	U	730	J																

N' ot Validated

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07WX2																				
Sample Number		B07WX2		B07WX3		B07WX4															
Location		199-N-85		199-N-85		199-N-85															
Remarks		NV		NV		NV															
Sample Date		01/20/93		01/20/93		01/20/93															
Analysis Date		02/01/93		01/29/93		02/04/93															
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	2500	U	1300	U	11	U														
Bromomethane	10	2500	U	1300	U	11	U														
Vinyl Chloride	10	2500	U	1300	U	11	U														
Chloroethane	10	2500	U	1300	U	11	U														
Methylene Chloride	10	2500	U	1300	U	11	U														
Acetone	10	2500	U	2800		23															
Carbon Disulfide	10	2500	U	1300	U	11	U														
1,1-Dichloroethene	10	2500	U	1300	U	11	U														
1,1-Dichloroethane	10	2500	U	1300	U	11	U														
1,2-Dichloroethene (total)	10	2500	U	1300	U	11	U														
Chloroform	10	2500	U	1300	U	11	U														
1,2-Dichloroethane	10	2500	U	1300	U	11	U														
2-Butanone	10	2500	U	1300	U	11	U														
1,1,1-Trichloroethane	10	2500	U	1300	U	11	U														
Carbon Tetrachloride	10	2500	U	1300	U	11	U														
Vinyl Acetate	10	2500	U	1300	U	11	U														
Bromodichloromethane	10	2500	U	1300	U	11	U														
1,2-Dichloropropane	10	2500	U	1300	U	11	U														
cis-1,3-Dichloropropene	10	2500	U	1300	U	11	U														
Trichloroethene	10	2500	U	1300	U	11	U														
Dibromochloromethane	10	2500	U	1300	U	11	U														
1,1,2-Trichloroethane	10	2500	U	1300	U	11	U														
Benzene	10	2500	U	1300	U	11	U														
trans-1,3-Dichloropropene	10	2500	U	1300	U	11	U														
Bromoform	10	2500	U	1300	U	11	U														
4-Methyl-2-pentanone	10	2500	U	1300	U	11	U														
2-Hexanone	10	2500	U	1300	U	11	U														
Tetrachloroethene	10	2500	U	1300	U	11	U														
1,1,2,2-Tetrachloroethane	10	2500	U	1300	U	11	U														
Toluene	10	2500	U	1300	U	11	U														
Chlorobenzene	10	2500	U	1300	U	11	U														
Ethylbenzene	10	2500	U	330	J	11	U														
Styrene	10	2500	U	1300		11	U														
Xylene (total)	10	1300	J	890	J	11	U														

NV = Not Validated

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07WX5																				
Sample Number		B07WX5		B07WX6																	
Location		199-N-85		199-N-85																	
Remarks		BKG, NV		BKG, NV																	
Sample Date		1/22/93		1/22/93																	
Analysis Date		2/4/93		2/4/93																	
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	12	U	11	U																
Bromomethane	10	12	U	11	U																
Vinyl Chloride	10	12	U	11	U																
Chloroethane	10	12	U	11	U																
Methylene Chloride	10	12	U	11	U																
Acetone	10	12	U	11	U																
Carbon Disulfide	10	12	U	11	U																
1,1-Dichloroethene	10	12	U	11	U																
1,1-Dichloroethane	10	12	U	11	U																
1,2-Dichloroethene (total)	10	12	U	11	U																
Chloroform	10	12	U	11	U																
1,2-Dichloroethane	10	12	U	11	U																
2-Butanone	10	12	U	11	U																
1,1,1-Trichloroethane	10	12	U	11	U																
Carbon Tetrachloride	10	12	U	11	U																
Vinyl Acetate	10	12	U	11	U																
Bromodichloromethane	10	12	U	11	U																
1,2-Dichloropropane	10	12	U	11	U																
cis-1,3-Dichloropropene	10	12	U	11	U																
Trichloroethene	10	12	U	11	U																
Dibromochloromethane	10	12	U	11	U																
1,1,2-Trichloroethane	10	12	U	11	U																
Benzene	10	3	J	11	U																
trans-1,3-Dichloropropene	10	12	U	11	U																
Bromoform	10	12	U	11	U																
4-Methyl-2-pentanone	10	12	U	11	U																
2-Hexanone	10	12	U	11	U																
Tetrachloroethene	10	12	U	11	U																
1,1,2,2-Tetrachloroethane	10	12	U	11	U																
Toluene	10	12	U	3	J																
Chlorobenzene	10	12	U	11	U																
Ethylbenzene	10	12	U	11	U																
Styrene	10	12	U	11	U																
Xylene (total)	10	12	U	11	U																

NV = Validated BKG = Background Sample

WELL AND SAMPLE INFORMATION				SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	SEMI-VOLATILES
199-N-84	B07Q83	S	11/30/92	3-7, 3-8
	B07Q84	S	11/30/92	3-7, 3-8
	B07Q85	S	11/30/92	3-7, 3-8
	B07Q86	S	11/30/92	3-7, 3-8
199-N-88	B07Q87	S	12/03/92	3-9, 3-10
	B07Q88	S	12/03/92	3-9, 3-10
	B07Q89	S	12/03/92	3-9, 3-10
	B07Q90	S	12/04/92	3-11, 3-12
	B07Q91	S	12/04/92	3-11, 3-12
	B07Q92	S	12/04/92	3-11, 3-12
	B07Q93	S	12/07/92	3-13, 3-14
	B07Q94	S	12/07/92	3-13, 3-14
	B07Q95	S	12/08/92	3-13, 3-14
	B07Q96	S	12/08/92	3-13, 3-14
	B07Q97	S	12/08/92	3-19, 3-20
	B07Q98	S	12/08/92	3-13, 3-14
	B07Q99	S	12/08/92	3-13, 3-14
	B07QB0	S	12/09/92	3-13, 3-14
	B07QB1	S	12/09/92	3-13, 3-14
	B07QB2	S	12/10/92	3-13, 3-14
	B07QB3	S	12/10/92	3-13, 3-14
	B07QB4	S	12/14/92	3-24, 3-25
199-N-89	B07QB5	S	12/17/92	3-26, 3-27
	B07QB6	S	12/17/92	3-26, 3-27
	B07QF2	S	01/05/92	3-30, 3-31
	B07SW7	S	01/04/93	3-30, 3-31
	B07SW8	S	01/04/93	3-30, 3-31
	B07SW9	S	01/04/93	3-30, 3-31
	B07SX0	S	01/05/93	3-30, 3-31
	B07SX1	S	01/05/93	3-30, 3-31
	B07SX2	S	01/06/93	3-30, 3-31
	B07SX3	S	01/06/93	3-30, 3-31
	B07WV0	S	01/06/93	3-32, 3-33
	B07WV2	S	01/07/93	3-32, 3-33
	B07WV3	S	01/07/93	3-32, 3-33
	B07WV4	S	01/07/93	3-32, 3-33
	B07WV6	S	01/08/93	3-34, 3-35
	B07WV8	S	01/11/93	3-38, 3-39
	B07WV9	S	01/12/93	3-38, 3-39

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WELL AND SAMPLE INFORMATION				SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	SEMI-VOLATILES
199-N-85	B07QB7	S	01/05/93	3-30, 3-31
	B07SX4	S	01/06/93	3-30, 3-31
	B07WV1	S	01/06/93	3-32, 3-33
	B07WV5	S	01/07/93	3-32, 3-33
	B07WV7	S	01/08/93	3-34, 3-35
	B07WX0	S	01/18/93	3-40, 3-41
	B07WX1	S	01/18/93	3-40, 3-41
	B07WX2	S	01/20/93	3-42, 3-43
	B07WX3	S	01/20/93	3-42, 3-43
	B07WX4	S	01/20/93	3-42, 3-43
	B07WX5	S	01/22/93	3-44, 3-45
	B07WX6	S	01/22/93	3-44, 3-45
199-N-86	B07QB8	S	12/09/92	3-15, 3-16
	B07QB9	S	12/09/92	3-15, 3-16
	B07QC0	S	12/09/92	3-15, 3-16
199-N-87	B07QD7	S	12/16/92	3-26, 3-27
	B07QD8	S	12/16/92	3-26, 3-27
	B07QD9	S	12/17/92	3-26, 3-27
	B07QF0	S	12/17/92	3-26, 3-27

3.0 SEMI-VOLATILE ORGANIC DATA VALIDATION

3.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted and found to be complete:

B07Q93	B07QB4	B07WV6
B07Q97	B07QB5	

3.2 HOLDING TIMES

Analytical holding times were assessed to ascertain whether the holding time requirements for semi-volatile analyses were met by the laboratory. Westinghouse-Hanford protocols require that samples be extracted within seven days of collection and be analyzed within 40 days of extraction (WHC 1991a).

Based upon Westinghouse-Hanford data validation procedures, the seven-day extraction holding time was exceeded for several samples. These samples were flagged "J" and are considered to be estimated. However, these samples meet the requirements of USEPA Data Validation Guidelines, which requires a 14-day extraction holding time.

The seven-day holding time was exceeded for the following samples:

- All samples in SDG No. B07Q93.
- Sample number B07Q97 in SDG No. B07Q97.

Holding time requirements for all other samples were met.

3.3 INSTRUMENT CALIBRATION AND TUNING

3.3.1 GC/MS Tuning/Instrument Performance Check

Tuning is performed to ensure that mass resolution, and to some degree, sensitivity, of the GC/MS instrument has been established. When analyzing for semi volatile organic compounds, the GC/MS is tuned using DFTPP. The GC/MS must be tuned prior to the analysis of either standards or samples, and tuning must meet the criteria established by the analytical protocol. The

specific criteria for acceptable GC/MS tuning using DFTPP are outlined in Westinghouse-Hanford procedures (WHC 1991) and in CLP protocols (EPA 1988a and 1988b).

As a part of data validation, the original tuning data were checked for transcription and calculation errors to verify that tuning and performance criteria were met.

All tuning and performance criteria were met.

3.3.2 Initial Calibration

The GC/MS instrument is calibrated to ensure that it is capable of producing acceptable and reliable analytical data over a range of concentrations. The initial and continuing calibrations are to be performed according to CLP protocols. An initial multipoint calibration is performed prior to sample analysis to establish the linearity range of the GC/MS instrument. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

Instrument response is established by the initial calibration when the RRFs for all target compounds are greater than or equal to 0.05 units. Linearity is established when the RSDs of the RRFs are less than or equal to 30 percent.

All initial calibration results were acceptable.

3.3.3 Continuing Calibration

The criteria for accepting the continuing calibration require that a standard be analyzed at least once per 12 hour period and that the RRFs of all target compounds be greater than or equal to 0.05 units. In addition, the percent difference of these RRFs must be less than or equal to 25 percent of the average RRFs calculated for the associated initial calibration.

All continuing calibration results were acceptable.

3.4 BLANKS

Method blank and field blank analyses are performed to determine the extent of laboratory or field contamination of samples. No contaminants should be present in the blanks. Analytical results for analytes present in any sample at less than 5 times the concentration of that analyte found in associated blanks should be qualified as non-detects; in the case of certain common laboratory contaminants, results less than 10 times blank concentrations should be qualified as non-detects.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for di-n-butylphthalate:

- All samples in SDG No. B07QB5.
- Sample numbers B07WV6 and B07WV7 in SDG No. B07WV6.

All other laboratory blank results were acceptable.

3.5 ACCURACY

Accuracy was assessed by evaluating the recoveries of stable isotopically labeled surrogate compounds added to all samples and blanks, and by the analysis of a representative sample which was spiked with a variety of organic compounds.

3.5.1 Matrix Spike Recovery

Matrix spike compounds are added to a sample which is representative of the sample delivery group. Matrix spike analyses are performed in duplicate using the 11 compounds specified by CLP protocols. All recoveries for the 11 compounds should be within the established QC limits (EPA 1988b). The matrix spike analyses estimate how much the analyses for the target compounds are interfered with, either positively or negatively, by the sample matrix. Because the matrix spike is performed using only one of the samples extracted with the SDG, these data alone cannot be used to evaluate the precision and accuracy of individual samples.

All matrix spike/matrix spike duplicate recovery results were acceptable.

3.5.2 Surrogate Recovery

Surrogate compound recoveries are calculated using analytical results from six stable, isotopically labeled surrogate compounds added to the sample prior to sample preparation and analysis. Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. When recoveries for any two surrogate compounds are out of the control window, all positively identified target compound concentrations in samples associated with the unacceptable surrogate recoveries are qualified as estimates (J) and undetected compounds are qualified estimated below the detection limit (UJ).

Surrogate recovery results were acceptable for all samples.

3.6 PRECISION

The precision is expressed by the RPD between the recoveries of the matrix spike and the matrix spike duplicate analyses performed on a sample, and through a comparison of the results for field duplicate samples. Acceptable control windows for RPD for matrix spike/matrix spike duplicate analyses have been established by the EPA CLP program.

Field precision is measured by analyzing duplicate samples taken in the field. No standards have been established for qualifying data based on RPD for duplicate field samples by CLP protocols. Westinghouse-Hanford procedures establish the following criteria for duplicate field sample analyses for organic compounds, based on criteria established for inorganic analyses for laboratory duplicates:

1. For compounds whose concentrations are greater than 5 times CRQL, RPDs, must be ±20 percent for aqueous samples and ±35 percent for soil samples.

2. When one or more compounds are present at concentrations less than 5 times CRQL, the concentration difference must be ± CRQL for aqueous samples and ± CRQL for soil samples.

The precision results (RPDs) did not meet QC limits for the following compounds:

- Phenol, 2-chlorophenol, 1,4-dichlorobenzene, N-nitroso-di-n-propylamine, 1,2,4-trichlorobenzene, 4-chloro-3-methylphenol, acenaphthene, 4-nitrophenol, 2,4-dinitrotoluene and pentachlorophenol in sample number B07Q97 in SDG No. B07Q97.

All associated sample results were qualified as estimates and flagged "J".

All other matrix spike/matrix spike duplicate RPD results were acceptable for all samples.

3.7 SYSTEM PERFORMANCE

Internal standard performance was assessed to determine whether abrupt changes in instrument response and sensitivity occurred that may have affected the reliability of the analytical data. The response (area or height) of the internal standards must not vary by more than -50 percent or +100 percent from the response of the calibration standard that was used to calculate the upper and lower bounds. The upper and lower bounds define the range for acceptable internal standard response (area/height) for the sample analyses. In addition, retention times for the

internal standard must not vary more than ±30 seconds from that of the associated calibration standard.

All internal standard results were acceptable.

3.8 COMPOUND IDENTIFICATION AND QUANTITATION

The identities of detected compounds were confirmed to investigate the possibility of false positives. The confirmation of compound identification during the QA review focuses on false positives because only mass spectra for positive identifications are submitted. However, target compounds that are reported as undetected are also evaluated to investigate the possibility of false negatives. Confirmation of possible false negatives is addressed by reviewing other factors relating to analytical sensitivity (e.g., detection limits, linearity, analytical recovery). Compound retention times and mass spectra must match those for the standard within set to tolerance limits (EPA 1988b).

3.8.1 Reported Results and Quantitation Limits

Compound quantitations and reported detection limits were recalculated and verified to ensure that they are accurate and are consistent with the internal standards and relative retention times specified by the CLP scope of work.

At concentrations below the CRQL, instrument precision becomes more variable as the IDL is approached. Therefore, the concentrations of any compound detected below the CRQL are qualified as estimates.

All compound identifications and quantitations have been verified as correct.

3.8.2 Tentatively Identified Compounds

Several TICs were identified in the blanks and samples which were flagged "U" according to Westinghouse-Hanford protocols; if the sample result was ±0.06 RRT from that of the blank and if the sample result was less than 5 times the highest blank concentration.

This action is contrary to EPA policy, which indicates that TIC results shown to be due to the presence of blank contamination are flagged "R".

3.9 OVERALL ASSESSMENT AND SUMMARY

A thorough review of ongoing data acquisition and instrument performance criteria was made to assess overall GC/MS instrument performance. No changes in instrument performance were noted that would result in the degradation of data quality. No indications of unacceptable instrument performance (i.e., shifts in baseline stability, retention time shifts, extraneous peaks, sensitivity) were found during the quality assurance review.

In general, the semi-volatile data presented in this report met the protocol-specified QA/QC requirements. Minor laboratory blank contamination was detected in several samples. The sample to extraction holding time was exceeded, though not grossly exceeded, for several samples. As required by Westinghouse-Hanford protocols, all results for these samples were flagged "J" and are considered to be estimates. Precision results for several BNA compounds did not meet QC limits for one samples. All associated sample results were qualified as estimates and flagged "J". The data are considered valid and usable within the standard error associated with the method. All other results are considered to be acceptable and usable for all purposes.

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q83																				
Sample Number		B07Q83		B07Q84		B07Q85		B07Q86													
Location		199-N-84		199-N-84		199-N-84		199-N-84													
Remarks		NV		NV		NV		NV													
Sample Date		11/30/92		11/30/92		11/30/92		11/30/92													
Extraction Date		12/04/92		12/04/92		12/04/92		12/04/92													
Analysis Date		12/16/92		12/16/92		12/16/92		12/16/92													
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	330	350	U	350	U	340	U	340	U												
bis(2-Chloroethyl)ether	330	350	U	350	U	340	U	340	U												
2-Chlorophenol	330	350	U	350	U	340	U	340	U												
1,3-Dichlorobenzene	330	350	U	350	U	340	U	340	U												
1,4-Dichlorobenzene	330	350	U	350	U	340	U	340	U												
Benzyl Alcohol	330	350	U	350	U	340	U	340	U												
1,2-Dichlorobenzene	330	350	U	350	U	340	U	340	U												
2-Methylphenol	330	350	U	350	U	340	U	340	U												
bis(2-Chloroisopropyl)Ether	330	350	U	350	U	340	U	340	U												
4-Methylphenol	330	350	U	350	U	340	U	340	U												
N-Nitroso-di-n-propylamine	330	350	U	350	U	340	U	340	U												
Hexachloroethane	330	350	U	350	U	340	U	340	U												
Nitrobenzene	330	350	U	350	U	340	U	340	U												
Isophorone	330	350	U	350	U	340	U	340	U												
2-Nitrophenol	330	350	U	350	U	340	U	340	U												
2,4-Dimethylphenol	330	350	U	350	U	340	U	340	U												
bis(2-Chloroethoxy)methane	330	350	U	350	U	340	U	340	U												
2,4-Dichlorophenol	330	350	U	350	U	340	U	340	U												
1,2,4-Trichlorobenzene	330	350	U	350	U	340	U	340	U												
Naphthalene	330	350	U	350	U	340	U	340	U												
4-Chloroaniline	330	350	U	350	U	340	U	340	U												
Hexachlorobutadiene	330	350	U	350	U	340	U	340	U												
4-Chloro-3-methylphenol	330	350	U	350	U	340	U	340	U												
2-Methylnaphthalene	330	350	U	350	U	340	U	340	U												
Hexachlorocyclopentadiene	330	350	U	350	U	340	U	340	U												
2,4,6-Trichlorophenol	330	350	U	350	U	340	U	340	U												
2,4,5-Trichlorophenol	1700	850	U	840	U	830	U	820	U												
2-Chloronaphthalene	330	350	U	350	U	340	U	340	U												
2-Nitroaniline	1700	850	U	840	U	830	U	820	U												
Dimethylphthalate	330	350	U	350	U	340	U	340	U												
Acenaphthylene	330	350	U	350	U	340	U	340	U												

N\ ɔt Validated

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q83																				
Sample Number		B07Q83		B07Q84		B07Q85		B07Q86													
Location		199-N-84		199-N-84		199-N-84		199-N-84													
Remarks		NV		NV		NV		NV													
Sample Date		11/30/92		11/30/92		11/30/92		11/30/92													
Extraction Date		12/04/92		12/04/92		12/04/92		12/04/92													
Analysis Date		12/16/92		12/16/92		12/16/92		12/16/92													
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline	1700	850	U	840	U	830	U	820	U												
Acenaphthene	330	350	U	350	U	340	U	340	U												
2,4-Dinitrophenol	1700	850	U	850	U	830	U	820	U												
4-Nitrophenol	1700	850	U	840	U	830	U	820	U												
Dibenzofuran	330	350	U	350	U	340	U	340	U												
2,4-Dinitrotoluene	330	350	U	350	U	340	U	340	U												
2,6-Dinitrotoluene	330	350	U	350	U	340	U	340	U												
Diethylphthalate	330	350	U	350	U	340	U	340	U												
4-Chlorophenyl-phenyl ether	330	350	U	350	U	340	U	340	U												
Fluorene	330	350	U	350	U	340	U	340	U												
4-Nitroaniline	1700	850	U	840	U	830	U	820	U												
4,6-Dinitro-2-methylphenol	1700	850	U	840	U	830	U	820	U												
N-Nitrosodiphenylamine	330	350	U	350	U	340	U	340	U												
4-Bromophenyl-phenylether	330	350	U	350	U	340	U	340	U												
Hexachlorobenzene	330	350	U	350	U	340	U	340	U												
Pentachlorophenol	1700	850	U	840	U	830	U	820	U												
Phenanthrene	330	350	U	350	U	340	U	340	U												
Anthracene	330	350	U	350	U	340	U	340	U												
Carbazole	330	350	U	350	U	340	U	340	U												
Di-n-butylphthalate	330	350	U	350	U	340	U	340	U												
Fluoranthene	330	350	U	350	U	340	U	340	U												
Pyrene	330	350	U	350	U	340	U	340	U												
Butylbenzylphthalate	330	350	U	350	U	340	U	340	U												
3,3'-Dichlorobenzidine	330	350	U	350	U	340	U	340	U												
Benz(a)anthracene	330	350	U	350	U	340	U	340	U												
bis(2-Ethylhexyl)phthalate	330	350	U	350	U	340	U	340	U												
Chrysene	330	350	U	350	U	340	U	340	U												
Di-n-octylphthalate	330	350	U	350	U	340	U	340	U												
Benzo(b)fluoranthene	330	350	U	350	U	340	U	340	U												
Benzo(k)fluoranthene	330	350	U	350	U	340	U	340	U												
Benzo(a)pyrene	330	350	U	350	U	340	U	340	U												
Indeno(1,2,3-cd)pyrene	330	350	U	350	U	340	U	340	U												
Dibenz(a,h)anthracene	330	350	U	350	U	340	U	340	U												
Benzo(g,h,i)perylene	330	350	U	350	U	340	U	340	U												

NV = Not Validated

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q87																				
Sample Number		B07Q87		B07Q88		B07Q89															
Location		199-N-88		199-N-88		199-N-88															
Remarks		NV		NV		NV															
Sample Date		12/03/92		12/03/92		12/03/92															
Extraction Date		12/11/92		12/11/92		12/11/92															
Analysis Date		12/23/92		12/23/92		12/23/92															
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	330	350	U	340	U	360	U														
bis(2-Chloroethyl)ether	330	350	U	340	U	360	U														
2-Chlorophenol	330	350	U	340	U	360	U														
1,3-Dichlorobenzene	330	350	U	340	U	360	U														
1,4-Dichlorobenzene	330	350	U	340	U	360	U														
Carbazole	330	350	U	340	U	360	U														
1,2-Dichlorobenzene	330	350	U	340	U	360	U														
2-Methylphenol	330	350	U	340	U	360	U														
bis(2-Chloroisopropyl)Ether	330	350	U	340	U	360	U														
4-Methylphenol	330	350	U	340	U	360	U														
N-Nitroso-di-n-propylamine	330	350	U	340	U	360	U														
Hexachloroethane	330	350	U	340	U	360	U														
Nitrobenzene	330	350	U	340	U	360	U														
Isophorone	330	350	U	340	U	360	U														
2-Nitrophenol	330	350	U	340	U	360	U														
2,4-Dimethylphenol	330	350	U	340	U	360	U														
bis(2-Chloroethoxy)methane	330	350	U	340	U	360	U														
2,4-Dichlorophenol	330	350	U	340	U	360	U														
1,2,4-Trichlorobenzene	330	350	U	340	U	360	U														
Naphthalene	330	350	U	340	U	360	U														
4-Chloroaniline	330	350	U	340	U	360	U														
Hexachlorobutadiene	330	350	U	340	U	360	U														
4-Chloro-3-methylphenol	330	350	U	340	U	360	U														
2-Methylnaphthalene	330	350	U	340	U	360	U														
Hexachlorocyclopentadiene	330	350	U	340	U	360	U														
2,4,6-Trichlorophenol	330	350	U	340	U	360	U														
2,4,5-Trichlorophenol	1700	850	U	830	U	870	U														
2-Chloronaphthalene	330	350	U	340	U	360	U														
2-Nitroaniline	1700	850	U	830	U	870	U														
Dimethylphthalate	330	350	U	340	U	360	U														
Acenaphthylene	330	350	U	340	U	360	U														
2,6-Dinitrotoluene	330	350	U	340	U	360	U														

N' 'ot Validated

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q88																				
Sample Number		B07Q87		B07Q88		B07Q89															
Location		199-N-88		199-N-88		199-N-88															
Remarks		NV		NV		NV															
Sample Date		12/03/92		12/03/92		12/03/92															
Extraction Date		12/11/92		12/11/92		12/11/92															
Analysis Date		12/23/92		12/23/92		12/23/92															
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline	1700	850	U	830	U	870	U														
Acenaphthene	330	350	U	340	U	360	U														
2,4-Dinitrophenol	1700	850	U	830	U	870	U														
4-Nitrophenol	1700	850	U	830	U	870	U														
Dibenzofuran	330	350	U	340	U	360	U														
2,4-Dinitrotoluene	330	350	U	340	U	360	U														
Diethylphthalate	330	350	U	340	U	360	U														
4-Chlorophenyl-phenyl ether	330	350	U	340	U	360	U														
Fluorene	330	350	U	340	U	360	U														
4-Nitroaniline	1700	850	U	830	U	870	U														
4,6-Dinitro-2-methylphenol	1700	850	U	830	U	870	U														
N-Nitrosodiphenylamine	330	350	U	340	U	360	U														
4-Bromophenyl-phenylether	330	350	U	340	U	360	U														
Hexachlorobenzene	330	350	U	340	U	360	U														
Pentachlorophenol	1700	850	U	830	U	870	U														
Phenanthrene	330	350	U	340	U	360	U														
Anthracene	330	350	U	340	U	360	U														
Di-n-butylphthalate	330	350	U	170	U	360	U														
Fluoranthene	330	350	U	340	U	360	U														
Pyrene	330	350	U	340	U	360	U														
Butylbenzylphthalate	330	350	U	340	U	360	U														
3,3'-Dichlorobenzidine	330	350	U	340	U	360	U														
Benz(a)anthracene	330	350	U	340	U	360	U														
Chrysene	330	350	U	340	U	360	U														
bis(2-Ethylhexyl)phthalate	330	350	U	340	U	360	U														
Di-n-octylphthalate	330	350	U	340	U	360	U														
Benzo(b)fluoranthene	330	350	U	340	U	360	U														
Benzo(k)fluoranthene	330	350	U	340	U	360	U														
Benzo(a)pyrene	330	350	U	340	U	360	U														
Indeno(1,2,3-cd)pyrene	330	350	U	340	U	360	U														
Dibenz(a,h)anthracene	330	350	U	340	U	360	U														
Benzo(g,h,i)perylene	330	350	U	340	U	360	U														

NV = Not Validated

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q90																				
Sample Number		B07Q90		B07Q91		B07Q92															
Location		199-N-88		199-N-88		199-N-88															
Remarks		NV		NV		NV															
Sample Date		12/04/92		12/04/92		12/04/92															
Extraction Date		12/12/92		12/12/92		12/12/92															
Analysis Date		12/21/92		12/21/92		12/21/92															
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	330	350	U	360	U	340	U														
bis(2-Chloroethyl)ether	330	350	U	360	U	340	U														
2-Chlorophenol	330	350	U	360	U	340	U														
1,3-Dichlorobenzene	330	350	U	360	U	340	U														
1,4-Dichlorobenzene	330	350	U	360	U	340	U														
Benzyl Alcohol	330	350	U	360	U	340	U														
1,2-Dichlorobenzene	330	350	U	360	U	340	U														
2-Methylphenol	330	350	U	360	U	340	U														
bis(2-Chloroisopropyl)Ether	330	350	U	360	U	340	U														
4-Methylphenol	330	350	U	360	U	340	U														
N-Nitroso-di-n-propylamine	330	350	U	360	U	340	U														
Hexachloroethane	330	350	U	360	U	340	U														
Nitrobenzene	330	350	U	360	U	340	U														
Isophorone	330	350	U	360	U	340	U														
2-Nitrophenol	330	350	U	360	U	340	U														
2,4-Dimethylphenol	330	350	U	360	U	340	U														
bis(2-Chloroethoxy)methane	330	350	U	360	U	340	U														
2,4-Dichlorophenol	330	350	U	360	U	340	U														
1,2,4-Trichlorobenzene	330	350	U	360	U	340	U														
Naphthalene	330	350	U	360	U	340	U														
4-Chloroaniline	330	350	U	360	U	340	U														
Hexachlorobutadiene	330	350	U	360	U	340	U														
4-Chloro-3-methylphenol	330	350	U	360	U	340	U														
2-Methylnaphthalene	330	350	U	360	U	340	U														
Hexachlorocyclopentadiene	330	350	U	360	U	340	U														
2,4,6-Trichlorophenol	330	350	U	360	U	340	U														
2,4,5-Trichlorophenol	1700	850	U	870	U	830	U														
2-Chloronaphthalene	330	350	U	360	U	340	U														
2-Nitroaniline	1700	850	U	870	U	830	U														
Dimethylphthalate	330	350	U	360	U	340	U														
Acenaphthylene	330	350	U	360	U	340	U														

N' ot Validated

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q90																				
Sample Number		B07Q90		B07Q91		B07Q92															
Location		199-N-88		199-N-88		199-N-88															
Remarks		NV		NV		NV															
Sample Date		12/04/92		12/04/92		12/04/92															
Extraction Date		12/12/92		12/12/92		12/12/92															
Analysis Date		12/21/92		12/21/92		12/21/92															
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline	1700	850	U	870	U	830	U														
Acenaphthene	330	350	U	360	U	340	U														
2,4-Dinitrophenol	1700	850	U	870	U	830	U														
4-Nitrophenol	1700	850	U	870	U	830	U														
Dibenzofuran	330	350	U	360	U	340	U														
2,4-Dinitrotoluene	330	350	U	360	U	340	U														
2,6-Dinitrotoluene	330	350	U	360	U	340	U														
Diethylphthalate	330	350	U	360	U	340	U														
4-Chlorophenyl-phenyl ether	330	350	U	360	U	340	U														
Fluorene	330	350	U	360	U	340	U														
4-Nitroaniline	1700	850	U	870	U	830	U														
4,6-Dinitro-2-methylphenol	1700	850	U	870	U	830	U														
N-Nitrosodiphenylamine	330	350	U	360	U	340	U														
4-Bromophenyl-phenylether	330	350	U	360	U	340	U														
Hexachlorobenzene	330	350	U	360	U	340	U														
Pentachlorophenol	1700	850	U	870	U	830	U														
Phenanthrene	330	350	U	360	U	340	U														
Anthracene	330	350	U	360	U	340	U														
Carbazole	330	350	U	360	U	340	U														
Di-n-butylphthalate	330	350	U	360	U	340	U														
Fluoranthene	330	350	U	360	U	340	U														
Pyrene	330	350	U	360	U	340	U														
Butylbenzylphthalate	330	350	U	360	U	340	U														
3,3'-Dichlorobenzidine	330	350	U	360	U	340	U														
Benz(a)anthracene	330	350	U	360	U	340	U														
bis(2-Ethylhexyl)phthalate	330	350	U	360	U	340	U														
Chrysene	330	350	U	360	U	340	U														
Di-n-octylphthalate	330	350	U	360	U	340	U														
Benzo(b)fluoranthene	330	350	U	360	U	340	U														
Benzo(k)fluoranthene	330	350	U	360	U	340	U														
Benzo(a)pyrene	330	350	U	360	U	340	U														
Indeno(1,2,3-cd)pyrene	330	350	U	360	U	340	U														
Dibenz(a,h)anthracene	330	350	U	360	U	340	U														
Benzo(g,h,i)perylene	330	350	U	360	U	340	U														

NV = Not Validated

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q93																				
Sample Number		B07Q93		B07Q94		B07Q95		B07Q96		B07Q98		B07Q99		B07QB0		B07QB1		B07QB2		B07QB3	
Location		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88	
Remarks																					
Sample Date		12/07/92		12/07/92		12/08/92		12/08/92		12/08/92		12/08/92		12/09/92		12/09/92		12/10/92		12/10/92	
Extraction Date		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92	
Analysis Date		12/30/92		12/30/92		12/30/92		12/31/92		12/31/92		12/31/92		12/30/92		12/30/92		12/31/92		12/31/92	
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
bis(2-Chloroethyl)ether	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
2-Chlorophenol	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
1,3-Dichlorobenzene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
1,4-Dichlorobenzene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
Benzyl Alcohol	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
1,2-Dichlorobenzene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
2-Methylphenol	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
bis(2-Chloroisopropyl)Ether	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
4-Methylphenol	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
N-Nitroso-di-n-propylamine	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
Hexachloroethane	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
Nitrobenzene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
Isophorone	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
2-Nitrophenol	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
2,4-Dimethylphenol	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
Benzoic acid	1700	850	UJ	820	UJ	830	UJ	820	UJ	830	UJ	810	UJ	820	UJ	810	UJ	820	UJ	940	UJ
bis(2-Chloroethoxy)methane	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
2,4-Dichlorophenol	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
1,2,4-Trichlorobenzene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
Naphthalene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
4-Chloroaniline	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
Hexachlorobutadiene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
4-Chloro-3-methylphenol	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
2-Methylnaphthalene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
Hexachlorocyclopentadiene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
2,4,6-Trichlorophenol	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
2,4,5-Trichlorophenol	1700	850	UJ	820	UJ	830	UJ	820	UJ	830	UJ	810	UJ	820	UJ	810	UJ	820	UJ	940	UJ
2-Chloronaphthalene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
2-Nitroaniline	1700	850	UJ	820	UJ	830	UJ	820	UJ	830	UJ	810	UJ	820	UJ	810	UJ	820	UJ	940	UJ
Dimethylphthalate	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
Acenaphthylene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ
2,6-Dinitrotoluene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																							
Laboratory: TMA																							
Case	SDG: B07Q93																						
Sample Number		B07Q93		B07Q94		B07Q95		B07Q96		B07Q98		B07Q99		B07QB0		B07QB1		B07QB2		B07QB3			
Location		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88			
Remarks																							
Sample Date		12/07/92		12/07/92		12/08/92		12/08/92		12/08/92		12/08/92		12/09/92		12/09/92		12/10/92		12/10/92			
Extraction Date		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92			
Analysis Date		12/30/92		12/30/92		12/30/92		12/31/92		12/31/92		12/31/92		12/30/92		12/30/92		12/31/92		12/31/92			
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q		
3-Nitroaniline	1700	850	UJ	820	UJ	830	UJ	820	UJ	830	UJ	810	UJ	820	UJ	810	UJ	820	UJ	940	UJ		
Acenaphthene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
2,4-Dinitrophenol	1700	850	UJ	820	UJ	830	UJ	820	UJ	830	UJ	810	UJ	820	UJ	810	UJ	820	UJ	940	UJ		
4-Nitrophenol	1700	850	UJ	820	UJ	830	UJ	820	UJ	830	UJ	810	UJ	820	UJ	810	UJ	820	UJ	940	UJ		
Dibenzofuran	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
2,4-Dinitrotoluene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
Diethylphthalate	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
4-Chlorophenyl-phenyl ether	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
Fluorene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
4-Nitroaniline	1700	850	UJ	820	UJ	830	UJ	820	UJ	830	UJ	810	UJ	820	UJ	810	UJ	820	UJ	940	UJ		
4,6-Dinitro-2-methylphenol	1700	850	UJ	820	UJ	830	UJ	820	UJ	830	UJ	810	UJ	820	UJ	810	UJ	820	UJ	940	UJ		
N-Nitrosodiphenylamine	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
4-Bromophenyl-phenylether	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
Hexachlorobenzene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
Pentachlorophenol	1700	850	UJ	820	UJ	830	UJ	820	UJ	830	UJ	810	UJ	820	UJ	810	UJ	820	UJ	940	UJ		
Phenanthrene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
Anthracene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
Di-n-butylphthalate	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
Fluoranthene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
Pyrene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
Butylbenzylphthalate	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
3,3'-Dichlorobenzidine	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
Benz(a)anthracene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
Chrysene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
bis(2-Ethylhexyl)phthalate	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
Di-n-octylphthalate	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
Benzo(b)fluoranthene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
Benzo(k)fluoranthene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
Benzo(a)pyrene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
Indeno(1,2,3-cd)pyrene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
Dibenz(a,h)anthracene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		
Benzo(g,h,i)perylene	330	350	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	390	UJ		

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q93																				
Sample Number		B07QB8		B07QB9		B07QC0															
Location		199-N-86		199-N-86		199-N-86															
Remarks																					
Sample Date		12/09/92		12/09/92		12/09/92															
Extraction Date		12/21/92		12/21/92		12/21/92															
Analysis Date		12/31/92		12/31/92		12/31/92															
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	330	350	UJ	340	UJ	340	UJ														
bis(2-Chloroethyl)ether	330	350	UJ	340	UJ	340	UJ														
2-Chlorophenol	330	350	UJ	340	UJ	340	UJ														
1,3-Dichlorobenzene	330	350	UJ	340	UJ	340	UJ														
1,4-Dichlorobenzene	330	350	UJ	340	UJ	340	UJ														
Benzyl Alcohol	330	350	UJ	340	UJ	340	UJ														
1,2-Dichlorobenzene	330	350	UJ	340	UJ	340	UJ														
2-Methylphenol	330	350	UJ	340	UJ	340	UJ														
bis(2-Chloroisopropyl)Ether	330	350	UJ	340	UJ	340	UJ														
4-Methylphenol	330	350	UJ	340	UJ	340	UJ														
N-Nitroso-di-n-propylamine	330	350	UJ	340	UJ	340	UJ														
Hexachloroethane	330	350	UJ	340	UJ	340	UJ														
Nitrobenzene	330	350	UJ	340	UJ	340	UJ														
Isophorone	330	350	UJ	340	UJ	340	UJ														
2-Nitrophenol	330	350	UJ	340	UJ	340	UJ														
2,4-Dimethylphenol	330	350	UJ	340	UJ	340	UJ														
Benzoic acid	1700	840	UJ	830	UJ	830	UJ														
bis(2-Chloroethoxy)methane	330	350	UJ	340	UJ	340	UJ														
2,4-Dichlorophenol	330	350	UJ	340	UJ	340	UJ														
1,2,4-Trichlorobenzene	330	350	UJ	340	UJ	340	UJ														
Naphthalene	330	350	UJ	340	UJ	340	UJ														
4-Chloroaniline	330	350	UJ	340	UJ	340	UJ														
Hexachlorobutadiene	330	350	UJ	340	UJ	340	UJ														
4-Chloro-3-methylphenol	330	350	UJ	340	UJ	340	UJ														
2-Methylnaphthalene	330	350	UJ	340	UJ	340	UJ														
Hexachlorocyclopentadiene	330	350	UJ	340	UJ	340	UJ														
2,4,6-Trichlorophenol	330	350	UJ	340	UJ	340	UJ														
2,4,5-Trichlorophenol	1700	840	UJ	830	UJ	830	UJ														
2-Chloronaphthalene	330	350	UJ	340	UJ	340	UJ														
2-Nitroaniline	1700	840	UJ	830	UJ	830	UJ														
Dimethylphthalate	330	350	UJ	340	UJ	340	UJ														
Acenaphthylene	330	350	UJ	340	UJ	340	UJ														
2,6-Dinitrotoluene	330	350	UJ	340	UJ	340	UJ														

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q93																				
Sample Number		B07QB8		B07QB9		B07QC0															
Location		199-N-86		199-N-86		199-N-86															
Remarks																					
Sample Date		12/09/92		12/09/92		12/09/92															
Extraction Date		12/21/92		12/21/92		12/21/92															
Analysis Date		12/31/92		12/31/92		12/31/92															
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline	1700	840	UJ	830	UJ	830	UJ														
Acenaphthene	330	350	UJ	340	UJ	340	UJ														
2,4-Dinitrophenol	1700	840	UJ	830	UJ	830	UJ														
4-Nitrophenol	1700	840	UJ	830	UJ	830	UJ														
Dibenzofuran	330	350	UJ	340	UJ	340	UJ														
2,4-Dinitrotoluene	330	350	UJ	340	UJ	340	UJ														
Diethylphthalate	330	350	UJ	340	UJ	340	UJ														
4-Chlorophenyl-phenyl ether	330	350	UJ	340	UJ	340	UJ														
Fluorene	330	350	UJ	340	UJ	340	UJ														
4-Nitroaniline	1700	840	UJ	830	UJ	830	UJ														
4,6-Dinitro-2-methylphenol	1700	840	UJ	830	UJ	830	UJ														
N-Nitrosodiphenylamine	330	350	UJ	340	UJ	340	UJ														
4-Bromophenyl-phenylether	330	350	UJ	340	UJ	340	UJ														
Hexachlorobenzene	330	350	UJ	340	UJ	340	UJ														
Pentachlorophenol	1700	840	UJ	830	UJ	830	UJ														
Phenanthrene	330	350	UJ	340	UJ	340	UJ														
Anthracene	330	350	UJ	340	UJ	340	UJ														
Di-n-butylphthalate	330	350	UJ	340	UJ	340	UJ														
Fluoranthene	330	350	UJ	340	UJ	340	UJ														
Pyrene	330	350	UJ	340	UJ	340	UJ														
Butylbenzylphthalate	330	350	UJ	340	UJ	340	UJ														
3,3'-Dichlorobenzidine	330	350	UJ	340	UJ	340	UJ														
Benz(a)anthracene	330	350	UJ	340	UJ	340	UJ														
Chrysene	330	350	UJ	340	UJ	340	UJ														
bis(2-Ethylhexyl)phthalate	330	350	UJ	340	UJ	340	UJ														
Di-n-octylphthalate	330	350	UJ	340	UJ	340	UJ														
Benzo(b)fluoranthene	330	350	UJ	340	UJ	340	UJ														
Benzo(k)fluoranthene	330	350	UJ	340	UJ	340	UJ														
Benzo(a)pyrene	330	350	UJ	340	UJ	340	UJ														
Indeno(1,2,3-cd)pyrene	330	350	UJ	340	UJ	340	UJ														
Dibenz(a,h)anthracene	330	350	UJ	340	UJ	340	UJ														
Benzo(g,h,i)perylene	330	350	UJ	340	UJ	340	UJ														

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HOLDING TIME SUMMARY

SDG: B07Q93	REVIEWER: RB			DATE: 04/12/93		PAGE 1 OF 1	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07Q93	BNA	12/07/92	12/21/92	12/30/92	7	40	J
B07Q94	BNA	12/07/92	12/21/92	12/30/92	7	40	J
B07Q95	BNA	12/08/92	12/21/92	12/30/92	7	40	J
B07Q96	BNA	12/08/92	12/21/92	12/30/92	7	40	J
B07Q98	BNA	12/08/92	12/21/92	12/31/92	7	40	J
B07Q99	BNA	12/08/92	12/21/92	12/31/92	7	40	J
B07QB0	BNA	12/09/92	12/21/92	12/30/92	7	40	J
B07QB1	BNA	12/09/92	12/21/92	12/30/92	7	40	J
B07QB2	BNA	12/10/92	12/21/92	12/31/92	7	40	J
B07QB3	BNA	12/10/92	12/21/92	12/31/92	7	40	J
B07QB8	BNA	12/09/92	12/21/92	12/31/92	7	40	J
B07QB9	BNA	12/09/92	12/21/92	12/31/92	7	40	J
B07QC0	BNA	12/09/92	12/21/92	12/31/92	7	40	J

DATA QUALIFICATION SUMMARY

SDG: B07Q93	REVIEWER: RB	DATE: 04/12/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
All BNA compounds	J	All	Holding Times Exceeded

9 3 1 2 9 3 5 0 2 2 0

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																						
Laboratory: Roy F. Weston																						
Case	SDG: B07Q97																					
Sample Number		B07Q97																				
Location		199-N-88																				
Remarks		Split																				
Sample Date		12/08/92																				
Extraction Date		12/18/92																				
Analysis Date		01/11/93																				
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
Phenol	330	340	UJ																			
bis(2-Chloroethyl)ether	330	340	UJ																			
2-Chlorophenol	330	340	UJ																			
1,3-Dichlorobenzene	330	340	UJ																			
1,4-Dichlorobenzene	330	340	UJ																			
1,2-Dichlorobenzene	330	340	UJ																			
2-Methylphenol	330	340	UJ																			
2,2'-oxybis(1-Chloropropane)	330	340	UJ																			
4-Methylphenol	330	340	UJ																			
N-Nitroso-di-n-propylamine	330	340	UJ																			
Hexachloroethane	330	340	UJ																			
Nitrobenzene	330	340	UJ																			
Isophorone	330	340	UJ																			
2-Nitrophenol	330	340	UJ																			
2,4-Dimethylphenol	330	340	UJ																			
bis(2-Chloroethoxy)methane	330	340	UJ																			
2,4-Dichlorophenol	330	340	UJ																			
1,2,4-Trichlorobenzene	330	340	UJ																			
Naphthalene	330	340	UJ																			
4-Chloroaniline	330	340	UJ																			
Hexachlorobutadiene	330	340	UJ																			
4-Chloro-3-methylphenol	330	340	UJ																			
2-Methylnaphthalene	330	340	UJ																			
Hexachlorocyclopentadiene	330	340	UJ																			
2,4,6-Trichlorophenol	330	340	UJ																			
2,4,5-Trichlorophenol	1700	850	UJ																			
2-Chloronaphthalene	330	340	UJ																			
2-Nitroaniline	1700	850	UJ																			
Dimethylphthalate	330	340	UJ																			
Acenaphthylene	330	340	UJ																			
2,6-Dinitrotoluene	330	340	UJ																			
3-Nitroaniline	1700	850	UJ																			
Acenaphthene	330	340	UJ																			

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																						
Laboratory: Roy F. Weston																						
Case	SDG: B07Q97																					
Sample Number		B07Q97																				
Location		199-N-88																				
Remarks		Split																				
Sample Date		12/08/92																				
Extraction Date		12/18/92																				
Analysis Date		01/11/93																				
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
2,4-Dinitrophenol	1700	850	UJ																			
4-Nitrophenol	1700	850	UJ																			
Dibenzofuran	330	340	UJ																			
2,4-Dinitrotoluene	330	340	UJ																			
Diethylphthalate	330	340	UJ																			
4-Chlorophenyl-phenyl ether	330	340	UJ																			
Fluorene	330	340	UJ																			
4-Nitroaniline	1700	850	UJ																			
4,6-Dinitro-2-methylphenol	1700	850	UJ																			
N-Nitrosodiphenylamine	330	340	UJ																			
4-Bromophenyl-phenylether	330	340	UJ																			
Hexachlorobenzene	330	340	UJ																			
Pentachlorophenol	1700	850	UJ																			
Phenanthrene	330	340	UJ																			
Anthracene	330	340	UJ																			
Carbazole	330	340	UJ																			
Di-n-butylphthalate	330	68	UJ																			
Fluoranthene	330	340	UJ																			
Pyrene	330	340	UJ																			
Butylbenzylphthalate	330	340	UJ																			
3,3'-Dichlorobenzidine	330	340	UJ																			
Benz(a)anthracene	330	340	UJ																			
Chrysene	330	340	UJ																			
bis(2-Ethylhexyl)phthalate	330	150	UJ																			
Di-n-octylphthalate	330	340	UJ																			
Benzo(b)fluoranthene	330	340	UJ																			
Benzo(k)fluoranthene	330	340	UJ																			
Benzo(a)pyrene	330	150	UJ																			
Indeno(1,2,3-cd)pyrene	330	340	UJ																			
Dibenz(a,h)anthracene	330	340	UJ																			
Benzo(g,h,i)perylene	330	340	UJ																			

HOLDING TIME SUMMARY

SDG: B07Q97	REVIEWER: SC			DATE: 4/21/93		PAGE 1 OF 1	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07Q97	BNA	12/8/92	12/18/92	1/11/93	7	40	J

PRECISION DATA SUMMARY

SDG: B07Q97	REVIEWER: SC	DATE: 4/21/93	PAGE 1 OF 1		
COMMENTS:					
COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
Phenol	B07Q97MS	B07Q97MSD	45	B07Q97	J
2-Chlorophenol	B07Q97MS	B07Q97MSD	60	B07Q97	J
1,4-Dichlorobenzene	B07Q97MS	B07Q97MSD	50	B07Q97	J
N-Nitroso-di-n-propylamine	B07Q97MS	B07Q97MSD	57	B07Q97	J
1,2,4-Trichlorobenzene	B07Q97MS	B07Q97MSD	52	B07Q97	J
4-Chloro-3-methylphenol	B07Q97MS	B07Q97MSD	50	B07Q97	J
Acenaphthene	B07Q97MS	B07Q97MSD	52	B07Q97	J
4-Nitrophenol	B07Q97MS	B07Q97MSD	54	B07Q97	J
2,4-Dinitrotoluene	B07Q97MS	B07Q97MSD	55	B07Q97	J
Pentachlorophenol	B07Q97MS	B07Q97MSD	53	B07Q97	J

DATA QUALIFICATION SUMMARY

SDG: B07Q97	REVIEWER: SC	DATE: 4/21/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
All BNA compounds	J	B07Q97	Precision problems
All BNA compounds	J	B07Q97	Holding times exceeded

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																							
Laboratory: TMA																							
Case	SDG: B07QB4																						
Sample Number		B07QB4																					
Location		199-N-88																					
Remarks																							
Sample Date		12/14/92																					
Extraction Date		12/17/92																					
Analysis Date		12/22/92																					
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	10	10	U																				
bis(2-Chloroethyl)ether	10	10	U																				
2-Chlorophenol	10	10	U																				
1,3-Dichlorobenzene	10	10	U																				
1,4-Dichlorobenzene	10	10	U																				
Benzyl Alcohol	10	10	U																				
1,2-Dichlorobenzene	10	10	U																				
2-Methylphenol	10	10	U																				
bis(2-Chloroisopropyl)Ether	10	10	U																				
4-Methylphenol	10	10	U																				
N-Nitroso-di-n-propylamine	10	10	U																				
Hexachloroethane	10	10	U																				
Nitrobenzene	10	10	U																				
Isophorone	10	10	U																				
2-Nitrophenol	10	10	U																				
2,4-Dimethylphenol	10	10	U																				
bis(2-Chloroethoxy)methane	10	10	U																				
2,4-Dichlorophenol	10	10	U																				
1,2,4-Trichlorobenzene	10	10	U																				
Naphthalene	10	10	U																				
4-Chloroaniline	10	10	U																				
Hexachlorobutadiene	10	10	U																				
4-Chloro-3-methylphenol	10	10	U																				
2-Methylnaphthalene	10	10	U																				
Hexachlorocyclopentadiene	10	10	U																				
2,4,6-Trichlorophenol	10	10	U																				
2,4,5-Trichlorophenol	50	25	U																				
2-Chloronaphthalene	10	10	U																				
2-Nitroaniline	50	25	U																				
Dimethylphthalate	10	10	U																				
Acenaphthylene	10	10	U																				

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07QB4																				
Sample Number		B07QB4																			
Location		199-N-88																			
Remarks																					
Sample Date		12/14/92																			
Extraction Date		12/17/92																			
Analysis Date		12/22/92																			
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline	50	25	U																		
Acenaphthene	10	10	U																		
2,4-Dinitrophenol	50	25	U																		
4-Nitrophenol	50	25	U																		
Dibenzofuran	10	10	U																		
2,4-Dinitrotoluene	10	10	U																		
2,6-Dinitrotoluene	10	10	U																		
Diethylphthalate	10	10	U																		
4-Chlorophenyl-phenyl ether	10	10	U																		
Fluorene	10	10	U																		
4-Nitroaniline	50	25	U																		
4,6-Dinitro-2-methylphenol	50	25	U																		
N-Nitrosodiphenylamine	10	10	U																		
4-Bromophenyl-phenylether	10	10	U																		
Hexachlorobenzene	10	10	U																		
Pentachlorophenol	50	25	U																		
Phenanthrene	10	10	U																		
Anthracene	10	10	U																		
Carbazole	10	10	U																		
Di-n-butylphthalate	10	10	U																		
Fluoranthene	10	10	U																		
Pyrene	10	10	U																		
Butylbenzylphthalate	10	10	U																		
3,3'-Dichlorobenzidine	10	10	U																		
Benz(a)anthracene	10	10	U																		
bis(2-Ethylhexyl)Phthalate	10	10	U																		
Chrysene	10	10	U																		
Di-n-octylphthalate	10	10	U																		
Benzo(b)fluoranthene	10	10	U																		
Benzo(k)fluoranthene	10	10	U																		
Benzo(a)pyrene	10	10	U																		
Indeno(1,2,3-cd)pyrene	10	10	U																		
Dibenz(a,h)anthracene	10	10	U																		
Benzo(g,h,i)perylene	10	10	U																		

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07QB5																				
Sample Number		B07QB5		B07QB6		B07QD7		B07QD8		B07QD9		B07QF0									
Location		199-N-89		199-N-89		199-N-87		199-N-87		199-N-87		199-N-87									
Remarks																					
Sample Date		12/23/92		12/17/92		12/16/92		12/16/92		12/17/92		12/17/92									
Extraction Date		12/23/92		12/23/92		12/23/92		12/23/92		12/23/92		12/23/92									
Analysis Date		01/25/93		01/25/93		01/25/93		01/23/93		01/23/93		01/25/93									
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	330	360	U	330	U	350	U	330	U	340	U	340	U								
bis(2-Chloroethyl)ether	330	360	U	330	U	350	U	330	U	340	U	340	U								
2-Chlorophenol	330	360	U	330	U	350	U	330	U	340	U	340	U								
1,3-Dichlorobenzene	330	360	U	330	U	350	U	330	U	340	U	340	U								
1,4-Dichlorobenzene	330	360	U	330	U	350	U	330	U	340	U	340	U								
Benzyl Alcohol	330	360	U	330	U	350	U	330	U	340	U	340	U								
1,2-Dichlorobenzene	330	360	U	330	U	350	U	330	U	340	U	340	U								
2-Methylphenol	330	360	U	330	U	350	U	330	U	340	U	340	U								
bis(2-Chloroisopropyl)Ether	330	360	U	330	U	350	U	330	U	340	U	340	U								
4-Methylphenol	330	360	U	330	U	350	U	330	U	340	U	340	U								
N-Nitroso-di-n-propylamine	330	360	U	330	U	350	U	330	U	340	U	340	U								
Hexachloroethane	330	360	U	330	U	350	U	330	U	340	U	340	U								
Nitrobenzene	330	360	U	330	U	350	U	330	U	340	U	340	U								
Isophorone	330	360	U	330	U	350	U	330	U	340	U	340	U								
2-Nitrophenol	330	360	U	330	U	350	U	330	U	340	U	340	U								
2,4-Dimethylphenol	330	360	U	330	U	350	U	330	U	340	U	340	U								
bis(2-Chloroethoxy)methane	330	360	U	330	U	350	U	330	U	340	U	340	U								
2,4-Dichlorophenol	330	360	U	330	U	350	U	330	U	340	U	340	U								
1,2,4-Trichlorobenzene	330	360	U	330	U	350	U	330	U	340	U	340	U								
Naphthalene	330	360	U	330	U	350	U	330	U	340	U	340	U								
4-Chloroaniline	330	360	U	330	U	350	U	330	U	340	U	340	U								
Hexachlorobutadiene	330	360	U	330	U	350	U	330	U	340	U	340	U								
4-Chloro-3-methylphenol	330	360	U	330	U	350	U	330	U	340	U	340	U								
2-Methylnaphthalene	330	360	U	330	U	350	U	330	U	340	U	340	U								
Hexachlorocyclopentadiene	330	360	U	330	U	350	U	330	U	340	U	340	U								
2,4,6-Trichlorophenol	330	360	U	330	U	350	U	330	U	340	U	340	U								
2,4,5-Trichlorophenol	1700	880	U	800	U	840	U	810	U	820	U	810	U								
2-Chloronaphthalene	330	360	U	330	U	350	U	330	U	340	U	340	U								
2-Nitroaniline	1700	880	U	800	U	840	U	810	U	820	U	810	U								
Dimethylphthalate	330	360	U	330	U	350	U	330	U	340	U	340	U								
Acenaphthylene	330	360	U	330	U	350	U	330	U	340	U	340	U								
2,6-Dinitrotoluene	330	360	U	330	U	350	U	330	U	340	U	340	U								

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07QB5																				
Sample Number		B07QB5		B07QB6		B07QD7		B07QD8		B07QD9		B07QF0									
Location		199-N-89		199-N-89		199-N-87		199-N-87		199-N-87		199-N-87									
Remarks																					
Sample Date		12/17/92		12/17/92		12/16/92		12/16/92		12/17/92		12/17/92									
Extraction Date		12/23/92		12/23/92		12/23/92		12/23/92		12/23/92		12/23/92									
Analysis Date		01/25/93		01/25/93		01/25/93		01/23/93		01/23/93		01/25/93									
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline	1700	880	U	800	U	840	U	810	U	820	U	810	U								
Acenaphthene	330	360	U	330	U	350	U	330	U	340	U	340	U								
2,4-Dinitrophenol	1700	880	U	800	U	840	U	810	U	820	U	810	U								
4-Nitrophenol	1700	880	U	800	U	840	U	810	U	820	U	810	U								
Dibenzofuran	330	360	U	330	U	350	U	330	U	340	U	340	U								
2,4-Dinitrotoluene	330	360	U	330	U	350	U	330	U	340	U	340	U								
Diethylphthalate	330	360	U	330	U	350	U	330	U	340	U	50	J								
4-Chlorophenyl-phenyl ether	330	360	U	330	U	350	U	330	U	340	U	340	U								
Fluorene	330	360	U	330	U	350	U	330	U	340	U	340	U								
4-Nitroaniline	1700	880	U	800	U	840	U	810	U	820	U	810	U								
4,6-Dinitro-2-methylphenol	1700	880	U	800	U	840	U	810	U	820	U	810	U								
N-Nitrosodiphenylamine	330	360	U	330	U	350	U	330	U	340	U	340	U								
4-Bromophenyl-phenylether	330	360	U	330	U	350	U	330	U	340	U	340	U								
Hexachlorobenzene	330	360	U	330	U	350	U	330	U	340	U	340	U								
Pentachlorophenol	1700	880	U	800	U	840	U	810	U	820	U	810	U								
Phenanthrene	330	360	U	330	U	350	U	330	U	340	U	340	U								
Anthracene	330	360	U	330	U	350	U	330	U	340	U	340	U								
Carbazole	330	360	U	330	U	350	U	330	U	340	U	340	U								
Di-n-butylphthalate	330	360	U	330	U	350	U	330	U	340	U	340	U								
Fluoranthene	330	360	U	330	U	350	U	330	U	340	U	340	U								
Pyrene	330	360	U	330	U	350	U	330	U	340	U	340	U								
Butylbenzylphthalate	330	360	U	330	U	350	U	330	U	340	U	340	U								
3,3'-Dichlorobenzidine	330	360	U	330	U	350	U	330	U	340	U	340	U								
Benz(a)anthracene	330	360	U	330	U	350	U	330	U	340	U	340	U								
Chrysene	330	360	U	330	U	350	U	330	U	340	U	340	U								
bis(2-Ethylhexyl)phthalate	330	360	U	55	J	350	U	330	U	340	U	340	U								
Di-n-octylphthalate	330	360	U	330	U	350	U	330	U	340	U	340	U								
Benzo(b)fluoranthene	330	360	U	330	U	350	U	330	U	340	U	340	U								
Benzo(k)fluoranthene	330	360	U	330	U	350	U	330	U	340	U	340	U								
Benzo(a)pyrene	330	360	U	330	U	350	U	330	U	340	U	340	U								
Indeno(1,2,3-cd)pyrene	330	360	U	330	U	350	U	330	U	340	U	340	U								
Dibenz(a,h)anthracene	330	360	U	330	U	350	U	330	U	340	U	340	U								
Benzo(g,h,i)perylene	330	360	U	330	U	350	U	330	U	340	U	340	U								

BLANK AND SAMPLE DATA SUMMARY

SDG: B07QB5	REVIEWER: RB			DATE: 4/15/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
SBLK	Di-n-Butylphthalate	91	J		ug/kg	455	910	All	U

DATA QUALIFICATION SUMMARY

SDG: B07QB5	REVIEWER: RB	DATE: 4/15/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Di-n-Butylphthalate	U	All	Lab Blank Contamination

9 3 1 2 9 5 6 0 2 3 1

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																							
Laboratory: TMA																							
Case	SDG: B07QB7																						
Sample Number		B07QB7		B07QF2		B07SW7		B07SW8		B07SW9		B07SX0		B07SX1		B07SX2		B07SX3		B07SX4			
Location		199-N-85		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-85			
Remarks		NV		NV, EB		NV		NV		NV		NV		NV		NV		NV		NV			
Sample Date		1/5/93		1/5/93		1/4/93		1/4/93		1/4/93		1/5/93		1/5/93		1/5/93		1/6/93		1/6/93			
Extraction Date		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93			
Analysis Date		1/27/93		1/27/93		1/26/93		1/26/93		1/27/93		1/27/93		1/27/93		1/27/93		1/26/93		1/26/93			
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q		
Phenol	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
bis(2-Chloroethyl)ether	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
2-Chlorophenol	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
1,3-Dichlorobenzene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
1,4-Dichlorobenzene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
Carbazole	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
1,2-Dichlorobenzene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
2-Methylphenol	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
4-Methylphenol	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
N-Nitroso-di-n-propylamine	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
Hexachloroethane	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
Nitrobenzene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
Isophorone	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
2-Nitrophenol	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
2,4-Dimethylphenol	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
bis(2-Chloroethoxy)methane	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
2,4-Dichlorophenol	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
1,2,4-Trichlorobenzene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
Naphthalene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
4-Chloroaniline	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
Hexachlorobutadiene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
4-Chloro-3-methylphenol	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
2-Methylnaphthalene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
Hexachlorocyclopentadiene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
2,4,6-Trichlorophenol	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
2,4,5-Trichlorophenol	1700	830	U	790	U	830	U	800	U	810	U	820	U	830	U	810	U	820	U	830	U		
2-Chloronaphthalene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
2-Nitroaniline	1700	830	U	790	U	830	U	800	U	810	U	820	U	830	U	810	U	820	U	830	U		
Dimethylphthalate	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
Acenaphthylene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		
2,6-Dinitrotoluene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U		

N' t Validated, EB=Equipment Blank

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG B07QB7																				
Sample Number		B07QB7		B07QF2		B07SW7		B07SW8		B07SW9		B07SX0		B07SX1		B07SX2		B07SX3		B07SX4	
Location		199-N-85		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-85	
Remarks		NV		NV		NV		NV		NV		NV		NV		NV		NV		NV	
Sample Date		1/5/93		1/5/93		1/4/93		1/4/93		1/4/93		1/5/93		1/5/93		1/5/93		1/6/93		1/6/93	
Extraction Date		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93	
Analysis Date		1/27/93		1/27/93		1/26/93		1/26/93		1/27/93		1/27/93		1/27/93		1/27/93		1/26/93		1/26/93	
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline	1700	830	U	790	U	830	U	800	U	810	U	820	U	830	U	810	U	820	U	830	U
Acenaphthene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
2,4-Dinitrophenol	1700	830	U	790	U	830	U	800	U	810	U	820	U	830	U	810	U	820	U	830	U
4-Nitrophenol	1700	830	U	790	U	830	U	800	U	810	U	820	U	830	U	810	U	820	U	830	U
Dibenzofuran	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
2,4-Dinitrotoluene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
Diethylphthalate	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
4-Chlorophenyl-phenyl ether	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
Fluorene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
4-Nitroaniline	1700	830	U	790	U	830	U	800	U	810	U	820	U	830	U	810	U	820	U	830	U
4,6-Dinitro-2-methylphenol	1700	830	U	790	U	830	U	800	U	810	U	820	U	830	U	810	U	820	U	830	U
N-Nitrosodiphenylamine	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
4-Bromophenyl-phenylether	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
Hexachlorobenzene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
Pentachlorophenol	1700	830	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
Phenanthrene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
Anthracene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
Di-n-butylphthalate	330	76	J	72	J	86	J	72	J	68	J	110	J	100	J	76	J	100	J	71	J
Fluoranthene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
Pyrene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
Butylbenzylphthalate	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
3,3'-Dichlorobenzidine	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
Benz(a)anthracene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
Chrysene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
bis(2-Ethylhexyl)phthalate	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
Di-n-octylphthalate	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
Benzo(b)fluoranthene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
Benzo(k)fluoranthene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
Benzo(a)pyrene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
Indeno(1,2,3-cd)pyrene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
Dibenz(a,h)anthracene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U
Benzo(g,h,i)perylene	330	340	U	330	U	340	U	330	U	340	U	340	U	340	U	330	U	340	U	340	U

NV=Not Validated, EB=Equipment Blank

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07QB7																				
Sample Number		B07WV0		B07WV1		B07WV2		B07WV3		B07WV4		B07WV5									
Location		199-N-89		199-N-85		199-N-89		199-N-89		199-N-89		199-N-89									
Remarks		NV		NV		NV		NV		NV		NV									
Sample Date		1/6/93		1/6/93		1/6/93		1/7/93		1/7/93		1/7/93									
Extraction Date		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93									
Analysis Date		1/26/93		1/26/93		1/26/93		1/26/93		1/26/93		1/26/93									
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	330	340	U	350	U	330	U	340	U	330	U	350	U								
bis(2-Chloroethyl)ether	330	340	U	350	U	330	U	340	U	330	U	350	U								
2-Chlorophenol	330	340	U	350	U	330	U	340	U	330	U	350	U								
1,3-Dichlorobenzene	330	340	U	350	U	330	U	340	U	330	U	350	U								
1,4-Dichlorobenzene	330	340	U	350	U	330	U	340	U	330	U	350	U								
Carbazole	330	340	U	350	U	330	U	340	U	330	U	350	U								
1,2-Dichlorobenzene	330	340	U	350	U	330	U	340	U	330	U	350	U								
2-Methylphenol	330	340	U	350	U	330	U	340	U	330	U	350	U								
4-Methylphenol	330	340	U	350	U	330	U	340	U	330	U	350	U								
N-Nitroso-di-n-propylamine	330	340	U	350	U	330	U	340	U	330	U	350	U								
Hexachloroethane	330	340	U	350	U	330	U	340	U	330	U	350	U								
Nitrobenzene	330	340	U	350	U	330	U	340	U	330	U	350	U								
Isophorone	330	340	U	350	U	330	U	340	U	330	U	350	U								
2-Nitrophenol	330	340	U	350	U	330	U	340	U	330	U	350	U								
2,4-Dimethylphenol	330	340	U	350	U	330	U	340	U	330	U	350	U								
bis(2-Chloroethoxy)methane	330	340	U	350	U	330	U	340	U	330	U	350	U								
2,4-Dichlorophenol	330	340	U	350	U	330	U	340	U	330	U	350	U								
1,2,4-Trichlorobenzene	330	340	U	350	U	330	U	340	U	330	U	350	U								
Naphthalene	330	340	U	350	U	330	U	340	U	330	U	350	U								
4-Chloroaniline	330	340	U	350	U	330	U	340	U	330	U	350	U								
Hexachlorobutadiene	330	340	U	350	U	330	U	340	U	330	U	350	U								
4-Chloro-3-methylphenol	330	340	U	350	U	330	U	340	U	330	U	350	U								
2-Methylnaphthalene	330	340	U	350	U	330	U	340	U	330	U	350	U								
Hexachlorocyclopentadiene	330	340	U	350	U	330	U	340	U	330	U	350	U								
2,4,6-Trichlorophenol	330	340	U	350	U	330	U	340	U	330	U	350	U								
2,4,5-Trichlorophenol	1700	820	U	840	U	800	U	820	U	810	U	840	U								
2-Chloronaphthalene	330	340	U	350	U	330	U	340	U	330	U	350	U								
2-Nitroaniline	1700	820	U	840	U	800	U	820	U	810	U	840	U								
Dimethylphthalate	330	340	U	350	U	330	U	340	U	330	U	350	U								
Acenaphthylene	330	340	U	350	U	330	U	340	U	330	U	350	U								
2,6-Dinitrotoluene	330	340	U	350	U	330	U	340	U	330	U	350	U								

N' t Validated

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG B07QB7																				
Sample Number		B07WV0		B07WV1		B07WV2		B07WV3		B07WV4		B07WV5									
Location		199-N-89		199-N-85		199-N-89		199-N-89		199-N-89		199-N-89									
Remarks		NV		NV		NV		NV		NV		NV									
Sample Date		1/6/93		1/6/93		1/6/93		1/7/93		1/7/93		1/7/93									
Extraction Date		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93		1/14/93									
Analysis Date		1/26/93		1/26/93		1/26/93		1/26/93		1/26/93		1/26/93									
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline	1700	820	U	840	U	800	U	820	U	810	U	840	U								
Acenaphthene	330	340	U	350	U	330	U	340	U	330	U	350	U								
2,4-Dinitrophenol	1700	820	U	840	U	800	U	820	U	810	U	840	U								
4-Nitrophenol	1700	820	U	840	U	800	U	820	U	810	U	840	U								
Dibenzofuran	330	340	U	350	U	330	U	340	U	330	U	350	U								
2,4-Dinitrotoluene	330	340	U	350	U	330	U	340	U	330	U	350	U								
Diethylphthalate	330	340	U	350	U	330	U	340	U	330	U	350	U								
4-Chlorophenyl-phenyl ether	330	340	U	350	U	330	U	340	U	330	U	350	U								
Fluorene	330	340	U	350	U	330	U	340	U	330	U	350	U								
4-Nitroaniline	1700	820	U	840	U	800	U	820	U	810	U	840	U								
4,6-Dinitro-2-methylphenol	1700	820	U	840	U	800	U	820	U	810	U	840	U								
N-Nitrosodiphenylamine	330	340	U	350	U	330	U	340	U	330	U	350	U								
4-Bromophenyl-phenylether	330	340	U	350	U	330	U	340	U	330	U	350	U								
Hexachlorobenzene	330	340	U	350	U	330	U	340	U	330	U	350	U								
Pentachlorophenol	1700	340	U	350	U	330	U	340	U	330	U	350	U								
Phenanthrene	330	340	U	350	U	330	U	340	U	330	U	350	U								
Anthracene	330	340	U	350	U	330	U	340	U	330	U	350	U								
Di-n-butylphthalate	330	89	J	140	J	96	J	92	J	92	J	93	J								
Fluoranthene	330	340	U	350	U	330	U	340	U	330	U	350	U								
Pyrene	330	340	U	350	U	330	U	340	U	330	U	350	U								
Butylbenzylphthalate	330	340	U	350	U	330	U	340	U	330	U	350	U								
3,3'-Dichlorobenzidine	330	340	U	350	U	330	U	340	U	330	U	350	U								
Benz(a)anthracene	330	340	U	350	U	330	U	340	U	330	U	350	U								
Chrysene	330	340	U	350	U	330	U	340	U	330	U	350	U								
bis(2-Ethylhexyl)phthalate	330	340	U	350	U	330	U	340	U	330	U	350	U								
Di-n-octylphthalate	330	340	U	350	U	330	U	340	U	330	U	350	U								
Benzo(b)fluoranthene	330	340	U	350	U	330	U	340	U	330	U	350	U								
Benzo(k)fluoranthene	330	340	U	350	U	330	U	340	U	330	U	350	U								
Benzo(a)pyrene	330	340	U	350	U	330	U	340	U	330	U	350	U								
Indeno(1,2,3-cd)pyrene	330	340	U	350	U	330	U	340	U	330	U	350	U								
Dibenz(a,h)anthracene	330	340	U	350	U	330	U	340	U	330	U	350	U								
Benzo(g,h,i)perylene	330	340	U	350	U	330	U	340	U	330	U	350	U								

NV=Not Validated

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07WV6																				
Sample Number		B07WV6		B07WV7																	
Location		199-N-89		199-N-85																	
Remarks																					
Sample Date		01/08/93		01/08/93																	
Extraction Date		01/15/93		01/15/93																	
Analysis Date		01/29/93		01/28/93																	
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	330	330	U	340	U																
2-Chlorophenol	330	330	U	340	U																
1,3-Dichlorobenzene	330	330	U	340	U																
1,4-Dichlorobenzene	330	330	U	340	U																
Benzyl Alcohol	330	330	U	340	U																
1,2-Dichlorobenzene	330	330	U	340	U																
2-Methylphenol	330	330	U	340	U																
bis(2-Chloroisopropyl)Ether	330	330	U	340	U																
4-Methylphenol	330	330	U	340	U																
N-Nitroso-di-n-propylamine	330	330	U	340	U																
Hexachloroethane	330	330	U	340	U																
Nitrobenzene	330	330	U	340	U																
Isophorone	330	330	U	340	U																
2-Nitrophenol	330	330	U	340	U																
2,4-Dimethylphenol	330	330	U	340	U																
bis(2-Chloroethoxy)methane	330	330	U	340	U																
2,4-Dichlorophenol	330	330	U	340	U																
1,2,4-Trichlorobenzene	330	330	U	340	U																
Naphthalene	330	330	U	340	U																
4-Chloroaniline	330	330	U	340	U																
Hexachlorobutadiene	330	330	U	340	U																
4-Chloro-3-methylphenol	330	330	U	340	U																
2-Methylnaphthalene	330	330	U	340	U																
Hexachlorocyclopentadiene	330	330	U	340	U																
2,4,6-Trichlorophenol	330	330	U	340	U																
2,4,5-Trichlorophenol	1700	810	U	830	U																
2-Chloronaphthalene	330	330	U	340	U																
2-Nitroaniline	1700	810	U	830	U																
Dimethylphthalate	330	330	U	340	U																
Acenaphthylene	330	330	U	340	U																
2,6-Dinitrotoluene	330	330	U	340	U																

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07WV6																				
Sample Number		B07WV6		B07WV7																	
Location		199-N-89		199-N-85																	
Remarks																					
Sample Date		01/08/93		01/08/93																	
Extraction Date		01/15/93		01/15/93																	
Analysis Date		01/29/93		01/28/93																	
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline	1700	810	U	830	U																
Acenaphthene	330	330	U	340	U																
2,4-Dinitrophenol	1700	810	U	830	U																
4-Nitrophenol	1700	810	U	830	U																
Dibenzofuran	330	330	U	340	U																
2,4-Dinitrotoluene	330	330	U	340	U																
Diethylphthalate	330	330	U	340	U																
4-Chlorophenyl-phenyl ether	330	330	U	340	U																
Fluorene	330	330	U	340	U																
4-Nitroaniline	1700	810	U	830	U																
4,6-Dinitro-2-methylphenol	1700	810	U	830	U																
N-Nitrosodiphenylamine	330	330	U	340	U																
4-Bromophenyl-phenylether	330	330	U	340	U																
Hexachlorobenzene	330	330	U	340	U																
Pentachlorophenol	1700	810	U	830	U																
Phenanthrene	330	330	U	340	U																
Anthracene	330	330	U	340	U																
Di-n-butylphthalate	330	330	U	340	U																
Fluoranthene	330	330	U	340	U																
Pyrene	330	330	U	340	U																
Butylbenzylphthalate	330	330	U	340	U																
3,3'-Dichlorobenzidine	330	330	U	340	U																
Benz(a)anthracene	330	330	U	340	U																
Chrysene	330	330	U	340	U																
bis(2-Ethylhexyl)phthalate	330	330	U	340	U																
Di-n-octylphthalate	330	330	U	340	U																
Benzo(b)fluoranthene	330	330	U	340	U																
Benzo(k)fluoranthene	330	330	U	340	U																
Benzo(a)pyrene	330	330	U	340	U																
Indeno(1,2,3-cd)pyrene	330	330	U	340	U																
Dibenz(a,h)anthracene	330	330	U	340	U																
Benzo(g,h,i)perylene	330	330	U	340	U																

BLANK AND SAMPLE DATA SUMMARY

SDG: B07WV6	REVIEWER: RB			DATE: 4/16/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
SBLK	Di-n-butylphthalate	130	J		ug/kg	650	1300	B07WV6 B07WV7	U

DATA QUALIFICATION SUMMARY

SDG: B07WV6	REVIEWER: RB	DATE: 4/16/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Di-n-butylphthalate	U	B07WV6, B07WV7	Lab blank contamination

9 3 1 2 0 1 6 0 2 3 9

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																						
Laboratory: TMA																						
Case	SDG: B07WV8																					
Sample Number		B07WV8		B07WV9																		
Location		199-N-89		199-N-89																		
Remarks		NV		NV																		
Sample Date		1/11/93		1/12/93																		
Extraction Date		1/18/93		1/18/93																		
Analysis Date		1/28/93		1/28/93																		
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
Phenol	330	350	U	400	U																	
bis(2-Chloroethyl)ether	330	350	U	400	U																	
2-Chlorophenol	330	350	U	400	U																	
1,3-Dichlorobenzene	330	350	U	400	U																	
1,4-Dichlorobenzene	330	350	U	400	U																	
Carbazole	330	350	U	400	U																	
1,2-Dichlorobenzene	330	350	U	400	U																	
2-Methylphenol	330	350	U	400	U																	
4-Methylphenol	330	350	U	400	U																	
N-Nitroso-di-n-propylamine	330	350	U	400	U																	
Hexachloroethane	330	350	U	400	U																	
Nitrobenzene	330	350	U	400	U																	
Isophorone	330	350	U	400	U																	
2-Nitrophenol	330	350	U	400	U																	
2,4-Dimethylphenol	330	350	U	400	U																	
bis(2-Chloroethoxy)methane	330	350	U	400	U																	
2,4-Dichlorophenol	330	350	U	400	U																	
1,2,4-Trichlorobenzene	330	350	U	400	U																	
Naphthalene	330	350	U	400	U																	
4-Chloroaniline	330	350	U	400	U																	
Hexachlorobutadiene	330	350	U	400	U																	
4-Chloro-3-methylphenol	330	350	U	400	U																	
2-Methylnaphthalene	330	350	U	400	U																	
Hexachlorocyclopentadiene	330	350	U	400	U																	
2,4,6-Trichlorophenol	330	350	U	400	U																	
2,4,5-Trichlorophenol	1700	850	U	960	U																	
2-Chloronaphthalene	330	350	U	400	U																	
2-Nitroaniline	1700	850	U	960	U																	
Dimethylphthalate	330	350	U	400	U																	
Acenaphthylene	330	350	U	400	U																	
2,6-Dinitrotoluene	330	350	U	400	U																	

N' t Validated

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07WV8																				
Sample Number		B07WV8		B07WV9																	
Location		199-N-89		199-N-89																	
Remarks		NV		NV																	
Sample Date		1/11/93		1/11/93																	
Extraction Date		1/18/93		1/18/93																	
Analysis Date		2/11/93		2/11/93																	
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline	1700	850	U	960	U																
Acenaphthene	330	350	U	400	U																
2,4-Dinitrophenol	1700	850	U	960	U																
4-Nitrophenol	1700	850	U	960	U																
Dibenzofuran	330	350	U	400	U																
2,4-Dinitrotoluene	330	350	U	400	U																
Diethylphthalate	330	48	J	400	U																
4-Chlorophenyl-phenyl ether	330	350	U	400	U																
Fluorene	330	350	U	400	U																
4-Nitroaniline	1700	850	U	960	U																
4,6-Dinitro-2-methylphenol	1700	850	U	960	U																
N-Nitrosodiphenylamine	330	350	U	400	U																
4-Bromophenyl-phenylether	330	350	U	400	U																
Hexachlorobenzene	330	350	U	400	U																
Pentachlorophenol	1700	850	U	960	U																
Phenanthrene	330	350	U	400	U																
Anthracene	330	350	U	400	U																
Carbazole	330	350	U	400	U																
Di-n-butylphthalate	330	230	J	230	U																
Fluoranthene	330	350	U	400	U																
Pyrene	330	350	U	400	U																
Butylbenzylphthalate	330	350	U	400	U																
3,3'-Dichlorobenzidine	330	350	U	400	U																
Benz(a)anthracene	330	350	U	400	U																
Chrysene	330	350	U	400	U																
bis(2-Ethylhexyl)phthalate	330	350	U	400	U																
Di-n-octylphthalate	330	350	U	400	U																
Benzo(b)fluoranthene	330	350	U	400	U																
Benzo(k)fluoranthene	330	350	U	400	U																
Benzo(a)pyrene	330	350	U	400	U																
Indeno(1,2,3-cd)pyrene	330	350	U	400	U																
Dibenz(a,h)anthracene	330	350	U	400	U																
Benzo(g,h,i)perylene	330	350	U	400	U																

NV = Not Validated

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																						
Laboratory: TMA																						
Case	SDG: B07WX0																					
Sample Number		B07WX0		B07WX1																		
Location		199-N-85		199-N-85																		
Remarks		NV		NV																		
Sample Date		1/18/93		1/18/93																		
Extraction Date		1/25/93		1/25/93																		
Analysis Date		2/10/93		2/10/93																		
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	330	340	U	3500	U																
bis(2-Chloroethyl)Ether	330	340	U	3500	U																
2-Chlorophenol	330	340	U	3500	U																
1,3-Dichlorobenzene	330	340	U	3500	U																
1,4-Dichlorobenzene	330	340	U	3500	U																
1,2-Dichlorobenzene	330	340	U	3500	U																
2-Methylphenol	330	340	U	3500	U																
2,2'-oxybix(1-Chloropropane)	330	340	U	3500	U																
4-Methylphenol	330	340	U	3500	U																
N-Nitroso-di-n-Propylamine	330	340	U	3500	U																
Hexachloroethane	330	340	U	3500	U																
Nitrobenzene	330	340	U	3500	U																
Isophorone	330	340	U	3500	U																
2-Nitrophenol	330	340	U	3500	U																
2,4-Dimethylphenol	330	340	U	3500	U																
bis(2-Chloroethoxy)Methane	330	340	U	3500	U																
2,4-Dichlorophenol	330	340	U	3500	U																
1,2,4-Trichlorobenzene	330	340	U	3500	U																
Naphthalene	330	340	U	3500	U																
4-Chloroaniline	330	340	U	3500	U																
Hexachlorobutadiene	330	340	U	3500	U																
4-Chloro-3-Methylphenol	330	340	U	3500	U																
2-Methylnaphthalene	330	370		5100																	
Hexachlorocyclopentadiene	330	340	U	3500	U																
2,4,6-Trichlorophenol	330	340	U	3500	U																
2,4,5-Trichlorophenol	1700	820	U	8400	U																
2-Chloronaphthalene	330	340	U	3500	U																
2-Nitroaniline	1700	820	U	8400	U																
Dimethylphthalate	330	340	U	3500	U																
Acenaphthylene	330	340	U	3500	U																
3-Nitroaniline	1700	820	U	8400	U																

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SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																							
Laboratory: TMA																							
Case	SDG: B07WX0																						
Sample Number		B07WX0		B07WX1																			
Location		199-N-85		199-N-85																			
Remarks		NV		NV																			
Sample Date		1/18/93		1/18/93																			
Extraction Date		1/25/93		1/25/93																			
Analysis Date		2/10/93		2/10/93																			
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Acenaphthene	330	340	U	3500	U																		
2,4-Dinitrophenol	1700	820	U	8400	U																		
4-Nitrophenol	1700	820	U	8400	U																		
Dibenzofuran	330	340	U	3500	U																		
2,4-Dinitrotoluene	330	340	U	3500	U																		
2,6-Dinitrotoluene	330	340	U	3500	U																		
Diethylphthalate	330	340	U	3500	U																		
4-Chlorophenyl-Phenylether	330	340	U	3500	U																		
Fluorene	330	340	U	1700	J																		
4-Nitroaniline	1700	820	U	8400	U																		
4,6-Dinitro-2-Methylphenol	1700	820	U	8400	U																		
N-Nitrosodiphenylamine	330	340	U	3500	U																		
4-Bromophenyl-Phenylether	330	340	U	3500	U																		
Hexachlorobenzene	330	340	U	3500	U																		
Pentachlorophenol	1700	820	U	8400	U																		
Phenanthrene	330	340	U	2500	J																		
Anthracene	330	340	U	3500	U																		
Di-n-Butylphthalate	330	340	U	3500	U																		
Fluoranthene	330	340	U	3500	U																		
Pyrene	330	340	U	3500	U																		
Butylbenzylphthalate	330	340	U	3500	U																		
3,3'-Dichlorobenzidine	330	340	U	3500	U																		
Benzo(a)Anthracene	330	340	U	3500	U																		
bis(2-Ethylhexyl)Phthalate	330	340	U	3500	U																		
Chrysene	330	340	U	3500	U																		
Carbazole	330	340	U	3500	U																		
Di-n-Octylphthalate	330	340	U	3500	U																		
Benzo(b)Fluoranthene	330	340	U	3500	U																		
Benzo(k)Fluoranthene	330	340	U	3500	U																		
Benzo(a)Pyrene	330	340	U	3500	U																		
Indeno(1,2,3-cd)Pyrene	330	340	U	3500	U																		
Dibenz(a,h)Anthracene	330	340	U	3500	U																		
Benzo(g,h,i)Perylene	330	340	U	3500	U																		

NV = Not Validated

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07WX2																				
Sample Number		B07WX2		B07WX3		B07WX4															
Location		199-N-85		199-N-85		199-N-85															
Remarks		NV		NV		NV															
Sample Date		01/20/93		01/20/93		01/20/93															
Extraction Date		01/29/93		01/29/93		01/29/93															
Analysis Date		02/10/93		02/10/93		02/12/93															
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	330	340	U	1700	U	350	U														
bis(2-Chloroethyl)ether	330	340	U	1700	U	350	U														
2-Chlorophenol	330	340	U	1700	U	350	U														
1,3-Dichlorobenzene	330	340	U	1700	U	350	U														
1,4-Dichlorobenzene	330	340	U	1700	U	350	U														
1,2-Dichlorobenzene	330	340	U	1700	U	350	U														
2-Methylphenol	330	340	U	1700	U	350	U														
2,2'-oxybis(1-Chloropropane)	330	340	U	1700	U	350	U														
4-Methylphenol	330	340	U	1700	U	350	U														
N-Nitroso-di-n-propylamine	330	340	U	1700	U	350	U														
Hexachloroethane	330	340	U	1700	U	350	U														
Nitrobenzene	330	340	U	1700	U	350	U														
Isophorone	330	340	U	1700	U	350	U														
2-Nitrophenol	330	340	U	1700	U	350	U														
2,4-Dimethylphenol	330	340	U	1700	U	350	U														
bis(2-Chloroethoxy)methane	330	340	U	1700	U	350	U														
2,4-Dichlorophenol	330	340	U	1700	U	350	U														
1,2,4-Trichlorobenzene	330	340	U	1700	U	350	U														
Naphthalene	330	1300		4100		350	U														
4-Chloroaniline	330	340	U	1700	U	350	U														
Hexachlorobutadiene	330	340	U	1700	U	350	U														
4-Chloro-3-methylphenol	330	340	U	1700	U	350	U														
2-Methylnaphthalene	330	1300		13000		44	J														
Hexachlorocyclopentadiene	330	340	U	1700	U	350	U														
2,4,6-Trichlorophenol	330	340	U	1700	U	350	U														
2,4,5-Trichlorophenol	1700	830	U	4100	U	850	U														
2-Chloronaphthalene	330	340	U	1700	U	350	U														
2-Nitroaniline	1700	830	U	4100	U	850	U														
Dimethylphthalate	330	340	U	1700	U	350	U														
Acenaphthylene	330	340	U	1700	U	350	U														
3-Nitroaniline	1700	830	U	4100	U	850	U														
Acenaphthene	330	340	U	1700	U	350	U														
2,4-Dinitrophenol	1700	830	U	4100	U	850	U														

! Not Validated

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07WX2																				
Sample Number		B07WX2		B07WX3		B07WX4															
Location		199-N-85		199-N-85		199-N-85															
Remarks		NV		NV		NV															
Sample Date		01/20/93		01/20/93		01/20/93															
Extraction Date		01/29/93		01/29/93		01/29/93															
Analysis Date		02/10/93		02/10/93		02/12/93															
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4-Nitrophenol	1700	830	U	4100	U	850	U														
Dibenzofuran	330	340	U	1700	U	350	U														
2,4-Dinitrotoluene	330	340	U	1700	U	350	U														
2,6-Dinitrotoluene	330	340	U	1700	U	350	U														
Diethylphthalate	330	340	U	1700	U	350	U														
4-Chlorophenyl-phenyl ether	330	340	U	1700	U	350	U														
Fluorene	330	340	U	1700	U	350	U														
4-Nitroaniline	1700	830	U	4100	U	850	U														
4,6-Dinitro-2-methylphenol	1700	830	U	1700	U	850	U														
N-Nitrosodiphenylamine	330	340	U	1700	U	350	U														
4-Bromophenyl-phenylether	330	340	U	1700	U	350	U														
Hexachlorobenzene	330	340	U	1700	U	350	U														
Pentachlorophenol	1700	830	U	4100	U	850	U														
Phenanthrene	330	340	U	1700	U	350	U														
Anthracene	330	3100		6300		350	U														
Carbazole	330	340	U	1700	U	350	U														
Di-n-butylphthalate	330	340	U	1700	U	420															
Fluoranthene	330	340	U	1700	U	350	U														
Pyrene	330	220	J	240	J	350	U														
Butylbenzylphthalate	330	340	U	1700	U	350	U														
3,3'-Dichlorobenzidine	330	340	U	1700	U	350	U														
Benz(a)anthracene	330	340	U	1700	U	350	U														
bis(2-Ethylhexyl)phthalate	330	340	U	1700	U	350	U														
Chrysene	330	340	U	1700	U	350	U														
Di-n-octylphthalate	330	340	U	1700	U	350	U														
Benzo(b)fluoranthene	330	340	U	1700	U	350	U														
Benzo(k)fluoranthene	330	340	U	1700	U	350	U														
Benzo(a)pyrene	330	340	U	1700	U	350	U														
Indeno(1,2,3-cd)pyrene	330	340	U	1700	U	350	U														
Dibenz(a,h)anthracene	330	340	U	1700	U	350	U														
Benzo(g,h,i)perylene	330	340	U	1700	U	350	U														

NV = Not Validated

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE - HANFORD																						
Laboratory: TMA																						
Case	SDG: B07WX5																					
Sample Number		B07WX5		B07WX6																		
Location		199-N-85		199-N-85																		
Remarks		BKG, NV		BKG, NV																		
Sample Date		1/22/93		1/22/93																		
Extraction Date		1/29/93		1/29/93																		
Analysis Date		2/12/93		2/12/93																		
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	330	380	U	350	U																	
bis(2-Chloroethyl)ether	330	380	U	350	U																	
2-Chlorophenol	330	380	U	350	U																	
1,3-Dichlorobenzene	330	380	U	350	U																	
1,4-Dichlorobenzene	330	380	U	350	U																	
Benzyl Alcohol	330	380	U	350	U																	
1,2-Dichlorobenzene	330	380	U	350	U																	
2-Methylphenol	330	380	U	350	U																	
bis(2-Chloroisopropyl)Ether	330	380	U	350	U																	
4-Methylphenol	330	380	U	350	U																	
N-Nitroso-di-n-propylamine	330	380	U	350	U																	
Hexachloroethane	330	380	U	350	U																	
Nitrobenzene	330	380	U	350	U																	
Isophorone	330	380	U	350	U																	
2-Nitrophenol	330	380	U	350	U																	
2,4-Dimethylphenol	330	380	U	350	U																	
bis(2-Chloroethoxy)methane	330	380	U	350	U																	
2,4-Dichlorophenol	330	380	U	350	U																	
1,2,4-Trichlorobenzene	330	380	U	350	U																	
Naphthalene	330	380	U	350	U																	
4-Chloroaniline	330	380	U	350	U																	
Hexachlorobutadiene	330	380	U	350	U																	
4-Chloro-3-methylphenol	330	380	U	350	U																	
2-Methylnaphthalene	330	380	U	350	U																	
Hexachlorocyclopentadiene	330	380	U	350	U																	
2,4,6-Trichlorophenol	330	380	U	350	U																	
2,4,5-Trichlorophenol	1700	920	U	840	U																	
2-Chloronaphthalene	330	380	U	350	U																	
2-Nitroaniline	1700	920	U	840	U																	
Dimethylphthalate	330	380	U	350	U																	
Acenaphthylene	330	380	U	350	U																	
2,6-Dinitrotoluene	330	380	U	350	U																	

NV Validated BKG = Background Sample

SEMIVOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07WX5																				
Sample Number		B07WX5		B07WX6																	
Location		199-N-85		199-N-85																	
Remarks		BKG, NV		BKG, NV																	
Sample Date		1/22/93		1/22/93																	
Extraction Date		1/29/93		1/29/93																	
Analysis Date		2/12/93		2/12/93																	
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline	1700	920	U	840	U																
Acenaphthene	330	380	U	350	U																
2,4-Dinitrophenol	1700	920	U	840	U																
4-Nitrophenol	1700	920	U	840	U																
Dibenzofuran	330	380	U	350	U																
2,4-Dinitrotoluene	330	380	U	350	U																
Diethylphthalate	330	380	U	350	U																
4-Chlorophenyl-phenyl ether	330	380	U	350	U																
Fluorene	330	380	U	350	U																
4-Nitroaniline	1700	920	U	840	U																
4,6-Dinitro-2-methylphenol	1700	920	U	840	U																
N-Nitrosodiphenylamine	330	380	U	350	U																
4-Bromophenyl-phenylether	330	380	U	350	U																
Hexachlorobenzene	330	380	U	350	U																
Pentachlorophenol	1700	920	U	840	U																
Phenanthrene	330	380	U	350	U																
Anthracene	330	380	U	350	U																
Carbazole	330	350	U	350	U																
Di-n-butylphthalate	330	240	J	140	J																
Fluoranthene	330	380	U	350	U																
Pyrene	330	380	U	350	U																
Butylbenzylphthalate	330	380	U	350	U																
3,3'-Dichlorobenzidine	330	380	U	350	U																
Benz(a)anthracene	330	380	U	350	U																
Chrysene	330	380	U	350	U																
bis(2-Ethylhexyl)phthalate	330	380	U	350	U																
Di-n-octylphthalate	330	380	U	350	U																
Benzo(b)fluoranthene	330	380	U	350	U																
Benzo(k)fluoranthene	330	380	U	350	U																
Benzo(a)pyrene	330	380	U	350	U																
Indeno(1,2,3-cd)pyrene	330	380	U	350	U																
Dibenz(a,h)anthracene	330	380	U	350	U																
Benzo(g,h,i)perylene	330	380	U	350	U																

NV = Not Validated BKG = Background Sample

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WELL AND SAMPLE INFORMATION				SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	PESTICIDES/PCBs
199-N-84	B07Q83	S	11/30/92	4-6
	B07Q84	S	11/30/92	4-6
	B07Q85	S	11/30/92	4-6
	B07Q86	S	11/30/92	4-6
199-N-88	B07Q87	S	12/03/92	4-7
	B07Q88	S	12/03/92	4-7
	B07Q89	S	12/03/92	4-7
	B07Q90	S	12/04/92	4-8
	B07Q91	S	12/04/92	4-8
	B07Q92	S	12/04/92	4-8
	B07Q93	S	12/07/92	4-9
	B07Q94	S	12/07/92	4-9
	B07Q95	S	12/08/92	4-9
	B07Q96	S	12/08/92	4-9
	B07Q97	S	12/08/92	4-15
	B07Q98	S	12/08/92	4-9
	B07Q99	S	12/08/92	4-9
	B07QB0	S	12/09/92	4-9
	B07QB1	S	12/09/92	4-9
	B07QB2	S	12/10/92	4-9
	B07QB3	S	12/10/92	4-9
	B07QB4	S	12/14/92	4-19
199-N-89	B07QB5	S	12/17/92	4-20
	B07QB6	S	12/17/92	4-20
	B07QF2	S	01/05/92	4-24
	B07SW7	S	01/04/93	4-24
	B07SW8	S	01/04/93	4-24
	B07SW9	S	01/04/93	4-24
	B07SX0	S	01/05/93	4-24
	B07SX1	S	01/05/93	4-24
	B07SX2	S	01/06/93	4-24
	B07SX3	S	01/06/93	4-24
	B07WV0	S	01/06/93	4-25
	B07WV2	S	01/07/93	4-25
	B07WV3	S	01/07/93	4-25
	B07WV4	S	01/07/93	4-25
	B07WV6	S	01/08/93	4-26
	B07WV8	S	01/11/93	4-27
	B07WV9	S	01/12/93	4-27

WELL AND SAMPLE INFORMATION				SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	PESTICIDES/PCBs
199-N-85	B07QB7	S	01/05/93	4-24
	B07SX4	S	01/06/93	4-24
	B07WV1	S	01/06/93	4-25
	B07WV5	S	01/07/93	4-25
	B07WV7	S	01/08/93	4-26
	B07WX0	S	01/18/93	4-28
	B07WX1	S	01/18/93	4-28
	B07WX2	S	01/20/93	4-29
	B07WX3	S	01/20/93	4-29
	B07WX4	S	01/20/93	4-29
	B07WX5	S	01/22/93	4-30
	B07WX6	S	01/22/93	4-30
199-N-86	B07QB8	S	12/09/92	4-10
	B07QB9	S	12/09/92	4-10
	B07QC0	S	12/09/92	4-10
199-N-87	B07QD7	S	12/16/92	4-20
	B07QD8	S	12/16/92	4-20
	B07QD9	S	12/17/92	4-20
	B07QF0	S	12/17/92	4-20

4.0 PESTICIDE AND PCB DATA VALIDATION

4.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted and found to be complete:

B07Q93	B07QB4	B07WV6
B07Q97	B07QB5	

4.2 HOLDING TIMES

Analytical holding times were assessed to ascertain whether the holding time requirements for pesticide/PCB analyses were met by the laboratory. Westinghouse-Hanford procedures require that samples be extracted within seven days of collection and analyzed within 40 days of extraction (WHC 1991a).

Based upon Westinghouse-Hanford data validation procedures, the seven-day extraction holding time was exceeded for several samples. These samples were flagged "J" and are considered to be estimated. However, these samples meet the requirements of USEPA Data Validation Guidelines, which requires a 14-day extraction holding time.

The seven-day holding time was exceeded for the following samples:

- All samples in SDG No. B07Q93.
- Sample number B07Q97 in SDG No. B07Q97.
- Sample numbers B07QD7 and B07QD8 in SDG No. B07QB5.

Holding times for all other samples were met.

4.3 INSTRUMENT PERFORMANCE AND CALIBRATIONS

Instrument performance was assessed to ensure that adequate chromatographic resolution and instrument sensitivity were achieved by the gas chromatographic system.

The specific criteria for acceptable instrument performance are outlined in EPA guidelines (EPA 1988a and 1988b), including

the evaluation and qualification procedures that may be performed on the analytical results.

During the quality assurance review, all indicators for acceptable instrument performance were verified. The criteria established by CLP protocols were met and the results are acceptable, except as noted.

Instrument calibration is performed to ensure that the chromatographic system is capable of producing acceptable and reliable analytical data. The initial and continuing calibrations are to be performed according to procedures established by CLP protocols. An initial calibration is performed prior to sample analysis to establish the linear range of the system, including a demonstration that all target compounds can be detected. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

4.3.1 Initial Calibrations

The laboratory performed an initial multipoint calibration for the four compounds specified at the concentrations required by CLP protocols. The linearity of the initial calibration is established when the percent RSD or the calibration factors is less than or equal to 10 percent.

The initial calibration results did not meet QC limits for the following compounds:

- Alpha-BHC and delta-BHC in all samples associated with SDG Nos. B07Q93 and B07QB5.
- Alpha-BHC in sample number B07Q97 in SDG No. B07Q97.

All associated sample results were qualified as estimates and flagged "J".

All other initial calibration results were acceptable.

4.3.2 Calibration Verification

The criteria for acceptable continuing calibrations requires that the calibration factors for all target compounds have a percent difference of less than or equal to 15 percent of the average calibration factor calculated for the associated initial calibration standard. The 15 percent difference value is required for results calculated using the chromatographic column which is used for quantitative purposes. In addition, the percent difference of the calibration factors calculated for the

chromatographic column that is used for confirmation must be less than or equal to 20 percent.

All calibration verification results were acceptable.

4.4 BLANKS

Method blank and field blank analyses are performed to determine the extent of laboratory or field contamination of samples. No contaminants should be present in the blanks. Analytical results for analytes present in any sample at less than 5 times the concentration of that analyte found in associated blanks should be qualified as non-detects.

There were no compounds of concern detected in the method or field blanks.

4.5 ACCURACY

Accuracy was assessed by evaluating the recoveries of the surrogate compounds and the matrix spike recoveries calculated for the sample analyses.

4.5.1 Matrix Spike Recovery

Matrix spike analyses are performed in duplicate using six compounds specified by CLP protocols. The recoveries for the six compounds must be within the acceptable quality control limits established by CLP protocols.

All matrix spike/matrix spike duplicate results were acceptable.

4.5.2 Surrogate Recovery

The surrogate recovery results did not meet QC limits for tetrachloro-m-xylene in sample numbers B07Q93, B07Q98, B07Q99 and B07QB8 in SDG No. B07Q93. All associated pesticide results were qualified as estimates and flagged "J".

All other surrogate recovery results were acceptable.

4.6 PRECISION

Precision is expressed by the RPD between the recoveries of the matrix spike and the matrix spike duplicate analyses performed on a sample. When the laboratory has not performed

duplicate spike analyses, precision may also be assessed by using unspiked duplicate analyses.

All matrix spike/matrix spike duplicate RPDs were acceptable.

4.7 COMPOUND IDENTIFICATION AND QUANTITATION

The data were evaluated to confirm the positive concentrations and to investigate the possibility of false negatives in all other data. Confirmation of possible false negatives is addressed by reviewing other factors relating to analytical sensitivity (e.g., detection limits, instrument linearity, analytical recovery). These factors were found to be in control, and the data are acceptable.

All compound identifications and quantitation results were acceptable.

4.7.1 Reported Quantitation Limits

Compound quantitations and reported detection limits were recalculated and verified for a minimum of 20 percent of the samples in each case to ensure that they were accurate and are consistent with CLP requirements (EPA 1988a). The reported detection limits must be in accordance with the CRQLs specified in the applicable CLP statement of work.

The compound quantitations and the CRQLs reported were calculated correctly and were acceptable.

4.8 OVERALL ASSESSMENT AND SUMMARY

A thorough review of ongoing data acquisition and instrument performance criteria was made to assess overall GC/MS instrument performance. No changes in instrument performance were noted that would result in the degradation of data quality. No indications of unacceptable instrument performance (i.e., shifts in baseline stability, retention time shifts, extraneous peaks, or sensitivity) were found during the quality assurance review.

In general, the pesticide/PCB data presented in this report met the protocol-specified QA/QC requirements. The initial calibration recovery results for several compounds did not meet QC limits. Therefore, all associated results were flagged "J" and are considered to be estimates. The surrogate recovery results for pesticide compounds did not meet QC limits for several samples in one data package. All associated results were qualified as estimates and flagged "J".

The sampling to extraction holding time was exceeded, though not grossly, for several samples. As required by Westinghouse-Hanford protocols, all results for these samples were flagged "J" and are considered to be estimates only. The data are considered valid and usable within the standard error associated with the method. All other results are acceptable and usable for all purposes.

PESTICIDE/PCB ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD
Laboratory: TMA
Case SDG: B07Q83

Sample Number		B07Q83		B07Q84		B07Q85		B07Q86													
Location		199-N-84		199-N-84		199-N-84		199-N-84													
Remarks		NV		NV		NV		NV													
Sample Date		11/30/92		11/30/92		11/30/92		11/30/92													
Extraction Date		12/04/92		12/04/92		12/04/92		12/04/92													
Analysis Date		12/22/92		12/22/92		12/22/92		12/22/92													
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	1.7	1.8	U	1.8	U	1.8	U	1.8	U												
beta-BHC	1.7	1.8	U	1.8	U	1.8	U	1.8	U												
delta-BHC	1.7	1.8	U	1.8	U	1.8	U	1.8	U												
gamma-BHC (Lindane)	1.7	1.8	U	1.8	U	1.8	U	1.8	U												
Heptachlor	1.7	1.8	U	1.8	U	1.8	U	1.8	U												
Aldrin	1.7	1.8	U	1.8	U	1.8	U	1.8	U												
Heptachlor epoxide	1.7	1.8	U	1.8	U	1.8	U	1.8	U												
Endosulfan I	1.7	1.8	U	1.8	U	1.8	U	1.8	U												
Dieldrin	3.3	3.5	U	3.5	U	3.4	U	3.5	U												
4,4'-DDE	3.3	3.5	U	3.5	U	3.4	U	3.5	U												
Endrin	3.3	3.5	U	3.5	U	3.4	U	3.5	U												
Endosulfan II	3.3	3.5	U	3.5	U	3.4	U	3.5	U												
4,4'-DDD	3.3	3.5	U	3.5	U	3.4	U	3.5	U												
Endosulfan sulfate	3.3	3.5	U	3.5	U	3.4	U	3.5	U												
4,4'-DDT	3.3	3.5	U	3.5	U	3.4	U	3.5	U												
Methoxychlor	17.0	18.0	U	18.0	U	18.0	U	18.0	U												
Endrin Ketone	3.3	3.5	U	3.5	U	3.4	U	3.5	U												
Endrin Aldehyde	3.3	3.5	U	3.5	U	3.4	U	3.5	U												
alpha-Chlordane	1.7	1.8	U	1.8	U	1.8	U	1.8	U												
gamma-Chlordane	1.7	1.8	U	1.8	U	1.8	U	1.8	U												
Toxaphene	170.0	180	U	180	U	180	U	180	U												
Arochlor-1016	33.0	35	U	35	U	34	U	35	U												
Arochlor-1221	33.0	71	U	71	U	70	U	70	U												
Arochlor-1232	67.0	35	U	35	U	34	U	35	U												
Arochlor-1242	33.0	35	U	35	U	34	U	35	U												
Arochlor-1248	33.0	35	U	35	U	34	U	35	U												
Arochlor-1254	33.0	35	U	35	U	34	U	35	U												
Arochlor-1260	33.0	35	U	35	U	34	U	35	U												

NV = Not Validated

PESTICIDE/PCB ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q87																				
Sample Number		B07Q87		B07Q88		B07Q89															
Location		199-N-88		199-N-88		199-N-88															
Remarks		NV		NV		NV															
Sample Date		12/03/92		12/03/92		12/03/92															
Extraction Date		12/11/92		12/11/92		12/11/92															
Analysis Date		12/23/92		12/23/92		12/23/92															
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	1.7	1.8	U	1.8	U	1.8	U														
beta-BHC	1.7	1.8	U	1.8	U	1.8	U														
delta-BHC	1.7	1.8	U	1.8	U	1.8	U														
gamma-BHC (Lindane)	1.7	1.8	U	1.8	U	1.8	U														
Heptachlor	1.7	1.8	U	1.8	U	1.8	U														
Aldrin	1.7	1.8	U	1.8	U	1.8	U														
Heptachlor epoxide	1.7	1.8	U	1.8	U	1.8	U														
Endosulfan I	1.7	1.8	U	1.8	U	1.8	U														
Dieldrin	3.3	3.5	U	3.5	U	3.6	U														
4,4'-DDE	3.3	3.5	U	3.5	U	3.6	U														
Endrin	3.3	3.5	U	3.5	U	3.6	U														
Endosulfan II	3.3	3.5	U	3.5	U	3.6	U														
4,4'-DDD	3.3	3.5	U	3.5	U	3.6	U														
Endosulfan sulfate	3.3	3.5	U	3.5	U	3.6	U														
4,4'-DDT	3.3	3.5	U	3.5	U	3.6	U														
Methoxychlor	17.0	18	U	18	U	18	U														
Endrin Ketone	3.3	3.5	U	3.5	U	3.6	U														
Endrin aldehyde	3.3	3.5	U	3.5	U	3.6	U														
alpha-Chlordane	1.7	1.8	U	1.8	U	1.8	U														
gamma-Chlordane	1.7	1.8	U	1.8	U	1.8	U														
Toxaphene	170.0	180	U	180	U	180	U														
Arochlor-1016	33.0	35	U	35	U	36	U														
Arochlor-1221	33.0	71	U	71	U	72	U														
Arochlor-1232	67.0	35	U	35	U	36	U														
Arochlor-1242	33.0	35	U	35	U	36	U														
Arochlor-1248	33.0	35	U	35	U	36	U														
Arochlor-1254	33.0	35	U	35	U	36	U														
Arochlor-1260	33.0	35	U	35	U	36	U														

NV = Not Validated

PESTICIDE/PCB ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q90																				
Sample Number		B07Q90		B07Q91		B07Q92															
Location		199-N-88		199-N-88		199-N-88															
Remarks		NV		NV		NV															
Sample Date		12/04/92		12/04/92		12/04/92															
Extraction Date		12/12/92		12/12/92		12/12/92															
Analysis Date		12/23/92		12/23/92		12/23/92															
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	1.7	1.8	U	1.8	U	1.8	U														
beta-BHC	1.7	1.8	U	1.8	U	1.8	U														
delta-BHC	1.7	1.8	U	1.8	U	1.8	U														
gamma-BHC (Lindane)	1.7	1.8	U	1.8	U	1.8	U														
Heptachlor	1.7	1.8	U	1.8	U	1.8	U														
Aldrin	1.7	1.8	U	1.8	U	1.8	U														
Heptachlor epoxide	1.7	1.8	U	1.8	U	1.8	U														
Endosulfan I	1.7	1.8	U	1.8	U	1.8	U														
Dieldrin	3.3	3.5	U	3.5	U	3.4	U														
4,4'-DDE	3.3	3.5	U	3.5	U	3.4	U														
Endrin	3.3	3.5	U	3.5	U	3.4	U														
Endosulfan II	3.3	3.5	U	3.5	U	3.4	U														
4,4'-DDD	3.3	3.5	U	3.5	U	3.4	U														
Endosulfan sulfate	3.3	3.5	U	3.5	U	3.4	U														
4,4'-DDT	3.3	3.5	U	3.5	U	3.4	U														
Methoxychlor	17.0	18.0	U	18.0	U	18.0	U														
Endrin Ketone	3.3	3.5	U	3.5	U	3.4	U														
Endrin Aldehyde	3.3	3.5	U	3.5	U	3.4	U														
alpha-Chlordane	1.7	1.8	U	1.8	U	1.8	U														
gamma-Chlordane	1.7	1.8	U	1.8	U	1.8	U														
Toxaphene	170.0	180	U	180	U	180	U														
Arochlor-1016	33.0	35	U	35	U	34	U														
Arochlor-1221	33.0	71	U	72	U	70	U														
Arochlor-1232	67.0	35	U	35	U	34	U														
Arochlor-1242	33.0	35	U	35	U	34	U														
Arochlor-1248	33.0	35	U	35	U	34	U														
Arochlor-1254	33.0	35	U	35	U	34	U														
Arochlor-1260	33.0	35	U	35	U	34	U														

NV = Not Validated

PESTICIDE/PCB ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q93																				
Sample Number		B07Q93		B07Q94		B07Q95		B07Q96		B07Q98		B07Q99		B07QB0		B07QB1		B07QB2		B07QB3	
Location		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88	
Remarks																					
Sample Date		12/07/92		12/07/92		12/08/92		12/08/92		12/08/92		12/08/92		12/09/92		12/09/92		12/10/92		12/10/92	
Extraction Date		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92		12/21/92	
Analysis Date		01/05/93		01/06/93		01/06/93		01/06/93		01/06/93		01/06/93		01/06/93		01/06/93		01/06/93		01/06/93	
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	1.7	1.8	UJ	1.8	UJ	1.8	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	2.0	UJ
beta-BHC	1.7	1.8	UJ	1.8	UJ	1.8	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	2.0	UJ
delta-BHC	1.7	1.8	UJ	1.8	UJ	1.8	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	2.0	UJ
gamma-BHC (Lindane)	1.7	1.8	UJ	1.8	UJ	1.8	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	2.0	UJ
Heptachlor	1.7	1.8	UJ	1.8	UJ	1.8	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	2.0	UJ
Aldrin	1.7	1.8	UJ	1.8	UJ	1.8	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	2.0	UJ
Heptachlor epoxide	1.7	1.8	UJ	1.8	UJ	1.8	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	2.0	UJ
Endosulfan I	1.7	1.8	UJ	1.8	UJ	1.8	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	2.0	UJ
Dieldrin	3.3	3.5	UJ	3.4	UJ	3.4	UJ	3.3	UJ	3.4	UJ	3.4	UJ	3.3	UJ	3.3	UJ	3.4	UJ	3.9	UJ
4,4'-DDE	3.3	3.5	UJ	3.4	UJ	3.4	UJ	3.3	UJ	3.4	UJ	3.4	UJ	3.3	UJ	3.3	UJ	3.4	UJ	3.9	UJ
Endrin	3.3	3.5	UJ	3.4	UJ	3.4	UJ	3.3	UJ	3.4	UJ	3.4	UJ	3.3	UJ	3.3	UJ	3.4	UJ	3.9	UJ
Endosulfan II	3.3	3.5	UJ	3.4	UJ	3.4	UJ	3.3	UJ	3.4	UJ	3.4	UJ	3.3	UJ	3.3	UJ	3.4	UJ	3.9	UJ
4,4'-DDD	3.3	3.5	UJ	3.4	UJ	3.4	UJ	3.3	UJ	3.4	UJ	3.4	UJ	3.3	UJ	3.3	UJ	3.4	UJ	3.9	UJ
Endosulfan sulfate	3.3	3.5	UJ	3.4	UJ	3.4	UJ	3.3	UJ	3.4	UJ	3.4	UJ	3.3	UJ	3.3	UJ	3.4	UJ	3.9	UJ
4,4'-DDT	3.3	3.5	UJ	3.4	UJ	3.4	UJ	3.3	UJ	3.4	UJ	3.4	UJ	3.3	UJ	3.3	UJ	3.4	UJ	3.9	UJ
Methoxychlor	17.0	18	UJ	18	UJ	18	UJ	17	UJ	17	UJ	17	UJ	17	UJ	17	UJ	17	UJ	20	UJ
Endrin Ketone	3.3	3.5	UJ	3.4	UJ	3.4	UJ	3.3	UJ	3.4	UJ	3.4	UJ	3.3	UJ	3.3	UJ	3.4	UJ	3.9	UJ
Endrin Aldehyde	3.3	3.5	UJ	3.4	UJ	3.4	UJ	3.3	UJ	3.4	UJ	3.4	UJ	3.3	UJ	3.3	UJ	3.4	UJ	3.9	UJ
alpha-Chlordane	1.7	1.8	UJ	1.8	UJ	1.8	UJ	1.8	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	2.0	UJ
gamma-Chlordane	1.7	1.8	UJ	1.8	UJ	1.8	UJ	1.8	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	1.7	UJ	2.0	UJ
Toxaphene	170.0	180	UJ	180	UJ	180	UJ	170	UJ	170	UJ	170	UJ	170	UJ	170	UJ	170	UJ	200	UJ
Arochlor-1016	33.0	35	UJ	34	UJ	34	UJ	33	UJ	34	UJ	34	UJ	33	UJ	33	UJ	34	UJ	39	UJ
Arochlor-1221	33.0	71	UJ	69	UJ	69	UJ	68	UJ	68	UJ	69	UJ	67	UJ	67	UJ	68	UJ	79	UJ
Arochlor-1232	67.0	35	UJ	34	UJ	34	UJ	33	UJ	34	UJ	34	UJ	33	UJ	33	UJ	34	UJ	39	UJ
Arochlor-1242	33.0	35	UJ	34	UJ	34	UJ	33	UJ	34	UJ	34	UJ	33	UJ	33	UJ	34	UJ	39	UJ
Arochlor-1248	33.0	35	UJ	34	UJ	34	UJ	33	UJ	34	UJ	34	UJ	33	UJ	33	UJ	34	UJ	39	UJ
Arochlor-1254	33.0	35	UJ	34	UJ	34	UJ	33	UJ	34	UJ	34	UJ	33	UJ	33	UJ	34	UJ	39	UJ
Arochlor-1260	33.0	35	UJ	34	UJ	34	UJ	33	UJ	34	UJ	34	UJ	33	UJ	33	UJ	34	UJ	39	UJ

PESTICIDE/PCB ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q93																				
Sample Number		B07QB8		B07QB9		B07QC0															
Location		199-N-86		199-N-86		199-N-86															
Remarks																					
Sample Date		12/09/92		12/09/92		12/09/92															
Extraction Date		12/21/92		12/21/92		12/21/92															
Analysis Date		01/06/93		01/06/93		01/06/93															
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	1.7	1.8	UJ	1.7	UJ	1.7	UJ														
beta-BHC	1.7	1.8	UJ	1.7	UJ	1.7	UJ														
delta-BHC	1.7	1.8	UJ	1.7	UJ	1.7	UJ														
gamma-BHC (Lindane)	1.7	1.8	UJ	1.7	UJ	1.7	UJ														
Heptachlor	1.7	1.8	UJ	1.7	UJ	1.7	UJ														
Aldrin	1.7	1.8	UJ	1.7	UJ	1.7	UJ														
Heptachlor epoxide	1.7	1.8	UJ	1.7	UJ	1.7	UJ														
Endosulfan I	1.7	1.8	UJ	1.7	UJ	1.7	UJ														
Dieldrin	3.3	3.4	UJ	3.4	UJ	3.4	UJ														
4,4'-DDE	3.3	3.4	UJ	3.4	UJ	3.4	UJ														
Endrin	3.3	3.4	UJ	3.4	UJ	3.4	UJ														
Endosulfan II	3.3	3.4	UJ	3.4	UJ	3.4	UJ														
4,4'-DDD	3.3	3.4	UJ	3.4	UJ	3.4	UJ														
Endosulfan sulfate	3.3	3.4	UJ	3.4	UJ	3.4	UJ														
4,4'-DDT	3.3	3.4	UJ	3.4	UJ	3.4	UJ														
Methoxychlor	17.0	18	UJ	17	UJ	17	UJ														
Endrin Ketone	3.3	3.4	UJ	3.4	UJ	3.4	UJ														
Endrin Aldehyde	3.3	3.4	UJ	3.4	UJ	3.4	UJ														
alpha-Chlordane	1.7	1.8	UJ	1.7	UJ	1.7	UJ														
gamma-Chlordane	1.7	1.8	UJ	1.7	UJ	1.7	UJ														
Toxaphene	170.0	180	UJ	170	UJ	170	UJ														
Arochlor-1016	33.0	34	UJ	34	UJ	34	UJ														
Arochlor-1221	33.0	70	UJ	68	UJ	68	UJ														
Arochlor-1232	67.0	34	UJ	34	UJ	34	UJ														
Arochlor-1242	33.0	34	UJ	34	UJ	34	UJ														
Arochlor-1248	33.0	34	UJ	34	UJ	34	UJ														
Arochlor-1254	33.0	34	UJ	34	UJ	34	UJ														
Arochlor-1260	33.0	34	UJ	34	UJ	34	UJ														

HOLDING TIME SUMMARY

SDG: B07Q93	REVIEWER: RB			DATE: 04/12/93		PAGE 1 OF 1	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07Q93	Pest/PCB	12/07/92	12/21/92	01/05/93	7	40	J
B07Q94	Pest/PCB	12/07/92	12/21/92	01/06/93	7	40	J
B07Q95	Pest/PCB	12/08/92	12/21/92	01/06/93	7	40	J
B07Q96	Pest/PCB	12/08/92	12/21/92	01/06/93	7	40	J
B07Q98	Pest/PCB	12/08/92	12/21/92	01/06/93	7	40	J
B07Q99	Pest/PCB	12/08/92	12/21/92	01/06/93	7	40	J
B07QB0	Pest/PCB	12/09/92	12/21/92	01/06/93	7	40	J
B07QB1	Pest/PCB	12/09/92	12/21/92	01/06/93	7	40	J
B07QB2	Pest/PCB	12/10/92	12/21/92	01/06/93	7	40	J
B07QB3	Pest/PCB	12/10/92	12/21/92	01/06/93	7	40	J
B07QB8	Pest/PCB	12/10/92	12/21/92	01/06/93	7	40	J
B07QB9	Pest/PCB	12/09/92	12/21/92	01/06/93	7	40	J
B07QC0	Pest/PCB	12/09/92	12/21/92	01/06/93	7	40	J

CALIBRATION DATA SUMMARY

SDG: B07Q93	REVIEWER: RB	DATE: 04/12/93		PAGE 1 OF 1	
COMMENTS:					
CALIB. TYPE:	INITIAL CONTINUING	INSTRUMENT:			
CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
01/05/93	alpha-BHC		19.7	All	J
01/05/93	delta-BHC		18.3	All	J

ACCURACY DATA SUMMARY

SDG: B07Q93	REVIEWER: RB	DATE: 04/12/93	PAGE 1 OF 1	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B07Q93	Tetrachloro-m-xylene	53	B07Q93	J
B07Q98	Tetrachloro-m-xylene	56	B07Q98	J
B07Q99	Tetrachloro-m-xylene	53	B07Q99	J
B07QB8	Tetrachloro-m-xylene	58	B07QB8	J

DATA QUALIFICATION SUMMARY

SDG: B07Q93	REVIEWER: RB	DATE: 04/12/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
All pesticide/PCB compounds	J	All	Holding Times Exceeded
alpha-BHC	J	All	Calibration RSD Out
delta-BHC	J	All	Calibration RSD Out
All pesticide/PCB compounds	J	B07Q93, B07Q98, B07Q99, B07QB8	Surrogate Recovery

PESTICIDE/PCB ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: Roy F. Weston																					
Case	SDG: B07Q97																				
Sample Number		B07Q97																			
Location		199-N-88																			
Remarks		Split																			
Sample Date		12/08/92																			
Extraction Date		12/16/92																			
Analysis Date		01/09/92																			
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	1.7	1.7	UJ																		
beta-BHC	1.7	1.7	UJ																		
delta-BHC	1.7	1.7	UJ																		
gamma-BHC (Lindane)	1.7	1.7	UJ																		
Heptachlor	1.7	1.7	UJ																		
Aldrin	1.7	1.7	UJ																		
Heptachlor epoxide	1.7	1.7	UJ																		
Endosulfan I	1.7	1.7	UJ																		
Dieldrin	3.3	3.5	UJ																		
4,4'-DDE	3.3	3.5	UJ																		
Endrin	3.3	3.5	UJ																		
Endosulfan II	3.3	3.5	UJ																		
4,4'-DDD	3.3	3.5	UJ																		
Endosulfan sulfate	3.3	3.5	UJ																		
4,4'-DDT	3.3	3.5	UJ																		
Methoxychlor	17.0	17	UJ																		
Endrin Ketone	3.3	3.5	UJ																		
Endrin Aldehyde	3.3	3.5	UJ																		
alpha-Chlordane	1.7	1.7	UJ																		
gamma-Chlordane	1.7	1.7	UJ																		
Toxaphene	170.0	170	UJ																		
Arochlor-1016	33.0	35	UJ																		
Arochlor-1221	33.0	69	UJ																		
Arochlor-1232	67.0	35	UJ																		
Arochlor-1242	33.0	35	UJ																		
Arochlor-1248	33.0	35	UJ																		
Arochlor-1254	33.0	35	UJ																		
Arochlor-1260	33.0	35	UJ																		

HOLDING TIME SUMMARY

SDG: B07Q97	REVIEWER: SC			DATE: 4/21/93		PAGE 1 OF 1	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07Q97	Pest/PCB	12/8/92	12/16/92	1/9/92	7	40	J

CALIBRATION DATA SUMMARY

SDG: B07Q97	REVIEWER: SC	DATE: 4/21/93		PAGE 1 OF 1	
COMMENTS:					
CALIB. TYPE:	INITIAL CONTINUING	INSTRUMENT:			
CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
1/5/93	alpha-BHC		17.03	B07Q97	J

DATA QUALIFICATION SUMMARY

SDG: B07Q97	REVIEWER: SC	DATE: 4/21/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
alpha-BHC	J	B07Q97	Initial calibration
All pesticide/PCB compounds	J	B07Q97	Holding times exceeded

9 3 1 2 2 1 5 1 2 5 7

PESTICIDE/PCB ORGANIC ANALYSIS, WATER MATRIX, (ug/L)

Project: WESTINGHOUSE-HANFORD																							
Laboratory: TMA																							
Case	SDG: B07QB4																						
Sample Number		B07QB4																					
Location		199-N-88																					
Remarks																							
Sample Date		12/14/92																					
Extraction Date		12/17/92																					
Analysis Date		12/24/92																					
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	0.05	0.050	U																				
beta-BHC	0.05	0.050	U																				
delta-BHC	0.05	0.050	U																				
gamma-BHC (Lindane)	0.05	0.050	U																				
Heptachlor	0.05	0.050	U																				
Aldrin	0.05	0.050	U																				
Heptachlor epoxide	0.05	0.050	U																				
Endosulfan I	0.05	0.050	U																				
Dieldrin	0.10	0.10	U																				
4,4'-DDE	0.10	0.10	U																				
Endrin	0.10	0.10	U																				
Endosulfan II	0.10	0.10	U																				
4,4'-DDD	0.10	0.10	U																				
Endosulfan sulfate	0.10	0.10	U																				
4,4'-DDT	0.10	0.10	U																				
Methoxychlor	0.50	0.50	U																				
Endrin Ketone	0.10	0.10	U																				
Endrin Aldehyde	0.10	0.10	U																				
alpha-Chlordane	0.05	0.05	U																				
gamma-Chlordane	0.05	0.05	U																				
Toxaphene	5.00	5.0	U																				
Arochlor-1016	1.00	1.0	U																				
Arochlor-1221	1.00	1.0	U																				
Arochlor-1232	2.00	2.0	U																				
Arochlor-1242	1.00	1.0	U																				
Arochlor-1248	1.00	1.0	U																				
Arochlor-1254	1.00	1.0	U																				
Arochlor-1260	1.00	1.0	U																				

PESTICIDE/PCB ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07QB5																				
Sample Number		B07QB5		B07QB6		B07QD7		B07QD8		B07QD9		B07QF0									
Location		199-N-89		199-N-89		199-N-87		199-N-87		199-N-87		199-N-87									
Remarks																					
Sample Date		12/17/92		12/17/92		12/16/92		12/16/92		12/17/92		12/17/92									
Extraction Date		12/24/92		12/24/92		12/24/92		12/24/92		12/24/92		12/24/92									
Analysis Date		01/07/93		01/08/93		01/08/93		01/07/93		01/07/93		01/07/93									
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	1.7	1.9	UJ	1.7	UJ	1.8	UJ	1.7	UJ	1.7	UJ	1.7	UJ								
beta-BHC	1.7	1.9	U	1.7	U	1.8	UJ	1.7	UJ	1.7	U	1.7	U								
delta-BHC	1.7	1.9	UJ	1.7	UJ	1.8	UJ	1.7	UJ	1.7	UJ	1.7	UJ								
gamma-BHC (Lindane)	1.7	1.9	U	1.7	U	1.8	UJ	1.7	UJ	1.7	U	1.7	U								
Heptachlor	1.7	1.9	U	1.7	U	1.8	UJ	1.7	UJ	1.7	U	1.7	U								
Aldrin	1.7	1.9	U	1.7	U	1.8	UJ	1.7	UJ	1.7	U	1.7	U								
Heptachlor epoxide	1.7	1.9	U	1.7	U	1.8	UJ	1.7	UJ	1.7	U	1.7	U								
Endosulfan I	1.7	1.9	U	1.7	U	1.8	UJ	1.7	UJ	1.7	U	1.7	U								
Dieldrin	3.3	3.6	U	3.4	U	3.5	UJ	3.4	UJ	3.4	U	3.3	U								
4,4'-DDE	3.3	3.6	U	3.4	U	3.5	UJ	3.4	UJ	3.4	U	3.3	U								
Endrin	3.3	3.6	U	3.4	U	3.5	UJ	3.4	UJ	3.4	U	3.3	U								
Endosulfan II	3.3	3.6	U	3.4	U	3.5	UJ	3.4	UJ	3.4	U	3.3	U								
4,4'-DDD	3.3	3.6	U	3.4	U	3.5	UJ	3.4	UJ	3.4	U	3.3	U								
Endosulfan sulfate	3.3	3.6	U	3.4	U	3.5	UJ	3.4	UJ	3.4	U	3.3	U								
4,4'-DDT	3.3	3.6	U	3.4	U	3.5	UJ	3.4	UJ	3.4	U	3.3	U								
Methoxychlor	17.0	19	U	17	U	18	UJ	17	UJ	17	U	17	U								
Endrin Ketone	3.3	3.6	U	3.4	U	3.5	UJ	3.4	UJ	3.4	U	3.3	U								
Endrin Aldehyde	3.3	3.6	U	3.4	U	3.5	UJ	3.4	UJ	3.4	U	3.3	U								
alpha-Chlordane	1.7	1.9	U	1.7	U	1.8	UJ	1.7	UJ	1.7	U	1.7	U								
gamma-Chlordane	1.7	1.9	U	1.7	U	1.8	UJ	1.7	UJ	1.7	U	1.7	U								
Toxaphene	170.0	190	U	170	U	180	UJ	170	UJ	170	U	170	U								
Arochlor-1016	33.0	36	U	34	U	35	UJ	34	UJ	34	U	33	U								
Arochlor-1221	33.0	74	U	69	U	72	UJ	68	UJ	68	U	67	U								
Arochlor-1232	67.0	36	U	34	U	35	UJ	34	UJ	34	U	33	U								
Arochlor-1242	33.0	36	U	34	U	35	UJ	34	UJ	34	U	33	U								
Arochlor-1248	33.0	36	U	34	U	35	UJ	34	UJ	34	U	33	U								
Arochlor-1254	33.0	36	U	34	U	35	UJ	34	UJ	34	U	33	U								
Arochlor-1260	33.0	36	U	34	U	35	UJ	34	UJ	34	U	33	U								

HOLDING TIME SUMMARY

SDG: B07QB5	REVIEWER: RB			DATE: 4/15/93		PAGE 1 OF 1	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07QD7	Pest/PCB	12/16/92	12/24/92	01/06/93	7	40	J
B07QD8	Pest/PCB	12/16/92	12/24/92	01/07/93	7	40	J

CALIBRATION DATA SUMMARY

SDG: B07QB5	REVIEWER: RB	DATE: 4/15/93		PAGE 1 OF 1	
COMMENTS:					
CALIB. TYPE:	INITIAL CONTINUING	INSTRUMENT: H5890A			
CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
01/05/93	alpha-BHC		19.7	All	J
01/05/93	delta-BHC		18.3	All	J

DATA QUALIFICATION SUMMARY

SDG: B07QB5	REVIEWER: RB	DATE: 4/15/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
All pesticide/PCB compounds	J	B07QD7, B07QD8	Holding Times Exceeded
alpha-BHC	J	All	Initial calibration
delta-BHC	J	All	Initial calibration

PESTICIDE/PCB ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07QB7																				
Sample Number		B07QB7		B07QF2		B07SW7		B07SW8		B07SW9		B07SX0		B07SX1		B07SX2		B07SX3		B07SX4	
Location		199-N-85		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-85	
Remarks		NV		NV, EB		NV		NV		NV		NV		NV		NV		NV		NV	
Sample Date		1/5/93		1/5/93		1/4/93		1/4/93		1/4/93		1/5/93		1/5/93		1/5/93		1/6/93		1/6/93	
Extraction Date		1/13/93		1/13/93		1/13/93		1/13/93		1/13/93		1/13/93		1/13/93		1/13/93		1/13/93		1/13/93	
Analysis Date		2/10/93		2/10/93		2/10/93		2/10/93		2/10/93		2/10/93		2/10/93		2/10/93		2/10/93		2/10/93	
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	1.7	1.8	U	1.7	U	1.8	U	1.7	U	1.7	U	1.8	U	1.8	U	1.7	U	1.7	U	1.7	U
beta-BHC	1.7	1.8	U	1.7	U	1.8	U	1.7	U	1.7	U	1.8	U	1.8	U	1.7	U	1.7	U	1.7	U
delta-BHC	1.7	1.8	U	1.7	U	1.8	U	1.7	U	1.7	U	1.8	U	1.8	U	1.7	U	1.7	U	1.7	U
gamma-BHC (Lindane)	1.7	1.8	U	1.7	U	1.8	U	1.7	U	1.7	U	1.8	U	1.8	U	1.7	U	1.7	U	1.7	U
Heptchlor	1.7	1.8	U	1.7	U	1.8	U	1.7	U	1.7	U	1.8	U	1.8	U	1.7	U	1.7	U	1.7	U
Aldrin	1.7	1.8	U	1.7	U	1.8	U	1.7	U	1.7	U	1.8	U	1.8	U	1.7	U	1.7	U	1.7	U
Heptachlor epoxide	1.7	1.8	U	1.7	U	1.8	U	1.7	U	1.7	U	1.8	U	1.8	U	1.7	U	1.7	U	1.7	U
Endosulfan I	1.7	1.8	U	1.7	U	1.8	U	1.7	U	1.7	U	1.8	U	1.8	U	1.7	U	1.7	U	1.7	U
Dieldrin	3.3	3.4	U	3.3	U	3.4	U	3.3	U	3.3	U	3.4	U	3.4	U	3.4	U	3.3	U	3.4	U
4,4'-DDE	3.3	3.4	U	3.3	U	3.4	U	3.3	U	3.3	U	3.4	U	3.4	U	3.4	U	3.3	U	3.4	U
Endrin	3.3	3.4	U	3.3	U	3.4	U	3.3	U	3.3	U	3.4	U	3.4	U	3.4	U	3.3	U	3.4	U
Endosulfan II	3.3	3.4	U	3.3	U	3.4	U	3.3	U	3.3	U	3.4	U	3.4	U	3.4	U	3.3	U	3.4	U
4,4'-DDD	3.3	3.4	U	3.3	U	3.4	U	3.3	U	3.3	U	3.4	U	3.4	U	3.4	U	3.3	U	3.4	U
Endosulfan sulfate	3.3	3.4	U	3.3	U	3.4	U	3.3	U	3.3	U	3.4	U	3.4	U	3.4	U	3.3	U	3.4	U
4,4'-DDT	3.3	3.4	U	3.3	U	3.4	U	3.3	U	3.3	U	3.4	U	3.4	U	3.4	U	3.3	U	3.4	U
Methoxychlor	17.0	18.0	U	17.0	U	18.0	U	17.0	U	17.0	U	18.0	U	18.0	U	17.0	U	17.0	U	17.0	U
Endrin Ketone	3.3	3.4	U	3.3	U	3.4	U	3.3	U	3.3	U	3.4	U	3.4	U	3.4	U	3.3	U	3.4	U
Endrin Aldehyde	3.3	3.4	U	3.3	U	3.4	U	3.3	U	3.3	U	3.4	U	3.4	U	3.4	U	3.3	U	3.4	U
alpha-Chlordane	1.7	1.8	U	1.7	U	1.8	U	1.7	U	1.7	U	1.8	U	1.8	U	1.7	U	1.7	U	1.7	U
gamma-Chlordane	1.7	1.8	U	1.7	U	1.8	U	1.7	U	1.7	U	1.8	U	1.8	U	1.7	U	1.7	U	1.7	U
Toxaphene	170.0	180.0	U	170.0	U	180.0	U	170.0	U	170.0	U	180.0	U	180.0	U	170.0	U	170.0	U	170.0	U
Arochlor-1016	33.0	34.0	U	33.0	U	34.0	U	33.0	U	33.0	U	33.0	U	34.0	U	34.0	U	33.0	U	34.0	U
Arochlor-1221	33.0	70.0	U	66.0	U	69.0	U	67.0	U	68.0	U	69.0	U	69.0	U	69.0	U	68.0	U	69.0	U
Arochlor-1232	67.0	34.0	U	33.0	U	34.0	U	33.0	U	33.0	U	34.0	U	34.0	U	34.0	U	33.0	U	34.0	U
Arochlor-1242	33.0	34.0	U	33.0	U	34.0	U	33.0	U	33.0	U	34.0	U	34.0	U	34.0	U	33.0	U	34.0	U
Arochlor-1248	33.0	34.0	U	33.0	U	34.0	U	33.0	U	33.0	U	34.0	U	34.0	U	34.0	U	33.0	U	34.0	U
Arochlor-1254	33.0	34.0	U	33.0	U	34.0	U	33.0	U	33.0	U	34.0	U	34.0	U	34.0	U	33.0	U	34.0	U
Arochlor-1260	33.0	34.0	U	33.0	U	34.0	U	33.0	U	33.0	U	34.0	U	34.0	U	34.0	U	33.0	U	34.0	U

ot Validated, EB=Equipment Blank

PESTICIDE/PCB ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07QB7																				
Sample Number		B07WV0		B07WV1		B07WV2		B07WV3		B07WV4		B07WV5									
Location		199-N-89		199-N-85		199-N-89		199-N-89		199-N-89		199-N-85									
Remarks		NV		NV		NV		NV		NV		NV									
Sample Date		1/6/93		1/6/93		1/6/93		1/7/93		1/7/93		1/7/93									
Extraction Date		1/13/93		1/13/93		1/13/93		1/13/93		1/13/93		1/13/93									
Analysis Date		2/10/93		2/10/93		2/10/93		2/10/93		2/10/93		2/10/93									
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	1.7	1.7	U	1.8	U	1.7	U	1.7	U	1.7	U	1.8	U								
beta-BHC	1.7	1.7	U	1.8	U	1.7	U	1.7	U	1.7	U	1.8	U								
delta-BHC	1.7	1.7	U	1.8	U	1.7	U	1.7	U	1.7	U	1.8	U								
gamma-BHC (Lindane)	1.7	1.7	U	1.8	U	1.7	U	1.7	U	1.7	U	1.8	U								
Heptchlor	1.7	1.7	U	1.8	U	1.7	U	1.7	U	1.7	U	1.8	U								
Aldrin	1.7	1.7	U	1.8	U	1.7	U	1.7	U	1.7	U	1.8	U								
Heptachlor epoxide	1.7	1.7	U	1.8	U	1.7	U	1.7	U	1.7	U	1.8	U								
Endosulfan I	1.7	1.7	U	1.8	U	1.7	U	1.7	U	1.7	U	1.8	U								
Dieldrin	3.3	3.4	U	3.5	U	3.4	U	3.3	U	3.3	U	3.4	U								
4,4'-DDE	3.3	3.4	U	3.5	U	3.4	U	3.3	U	3.3	U	3.4	U								
Endrin	3.3	3.4	U	3.5	U	3.4	U	3.3	U	3.3	U	3.4	U								
Endosulfan II	3.3	3.4	U	3.5	U	3.4	U	3.3	U	3.3	U	3.4	U								
4,4'-DDD	3.3	3.4	U	3.5	U	3.4	U	3.3	U	3.3	U	3.4	U								
Endosulfan sulfate	3.3	3.4	U	3.5	U	3.4	U	3.3	U	3.3	U	3.4	U								
4,4'-DDT	3.3	3.4	U	3.5	U	3.4	U	3.3	U	3.3	U	3.4	U								
Methoxychlor	17.0	17.0	U	18.0	U	17.0	U	17.0	U	17.0	U	18.0	U								
Endrin Ketone	3.3	3.4	U	3.5	U	3.4	U	3.3	U	3.3	U	3.4	U								
Endrin Aldehyde	3.3	3.4	U	3.5	U	3.4	U	3.3	U	3.3	U	3.4	U								
alpha-Chlordane	1.7	1.7	U	1.8	U	1.7	U	1.7	U	1.7	U	1.8	U								
gamma-Chlordane	1.7	1.7	U	1.8	U	1.7	U	1.7	U	1.7	U	1.8	U								
Toxaphene	170.0	170.0	U	180	U	170	U	170	U	170	U	180	U								
Arochlor-1016	33.0	34.0	U	35	U	34	U	33	U	33	U	34	U								
Arochlor-1221	33.0	68.0	U	71	U	68	U	68	U	67	U	69	U								
Arochlor-1232	67.0	34.0	U	35	U	34	U	33	U	33	U	34	U								
Arochlor-1242	33.0	34.0	U	35	U	34	U	33	U	33	U	34	U								
Arochlor-1248	33.0	34.0	U	35	U	34	U	33	U	33	U	34	U								
Arochlor-1254	33.0	34.0	U	35	U	34	U	33	U	33	U	34	U								
Arochlor-1260	33.0	34.0	U	35	U	34	U	33	U	33	U	34	U								

NV=Not Validated

PESTICIDE/PCB ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE - HANFORD																						
Laboratory: TMA																						
Case	SDG: B07WV6																					
Sample Number		B07WV6		B07WV7																		
Location		199-N-89		199-N-85																		
Remarks																						
Sample Date		01/08/93		01/08/93																		
Extraction Date		01/15/93		01/15/93																		
Analysis Date		02/11/93		02/11/93																		
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	1.7	1.7	U	1.8	U																
beta-BHC	1.7	1.7	U	1.8	U																
delta-BHC	1.7	1.7	U	1.8	U																
gamma-BHC (Lindane)	1.7	1.7	U	1.8	U																
Heptachlor	1.7	1.7	U	1.8	U																
Aldrin	1.7	1.7	U	1.8	U																
Heptachlor epoxide	1.7	1.7	U	1.8	U																
Endosulfan I	1.7	1.7	U	1.8	U																
Dieldrin	3.3	3.3	U	3.4	U																
4,4'-DDE	3.3	3.3	U	3.4	U																
Endrin	3.3	3.3	U	3.4	U																
Endosulfan II	3.3	3.3	U	3.4	U																
4,4'-DDD	3.3	3.3	U	3.4	U																
Endosulfan sulfate	3.3	3.3	U	3.4	U																
4,4'-DDT	3.3	3.3	U	3.4	U																
Methoxychlor	17.0	17.0	U	18.0	U																
Endrin Ketone	3.3	3.3	U	3.4	U																
Endrin Aldehyde	3.3	3.3	U	3.4	U																
alpha-Chlordane	1.7	1.7	U	1.8	U																
gamma-Chlordane	1.7	1.7	U	1.8	U																
Toxaphene	170.0	170.0	U	180.0	U																
Arochlor-1016	33.0	33.0	U	34.0	U																
Arochlor-1221	33.0	67.0	U	69.0	U																
Arochlor-1232	67.0	33.0	U	34.0	U																
Arochlor-1242	33.0	33.0	U	34.0	U																
Arochlor-1248	33.0	33.0	U	34.0	U																
Arochlor-1254	33.0	33.0	U	34.0	U																
Arochlor-1260	33.0	33.0	U	34.0	U																

PESTICIDE/PCB ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																						
Laboratory: TMA																						
Case	SDG: B07WV8																					
Sample Number		B07WV8		B07WV9																		
Location		199-N-89		199-N-89																		
Remarks		NV		NV																		
Sample Date		1/11/93		1/12/93																		
Extraction Date		1/18/93		1/18/93																		
Analysis Date		2/11/93		2/11/93																		
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
alpha-BHC	1.7	1.8	U	2.0	U																	
beta-BHC	1.7	1.8	U	2.0	U																	
delta-BHC	1.7	1.8	U	2.0	U																	
gamma-BHC (Lindane)	1.7	1.8	U	2.0	U																	
Heptchlor	1.7	1.8	U	2.0	U																	
Aldrin	1.7	1.8	U	2.0	U																	
Heptachlor epoxide	1.7	1.8	U	2.0	U																	
Endosulfan I	1.7	1.8	U	2.0	U																	
Dieldrin	3.3	3.6	U	3.9	U																	
4,4'-DDE	3.3	3.6	U	3.9	U																	
Endrin	3.3	3.6	U	3.9	U																	
Endosulfan II	3.3	3.6	U	3.9	U																	
4,4'-DDD	3.3	3.6	U	3.9	U																	
Endosulfan sulfate	3.3	3.6	U	3.9	U																	
4,4'-DDT	3.3	3.6	U	3.9	U																	
Methoxychlor	17.0	18.0	U	20	U																	
Endrin Ketone	3.3	3.6	U	3.9	U																	
Endrin Aldehyde	3.3	3.6	U	3.9	U																	
alpha-Chlordane	1.7	1.8	U	2.0	U																	
gamma-Chlordane	1.7	1.8	U	2.0	U																	
Toxaphene	170.0	180.0	U	200	U																	
Arochlor-1016	33.0	36.0	U	39	U																	
Arochlor-1221	33.0	73.0	U	80	U																	
Arochlor-1232	67.0	36.0	U	39	U																	
Arochlor-1242	33.0	36.0	U	39	U																	
Arochlor-1248	33.0	36.0	U	39	U																	
Arochlor-1254	33.0	36.0	U	39	U																	
Arochlor-1260	33.0	36.0	U	39	U																	

NV=Not Validated

PESTICIDE/PCB ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																						
Laboratory: TMA																						
Case	SDG: B07WX0																					
Sample Number		B07WX0		B07WX1																		
Location		199-N-85		199-N-85																		
Remarks		NV		NV																		
Sample Date		1/18/93		1/18/93																		
Extraction Date		1/25/93		1/25/93																		
Analysis Date		2/11/93		2/11/93																		
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	1.7	1.7	U	1.8	U																	
beta-BHC	1.7	1.7	U	1.8	U																	
delta-BHC	1.7	1.7	U	1.8	U																	
gamma-BHC (Lindane)	1.7	1.7	U	1.8	U																	
Heptachlor	1.7	1.7	U	1.8	U																	
Aldrin	1.7	1.7	U	1.8	U																	
Heptachlor Epoxide	1.7	1.7	U	1.8	U																	
Endosulfan I	1.7	1.7	U	1.8	U																	
Dieldrin	3.3	3.4	U	3.5	U																	
4,4'-DDE	3.3	3.4	U	3.5	U																	
Endrin	3.3	3.4	U	3.5	U																	
Endosulfan II	3.3	3.4	U	3.5	U																	
4,4'-DDD	3.3	3.4	U	3.5	U																	
Endosulfan Sulfate	3.3	3.4	U	3.5	U																	
4,4'-DDT	3.3	3.4	U	3.5	U																	
Methoxychlor	17.0	17.0	U	18.0	U																	
Endrin Ketone	3.3	3.4	U	3.5	U																	
Endrin Aldehyde	3.3	3.4	U	3.5	U																	
alpha-Chlordane	1.7	1.7	U	1.8	U																	
gamma-Chlordane	1.7	1.7	U	1.8	U																	
Toxaphene	170.0	170.0	U	0.0	U																	
Arochlor-1016	33.0	34.0	U	71.0	U																	
Arochlor-1221	33.0	68.0	U	35.0	U																	
Arochlor-1232	67.0	34.0	U	35.0	U																	
Arochlor-1242	33.0	34.0	U	35.0	U																	
Arochlor-1248	33.0	34.0	U	35.0	U																	
Arochlor-1254	33.0	34.0	U	35.0	U																	
Arochlor-1260	33.0	34.0	U	35.0	U																	

NV = Not Validated

PESTICIDE/PCB ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07WX2																				
Sample Number		B07WX2		B07WX3		B07WX4															
Location		199-N-85		199-N-85		199-N-85															
Remarks		NV		NV		NV															
Sample Date		01/20/93		01/20/93		01/20/93															
Extraction Date		01/29/93		01/29/93		01/29/93															
Analysis Date		02/12/93		02/12/93		02/12/93															
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	1.7	1.7	U	1.8	U	1.8	U														
beta-BHC	1.7	1.7	U	1.8	U	1.8	U														
delta-BHC	1.7	1.7	U	1.8	U	1.8	U														
gamma-BHC (Lindane)	1.7	1.7	U	1.8	U	1.8	U														
Heptachlor	1.7	1.7	U	1.8	U	1.8	U														
Aldrin	1.7	1.7	U	1.8	U	1.8	U														
Heptachlor epoxide	1.7	1.7	U	1.8	U	1.8	U														
Endosulfan I	1.7	1.7	U	1.8	U	1.8	U														
Dieldrin	3.3	3.4	U	3.4	U	3.6	U														
4,4'-DDE	3.3	3.4	U	3.4	U	3.6	U														
Endrin	3.3	3.4	U	3.4	U	3.6	U														
Endosulfan II	3.3	3.4	U	3.4	U	3.6	U														
4,4'-DDD	3.3	3.4	U	3.4	U	3.6	U														
Endosulfan sulfate	3.3	3.4	U	3.4	U	3.6	U														
4,4'-DDT	3.3	3.4	U	3.4	U	3.6	U														
Methoxychlor	17.0	17	U	18	U	18	U														
Endrin Ketone	3.3	3.4	U	3.4	U	3.6	U														
Endrin Aldehyde	3.3	3.4	U	3.4	U	3.6	U														
alpha-Chlordane	1.7	1.7	U	1.8	U	1.8	U														
gamma-Chlordane	1.7	1.7	U	1.8	U	1.8	U														
Toxaphene	170.0	170	U	180	U	180	U														
Arochlor-1016	33.0	34	U	34	U	36	U														
Arochlor-1221	33.0	68	U	69	U	73	U														
Arochlor-1232	67.0	34	U	34	U	36	U														
Arochlor-1242	33.0	34	U	34	U	36	U														
Arochlor-1248	33.0	34	U	34	U	36	U														
Arochlor-1254	33.0	34	U	34	U	36	U														
Arochlor-1260	33.0	34	U	34	U	36	U														

NV = Not Validated

PESTICIDE/PCB ORGANIC ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE - HANFORD																						
Laboratory: TMA																						
Case	SDG: B07WX5																					
Sample Number		B07WX5		B07WX6																		
Location		199-N-85		199-N-85																		
Remarks		BKG, NV		BKG, NV																		
Sample Date		1/22/93		1/22/93																		
Extraction Date		1/29/93		1/29/93																		
Analysis Date		2/11/93		2/11/93																		
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	1.7	1.9	U	1.8	U																
beta-BHC	1.7	1.9	U	1.8	U																
delta-BHC	1.7	1.9	U	1.8	U																
gamma-BHC (Lindane)	1.7	1.9	U	1.8	U																
Heptachlor	1.7	1.9	U	1.8	U																
Aldrin	1.7	1.9	U	1.8	U																
Heptachlor epoxide	1.7	1.9	U	1.8	U																
Endosulfan I	1.7	1.9	U	1.8	U																
Dieldrin	3.3	3.8	U	3.5	U																
4,4'-DDE	3.3	3.8	U	3.5	U																
Endrin	3.3	3.8	U	3.5	U																
Endosulfan II	3.3	3.8	U	3.5	U																
4,4'-DDD	3.3	3.8	U	3.5	U																
Endosulfan sulfate	3.3	3.8	U	3.5	U																
4,4'-DDT	3.3	3.8	U	3.5	U																
Methoxychlor	17.0	19	U	18	U																
Endrin Ketone	3.3	3.8	U	3.5	U																
Endrin Aldehyde	3.3	3.8	U	3.5	U																
alpha-Chlordane	1.7	1.9	U	1.8	U																
gamma-Chlordane	1.7	1.9	U	180	U																
Toxaphene	170.0	190	U	35	U																
Arochlor-1016	33.0	38	U	71	U																
Arochlor-1221	33.0	77	U	35	U																
Arochlor-1232	67.0	38	U	35	U																
Arochlor-1242	33.0	38	U	35	U																
Arochlor-1248	33.0	38	U	35	U																
Arochlor-1254	33.0	38	U	35	U																
Arochlor-1260	33.0	38	U	35	U																

Not Validated BKG = Background Sample

WELL AND SAMPLE INFORMATION				SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	INORGANICS
199-N-84	B07Q83	S	11/30/92	5-9
	B07Q84	S	11/30/92	5-9
	B07Q86	S	11/30/92	5-9
199-N-88	B07Q87	S	12/03/92	5-10
	B07Q88	S	12/03/92	5-10
	B07Q89	S	12/03/92	5-10
	B07Q90	S	12/04/92	5-11
	B07Q91	S	12/04/92	5-11
	B07Q92	S	12/04/92	5-11
	B07Q93	S	12/07/92	5-12
	B07Q94	S	12/07/92	5-12
	B07Q95	S	12/08/92	5-12
	B07Q96	S	12/08/92	5-12
	B07Q97	S	12/08/92	5-18
	B07Q98	S	12/08/92	5-12
	B07Q99	S	12/08/92	5-12
	B07QB0	S	12/09/92	5-12
	B07QB1	S	12/09/92	5-12
	B07QB2	S	12/10/92	5-12
	B07QB3	S	12/10/92	5-12
	B07QB4	S	12/14/92	5-23
199-N-89	B07QB5	S	12/17/92	5-27
	B07QB6	S	12/17/92	5-27
	B07QF2	S	01/05/92	5-32
	B07SW7	S	01/04/93	5-32
	B07SW8	S	01/04/93	5-32
	B07SW9	S	01/04/93	5-32
	B07SX0	S	01/05/93	5-32
	B07SX1	S	01/05/93	5-32
	B07SX2	S	01/06/93	5-32
	B07SX3	S	01/06/93	5-32
	B07WV0	S	01/06/93	5-33
	B07WV2	S	01/07/93	5-33
	B07WV3	S	01/07/93	5-33
	B07WV4	S	01/07/93	5-33
	B07WV6	S	01/08/93	5-34
	B07WV8	S	01/11/93	5-39
	B07WV9	S	01/12/93	5-39

9 3 1 2 9 3 6 7 2 3 0

WELL AND SAMPLE INFORMATION				SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	INORGANICS
199-N-85	B07QB7	S	01/05/93	5-32
	B07SX4	S	01/06/93	5-32
	B07WV1	S	01/06/93	5-33
	B07WV5	S	01/07/93	5-33
	B07WV7	S	01/08/93	5-34
	B07WX0	S	01/18/93	5-40
	B07WX1	S	01/18/93	5-40
	B07WX2	S	01/20/93	5-41
	B07WX3	S	01/20/93	5-41
	B07WX4	S	01/20/93	5-41
	B07WX5	S	01/22/93	5-42
	B07WX6	S	01/22/93	5-42
199-N-86	B07QB8	S	12/09/92	5-13
	B07QB9	S	12/09/92	5-13
	B07QC0	S	12/09/92	5-13
199-N-87	B07QD7	S	12/16/92	5-27
	B07QD8	S	12/16/92	5-27
	B07QD9	S	12/17/92	5-27
	B07QF0	S	12/17/92	5-27

5.0 INORGANIC DATA VALIDATION

5.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted and found to be complete:

B07Q93	B07QB4	B07WV6
B07Q97	B07QB5	

5.2 HOLDING TIMES

Analytical holding times for ICP metals, GFAA metals, and CVAA mercury analyses were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: samples must be analyzed within twenty-eight days for mercury, 14 days for cyanide, and within six months for all other metals.

All holding time requirements for all analytes in all data packages were met for this report.

5.3 INSTRUMENT PERFORMANCE AND CALIBRATIONS

Performance of specific instrument quality assurance and quality control procedures, including deficiencies noted during the quality assurance review, are outlined below.

Three calibration standards and a blank were analyzed for arsenic, selenium, thallium, and lead by GFAA. The correlation coefficient of a least squares linear regression met the requirements for calibration in all cases.

Up to five calibration standards and a blank were analyzed for mercury by CVAA. The correlation coefficient of a least squares linear regression met the requirements for calibration.

At least one standard and a blank were analyzed by ICP for all other elements.

The above calibrations were each immediately verified with an ICV standard and a calibration blank. The ICV was prepared from a source independent of the calibration standards, at a mid-calibration range concentration. The ICV percent recovery must fall within the control limits of 90 to 110 percent for

metals analyzed by ICP and GFAA, and 80 to 120 percent for mercury. Calibration linearity near the detection limit was verified with a standard prepared at a concentration near the CRDL.

The ICVs met the recommended control limits for all cases.

The calibrations were subsequently verified at regular intervals using a CCV standard. The control windows for percent recovery of CCV standards are the same as the ICV windows described above.

The CCVs met the recommended control limits in all cases.

5.3.1 ICP Calibration

An ICS was analyzed at the beginning and end of each ICP sample run to verify the laboratory interelement and background correction factors. Results for the ICS solution must fall within the control limit of ±20 percent of the true value.

A five-fold serial dilution is required for all elements analyzed by ICP. The subsequent concentrations of the reanalysis are compared with the original analysis. If the analyte concentration is sufficiently high (a minimum factor of 50 above the IDL) then the serial dilution must agree within 10% of the original determination after correction for dilution.

The ICS has been analyzed at the proper frequency and all ICSAB solution percent recovery values fell within the control limit.

5.3.2 Atomic Absorption Calibrations

Duplicate injections are required for all GFAA analyses. The duplicate injections establish the precision of the individual analytical determinations. For sample concentrations greater than the CRDL, duplicate injections must agree within ±20 percent RSD.

All duplicate injection quality control requirements were acceptable.

5.3.3 Cyanide Analysis Calibrations

Cyanide analysis was performed by mid-distillation under Method 335.2 CLP-M (semi-automated spectrophotometric). The detection limit for the semi-automated colorimetric method is approximately 10 ug/L.

The cyanide as hydrocyanic acid (HCN) is released from cyanide complexes by means of mid-reflux-distillation operation and absorbed in a scrubber containing sodium hydroxide solution. The cyanide ion in the absorbing solution is then determined colorimetrically.

All results fell within the acceptable limits.

5.4 BLANKS

Samples with digestate concentrations (in ug/L) of less than five times (<5x) the highest amount found in any of the associated blanks have had their associated values qualified as non-detected (U). Samples with concentrations of greater than five times (>5x) the highest amount found in any of the associated blanks do not require qualification.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for antimony:

- Sample number B07QB4 in SDG No. B07QB4.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for arsenic:

- Sample number B07Q97 in SDG No. B07Q97.
- Sample numbers B07WV6 and B07WV7 in SDG No. B07WV6.

Due to the presence of laboratory blank contamination the following samples were flagged "U" for beryllium:

- Sample numbers B07Q93, B07Q94, B07Q95, B07Q96, B07Q98, B07Q99, B07QB0, B07QB1, B07QB2, B07QB3, B07QB8, B07QB9 and B07QC0 in SDG No. B07Q93.
- Sample numbers B07WV6 and B07WV7 in SDG No. B07WV6.

Due to the presence of laboratory blank contamination the following samples were flagged "U" for cadmium:

- Sample numbers B07Q93, B07Q94, B07Q95, B07Q96, B07Q98, B07Q99, B07QB0, B07QB1, B07QB2, B07QB3, B07QB8, B07QB9 and B07QC0 in SDG No. B07Q93.
- Sample number B07QB4 in SDG No. B07QB4.

Due to the presence of laboratory blank contamination the following samples were flagged "U" for chromium:

- Sample number B07QB4 in SDG No. B07QB4.

Due to the presence of laboratory blank contamination the following samples were flagged "U" for cobalt:

- Sample number B07QB3 in SDG No. B07Q93.
- Sample number B07Q97 in SDG No. B07Q97.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for copper:

- Sample numbers B07QB2, B07QB3 and B07QB8 in SDG No. B07Q93.
- Sample number B07QB4 in SDG No. B07QB4.
- Sample numbers B07QB5 and B07QF0 in SDG No. B07QB5.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for lead:

- Sample number B07Q97 in SDG No. B07Q97.
- Sample number B07QB4 in SDG No. B07QB4.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for nickel:

- Sample number B07QB4 in SDG No. B07QB4.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for selenium:

- Sample numbers B07Q93, B07Q94, B07Q95, B07Q96, B07Q98, B07Q99, B07QB0, B07QB1, B07QB2, B07QB3, B07QB8, B07QB9 and B07QC0 in SDG No. B07Q93.
- Sample number B07WV6 in SDG No. B07WV6.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for silver:

- Sample number B07Q97 in SDG No. B07Q97.
- Sample numbers B07QB5, B07QB6, B07QD7, B07QD8, B07QD9 and B07QF0 in SDG No. B07QB5.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for vanadium:

- Sample number B07Q97 in SDG No. B07Q97.
- Sample number B07QB4 in SDG No. B07QB4.

Due to the presence of laboratory blank contamination, the following samples were flagged "U" for zinc:

- Sample number B07QB3 in SDG No. B07Q93.

All other laboratory blank results were acceptable.

5.5 ACCURACY

5.5.1 Matrix Spike Recovery

Matrix spike analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike recoveries must generally fall within the range of 75 to 125 percent. Samples with a spike recovery of less than 30% and a sample value below the IDL were rejected and flagged "R".

Matrix spike recoveries fell outside the quality control requirement for antimony in SDG Nos. B07Q93, B07QB5 and B07WV6. All associated results were qualified as estimates and flagged "J".

Matrix spike recoveries fell outside the quality control requirement for arsenic in SDG No. B07Q97. All associated results were qualified as estimates and flagged "J".

Matrix spike recoveries fell outside the quality control requirement for iron in SDG No. B07QB4. All associated results were qualified as estimates and flagged "J".

Matrix spike recoveries fell outside the quality control requirement for selenium in SDG Nos. B07QB5 and B07WV6. All associated results were qualified as estimates and flagged "J".

Matrix spike recoveries were severely outside the quality control requirement for selenium in SDG No. B07QB4. All associated results were rejected and flagged "R".

Matrix spike recoveries fell outside the quality control requirement for cyanide in SDG No. B07Q93. All associated results were qualified as estimates and flagged "J".

All other matrix spike recovery results were acceptable.

5.5.2 Laboratory Control Sample Recovery

The LCS monitors the overall performance of the analysis, including the sample preparation. An LCS should be digested or distilled and analyzed with every group of samples which have

been prepared together. The performance criteria for solid LCS samples are established through interlaboratory studies coordinated by a certifying agency (e.g., EPA or an independent commercial supplier).

One solid LCS was digested and analyzed for each of the cases in this report that contained soil samples. The results were compared against the established control limits as required by the USEPA CLP SOW 7/88 and 3/90 protocols.

All results were found to be acceptable.

5.6 PRECISION

5.6.1 Laboratory Duplicate Samples

The laboratory duplicate results measures the precision of the method by measuring a second aliquot of the sample that is treated the same way as the original. Samples whose precision fell outside the quality control requirements were flagged as estimates "J".

The laboratory duplicate results fell outside the established QC limits for chromium in SDG Nos. B07Q97 and B07QB5.

The laboratory duplicate results fell outside the established QC limits for iron in SDG No. B07WV6.

The laboratory duplicate results fell outside the established QC limits for silver in SDG No. B07Q97.

The laboratory duplicate results fell outside the established QC limits for zinc in SDG No. B07WV6.

All other laboratory duplicate recovery results were acceptable.

5.6.2 ICP Serial Dilution

The ICP serial dilution is used to determine whether significant physical or chemical interferences exist due to sample matrix. If sample concentration is $\geq$ 50 times the IDL for an analyte and the %D is outside the control limits the associated data must be qualified as estimates "J".

The ICP serial dilution results fell outside the established QC limits for iron in SDG No. B07WV6.

The ICP serial dilution results fell outside the established QC limits for manganese in SDG No. B07WV6.

The ICP serial dilution results fell outside the established QC limits for zinc in SDG No. B07QB5.

All other ICP serial dilution results were acceptable.

5.7 FURNACE AA QUALITY CONTROL

The post-digestion analytical spike is analyzed to determine the extent of interference in the digestate matrix. When the results of the analytical spike analyses exceeds the control window of 85 to 115 percent recovery and the absorbance of the sample is greater than fifty percent of the analytical spike absorbance, then the sample must be reanalyzed using the MSA. The duplicate injections and the analytical spike recoveries establish the precision and accuracy of the individual GFAA determinations.

5.7.1 Duplicate Injections

All duplicate injection quality control requirements were met.

5.7.2 Analytical Spike Recoveries

For all samples whose analytical spike results were outside the 85 to 115 percent control limit, but whose absorbances are less than 50 percent of the analytical spike absorbance, the samples were flagged as estimates "J".

The analytical spike recovery fell outside the established QC limits for arsenic:

- Sample numbers B07Q94 and B07Q96 in SDG No. B07Q93.
- Sample number B07Q97 in SDG No. B07Q97.
- Sample numbers B07QD8, B07QD9 and B07QF0 in SDG No. B07QB5.

The analytical spike recovery fell outside the established QC limits for lead:

- Sample number B07Q97 in SDG No. B07Q97.

The analytical spike recovery fell outside the established QC limits for selenium:

- Sample number B07Q97 in SDG No. B07Q97.
- Sample numbers B07QB5, B07QB6, B07QD7, B07QD9 and B07QF0 in SDG No. B07QB5.

- Sample number B07QB4 in SDG No. B07QB4.
- Sample number B07WV7 in SDG No. B07WV6.

The analytical spike recovery fell outside the established QC limits for thallium:

- Sample numbers B07QB5 and B07QF0 in SDG No. B07QB5.

All other analytical spike recovery results were acceptable.

5.8 ANALYTE QUANTITATION AND DETECTION LIMITS

Twenty percent of sample results and reported detection limits were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors.

The reviewer verified that the results and detection limits fell within the linear range of the instrument.

5.9 OVERALL ASSESSMENT AND SUMMARY

All samples were analyzed and reported under the 1990 CLP protocol (EPA 1990). Several inconsistencies and deviations from the protocol were observed. They are as follows:

CCV and CCB must be analyzed immediately after the ICV and ICB. ICAP, Mercury and Cyanide do not follow this protocol. For ICAP analysis a CCV and CCB were run after the initial interference checks and CRI. This is incorrect since the ICSA/AB and CRII are considered analytical samples and according to the CLP protocol a CCV and CCB must be run prior to any analytical samples. For mercury and cyanide the CCV and CCB were analyzed for after the first ten samples. Refer to Sections E-11 paragraph 2b and E-12 paragraph 4a of the USEPA CLP SOW 3/90 protocol.

Internal chain-of-custodies provided are insufficient, Interdepartmental transfers are not shown (i.e., from the sample custodian to the metals department). Refer to section F-2 paragraph 1.2 and F-3 paragraph 1.4 of the USEPA CLP SOW 3/90.

The mercury ICV appears to have been analyzed at a 2X dilution. The results which appears on form 2A is exactly 2 times the result found in the raw data. The laboratory must verify results and properly label raw data with the correct dilution factor.

All other data are usable for all purposes.

INORGANIC ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q83																				
Sample Number		B07Q83		B07Q84		B07Q86															
Location		199-N-84		199-N-84		199-N-84															
Remarks		NV		NV		NV															
Sample Date		11/30/92		11/30/92		11/30/92															
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	5160		4990		3800															
Antimony	60	3.0	U	3.1	U	3.0	U														
Arsenic	10	2.0		0.86		1.7															
Barium	200	49.4		52.3		59.4															
Beryllium	5	0.28		0.25		0.2															
Cadmium	5	0.3	U	0.31	U	0.3	U														
Calcium	5000	7160		7130		5900															
Chromium	10	7.4		7.1		4.8															
Cobalt	50	10.4		10.6		13.1															
Copper	25	25.3		22.3		19.9															
Iron	100	19300		20900		24500															
Lead	3	10.5		2.7		2.8															
Magnesium	5000	4420		4680		4380															
Manganese	15	267		277		295															
Mercury	0.2	0.06	U	0.05	U	0.05	U														
Nickel	40	11.4		10.2		7.7															
Potassium	5000	857		823		546															
Selenium	5	1.1		0.77	U	0.78	U														
Silver	10	0.73	U	0.75	U	0.83															
Sodium	5000	275		294		399															
Thallium	10	0.82		0.75	U	0.76	U														
Vanadium	50	45.3		49		57.8															
Zinc	20	37		39		42.4															
Cyanide	10	0.55	U	0.51	U	0.52	U														

NV = Not Validated

INORGANIC ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q87																				
Sample Number		B07Q87		B07Q88		B07Q89															
Location		199-N-88		199-N-88		199-N-88															
Remarks		NV		NV		NV															
Sample Date		12/03/92		12/03/92		12/03/92															
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	6500		6540		6230															
Antimony	60	3.4	U	3.4	U	3.6	U														
Arsenic	10	2.1		2.4		1.2															
Barium	200	59.3		57.7		48.4															
Beryllium	5	0.09		0.10		0.11															
Cadmium	5	0.20	U	0.20	U	0.21	U														
Calcium	5000	6360		6750		7860															
Chromium	10	10.7		12.1		8.9															
Cobalt	50	7.9		8.2		9.9															
Copper	25	14.8		13.8		16.7															
Iron	100	16500		17100		21800															
Lead	3	4.5		5.1		4.9															
Magnesium	5000	4000		4640		4580															
Manganese	15	263		271		284															
Mercury	0.2	0.05		0.07		0.06															
Nickel	40	10.1		9.4		8.2															
Potassium	5000	957		1110		899															
Selenium	5	0.78	U	0.80	U	0.82	U														
Silver	10	0.50	U	0.50	U	0.53	U														
Sodium	5000	227		319		344															
Thallium	10	0.35	U	0.36	U	0.37	U														
Vanadium	50	37.6		38.8		45.3															
Zinc	20	42.4		35.3		42.5															
Cyanide	10	0.53	U	0.53	U	0.54	U														

NV = Not Validated

INORGANIC ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q90																				
Sample Number		B07Q90		B07Q91		B07Q92															
Location		199-N-88		199-N-88		199-N-88															
Remarks		NV		NV		NV															
Sample Date		12/04/92		12/04/92		12/04/92															
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	8120		4600		4330															
Antimony	60	3.5	U	3.5	U	3.4	U														
Arsenic	10	3.5		1.5		2.7															
Barium	200	63.6		44.8		53.3															
Beryllium	5	0.11		0.2		0.15															
Cadmium	5	0.21	U	0.21	U	0.2	U														
Calcium	5000	7860		3730		4910															
Chromium	10	10.4		7.0		6.5															
Cobalt	50	11.2		13.1		11.3															
Copper	25	17.9		13.2		15.3															
Iron	100	21300		25900		26600															
Lead	3	6.0		3.7		4.3															
Magnesium	5000	5140		3470		3970															
Manganese	15	285		236		243															
Mercury	0.2	0.09		0.1		0.08															
Nickel	40	9.9		6.2		6.1															
Potassium	5000	1080		459		375															
Selenium	5	1.9		1.4		1.5															
Silver	10	0.52	U	0.52	U	0.51	U														
Sodium	5000	368		350		323															
Thallium	10	0.33	U	0.36	U	0.36	U														
Vanadium	50	46.6		81.1		60.4															
Zinc	20	51.5		48.7		41.0															
Cyanide	10	0.55	U	0.54	U	0.51	U														

NV = Not Validated

INORGANIC ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q93																				
Sample Number		B07Q93		B07Q94		B07Q95		B07Q96		B07Q98		B07Q99		B07QB0		B07QB1		B07QB2		B07QB3	
Location		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88	
Remarks																					
Sample Date		12/07/92		12/07/92		12/08/92		12/08/92		12/08/92		12/08/92		12/09/92		12/09/92		12/10/92		12/10/92	
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	4330		3940		4620		3310	J	3460		4590		4490		5370		4090		1890	
Antimony	60	3.7	UJ	3.7	UJ	5.0	J	3.7	UJ	3.6	UJ	4.9	J	3.7	UJ	3.8	UJ	3.6	UJ	4.1	UJ
Arsenic	10	1.6		1.1	J	0.82		1.1	J	0.79		1.0		1.4		1.6		0.68		0.83	
Barium	200	65.6		41.5		52.4		50.3		49.6		59.2		45.0		61.1		51.5		16.8	
Beryllium	5	0.21	U	0.19	U	0.25	U	0.18		0.25	U	0.30	U	0.18	U	0.23	U	0.12	U	0.11	U
Cadmium	5	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.30	U	0.32	U	0.33	U	0.32	U	0.35	U
Calcium	5000	5140		4370		5310		5060		5120		5680		2000		2170		5390		3670	
Chromium	10	7.4		4.9		4.8		3.0		3.6		6.3		9.2		11.2		7.6		4.5	
Cobalt	50	13.6		12.0		15.8		11.9		12.4		14.1		5.6		10.0		4.3		2.1	U
Copper	25	30.6		21.2		18.4		17.4		15.4		17.8		16.4		16.8		8.6	U	5.2	U
Iron	100	25400		20700		25300		19500	J	22200		25500		9770		10700		7560		3520	
Lead	3	2.8		1.9		2.2		2.0		1.8		2.7		6.4		2.9		3.1		2.0	
Magnesium	5000	4060		3790		3990		3470		3850		4270		2810		3610		2470		1320	
Manganese	15	277		262		338		251	J	284		310		.192		702		163		73.8	
Mercury	0.2	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.04	U	0.05	U	0.05	U	0.05	U	0.06	U
Nickel	40	7.9		7.9		7.6		6.1		7.5		8.5		10.2		17.6		8.7		5.4	
Potassium	5000	486		387		455		395		407		625		535		731		886		390	
Selenium	5	0.99	UJ	0.92	U	2.3	UJ	1.1	U	0.90	UJ	0.61	U	1.20	U	0.91	U	0.80	UJ	1.1	U
Silver	10	1.2		1.2		1.5		0.89		1.3		1.3		0.78	U	0.82	U	0.77	U	0.86	U
Sodium	5000	368		285		356		305		316		407		333		216		263		104	
Thallium	10	0.30	U	0.30	U	0.29	U	0.30	U	0.31	U	0.30	U	0.30	U	0.31	U	0.31	U	0.33	U
Vanadium	50	59.1		44.5		56.9		36.8		48.7		62.6		23.2		23.9		13.8		6.6	
Zinc	20	47.8		44.9		53.6		36.6		39.6		49.1		28.5		37.1		24.1		13.6	U
Cyanide	10	0.53	UJ	0.52	UJ	0.52	UJ	0.51	UJ	0.51	UJ	0.51	UJ	0.49	UJ	0.50	UJ	0.52	UJ	0.59	UJ

INORGANIC ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q93																				
Sample Number		B07QB8		B07QB9		B07QC0															
Location		199-N-86		199-N-86		199-N-86															
Remarks																					
Sample Date		12/09/92		12/09/92		12/09/92															
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	5890		3970		2950															
Antimony	60	3.9	UJ	3.6	UJ	3.6	UJ														
Arsenic	10	2.0		0.74		0.95															
Barium	200	51.6		47.1		44.7															
Beryllium	5	0.21	U	0.22	U	0.21	U														
Cadmium	5	0.34	U	0.32	U	0.32	U														
Calcium	5000	2540		5970		5430															
Chromium	10	10.9		4.3		2.2															
Cobalt	50	6.0		13.3		11.8															
Copper	25	7.0	U	16.1		13.8															
Iron	100	11900		23500		20800															
Lead	3	3.3		2.0		1.9															
Magnesium	5000	3680		4100		3710															
Manganese	15	198		268		247															
Mercury	0.2	0.05	U	0.05	U	0.05	U														
Nickel	40	11.7		6.6		7.2															
Potassium	5000	1140		560		386															
Selenium	5	1.5	J	0.63	U	0.6	U														
Silver	10	0.82	U	0.92		1.4															
Sodium	5000	83		301		224															
Thallium	10	0.33	U	0.30	U	0.29	U														
Vanadium	50	22.4		51.6		45.4															
Zinc	20	32.9		41.1		36.8															
Cyanide	10	0.53	UJ	0.49	UJ	0.49	UJ														

BLANK AND SAMPLE DATA SUMMARY

SDG: B07Q93	REVIEWER: LM			DATE: 4/22/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
CCB	Beryllium	0.5			ug/L	2.5	5.0	All	U
CCB	Cadmium	2.6			ug/L	13.0	26.0	All	U
CCB	Cobalt	3.2			ug/L	16.0	32.0	B07QB3	U
CCB	Copper	10.2			ug/L	51.0	102.0	B07QB2 B07QB3 B07QB8	U
PBS	Selenium	3.5			ug/L	17.5	35.0	All	U
PBS	Zinc	13.2			ug/L	66.0	132.0	B07QB3	U

ACCURACY DATA SUMMARY

SDG: B07193	REVIEWER: LM	DATE: 4/22/93	PAGE 1 OF 1	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B07QC0S	Antimony	68.1	All	J
B07QC0S	Cyanide	63.3	All	J
B07Q94A	Arsenic	78.8	B07Q94	J
B07Q96A	Arsenic	84.1	B07Q96	J

PRECISION DATA SUMMARY

SDG:B07Q93	REVIEWER: LM	DATE: 4/22/93	PAGE_1_OF_1_		
COMMENTS:					
COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
Aluminum	B07Q96	B07Q97	57.6	B07Q96, B07Q97	J
Iron	B07Q96	B07Q97	66.0	B07Q96, B07Q97	J
Mnaganese	B07Q96	B07Q97	60.1	B07Q96, B07Q97	J

DATA QUALIFICATION SUMMARY

SDG: B07193	REVIEWER: LM	DATE: 4/22/93	PAGE_1_OF_1_
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Beryllium	U	All	Lab. Blank
Cadmium	U	All	Lab. Blank
Cobalt	U	B07QB3	Lab. Blank
Copper	U	B07QB2, B07QB3, B07QB8	Lab. Blank
Selenium	U	All	Lab. Blank
Zinc	U	B07QB3	Lab. Blank
Antimony	J	All	Matrix Spike
Cyanide	J	All	Matrix Spike
Arsenic	J	B07Q94, B07Q96	GFAA Analytical Spike
Selenium	J	B07Q93, B07Q95, B07Q98 B07QB2, B07QB8, B07QB9	MSA Correlation < 0.995
Aluminum	J	B07Q96, B07Q97	Split Sample RPD
Iron	J	B07Q96, B07Q97	Split Sample RPD
Manganese	J	B07Q96, B07Q96	Split Sample RPD

INORGANIC ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE-HANFORD																							
Laboratory: Roy F. Weston																							
Case	SDG: B07Q97																						
Sample Number		B07Q97																					
Location		199-N-88																					
Remarks		Split																					
Sample Date		12/08/92																					
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	1830	J																				
Antimony	60	12.5	U																				
Arsenic	10	0.46	UJ																				
Barium	200	26.2																					
Beryllium	5	0.21	U																				
Cadmium	5	1.45	U																				
Calcium	5000	3390																					
Chromium	10	1.87	UJ																				
Cobalt	50	6.1	U																				
Copper	25	11																					
Iron	100	9820	J																				
Lead	3	1.5	UJ																				
Magnesium	5000	1870																					
Manganese	15	135	J																				
Mercury	0.2	0.05	U																				
Nickel	40	4.15	U																				
Potassium	5000	278	U																				
Selenium	5	0.42	UJ																				
Silver	10	2.5	UJ																				
Sodium	5000	161																					
Thallium	10	0.42	UJ																				
Vanadium	50	7.4	U																				
Zinc	20	16.2																					
Cyanide	10	1.04	U																				

BLANK AND SAMPLE DATA SUMMARY

SDG: B07Q97	REVIEWER: SC			DATE: 4/21/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
PB	Arsenic	0.4			mg/kg	2.0	4.0	B07Q97	U
PB	Cobalt	1.8			mg/kg	9.0	18.0	B07Q97	U
PB	Lead	0.4			mg/kg	2.0	4.0	B07Q97	U
PB	Silver	2.0			mg/kg	10.0	20.0	B07Q97	U
PB	Vanadium	1.6			mg/kg	8.0	16.0	B07Q97	U

ACCURACY DATA SUMMARY

SDG: B07Q97	REVIEWER: SC	DATE: 4/21/93	PAGE 1 OF 1	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B07Q97S	Arsenic	69.2	B07Q97	J

PRECISION DATA SUMMARY

SDG: B07Q97	REVIEWER: SC	DATE: 4/21/93	PAGE 1 OF 1
COMMENTS:			

COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
Chromium	B07Q97	B07Q97D	200.0	B07Q97	J
Silver	B07Q97	B07Q97D	200.0	B07Q97	J
Aluminum	B07Q96	B07Q97	57.6	B07Q96, B07Q97	J
Iron	B07Q96	B07Q97	66.0	B07Q96, B07Q97	J
Manganese	B07Q96	B07Q97	60.1	B07Q96, B07Q97	J

DATA QUALIFICATION SUMMARY

SDG: B07Q97	REVIEWER: SC	DATE: 4/21/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Arsenic	U	B07Q97	Blank contamination
Cobalt	U	B07Q97	Blank contamination
Lead	U	B07Q97	Blank contamination
Silver	U	B07Q97	Blank contamination
Vanadium	U	B07Q97	Blank contamination
Arsenic	J	B07Q97	Matrix spike
Chromium	J	B07Q97	Lab duplicate
Silver	J	B07Q97	Lab duplicate
Arsenic	J	B07Q97	GFAA QC
Lead	J	B07Q97	GFAA QC
Selenium	J	B07Q97	GFAA QC
Thallium	J	B07Q97	GFAA QC
Alumium	J	B07Q96, B07Q97	Split Sample RPD
Iron	J	B07Q96, B07Q97	Split Sample RPD
Manganese	J	B07Q96, B07Q97	Split Sample RPD

INORGANIC ANALYSIS, WATER MATRIX, (µg/L)

Project: WESTINGHOUSE-HANFORD																							
Laboratory: TMA																							
Case	SDG: B07QB4																						
Sample Number		B07QB4																					
Location		199-N-88																					
Remarks																							
Sample Date		12/14/92																					
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q		
Aluminum	200	1340																					
Antimony	60	23.2	U																				
Arsenic	10	3.7	U																				
Barium	200	109																					
Beryllium	5	0.5	U																				
Cadmium	5	2.0	U																				
Calcium	5000	57300																					
Chromium	10	9.0	U																				
Cobalt	50	2.5	U																				
Copper	25	21.4	U																				
Iron	100	2990	J																				
Lead	3	4.2	U																				
Magnesium	5000	4720																					
Manganese	15	41.7																					
Mercury	0.2	0.1	U																				
Nickel	40	4.7	U																				
Potassium	5000	1200																					
Selenium	5	16.5	R																				
Silver	10	3.9	U																				
Sodium	5000	2020																					
Thallium	10	1.5	U																				
Vanadium	50	9.2	U																				
Zinc	20	33.8																					
Cyanide	10	10.0	U																				

BLANK AND SAMPLE DATA SUMMARY

SDG: B07QB4	REVIEWER: SC			DATE: 4/20/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
PB	Antimony	18.4			ug/L	92	184	B07QB4	U
PB	Cadmium	2.050			ug/L	10.25	20.5	B07QB4	U
PB	Chromium	2.7			ug/L	13.5	27.0	B07QB4	U
PB	Copper	12.560			ug/L	62.8	125.6	B07QB4	U
PB	Lead	1.2			ug/L	6.0	12.0	B07QB4	U
PB	Nickel	3.0			ug/L	15.0	30.0	B07QB4	U
PB	Vanadium	2.5			ug/L	12.5	25.0	B07QB4	U

ACCURACY DATA SUMMARY

SDG: B07QB4	REVIEWER: SC	DATE: 4/20/93	PAGE 1 OF 1	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B07QB4S	Selenium	0.0	B07QB4	R
B07QB4S	Iron	127.1	B07QB4	J

DATA QUALIFICATION SUMMARY

SDG: B07QB4	REVIEWER: SC	DATE: 4/20/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Antimony	U	B07QB4	Lab blank contamination
Cadmium	U	B07QB4	Lab blank contamination
Chromium	U	B07QB4	Lab blank contamination
Copper	U	B07QB4	Lab blank contamination
Lead	U	B07QB4	Lab blank contamination
Nickel	U	B07QB4	Lab blank contamination
Vanadium	U	B07QB4	Lab blank contamination
Selenium	R	B07QB4	Matrix spike
Iron	J	B07QB4	Matrix spike
Selenium	J	B07QB4	GFAA QC

INORGANIC ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07QB5																				
Sample Number		B07QB5		B07QB6		B07QD7		B07QD8		B07QD9		B07QF0									
Location		199-N-89		199-N-89		199-N-87		199-N-87		199-N-87		199-N-87									
Remarks																					
Sample Date		12/17/92		12/17/92		12/16/92		12/16/92		12/17/92		12/17/92									
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	8200		9010		5470		4220		3430		3050									
Antimony	60	3.7	UJ	3.7	UJ	3.6	UJ	3.5	UJ	3.7	UJ	3.7	UJ								
Arsenic	10	2.9		2.9		2		1.5	J	1	J	0.76	J								
Barium	200	72.7		56.3		44		84.9		65.3		49.4									
Beryllium	5	0.35		0.34		0.21		0.2		0.23		0.21									
Cadmium	5	0.32	U	0.32	U	0.31	U	0.31	U	0.32		0.32	U								
Calcium	5000	5500		6130		10700		5610		5560		5510									
Chromium	10	10.1	J	13.7	J	9.2	J	6.8	J	3.4	J	3.9	J								
Cobalt	50	10.8		10.4		8.8		10.8		11.8		11.9									
Copper	25	17.6	U	19.9		26		20.5		20.6		16.5	U								
Iron	100	20000		19500		16900		18200		22300		21700									
Lead	3	5.1		5.9		8.7		2.7		2.3		1.8									
Magnesium	5000	4390		4390		3980		3750		4030		3890									
Manganese	15	326		290		257		237		284		254									
Mercury	0.2	0.05	U	0.05	U	0.5	U	0.5	U	0.5	U	0.05	U								
Nickel	40	10.3		11.9		9.6		8.1		8		6.8									
Potassium	5000	1320		1110		769		749		652		420									
Selenium	5	0.64	UJ	0.6	UJ	0.6	UJ	0.63	UJ	0.63	UJ	0.58	UJ								
Silver	10	1.2	U	1.3	U	1.1	U	1.1	U	1.3	U	1.9	U								
Sodium	5000	212		254		201		355		292		319									
Thallium	10	0.54	UJ	0.5	U	0.5	U	0.53	U	0.53	U	0.49	UJ								
Vanadium	50	45.9		48.2		36.8		43.5		46		46.7									
Zinc	20	48.7	J	61.5	J	37	J	36	J	37.1	J	36.7	J								
Cyanide	10	0.52	U	0.49	U	0.52	U	0.51	U	0.51	U	0.49	U								

BLANK AND SAMPLE DATA SUMMARY

SDG: B07QB5	REVIEWER: LM			DATE: 4/19/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
CCB	Copper	19.0			ug/L	95.0	190.0	B07QB5, B07QF0	U
PBS	Silver	7.61			ug/L	38.0	76.1	B07QB5, B07QB6, B07QD7, B07QD8, B07QD9, B07QF0	U

ACCURACY DATA SUMMARY

SDG: B07QB5	REVIEWER: LM	DATE:4/19/93	PAGE 1 OF 1	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B07QB6S	Antimony	51.1	All	J
B07QB6S	Selenium	71.3	All	J
B07QD8A	Arsenic	78.9	B07QD8	J
B07QD9A	Arsenic	69.7	B07QD9	J
B07QF0A	Arsenic	74.8	B07QF0	J
B07QB5A	Selenium	68.4	B07QB5	J
B07QB6A	Selenium	67.7	B07QB6	J
B07QD7A	Selenium	74.4	B07QD7	J
B07QD9A	Selenium	79.4	B07QD9	J
B07QF0A	Selenium	72.4	B07QF0	J
B07QB5A	Thallium	69.0	B07QB5	J
B07QF0A	Thallium	83.3	B07QF0	J

PRECISION DATA SUMMARY

SDG: B07QB5	REVIEWER: LM	DATE: 4/19/93	PAGE 1 OF 1
COMMENTS:			

COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
Chromium	B07QB6	B07QB6D	23.7	All	J
Zinc	B07QB6	B07QB6L	10.6	All	J

DATA QUALIFICATION SUMMARY

SDG: B07QB5	REVIEWER: LM	DATE: 4/19/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Copper	U	B07QB5, B07QF0	Lab Blank
Silver	U	B07QB5, B07QB6, B07QD7, B07QD8, B07QD9, B07QF0	Lab Blank
Antimony	J	B07QB5, B07QB6, B07QD7, B07QD8, B07QD9, B07QF0	Matrix Spike
Selenium	J	B07QB5, B07QB6, B07QD7, B07QD8, B07QD9, B07QF0	Matrix Spike
Arsenic	J	B07QD8, B07QD9, B07QF0	GFAA Analytical Spike
Selenium	J	B07QB5, B07QB6, B07QD7, B07QD9, B07QF0	GFAA Analytical Spike
Thallium	J	B07QB5, B07QF0	GFAA Analytical Spike
Chromium	J	B07QB5, B07QB6, B07QD7, B07QD8, B07QD9, B07QF0	Lab Duplicate
Zinc	J	B07QB5, B07QB6, B07QD7, B07QD8, B07QD9, B07QF0	ICP Serial Dilution

INORGANIC ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07QB7																				
Sample Number		B07QB7		B07QF2		B07SW7		B07SW8		B07SW9		B07SX0		B07SX1		B07SX2		B07SX3		B07SX4	
Location		199-N-85		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-85	
Remarks		NV		NV, EB		NV		NV		NV		NV		NV		NV		NV		NV	
Sample Date		1/5/93		1/5/93		1/4/93		1/4/93		1/4/93		1/5/93		1/5/93		1/5/93		1/6/93		1/6/93	
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	4600		45.2		4800		3480		4530		4140		3570		3850		3500		4120	
Antimony	60	4.4		3.7	U	3.8	U	3.6	U	3.8	U	3.8	U	3.8	U	3.8	U	3.8	U	3.7	U
Arsenic	10	1.0		0.4		1.0		0.83		0.85		1.0		1.0		1.0		1.1		0.83	
Barium	200	52.5		0.38	U	54.3		44.7		49.7		48.7		52.3		51.3		48.9		62.8	
Beryllium	5	0.19		0.10	U	0.23		0.20		0.22		0.20		0.22		0.18		0.19		0.22	
Cadmium	5	0.33	U	0.32		0.33	U	0.31	U	0.33	U	0.33	U	0.33	U	0.33	U	0.33	U	0.32	U
Calcium	5000	5730		16.3		6670		6010		6240		5770		5540		5800		5870		5800	
Chromium	10	6.9		0.54	U	5.9		3.2		5.4		4.6		3.6		3.8		2.8		7.9	
Cobalt	50	12.8		0.50	U	13.7		11.1		13.6		13.6		11.9		13		12.2		14.1	
Copper	25	21.7		1.4		31.5		24.2		24.2		19.5		17.6		17.9		16.3		18.2	
Iron	100	22800		174		26100		20000		24300		23100		21000		22600		22800		23400	
Lead	3	2.8		0.24	U	2.4		2.0		2.3		2.5		2.3		2.5		2.4		2.4	
Magnesium	5000	4250		13.3		4790		3810		4570		3970		3800		4090		4180		3930	
Manganese	15	285		0.48		316		237		292		288		261		269		269		274	
Mercury	0.2	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Nickel	40	8.1		0.60	U	8.7		7.8		8.3		7.0		6.2		7		5.7		9.8	
Potassium	5000	730		23.3	U	718		482		592		594		509		540		485		593	
Selenium	5	0.82	U	0.76	U	0.80	U	0.73	U	0.79	U	0.79	U	0.73	U	0.78	U	0.75	U	0.81	U
Silver	10	0.81	U	0.78	U	0.82	U	1.1		0.84		1.4		1.0		1.2		0.90		1.4	
Sodium	5000	455		28.0		452		302		445		493		339		310		295		403	
Thallium	10	0.56	U	0.52	U	0.55	U	0.50	U	0.54	U	0.54	U	0.50	U	0.54	U	0.52	U	0.55	U
Vanadium	50	48.6		0.50	U	60.0		40.0		56.9		54.5		46.1		52.8		50.9		61.7	
Zinc	20	39.6		5.6		45.4		35.8		43.1		39.4		37.1		40.2		40.2		41.7	
Cyanide	10	0.53	U	0.49	U	0.53	U	0.51	U	0.51	U	0.51	U	0.48	U	0.50	U	0.50	U	0.54	U

Not Validated, EB=Equipment Blank

INORGANIC ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07QB7																				
Sample Number		B07WV0		B07WV1		B07WV2		B07WV3		B07WV4		B07WV5									
Location		199-N-85		199-N-85		199-N-85		199-N-89		199-N-89		199-N-85									
Remarks		NV		NV		NV		NV		NV		NV									
Sample Date		1/6/92		1/6/92		1/6/92		1/7/92		1/7/92		1/7/92									
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	3450		3850		3540		4510		5050		3320									
Antimony	60	3.8	U	3.8	U	3.6	U	3.7	U	3.5	U	3.9	U								
Arsenic	10	0.71		0.88		0.68		1.4		1.2		0.91									
Barium	200	45.8		49.2		62.9		42.9		50.0		43.1									
Beryllium	5	0.18		0.17		0.21		0.17		0.20		0.20									
Cadmium	5	0.33	U	0.33	U	0.32	U	0.32	U	0.31	U	0.34	U								
Calcium	5000	5550		5470		5260		2570		2020		5260									
Chromium	10	4.3		3.9		4.6		10.4		13.1		5.2									
Cobalt	50	12.1		12.1		11.0		5.8		5.4		10.3									
Copper	25	16.3		17.0		17.4		13.2		12.6		14.8									
Iron	100	22100		21700		19400		11500		10300		19700									
Lead	3	2.1		2.1		2.2		3.1		2.9		2.5									
Magnesium	5000	3450		4210		3260		3600		3550		3290									
Manganese	15	247		252		214		182		247		218									
Mercury	0.2	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U								
Nickel	40	6.0		7.4		6.0		12.6		15.5		6.6									
Potassium	5000	463		551		539		675		737		493									
Selenium	5	0.75	U	0.74	U	0.79	U	0.75	U	0.77	U	0.75	U								
Silver	10	1.3		1.0		0.96		0.79	U	0.75	U	1.2									
Sodium	5000	356		309		334		192		254		300									
Thallium	10	0.51	U	0.51	U	0.54	U	0.51	U	0.53	U	0.52	U								
Vanadium	50	52.0		45.6		44.1		25.6		24.7		37.6									
Zinc	20	38.4		37.1		38.9		29.2		30.3		33.6									
Cyanide	10	0.50	U	0.52	U	0.51	U	0.52	U	0.48	U	0.50	U								

NV=Not Validated

INORGANIC ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07WV6																				
Sample Number		B07WV6		B07WV7																	
Location		199-N-89		199-N-89																	
Remarks																					
Sample Date		01/08/93		01/08/93																	
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	5380		4830																	
Antimony	60	4.0	UJ	3.8	UJ																
Arsenic	10	0.97	U	0.93	U																
Barium	200	74.0		64.5																	
Beryllium	5	0.39	U	0.32	U																
Cadmium	5	0.3	U	0.28	U																
Calcium	5000	3390		10600																	
Chromium	10	14.6		7.5																	
Cobalt	50	3.9		5.6																	
Copper	25	24.8		21.6																	
Iron	100	9380	J	14400	J																
Lead	3	3.8		3.0																	
Magnesium	5000	2920		3600																	
Manganese	15	190	J	245	J																
Mercury	0.2	0.05	U	0.05	U																
Nickel	40	10.3		9.1																	
Potassium	5000	1370		699																	
Selenium	5	2.5	UJ	0.67	UJ																
Silver	10	0.97	U	0.92	U																
Sodium	5000	513		215																	
Thallium	10	0.32	U	0.3	U																
Vanadium	50	19.9		33.1																	
Zinc	20	27.0	J	33.3	J																
Cyanide	10	0.52	U	0.52	U																

BLANK AND SAMPLE DATA SUMMARY

SDG: B07WV6	REVIEWER: SC			DATE: 4/20/93				PAGE 1 OF 1	
COMMENTS:									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
PB	Arsenic	0.97			mg/kg	4.85	9.70	All	U
PB	Beryllium	0.180			mg/kg	0.90	1.8	All	U
PB	Selenium	0.67			mg/kg	3.35	6.7	B07WV6	U

ACCURACY DATA SUMMARY

SDG: B07WV6	REVIEWER: SC	DATE: 4/20/93	PAGE_1_OF_1_	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B07WV7S	Antimony	68.2	All	J
B07WV7S	Selenium	66.8	All	J

PRECISION DATA SUMMARY

SDG: B07WV6	REVIEWER: SC	DATE: 4/20/93	PAGE 1 OF 1		
COMMENTS:					
COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
Iron	B07WV7	B07WV7D	27.1	All	J
Zinc	B07WV7	B07WV7D	20.7	All	J
Iron	B07WV7	B07WV7L	10.6	All	J
Manganese	B07WV7	B07WV7L	11.9	All	J

DATA QUALIFICATION SUMMARY

SDG: B07WV6	REVIEWER: SC	DATE: 4/20/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Selenium	J	B07WV6	MSA
Arsenic	U	All	Blank contamination
Beryllium	U	All	Blank contamination
Selenium	J	B07WV6	Blank contamination
Antimony	J	All	Matrix spike
Selenium	J	All	Matrix spike
Iron	J	All	Lab duplicate
Zinc	J	All	Lab duplicate
Selenium	J	B07WV7	GFAA QC
Iron	J	All	ICP serial dilution
Manganese	J	All	ICP serial dilution

INORGANIC ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE-HANFORD																							
Laboratory: TMA																							
Case	SDG: B07WV8																						
Sample Number		B07WV8		B07WV9																			
Location		199-N-89		199-N-89																			
Remarks		NV		NV																			
Sample Date		1/11/93		1/12/93																			
Inorganic Analytes	CRDL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	3520		2990																	
Antimony	60	4.0	U	4.6	U																
Arsenic	10	0.96		0.85																	
Barium	200	40.1		23.7																	
Beryllium	5	0.29		0.22	U																
Cadmium	5	0.29	U	0.34	U																
Calcium	5000	4090		4500																	
Chromium	10	12.6		6.4																	
Cobalt	50	4.7		2.6																	
Copper	25	19.8		14.3																	
Iron	100	7840		5350																	
Lead	3	2.8		2.1																	
Magnesium	5000	1910		1860																	
Manganese	15	148		91.8																	
Mercury	0.2	0.06	U	0.06	U																
Nickel	40	10		7.2																	
Potassium	5000	588		527																	
Selenium	5	0.83	U	0.92	U																
Silver	10	0.96	U	1.1	U																
Sodium	5000	321		221																	
Thallium	10	0.57	U	0.63	U																
Vanadium	50	19.6		11.4																	
Zinc	20	19.8		16.3																	
Cyanide	10	0.55	U	0.60	U																

NV=Not Validated

INORGANIC ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE - HANFORD																							
Laboratory: TMA																							
Case	SDG: B07WX0																						
Sample Number		B07WX0		B07WX1																			
Location		199-N-85		199-N-85																			
Remarks		NV		NV																			
Sample Date		1/18/93		1/18/93																			
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	4510		5980																			
Antimony	60	3.7	U	3.8	U																		
Arsenic	10	1.2		1.6																			
Barium	200	48.3		62																			
Beryllium	5	0.12		0.18																			
Cadmium	5	0.32	U	0.33	U																		
Calcium	5000	2880		4090																			
Chromium	10	9.8		18.2																			
Cobalt	50	5.1		6.7																			
Copper	25	18.3		25.4																			
Iron	100	10400		13000																			
Lead	3	2.5		3.5																			
Magnesium	5000	3380		3640																			
Manganese	15	200		223																			
Mercury	0.2	0.05	U	0.06	U																		
Nickel	40	12.4		11.6																			
Potassium	5000	593		891																			
Selenium	5	0.63	U	0.66	U																		
Silver	10	0.97		1.2																			
Sodium	5000	159		232																			
Thallium	10	0.3	U	0.32	U																		
Vanadium	50	23.1		27.9																			
Zinc	20	24.6		32																			
Cyanide	10	0.5	U	0.55	U																		

V = Not Validated

INORGANIC ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07WX2																				
Sample Number		B07WX2		B07WX3		B07WX4															
Location		199-N-85		199-N-85		199-N-85															
Remarks		NV		NV		NV															
Sample Date		01/20/93		01/20/93		01/20/93															
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	2750		3280		3530															
Antimony	60	4.0	U	3.7	U	4.0	U														
Arsenic	10	0.99		0.83		0.90															
Barium	200	26.7		69.7		43.5															
Beryllium	5	0.19	U	0.35		0.19	U														
Cadmium	5	0.29	U	0.27	U	0.30	U														
Calcium	5000	2490		3880		2710															
Chromium	10	6.5		7.9		7.4															
Cobalt	50	3.2		4.7		5.6															
Copper	25	5.5		8.7		9.0															
Iron	100	5520		6300		8740															
Lead	3	2.7		2.6		2.3															
Magnesium	5000	1810		2020		1890															
Manganese	15	96.9		462		137															
Mercury	0.2	0.05	U	0.05	U	0.06	U														
Nickel	40	7.6		12.4		8.3															
Potassium	5000	523		608		526															
Selenium	5	0.65	U	0.61	U	0.70	U														
Silver	10	0.96	U	0.90	U	0.97	U														
Sodium	5000	115		107		235															
Thallium	10	0.31	U	0.29	U	0.34	U														
Vanadium	50	11.3		12.1		24.6															
Zinc	20	11.4		13.8		15.2															
Cyanide	10	0.50	U	0.51	U	0.55	U														

NV = Not Validated

INORGANIC ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07WX5																				
Sample Number		B07WX5		B07WX6																	
Location		199-N-85		199-N-85																	
Remarks		BKG, NV		BKG, NV																	
Sample Date		1/22/93		1/22/93																	
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	8150		8870																	
Antimony	60	4.4	U	4.5	U																
Arsenic	10	1.5		1.5																	
Barium	200	79.0		80.1																	
Beryllium	5	0.35		0.36																	
Cadmium	5	0.33	U	0.33	U																
Calcium	5000	3130		3470																	
Chromium	10	10.9		12.1																	
Cobalt	50	8.6		8.4																	
Copper	25	22.6		19.4																	
Iron	100	18100		18200																	
Lead	3	5.4		7.4																	
Magnesium	5000	4080		4130																	
Manganese	15	348		334																	
Mercury	0.2	0.06	U	0.06	U																
Nickel	40	9.7		13.4																	
Potassium	5000	2260		2260																	
Selenium	5	3.7	U	0.79	U																
Silver	10	1.1	U	1.1	U																
Sodium	5000	194		226																	
Thallium	10	0.43	U	0.45	U																
Vanadium	50	38.1		42.2																	
Zinc	20	45.2		47.9																	
Cyanide	10	0.58	U	0.58	U																

Not Validated BKG = Background Sample

WELL AND SAMPLE INFORMATION				SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	WET CHEMISTRY
199-N-84	B07Q83	S	11/30/92	6-4
	B07Q84	S	11/30/92	6-4
	B07Q85	S	11/30/92	6-4
	B07Q86	S	11/30/92	6-4
199-N-88	B07Q87	S	12/03/92	6-5
	B07Q88	S	12/03/92	6-5
	B07Q89	S	12/03/92	6-5
	B07Q90	S	12/04/92	6-6
	B07Q91	S	12/04/92	6-6
	B07Q92	S	12/04/92	6-6
	B07Q93	S	12/07/92	6-7
	B07Q94	S	12/07/92	6-7
	B07Q95	S	12/08/92	6-7
	B07Q96	S	12/08/92	6-7
	B07Q97	S	12/08/92	6-12
	B07Q98	S	12/08/92	6-7
	B07Q99	S	12/08/92	6-7
	B07QB0	S	12/09/92	6-7
	B07QB1	S	12/09/92	6-7
	B07QB2	S	12/10/92	6-7
	B07QB3	S	12/10/92	6-7
	B07QB4	S	12/14/92	6-15
199-N-89	B07QB5	S	12/17/92	6-18
	B07QB6	S	12/17/92	6-18
	B07QF2	S	01/05/92	6-22
	B07SW7	S	01/04/93	6-22
	B07SW8	S	01/04/93	6-22
	B07SW9	S	01/04/93	6-22
	B07SX0	S	01/05/93	6-22
	B07SX1	S	01/05/93	6-22
	B07SX2	S	01/06/93	6-22
	B07SX3	S	01/06/93	6-22
	B07WV0	S	01/06/93	6-23
	B07WV2	S	01/07/93	6-23
	B07WV3	S	01/07/93	6-23
	B07WV4	S	01/07/93	6-23
	B07WV6	S	01/08/93	6-24
	B07WV8	S	01/11/93	6-27
	B07WV9	S	01/12/93	6-27

WELL AND SAMPLE INFORMATION				SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	WET CHEMISTRY
199-N-85	B07QB7	S	01/05/93	6-22
	B07SX4	S	01/06/93	6-22
	B07WV1	S	01/06/93	6-23
	B07WV5	S	01/07/93	6-23
	B07WV7	S	01/08/93	6-24
	B07WX0	S	01/18/93	6-28
	B07WX1	S	01/18/93	6-28
	B07WX2	S	01/20/93	6-29
	B07WX3	S	01/20/93	6-29
	B07WX4	S	01/20/93	6-29
	B07WX5	S	01/22/93	6-30
	B07WX6	S	01/22/93	6-30
199-N-86	B07QB8	S	12/09/92	6-8
	B07QB9	S	12/09/92	6-8
	B07QC0	S	12/09/92	6-8
199-N-87	B07QD7	S	12/16/92	6-18
	B07QD8	S	12/16/92	6-18
	B07QD9	S	12/17/92	6-18
	B07QF0	S	12/17/92	6-18

6.0 WET CHEMISTRY DATA VALIDATION

6.1 DATA PACKAGE COMPLETENESS

The following data packages (SDG Nos.) were submitted and found to be complete:

B07Q93	B07QB4	B07WV6
B07Q97	B07QB5	

6.2 HOLDING TIMES

Analytical holding times for fluoride, sulfate and nitrate-nitrite were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: twenty-eight days for nitrate-nitrite, fluoride and sulfate.

Holding times were exceeded for fluoride in SDG Nos. B07Q93, B07QB5 and B07WV6. All associated sample results were qualified as estimates and flagged "J".

Holding times were exceeded for sulfate in SDG Nos. B07Q93, B07QB5 and B07WV6. All associated sample results were qualified as estimates and flagged "J".

Holding times were exceeded for electrical conductivity in SDG No. B07QB4. All associated sample results were qualified as estimates and flagged "J".

Holding times were exceeded for pH in SDG Nos. B07Q93, B07Q97, B07QB5 and B07WV6. All associated sample results were qualified as estimates and flagged "J".

Holding times were grossly exceeded for phosphate in SDG No. B07QB4. All associated sample results were rejected and flagged "R".

Holding times for all other analytes met QC requirements.

6.3 CALIBRATIONS

All associated instruments were calibrated using the proper standards and procedures.

6.3.1 Initial Calibration

The following calibration procedures must be conducted:

- At least a blank and three standards were used to establish the ion chromatography, ion selective electrode, spectrophotometer, TOC analyzer and TOX analyzer calibrations prior to sample analysis and the correlation was $\geq$0.995.
- The titrant normality for alkalinity analysis was checked.

All initial calibration results were acceptable, however, ICV summary forms were not submitted.

6.3.2 Continuing Calibration Verification

All CCV standards must be analyzed with the required frequency or every 20 samples. The percent recoveries must fall within the 90-110% acceptance windows.

Insufficient instrument calibration verification data (CCVs and CCBs) were provided for the fluoride and sulfate analyses in SDG Nos. B07Q93 and B07QB5. All associated results were qualified as estimates and flagged "J".

All other continuing calibration results were acceptable, however, CCV summary forms were not submitted.

6.4 BLANKS

One laboratory preparation blank is analyzed at a frequency of one every 20 samples. All blank results must fall below the CRQL and if not, all associated data <5 times the amount found in the blank is qualified as non-detected "U".

All laboratory blank results were acceptable.

6.5 ACCURACY

6.5.1 Matrix Spike Recovery

Matrix spike analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations.

All matrix spike results were acceptable.

6.5.2 Laboratory Control Sample Recovery

The LCS monitors the overall performance of the analysis, including the sample preparation. An LCS should be prepared (e.g., digested or distilled) and analyzed with every group of samples which have been prepared together. The performance criteria for aqueous LCS percent recovery is 80 to 120 percent. The performance criteria for solid LCS samples are established through interlaboratory studies coordinated by a certifying agency (e.g., EPA or an independent commercial supplier).

ICV results obtained from the raw data were used to calculate LCS results. All LCS results were found to be acceptable.

6.6 PRECISION

Analytical duplicate sample analyses are used to measure laboratory precision and sample homogeneity. Field duplicate analyses are used to measure both the laboratory and the field sampling procedure precision.

All duplicate analyses results were acceptable for this report.

6.7 ANALYTE QUANTITATION AND DETECTION LIMITS

Sample results and reported detection limits were recalculated to ensure that the reported results were accurate. Raw data were examined for anomalies, transcription errors, and reduction errors. In addition, the reviewer verified that the results fell within the linear range of the instrument.

6.8 OVERALL ASSESSMENT AND SUMMARY

A review of instrument continuing calibration information and QC data indicate that instrument performance was adequate for these analyses. The holding times for fluoride, sulfate, electrical conductivity and pH exceeded the requirements. All results were qualified as estimates and flagged "J". The holding times for phosphate were grossly exceeded and the associated results were rejected and flagged "R". The laboratory did not provide any continuing calibration verification (CCV) and continuing calibration blank (CCB) data for fluoride and sulfate analyses in SDG Nos. B07Q93 and B07QB5. Without this information it is impossible to determine the accuracy if the results since it can not be verified that the instrument remained calibrated for analysis. Aside from lack of data and the QC problems mentioned above, all other results are usable for all purposes.

WET CHEMISTRY/ANIONS ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q83																				
Sample Number		B07Q83		B07Q84		B07Q85		B07Q86													
Location		199-N-84		199-N-84		199-N-84		199-N-84													
Remarks		NV		NV		NV		NV													
Sample Date		11/30/92		11/30/92		11/30/92		11/30/92													
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Fluoride	300.0	0.9		0.6		0.5		0.4													
pH (pH units)	150.1	9.3		9.6		9.5		9.6													
Sulfate	300.0	11.0		6.0		12.0		7.0													
N03N02 (mg N/kg)	353.2	2.47	U	2.49		N/A		2.51	U												

= Not Validated, N/A = Not Analyzed

WET CHEMISTRY/ANIONS ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q87																				
Sample Number		B07Q87		B07Q88		B07Q89															
Location		199-N-88		199-N-88		199-N-88															
Remarks		NV		NV		NV															
Sample Date		12/03/92		12/03/92		12/03/92															
Analytes	IDL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
N03N02(mgN/kg)	353.2	2.53	U	16.1		2.46	U														
Fluoride	300	1.6		1.8		3.0															
pH(pH units)	9045	8.8		8.7		8.3															
Sulfate	300	6		51		103															

NV = Not Validated

WET CHEMISTRY/ANIONS ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q90																				
Sample Number		B07Q90		B07Q91		B07Q92															
Location		199-N-88		199-N-88		199-N-88															
Remarks		NV		NV		NV															
Sample Date		12/04/92		12/04/92		12/04/92															
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Fluoride	300.0	2.1		1.3		0.8															
Sulfate	300.0	92		130		74															
pH (pH units)	150.1	8.5		7.9		7.1															
N03N02 (mg N/kg)	353.2	2.53	U	3.95		2.51	U														

· Not Validated

WET CHEMISTRY/ANIONS ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q93																				
Sample Number		B07Q93		B07Q94		B07Q95		B07Q96		B07Q98		B07Q99		B07QB0		B07QB1		B07QB2		B07QB3	
Location		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88		199-N-88	
Remarks																					
Sample Date		12/07/92		12/07/92		12/08/92		12/08/92		12/08/92		12/08/92		12/09/92		12/09/92		12/10/92		12/10/92	
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Fluoride	300.0	1.5	J	0.9	J	1.4	J	1.2	J	0.9	J	1.2	J	2.1	J	2.9	J	0.8	J	0.8	J
Sulfate	300.0	50.0	J	21.0	J	30.0	J	15.0	J	12.0	J	17.0	J	20.0	J	29.0	J	13.0	J	44.0	J
pH (pH units)	9045	7.7	J	6.9	J	7.3	J	8.8	J	8.9	J	9.0	J	8.8	J	8.4	J	9.7	J	9.2	J
N03N02 (mg N/kg)	353.2	4.29	U	2.57	U	2.41	U	2.81	U	2.52	U	2.49	U	2.56	U	2.53	U	2.64	U	2.52	U

WET CHEMISTRY/ANIONS ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07Q93																				
Sample Number		B07QB8		B07QB9		B07QC0															
Location		199-N-86		199-N-88		199-N-88															
Remarks																					
Sample Date		12/09/92		12/09/92		12/09/92															
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Fluoride	300.0	0.8	J	0.6	J	0.9	J														
Sulfate	300.0	14.0	J	14.0	J	8.2	J														
pH (pH units)	9045	8.4	J	9.3	J	9.4	J														
N03N02 (mg N/kg)	353.2	2.58	U	2.45	U	2.48	U														

HOLDING TIME SUMMARY

SDG: B07Q93	REVIEWER: LM			DATE: 4/22/93		PAGE 1 OF 2	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07Q93	Fluoride	12/07/92	-	01/05/93	-	28 days	J
B07Q94	Fluoride	12/07/92	-	01/05/93	-	28 days	J
B07Q93	Sulfate	12/07/92	-	01/05/93	-	28 days	J
B07Q94	Sulfate	12/07/92	-	01/05/92	-	28 days	J
B07Q93	pH	12/07/92	-	12/18/92	-	2 days	J
B07Q94	pH	12/07/92	-	12/18/92	-	2 days	J
B07Q95	pH	12/08/92	-	12/18/92	-	2 days	J
B07Q96	pH	12/08/92	-	12/18/92	-	2 days	J
B07Q98	pH	12/08/92	-	12/18/92	-	2 days	J
B07Q99	pH	12/08/92	-	12/18/92	-	2 days	J
B07QB0	pH	12/09/92	-	12/18/92	-	2 days	J
B07QB1	pH	12/09/92	-	12/18/92	-	2 days	J
B07QB2	pH	12/10/92	-	12/18/92	-	2 days	J
B07QB3	pH	12/10/92	-	12/18/92	-	2 days	J
B07QB8	pH	12/09/92	-	12/18/92	-	2 days	J
B07QB9	pH	12/09/92	-	12/18/92	-	2 days	J

HOLDING TIME SUMMARY

SDG: B07Q93	REVIEWER: LM			DATE: 4/22/93		PAGE 2 OF 2	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07QC0	pH	12/09/92	-	12/18/92	-	2 days	J

DATA QUALIFICATION SUMMARY

SDG: B07Q93	REVIEWER: LM	DATE: 4/22/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Fluoride	J	B07Q93, B07Q94	Holding Time Exceeded
Sulfate	J	B07Q93, B07Q94	Holding Time Exceeded
pH	J	ALL	Holding Time Exceeded
Fluoride	J	All	Insufficient CCV/CCB data provided
Sulfate	J	All	Insufficient CCV/CCB data provided

9 3 1 2 9 3 6 0 3 3 6

WET CHEMISTRY/ANIONS ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: Roy F. Weston																					
Case	SDG: B07Q97																				
Sample Number		B07Q97																			
Location		199-N-88																			
Remarks		Split																			
Sample Date		12/08/92																			
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Fluoride	300.0	2.6	U																		
Nitrate Nitrite	300.0	0.52	U																		
Sulfate	300.0	11.3																			
pH (pH units)	150.1	8.4	J																		
% Solids		96.3																			

HOLDING TIME SUMMARY

SDG: B07Q97	REVIEWER: SC			DATE: 4/21/93		PAGE 1 OF 1	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07Q97	pH	12/8/92		12/17/92		2	J

DATA QUALIFICATION SUMMARY

SDG: B07Q97	REVIEWER: SC	DATE: 4/21/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
pH	J	B07Q97	Holding times exceeded

WET CHEMISTRY/ANIONS ANALYSIS, WATER MATRIX, (mg/L)

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B07QB4																		
Sample Number		B07QB4																	
Location		199-N-88																	
Remarks																			
Sample Date		12/14/92																	
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Fluoride	300.0	0.1	U																
Phosphate	300.0	0.4	R																
Sulfate	300.0	3290																	
Elect. Conductivity (umhos/cm)	120.1	211	UJ																

HOLDING TIME SUMMARY

SDG: B07QB4	REVIEWER: SC			DATE: 4/20/93		PAGE 1 OF 1	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07QB4	Phosphate	12/14/92		1/14/93		2	R
B07QB4	Conductivity	12/14/92		1/14/93		2	J

DATA QUALIFICATION SUMMARY

SDG: B07QB4	REVIEWER: SC	DATE: 4/20/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Phosphate	R	B07QB4	Holding times grossly exceeded
Conductivity	J	B07QB4	Holding times exceeded

9 3 1 2 9 5 6 1 3 4 2

WET CHEMISTRY/ANIONS ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07QB5																				
Sample Number		B07QB5		B07QB6		B07QD7		B07QD8		B07QD9		B07QF0									
Location		199-N-89		199-N-89		199-N-87		199-N-87		199-N-87		199-N-87									
Remarks																					
Sample Date		12/17/92		12/17/92		12/16/92		12/16/92		12/17/92		12/17/92									
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Fluoride	300	2.4	J	1.8	J	1	J	1.3	J	0.9	J	0.8	J								
Sulfate	300	9	J	33	J	10	J	2040	J	40	J	40	J								
pH (pH units)	9045	8.9	J	8.7	J	9.3	J	8.2	J	9.5	J	9.5	J								

HOLDING TIME SUMMARY

SDG: B07QB5	REVIEWER: LM			DATE: 4/19/93		PAGE 1 OF 2	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07QB5	Fluoride	12/17/92		02/03/93		28 days	J
B07QB6	Fluoride	12/17/92		02/03/93		28 days	J
B07QD7	Fluoride	12/16/93		02/03/93		28 days	J
B07QD8	Fluoride	12/16/93		02/03/93		28 days	J
B07QD9	Fluoride	12/17/92		02/03/93		28 days	J
B07QF0	Fluoride	12/17/92		02/03/93		28 days	J
B07QB5	Sulfate	12/17/92		02/03/93		28 days	J
B07QB6	Sulfate	12/17/92		02/03/93		28 days	J
B07QD7	Sulfate	12/16/92		02/03/93		28 days	J
B07QD8	Sulfate	12/16/92		02/03/93		28 days	J
B07QD9	Sulfate	12/17/92		02/03/93		28 days	J
B07QF0	Sulfate	12/17/92		02/03/93		28 days	J
B07QB5	pH	12/17/92		12/23/92		2 days	J
B07QB6	pH	12/17/92		12/23/92		2 days	J
B07QD7	pH	12/16/92		12/23/92		2 days	J
B07QD8	pH	12/16/92		12/23/92		2 days	J

HOLDING TIME SUMMARY

SDG: B07QB5	REVIEWER: LM			DATE: 4/19/93		PAGE 2 OF 2	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07QD9	pH	12/17/92		12/23/92		2 days	J
B07QF0	pH	12/17/92		12/23/92		2 days	J

DATA QUALIFICATION SUMMARY

SDG: B07QB5	REVIEWER: LM	DATE: 4/19/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Fluoride	J	B07QB5, B07QB6, B07QD7, B07QD8, B07QD9, B07QF0	Holding Time Exceeded
Sulfate	J	B07QB5, B07QB6, B07QD7, B07QD8, B07QD9, B07QF0	Holding Time Exceeded
pH	J	B07QB5, B07QB6, B07QD7, B07QD8, B07QD9, B07QF0	Holding Time Exceeded
Fluoride	J	B07QB5, B07QB6, B07QD7, B07QD8, B07QD9, B07QF0	Insufficient CCV/CCB data provided
Sulfate	J	B07QB5, B07QB6, B07QD7, B07QD8, B07QD9, B07QF0	Insufficient CCV/CCB data provided

WET CHEMISTRY/ANIONS ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory:																					
Case	SDG: B07QB7																				
Sample Number		B07QB7		B07QF2		B07SW7		B07SW8		B07SW9		B07SX0		B07SX1		B07SX2		B07SX3		B07SX4	
Location		199-N-85		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-89		199-N-85	
Remarks		NV		NV, EB		NV		NV		NV		NV		NV		NV		NV		NV	
Sample Date		1/5/93		1/5/93		1/4/93		1/4/92		1/4/92		1/5/93		1/5/93		1/5/93		1/6/93		1/6/93	
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Fluoride	300	1.9		0.3		1.5		1.0		1.3		1.2		1.0		1.1		0.8		1.4	
pH (pH units)	9045	9.2		8.9		9.3		9.0		9.1		9.1		9.0		9.0		9.1		9.0	
Sulfate	300	14.0		3.0		24.0		17.0		16.0		25.0		17.0		27.0		41.0		20.0	

Not Validated, EB=Equipment Blank

WET CHEMISTRY/ANIONS ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory:																					
Case	SDG: B07QB7																				
Sample Number		B07WV0		B07WV1		B07WV2		B07WV3		B07WV5		B07WV4									
Location		199-N-89		199-N-85		199-N-89		199-N-89		199-N-85		199-N-89									
Remarks		NV		NV		NV		NV		NV		NV									
Sample Date		1/6/93		1/6/93		1/6/93		1/7/92		1/7/93		1/7/92									
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Fluoride	300	1.0		1.1		0.9		1.3		1.4		1.7									
pH (pH units)	9045	9.1		9.0		9.0		9.1		9.2		9.1									
Sulfate	300	34.0		8.0		34.0		24.0		11.0		23.0									

NV=Not Validated

WET CHEMISTRY/ANIONS ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07WV6																				
Sample Number		B07WV6		B07WV7																	
Location		199-N-89		199-N-85																	
Remarks																					
Sample Date		01/08/93		01/08/93																	
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Fluoride	300.0	0.5	J	1.0	J																
Sulfate	300.0	14.0	J	26.0	J																
pH (pH units)	150.1	9.4	J	9.8	J																
N03N02 (mg N/kg)	353.2	12.0		2.47	U																

HOLDING TIME SUMMARY

SDG: B07WV6	REVIEWER: SC			DATE: 4/20/93		PAGE 1 OF 1	
COMMENTS:							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07WV6	pH	1/8/93		1/15/93		2	J
B07WV7	pH	1/8/93		1/15/93		2	J
B07WV6	Fluoride	1/8/93		2/9/93		28	J
B07WV7	Fluoride	1/8/93		2/9/93		28	J
B07WV6	Sulfate	1/8/93		2/9/93		28	J
B07WV7	Sulfate	1/8/93		2/9/93		28	J

DATA QUALIFICATION SUMMARY

SDG: B07WV6	REVIEWER: SC	DATE: 4/20/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
pH	J	B07WV6, B07WV7	Holding times exceeded
Fluoride	J	B07WV6, B07WV7	Holding times exceeded
Sulfate	J	B07WV6, B07WV7	Holding times exceeded

WET CHEMISTRY/ANIONS ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	SDG: B07WV8																				
Sample Number		B07WV8		B07WV9																	
Location		199-N-89		199-N-89																	
Remarks		NV		NV																	
Sample Date		1/11/93		1/12/93																	
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Fluoride	300	0.6		0.5																	
pH (pH units)	9045	9.5		8.9																	
Sulfate	300	48.0		63.0																	
N02N03 (mg N/L)	353.2	2.49	U	5.3																	

NV=Not Validated

WET CHEMISTRY/ANIONS ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE-HANFORD																					
Laboratory: TMA																					
Case	B07WX0																				
Sample Number		B07WX0		B07WX1																	
Location		199-N-85		199-N-85																	
Remarks		NV		NV																	
Sample Date		1/18/93		1/18/93																	
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
N03N02(mg N/kg)	353.2	2.48	U	5.53																	
Fluoride	300.0	0.4		0.5																	
pH (pH units)	150.1	9.1		8.9																	
Sulfate	300.0	11		16																	

' = Not Validated

WET CHEMISTRY/ANIONS ANALYSIS, SOIL MATRIX, (ug/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07WX2																				
Sample Number		B07WX2		B07WX3		B07WX4															
Location		199-N-85		199-N-85		199-N-85															
Remarks		NV		NV		NV															
Sample Date		01/20/93		01/20/93		01/20/93															
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Fluoride	300	0.5		0.8		0.4															
Sulfate	300	12.0		13.0		31.0															
pH (pH units)	9045	9.6		9.5		9.1															
N03N02 (mg N/kg)	353.2	2.47		2.47	U	2.47	U														

NV = Not Validated

WET CHEMISTRY/ANIONS ANALYSIS, SOIL MATRIX, (mg/Kg)

Project: WESTINGHOUSE - HANFORD																					
Laboratory: TMA																					
Case	SDG: B07WX5																				
Sample Number		B07WX5		B07WX6																	
Location		199-N-85		199-N-85																	
Remarks		BKG, NV		BKG, NV																	
Sample Date		1/22/93		1/22/93																	
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Fluoride	300	0.7		0.4																	
pH (pH units)	150.1	8.2		7.8																	
Sulfate	300	8.0		14																	
N03n02(mg N/kg)	353.2	5.85		14.8																	

Not Validated BKG: Background Sample

WELL AND SAMPLE INFORMATION				SAMPLE LOCATION INFORMATION
SAMPLE LOCATION	SAMPLE NUMBER	MATRIX	DATE SAMPLED	RADIOCHEMISTRY
199-N-86	B07QB8	S	12/09/92	11-3
	B07QB9	S	12/09/92	11-3
	B07QC0	S	12/09/92	11-3
199-N-85	B07QD7	S	12/16/92	11-3
	B07QD8	S	12/16/92	11-3
	B07QD9	S	12/17/92	11-3
	B07QF0	S	12/17/92	11-3

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7.0 GROSS ALPHA AND GROSS BETA DETERMINATION DATA VALIDATION

7.1 DATA PACKAGE COMPLETENESS

The following data package (SDG No.) was submitted and found to be complete:

B07QB8

7.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

All holding times were acceptable.

7.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the gas proportional counter used for gross alpha and gross beta determination is capable of producing acceptable and reliable analytical data. The initial calibration was performed according to manufacturer's recommendations and consists of an instrument efficiency determination as a function of alpha or beta particle energy, and as a function of the mass of material submitted for counting. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

Due to efficiencies below QC limits, all gross alpha sample results were rejected and flagged "R".

All gross beta calibration results were acceptable.

7.4 ACCURACY

Accuracy was evaluated by analyzing soil or distilled water samples spiked with known amounts of alpha or beta emitting radionuclides. The sample activity as determined by analysis is compared to the known activity to assess accuracy. Acceptable accuracy of spiked sample data must fall within a range of 80 to 120 percent. If spiked sample results were outside this range, the associated data was qualified as estimated (J/UJ).

All accuracy data were acceptable.

7.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. Replicates with activities greater than five times the LLD and with an RPD less than 35 percent are acceptable. If duplicate activities are both <5xLLD, a control limit of 2xLLD is used. If replicate values are both below the LLD, no control limit is applicable. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects (J) or estimated non-detects (UJ).

All precision results were acceptable.

7.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination.

All blank results were acceptable.

7.7 COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Compound quantitation and detection limits were recalculated for all samples in each data package to verify their accuracy.

All compound quantitation and reported detection limits for all samples were acceptable.

7.8 OVERALL ASSESSMENT AND SUMMARY

A review of instrument continuing calibration information and QC data indicates that instrument performance was inadequate for these analyses. All gross alpha data in each data package are rejected and flagged "R" because efficiencies determined in calibration were less than the QC minimum of 20%. Rejected data are unusable for all purposes. All other QC and calibration results were acceptable and usable for all purposes.

8.0 ALPHA SPECTROSCOPY DATA VALIDATION

8.1 DATA PACKAGE COMPLETENESS

The following data package (SDG No.) was submitted and found to be complete:

B07QB8

8.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

All holding times were acceptable.

8.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the alpha spectroscopy system used is capable of producing acceptable and reliable analytical data. The initial calibration was performed according to manufacturer's recommendations and consists of an instrument efficiency determination for each alpha radionuclide region of interest, and a system resolution assessment as measured by the full-width at half maximum for each peak. Initial calibration was performed for each counting geometry used during the analysis of Westinghouse-Hanford samples. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

All instrument calibration and performance data were acceptable.

8.4 ACCURACY

Accuracy was evaluated by analyzing soil or distilled water samples spiked with known amounts of alpha emitting radionuclides. The sample activity as determined by analysis is compared to the known activity to assess accuracy. The acceptable matrix spike or Laboratory Control Sample recovery range is 80 to 120 percent, while that for radiometric yields is 30 to 105%. Spike sample results outside the above ranges

resulted in qualification of the associated data as estimated (J/UJ).

Due to low chemical yields, all isotopic Plutonium results for sample number B07QC0 in SDG No. B07QB8 were rejected and flagged "R".

All other accuracy results were acceptable.

8.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate samples. Replicates with a RPD less than 35 percent are acceptable. If duplicate activities are both <5xLLD, a control limit of 2xLLD is used. If replicate values are both below the LLD, no control limit is applicable. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects (J) or estimated non-detects (UJ).

Due to RPDs out of specification, all Uranium-238 sample results in SDG No. B07QB8 were qualified as estimates and flagged "J."

All other precision results were acceptable.

8.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination.

All blank results were acceptable.

8.7 COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Compound quantitations and detection limits were recalculated for all samples in each data delivery package to verify their accuracy.

All compound quantitation and reported detection limits were acceptable.

8.8 OVERALL ASSESSMENT AND SUMMARY

A complete review of all QC and calibration data indicates that overall system performance is adequate. The results for

Plutonium-238 and Plutonium-239 were affected by low chemical yields in sample number B07QC0 in SDG No. B07QB8. All associated data were rejected and flagged "R". All Uranium-238 results reported for SDG No. B07QB8 were qualified as estimated and flagged "J" due to RPDs out of specification. Rejected results are unusable for all purposes. Data qualified as estimated (J/UJ) are valid and usable for limited purposes only. All other QC and calibration data were acceptable and associated sample results are usable for all purposes.

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9.0 GAMMA SPECTROSCOPY DATA VALIDATION

9.1 DATA PACKAGE COMPLETENESS

The following data package (SDG No.) was submitted and found to be complete:

B07QB8

9.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

All holding times were acceptable.

9.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the gamma spectroscopy system used is capable of producing acceptable and reliable analytical data. The initial calibration was performed according to manufacturer's recommendations and consists of an instrument efficiency determination for each gamma radionuclide region of interest, and a system resolution assessment as measured by the full-width at half maximum for each peak. Initial calibration was performed for each counting geometry used during the analysis of Westinghouse-Hanford samples. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

All instrument calibration and performance data were acceptable.

9.4 ACCURACY

Accuracy was evaluated by analyzing soil or distilled water samples spiked with known amounts of gamma emitting radionuclides. The sample activity as determined by sample analysis is compared to the known activity to assess accuracy. The acceptable spiked recovery range is 80 to 120 percent. If spiked sample results were outside this range the associated data was qualified as estimated (J/UJ).

All accuracy results were acceptable.

9.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. Replicates with a RPD less than 35 percent are acceptable. If duplicate activities are both <5xLLD, a control limit of 2xLLD is used. If replicate values are both below the LLD, no control limit is applicable. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects (J) or estimated non-detects (UJ).

All precision results were acceptable.

9.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results may be due to laboratory reagent, sample container, or detector contamination.

All blank results were acceptable.

9.7 COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Compound quantitations and detection limits were recalculated for all samples in each data delivery package to verify their accuracy.

All compound quantitation and detection limits and results were reported properly.

9.8 OVERALL ASSESSMENT AND SUMMARY

A review of instrument continuing calibration information and QC data indicates that instrument performance was adequate for these analyses. All results are valid and usable for all purposes.

10.0 STRONTIUM-90 DETERMINATION DATA VALIDATION

10.1 DATA PACKAGE COMPLETENESS

The following data package (SDG No.) was submitted and found to be complete:

B07QB8

10.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

All holding times were acceptable.

10.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the low background counting system used for Strontium-90 determination is capable of producing acceptable and reliable analytical data. The initial calibration was performed according to manufacturer's recommendations and consists of an instrument detection efficiency determination. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

All instrument calibration and performance data were acceptable.

10.4 ACCURACY

All spike recoveries should be within the specified QC range of 80 to 120 percent, while all radiotraced samples should show a radiometric yield or recovery between 30 and 105%. Spiked sample results outside the above ranges resulted in qualification of the associated data as estimated.

All accuracy results were acceptable.

10.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. Replicates with an RPD less than 35 percent are acceptable. If duplicate activities are both <5xLLD, a control limit of 2xLLD is used. If replicate values are both below the LLD, no control limit is applicable. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects (J) or estimated non-detects (UJ).

All precision results were acceptable.

10.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results may be due to laboratory reagent, sample container, or detector contamination.

All blank results were acceptable.

10.7 COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Compound quantitation and detection limits were recalculated for all samples in each data delivery package to verify their accuracy.

All compound quantitation and reported detection limits and sample results have been properly reported and transcribed.

10.8 OVERALL ASSESSMENT AND SUMMARY

A review of instrument continuing calibration information and QC data indicates that instrument performance was adequate for these analyses. All results are valid and usable for all purposes.

11.0 CARBON-14 DETERMINATION DATA VALIDATION

11.1 DATA PACKAGE COMPLETENESS

The following data package (SDG No.) was submitted and found to be complete:

B07QB8

11.2 HOLDING TIMES

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for this analysis is six months.

All holding times were acceptable.

11.3 INSTRUMENT CALIBRATION AND PERFORMANCE

Instrument calibration is performed to establish that the low background liquid scintillation counting system used for Carbon-14 determination is capable of producing acceptable and reliable analytical data. The initial calibration was performed according to manufacturer's recommendations and consists of an instrument efficiency determination for each applicable radionuclide. Continuing calibration checks are performed to verify that instrument performance is stable and reproducible on a day-to-day basis.

All instrument calibration and performance data were acceptable.

11.4 ACCURACY

All spike recoveries should be within the specified QC range of 80 to 120 percent, while all radiometric yields should fall within the range of 30 to 105%. Spiked sample results outside the above ranges resulted in qualification of the associated data as estimated (J/UJ).

All accuracy results were acceptable.

9 3 1 2 9 3 6 0 3 6 6

11.5 PRECISION

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. When the laboratory has not performed duplicate spike analyses, precision may also be assessed using unspiked duplicate sample analyses. Replicates with a RPD less than 35 percent are acceptable. If duplicate activities are both <5xLLD, a control limit of 2xLLD is used. If replicate values are both below the LLD, no control limit is applicable. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects (J) or estimated non-detects (UJ).

All precision results were acceptable.

11.6 BLANK SAMPLES

Blank samples are analyzed to determine if positive results may be due to laboratory reagent, sample container, or detector contamination.

All blank results were acceptable.

11.7 COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Compound quantitation and detection limits were recalculated for all samples in each data delivery package to verify their accuracy.

All compound quantitation and reported detection limits and sample results were properly reported and transcribed.

11.8 OVERALL ASSESSMENT AND SUMMARY

A review of instrument performance and calibration reveals that the overall system performance is adequate. All QC and calibration results are acceptable and usable for all purposes.

RADIOCHEMISTRY ANALYSIS, SOIL MATRIX, (pCi/g+-2) 9 3 1 2 9 3 6 0 3 6 8

Project: WESTINGHOUSE-HANFORD																				
Laboratory: TMA																				
Case	SDG: B07QB8																			
Sample Number	B07QB8		B07QB9		B07QC0		B07QD7		B07QD8		B07QD9		B07QF0							
Location	199-N-86		199-N-86		199-N-86		199-N-87		199-N-87		199-N-87		199-N-87							
Remarks																				
Sample Date	12/09/92		12/09/92		12/09/92		12/16/92		12/16/92		12/17/92		12//17/92							
Analysis Date	03/15/93		03/15/93		03/18/93		03/15/93		03/05/93		03/05/93		03/05/93							
Parameters	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Gross Alpha	3.1	R	4.9	R	11	R	3.4	R	8.5	R	6.3	R	3.4	R						
Gross Beta	21		38		9.1	J	30		14		8.9	J	8.9	J						
Uranium-233/234	0.37		0.076	U	0.29	J	0.39		0.46		0.42		0.48							
Uranium-235	0.013	U	0.013	U	0.019	U	0.043	U	0.034	U	0	U	0.078	U						
Uranium-238	0.35	J	0.22	J	0.29	J	0.34	J	0.59	J	0.4	J	0.33	J						
Plutonium-238	-0.006	U	-0.016	U	-0.043	R	0	U	0.008	U	0.006	U	-0.003	U						
Plutonium-239/240	-.006	U	0	U	0.017	R	0.15		0.025	U	0.006	U	0.012	U						
Americium-241	0.006	U	-0.003	U	-0.006	U	0.025	J	-0.008	U	-0.004	U	-0.012	U						
Strontium-90	0.76	U	8		0.36	U	0.59	U	0.025	U	0	U	-0.19	U						
Carbon-14	4.7	U	7.1	U	1.7	U	-4.7	U	-0.008	U	-3.0	U	-5.2	U						
Potassium-40	17		6.9		9.4		13		0.002	U	7.7		8.3							
Chromium-51	N/D	U	N/D	U	N/D	U	N/D	U	-5.5	U	N/D	U	N/D	U						
Cobalt-60	0.098	U	N/D	U	N/D	U	81		16		N/D	U	N/D	U						
Zinc-65	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U						
Ruthenium-106	N/D	U	N/D	U	N/D	U	N/D	U	4.3		N/D	U	N/D	U						
Cesium-134	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U						
Cesium-137	N/D	U	N/D	U	N/D	U	0.61		N/D	U	N/D	U	N/D	U						
Europium-152	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U						
Europium-154	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U						
Radium-226	0.54		0.37		0.39		0.67		0.55		0.36		0.31							
Thorium-228	1.2		0.47		0.54		N/D	U	1		0.6		0.51							
Thorium-232	0.9		0.49		0.44		N/D	U	1.1		0.41		0.47							
Iron-59	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U	N/D	U						

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12.0 REFERENCES

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