

Westinghouse
Hanford Company

CHAIN OF CUSTODY

0048292

Custody Form Initiator W. Setzer/B.E. Innis

Company Contact B.E. Innis

Telephone 509-376-7690

Project Designation/Sampling Locations 300-ff-1 307 RB-1

Collection Date 10/25/91

Ice Chest No. SMC-88

Field Logbook No. WHC-N-557

Bill of Lading/Airbill No. 2474253914

Offsite Property No. W92-0-0011-#10

Method of Shipment OVERNIGHT AIR SERVICE

Shipped to TMA/NORCAL

Possible Sample Hazards/Remarks None detected with field instruments

Sample Identification

- 1) B014R6 1, 500ml Amber Glass: PCB's,CLP Metals,Anions by IC (F,SO4,NO2,NO3),pH
~~1, 500ml Clear Glass: Gross Alpha/Beta, Co-60,Sr-90,Cs-137,U-235,U-238~~
1, 125ml Clear Glass: CLP VOA
- 2) B014R7 1, 500ml Amber Glass: PCB's,CLP Metals,Anions by IC (F,SO4,NO2,NO3),pH
~~1, 500ml Clear Glass: Gross Alpha/Beta, Co-60,Sr-90,Cs-137,U-235,U-238~~
1, 125ml Clear Glass: CLP VOA
- 3) B014R8 1, 500ml Amber Glass: PCB's,CLP Metals,Anions by IC (F,SO4,NO2,NO3),pH
~~1, 500ml Clear Glass: Gross Alpha/Beta, Co-60,Sr-90,Cs-137,U-235,U-238~~
1, 125ml Clear Glass: CLP VOA
- 4) B014R9 1, 500ml Amber Glass: PCB's,CLP Metals,Anions by IC (F,SO4,NO2,NO3),pH
~~1, 500ml Clear Glass: Gross Alpha/Beta, Co-60,Sr-90,Cs-137,U-235,U-238~~
1, 125ml Clear Glass: CLP VOA
- 5) B01450 1, 500ml Amber Glass: PCB's,CLP Metals,Anions by IC (F,SO4,NO2,NO3),pH
~~1, 500ml Clear Glass: Gross Alpha/Beta, Co-60,Sr-90,Cs-137,U-235,U-238~~
1, 125ml Clear Glass: CLP VOA
- 6) ~~1, 500ml Amber Glass: PCB's,CLP Metals,Anions by IC (F,SO4,NO2,NO3),pH~~
~~1, 500ml Clear Glass: Gross Alpha/Beta, Co-60,Sr-90,Cs-137,U-235,U-238~~
~~1, 125ml Clear Glass: CLP VOA~~ WJ 10/29/91

Field Transfer of Custody Chain of Possession (Sign and Print Names)

Relinquished by: <u>Willis Setzer</u>	Received by: <u>Kermit Blum</u>	Date/Time: <u>10-30-91 1015</u>
Relinquished by: <u>Kermit Blum</u> <u>10-30-91</u>	Received by: <u>T. Bernard</u>	Date/Time: <u>10/31/91 1000</u>
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method: Disposed by: Date/Time:

Comments:





Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector W. Setzer/B.E. Innis

Date Sampled 10/25/91 Time _____ hours

Company Contact B.E. Innis

Telephone (509) 376 7690

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
	1, Amber Glass, 500ml	soil	PCB's, CLP Metals, Anions (F, S04, NO2, NO3), pH, Ammonium
<u>B014R6</u>	1, Clear Glass, 500ml	soil	Gross Alpha/Beta, Co-60, Sr-90, Cs-137, U-235 U-238
	1, Amber Glass, 125ml	soil	CLP VOA
	1, Amber Glass, 500ml	soil	PCB's, CLP Metals, Anions (F, S04, NO2, NO3), pH, Ammonium
<u>B014R7</u>	1, Clear Glass, 500ml	soil	Gross Alpha/Beta, Co-60, Sr-90, Cs-137, U-235, U-238
	1, Amber Glass, 125ml	soil	CLP VOA
	1, Amber Glass, 500ml	soil	PCB's, CLP Metals, Anions (F, S04, NO2, NO3), pH, Ammonium
<u>B014R8</u>	1, Clear Glass, 500ml	soil	Gross Alpha/Beta, Co-60, Sr-90, Cs-137, U-235, U-238
	1, Amber Glass, 125ml	soil	CLP VOA

Field Information** Samples taken from 300-FF-1 (borehole) Pit # BB-1 307

Special Handling and/or Storage Samples must be maintained at 4°Celsius

Possible Sample Hazards NONE OBSERVED

PART II: LABORATORY SECTION

Received by Kermit Blum Title Sample Control Supervisor Date 10-30-91

Analysis Required _____

*Indicate whether sample is soil, sludge, water, etc



Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector W. Setzer/B.E. Innis Date Sampled 10/25/91 Time _____ hours
Company Contact B.E. Innis Telephone (509) 376 7690

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
	1, Amber Glass, 500ml	soil	PCB's, CLP Metals, Anions (F, SO4, NO2, NO3), pH, Ammonium
<u>B014 R9</u>	1, Clear Glass, 500ml	soil	Gross Alpha/Beta, Co-60, Sr-90, Cs-137, U-235 U-238
	1, Amber Glass, 125ml	soil	CLP VOA
	1, Amber Glass, 500ml	soil	PCB's, CLP Metals, Anions (F, SO4, NO2, NO3), pH, Ammonium
<u>B014 S0</u>	1, Clear Glass, 500ml	soil	Gross Alpha/Beta, Co-60, Sr-90, Cs-137, U-235, U-238
	1, Amber Glass, 125ml	soil	CLP VOA
	1, Amber Glass, 500ml	soil	PCB's, CLP Metals, Anions (F, SO4, NO2, NO3), pH, Ammonium
	1, Clear Glass, 500ml	soil	Gross Alpha/Beta, Co-60, Sr-90, Cs-137, U-235, U-238
	1, Amber Glass, 125ml	soil	CLP VOA

WWS 10/29/91

Field Information** Samples taken from 300-FF-1 borehole/Pit # 307 RB-1

Special Handling and/or Storage Samples must be maintained at 4°Celsius

Possible Sample Hazards NONE OBSERVED

PART II: LABORATORY SECTION

Received by Hermit Blum Title Sample Control Supervisor Date 10-30-91
Analysis Required _____

*Indicate whether sample is soil, sludge, water, etc
**Use back of page for additional information relative to sample location
A 6000 106 (05 20)

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

PROJECT: 300-FF-1 RIFS	REVIEWER: SS	DATE: 6-1-92
LABORATORY: JMA/SKINNER	CASE: 11-006	SDG:
SAMPLES/MATRIX: B014R6 (SOIL)		
B014R7 (")		
B014R8 (")		
B014R9 (")		
B014S0 (")		

1. COMPLETENESS AND CONTRACT COMPLIANCE

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?:	Yes	No	N/A
Case Narrative		✓	—	—
Cover Page		✓	—	—
Traffic Reports		✓	—	—
Sample Data				
Inorganic Analysis Data Sheets		✓	—	—
Standards Data				
Initial and Continuing Calibration Verification		✓	—	—
CRDL Standard for AA and ICP		✓	—	—
QC Summary				
Blanks		✓	—	—
ICP Interference Check Summary		✓	—	—
Spike Sample Recovery		✓	—	—
Post-Digestion Spike Sample Recovery		✓	—	—
Duplicate		✓	—	—
Laboratory Control Sample		✓	—	—
Standard Addition Results		✓	—	—
ICP Serial Dilutions		✓	—	—
Instrument Detection Limits		✓	—	—
ICP Interelement Correction Factors		✓	—	—
ICP Linear Ranges		✓	—	—
Preparation Log		✓	—	—
Analysis Run Log		✓	—	—
Raw Data				
ICP Raw Data		✓	—	—
Furnace AA Raw Data		✓	—	—
Mercury Raw Data		✓	—	—
Cyanide Raw Data		✓	—	—
Additional Data				
Internal laboratory chain-of-custody		✓	—	—
Laboratory Sample Preparation Records		✓	—	—

<u>Data Package Item</u>	<u>Present?:</u>	<u>Yes</u>	<u>No</u>	<u>N/A</u>
Percent Solids Analysis Records	—	—	✓	—
Reduction Formulae	—	—	✓	—
Instrument Run Logs	—	—	✓	—
Chemist Notebook Pages	—	—	✓	—

2. HOLDING TIMES

Have all samples been analyzed within holding times? Yes No N/A

ACTION: If any holding times have been exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used? Yes No N/A

Are the correlation coefficients ≥ 0.995 ? Yes No N/A

Was a midrange cyanide standard distilled? Yes No N/A

ACTION: Qualify all data as unusable if reported from an analysis in which an instrument was not calibrated or was calibrated with less than the minimum number of standards. Qualify associated sample results $> IDL$ as estimated (J) and results $< IDL$ as estimated (UJ), if the correlation coefficient is < 0.995 or the laboratory did not distill the midrange cyanide standard.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Are ICV and CCV percent recoveries within control? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

5. ICP INTERFERENCE CHECK SAMPLE

Has an ICS sample been analyzed at the proper frequency? Yes No N/A

Are the AB solution %R values within control? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

6. LABORATORY BLANKS

Are target analytes present in the laboratory blanks? Yes No N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U). If analyte concentrations in the blank are > CRDL or below the negative CRDL, verify the laboratory has redigested and reanalyzed associated samples with analyte concentrations < 10 times the blank concentration. If the laboratory has not redigested and reanalyzed the samples, note in the validation narrative.

7. FIELD BLANKS

Are target analytes present in the field blanks? Yes No N/A

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

8. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the control limits? Yes No N/A

ACTION: Qualify the affected sample data according to the following requirements:

If spike recovery is > 125% and sample results are <IDL no qualification is required. If spike recovery is > 125% or <75% qualify all positive results as estimated (J). If spike recovery is 30% to 74% qualify all nondetects as estimated (UJ). If spike recovery is <30%, reject all nondetects (R). If the field blank has been used for spike analysis, note in the validation narrative.

9. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the sample data according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or > 120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS result is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

10. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample analyses in the data validation narrative.

11. DUPLICATE SAMPLE ANALYSIS

Are RPD values acceptable? Yes No N/A

ACTION: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD results fall outside the appropriate control limits. If field blanks were used for laboratory duplicates, note in the validation narrative.

12. ICP SERIAL DILUTION

Are the serial dilution results acceptable? Yes No N/A

Is there evidence of negative interference? Yes No N/A

ACTION: Qualify the associated data as estimated (J) for those analytes in which the %D is outside the control limits. If evidence of negative interference is found, use professional judgment to qualify the data.

13. FIELD DUPLICATE SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

14. FIELD SPLIT SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

1516. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Do all applicable analyses have duplicate injections? Yes No N/A

Are applicable duplicate injection RSD values within control? Yes No N/A

If no, were samples rerun once as required? Yes No N/A

Does the RSD for the rerun fall within the control limits? Yes No N/A

Were analytical spike recoveries within the control limits? Yes No N/A

If no, were MSA analyses performed when required?	Yes	No	N/A
Are MSA correlation coefficients ≥ 0.995 ?	Yes	No	N/A
If no, was a second MSA analysis performed?	Yes	No	N/A

ACTION: If duplicate injections are outside the acceptance limits and the sample has not been reanalyzed or the reanalysis is outside the acceptance limits, qualify the associated data as estimated (J for detects and UJ for nondetects). If the analytical spike recovery is $< 40\%$ qualify detects as estimated (J). If the analytical spike recovery is $\geq 10\%$ but $< 40\%$, qualify all nondetects as estimated (UJ) and if the analytical spike recovery is $< 10\%$, reject all nondetects (R). If the sample absorbance is $< 50\%$ of the analytical spike absorbance and the analytical spike recovery is $< 85\%$ or $> 115\%$, qualify all results as estimated (J for detects and UJ for nondetects). If method of standard additions (MSA) was required but was not performed, the MSA samples were spiked incorrectly, or the MSA correlation coefficient was < 0.995 , qualify the associated detected results as estimated (J).

17. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?	Yes	No	N/A
Are results within the calibrated range of the instruments and within the linear range of the ICP?	Yes	No	N/A
Are all detection limits below the CRQL?	Yes	No	N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

18. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-1

PROJECT: 300-PF-1 RIFS	REVIEWER: SS	DATE: 6-1-92
LABORATORY: TMA / ARLI	CASE: 11-005	SDG:
SAMPLES/MATRIX: B014R6 (soil)		
B014R7 (")		
B014R8 (")		
B014R9 (")		
B01450 (")		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?:	Yes	No	N/A
Case Narrative		✓		
Data Summary		✓		
Chain-of-Custody		✓		
QC Summary				
Surrogate report		✓		
MS/MSD report		✓		
Blank summary report		✓		
GC/MS tuning report		✓		
Internal standard summary report		✓		
Sample Data				
Sample reports		✓		
TIC reports for each sample		✓		
RIC reports for all samples		✓		
Raw and corrected spectra for all detected results		✓		
Raw and corrected library search data for all reported TIC		✓		
Quantitation and calculation data for all TIC		✓		
Standards Data				
Initial calibration report		✓		
RIC and quantitation reports for initial calibration		✓		
Continuing calibration reports		✓		
RIC and quantitation reports for cont. calibrations		✓		
Internal standard summary report		✓		
Raw QC Data				
Tuning report, spectra and mass lists		✓		
Blank analysis reports		✓		
TIC reports for all blanks		✓		
RIC and quantitation reports for blanks		✓		
Raw and corrected spectra for all detected results in blanks		✓		
Raw and corrected library search data for all reported TIC		✓		

<u>Data Package Item</u>	Present?:	Yes	No	N/A
Quantitation and calculation data for all TIC MS/MSD report forms		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
RIC and quantitation reports for MS/MSD		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Additional Data				
Moisture/% solids data sheets		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reduction formulae		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Instrument time logs		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Chemist notebook pages		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample preparation sheets		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2. HOLDING TIMES

Complete the holding time summary form listing all samples and dates of collection and analysis.

Were all samples analyzed within holding time? Yes No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a bromofluorobenzene tune report present for each applicable 12-h period? Yes No N/A

Do all tunes on all instruments meet the tuning criteria? Yes No N/A

Do all tunes on all instruments meet the expanded criteria? Yes No N/A

Has the laboratory made any calculation or transcription errors? Yes No N/A

Have the proper significant figures been reported? Yes No N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects or UJ for nondetects). If all tuning criteria are missed, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments? Yes No N/A

Are all RSD values $\leq 30\%$ (2/88 SOW)? Yes No N/A

Are all RRF values ≥ 0.05 (2/88 SOW)? Yes No N/A

Are all applicable RSD values $\leq 20.5\%$ (3/90 SOW)?	Yes	No	N/A
Are all applicable RSD values $\leq 40\%$ (3/90 SOW)?	Yes	No	N/A
Are all applicable RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥ 0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	Yes	No	N/A
Are all RRF values ≥ 0.05 (2/88 SOW)?	Yes	No	N/A
Are all %D values $\leq 25\%$ (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values $\leq 40\%$ (3/90 SOW)?	Yes	No	N/A
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥ 0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every 12-h period in which samples were analyzed?	Yes	No	N/A
Are TCL compounds present in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all sample results ≤ 10 times the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is $< CRQL$. Qualify all remaining sample results ≤ 5 times the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are TCL compounds present in the field blanks?	Yes	No	N/A
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ACTION: Qualify all detected sample results ≤ 5 times the amount in any valid field blank as nondetects (U) and note the field blank results in the validation narrative.

5. ACCURACY

5.1 SURROGATE/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification?	Yes	No	N/A
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Are any surrogate recoveries $< 10\%$?	Yes	No	N/A
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Are any method blank surrogate recoveries out of specification?	Yes	No	N/A
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ACTION: Qualify all associated sample results as estimated (J for detects or UJ for nondetects) for surrogates out of specification but $> 10\%$. Qualify all associated positive sample results as estimated (J) and all nondetect results as unusable (R) for all surrogates below 10% . If method blank surrogates are out of specification and the associated sample surrogates are acceptable no qualification is necessary, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group?	Yes	No	N/A
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Are MS/MSD recoveries within specification?	Yes	No	N/A
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Are there any calculation errors?	Yes	No	N/A
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ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is > 5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are $> 5 \times \text{CRQL}$ qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ± 30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects or UJ for nondetects). If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ± 0.06 relative retention time units of the associated calibration standard? Yes No N/A

Are all ions at a relative intensity of $\geq 10\%$ in the standard spectra present in the sample spectra? Yes No N/A

Do the relative intensities between the standard and sample spectra agree within 20%? Yes No N/A

Have all ions $> 10\%$ in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination? Yes No N/A

Are molecular ions present in the reference spectrum present in the sample spectrum? Yes No N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R). Note the results in the validation narrative.

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standard(s) for quantitation? Yes No N/A

Are results and quantitation limits calculated properly? Yes No N/A

Has the laboratory reported the sample quantitation limits within 5xCRQL values? Yes No N/A

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS (TIC)

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW? Yes No N/A

Has the laboratory properly identified and coded all TIC? Yes No N/A

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?

Yes No N/A

Were project specific data quality objectives met for this analysis?

Yes No N/A

ACTION: Summarize all the data qualifications recommended in the foregoing sections, and complete the data validation narrative according to the requirements of Section 10.0 of the data validation requirements.

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used?	Yes	No	N/A
Are the correlation coefficients ≥ 0.995 ?	Yes	No	N/A
Was a balance check conducted prior to the TDS analysis?	Yes	No	N/A
Was the titrant normality checked?	Yes	No	N/A

ACTION: Qualify all data as unusable (R) if reported from an analysis in which the above criteria were not met.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Have ICV and CCV been analyzed at the proper frequency?	Yes	No	N/A
Are ICV and CCV percent recoveries within control?	Yes	No	N/A
Are there calculation errors?	Yes	No	N/A

ACTION: Qualify all affected data in accordance with the validation requirements.

5. LABORATORY BLANKS

Are target analytes present in the laboratory blanks?	Yes	No	N/A
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ACTION: Qualify all associated sample results for any analyte < 5 times the amount in any laboratory blank as nondetected (U) and list the affected samples and analytes below.

6. FIELD BLANKS

Are target analytes present in the field blanks?	Yes	No	N/A
--	-----	----	-----

ACTION: Qualify all sample results for any analyte < 5 times the amount in any valid field blank as nondetected (U).

7. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the acceptance limits?	Yes	No	N/A
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ACTION: If the sample concentration exceeds the spike concentration by a factor of 4 or more, and spike recoveries are outside the acceptance limits, no qualification is necessary. If spike recovery is outside the control limits and the sample results are $> CRQL$, qualify the data as estimated (J). If the spike recovery is $< 30\%$ and the sample results are less than the IDL qualify the data as unusable (R).

8. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the affected results according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or > 120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS %R is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

9. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

10. DUPLICATE SAMPLE ANALYSIS

Are RPD values within the acceptance limits? Yes No N/A

Action: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD falls outside the acceptance limits.

11. FIELD DUPLICATE SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

12. FIELD SPLIT SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

13. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?	Yes	No	N/A
Are instrument detection limits below the CRDL?	Yes	No	N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

14. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary): _____

Multiple horizontal lines for writing comments.

PESTICIDE/PCB DATA VALIDATION CHECKLIST - FORM A-3

PROJECT: 300-FF-1 RIFS	REVIEWER: SS	DATE: 6-1-92
LABORATORY: TMA/ARL1	CASE: 11-005	SDG:
SAMPLES/MATRIX: B014R6 (Soil)		
B014R7 (")		
B014R8 (")		
B014R9 (")		
B014SD (")		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for resubmittal.

Data Package Item	Present?:	Yes	No	N/A
Case Narrative		✓	—	—
Data Summary		✓	—	—
Chain-of-Custody		✓	—	—
QC Summary				
Surrogate report		✓	—	—
MS/MSD report		✓	—	—
Blank summary report		✓	—	—
Sample Data				
Sample reports		✓	—	—
Chromatograms		✓	—	—
GC integration reports		✓	—	—
Worksheets		—	—	—
UV traces from GPC		—	✓	—
GC/MS confirmation spectra		—	✓	—
Standards Data				
Pesticides Evaluation Standards Summary		✓	—	—
Pesticides/PCB Standards Summary		✓	—	—
Pesticides/PCB identification		—	—	—
Pesticides standard chromatograms		✓	—	—
Raw QC Data				
Blank analysis report forms and chromatograms		✓	—	—
MS/MSD report forms and chromatograms		—	—	—

<u>Data Package Item</u>	Present?:	Yes	No	N/A
Additional Data				
Moisture/% solids data sheets		—	✓	—
Reduction formulae		—	✓	—
Instrument time logs		—	✓	—
Chemist notebook pages		—	✓	—
Sample preparation sheets		—	✓	—

2. HOLDING TIMES

Were all samples extracted within holding time? Yes No N/A

Were all samples analyzed within holding time? Yes No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE (2/88 SOW)

Are DDT retention times greater than 12 minutes? Yes No N/A

ACTION: If DDT retention time is ≤ 12 minutes and resolution is $< 25\%$ qualify associated data as unusable (R).

Is resolution between DDT peaks acceptable? Yes No N/A

ACTION: If resolution between DDT peaks is unacceptable qualify associated data as unusable (R).

Do all pesticide standards elute within the established retention time windows? Yes No N/A

ACTION: If the standards do not meet the retention time criteria and peaks are not present near or within the retention time windows no sample qualification is necessary. If peaks are near or within the retention time windows and the standards and matrix spikes do not fall within the expanded retention time windows calculated according to the validation requirements, qualify all associated sample results from the last in-control point as unusable (R).

Are DDT breakdowns $\leq 20\%$? Yes No N/A

ACTION: If the DDT percent breakdown exceeds 20%, qualify all detected results for DDT as estimated (J) and all nondetects as unusable (R) if DDD and DDE are detected. In addition qualify all results for DDD or DDE as presumptive and estimated (NJ).

Are endrin breakdowns $\leq 20\%$? Yes No N/A

ACTION: If the endrin breakdown exceeds 20%, qualify all detected results for endrin as estimated (J) and all nondetects as unusable (R) if endrin aldehyde or endrin ketone are detected. In addition, qualify all results for endrin ketone as presumptive and estimated (NJ).

Are DBC retention time differences within specification? Yes No N/A

ACTION: If DBC %D values are outside the limits and the shift is occurring repeatedly in samples and standards, qualify affected sample results as unusable (R).

3.2 CALIBRATIONS (2/88 SOW)

Are RSD values for aldrin, endrin, DDT and DBC $\leq 10\%$? Yes No N/A

Have all standards been analyzed within 72 h of any sample? Yes No N/A

Has a 3-point calibration been conducted for DDT or toxaphene? Yes No N/A

Have all standards been analyzed at the start of each 72-h sequence? Yes No N/A

Have evaluation standards A, B, and C been analyzed within 72 h of any sample? Yes No N/A

Has the confirmation standard mix been analyzed after every five samples? Yes No N/A

Has evaluation standard B analyzed every 10 samples? Yes No N/A

Are %D values for initial and subsequent standards $\leq 15\%$ for quantitation standards and $\leq 20\%$ for confirmation standards? Yes No N/A

ACTION: If the RSD criteria were exceeded or three point calibrations not conducted qualify associated detects as estimated (J). If all standards were not analyzed at the beginning of each 72-h sequence qualify associated data as unusable (R). If the confirmation standards were not analyzed properly qualify associated detects as estimated (J). If the continuing calibration criteria were not met qualify associated quantitation data as estimated (J).

3.3 INSTRUMENT PERFORMANCE AND INITIAL CALIBRATION (3/90 SOW)

Is peak resolution acceptable? Yes No N/A

ACTION: If the resolution criteria are not met, reject positive sample results generated after initial calibration (R).

Are DDT and endrin breakdowns $\leq 20.0\%$ Yes No N/A

ACTION: If the breakdown criteria are not met qualify sample results as described in Section 5.3.1 of the validation requirements.

Are single component target compounds in the PEMs, INDA, INDB and the calibration standards within the retention time windows? Yes No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples within two times the retention time windows (± 0.04 , ± 0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the retention time window a review is made of the raw data to determine expanded retention time windows (see Section 5.3.1 of the validation requirements). If all standards and matrix spikes fall within the expanded windows then no qualification of sample results is necessary. If all standards and matrix spikes do not fall within the expanded windows then all affected sample results are qualified as unusable (R).

Are the RPDs acceptable for the PEMs? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are the RSDs for the calibration factors $< 10.0\%$ ($< 15.0\%$ for the BHC series, DDT, endrin, and methoxychlor)? Yes No N/A

ACTION: If the RSD criteria are not met qualify associated positive sample results as estimated (J).

3.4 CALIBRATION VERIFICATION (3/90 SOW)

Have the analytical sequence requirements been met for the analysis of instrument blanks, PEMs, INDA and INDB mixes? Yes No N/A

ACTION: If the analytical sequence requirements are not followed and any of the resolution or retention time criteria listed below are exceeded, reject associated positive results (R).

Is peak resolution acceptable for PEMs, INDA and INDB mixes? Yes No N/A

ACTION: If the resolution criteria are not met reject positive sample results generated after a noncompliant standard analysis (R).

Are single component target compounds in the PEMs, INDA and INDB mixes within the retention time windows? Yes No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples analyzed after the noncompliant standard within two times the retention time windows (± 0.04 , ± 0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the expanded windows rejected associated positive and nondetect results (R).

Are RPDs between the calculated and true amounts in the PEMs, INDA and INDB mixes $\leq 25.0\%$? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are DDT and endrin breakdowns in the PEMs $\leq 20.0\%$ ($\leq 30.0\%$ total combined)? Yes No N/A

ACTION: If the breakdown criteria are not met qualify associated positive sample results in accordance with the criteria specified in Section 5.3.1.

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory analyzed the method blanks at the required frequency? Yes No N/A

Has the laboratory analyzed a sulfur clean-up blank if required? Yes No N/A

Has the laboratory analyzed instrument blanks at the required frequency? Yes No N/A

Are target compounds present in the blanks? Yes No N/A

ACTION: Qualify all associated positive results as nondetects (U) that are < 5 times the highest concentration in any acceptable blank.

4.2 FIELD BLANKS

Are target compounds present in the field blanks? Yes No N/A

ACTION: If target compounds are present in the field blanks qualify all positive sample results < 5 times the highest valid field blank concentrations as nondetects (U) and note the results in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification?	Yes	No	N/A
Do any samples show nondetects for surrogates?	Yes	No	N/A
Are any method blank surrogates out of specification?	Yes	No	N/A

ACTION: Qualify all associated sample results as estimated (J for detects and UJ for nondetects) for surrogates out of specification. If the surrogate was not detected (0% recovery) in the sample qualify associated nondetects as unusable (R). If method blank surrogates are out of specification and sample surrogates are acceptable, no qualification is required however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has the laboratory analyzed a MS/MSD per matrix for the the sample group?	Yes	No	N/A
Are MS/MSD recoveries within specification?	Yes	No	N/A
Are there any calculation or transcription errors?	Yes	No	N/A

ACTION: If MS/MSD analyses have not been conducted contact the laboratory for clarification. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is > 5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by the low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are performance audit sample results within the acceptance limits?	Yes	No	N/A
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ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLES

Are the RPD values within specification? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPD values are out of specification and sample results are > 5xCRQL qualify positive results as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

Do positive results meet the retention time window criteria? Yes No N/A

Were positive results analyzed on dissimilar columns? Yes No N/A

If dieldrin and DDE were reported was a 3% OV-1 column used for confirmation (2/88 SOW data only)? Yes No N/A

Do retention times and relative peak height ratios match the expected patterns for multipeak compounds (PCB, toxaphene or chlordane)? Yes No N/A

Has GC/MS confirmation been conducted on sample extract concentrations > 10 ppm? Yes No N/A

ACTION: If positive results do not meet the retention time criteria qualify all detected results as nondetects as follows: If the misidentified peak is outside the retention time windows and no interferences are noted report the CRQL and if the misidentified peak interferes with a target peak then the report value is qualified as estimated and nondetected (UJ). If positive results were not confirmed on disimilar columns, reject affected results (R). If a 3% OV-1 was used to confirm dieldrin and DDE, reject the affected data (R). If PCB, chlordane or toxaphene identification is questionable qualify the results as presumptive and estimated (NJ). If GC/MS confirmation was not conducted contact the laboratory for explanation and note in the validation narrative.

7.2 REPORTED RESULTS AND QUANTITATION LIMITS

Are results and quantitation limits calculated properly? Yes No N/A

Has the laboratory reported the sample quantitation limits within 5xCRQL values? Yes No N/A

ACTION: If results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW? Yes No N/A

Were project specific data quality objectives met for this analysis? Yes No N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

300-FF-1 OPERABLE UNIT DATA VALIDATION
 WESTINGHOUSE HANFORD COMPANY
 DISTRIBUTION & FILE RECORD FORM

Task E-92-15 / 2978-40
 2/3/92
 Rev. 0

Document Title: PCB/Pest 10160 (App. 300FF1-#1) Date: 10/20/92
 Document Number: _____ Originator: CMR

HCS - WHC/E - 92 15/T I-049

DISTRIBUTION		
M. Gerboth (HC-RL)	S. Kis-Young (HC-Sea)	Other:
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PROJECT FILES		
MANAGEMENT		Comments
M-1 Correspondence		
M-2 Meeting Minutes		
M-3 Telecons		
M-4 Statements of Work, Task Orders		
M-5 Purchase Requisitions and Receipt documentation		
M-6 Other Management Documents Generated		
M-7 Financial Data		
SOURCE DATA		
S-1 Original Data Packages		
S-2 Memos Transmitting Original Source Packages to WHC		
S-3 Other Original Data Documentation		
TASK TECHNICAL		
T-1 Validation Calculations and Notated Packages	X	
T-2 Progress Memos		
T-3 Completeness Checklists		
T-4 Draft Summary Report(s)		
T-5 Final Summary Report(s)		
T-6 Draft Summary Report Review Comments		
T-7 Other Technical Documentation		

1. MFR/ORG WHC ITEM/MATERIAL NAME Environ. Samples PART NO. N/A
 DRAWING/SPEC. NO. N/A REV. N/A
 PROGRAM/PROJECT 300-FF-1 P.O.W.O. NO. N/A
 UNUSUAL OCCURRENCE REPORT REQUIRED YES NO SYSTEM/END USE N/A DATE 4/28/92

2. DESCRIPTION OF NONCONFORMANCE
Package ICP - at 2080 is a mystery page inserted

3. REQUIREMENT VIOLATED | DOCUMENT | REV | ZONE/PAR/
Data Package Completeness | WHC-SD-EN-SP0-002 | Rev 1 | Area 2.2

See Data Package B Ø14R6 transmitted to EDMC on XØØ191.

James C. Langford 38610 4/28/92
 ORIGINATOR ORGANIZATION DATE

4. ASME CODE ITEM(s) NO YES. NOTIFY AUTHORIZED INSPECTOR. WHC QAR _____

5. CAUSE OF NONCONFORMANCE
 PROCEDURES PERSONNEL MATERIALS
 EQUIPMENT OTHERS

REMARKS:
SW-01 PN-002 PIS = 03

6. CORRECTIVE ACTION TO ELIMINATE CAUSE
OSM to provide better OC on p/cep.

INITIATION DATE _____ SERIAL NO. _____
Jean Kessner
 RESPONSIBLE ORG. REP. TITLE DATE

7. RECOMMENDED DISPOSITION ACCEPT REJECT REPAIR REWORK OTHER

8A. DISPOSITION JUSTIFICATION AND INSTRUCTIONS
Appears to have been corrected. OSM to verify.

8B. ADDITIONAL REVIEWS REQUIRED (WHC ONLY) YES NO
 IF YES, IDENTIFY:

8B. SUPPLIER ENG. _____ SUPPLIER QA _____

10. DISPOSITION APPROVAL (WHC ONLY)
 APPROVED DISAPPROVED OTHER (SEE CONTINUATION SHEET)

George Henckel 4/28/92
 COGNIZANT ENGINEER DATE

J.R. McCallum 8/14/92
 COGNIZANT QA ENGINEER DATE

AUTHORIZED INSPECTOR REVIEW _____ DATE _____

11. ADDITIONAL APPROVALS

NAME	TITLE	DATE	NAME	TITLE	DATE

12. DISPOSITION ACTION COMPLETE

N/A QTY. ACCEPT _____ QTY. REJ. _____

NAME DATE

➔ FOLLOW ON NCR