

**START**

9613497.1922

B01199-PNL-032<sup>29</sup>

0045407

**200-BP-1 SITE INVESTIGATION  
ANALYTICAL CHEMISTRY SUPPORT PROJECT**

**TASK 7**

**DATA PACKAGE/REPORT No. 11**

**Revision 0**



**January 16, 1992**

**Prepared by: B.M. Gillespie**

**Pacific Northwest Laboratory**

**(PNL Project #16772)**



i 5/30/96 M.H.

## INTRODUCTION

This data package contains the results obtained by Pacific Northwest Laboratory (PNL) staff in the characterization of samples for the 200-BP-1 site investigation analytical chemistry support Project. The samples were submitted for analysis by Westinghouse Hanford Company (WHC) under the Technical Project Plan (TPP) 16772 and the Quality Assurance Project Plan (QAPjP) ALO-001. The samples are all ground water samples collected in support of Task 7. The analytical procedures required for analysis were defined in the Test Instructions (TI) prepared by the PNL 200-BP-1 Project Management Office in accordance with the TPP and the QAPjP ALO-001.

The samples (Table 1) were submitted with the appropriate WHC Chain of Custody (COC) and Sample Analysis Request Forms. The samples were delivered at refrigerated temperature to the 300 Area, 325 Building and 314 Building 200-BP-1 Sample Custodian.

The requested analyses for these samples were cyanide, free cyanide and ferrocyanide. A complex cyanide result is determined by the difference of the total cyanide and the free cyanide results. A "ferrocyanide" result is not obtained or calculated since the amount of the complex cyanide being ferrocyanide is indeterminant. The quality control (QC) requirements for each sample are defined in the test instructions for each sample. The QC requirements outlined in the procedures and requested in the WHC SOW were followed. Sample duplicates, methods blank, matrix spikes and laboratory control standards were analyzed. All QC data that exist are included in this Data Package/Report.

The data in this package are reported in separate tables (Tables 2 through 4) for each analyte or method. Three appendices are provided; one for Test Instruction, one for Chain of Custody, Sample Analysis Request Forms and Sample Receipt Forms and one that contains the primary inorganic analytical data.

CERTIFICATION STATEMENT

I certify that this data package is in compliance with the terms and conditions of the TPP 16772 and QAPjP ALO-001 for completeness. Release of the data contained in this hard copy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Project Manager or the Project Manager's designee, as verified by the following signature.

B. M. Gillespie

B. M. Gillespie  
200-BP-1 Project Manager

1-14-92

Date

TABLE 1: 200-BP-1 Sample Numbers

<u>WHC Sample Number</u>	<u>PNL ALO Sample Number</u>	<u>Sample Type</u>
B01199	91-09129	Water
B011J8	91-09130	Water
B011D0	91-09131	Water
B011K1	91-09132	Water
B011D3	91-09133	Water
B011D6	92-09134	Water
B011C7	92-09135	Water

CYANIDE ANALYSIS RESULTS

Total cyanide analysis was performed in room 419 of building 325 in the Hanford Site 300 area. This data package includes cyanide results for seven water samples. Cyanide results are presented by colorimetric analysis run batch. Data package #11 results are summarized in Table 2.

Total cyanide results for samples and corresponding duplicates (where applicable) were below the instrument detection limit (IDL) of 5.9  $\mu\text{g}/\text{l}$ , except for samples 91-9129, 91-9130, and 91-9132.

The 12 day hold time specified for cyanide analysis under the CLP protocol was met for all samples in this data package.

Average spiked sample cyanide recovery was 101% with a standard deviation of 2%.

Average recovery of cyanide for the laboratory control /initial calibration verification sample (ICV-6) was 108% with a standard deviation of 4%. Recovery value for ICV-6 (LCS-0789, prepared by ICF Corporation) is based on the spiking of 1 ml of stock standard ICV-6 to 500 ml of deionized water and recovery back calculated to the original ICV-6 cyanide concentration.

Cyanide found in blanks analyzed for analysis groups within the data package were below the IDL. Algebraically correct blank cyanide values are found on page two of each run batch report.

TABLE 2: TOTAL CYANIDE ANALYSIS DATA FOR TASK 7  
SDG #11

WATER SAMPLES		Sample G1		Sample dup. G2			Blank G5		Spike added	Sample+ spike G3	sample G4 (ICV)	Sample+ spike G3	sample G4 (ICV)	Flags	Footnote#	
Sample ID#	PNL Log#	(ug/L)	C	(ug/L)	C	%RPD	(ug/L)	C	(ug)	(ug/L)	(mg/L)	recovery(%)	recovery(%)	Q		
BO1199	91-9129	10.7		10.7		0	5.9	U	39.5	164.8	9.73	98	104		1,2,3,4 (ALL)	
BO11J8	91-9130	16.9														
BO11D0	91-9131	5.9	U	5.9	U	N/A	5.9	U	39.5	160.7	10.59	100	113			
BO11K1	91-9132	40.3														
BO11D3	91-9133	5.9	U	5.9	U	N/A	5.9	U	39.5	167	10.44	104	111			
BO11D6	91-9134	5.9	U													
BO11C7	91-9135	5.9	U	5.9	U	N/A	5.9	U	38.8	159.3	9.92	103	106			
												Mean	101.0	108.2		
												Std. Dev.	2.4	3.7		

Footnotes

1. Concentration of stock ICV-6=9.4 mg/L (9.4 ug of cyanide is added to each distillation flask and recovered in 250 mL of NaOH).
2. Contract required detection limit for water = 10 ug/L.
3. Used 250 mL of sample (G1, G2 and G3) per distillation due to limited sample size of only 1.5L.
4. Duplicate precision under the CLP protocol must be within one CRDL when either sample or duplicate are below 5X CRDL.

CLP FLAGS

U = Analyzed but not detected (less than IDL)

9612491-1927

FREE CYANIDE ANALYSIS RESULTS

Sample solutions were analyzed by direct injection into an ion chromatograph/amperometric detector instrument system (WB 37427) according to procedure PNL-ALO-271.

The analytical session consisted of analysis of 91-6550 (not in this sample delivery group) and 91-9132 (Table 3). The quality of chromatograms developed during the analytical session was very good. Based on the baseline noise and response to blanks, the detection limit for this analytical session is estimated to be  $1 \mu\text{g CN}^-/\text{liter}$ .

The average spike recovery for this analytical session was 100% (range 97-103%) and the recovery of standards was 97%. The relative percent difference for duplicate analyses is 2.3%.

Method precision and bias observed during the analytical sessions meet client requirements.

The required free cyanide analysis for this sample was performed within the contract required CLP maximum hold time of 12 days.



COMPLEX CYANIDE RESULTS

The complex cyanide results are calculated from the difference in the total cyanide results and the free cyanide results. A "ferrocyanide" result is not obtained nor calculated since the amount of the complex cyanide being ferrocyanide is indeterminant.

Samples are analyzed for free cyanide based on first determining that the total cyanide results is greater than 20 ug/L. Samples below 20 ug/L total cyanide are typically not analyzed for free cyanide to save on analysis cost. Attempting to perform free cyanide analysis near the Contract Required Detection Limit of total cyanide is not meaningful.

In this data set, there was only one sample (91-9132) requiring free cyanide determination.

TABLE 4: COMPLEX CYANIDE DETERMINATION  
FOR TASK 7, SDG #11

Sample ID#	Total CN ug/L	Free CN ug/L	Complex CN ug/L (1)
91-9132	40	7	33

(1) Results calculated by subtracting the Free cyanide results from the Total cyanide results.

96799153

**CHAIN OF CUSTODY**

Company Contact	P.H. BUTCHER	Telephone	509-376-5045	
Sample Collected by	K. LEE	Date	8/28/91	Time: 1106
Sample Locations	200-BP-1			
Ice Chest No.	Tub	Field Logbook and Page No.	WHC-N-4461 p 68	
Remarks	N/A			
Bill of Lading No.	N/A	Offsite Property No.	N/A	
Method of Shipment	HAND DELIVER			
Shipped to	BATTELLE NORTHWEST(PNL) 325 LABORATORY			

**SAMPLE IDENTIFICATION**

B01199 2, 1L, P, WATER, TOTAL CYANIDE
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**CHAIN OF POSSESSION**

Relinquished by: <i>K. Lee</i>	Received by: <i>P.H. Butcher</i>	Date/Time: 8/28/91 1437
Relinquished by: <i>P.H. Butcher</i>	Received by: <i>J. ROBBINS</i>	Date/Time: 8/29/91 11:50am
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

CHAIN OF CUSTODY

Company Contact:	P.H. BUTCHER	Telephone:	509-376-5045	
Sample Collected by:	K. LEE	Date:	8/27/91	Time: 1140
Sample Locations:	200-BP-1			
Ice Chest No.:	Tub	Field Logbook and Page No.:	WHC-N-4461 p. 67	
Remarks:	N/A			
Bill of Lading No.:	N/A	Offsite Property No.:	N/A	
Method of Shipment:	HAND DELIVER			
Shipped to:	BATTELLE NORTHWEST(PNL) 325 LABORATORY			

SAMPLE IDENTIFICATION

B011J8 2, 1L, P, WATER, TOTAL CYANIDE
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CHAIN OF POSSESSION

Relinquished by: <i>Kathy D. Lee K.D.L.</i>	Received by: <i>P.H. Butcher</i>	Date/Time: 8/27/91 1450
Relinquished by: <i>P.H. Butcher</i>	Received by: <i>J. ROBBINS</i>	Date/Time: 8/29/91 1150
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

9613491.1934

### CHAIN OF CUSTODY

Company Contact	P.H. BUTCHER	Telephone	509-376-5045	
Sample Collected by	K. LEE	Date	8/21/91	Time: 0923
Sample Locations	200-BP-1			
Ice Chest No.	T-6	Field Logbook and Page No.	WHE-N-4461 p. 62	
Remarks	N/A			
Bill of Lading No.	N/A	Offsite Property No.	N/A	
Method of Shipment	HAND DELIVER			
Shipped to	BATTELLE NORTHWEST(PNL) 325 LABORATORY			

### SAMPLE IDENTIFICATION

<p><b>B011D0</b> 2, 1L, P, WATER, TOTAL CYANIDE</p>
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### CHAIN OF POSSESSION

Relinquished by: <i>K. Lee K.D.C.</i>	Received by: <i>P.H. Butcher</i>	Date/Time: 8/21/91 1320
Relinquished by: <i>P.H. Butcher</i>	Received by: J. ROBBINS <i>J. Robbins</i>	Date/Time: 8/29/91 1150
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

**B01-004**

9613491.1935

CHAIN OF CUSTODY				
Company Contact	P.H. BUTCHER	Telephone	509-376-5045	
Sample Collected by	K. LEE	Date	8/27/91	Time 0851
Sample Locations	200-BP-1			
Ice Chest No.	Tub	Field Logbook and Page No.	WTC-N-4461 p. 67	
Remarks	N/A			
Bill of Lading No.	N/A	Offsite Property No.	N/A	
Method of Shipment	HAND DELIVER			
Shipped to	BATTELLE NORTHWEST(PNL) 325 LABORATORY			

SAMPLE IDENTIFICATION

B011K1 2, 1L, P, WATER, TOTAL CYANIDE
------------------------------------------

CHAIN OF POSSESSION

Relinquished by: <i>K. Lee</i>	Received by: <i>P.H. Butcher</i>	Date/Time: 8/27/91 1450
Relinquished by: <i>P.H. Butcher</i>	Received by: <i>J. ROBBINS</i>	Date/Time: 8/29/91 1150
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

B01-005

9613491-1936

### CHAIN OF CUSTODY

Company Contact:	P.H. BUTCHER	Telephone:	509-376-5045	
Sample Collected by:	K. LEE	Date:	8/21/91	Time: 1031
Sample Locations:	200-BP-1			
Ice Chest No.:	Tub	Field Logbook and Page No.:	WHC-N-4461 p.62	
Remarks:	N/A			
Bill of Lading No.:	N/A	Offsite Property No.:	N/A	
Method of Shipment:	HAND DELIVER			
Shipped to:	BATTELLE NORTHWEST(PNL) 325 LABORATORY			

### SAMPLE IDENTIFICATION

<p><b>B011D3</b>                  2, 1L, P, WATER, TOTAL CYANIDE</p>
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### CHAIN OF POSSESSION

Relinquished by: <i>K. Lee K.D.L.</i>	Received by: <i>P.H. Butcher</i>	Date/Time: 8/21/91 1320
Relinquished by: <i>P.H. Butcher</i>	Received by: <i>J. ROBBINS</i>	Date/Time: 8/29/91 1150
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

B01-006

### CHAIN OF CUSTODY

Company Contact	P.H. BUTCHER	Telephone	509-376-5045	
Sample Collected by	K. LEE	Date	8/21/91	Time 1141
Sample Locations	200-BP-1			
Ice Chest No.	Tab	Field Logbook and Page No.	WTC-N-4461 p.62	
Remarks	N/A			
Bill of Lading No.	N/A	Offsite Property No.	N/A	
Method of Shipment	HAND DELIVER			
Shipped to	BATTELLE NORTHWEST(PNL) 325 LABORATORY			

### SAMPLE IDENTIFICATION

<p><b>B011D6</b> 2, 1L, P, WATER, TOTAL CYANIDE</p>
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### CHAIN OF POSSESSION

Relinquished by: <i>F. Lee E. P.C.</i>	Received by: <i>P.H. Butcher</i>	Date/Time: 8/21/91 1320
Relinquished by: <i>P.H. Butcher</i>	Received by: <i>J. ROBBINS</i>	Date/Time: 8/29/91 1150
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

9613491.1938

### CHAIN OF CUSTODY

Company Contact	P.H. BUTCHER	Telephone	509-376-5045	
Sample Collected by	K. LEE	Date	8/21/91	Time: 0813
Sample Locations	200-BP-1			
Ice Chest No.	Tub	Field Logbook and Page No.	WHC-N-4461 p. 62	
Remarks	N/A			
Bill of Lading No.	N/A	Offsite Property No.	N/A	
Method of Shipment	HAND DELIVER			
Shipped to	BATTELLE NORTHWEST(PNL) 325 LABORATORY			

### SAMPLE IDENTIFICATION

**B011C7**  
 2, 1L, P, WATER, TOTAL CYANIDE

### CHAIN OF POSSESSION

Relinquished by: <i>Harley J. Lee K.D.C.</i>	Received by: <i>P. Butcher</i>	Date/Time: 8/21/91 1320
Relinquished by: <i>P. Butcher</i>	Received by: <i>J. Robbins</i>	Date/Time: 8/29/91 1150
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

B01-008



SAMPLE RECEIPT FORMDelivered by: DUSTY BUTCHER Date/Time: 8/29/91Received by: J. ROBBINSCustomer Sample Number(s): BØ1199, BØ<sup>SMR</sup>1128, BØ1100, BØ11K1, BØ11D3, BØ11L1ALO Sample Number(s): 91-9129 TO 91-9135 BØ11C:

1. Customer Chain-of-Custody Form: Present  Absent
2. Additional Shipping Forms (list):  
SAR
3. Custody Seals on Shipping and/or Sample Containers and their Conditions.  
Present  Absent   
If Present, Condition: INTACT
4. Sample Tag(s) ID Numbers if not Recorded on the Chain-of-Custody Record or on Sample Vial.

Notes:

N/A

5. Condition of Shipping Container (Verify that ice still exists such that samples are at refrigerated temperature).  
OK 5°C
6. Condition of Sample Vials.  
OK
7. Verification of Agreement or Nonagreement of Information on Receiving Documents.  
OK
8. Resolution of Problems or Discrepancies.  
OK

RETURN COMPLETED FORM TO PROJECT MANAGER

B01-010

9613491-1941

### CHAIN OF CUSTODY

Company Contact	P.H. BUTCHER	Telephone	509-376-5045	
Sample Collected by	K. LEE	Date	8/28/91	Time 1106
Sample Locations	200-BP-1			
Ice Chest No.	SAC-72	Field Logbook and Page No.	WHC-N-4461 p.68	
Remarks	N/A			
Bill of Lading No.	N/A	Offsite Property No.	N/A	
Method of Shipment	HAND DELIVER			
Shipped to	BATTELLE NORTHWEST(PNL) 314 LABORATORY			

### SAMPLE IDENTIFICATION

<p><b>B01199</b>          1, 1L, P, WATER, FREE CYANIDE</p>
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### CHAIN OF POSSESSION

Relinquished by: <i>Kathy D. Lee K.D.L.</i>	Received by: <i>P.H. Butcher</i>	Date/Time: 8/28/91 1437
Relinquished by: <i>P.H. Butcher</i>	Received by: <i>SALLY D. SLATE</i> <i>Sally D. Slate</i>	Date/Time: 8-29/91 1101
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

**B01-011**

9613491.1942

### CHAIN OF CUSTODY

Company Contact	P.H. BUTCHER	Telephone	509-376-5045	
Sample Collected by	K. LEE	Date	8/27/91	Time: 1140
Sample Locations	200-BP-1			
Ice Chest No.	SML-22	Field Logbook and Page No.	WHC-N-4461 p 67	
Remarks	N/A			
Bill of Lading No.	N/A	Offsite Property No.	N/A	
Method of Shipment	HAND DELIVER			
Shipped to	BATTELLE NORTHWEST(PNL) 314 LABORATORY			

### SAMPLE IDENTIFICATION

**B011J8**  
 1, 1L, P, WATER, FREE CYANIDE

### CHAIN OF POSSESSION

Relinquished by: <i>Kathy A. Lee K.D.L.</i>	Received by: <i>P.H. Butcher</i>	Date/Time: 8/27/91 1450
Relinquished by: <i>P.H. Butcher</i>	Received by: <i>SALLY O. SLATE</i>	Date/Time: 8-29-91 1101
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

B01-012

9613491-1943

### CHAIN OF CUSTODY

Company Contact:	P.H. BUTCHER	Telephone:	509-376-5045	
Sample Collected by:	K. LEE	Date:	8/21/91	Time: 0923
Sample Locations:	200-BP-1			
Ice Chest No.:	SML-72	Field Logbook and Page No.:	WHC-N-4461 p 62	
Remarks:	N/A			
Bill of Lading No.:	N/A	Offsite Property No.:	N/A	
Method of Shipment:	HAND DELIVER			
Shipped to:	BATTELLE NORTHWEST(PNL) 314 LABORATORY			

### SAMPLE IDENTIFICATION

B011D0	1, 1L, P, WATER, FREE CYANIDE
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### CHAIN OF POSSESSION

Relinquished by: <i>Kathy Lee K.D.C.</i>	Received by: <i>P.H. Butcher</i>	Date/Time: 8/21/91 1320
Relinquished by: <i>P.H. Butcher</i>	Received by: <i>SALLY O SLATE</i>	Date/Time: 8-29-91 1101
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

B01-013

9613491.1944

## CHAIN OF CUSTODY

Company Contact	P.H. BUTCHER	Telephone	509-376-5045	
Sample Collected by	K. LEE	Date	8/27/91	Time 0851
Sample Locations	200-BP-1			
Ice Chest No.	SMC-72	Field Logbook and Page No.	WHC-N-4461 p. 67	
Remarks	N/A			
Bill of Lading No.	N/A	Offsite Property No.	N/A	
Method of Shipment	HAND DELIVER			
Shipped to	BATTELLE NORTHWEST(PNL) 314 LABORATORY			

## SAMPLE IDENTIFICATION

B011K1 1, 1L, P, WATER, FREE CYANIDE
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## CHAIN OF POSSESSION

Relinquished by: <i>K. Lee</i>	Received by: <i>P.H. Butcher</i>	Date/Time: 8/27/91 1450
Relinquished by: <i>P.H. Butcher</i>	Received by: <i>SALLY D SLATE</i>	Date/Time: 8-29-91 1101
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

B01-014

9613491, 1945

## CHAIN OF CUSTODY

Company Contact	P.H. BUTCHER	Telephone	509-376-5045	
Sample Collected by	K. LEE	Date	8/24/91	Time 1031
Sample Locations	200-BP-1			
Ice Chest No.	SMC-72	Field Logbook and Page No.	WHC-N-4461 p.62	
Remarks	N/A			
Bill of Lading No.	N/A	Offsite Property No.	N/A	
Method of Shipment	HAND DELIVER			
Shipped to	BATTELLE NORTHWEST(PNL) 314 LABORATORY			

## SAMPLE IDENTIFICATION

B011D3 1, 1L, P, WATER, FREE CYANIDE
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## CHAIN OF POSSESSION

Relinquished by: <i>Kelby D. Lee K.D.C.</i>	Received by: <i>P.H. Butcher</i>	Date/Time: 8/21/91 1320
Relinquished by: <i>P.H. Butcher</i>	Received by: <i>S.O. SLATE</i>	Date/Time: 8-29-91 1101
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

B01-015

9613491, 1946

### CHAIN OF CUSTODY

Company Contact	P.H. BUTCHER	Telephone	509-376-5045	
Sample Collected by	K. LEE	Date	8/21/91	Time: 1141
Sample Locations	200-BP-1			
Ice Chest No.	SML-72	Field Logbook and Page No.	WHC-N-4461 p.62	
Remarks	N/A			
Bill of Lading No.	N/A	Offsite Property No.	N/A	
Method of Shipment	HAND DELIVER			
Shipped to	BATTELLE NORTHWEST(PNL) 314 LABORATORY			

### SAMPLE IDENTIFICATION

B011D6	1, 1L, P, WATER, FREE CYANIDE
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### CHAIN OF POSSESSION

Relinquished by: <i>Kirby D. Lee E.D.C.</i>	Received by: <i>P.H. Butcher</i>	Date/Time: 8/20/91 1320
Relinquished by: <i>P.H. Butcher</i>	Received by: <i>SALLY O SLATE</i>	Date/Time: 8-29-91 1101
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

B01-016

9613491.1947

## CHAIN OF CUSTODY

Company Contact:	P.H. BUTCHER	Telephone:	509-376-5045	
Sample Collected by:	K. LEE	Date:	8/21/91	Time: 0813
Sample Locations:	200-BP-1			
Ice Chest No.:	SAC-72	Field Logbook and Page No.:	WHC N-4461 p. 62	
Remarks:	N/A			
Bill of Lading No.:	N/A	Offsite Property No.:	N/A	
Method of Shipment:	HAND DELIVER			
Shipped to:	BATTELLE NORTHWEST (PNL) 314 LABORATORY			

## SAMPLE IDENTIFICATION

B011C7 1, 1L, P, WATER, FREE CYANIDE
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## CHAIN OF POSSESSION

Relinquished by: <i>Kristy D. Lee E-D.C.</i>	Received by: <i>P.H. Butcher</i>	Date/Time: 8/21/91 1320
Relinquished by: <i>P.H. Butcher</i>	Received by: <i>SALLY O SLATE</i>	Date/Time: 8-29-91 1101
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

B01-017



SAMPLE RECEIPT FORM

Delivered by: Dusty Butcher Date/Time: 8-29-91- 1101

Received by: Shelly O. Slate

Customer Sample Number(s): B01199; B011J8; B011D0; B011K1; B011D3; B011D6;

ALO Sample Number(s): ~~91-9136~~ 91-9129 to 91-9135 B011C7  
also 8-29-91

1. Customer Chain-of-Custody Form: Present  Absent

2. Additional Shipping Forms (list):

SAR

3. Custody Seals on Shipping and/or Sample Containers and their Conditions.

Present  Absent

If Present, Condition: good - intact

4. Sample Tag(s) ID Numbers if not Recorded on the Chain-of-Custody Record or on Sample Vial.

Notes:

5. Condition of Shipping Container (i.e., broken container, dented, breached plastic bag, temperature of sample container as defined in Section 3.0 in PNL-ALO-051, etc.)

6. Condition of Sample Vials. good 5.0°C

7. Verification of Agreement or Nonagreement of Information on Receiving Documents.

8. Resolution of Problems or Discrepancies.

RETURN COMPLETED FORM TO PROJECT MANAGER

B01-019

9613491.1950

Samples were delivered directly to the Analysts. Therefore, no other PNL Chain of Custody forms were needed.

B02-002