9613471.1702

START

B079L8-TMA-331

0045064

CASE NARRATIVE

LABORATORY : TMA/ARLI

CASE : 10-041

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : October 14, 1992

SEP 1996 RECEIVED EDMC

1.0 DESCRIPTION OF CASE :

One liquid sample was analyzed for TCL Organics-Volatiles according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision OLM01.8.

2.0 SAMPLE LIST :

WESTINGHOUSE ID	LAB ID	ANALYSIS REQUESTED	MATRIX	pH
B079M0	A2-10-041-01A	V	WATER	7
B079M0 MS	A2-10-041-01B	V	WATER	7
B079M0 MSD	A2-10-041-01C	V	WATER	7

3.0 COMMENTS :

3.1 SHIPPING AND DOCUMENTATION :

The samples were received unbroken and properly documented. 1 of the 3 VOA vials for sample B079M0 was received by TMA/NORCAL with air bubbles.

3.2 ANALYSIS

3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL WATER :

The samples were analyzed within the CLP SOW holding times.

All of the QC results were within the limits specified by the EPA CLP SOW.

TUNES :

All of the BFB tunes are injected directly into the GC/MS instrument.

We certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data in this hardcopy data package and in the computer-readable data submitted on diskette is authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Nicole Roth
CLP Program Manager

Widayat
Wida Ang
Organics Supervisor

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B079M0

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 10041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A210041-01A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21019R07

Level: (low/med) LOW Date Received: 10/14/92

% Moisture: not dec. ____ Date Analyzed: 10/19/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B079M0

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 10041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A210041-01A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21019R07

Level: (low/med) LOW Date Received: 10/14/92

% Moisture: not dec. ____ Date Analyzed: 10/19/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9613471.1706

TMA

WESTINGHOUSE HANFORD COMPANY

Results of Analyses For:

ORGANICS & GENERAL CHEMISTRY
Case No. 10-041
(TMA/ARLI Work Order # A2-10-041)

METALS
Case No. N2-10-113
(TMA/Skinner & Sherman W.O. # S2-10-302, S2-10-303, & S2-10-304)

December 29, 1992

TMA Master Work Order N2-10-113

DEC 1992
RECEIVED
OSM DMO

RECORD COPY

PAGE 1 TMA/Norcal CHAIN OF CUSTODY ORD # M2-10-113

RCVD: 10/14/92 DUE: 11/13/92 10/14/92 14:55:43 KEEP: 02/11/93 DISP: S

DASH	SAMPLE IDENTIFICATION	STORED	TESTS for FRACTIONS with work in DEPT: SU and CATEGORY
01A-W	B079L8 UNFILTERED	ARLI	WH043 WH128 WH131
01C-W	B079L8 MS UNFILTERED	ARLI	WH043
01D-W	B079L8 DUP UNFILTERED	ARLI	WH043 WH128 WH131
03A-W	B079M0	ARLI	WH018
03B-W	B079M0 MS	ARLI	WH018
03C-W	B079M0 MSD	ARLI	WH018

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
[illegible]	10-14-92	ARLI	10-14-92	[illegible]	10/15/92

9613471.1708

SAMPLE LOG-IN SHEET

000003

LAB NAME : TNA/ARLI

PAGE : | OF |

RECEIVED BY (PRINT NAME): Trudy Golub

LOG-IN-DATE : 10/15/92

RECEIVED BY (SIGNATURE): Trudy Golub

CASE NUMBER:

SAMPLE DELIVERY GROUP NO.:

SAS NUMBER:

REMARKS: WHC

1. Custody Seal(s) Present/Absent* Intact/Broken
2. Custody Seal Nos:
3. Chain of Custody Records Present/Absent*
4. Traffic Reports or Packing List Present/Absent*
5. Airbill Airbill/Sticker Present/Absent*
6. Airbill No.: 5188040130
7. Sample Tags Present/Absent*
8. Sample Tags Numbers Listed/Not Listed on Chain of Custody
9. Sample Condition: Intact/Broken*/ Leaking
10. Does information on custody records, traffic reports, and sample tags agree Yes/No*
11. Date Recieved at Lab: 10/15/92
12. Temp of ice chest 5.2 °C
13. Time Recieved: 1015

SAMPLE TRANSFER

Fraction:

Area #:

By:

On:

EPA SAMPLE #	CORRESPONDING SAMPLE TAG #	CORRESPONDING ASSIGNED LAB #	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC
	B079M0	A2-10-041-01	
	B079L8	A2-10-041-02	

* Contact SMO and attach record of resolution

Reviewed By:

Logbook No.:

Date:

Logbook Page No.:

FORM DC-1

DOC2/LOGIN.TBL

Temp: 5.8 1347.1709

000004

TMA/ARLI
Thermo Analytical Inc.

RADIATION DOSE RATE SURVEY FORM

Date 10/15/92 COMPANY NORCAL (WHC) OTHER ORD # 518804013C

Surveyor's Name MARK S. McCray

Model No. HP-210 / ESP-1 Model No. AC-3-7 / ESP-1

Serial Nos. 710289 / 02619 Serial Nos. 407726 / 02628

Calibration Date 3/25/92 Calibration Date 8/01/92

Instrument Calibration Factor 0.280 Instrument Calibration Factor 0.188

Sample	Location	HP-210 CPM	HP-210 Factor	HP-210 DPM	AC-3-7 CPM	AC-3-7 Factor	AC-3-7 DPM	Spillage or Breakage?	Activity, mCi/mL or µCi/g
Background		35.0			0				
Consistency		7,500	0.2895		5,040	0.1852			
Smears: WHC		41.0			1.0				
Reported (WHC)		7 samples		each	<50 pCi/gram			—	—

Comments:

All OK ✓ Approved MSM

Not OK Date 10/15/92

Form: ARLI RA-01
Rev: 06

01/15/92

9613471.1710

000005

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 5188040130

5188040130

RECIPIENT'S COPY

1 Date 10-14-92

From (Your Name) Please Print: SAMPLE

Your Phone Number (Very Important): (510)238-2033

Company: A MEDICAL

Department/Floor No

Street Address: 2030 BRIGHT AVE

City: [illegible] State: CA ZIP Required: 94[illegible]

2 To (Recipient's Name) Please Print: SAMPLE

Recipient's Phone Number (Very Im

Company: TIM/ PA

Department/Flo

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 160 TAYLOR STREET

City: MONTEREY State: CA ZIP Required: 93[illegible]

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.): 2320 6426

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address
City State ZIP Required

3 PAYMENT 1 ☑ Bill Sender 2 ☐ Bill Recipient's FedEx Acct No 3 ☐ Bill 3rd Party FedEx Acct No 4 ☐ Bill Credit Card 5 ☐ Cash/Check

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)
11 ☑ YOUR PACKAGING
16 ☐ FEDEX LETTER*
12 ☐ FEDEX PAK*
13 ☐ FEDEX BOX
14 ☐ FEDEX TUBE

Standard Overnight (Delivery by next business afternoon; for Saturday delivery††)
51 ☐ YOUR PACKAGING
56 ☐ FEDEX LETTER*
52 ☐ FEDEX PAK*
53 ☐ FEDEX BOX
54 ☐ FEDEX TUBE

Economy Two-Day (Delivery by second business day †)
30 ☐ ECONOMY

Government Overnight (Restricted for authorized users only)
46 ☐ GOVT LETTER
41 ☐ GOVT PACKAGE

Freight Service (for packages over 150 lbs.)
70 ☐ OVERNIGHT FREIGHT** (Advanced reservation required)
80 ☐ TWO-DAY FREIGHT**

† Delivery commitment may be later in some areas.
*Declared Value Limit $500
**Call for delivery schedule

5 DELIVERY AND SPECIAL HANDLING (Check services required)

1 ☐ HOLD FOR PICK-UP (Fill in Box H)
2 ☑ DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) (Not available to all locations) ☐
4 ☐ DANGEROUS GOODS (Extra charge)
5 ☐
6 ☐ DRY ICE Lbs.
7 ☐ OTHER SPECIAL SERVICE
8 ☐
9 ☐ SATURDAY PICK-UP (Extra charge)
10 ☐
☐
12 ☐ HOLIDAY DELIVERY (If offered) (Extra charge)

6 PACKAGES | WEIGHT in Pounds Only | YOUR DECLARED VALUE

Total | Total 1 | 23 | Total

DIM SHIPMENT (Chargeable Weight): ☐ ____ lbs.
L x W x H

Received At
1 ☑ Regular Stop 3 ☐ Drop Box
2 ☐ On-Call Stop 4 ☐ B S C. 5 ☐ Station

Emp. No. Date
☐ Cash Received
☐ Return Shipment
☐ Third Party ☐ Chg To Del ☐ Chg To Hold
Street Address
City State Zip
Received By: X
Date/Time Received FedEx Employee Number

7 Release Signature

Federal Express
Base Charges
Declared Value Ch
Other 1
Other 2
Total Charges

REVISION DATE 2/92
PART #137204 FXE
FORMAT #126
126

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GENERAL CHEMISTRY RESULTS

CASE NO. 10-041

Water Sample #:

B079L8

CASE NARRATIVE

No problems were encountered during sample analysis. All QC results were acceptable.

Ernesto Vazquez

Ernesto Vazquez

9613471.1712

000007

TMA Inc. REPORT Work Order # A2-10-041

Received: 10/14/92 12/07/92 08:18:41

REPORT TO: Westinghouse Hanford Company
2355 Stevens Dr.
Richland,WA.99352
MO-346/200 West/T6-08
ATTEN: Jeanette Duncan

PREPARED BY: Thermo Analytical, Inc.
160 Taylor Street
Monrovia, CA 91016
ATTEN: Ms. Carole Harris
PHONE: 818-357-3247

CERTIFIED BY: Ernesto Vazquez
CONTACT: EVV CIH

CLIENT: WHC SAMPLES: 3
COMPANY: Westinghouse Hanford Company
FACILITY:

This report is for the sole and exclusive use of the client to whom it is addressed and represents only those samples herein described. Samples not destroyed in testing are retained a maximum of 30 days unless otherwise requested.

WORK ID: 200-BP-1
TAKEN: By Westinghouse Staff
TRANS: By Federal Express
TYPE: Liquid
P.O. #: N2-10-113-SU-AR
INVOICE: under separate cover

SAMPLE IDENTIFICATION

01	B079M0
01	B079M0 MS
01	B079M0 MSD
02	B079L8
02	B079L8 MS
02	B079L8 Duplicate
02	B079L8
02	B079L8 Duplicate
03	Wet Chemistry Blank

TEST CODES and NAMES used on this workorder

VOCLPL	CLP Volatile Org.Liq.
WCCLPL	Anions & Wet Chem. - WH043
WCL L	Chloride - WH120
WCQCD	Quality Control Summary
WCQCS	Quality Control Summary
WF L	Fluoride in Water
WPO4 L	Phosphate in Liquids
WSO4 L	Sulfate (in Waters)
W ALK	Alkalinity - WH131
W TDS	Dissolved Solids WH128

TMA Inc. REPORT Work Order # A2-10-041

Received: 10/14/92 Results by Sample

SAMPLE ID B079L8 FRACTION 02A TEST CODE WCCLPL NAME Anions & Wet Chem. - WH043

Date & Time Collected 10/12/92 Category

ANIONS AND WET CHEMISTRY - LIQUIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Chloride	300.0	25.0	mg/L	0.2
Fluoride	300.0	0.6	mg/L	0.1
Phosphate	300.0	<0.4	mg/L	0.4
Sulfate	300.0	93	mg/L	1

FORM I

TMA Inc. REPORT Work Order # A2-10-041

Received: 10/14/92

Results by Sample

SAMPLE ID B079L8 FRACTION 02D TEST CODE WCCLPL NAME Anions & Wet Chem. - WH043

Date & Time Collected 10/12/92 Category

ANIONS AND WET CHEMISTRY - LIQUIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Alkalinity	310.1	100	mg/L	2
Tot. Dissolved Solids	160.1	279	mg/L	5

FORM I

9613471.1215

 Skinner&Sherman REPORT Work Order # S2-10-304

Received: 10/15/92 12/11/92 13:45:03

REPORT TMA/NORCAL
TO 2030 Wright Avenue
Richmond, CA 94804

ATTEN Dan Steurmer

PREPARED TMA / Skinner & Sherman Labs.
BY 300 Second Avenue
P.O. Box 521
Waltham, MA 02254

ATTEN Client Services
PHONE (617) 890-7200

CERTIFIED BY

CONTACT DP

CLIENT HANFORD NOR SAMPLES 2
COMPANY TMA/NORCAL
FACILITY Richmond, CA

WORK ID N2-10-113
TAKEN BY CLIENT
TRANS FED EX
TYPE WATER
P.O. # N2-10-113
INVOICE under separate cover

SAMPLE IDENTIFICATION		TEST CODES and NAMES used on this workorder	
01	B079L8	NO3NO2	Nitrate Plus Nitrite
01	B079L8 DUPL		
01	B079L8 SPIKE		
02	LCSW		

TMA Thermo Analytical Inc.

This report is rendered upon all of the following conditions: Skinner & Sherman Laboratories, Inc. retains ownership of this report until associated submitted invoice is satisfie Expert witness services shall be available in conjunction with this report only if prior notification of this potential requirement was made and accepted, before the analysis. Clie will be responsible for Skinner & Sherman costs and consulting fees if our services are required by subpoena or otherwise in legal proceedings. Total liability is limited to the invoi amount. The results listed refer only to tested samples and applicable parameters. Product endorsement is neither inferred nor implied. Skinner & Sherman Laboratories, Inc. w exercise due diligence but will not be responsible for lost or destroyed samples or evidence unless client makes appropriate insurance/coverage arrangements. Samples are held f thirty days following issuance of report. Samples will be stored at client's expense, if authorized in writing.

Skinner & Sherman Laboratories Inc. 300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
1-800-4 LAB TEST FAX (617) 890-3883

9613471.1716

Received: 10/15/92 Results by Sample

SAMPLE ID B079L8 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 10/12/92 Category WATER

NO3NO2 1.55
mg N/L

SAMPLE ID B079L8 DUPL SAMPLE # 01 FRACTIONS: B
Date & Time Collected 10/12/92 Category WATER

NO3NO2 1.52
mg N/L

SAMPLE ID B079L8 SPIKE SAMPLE # 01 FRACTIONS: C
Date & Time Collected 10/12/92 Category WATER

NO3NO2 3.06
mg N/L

SAMPLE ID LCSW SAMPLE # 02 FRACTIONS: A
Date & Time Collected not specified Category WATER

NO3NO2 1.92
mg N/L

9613471.1717

TMA/Skinner & Sherman Labs SAMPLE LOG-IN

WORKORDER S210304 CLIENT Hanford NOR No. SAMPLES:

PROTCL CLP TURNARND 33 Day

COOLER TEMP: 5 oC, or NA (Soil) (Water) (Specify Other

CUSTODIAN B. Pcanle SDG/BATCH N/A

CUSTODY SEAL: PRESENT/ABSENT/INTACT/NOT CLIENT CASE N210113

SHIPER & # Fed Ex PO/CONTRACT# ✓

TAGS: PRESENT/ABSENT/NA/SEE COC CONTACT D. Sanchez

CHAIN OF CUSTODY: PRESENT/ABSENT/NA, # N/A COMMENTS: none

SAMPLE CONTAINERS-INTACT/BROKEN COMMENTS

CLIENT COMMENT? YES/NO

SAMPLE LABELS AGREE WITH CHAIN OF CUSTODY INFO? YES/NO (COMMENT)

CLIENT PAPERWORK AGREES WITH SAMPLES & COC? YES /NO (COMMENT)

SHIPMENT DATES 10/15/92

LIST ANY DATE WITH PAPERWORK/SHIPMENT PROBLEMS & SPECIFY THE PROBLEM:

N/A

	CLIENT ID	MATRIX	RECEIVED	PH*	TEST(S) & QC	HOLD TIME UI
1	B07L8	water	10-15-92	1.56	D.S NO3 NO2	
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

Samples are from site known to have Rad-Contamination: YES ✓ NO

Samples have detectable amounts of Radioactive Material: YES NO ✓

SUBCONTRACT: YES/NO, TO: DATE:

REVIEWED

Complete 10/16/92

* EPA/CLP required Rev 1.6 PAGE: PAGE 13 of

9613471.1718

PAGE 1 TMA/Norcal CHAIN OF CUSTODY ORD # N2-10-113

RCVD: 10/14/92 DUE: 11/13/92 10/14/92 15:07:15 KEEP: 02/11/93 DISP: S

DASH	SAMPLE IDENTIFICATION		STORED	TESTS for FRACTIONS with work in DEPT: SU and CATEGORY					
01B-W	B079L8		UNFILTEREDS&S	WH007	WH008	WH010	WH011	WH075A	WH137
01E-W	B079L8	MS	UNFILTEREDS&S	WH007	WH008	WH010	WH011	WH075A	WH137
01F-W	B079L8	DUP	UNFILTEREDS&S	WH007	WH008	WH010	WH011	WH075A	WH137
01G-W	L C S		S&S	WH007	WH008	WH010	WH075A	WH137	
02A-W	B079L9		FILTERED S&S	WH007	WH008	WH010	WH075A		
02B-W	B079L9	MS	FILTERED S&S	WH007	WH008	WH010	WH075A		
02C-W	B079L9	DUP	FILTERED S&S	WH007	WH008	WH010	WH075A		
02D-W	L C S		S&S	WH007	WH008	WH010	WH075A		

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
Lyon Cannato	10-14-92	SS-1	10-14-92	[illegible]	10/15/92

9613471.1719

TMA
Thermo Analytical Inc.

Skinner & Sherman Labs., Inc.
300 Second Avenue
Post Office Box 521
Waltham, MA 02254-0521
(617) 890-7200
FAX (617) 890-3883

RECORD COPY

DEC 1992
RECEIVED
OSM DMO

December 23, 1992

TMA/NORCAL
2030 Wright Avenue
Richmond, CA 94804
Attention: Dan Stuermer

Quality Control Narrative

Scope
One (1) water sample was submitted to TMA/Skinner & Sherman Laboratories, Inc. on October 15, 1992 from TMA/Norcal. The samples were analyzed for the USEPA CLP metals plus bismuth. The analysis was performed under TMA/Skinner and Sherman work order S210303.

Methodology
The samples were prepared, analyzed and reported in accordance with the USEPA Contract Laboratory Program Statement of Work ILM02. Bismuth was analyzed by Flame Atomic Absorption Spectroscopy.

Discussion
All quality control requirements were met for the samples with the following exceptions;

The selenium digestion spike recovery exceeded the control limit requirements.

Please feel free to call if there are any questions concerning the data package.

Respectfully submitted,

TMA/SKINNER & SHERMAN LABORATORIES, INC.

David N. Peterson
Assistant Laboratory Manager

2-26-96
MC

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B079L9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-10-113SAS No.: SDG No.: B079L9

Matrix (soil/water): WATER Lab Sample ID: 10303-01S

Level (low/med): LOW Date Received: 10/15/92

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	17.1	B		P
7440-36-0	Antimony	14.8	U		P
7440-38-2	Arsenic	3.1	B		F
7440-39-3	Barium	55.4	B		P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	1.5	U		P
7440-70-2	Calcium	52400			P
7440-47-3	Chromium	2.6	U		P
7440-48-4	Cobalt	1.3	U		P
7440-50-8	Copper	1.9	U		P
7439-89-6	Iron	82.0	B		P
7439-92-1	Lead	2.8	B		F
7439-95-4	Magnesium	15200			P
7439-96-5	Manganese	4.2	B		P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	2.6	U		P
7440-09-7	Potassium	6700			P
7782-49-2	Selenium	2.9	U	WN	F
7440-22-4	Silver	3.6	U		P
7440-23-5	Sodium	21100			P
7440-28-0	Thallium	3.8	U		F
7440-62-2	Vanadium	12.9	B		P
7440-66-6	Zinc	5.7	U		P
	Cyanide				NR
7440-69-9	Bismuth	500	U		A

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

002

9613471.1721

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL
PACKAGE
TRACKING NUMBER 518804015

2237M 5188040152

RECIPIENT'S COPY

1 Date 10.14.92

From (Your Name) Please Print: SAMOI CONTROL

Your Phone Number (Very Important): (510)235-2633

Company: T M A /NORCAL

Department/Floor No.

Street Address: 2030 WRIGHT AVE

City: RICHMOND State: CA ZIP Required: 94804

2 To (Recipient's Name) Please Print: SAMOI CONTROL

Recipient's Phone Number (Vel)

Company: SKINNER + SHERMAN

Department/

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 300 SECOND AVENUE

City: WALTHAM State: MA ZIP Required: 02254

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.): 2320 6406

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address
City State ZIP Required

3 PAYMENT 1 [x] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card 5 [ ] Cash/Check

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)
11 [x] YOUR PACKAGING
16 [ ] FEDEX LETTER*
12 [ ] FEDEX PAK*
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight (Delivery by next business afternoon. No Saturday delivery†)
51 [ ] YOUR PACKAGING
56 [ ] FEDEX LETTER*
52 [ ] FEDEX PAK*
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Two-Day (Delivery by second business day †)
30 [ ] ECONOMY

Government Overnight (Restricted for authorized users only)
46 [ ] GOVT LETTER
41 [ ] GOVT PACKAGE

Freight Service (for packages over 150 lbs.)
70 [ ] OVERNIGHT FREIGHT** (Confirmed reservation required)
80 [ ] TWO-DAY FREIGHT**

† Delivery commitment may be later in some areas. *Declared Value Limit $500. **Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)

1 [ ] HOLD FOR PICK-UP (Fill in Box H)
2 [x] DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) (Not available to all locations) [ ]
4 [ ] DANGEROUS GOODS (Extra charge)
5 [ ]
6 [ ] DRY ICE ____ Lbs.
7 [ ] OTHER SPECIAL SERVICE
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
[ ]
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

6 PACKAGES | WEIGHT In Pounds Only | YOUR DECLARED VALUE

Total | Total 1 33 | Total

DIM SHIPMENT (Chargeable Weight): [ ] ____ lbs.
L x W x H

Received At
1 [x] Regular Stop 3 [ ] Drop Box
4 [ ] B.S.C.
2 [ ] On-Call Stop 5 [ ] Station

7 Release Signature:

Emp. No. Date
[ ] Cash Received
[ ] Return Shipment
[ ] Third Party [ ] Chg. To Del. [ ] Chg. To Hold
Street Address
City State Zip
Received By: X
Date/Time Received 10/15/92 FedEx Employee Number 10.'00

Federal Express
Base Charges
Declared Value Ch
Other 1
Other 2
Total Charges

REVISION DATE 2/92
PART #137204 FXEM
FORMAT #126
126

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32

9613471.1722

Sampled 10/12

TMA/Skinner & Sherman Labs SAMPLE LOG-IN
WORKORDER 5210303 CLIENT Hanford Nor No. SAMPLES:
PROTCL CLP TURNARND 33 Day (Soil) 1 (Water) (Specify Oth
COOLER TEMP: 5 oC, or NA
CUSTODIAN B. Powell SDG/BATCH N/A
CUSTODY SEAL: PRESENT/ABSENT/INTACT/NOT CLIENT CASE NZ 10113
SHIPER & # FedEx PO/CONTRACT# ✓
TAGS: PRESENT/ABSENT/NA/SEE COC CONTACT D. Sanchez
CHAIN OF CUSTODY: PRESENT/ABSENT/NA,# N/A COMMENTS: none

SAMPLE CONTAINERS-INTACT/BROKEN COMMENTS

CLIENT COMMENT? YES/NO
SAMPLE LABELS AGREE WITH CHAIN OF CUSTODY INFO? YES/NO (COMMENT)
CLIENT PAPERWORK AGREES WITH SAMPLES & COC? YES /NO (COMMENT)

SHIPMENT DATES 10-15-92
LIST ANY DATE WITH PAPERWORK/SHIPMENT PROBLEMS & SPECIFY THE PROBLEM:

FILTERED

	CLIENT ID	MATRIX	RECEIVED	PH*	~~TEST(S)~~ & QC	HOLD TIME
1	B0719	water	10-15-92	1.71	D.S TM + Bismuth	
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

10/15/92

Samples are from site known to have Rad-Contamination: YES ✓ NO
Samples have detectable amounts of Radioactive Material: YES NO ✓

33

SUBCONTRACT: YES/NO, TO: DATE:

REVIEWED

Complete 10/16/92

*-EPA/CLP required

9613471.1723

PAGE 1 TMA/Norcal CHAIN OF CUSTODY ORD # N2-10-113

RCVD: 10/14/92 DUE: 11/13/92 10/14/92 15:07:15 KEEP: 02/11/93 DISP: S

200-BP-1

DASH	SAMPLE IDENTIFICATION		STORED	TESTS for FRACTIONS with work in DEPT: SU and CATEGORY					
01B-W	B079L8		UNFILTEREDS&S	WH007	WH008	WH010	WH011	WH075A	WH137
01E-W	B079L8	MS	UNFILTEREDS&S	WH007	WH008	WH010	WH011	WH075A	WH137
01F-W	B079L8	DUP	UNFILTEREDS&S	WH007	WH008	WH010	WH011	WH075A	WH137
01G-W	L C S		S&S	WH007	WH008	WH010	WH075A	WH137	
02A-W	B079L9		FILTERED S&S	WH007	WH008	WH010	WH075A		
02B-W	B079L9	MS	FILTERED S&S	WH007	WH008	WH010	WH075A		
02C-W	B079L9	DUP	FILTERED S&S	WH007	WH008	WH010	WH075A		
02D-W	L C S		S&S	WH007	WH008	WH010	WH075A		

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
Yamamoto	10-14-92	SS-1	10-14-92	[illegible]	10/15/92

9613471.1724

TMA
Thermo Analytical Inc.

Skinner & Sherman Labs., Inc.
300 Second Avenue
Post Office Box 521
Waltham, MA 02254-0521
(617) 890-7200
FAX (617) 890-3883

RECORD COPY

DEC 1992
RECEIVED
OSM DMO

December 23, 1992

TMA/NORCAL
2030 Wright Avenue
Richmond, CA 94804
Attention: Dan Stuermer

Quality Control Narrative

Scope
One (1) water sample was submitted to TMA/Skinner & Sherman Laboratories, Inc. on October 15, 1992 from TMA/Norcal. The samples were analyzed for the USEPA CLP metals and cyanide plus bismuth. The analysis was performed under TMA/Skinner and Sherman work order S210302.

Methodology
The samples were prepared, analyzed and reported in accordance with the USEPA Contract Laboratory Program Statement of Work ILM02. Bismuth was analyzed by Flame Atomic Absorption Spectroscopy.

Discussion
All quality control requirements were met for the samples with no exceptions.

Please feel free to call if there are any questions concerning the data package.

Respectfully submitted,

TMA/SKINNER & SHERMAN LABORATORIES, INC.

David N. Peterson
Assistant Laboratory Manager

2-26-96
MC

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

B079L8

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-10-113SAS No.: SDG No.: B079L8

Matrix (soil/water): WATER Lab Sample ID: 10302-01S

Level (low/med): LOW Date Received: 10/15/92

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	26.3	B		P
7440-36-0	Antimony	14.8	U		P
7440-38-2	Arsenic	3.0	B		F
7440-39-3	Barium	55.0	B		P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	1.5	U		P
7440-70-2	Calcium	50900			P
7440-47-3	Chromium	9.9	B		P
7440-48-4	Cobalt	1.3	U		P
7440-50-8	Copper	1.9	U		P
7439-89-6	Iron	465			P
7439-92-1	Lead	2.1	B		F
7439-95-4	Magnesium	14700			P
7439-96-5	Manganese	5.0	B		P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	4.9	B		P
7440-09-7	Potassium	6560			P
7782-49-2	Selenium	3.8	U	MW	F
7440-22-4	Silver	3.6	U		P
7440-23-5	Sodium	20500			P
7440-28-0	Thallium	3.8	U	W	F
7440-62-2	Vanadium	14.5	B		P
7440-66-6	Zinc	5.7	U		P
	Cyanide	10.0	U		CA
7440-69-9	Bismuth	500	U		A

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

0612471 1726

Sampled 10/12/92

TMA/Skinner & Sherman Labs SAMPLE LOG-IN
WORKORDER 5210302 CLIENT Hanford Nor No. SAMPLES:
PROTCL CLP TURNAROUND 35 Days 1
COOLER TEMP: 5 oC, or NA (Soil) (Water) (Specify Other
CUSTODIAN B. Prewell SDG/BATCH N/A
CUSTODY SEAL: PRESENT/ABSENT/INTACT/NOT CLIENT CASE NZ10113
SHIPER & # Fed Ex PO/CONTRACT# ↓
TAGS: PRESENT/ABSENT/NA/SEE COC CONTACT D. Sanchez
CHAIN OF CUSTODY: PRESENT/ABSENT/NA, # N/A COMMENTS: none

SAMPLE CONTAINERS-INTACT/BROKEN COMMENTS

CLIENT COMMENT? YES/NO
SAMPLE LABELS AGREE WITH CHAIN OF CUSTODY INFO? YES/NO (COMMENT)
CLIENT PAPERWORK AGREES WITH SAMPLES & COC? YES /NO (COMMENT)

SHIPMENT DATES 10-15-92
LIST ANY DATE WITH PAPERWORK/SHIPMENT PROBLEMS & SPECIFY THE PROBLEM:

N/A UNFILTERED

	CLIENT ID	MATRIX	RECEIVED	PH*	TEST(S) & QC	HOLD TIME U
1	B07948	Water	10.15.92	1.76/11.65	D.S Tm/CN + Bismuth	
2	~~B079~~ 10/15/92					
3						
4						
5						
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27						

Samples are from site known to have Rad-Contamination: YES ✓ NO ~~X~~ 10/15
Samples have detectable amounts of Radioactive Material: YES ____ NO ~~X~~

SUBCONTRACT: YES/NO TO: DATE: BP

REVIEWED Complete 10/16/92

QA/QC required Page 1 of 6 PAGE:

PAGE 1 THA/Norcal CHAIN OF CUSTODY ORD # N2-10-113

RCVD: 10/14/92 DUE: 11/13/92 10/14/92 15:07:15 KEEP: 02/11/93 DISP: S

DASH	SAMPLE IDENTIFICATION		STORED	TESTS for FRACTIONS with work in DEPT: SU and CATEGORY					
01B-W	B079L8		UNFILTEREDS&S	WH007	WH008	WH010	WH011	WH075A	WH137
01E-W	B079L8	MS	UNFILTEREDS&S	WH007	WH008	WH010	WH011	WH075A	WH137
01F-W	B079L8	DUP	UNFILTEREDS&S	WH007	WH008	WH010	WH011	WH075A	WH137
01G-W	L C S		S&S	WH007	WH008	WH010	WH075A	WH137	
02A-W	B079L9		FILTERED S&S	WH007	WH008	WH010	WH075A		
02B-W	B079L9	MS	FILTERED S&S	WH007	WH008	WH010	WH075A		
02C-W	B079L9	DUP	FILTERED S&S	WH007	WH008	WH010	WH075A		
02D-W	L C S		S&S	WH007	WH008	WH010	WH075A		

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
Lycancento	10-14-92	SS-1	10-14-92	[illegible]	10/15/92

9613471.1728

MEMORANDUM

APR 1993
RECEIVED
OSM DMO

TO: 200-BP-1 Project QA Record

April 8, 1993

FR: Susan Winter, Golder Associates Inc.

RE: VOLATILE ORGANIC ANALYSIS DATA VALIDATION SUMMARY FOR DATA PACKAGE B079L8-TMA-331

INTRODUCTION

This memo presents the results of data validation on data package B079L8-TMA-331 consisting of one (1) low level water sample submitted for volatile organic analysis. The sample was analyzed by TMA/Norcal according to the CLP protocol for TCL volatile compounds. Information concerning the sample validated is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B079M0	10/12/92	WATER

Data validation was conducted in accordance with the WHC statement of work (WHC 1991) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met for all associated compounds.

Completeness. The data package was complete for all requested analyses with the exception of the chain of custody form which was not provided with this data package. Therefore, the sample date, as recorded above, was obtained from the wet chemistry laboratory report form.

One sample was validated in this data set with a total of 33 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

No deficiencies were identified for the volatile fraction which required rejection of data.

MINOR DEFICIENCIES

Calibration

Initial calibration verification (ICV) relative standard deviation (RSD) for vinyl chloride was greater than the control limit of 20.5%. Therefore, the associated sample result has been qualified as estimated (UJ).

REFERENCES

WHC, 1991, Westinghouse Hanford Company, Validation of 200-BP-1 Data, Statement of Work, Revision A, November 1991. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

9613471.1730

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

9613471.1731

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

B - Indicates the analyte was analyzed for and detected. The value reported is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). The data are usable for decision making purposes.

U - Indicates the analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the analyte was analyzed for and detected. The associated value is estimated due to a deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the analyte was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the analyte was analyzed and detected; however, due to an identified quality control deficiency the data are unusable.

9613471.1732

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: B079L8	REVIEWER: [illegible]	DATE: 4/5/93	PAGE 1 OF 2
COMMENTS: Metals			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Aluminum	U	B079L8	Present in blank
Lead	U	↓	↓
Manganese	U	↓	↓
Selenium	UJ	B079L8	GFAA Analytical out of CL Spike

9613471.1734

DATA QUALIFICATION SUMMARY - FORM B-7

pg 2 of 2 4/9/93

SDG: B079L9	REVIEWER: [illegible]	DATE: 4/5/93	PAGE 1 OF ___
COMMENTS: Metals			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Iron	U	B079L9	Present in blank
Lead	U	↓	↓
Manganese	U	↓	↓
Selenium	UJ	B079L9	MS % R < 75%
Selenium	UJ	B079L9	GFAA Analytical spikes out of CL
thallium	UJ	B079L9	↓

9613471.1735

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

9613471.1736

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B079L8

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-10-113SAS No.: SDG No.: B079L8

Matrix (soil/water): WATER Lab Sample ID: 10302-01S

Level (low/med): LOW Date Received: 10/15/92

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	26.3	B		P	u
7440-36-0	Antimony	14.8	U		P	
7440-38-2	Arsenic	3.0	B		F	
7440-39-3	Barium	55.0	B		P	
7440-41-7	Beryllium	0.30	U		P	
7440-43-9	Cadmium	1.5	U		P	
7440-70-2	Calcium	50900			P	
7440-47-3	Chromium	9.9	B		P	
7440-48-4	Cobalt	1.3	U		P	
7440-50-8	Copper	1.9	U		P	
7439-89-6	Iron	465			P	
7439-92-1	Lead	2.1	B		F	u
7439-95-4	Magnesium	14700			P	
7439-96-5	Manganese	5.0	B		P	u
7439-97-6	Mercury	0.10	U		CV	
7440-02-0	Nickel	4.9	B		P	
7440-09-7	Potassium	6560			P	
7782-49-2	Selenium	3.8	B	MW	F	uJ
7440-22-4	Silver	3.6	U		P	
7440-23-5	Sodium	20500			P	
7440-28-0	Thallium	3.8	U	W	F	
7440-62-2	Vanadium	14.5	B		P	
7440-66-6	Zinc	5.7	U		P	
	Cyanide	10.0	U		CA	
7440-69-9	Bismuth	500	U		A	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

4/5/93

002

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B079L9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-10-113SAS No.: SDG No.: B079L9

Matrix (soil/water): WATER Lab Sample ID: 10303-01S

Level (low/med): LOW Date Received: 10/15/92

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	17.1	B		P	
7440-36-0	Antimony	14.8	U		P	
7440-38-2	Arsenic	3.1	B		F	
7440-39-3	Barium	55.4	B		P	
7440-41-7	Beryllium	0.30	U		P	
7440-43-9	Cadmium	1.5	U		P	
7440-70-2	Calcium	52400			P	
7440-47-3	Chromium	2.6	U		P	
7440-48-4	Cobalt	1.3	U		P	
7440-50-8	Copper	1.9	U		P	
7439-89-6	Iron	82.0	~~B~~		P	u
7439-92-1	Lead	2.8	~~B~~		F	u
7439-95-4	Magnesium	15200			P	
7439-96-5	Manganese	4.2	~~B~~		P	u
7439-97-6	Mercury	0.10	U		CV	
7440-02-0	Nickel	2.6	U		P	
7440-09-7	Potassium	6700			P	
7782-49-2	Selenium	2.9	~~U~~	WN	F	uj
7440-22-4	Silver	3.6	U		P	
7440-23-5	Sodium	21100			P	
7440-28-0	Thallium	3.8	~~U~~		F	uj
7440-62-2	Vanadium	12.9	B		P	
7440-66-6	Zinc	5.7	U		P	
	Cyanide				NR	
7440-69-9	Bismuth	500	U		A	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

4/5/93

002

9613471.1738

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

9613471.1739

WHC-SD-EN-SPP-002, Rev. 1

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 4/05/93
LABORATORY: TMA	CASE: ~~92-10-113~~	SDG: B079L8
SAMPLES/MATRIX: NZ-10-113 @ 4/5/93		
Water B079L8		

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 COC not submitted w/SDG		✓	
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	✓		

Data Package Item	Present?: Yes	No	N/A
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 ≥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 correllation 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.

HOLDING TIME SUMMARY - FORM B-1

B079L8

SDG:	REVIEWER: [illegible]	DATE: 4/05/93	PAGE 1 OF 1
COMMENTS: Metals Metals @ 4/5/93			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B079L8	ICP	10/12/92		12/17/92		66	None
	Bi			12/22/92		71	
	As			12/18/92		67	
	Se					67	
	Tl			12/17/92		66	
	Pb					66	
	Hg			11/06/92		25	
	CN			10/23/92		11	
Since the COC form was not provided with this SDG - the COC was returned from the wet chemistry data package.							
				[illegible] 4/5/93			

WESTINGHOUSE/HANFORD

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-10-113SAS No.: SDG No.: B079L8

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	14.7	U	27.4	B	14.7	U	14.7	U	22.260	B	P
Antimony	14.8	U	14.8	U	14.8	U	14.8	U	14.800	U	P
Arsenic	2.9	U	2.9	U	2.9	U			2.900	U	F
Barium	0.9	B	0.7	U	0.7	U	0.9	B	1.130	B	P
Beryllium	0.3	U	0.3	U	0.4	B	0.4	B	0.450	B	P
Cadmium	1.5	U	1.9	B	1.5	U	1.5	U	1.500	U	P
Calcium	13.7	U	81.9	B	20.6	B	13.7	U	13.700	U	P
Chromium	2.6	U	2.6	U	2.6	U	2.6	U	2.600	U	P
Cobalt	1.3	U	2.5	B	1.3	U	1.3	U	1.300	U	P
Copper	8.5	B	9.7	B	1.9	U	1.9	U	-4.450	B	P
Iron	-8.8	B	6.1	B	-4.2	B	4.0	U	52.370	B	P
Lead	1.0	U	1.0	U	1.0	U	1.0	U	2.177	B	F
Magnesium	18.0	U	28.0	B	18.1	B	18.0	U	18.090	B	P
Manganese	0.9	U	1.1	B	0.9	U	1.0	B	1.710	B	P
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.100	U	CV
Nickel	2.6	U	2.6	U	2.6	B	2.6	U	2.600	U	P
Potassium	79.4	U	79.4	U	79.4	U	79.4	U	79.400	U	P
Selenium	3.8	U	3.8	U	3.8	U	3.8	U	3.800	U	F
Silver	3.6	U	3.6	U	3.6	U	3.6	U	3.600	U	P
Sodium	32.7	U	32.7	U	32.7	U	32.7	U	82.130	B	P
Thallium	3.8	U	3.8	U	3.8	U	3.8	U	3.800	U	F
Vanadium	2.5	U	2.5	U	2.5	U	2.5	U	2.500	U	P
Zinc	11.4	B	9.9	B	5.7	U	5.7	U	5.700	U	P
Cyanide	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	CA
Bismuth	500.0	U	500.0	U	500.0	U			500.000	U	A

5X

Barium: 4.5 5.65 4.5

Beryllium: 2 2.25

Copper: 42.5

Iron: 261.85

Lead: 10.9

Magnesium: 90.45

Manganese: 5 8.55

Zinc: 57

Sodium: 410.65

Assoc w/B079L8

4/5/93

009

ACCURACY DATA SUMMARY - FORM B-4

SDG: B079L8	REVIEWER: [illegible]	DATE: 4/5/93	PAGE 1 OF 1	
COMMENTS: GFAA analytical spikes				
SAMPLE ID	**COMPOUND**	**% RECOVERY**	**SAMPLE(S) AFFECTED**	**QUALIFIER REQUIRED**
B079L8	Selenium	82.3	B079L8	UJ

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9613471.1747

WHC-SD-EN-SPP-002, Rev. 1

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

PROJECT: 200 - BP-1	REVIEWER: [illegible]	DATE: 04/05/93
LABORATORY: TMA	CASE: ~~92-10-113~~ N2-10-113	SDG: B079L9
SAMPLES/MATRIX: Water		04/5/93
B079L9		

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	✓		

COC forms were not submitted with the data pkg. 04/5/93

Data Package Item	Present?: Yes	No	N/A
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 ≥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 correllation 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.

HOLDING TIME SUMMARY - FORM B-1

B079L9

SDG:	REVIEWER: [signature]	DATE: 4/05/93	PAGE 1 OF 1
COMMENTS: Metals			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B079L9	ICP	10/12/92*		12/17/92		66	None
	Bi			12/22/92		71	
	As			12/18/92		67	
	Se			12/18/92		67	
	Pb			12/17/92		66	
	Tl					66	
	Hg			11/06/92		25	

* I am assuming that samples B079L8 and B079L9 were collected on the same day. Since the cof form was not submitted w/ this data package - the DOC for B079L8 was received from the wet chemistry data package.

[signature] 4/5/93

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WESTINGHOUSE/HANFORD

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-10-113SAS No.: SDG No.: B079L9

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
	5X						5X		5X		
Aluminum	14.7	U	27.4	B	14.7	U	14.7	U	14.700	U	P
Antimony	14.8	U	14.8	U	14.8	U	14.8	U	14.800	U	P
Arsenic	1.9	U	1.9	U	1.9	U	1.9	U	1.900	U	F
Barium	4.5 0.9	B	0.7	U	0.7	U	4.5 0.9	B	0.700	U	P
Beryllium	0.3	U	0.3	U	0.4	B	2.0 0.4	B	1.7 0.340	B	P
Cadmium	1.5	U	1.9	B	1.5	U	1.5	U	1.500	U	P
Calcium	13.7	U	81.9	B	20.6	B	13.7	U	13.700	U	P
Chromium	2.6	U	2.6	U	2.6	U	2.6	U	-3.150	B	P
Cobalt	1.3	U	2.5	B	1.3	U	1.3	U	1.300	U	P
Copper	42.5 8.5	B	9.7	B	1.9	U	1.9	U	106.1 -6.890	B	P
Iron	-8.8	B	6.1	B	-4.2	B	4.0	U	21.220	B	P
Lead	1.0	U	1.0	U	1.0	U			11.8 2.365	B	F
Magnesium	18.0	U	28.0	B	18.1	B	18.0	U	44.9 18.980	B	P
Manganese	0.9	U	1.1	B	0.9	U	5 1.0	B	0.900	U	P
Mercury	0.1	U	0.1	U	0.1	U	0.1	U	0.100	U	CV
Nickel	2.6	U	2.6	U	2.6	B	2.6	U	2.600	U	P
Potassium	79.4	U	79.4	U	79.4	U	79.4	U	79.400	U	P
Selenium	2.9	U	2.9	U	2.9	U	2.9	U	2.900	U	F
Silver	3.6	U	3.6	U	3.6	U	3.6	U	3.600	U	P
Sodium	32.7	U	32.7	U	32.7	U	32.7	U	32.700	U	P
Thallium	3.8	U	3.8	U	3.8	U			3.800	U	F
Vanadium	2.5	U	2.5	U	2.5	U	2.5	U	2.500	U	P
Zinc	57 11.4	B	9.9	B	5.7	U	5.7	U	5.700	U	P
Cyanide											NR
Bismuth	500.0	U	500.0	U	500.0	U			500.000	U	A

Assoc w/
B079L9

4/5/93

008

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WESTINGHOUSE/HANFORD

5A

SPIKE SAMPLE RECOVERY

SAMPLE NUMBER: B079L9S

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-10-113SAS No.: SDG No.: B079L9

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2020.1000		17.1000	B	2000.00	100.2		P
Antimony	75-125	492.5000		14.8000	U	500.00	98.5		P
Arsenic	75-125	38.5870		3.1435	B	40.00	88.6		F
Barium	75-125	1996.0000		55.4500	B	2000.00	97.0		P
Beryllium	75-125	51.2300		0.3000	U	50.00	102.5		P
Cadmium	75-125	50.2400		1.5000	U	50.00	100.5		P
Calcium									NR
Chromium	75-125	193.9000		2.6000	U	200.00	97.0		P
Cobalt	75-125	486.1700		1.3000	U	500.00	97.2		P
Copper	75-125	234.5700		1.9000	U	250.00	93.8		P
Iron	75-125	1032.3000		81.9800	B	1000.00	95.0		P
Lead	75-125	19.4170		2.7855	B	20.00	83.2		F
Magnesium									NR
Manganese	75-125	485.3600		4.1800	B	500.00	96.2		P
Mercury	75-125	0.9464		0.1000	U	1.00	94.6		CV
Nickel	75-125	483.0200		2.6000	U	500.00	96.6		P
Potassium									NR
Selenium	75-125	6.8690		2.9000	U	10.00	68.7	N	F
Silver	75-125	45.7000		3.6000	U	50.00	91.4		P
Sodium									NR
Thallium	75-125	40.5715		3.8000	U	50.00	81.1		F
Vanadium	75-125	498.0400		12.9200	B	500.00	97.0		P
Zinc	75-125	491.6400		5.7000	U	500.00	98.3		P
Cyanide									NR
Bismuth	75-125	4840.0000		500.0000	U	5000.00	96.8		A

Comments:

4/3/93

011

ACCURACY DATA SUMMARY - FORM B-4

SDG: B079L9	REVIEWER: [illegible]	DATE: 4/5/93	PAGE 1 OF 1	
COMMENTS: CFHA Analytical Spikes				
SAMPLE ID	**COMPOUND**	**% RECOVERY**	**SAMPLE(S) AFFECTED**	**QUALIFIER REQUIRED**
B079L9	Selenium	64.3	B079L9	UJ
↓	Thallium	120.0 @ 4/5/93	↓	UJ

WHC-SD-EN-SPP-002, Rev. 1

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APR 1993
RECEIVED
OSM
DMO

MEMORANDUM

TO: 200-BP-1 Project QA Record

April 15, 1993

FR: Susan Winter, Golder Associates Inc.

RE: METALS ANALYSIS DATA VALIDATION SUMMARY FOR DATA PACKAGE B079L8-TMA-331

INTRODUCTION

This memo presents the results of data validation on data package B079L8-TMA-331 consisting of two (2) low level water samples submitted for metals analysis. The sample was analyzed by TMA/Norcal using the CLP protocol for TAL metals/cyanide analytes. A list of the samples validated is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B079L8	10/12/92	WATER
B079L9	10/12/92	WATER

Data validation was conducted in accordance with the WHC statement of work (WHC 1991) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met with the exception of GFAA analytical spike recoveries as summarized under "Minor Deficiencies".

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met for all analyses.

Completeness. The data package was complete for all requested analyses with the exception of the chain of custody form which was not provided with this data package, therefore, the sample date, as recorded above, was obtained from the wet chemistry laboratory report form.

Two samples were validated in this data set with a total of fifty (49) determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets the work plan objectives of 90%.

Data Package: B079L8-TMA-331 Analysis: Metals

MAJOR DEFICIENCIES

No deficiencies were identified for the metals fraction which required rejection of data.

MINOR DEFICIENCIES

Blanks

Iron, lead and manganese were detected in the laboratory lbank associated with sample B079L9. Therefore sample results have been qualified as undetected (U).

Spike Recovery

Matrix spike recoveries were acceptable with the exception of the selenium spike associated with sample B079L9, requiring qualification of the sample result as estimated (UJ).

GFAA Analytical Spikes

GFAA analytical spikes were acceptable with the exception of the selenium spikes associated with both samples B079L8 and B079L9 requireing qualification of the associated results as estimated (UJ). The thallium analytical spike was also out of the control limit for sample B079L9, requiring qualification of the associated result as estimated (UJ).

REFERENCES

WHC, 1991, Westinghouse Hanford Company, Validation of 200-BP-1 Data, Statement of Work, Revision A, November 1991. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

9613471.1758

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

9613471.1759

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the compound was analyzed for and detected in the associated blank. The "B" qualifier for organic data is applied by the laboratory only and is not applied by the data validators.

U - Indicates the compound was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the compound was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the compound was analyzed for and detected; however, due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

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ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

9613471.1761

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: B079L8	REVIEWER: [illegible]	DATE: 4/7/93	PAGE 1 OF 1
COMMENTS: Volatiles			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Vinyl Chloride	UJ	B079M0	ICV RSD >20.5%

9613471.1762

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B079M0

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 10041 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A210041-01A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21019R07

Level: (low/med) LOW Date Received: 10/14/92

% Moisture: not dec. ____ Date Analyzed: 10/19/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

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

4/7/93

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ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

9613471.1765

WHC-SD-EN-SPP-002, Rev. 1

VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-1

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 4/7/93
LABORATORY: TMA	CASE: 10-041	SDG: B079L8
SAMPLES/MATRIX: Water		
B079M0		

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	✓	—	✓ ⊗ 4/7/93
Raw and corrected spectra for all detected results in blanks	—	—	✓
Raw and corrected library search data for all reported TIC	—	—	✓

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

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 transciption 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 ≤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 ≤20.5% (3/90 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤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 ≤25% (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values ≤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 time 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

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

Are any surrogate recoveries <10%? Yes No N/A

Are any method blank surrogate recoveries out of specification? Yes No N/A

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

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

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 >5xCRQL 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 ≥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 specrum 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.

9613471.1772

COMMENTS (attach additional sheets as necessary):

The chain of custody form was not submitted with this SDC.

4/7/93

HOLDING TIME SUMMARY - FORM B-1

SDG: B079L8	REVIEWER: [signature]	DATE: 4/07/93	PAGE 1 OF 1
COMMENTS: TMA - Volatiles			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B079M0	VOA	10/12/92*		10/19/92		7	None

*I am assuming that samples B079M0 and B079L8 were collected on the same day. Since the chain of custody was not provided with this SDG - I retrieved the DOC for B079L8 from the Wet Chemistry data report form.

[signature]
4/7/93

9513171.1273

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 10041 SAS No.: NA SDG No.: NA

Instrument ID: 4500 Calibration Date(s): 10/15/92 10/15/92

Heated Purge: (Y/N): N Calibration Times: 0918 1345

GC Column: PACK ID: 2.00 (mm)

LAB FILE ID: RRF10 = 21015R06 RRF20 = 21015R02D
RRF50= 21015R01D RRF100= 21015R05D RRF200= 21015R03D

COMPOUND		RRF10	RRF20	RRF50	RRF100	RRF200	$\overline{RRF}$	% RSD
Chloromethane		0.983	0.800	1.063	0.717	0.655	0.844	20.6
Bromomethane	*	0.879	1.216	1.290	1.263	1.194	1.168	14.2*
Vinyl Chloride	*	0.902	0.720	0.951	0.586	0.581	0.748	23.1*
Chloroethane		0.477	0.700	0.808	0.839	0.764	0.718	20.1
Methylene Chloride		1.099	1.203	1.281	1.314	1.199	1.219	6.9
Acetone		0.490	0.461	0.397	0.421	0.369	0.428	11.3
Carbon Disulfide		3.498	3.341	3.863	2.933	2.642	3.255	14.7
1,1-Dichloroethene	*	1.063	1.218	1.352	1.319	1.181	1.227	9.4*
1,1-Dichloroethane	*	2.076	2.385	2.469	2.414	2.139	2.297	7.7*
1,2-Dichloroethene (total)		1.272	1.403	1.506	1.403	1.293	1.375	6.9
Chloroform	*	2.499	2.754	2.909	2.740	2.530	2.686	6.4*
1,2-Dichloroethane	*	1.331	1.601	1.707	1.626	1.535	1.560	9.1*
2-Butanone		0.448	0.652	0.614	0.591	0.566	0.574	13.5
1,1,1-Trichloroethane	*	0.498	0.520	0.532	0.486	0.421	0.491	8.8*
Carbon Tetrachloride	*	0.464	0.507	0.528	0.481	0.423	0.481	8.4*
Bromodichloromethane	*	0.651	0.740	0.742	0.728	0.629	0.698	7.7*
1,2-Dichloropropane		0.266	0.325	0.335	0.336	0.305	0.313	9.4
cis-1,3-Dichloropropene	*	0.372	0.470	0.473	0.477	0.439	0.446	9.9*
Trichloroethene	*	0.376	0.434	0.444	0.425	0.376	0.411	7.9*
Dibromochloromethane	*	0.591	0.683	0.669	0.657	0.586	0.637	7.1*
1,1,2-Trichloroethane	*	0.253	0.313	0.301	0.302	0.275	0.289	8.4*
Benzene	*	0.899	0.990	0.976	0.955	0.839	0.932	6.7*
trans-1,3-Dichloropropene	*	0.367	0.441	0.447	0.462	0.427	0.429	8.6*
Bromoform	*	0.463	0.561	0.563	0.552	0.488	0.525	8.9*
4-Methyl-2-Pentanone		0.337	0.413	0.377	0.359	0.325	0.362	9.6
2-Hexanone		0.230	0.264	0.232	0.221	0.195	0.228	10.9
Tetrachloroethene	*	0.352	0.420	0.442	0.438	0.390	0.408	9.2*
1,1,2,2-Tetrachloroethane	*	0.710	0.785	0.754	0.741	0.654	0.729	6.8*
Toluene	*	0.609	0.691	0.692	0.690	0.629	0.662	6.1*
Chlorobenzene	*	0.871	0.976	0.987	0.985	0.889	0.942	6.0*
Ethylbenzene	*	0.383	0.446	0.463	0.445	0.405	0.428	7.7*
Styrene	*	0.887	1.001	1.002	0.984	0.859	0.947	7.2*
Xylene (total)	*	0.536	0.599	0.602	0.570	0.491	0.560	8.3*
Toluene-d8		0.887	0.863	0.913	1.035	0.875	0.915	7.6
Bromofluorobenzene	*	0.730	0.692	0.719	0.780	0.643	0.713	7.1*
1,2-Dichloroethane-d4		1.126	1.214	1.364	1.461	1.265	1.286	10.1

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

FORM VI VOA

9613471.1775

APR 1993
RECEIVED
OSM DMO

MEMORANDUM

TO: 200-BP-1 Project QA Record

April 15, 1993

FR: Susan Winter, Golder Associates Inc.

RE: GENERAL CHEMISTRY ANALYSIS DATA VALIDATION SUMMARY FOR DATA PACKAGE B079L8-TMA-331

INTRODUCTION

This memo presents the results of data validation on data package B079L8-TMA-331 consisting of one (1) water sample submitted for general chemistry analysis. The sample was analyzed by TMA/Norcal using standard methods for all associated parameters. Information concerning the sample validated is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B079L8	10/12/92	WATER

Data validation was conducted in accordance with the WHC statement of work (WHC 1991) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met with the exception of phosphate due to the matrix spike percent recovery which was 73%.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met for all analyses.

Completeness. The data package was complete for all requested analyses with the exception of quality control (QC) information concerning the total dissolved solids and alkalinity analyses. Also, the chain of custody was not provided with this data package, therefore, the sample date, as recorded above, was obtained from the general chemistry laboratory report form.

One sample was validated in this data set with a total of seven (7) determinations reported. Out of the seven determinations reported, five (5) were deemed valid which results in a completeness of 71 percent. This completeness percentage does not meet the work plan objectives of 90%.

MAJOR DEFICIENCIES

Method Specific Quality Control

The total dissolved solids (TDS) and alkalinity results for sample B079L5 have been rejected (R) since an analytical balance check was not performed prior to analysis, and the titrant normality was not checked before alkalinity analysis.

MINOR DEFICIENCIES

Holding Times

Phosphate, alkalinity, TDS, and nitrate+nitrite-N analyses were performed out of the required holding times. Therefore, all associated sample results have been qualified as estimated (J for detects, UJ for non-detects) with the exception of the results for alkalinity and TDS which have already been rejected (R) due to incomplete QC data.

Spike Recovery

The matrix spike percent recovery for phosphate was 73% which is less than the validation limit of 75%, but greater than 30%. Therefore, the associated sample result has been qualified as estimated (UJ).

REFERENCES

WHC, 1991, Westinghouse Hanford Company, Validation of 200-BP-1 Data, Statement of Work, Revision A, November 1991. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

9613471.1777

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

9613471.1778

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

B - Indicates the analyte was analyzed for and detected. The value reported is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). The data are usable for decision making purposes.

U - Indicates the analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the analyte was analyzed for and not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the analyte was analyzed for and detected. The associated value is estimated due to a deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the analyte was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the analyte was analyzed and detected; however, due to an identified quality control deficiency the data are unusable.

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ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

B079L8-TMA-331

SDG:	REVIEWER: [illegible]	DATE: 4/6/93	PAGE 1 OF 1
COMMENTS: Wet Chemistry			
COMPOUND	**QUALIFIER**	**SAMPLES AFFECTED**	**REASON**
Phosphate	UJ	B079L8	MS %R <75%
TDS	R	B079L8	Balance was not checked before analysis
Alkalinity	R	B079L8	~~Ti~~ Titrant Normality was not checked before analysis. 4/6/
Phosphate	UJ	B079L8	Exceeded holding time
Alkalinity	J (already rejected)	↓	↓
TDS	J (already rejected)		
NO2/NO3	J	↓	↓

9613471.1781

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

TMA Inc. REPORT Work Order # A2-10-041

Received: 10/14/92

Results by Sample

SAMPLE ID B079L8 FRACTION 02A TEST CODE WCCLPL NAME Anions & Wet Chem. - WH043

Date & Time Collected 10/12/92 Category

ANIONS AND WET CHEMISTRY - LIQUIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Chloride	300.0	25.0	mg/L	0.2
Fluoride	300.0	0.6	mg/L	0.1
Phosphate	300.0	<0.4	mg/L	0.4
Sulfate	300.0	93	mg/L	1

FORM I

4/6/93

TMA Inc. REPORT Work Order # A2-10-041

Received: 10/14/92

Results by Sample

SAMPLE ID B079L8 FRACTION 02D TEST CODE WCCLPL NAME Anions & Wet Chem. - WH043

Date & Time Collected 10/12/92 Category

ANIONS AND WET CHEMISTRY - LIQUIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT	Q
Alkalinity	310.1	100	mg/L	2	R
Tot. Dissolved Solids	160.1	279	mg/L	5	R

FORM I

4/6/93

9613471.1784

Received: 10/15/92 Results by Sample

SAMPLE ID B079L8 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 10/12/92 Category WATER

NO3NO2 1.55 mg N/L

SAMPLE ID B079L8 DUPL SAMPLE # 01 FRACTIONS: B
Date & Time Collected 10/12/92 Category WATER

NO3NO2 1.52 mg N/L

SAMPLE ID B079L8 SPIKE SAMPLE # 01 FRACTIONS: C
Date & Time Collected 10/12/92 Category WATER

NO3NO2 3.06 mg N/L

SAMPLE ID LCSW SAMPLE # 02 FRACTIONS: A
Date & Time Collected not specified Category WATER

NO3NO2 1.92 mg N/L

4/6/93

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9613471.1785

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

9613471.1786

WHC-SD-EN-SPP-002, Rev. 1

WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

4/6/93

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 4/6/93
LABORATORY: ~~[illegible]~~ TMA	CASE: 10-041	SDG:
SAMPLES/MATRIX: Water		
B079L8		

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 of the omitted data.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	✓		
Cover Page	✓		
Traffic Reports/Chain-of-Custody		✓	
Sample Analysis Data Report Forms	✓		
Standards Data	✓		
QC Summary			
Blanks Summary Report Forms	✓		
Spike Sample Recovery Report Forms	✓		
Duplicate Sample Analysis Report Forms	✓		
Laboratory Control Sample Report Forms	✓		
Raw Data			
Ion Chromatograph Chromatograms	✓		
TOC and TOX Instrument Printouts			✓
Laboratory Bench Sheets	✓		
Additional Data			
Laboratory Sample Preparation Logs		✓	
Instrument Run Logs	✓		
Internal Laboratory Chain-of-Custory	✓		
Percent Solids Analysis Records			✓
Reduction Formulae			✓
Chemist Notebook Pages			✓

2. HOLDING TIMES

Were all samples analyzed within holding times? Yes **(No)** N/A

Action: If any holding times were 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 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

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

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 then the IDL qualify the data as unusable (R).

8. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No ~~N/A~~ 4/6

for NO_2/NO_3. 4/6/93

Are there calculation errors? Yes No ~~N/A~~ 4/6

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):

The chain of custody form was not provided with this report. The date of collection was retrieved from the laboratory report form.

4/6/93

HOLDING TIME SUMMARY - FORM B-1

SDG:	REVIEWER: [illegible]	DATE: 4/06/93	PAGE 1 OF 1
COMMENTS: Wet Chemistry			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B079L8	Cl	10/12/92		11/06/92		25	None
	F					25	
	PO4					25	UJ
	SO4					25	None
	Alkalinity			11/08/92		27	J
	TDS			11/13/92		32	J
	NO2/NO3	10/12/92		11/24/92		43	J

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TMA Inc. REPORT Work Order # A2-10-041

Received: 10/14/92 Results by Sample

SAMPLE ID B079L8 MS FRACTION 02B TEST CODE WCQCS NAME Quality Control Summary

Date & Time Collected 10/12/92 Category

SPIKE QC SUMMARY

ANALYSIS	SAMPLE ID	SAMPLE RESULT	SPIKE RESULT	AMOUNT ADDED	% R
Chloride	B079L8	25.0	46.7	20.00	108.5
Fluoride	B079L8	0.6	20.0	20.00	97.0
Phosphate	B079L8	<0.4	14.6	20.00	73.0
Sulfate	B079L8	93	153	60.00	100.0

FORM V

4/6/93