B07RD0-DAT-225

START 9713517.2499

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00001

DATA CHEM LABORATORIES

ENVIRONMENTAL WATER REPORT

Form EPRW-A
Page 1 of 1
Part 1 of 1

Date FEB 02 1993

Agency Identification Number S93-0026

Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23 345 Hill Street/300 Area
Richland, WA 99352
Attention: Briana Colley

FEB 1993 RECEIVED OSM DMO

Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection January 05, 1993

Date Samples Received at Laboratory January 18, 1993

Analytical Results

Parameter Name / Analysis Date / Method / Units / Prep Method	Field Number / Lab Number	B07RD0 EM 0083	B07RB0 EM 0084	B07RJ5 EM 0085	B07R55 EM 0086	B07RL3 EM 0087	B07RC0 EM 0088	B07R50 EM 0089	* Limit of Detection
Hydrazine 01/26/1993 ASTM D 1385	µg/L	ND*	ND*	ND*	ND*	ND*	ND*	ND*	3.

JAN 1997 RECEIVED

RECORD COPY

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
¹ Analyses completed on or before this date.

** Parameter not analyzed (See comment page).
( ) Parameter between LOD and LOQ.
[ ] Method Reference (See comments page.)

Analyst: Mark A. Hixon

Reviewer: Katherine Kellersberger

Laboratory Supervisor: Norman K. Christensen

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

9713517.2500

K.00003

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, L. Walker Date Sampled NA Time NA hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B0 7RD0	1; 40ml; Gs; EM 0083	WATER	HYDRAZINE (HCl)
B0 7RB0	0084		
B07RJ5	0085		
B07R55	0086		
B07RL3	0087		
B07RC0	0088		
B07R50	0089		
			OPC: # W93- 0 0151-36
			BOL: # 2519010692
			TASK#: 92-379

Field Information** _____

Special Handling and/or Storage _____

Possible Sample Hazards _____

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required _____

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

**Use back of page for additional information relative to sample location.

A-6000-406(05/90)

Westinghouse Hanford Company

9713517.2501

CHAIN OF CUSTODY

№ 00004

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1-13-93

Ice Chest No. 1T-33

Field Logbook No. EFL-1054

Bill of Lading/Airbill No. 2519010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

B07RD0

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: B. WHITEN	Received by: AJ SIMPSON AJ Simpson	Date/Time: 1/14/93 0903
Relinquished by: AJ SIMPSON AJ Simpson	Received by: T. Jackson	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: FRIG #4

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9213517.2502

Westinghouse Hanford Company

CHAIN OF CUSTODY

00005

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1/13/93

Ice Chest No. IT-33

Field Logbook No. EFL-1054

Bill of Lading/Airbill No. 2519010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

BO 7RB0

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: [illegible]	Received by: AJ SIMPSON AJ Simpson	Date/Time: 1/14/93 0905
Relinquished by:	Received by: T. Jackson	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: FRIG #5

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713517.2503

Westinghouse Hanford Company

CHAIN OF CUSTODY

• 00006

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1/8/93

Ice Chest No. IT-33

Field Logbook No. EFL-1059

Bill of Lading/Airbill No. 2519010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

B07RJ5

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: Kathy D. Lee K.D. Lee	Received by: AJ SIMPSON AJ Simpson	Date/Time: 1/14/93 0906
Relinquished by: AJ SIMPSON AJ Simpson	Received by: T. Jackson	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: FR16. # 5

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713517.2504

Westinghouse Hanford Company

CHAIN OF CUSTODY

№ 00007

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1/11/93

Ice Chest No. IT-33

Field Logbook No. EFL-1054

Bill of Lading/Airbill No. 251 9010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

B07R55

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: AJ SIMPSON AJ Simpson	Received by: T. Jackson	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: FRIG. # 5

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713517.2505

Westinghouse Hanford Company

CHAIN OF CUSTODY

00008

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1/8/93

Ice Chest No. IT-33

Field Logbook No. EFL-1059

Bill of Lading/Airbill No. 2519010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

B07RL3

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: Kirby D. Lee K.D. Lee	Received by: AJ SIMPSON AJ Simpson	Date/Time: 1/14/93 0907
Relinquished by: AJ SIMPSON AJ Simpson	Received by: T Jackson	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: Refrig. #4

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713517.2506

Westinghouse Hanford Company

CHAIN OF CUSTODY

№ 00009

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1/8/93

Ice Chest No. TT-33

Field Logbook No. EFL-1054

Bill of Lading/Airbill No. 2519010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

B07RC0

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: K. D. Lee	Received by: A J SIMPSON AJ Simpson	Date/Time: 1/14/93 0908
Relinquished by: A J SIMPSON AJ Simpson	Received by: T. Jackson	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: FRIG. #5

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713517.2507

Westinghouse Hanford Company	CHAIN OF CUSTODY	N· 00010

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1/5/93

Ice Chest No. IT-33

Field Logbook No. EFL-1059

Bill of Lading/Airbill No. 2519010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

B07R50

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: [illegible]	Received by: AJ SIMPSON AJ Simpson	Date/Time: 1/14/92 0908 AJS 1/14/92 ~~6080~~
Relinquished by: AJ SIMPSON AJ Simpson	Received by: T Jackson [signature]	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: FRIG. # 2

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9213517.2508

DATA QUALIFICATION SUMMARY

UNIT: 100-FR-3

DOCUMENT CONTROL NUMBER: WHC-SD-EN-TI-175

ANALYSES: Wet Chemistry

RFW NO.: B07RD0-DAT-225

SDG NO.: B07R50

QUALIFICATION SUMMARY:

WET CHEMISTRY

SAMPLE NUMBERS: B07R50, B07R55, B07RB0, B07RC0, B07RD0, B07RJ5, B07RL3

DATA PACKAGE COMPLETENESS

Hydrazine raw data were not provided for SDG No. B07R50. All associated hydrazine results were rejected and flagged "R".

Westinghouse Hanford Company

9713517.2509

CHAIN OF CUSTODY

№ 00004

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1-13-93

Ice Chest No. IT-33

Field Logbook No. EFL-1054

Bill of Lading/Airbill No. 2519010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

B07RD0

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: B. WHITTEN	Received by: AJ SIMPSON AJ Simpson	Date/Time: 1/14/93 0903
Relinquished by: AJ SIMPSON AJ Simpson	Received by: T. Jackson	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: FRIG #4

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

Westinghouse Hanford Company	9713517.2510	CHAIN OF CUSTODY	# 00005

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1/13/93

Ice Chest No. IT-33

Field Logbook No. EFL-1054

Bill of Lading/Airbill No. 2519010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

BO 7RBO

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: Kathy A. Lee K.A. Lee	Received by: AJ SIMPSON AJ Simpson	Date/Time: 1/14/93 0905
Relinquished by:	Received by: T. Jackson	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: FRIG. #5

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

Westinghouse Hanford Company	9713517.2511	CHAIN OF CUSTODY	• 00006

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1/8/93

Ice Chest No. IT-33

Field Logbook No. EFL-1054

Bill of Lading/Airbill No. 2519010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

B07RJ5

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: Kirby D. Lee KD Lee	Received by: AJ SIMPSON AJ Simpson	Date/Time: 1/14/93 0906
Relinquished by: AJ SIMPSON AJ Simpson	Received by: T. Jackson	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: FR16. # 5

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713517.2512

Westinghouse Hanford Company	CHAIN OF CUSTODY	№ 00007

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1/11/93

Ice Chest No. IT-33

Field Logbook No. EFL-1054

Bill of Lading/Airbill No. 251 9010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

B07R55

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: AJ SIMPSON AJ Simpson	Received by: T. Jackson	Date/Time: 1-18-93/1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: FRIG. # 5

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

Westinghouse Hanford Company	9713517.2513	CHAIN OF CUSTODY	00008

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1/8/93

Ice Chest No. IT-33

Field Logbook No. EFL-1059

Bill of Lading/Airbill No. 2519010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

B07RL3

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: Kirby D. Lee K.D. Lee	Received by: AJ SIMPSON AJ Simpson	Date/Time: 1/14/93 0907
Relinquished by: AJ SIMPSON AJ Simpson	Received by: T. Jackson	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: Refrig. #4

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

Westinghouse Hanford Company	9713517.2514	CHAIN OF CUSTODY	№ 00009

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1/8/93

Ice Chest No. TT-33

Field Logbook No. EFL-1054

Bill of Lading/Airbill No. 2519010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

B07RC0

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: K. D. Lee	Received by: A J SIMPSON AJ Simpson	Date/Time: 1/14/93 0908
Relinquished by: A J SIMPSON AJ Simpson	Received by: T. Jackson	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: FRIG. # 5

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

Westinghouse Hanford Company	9213517.2515	CHAIN OF CUSTODY	№ 00010

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Project Designation/Sampling Locations 100-FR-3

Ice Chest No. IT-33

Bill of Lading/Airbill No. 2519010692

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Telephone (509)376-5045

Collection Date 1/5/93

Field Logbook No. EFL-1059

Offsite Property No. W93-0-0151-36

Sample Identification

B07R50

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: [illegible]	Received by: AJ SIMPSON AJ Simpson	Date/Time: 1/14/92 0908 AJS 1/14/92 ~~0980~~
Relinquished by: AJ SIMPSON AJ Simpson	Received by: T. Jackson [illegible]	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: PMO. # 2

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713517.2516

#.00003

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, L. Walker Date Sampled NA Time NA hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B0 7RD0	1; 40ml; Gs; EM 0083	WATER	HYDRAZINE (HCl)
B0 7RB0	0084		
B07RJ5	0085		
B07R55	0086		
B07RL3	0087		
B07RC0	0088		
B07R50	0089		
			OPC: # W93- 0 · 0151-36
			BOL: # 2519010692
			TASK#: 92-379

Field Information** _____

Special Handling and/or Storage _____

Possible Sample Hazards _____

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required _____

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

**Use back of page for additional information relative to sample location.

A-6000-406(05/90)

9713517.2517 X02082

DATA CHEM LABORATORIES

ENVIRONMENTAL WATER REPORT

Form EPRW-A
Page 1 of 1
Part 1 of 1

Date FEB 02 1993 X02082

Agency Identification Number S93-0026 100-FR-3

Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23 345 Hill Street/300 Area
Richland, WA 99352
Attention: Briana Colley

FEB 1993 RECEIVED OSM DMO

Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection January 05, 1993

Date Samples Received at Laboratory January 18, 1993

Analytical Results

Parameter Name / Analysis Date / Method / Prep Method	Units	Field Number / Lab Number	B07RD0 / EM 0083	B07RB0 / EM 0084	B07RJ5 / EM 0085	B07R55 / EM 0086	B07RL3 / EM 0087	B07RC0 / EM 0088	B07R50 / EM 0089	Limit of Detection
Hydrazine 01/26/1993 ASTM D 1385	µg/L		ND* 3.0 R	ND* 3.0 R	ND* 3.0 R	ND* 3.0 R	ND* 3.0 R	ND* 3.0 R	ND* 3.0 R	1

6/2/92 RD

RECORD COPY

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
1 Analyses completed on or before this date.

** Parameter not analyzed (See comment page).
( ) Parameter between LOD and LOQ.
[ ] Method Reference (See comments page.)

Analyst: Mark A. Hixon

Reviewer: Katherine Kellensberger

Laboratory Supervisor: Norman K. Christensen

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

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

Project: WESTINGHOUSE-HANFORD																			
Laboratory: TMA																			
Case	SDG: B07R50																		
Sample Number		B07R50		B07R55		B07RBØ		B07RCØ		B07RDØ		B07RJ5		B07RL3					
Location		1-F1-2		1-F5-42		1-F7-3		1-F8-4		1-F8-2		1-F8-4		1-F8-4					
Remarks												Duplicate 2		Split 2					
Sample Date		1/5/93		1/11/93		1/13/93		1/8/93		1/13/93		1/8/93		1/8/93					
Analytes	Method	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Hydrazine	D1385	3.0	B	3.0	B	3.0	B	3.0	B	3.0	B	3.0	B	3.0	B				

9713517.2518

X02082

9713517.2519

DATA CHEM LABORATORIES

ENVIRONMENTAL WATER REPORT

Form EPRW-A
Page 1 of 1
Part 1 of 1

Date FEB 02 1993 X02082

Agency Identification Number S93-0026 100-FR-3

Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23 345 Hill Street/300 Area
Richland, WA 99352
Attention: Briana Colley

FEB 1993 RECEIVED OSM DMO

Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection January 05, 1993

Date Samples Received at Laboratory January 18, 1993

Analytical Results

Parameter Name / Analysis Date / Units / Method / Prep Method	Field Number / Lab Number	B07RD0 / EM 0083	B07RB0 / EM 0084	B07RJ5 / EM 0085	B07R55 / EM 0086	B07RL3 / EM 0087	B07RC0 / EM 0088	B07R50 / EM 0089	* Limit of Detection
Hydrazine 01/26/1993 ASTM D 1385	µg/L	ND* R	ND* R	ND* R	ND* R	ND* R	ND* R	ND* R	3

6/2/93 RD

RECORD COPY

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
1 Analyses completed on or before this date.

** Parameter not analyzed (See comment page).
( ) Parameter between LOD and LOQ.
[ ] Method Reference (See comments page.)

Mark Hix
Analyst: Mark A. Hixon

Katherine Kellersberger
Reviewer: Katherine Kellersberger

Norman K. Christensen
Laboratory Supervisor: Norman K. Christensen

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

9713517.2520

DATA QUALIFICATION SUMMARY

SDG: B07R50	REVIEWER: LM	DATE: 6/2/93	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Hydrazine	R	B07R5Ø, B07R55, B07RBØ, B07RCØ, B07RDØ, B07RJ5, B07RL3	Insufficient Raw Data

WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

PROJECT: Westinghouse-Hanford	REVIEWER: LM	DATE: 6/2/93
LABORATORY: Data Chem	CASE:	SDG: B07R5Ø
SAMPLES/MATRIX: B07R5Ø, B07R55, B07RBØ, B07RCØ, B07RDØ, B07RJ5, B07RL3		
7 water samples		
Hydrazine Analysis.		

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

Are there calculation errors? Yes No N/A

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

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

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

9. PERFORMANCE AUDIT ANALYSES

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

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

10. DUPLICATE SAMPLE ANALYSIS

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

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

11. FIELD DUPLICATE SAMPLES

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

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

12. FIELD SPLIT SAMPLES

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

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

13. ANALYTE QUANTITATION AND DETECTION LIMITS

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

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

14. OVERALL ASSESSMENT AND SUMMARY

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

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

COMMENTS (attach additional sheets as necessary): X02121

1. All associated samples were rejected "R" due to a lack of raw data.
Raw data provided was not for samples: B07R50, B07R55, B07BC0, B07RD0, B07RJ5, B07RL3.
But for samples B07088, B07093, B07118, B07120 and B07122 - Not part of this report.

9713517.2526

00001

DATA CHEM LABORATORIES

ENVIRONMENTAL WATER REPORT

Form EPRW-A
Page 1 of 1
Part 1 of 1

Date FEB 02 1993 X02082

Agency Identification Number S93-0026 100-FR-3

Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23 345 Hill Street/300 Area
Richland, WA 99352
Attention: Briana Colley

FEB 1993 RECEIVED OSM DMO

Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection January 05, 1993

Date Samples Received at Laboratory January 18, 1993

Analytical Results

Parameter Name / Analysis Date / Units / Method / Prep Method	Field Number / Lab Number	B07RD0 EM 0083	B07RB0 EM 0084	B07RJ5 EM 0085	B07RS5 EM 0086	B07RL3 EM 0087	B07RC0 EM 0088	B07RS0 EM 0089	* Limit of Detection
Hydrazine 01/26/1993 ASTM D 1385	µg/L	ND* R	ND* R	ND* R	ND* R	ND* R	ND* R	ND* R	

6/2/93 - Insufficient raw data provided
LM

RECORD COPY

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
1 Analyses completed on or before this date.

** Parameter not analyzed (See comment page).
( ) Parameter between LOD and LOQ.
[ ] Method Reference (See comments page.)

Mark Hixon
Analyst: Mark A. Hixon

Katherine Kellensberger
Reviewer: Katherine Kellensberger

Norman K. Christensen
Laboratory Supervisor: Norman K. Christensen

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

DataChem Laboratories
CHAIN-OF-CUSTODY
Environmental Contract Program

THIS SET DIES:	TIME	DEADLINE	STARTED
Preparation:			01/26/93
Analysis:	14	1-19-93	01/26/93

SDG/Batch #:

DCL Set ID: S93 0026

Client: Westinghouse Account: 3534

Comments:

SPLIT

SUBSEQUENCE

ANALYSIS: Hydrazine

Date Sampled	Field ID Number	DCL Sample Number(s)	QC	Matrix	Cooler	Hydrazine
1-13-93	B07 RD0	EM 0083		Water	N/A	1
1-13-93	B07 RB0	0084				1
1-8-93	B07 RJ5	0085				1
1-11-93	B07 RS5	0086				1
1-8-93	B07 RL3	0087				1
1-8-93	B07 RC0	0088				1
1-5-93	B07 RS0	0089				1

ORIGINAL FIELD SAMPLE CONTAINER(S) FOR ANALYSIS OF: → ☒

Received: Date/Time/Signature 1-18-93 / 1200 /

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Reason for Transfer/ Storage Location
	1-18-93 1300	Sample storage	storage/R-24-1
Storage R-24-1 MH	01/26/93 1330	Mark Hi	Hydrazine prep/none

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

SAMPLE PREP/ANALYSIS FOR: Hydrazine LAB NOTEBOOK NO. 1300

Prepared/Analyzed by: MH Date/Time: 01/26/93 1600

Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Reason for Transfer/ Storage Location
Mark Hi	01-26-93 1600	Mark Hi	Analysis/none

IS SET CONTINUED ON CONTINUATION PAGE? ___ YES ___ NO

Revised 06/92

97 3517 2527

20000 #

9213517.2528 #.00003

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

ollector K. Lee, L. Walker Date Sampled NA Time NA hours

ompany Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
0 7RD0	1; 40ml; Gs; EM 0083	WATER	HYDRAZINE (HCl)
30 7RB0	0084		
30 7RJ5	0085		
30 7R55	0086		
30 7RL3	0087		
30 7RC0	0088		
B07R50	0089		
			OPC: # W93- 0 · 0151-36
			BOL: # 2519010692
			TASK#: 92-379

Field Information** _____

Special Handling and/or Storage _____

Possible Sample Hazards _____

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required _____

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

**Use back of page for additional information relative to sample location.

A-6000-406(05/90)

Westinghouse Hanford Company

9213517.2529

CHAIN OF CUSTODY

N· 00004

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1-13-93

Ice Chest No. 1T-33

Field Logbook No. EFL-1054

Bill of Lading/Airbill No. 2519010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

B07RD0

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: B. WHITEN	Received by: AJ SIMPSON AJ Simpson	Date/Time: 1/14/93 0903
Relinquished by: AJ SIMPSON AJ Simpson	Received by: T. Jackson	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: FRIG #4

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

Westinghouse Hanford Company

9713517.2550

CHAIN OF CUSTODY

00005

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1/13/93

Ice Chest No. IT-33

Field Logbook No. EFL-1054

Bill of Lading/Airbill No. 2519010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

BO 7RB0

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: Kelly O. Lee K.O. Lee	Received by: AJ SIMPSON AJ Simpson	Date/Time: 1/14/93 0905
Relinquished by:	Received by: T. Jackson	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: FRIG. #5

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

Westinghouse Hanford Company	9213517.2531 CHAIN OF CUSTODY	00006

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1/8/93

Ice Chest No. IT-33

Field Logbook No. EFR-1054

Bill of Lading/Airbill No. 2519010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

B07RJ5

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: Kirby D. Lee K.D. Lee	Received by: AJ SIMPSON AJ Simpson	Date/Time: 1/14/93 0906
Relinquished by: AJ SIMPSON AJ Simpson	Received by: T. Jackson	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: FR16. # 5

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

Westinghouse Hanford Company	9713517.2552 CHAIN OF CUSTODY	No. 00007

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1/11/93

Ice Chest No. IT-33

Field Logbook No. EFL-1054

Bill of Lading/Airbill No. 251 9010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

B07R55

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: AJ SIMPSON AJ Simpson	Received by: T. Jackson	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: FRIG. # 5

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

Westinghouse Hanford Company	9213517.2533 CHAIN OF CUSTODY	00008

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1/8/93

Ice Chest No. IT-33

Field Logbook No. EFL-1054

Bill of Lading/Airbill No. 2519010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

B07RL3

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: Kirby D Lee K.D Lee	Received by: AJSIMPSON AJ Simpson	Date/Time: 1/14/93 0907
Relinquished by: AJSIMPSON AJ Simpson	Received by: T. Jackson	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time: /
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: Refrig. #4

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713517.2534

Westinghouse Hanford Company	CHAIN OF CUSTODY	# 00009

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1/8/93

Ice Chest No. TT-33

Field Logbook No. EFL-1054

Bill of Lading/Airbill No. 2519010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

B07RC0

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

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

Relinquished by:	Received by:	Date/Time:
Kitty Phee K.D. Lee	A J SIMPSON AJ Simpson	1/14/93 0908
Relinquished by: AJ SIMPSON AJ Simpson	Received by: T. Jackson [signature]	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: FRIG. # 5

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713517.2535

Westinghouse Hanford Company	CHAIN OF CUSTODY	N·00010

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-FR-3

Collection Date 1/5/93

Ice Chest No. IT·33

Field Logbook No. EFL-1054

Bill of Lading/Airbill No. 2519010692

Offsite Property No. W93-0-0151-36

Method of Shipment EMERY

Shipped to DATA CHEM

Possible Sample Hazards/Remarks N/A

Sample Identification

B07R50

1, 40ml, Gs, WATER, HYDRAZINE(HCl)

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

Relinquished by:	Received by:	Date/Time:
[signature] K.D. Lee	AJ SIMPSON AJ Simpson	1/14/92 0908 AJS 1/14/92 ~~0980~~
Relinquished by: AJ SIMPSON AJ Simpson	Received by: T. Jackson [signature]	Date/Time: 1-18-93 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: PRIG. # 2

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9713517 2536

Page 1A

00011

DataChem Laboratories
Quality Control Data Sheet
INORGANIC - ENVIRONMENTAL CHEMISTRY

Method No: ASTM D-1385 Analyst Initials: MH Date of Analysis: 01/26/93

Battelle Code (if applicable) N/A Matrix: SOIL ~~WATER~~ (Circle One) Other ____ Units: µg/Kg µg/g ~~µg/L~~ (Circle One) Other ____

Set ID(s) Included in This Batch: 593-0026

Analyte Hydrazine Batch # 93-00032

MATRIX SPIKE

DCL Sample #	P or A *	Sample Conc. Found	Spiked Sample Conc. Found	Spike Added	% Recovery
EM 0083	P	<L.O.D.	75.5	80.0	94.4

QUALITY CONTROL

QC Sample ID	P or A *	Target	Conc. Found	% Recovery	QC Sample ID	P or A *	Target	Conc. Found	% Recovery
Check Std 2	P	70.0	72.1	103.0					

DUPLICATE

DCL Sample #	P or A *	Concentration Sample	Concentration Duplicate	Mean	Range	RPD
EM 0083MS	P	75.5	75.5	75.5	0	0

BLANK SUMMARY

Below MDL - Report ND Above MDL - Report Actual Value

Blank ID	P or A *	Conc. Found	CRQL/PQL/LOD (Circle)	MDL	Blank ID	P or A *	Conc. Found	CRQL/PQL/LOD (Circle)	MDL
Blank 2	P	ND	3.	2.					

Revised 7/92

Checked by [signature] 01/29/93 [initials] 2-1-93

If data required for this form are submitted to customers in report format, simply attach copy to QC data sheet.
Report concentrations found to three significant figures.
* Indicate with the letter, samples which were spiked prior to preparation (P) or spiked prior to analysis (A).

9715517.2537

00012

DATA CHEM LABORATORIES

FAX TRANSMITTAL COVER SHEET

DATE: 3-8-93

TO: Briana Colley/Sara Lundberg

FROM: Kevin Griffiths

COMPANY: WHC/HASM

NUMBER OF PAGES: 14
(Including this page)

ADDITIONAL INFORMATION:

MAR 1993
RECEIVED

FAX OPERATOR: _____

If you do not receive all of the transmission, please call (801) 266-7700.

960 West LeVoy Drive / Salt Lake City, Utah 84123
801-266-7700 / FAX: 801-268-9992
4388 Glendale-Milford Road / Cincinnati, OH 45242
513-733-5336 / FAX: 513-733-5347

9213517.2538

00013

DATA CHEM LABORATORIES

ENVIRONMENTAL WATER REPORT

Form EPRW-A
Page 1 of 1
Part 1 of 1

Date _____
Agency Identification Number S93-0026
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23 345 Hill Street/300 Area
Richland, WA 99352
Attention: Briana Colley

Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection January 05, 1993

Date Samples Received at Laboratory January 18, 1993

Analytical Results

[illegible]	[illegible]	B07RD0 EM 0083	B07RB0 EM 0084	B07RJ5 EM 0085	B07R55 EM 0086	B07RL3 EM 0087	B07RC0 EM 0088	B07R50 EM 0089	[illegible]
Hydrazine 01/26/1993 ASTM D 1385	µg/L	ND*	ND*	ND*	ND*	ND*	ND*	ND*	

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
* Analyses completed on or before this date.

** Parameter not analyzed (See comment page).
( ) Parameter between LOD and LOQ.
[ ] Method Reference (see comments page.)

Analyst: Mark A. Nixon

Reviewer: Katherine Kellersberger

Laboratory Supervisor: Norman K. Christensen

DATACHEM LABORATORIES — PRIMARY STOCK STANDARDS

Stock Solutions Preparation Book VS-B-1

NaNO2 Stock for Palmes Tube Analysis 00014
NIOSH method 6700

Dissolve 0.345 g reagent grade NaNO2 in distilled water to make 100 mL. Keep solution refrigerated. Solution is stable 90 days.

Hydrazine Stock for Hydrazine Analysis
ASTM method D-1385

Dissolve 0.325 g hydrazine dihydrochloride in a 0.1 N HCl solution made from water (distilled) that has been freshly purged with argon gas to remove dissolved oxygen. Dilute to 100 mL in a volumetric flask. Purge headspace with Ar before sealing. Solution is stable one week if stored under Ar. Hydrazine dihydrochloride reagent should also be stored under Ar gas.

DAB 3/17/92

DATACHEM LABORATORIES — PRIMARY STOCK STANDARDS

Book VS-B-1

VS-S-45 Hydrazine Stock 1000 ug/mL concentration.
0.3281g $N_2H_4 \cdot 2HCl$ (Aldrich lot 00513PX) was weighed on balance 102839 (1g ✓wt → 1.0000g) and placed in a 100mL class A volumetric flask which ~~who~~ was brought to volume with freshly purged (Argon) ~~type II water~~ MH 1-12-93 1% HCl. 01/12/93 Mark Hix

VS-S-46 Hydrazine ✓ stock 1000 ug/mL concen.
0.3282g $N_2H_4 \cdot 2HCL$ (Mallinckrodt Lot 2430-MA) was weighed on balance 102840 (✓wt. 0.1g = 0.1001g) Solid weighed into plastic weigh boat & transfered to clean, 100 mL class A vol. flask, brought to volume with freshly purged 1% HCL (purged with Argon gas) 01-12-93 RHH

VS-S-47 Hydrazine 1000 ug/mL Stock
0.3282g $N_2H_4 \cdot 2HCl$ (Aldrich lot 00513PX) was weighed on balance 102840 (0.1g ✓ → 0.1001g) and placed into a 100mL vol. flask. This was brought to volume with freshly prepared, argon purged 1% HCl. Made on 01/26/93 by MH. Mark Hix

VS-S-48 Hydrazine ✓ stock 1000 ug/ml concen.
0.3283g $N_2H_4 \cdot 2HCL$ (Mallinckrodt Lot 2430-MA) was weighed on balance 102840 (✓wt 0.1g = 0.1001g) solid weighed into plastic weigh boat & transfered to clean 100 mL class A Vol flask, brought to volume with freshly purged 1% HCL (purged with Argon gas) 1-26-93 RHH

:HEM LABORATORIES — SECONDARY STOCK STANDARD SOLUTIONS Project No.
TLE Book No. 2007 # 00016 14

rom Page No.

VS-I-100 - 10ug/mL Hydrazine intermediate 01/26/93
10mL (using pipettor WL 13) of hydrazine stock (1000ug/mL)
ID # VS-S-47 was transferred to a 100mL vol flask and brought
to mark with freshly prepared 1% HCl (argon purged) Exp 1 week.
01/26/93 Mark Hi

VS-I-101 - 10 ug/mL Hydrazine check intermediate 1-26-93
1.0 mL (used pipettor WL-13) of 100 ug/mL N_2H_4 stock ID #
VS-S-48 was diluted to 100 mL using argon purged
1% HCl 1-26-93

To Page No.

Witnessed & Understood by me,	Date	Invented by	Date
		Recorded by	

LE DATACHEM LABORATORIES — WORKING STANDARD SOLUTIONS Project No. N/A 00017
Book No. 1999 6

om Page No. 5

Preparation & Procedure

Hydrazine in Water (ASTM method D-1385)

Working standards are prepared in 100 ml volumetric flasks (acid/HCl washed preferred) from a 10 µg/ml intermediate hydrazine (N_2H_4) stock standard. Aliquots ranging from 0.030 – 2.00 ml of int. std are transferred to the volumetric flasks and diluted to mark with 0.01 N HCl freshly prepared from ASTM type II water that is freshly purged with Ar gas. Aliquots are transferred using automatic pipettes which have been calibrated at the levels used for the analysis. Working standards are then analyzed as for samples using a 10 ml aliquot of each standard. A check standard is prepared by a third party from a second 10 µg/ml cat. 4/1/92 intermediate stock solution at a final concentration of 50 – 100 µg/L. Matrix spikes are spiked with the 10 µg/ml intermediate stock solution. Make standards daily.

Std #	ml Int. std	x	conc. Int. std	µg/L
A	0	x	10 µg/ml	0
B	0.030	x	"	3
C	0.050	x	"	5
D	0.100	x	"	10
E	0.30	x	"	30
F	0.50	x	"	50
G	1.0	x	"	100
H	2.0	x	"	200

DAK 4/1/92

To Page No. 7

Witnessed & Understood by me,	Date	Invented by	Date
Dee A Kley	4-12-92	Recorded by. [signature]	4/1/92

Project No. ——

TLE DATACHEM LABORATORIES — WORKING STANDARD SOLUTIONS Book No. 1999 00018 21

om Page No 26

Date	Time	Analyte	Set or Sample ID	Inst. #	Pipettor	Parent Soln.	Comments	Analyst
2-07-92	1030	~~RHH~~ 11-24-92 CN⁻	B92-0268-56 B92-0269-56	102350	WL 13,14	CN-I-12DD	0-400 ug/L	MH
2-07-92	1430	CN⁻	" "	"	WL 14	CN-I-12FF	120 ug/L ✓ std.	RHH
2-08-92	1400	N_2H_4	B92-0270, 71, 72, 74, 77 -36	122350	WL13,14	~~VS-S~~ 11-24-92 VS-I-88	0-200 ug/L	MH
2/08/92	1430	N_2H_4	" "	"	WL13	VS-I-89	80 ug/L	SKM
2/14/92	0930	CN⁻	B92-0270-56, B92-0271-56 B92-0272-56, B92-0279-56	"	WL13,14	CN-I-13D	0-400 ug/L	MH
2/14/92	0930	CN⁻	"	"	WL13	CN-I 13E	160 ug/L ✓ std	RHH
2/17/92	1010	CN⁻	B92-0275/76/78/80/81-56	"	WL13,14	CN-I-13N	0-400 ug/L range	MH
2/17/92	1120	CN⁻	" "	"	WL13	CN-I-13L	120 ug/L ✓ std	RHH
2/18/92	2230	CN⁻	" "	"	WL13,14	CN-I-13N	0-400 ug/L range	MH
2/18/92	2230	CN⁻	" "	"	WL13	CN-I-13L	120 ug/L ✓ std	MH
2/21/92	1245	N_2H_4	B92-0279, 80, 84 MH 12-21-92 B92-0279, 82, 83, 85-36	"	WL13,14	VS-I-90	0-200 ug/L stds.	MH
2/21/92	1245	N_2H_4	B92-0969, 968, 975	"	" "	VS-I-90	" "	MH
2/21/92	1500	N_2H_4	↓	"	"	~~VS-I-91~~ 11-24-92	70 ug/L ✓ std	RHH
12/21/92	1545	N_2H_4	↓	"	"	VS-I-92	70 ug/L ✓ std	RHH
12/21/92	2350	CN⁻	B92-0275/76/78/80/81-56	"	WL13,14	CN-I-13V	0-400 ug/L	WLO
" "	" "	" "	"	"	" "	CN-I-13X	200 ug/L ✓	MDF
12/16/92	2000	Methyl-2-cyanoacrylate	7655-N	"	WL13,14	VS-S-41	0-396 ug/dig.	WLO
12/16/92	2000	" "	7655N	"	WL,13,14	VS-S-91	749 ug/dig ✓	KAK
12-28-92	0600	CN⁻	B92-0282-56, B92-0289-56 B92-0286-56, B92-0287-56	"	WL 13,14	CN-I-13V	0-400 ug/L range	MH
12-28-92	0640	CN	" "	"	WL 13	CN-I-13X	100 ug/L ✓ std.	LP
01-04-93	0930	N_2H_4	B92-0289-36, B92-0294-36 B92-0292-36, B92-0980	"	WL13,14	VS-I-93	0-200 ug/L	MH
01-04-93	0930	N_2H_4	B92-0289-36, B92-0291-36 B92-0292, 310, B92-0294-36 B92-0980	"	WL13,14	VS-I-94	70 ug/L ✓	KJT
01-05-93	1330	HCOH	92-3414	"	WL13,14	VS-I-95	0-20 ug/dig range	MH
01-05-93	1930	CN⁻	B92-0292-56	"	WL13,14	CN-I-14A	0-400 ug/L range	MH
01/05/93	" "	" "	" "	"	WL13	"	200 ug/L ✓	WLO
01/12/93	1010	N_2H_4	B93-0001-6 - 36	"	WL13,14	VS-I-96	0-200 ug/mL	MH
01/12/93	1020	N_2H_4	↓	"	WL 13	VS-I-97	70 ug/L ✓	RHH
01/18/93	1130	N_2H_4	B93-0007-10 -36	"	WL13,14	VS-I-98	0-200 ug/L	MH
01/18/93	1130	N_2H_4	" "	"	WL13	VS-I-99	70 ug/L ✓ std.	DWT
01/21/93	0950	CN⁻	B93-0007-56 B93-0008-56 B93-0009-56	"	WL13,14	CN-I-14L	0-400 ug/L Range	MH
01/21/93	1000	CN⁻	" "	"	WL13	CN-I-14D	200 ug/L ✓ STD	KJT
01/26/93	1615	N_2H_4	B93-0013-36 B93-0019-36 B93-0026	"	WL13,14	VS-I-100	0-200 ug/L Range	MH
1-26-93	16:30	"	"	"	"	VS-I-101	70 ug/L ✓ STD	JMK

To Page No. ——

Witnessed & Understood by me,	Date	Invented by	Date
		Recorded by	

[redacted]

Project No. 00019

LE DATACHEM LABORATORIES — REAGENT PREPARATION Book No. 2009 33

om Page No.

Cyanide by Vis Spec SW 9010 - Reagents 01/21/93
- Preparation instructions on page 4, this book.
- Pyridine barbituric acid: By MH on 12/28/92. See pg 31, this book for entry.
- Chloramine T: By MH on 01/21/93. Kodak lot 1167761260.
- Sodium dihydrogen phosphate buffer: By MH 12/28/92. See pg 31, this book for entry.
- 0.25N NaOH: By MH on 01/21/93. Solid NaOH pellets from Mallinckrodt lot 7708 KJJC.

Mark Hif 01/21/93

Hydrazine by Vis Spec ASTM-D-1385 Reagents 01/26/93
- Preparation instructions followed on page 6, this book.
- 1% HCl by MH on 01/26/93. Argon purged type II water. HCl - Baker lot # 06822 01/26/93
- p-dimethylaminobenzaldehyde by MH on 12/21/92. See entry page 31, this book.

Mark Hif 01/26/93

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.E DATACHEM LABORATORIES — REAGENT PREPARATION

Project No. P4 00020

Book No. 2009

6

n Page No. 2

Preparation and Procedure

Hydrazine in Water (ASTM D-1385)

Reagents:

0.1 N HCl - Add 20 ml conc. HCl to type II water that has been freshly purged ~~type II water~~ with Ar gas to remove dissolved oxygen. p-dimethylaminobenzaldehyde soln - Dissolve 4.0 g p-dimethylaminobenzaldehyde in 200 ml methanol. Add 30 ml conc. HCl. Should be stored out of direct sunlight.

02/28/92

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Witnessed & Understood by me,	Date	Invented by	Date
		Recorded by [signature]	07/28/92

Project No. —— 00021

LE DATACHEM LABORATORIES — INSTRUMENT LOG ID # 100-20 Book No. 2004

5

om Page No.

Date	Time-on	Time-off	Tot. Time	Account #	Analyte	Set ID #'s	Analyst Initial
9/09/92	2030	2115	0.75	27642, 3534	N_2H_4	B92-0186-36, B92-0186-36 B92-0193-36, S92-0652	MH
9/21/92	1600	1630	0.5	27642	"	B92-0204-36	MH
9/25/92	1500	~~1600~~ MH 9/25 1600	1.0	3019	HCOH	92-2624	MH
0/05/92	1500	1545	.75	3019	OZONE	92-2690	MH
0/07/92	1700	1730	0.5	3019	NO_2/NO	TEA/ 92-2718	MH
0/09/92	1715	1810	1.0	3534	N_2H_4	S92-0762	MH
0/13/92	1700	1800	1.0	27617	CN-	B92-0223-56, B92-0226-56 B92-0227-56, B92-0230-56	MH
0/21/92	2100	2215	1.25	27617	CN-	B92-0233-56, B92-0234-56 B92-0237-56	MH
0/22/92	1600	1640	.75	27642	N_2H_4	B92-0235-36, B92-0236-36 B92-0237-36	MH
0/23/92	1830	1915	.75	27617	CN-	B92-0235-56, B92-0236-56 B92-0238-56, B92-0241-56	MH
0/29/92	1615	1700	.75	27642, 3534	N_2H_4	B92-0242-36, B92-0244-36 B92-0245-36, S92-0823	MH
1/02/92	2100	2200	1.0	3570	HCOH	7654-J	WLO
1/06/92	1015	1100	.75	27642, 3534	N_2H_4	B92-0246, 47, 49, 50-36 S92-0890, B92-0245-56	MH
1/06/92	2040	2145	1.0	27617	CN-	B92-0244-56, B92-0245-56 B92-0248-56, B92-0250-56	MH
11/12/92	1820	1950	1.5	3019	% Forward % CBC clean	92-3085	SUB
11/15/92	1430	16:30	2	3019	"	"	SUB
11/15/92	2000	2100	1	27642	N_2H_4	B92-0252, 53, 54, 55, 56, 57	MH
11/16/92	2000	2130	1.5	27617	CN-	B92-0252, 253, 254-56	MH
11-23-92	1900	2015	1.25	3534, 27642	N_2H_4	S92-0876, B92-0259-36 B92-0263-267-36	MH
11-23-92	2350	0115	1.5	27617 ~~B92-0255-259-56~~	CN-	B92-0255-259-56	MH
11-25-92	2050	2145	1	27617	CN-	B92-0260, 262, 263-56	MH
12-07-92	1525	1615	1	27617	CN-	B92-0268-56 B92-0269-56	MH
12-08-92	1515	1550	.75	27642	N_2H_4	B92-0270, 71, 72, 74, 77-36	MH
12-14-92	1130	1215	.75	27617	CN-	B92-0270-56, B92-0271-56 B92-0273-56, B92-0274-56	MH
12-17-92				27617	CN-	B92-0275/76/78/80/81-56	MH
		MH	12-17-92			"	
12-18-92	2315			27617	CN-	B92-0275/76/78/80/81-56	MH
12-21-92	1515	1605	.75	27642	N_2H_4	B92-0279, 82, 84, 85-36 S92-0864, S92-0968, S92-0975	MH
12-28-92	0745	0820	0.5	27617	CN-	B92-0282-56, B92-0284-56 B92-0286-56, B92-0289-56	MH
01-04-93	1130	1210	.75	3534 and 27642	N_2H_4	B92-0289-36, B92-0291-36 B92-0292-36, S92-0980	MH
01-05-93	1730	1805	.5	3019	HCOH	92-3414	MH
01-12-93	1340	1420	.75	27642	N_2H_4	B93-0001-0006 & MDLB-36	MH
01-18-93	1210	1250	.75	3600-642	N_2H_4	B93-0007-10-36	MH
01/21/93	1645	1720	.5	3600-617	CN-	B93-0007-09-56	MH
01/26/93	1710	1745	.5	3600-642 3534	N_2H_4	B93-0013 and 0014-36 S93-0026	MH

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Witnessed & Understood by me,	Date	Invented by	Date
		Recorded by	

LE HYDRAZINE

Project No. 5
Book No. 2300
00022

om Page No. 1

Client : Battelle / Westinghouse Hanford Co.
Acct # : 3600-642 / 3534C
Set # : B93-0013-36 / B93-0014-36 / ~~B93-~~ S93-0026
Sample #s : B07088, 93, 118, 120 / B07122 / EM0083-89

CRQL/LOD : 30 ug/L / 3. ug/L
Analysis Date : 01/26/93
Instrument : Vis Spec 100-20
Method : ASTM D-1385
Matrix : Water

- Reagents: See logbook 2009, pages 6 and 33.
Standards: Primary 1000 ug/mL ID# VS-S-47. Primary check std. ID# VS-S-48. See logbook VS-B-1, pages 9 and 19.
Intermediates: 10 ug/mL VS-I-100. 10 ug/mL check inter. std VS-I-101. See logbook 2002, page 14. Parent VS-S-47 and VS-S-48 respectively.
Working Stds: 8 made ranging 0-200 ug/L conc. Prepared from VS-I-100. See logbook 1999, pages 6 and 21.
Check Stds: (Q.C.) Target value = 70 ug/L. Prepared from VS-I-101. See logbook 1999, page 21.

Mark Hi 01/28/93

- All raw data recorded on DCL VIS SPEC raw data sheet
- Data then computer modeled to obtain reported final values. Batch 1993-394
- All sample results were below their respective CRQL or L.O.D.
- Matrix spikes were done using 80 ug/L spike added. Samples B07118 and EM0083 were spiked and duplicated. Results as follows:

B07118 = <CRQL	B07118MS = 79.5 ug/L	99.4%	B07118MSD = 78.2 ug/L	97.8%
EM0083 = <LOD	EM0083MS = 75.5 ug/L	94.4%	EM0083MSD = 75.5 ug/L	94.4%

- Duplicates as above: B07118MS RPD = 1.65 EM0083 RPD = 0
- Check Stds 1 and 2 target value = 70.0 ug/L. Results as follows:
Check Std 1 = 71.4 ug/L 102.0% Check Std 2 = 72.1 ug/L 103.0%
- Q.C. batch for Battelle sets is 93-00031. For WHC set 93-00032.
- Original data for Battelle sets is with B93-0013-36. For WHC set all data original.

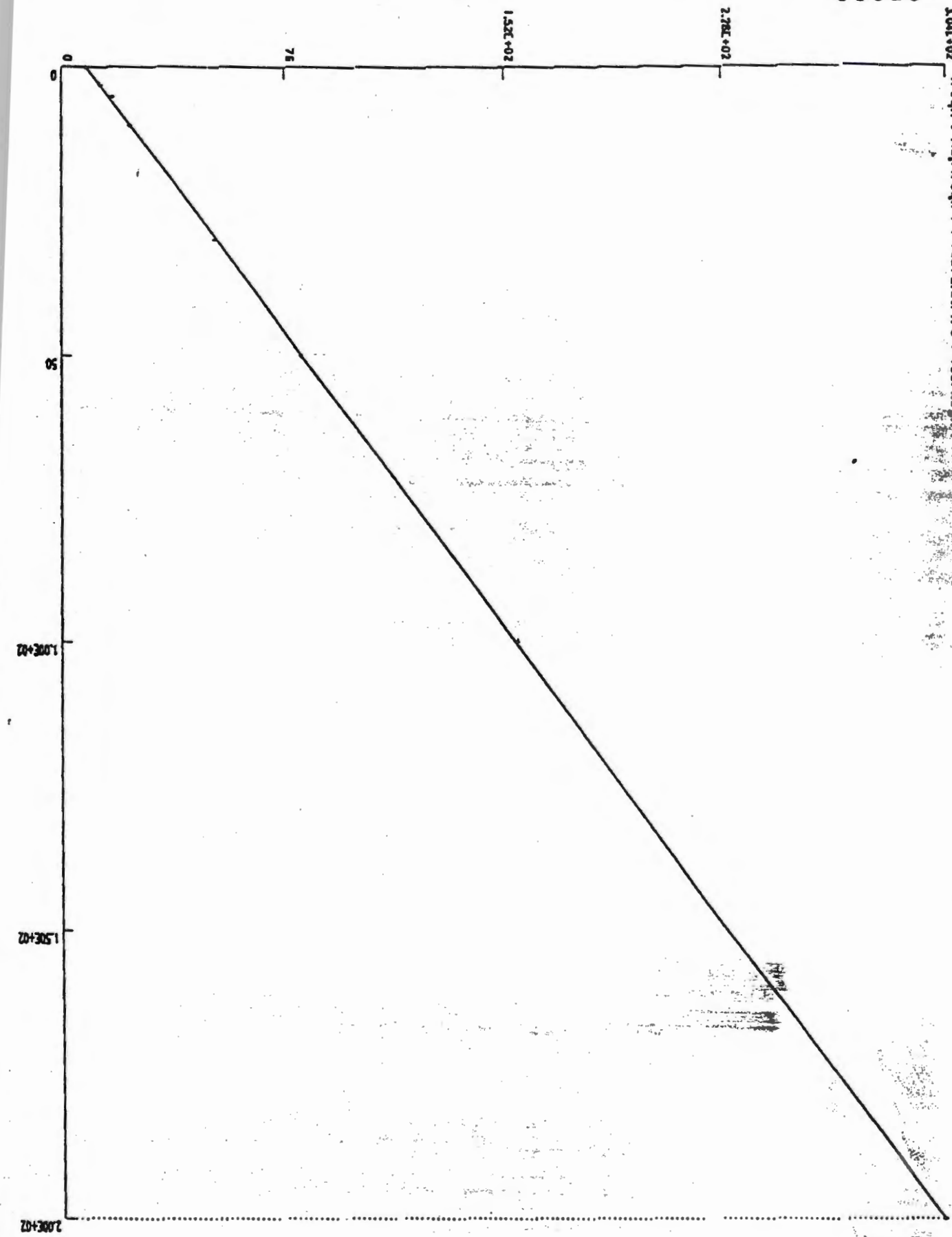
- Battelle samples B07093 and B07118 containers were not full (as noted on raw data sheet)

MH 01/28/93

To Page No.

Witnessed & Understood by me,	Date	Invented by	Date
[signature]	01/29/93	[signature]	01/29/93
		Recorded by [signature]	

00023


Batch: 1993-394 Analyte: Hydrozine
Model: a+bx a: 8.435 b: 1.478
R sq.: 1 Adj. R sq.: 1 F Test L.O.F.: 0 F Test Reg.: 1
3.04E+02
2.78E+02
1.52E+02
76
0
0
50
1.00E+02
1.50E+02
2.00E+02
Response (mg/L)

00024

Parametric Data Modeling, "Muddle", Report

Batch ID: 1993-394 Analyte: Hydrazine

Model Type: Linear a+bx Model is Weighted.

a: 8.435 b: 1.478

r²: 1 adjusted r²: 1 F-Test L.o.F.: 0 F-Test R.: 1

Blank Correction: 0

Standards		Target µg/L	Response mABS	Calculated mABS	Relative Error
STD 0	1	0.0000	8.0000	8.4348	0.0543
STD 3	1	3.0000	13.0000	12.8699	-0.0100
STD 5	1	5.0000	17.0000	15.8267	-0.0690
STD 10	1	10.0000	23.0000	23.2186	0.0095
STD 30	1	30.0000	52.0000	52.7863	0.0151
STD 50	1	50.0000	82.0000	82.3540	0.0043
STD 100	1	100.0000	157.0000	156.2732	-0.0046
STD 200	1	200.0000	304.0000	304.1117	0.0004

Blanks		Response mABS	Calculated µg/L	Dilution	Volume	Conversion	Corrected µg/L
RGNT BLK 1	1	8.0000	-0.2941	Below Range			
RGNT BLK 2	1	9.0000	0.3823	1.0000	1.0000	1.0000	0.3823

QCs		Response mABS	Calculated µg/L	Dilution	Volume	Conversion	Corrected µg/L	B.C.
CHK $ 100	1	158.0000	101.1680	1.0000	1.0000	1.0000	101.1680	
CHK $ 3	1	13.0000	3.0880	1.0000	1.0000	1.0000	3.0880	
CHK $ 30	1	52.0000	29.4681	1.0000	1.0000	1.0000	29.4681	
CHK STD 1	1	114.0000	71.4058	1.0000	1.0000	1.0000	71.4058	
CHK STD 2	1	115.0000	72.0822	1.0000	1.0000	1.0000	72.0822	

Samples		Response mABS	Calculated µg/L	Dilution	Volume	Conversion	Corrected µg/L	B.C.
B 07088	1	5.0000	-2.3233	Below Range				
B 07093	1	5.0000	-2.3233	Below Range				
B 07118	1	5.0000	-2.3233	Below Range				
B 07118MS	1	126.0000	79.5228	1.0000	1.0000	1.0000	79.5228	
B 07118MSD	1	124.0000	78.1699	1.0000	1.0000	1.0000	78.1699	
B 07120	1	7.0000	-0.9705	Below Range				
B 07122	1	6.0000	-1.6469	Below Range				
EM 0083	1	6.0000	-1.6469	Below Range				
EM 0083MS	1	120.0000	75.4643	1.0000	1.0000	1.0000	75.4643	
EM 0083MSD	1	120.0000	75.4643	1.0000	1.0000	1.0000	75.4643	
EM 0084	1	6.0000	-1.6469	Below Range				
EM 0085	1	5.0000	-2.3233	Below Range				
EM 0086	1	6.0000	-1.6469	Below Range				
EM 0087	1	5.0000	-2.3233	Below Range				
EM 0088	1	6.0000	-1.6469	Below Range				
EM 0089	1	5.0000	-2.3233	Below Range				

9713512 2550

DCL VISUAL SPECTROSCOPY RAW DATA SHEET

00025

Analyte: Hydrazine Analysis Date: 01/26/93 Analyst: MH
Method: ASTM D-1385 Start Time: 1710 Stop Time: 1745
Matrix: Water Instrument ID: 100-20 Wavelength: 458nm
Model Batch ID: 1993-394 QC Batch ID: 93-00031/93-00032
Set ID: B93-0013, B93-0014/S93-0026
Battelle Code: 36

Sample #	mABS	Sample #	mABS	Sample #	mABS
Std 0	8	Check std 2	115		
Std 3	13	Reagent Blk 2	9		
Std 5	17	EM 0083	6		
Std 10	23	EM 0083MS	120		
Std 30	52	EM 0083MSD	120		
Std 50	82	EM 0084	6		
Std 100	157	EM 0085	5		
Std 200	304	EM 0086	6		
Check std 1	114	EM 0087	5		
Reagent Blk. 1	8	EM 0088	6		
B07088	5	EM 0089	5		
B07093	5	√ $ 3	13		
B 07118	5	√ $ 30	52		
B 07118MS	126	√ $ 100	158		
B 07118MSD	124				
~~B 07122~~ MH 01/26/93					
B07120	7				
B07122	6				

Comments:
Samples B07093 and B07118 containers were not full.