

TA-~~18~~
18



Risk Reduction & Environmental Stewardship Division
Water Quality & Hydrology Group (RRES-WQH)
PO Box 1663, MS K497
Los Alamos, New Mexico 87545
(505) 667-7969/Fax: (505) 665-9344

^{NOV 2002}
Date: November 7, 2002
Refer to: RRES-WQH: 02-417

Mr. John Young
Hazardous Materials Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, New Mexico 87502

Mr. Curt Frischkorn
Ground Water Quality Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, New Mexico 87502

SUBJECT: NOTICE OF INTENT TO DISCHARGE, HYDROGEOLOGIC WORKPLAN WELL R-20

Dear Mr. Young and Mr. Frischkorn:

This week the Laboratory will begin discharging drilling water from Hydrogeologic Workplan Well R-20 in accordance with the Hydrogeologic Workplan Notice of Intent (NOI) submitted to your agency on August 2, 2001, and subsequently revised on July 16, 2002. Under the Hydrogeologic Workplan NOI, if drilling water produced from a Workplan Well is compliant with New Mexico Water Quality Control Commission (NM WQCC) Regulation 3103 ground water standards and applicable RCRA regulatory limits then the Laboratory can discharge without prior coordination with the NMED. Since the drilling water produced from Workplan Well R-20 meets the above requirements, the Laboratory is proceeding with land application.

The Laboratory containerized approximately 100,000 gallons of water produced during the drilling of Workplan Well R-20. Workplan Well R-20 is located on Pajarito Road southeast of Technical Area (TA)-18. Due to the presence of alluvial ground water in the vicinity of Workplan Well R-20 (alluvial water was observed from 9.5 ft. to 57.5 ft.), the drilling water will be applied to the road leading into Mortandad Canyon from TA-52. Depth to ground water at the land application site is approximately 1260 feet. As required by the Workplan NOI, no ponding, pooling, or run-off of the discharged water will be permitted. Information regarding the quality of the Workplan Well R-20 water is provided below.

Water Quality Data

Attachment 1.0 contains analytical reports (metals, general chemistry, perchlorate, nitrate, tritium, and high explosives) from the sampling of containerized drilling water from Workplan Well R-20. All samples were filtered (with the exception of total Hg) prior to analysis. Sample results are compliant with all NM WQCC Regulation 3103 ground water standards including the following contaminants of concern:



Contaminant (mg/L)	Screening Result (mg/L)	NM WQCC ground water standard (mg/L)
total Hg	ND	0.002
HE	ND	
tritium	ND	
Mn	0.013	0.2
perchlorate	ND	
nitrate (as N)	2.76	10.0

Please call me at (505) 667-6969 or Roy Bohn of the Laboratory's Environmental Restoration Project (RRES-R) at (505) 665-5138 if additional information is required.

Sincerely,



Bob Beers
Water Quality & Hydrology Group

BB/tml

Enclosures: a/s

Cy: M. Leavitt, NMED/GWQB, Santa Fe, NM, w/enc.
J. Davis, NMED/SWQB, Santa Fe, NM, w/enc.
J. Bearzi, NMED/HWB, Santa Fe, NM, w/enc.
J. Vozella, DOE/OLASO, w/o enc., MS A316
G. Turner, DOE/OLASO, w/enc., MS A316
M. Johansen, DOE/OLASO, w/enc., MS A316
B. Ramsey, RRES-DO, w/o enc., MS J591
K. Hargis, RRES-DO, w/o enc., MS J591
D. Stavert, RRES-EP, w/enc., MS J591
C. Nylander, RRES-GP, w/o enc., MS M992
S. Rae, RRES-WQH, w/enc., MS K497
D. Rogers, RRES-WQH, w/o enc., MS K497
M. Saladen, RRES-WQH, w/o enc., MS K497
J. McCann, RRES-WQH, w/o enc., MS M992
R. Bohn, RRES-R, w/enc., MS M992
D. Volkman, FWO-UI, w/o enc., MS K718
RRES-WQH File, w/enc., MS K497
IM-5, w/enc., MS A150

ATTACHMENT 1.0

HYDROGEOLOGIC WORKPLAN
WELL R-20

CONTAINERIZED DRILLING WATER

ANALYTICAL REPORTS:

- GENERAL CHEMISTRY
 - METALS
 - PERCHLORATE
- NITRATE/NITRITE
 - HE
 - TRITIUM

Hydrogeologic Workplan Well R-20
 Drilling Water Screening Results

ER

ER WATER SAMPLES

SAMPLE ID	DESCRIPTION	DATE MM/DD/YY	ER Req#	Ag ppm	Al Std.D.		As Std.D.		B Std.D.		Ba ppm
					ppm +/-	ppm +/-	ppm +/-	ppm +/-			
GW20-02-48099	R-20 mud, analyzed after filtering	09/12/02	1192S	<0.0003	0.25	0.01	0.023	0.001	0.090	0.001	0.049
GW20-02-48100	R-20 mud, analyzed after filtering	09/12/02	1192S	<0.0003	0.58	0.01	0.012	0.001	0.098	0.002	0.021

Hydrogeologic Workplan Well R-20
 Drilling Water Screening Results

ER

SAMPLE ID	Std.D. +/-	Be ppm	Br ppm	Ca ppm	Std.D. +/-	Cd ppm	Cl ppm	Cl03 ppm	Cl04 ppm	Co ppm	Std.D. +/-	Cr ppm	Std.D. +/-	Cs ppm	Cu ppm
GW20-02-48099	0.001	<0.002	<0.1	20.0	0.1	<0.001	11.2	<0.1	<0.01	<0.001		0.029	0.001	<0.003	0.026
GW20-02-48100	0.001	<0.002	<0.1	15.1	0.4	<0.001	12.2	<0.1	<0.01	<0.001		0.0082	0.0002	<0.003	0.025

Hydrogeologic Workplan Well R-20
 Drilling Water Screening Results

ER

SAMPLE ID	Std.D.		F	Fe Std.D.		Hardness CaCO3 ppm	Hg Std.D.		K Std.D.		Li Std.D.		Mg Std.D.		Mn Std.D.	
	+/-	ppm		ppm	+/-		ppm	+/-	ppm	+/-	ppm	+/-	ppm	+/-	ppm	+/-
GW20-02-48099	0.001	0.65	0.07	0.01	56.4	0.0045*	0.0001	7.53	0.02	0.049	0.001	1.58	0.01	0.013	0.001	
GW20-02-48100	0.001	0.60	0.19	0.01	48.8	0.0039*	0.0001	8.83	0.16	0.081	0.001	2.70	0.02	0.012	0.001	

***REANALYSIS RESULTS: NON DETECT. SEE ATTACHED.**

Hydrogeologic Workplan Well R-20
 Drilling Water Screening Results

ER

SAMPLE ID	Mo Std.D.		Na Std.D.		Ni Std.D.		NO2 ppm	NO3 ppm	N total ppm	Oxalate ppm	Pb Std.D.		PO4 ppm	Rb Std.D.	
	ppm	+/-	ppm	+/-	ppm	+/-					ppm	+/-		ppm	+/-
GW20-02-48099	0.095	0.001	255	2	0.0065	0.0002	1.08	2.76	0.95	1.03	<0.0005		1.95	0.022	0.001
GW20-02-48100	0.097	0.002	274	1	0.0070	0.0001	0.73	2.62	0.81	1.04	0.0007	0.0001	3.26	0.013	0.001

Hydrogeologic Workplan Well R-20
 Drilling Water Screening Results

ER

SAMPLE ID	Sb Std.D.		Se Std.D.		Si Std.D.		SiO2 ppm calc	SO4 ppm	Sn ppm	Sr Std.D.		Th Std.D.		Ti Std.D.	
	ppm	+/-	ppm	+/-	ppm	+/-				ppm	+/-	ppm	+/-	ppm	+/-
GW20-02-48099	0.0027	0.0001	0.005	0.001	23.5	0.1	50.3	237	<0.002	0.23	0.01	<0.001		<0.001	
GW20-02-48100	0.0048	0.0001	0.003	0.001	18.0	0.1	38.5	229	<0.002	0.19	0.01	<0.001		0.005	0.001

Hydrogeologic Workplan Well R-20
 Drilling Water Screening Results

ER

SAMPLE ID	Tl	U Std.D.		V std.D.		Zn Std.D.		Acetate	Formate	comments
	ppm	ppm	+/-	ppm	+/-	ppm	+/-	ppm	ppm	
GW20-02-48099	<0.002	0.011	0.001	0.032	0.001	0.003	0.001	+	+	unknown peak before NO3
GW20-02-48100	<0.002	0.011	0.001	0.015	0.001	0.004	0.001	+	+	unknown peak before NO3

R-20
DRILLING WATER

Certificate of Analysis

Company : Los Alamos National Lab
Address : PO Box 1663
TA-3, Bldg. 271, Drop Pt. 01U
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: Groundwater Project

Report Date: October 24, 2002

Page 1 of 1

Client Sample ID: GW20-02-49610 10 Project: LANL00401
Sample ID: 68196001 Client ID: LANL004
Matrix: Ground Water
Collect Date: 01-OCT-02 00:00
Receive Date: 03-OCT-02
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Mercury Analysis Federal										
<i>7470 Cold Vapor Hg Liquid</i>										
Mercury	U	ND	0.0472	0.200	ug/L	1	NORI 10/22/02	1214	207403	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	KHN	10/21/02	1630	207402

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 7470A	

Notes:

The Qualifiers in this report are defined as follows :

- < Actual result is less than amount reported
- > Actual result is greater than amount reported
- B Analyte found in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration exceeds instrument calibration range
- H Holding time exceeded
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D
- U Indicates the compound was analyzed for but not detected above the detection limit
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier - must be fully described in case narrative and data summary package
- Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Stacy Griffin.

Reviewed by _____

R-20
Drilling Water

Certificate of Analysis

Company : Los Alamos National Lab
Address : PO Box 1663
TA-3, Bldg. 271, Drop Pt. 01U
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: Groundwater Project

Report Date: October 24, 2002

Page 1 of 1

Client Sample ID: GW20-02-49611 10 Project: LANL00401
Sample ID: 68196002 Client ID: LANL004
Matrix: Ground Water
Collect Date: 01-OCT-02 00:00
Receive Date: 03-OCT-02
Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Mercury Analysis Federal											
7470 Cold Vapor Hg Liquid											
Mercury	U	ND	0.0472	0.200	ug/L	1	NORI	10/22/02	1259	207403	1

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 7470A Prep	EPA 7470A Mercury Prep Liquid	KHN	10/21/02	1630	207402

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 7470A	

Notes:

The Qualifiers in this report are defined as follows :

- < Actual result is less than amount reported
- > Actual result is greater than amount reported
- B Analyte found in the sample as well as the associated blank.
- BD Flag for results below the MDC or a flag for low tracer recovery.
- E Concentration exceeds instrument calibration range
- H Holding time exceeded
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D
- U Indicates the compound was analyzed for but not detected above the detection limit
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier - must be fully described in case narrative and data summary package
- Y QC Samples were not spiked with this compound.

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Stacy Griffin.

Reviewed by _____

B-20
DRILLING WATER

Certificate of Analysis

Company : Los Alamos National Lab
 Address : PO Box 1663
 TA-3, Bldg. 271, Drop Pt. 01U
 Los Alamos, New Mexico 87545
 Contact: Keith Greene
 Project: Groundwater Project

Report Date: October 16, 2002

Page 1 of 2

Client Sample ID: GW20-02-49610 13/14/15 Project: LANL00401
 Sample ID: 68195001 Client ID: LANL004
 Matrix: Ground Water
 Collect Date: 01-OCT-02 00:00
 Receive Date: 03-OCT-02
 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
HPLC-EXPL Federal											
<i>HEXP / HEXPU</i>											
1,3,5-Trinitrobenzene	U	ND	0.249	1.04	ug/L	1	JLW	10/08/02	2027	206481	1
2,4,6-Trinitrotoluene	U	ND	0.779	1.04	ug/L	1					
2,4-Dinitrotoluene	U	ND	0.349	1.04	ug/L	1					
2,6-Dinitrotoluene	U	ND	0.501	1.04	ug/L	1					
2-Amino-4,6-dinitrotoluene	U	ND	0.779	1.04	ug/L	1					
4-Amino-2,6-dinitrotoluene	U	ND	0.409	1.04	ug/L	1					
HMX	U	ND	0.779	1.04	ug/L	1					
Nitrobenzene	U	ND	0.131	1.04	ug/L	1					
RDX	U	ND	0.530	1.04	ug/L	1					
Tetryl	U	ND	0.320	1.04	ug/L	1					
m-Dinitrobenzene	U	ND	0.330	1.04	ug/L	1					
m-Nitrotoluene	U	ND	0.640	1.04	ug/L	1					
o-Nitrotoluene	U	ND	0.640	1.04	ug/L	1					
p-Nitrotoluene	U	ND	0.640	1.04	ug/L	1					

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8330 PREP	8330 EXPLOSIVES BY HPLC Prep in liquid	GMS	10/07/02	1000	206479

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	SW846 8330	

Surrogate recovery	Test	Recovery%	Acceptable Limits
1,2-dinitrobenzene	HEXP / HEXPU	0%*	(59%-118%)

Notes:

The Qualifiers in this report are defined as follows :

- < Actual result is less than amount reported
- > Actual result is greater than amount reported
- B Analyte found in the sample as well as the associated blank.
- E Concentration exceeds instrument calibration range
- H Holding time exceeded
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.

R-20
DRILLING WATER

Certificate of Analysis

Company : Los Alamos National Lab
 Address : PO Box 1663
 TA-3, Bldg. 271, Drop Pt. 01U
 Los Alamos, New Mexico 87545
 Contact: Keith Greene
 Project: Groundwater Project

Report Date: October 16, 2002

Page 1 of 2

Client Sample ID: GW20-02-49611 13/14/15 Project: LANL00401
 Sample ID: 68195002 Client ID: LANL004
 Matrix: Ground Water
 Collect Date: 01-OCT-02 00:00
 Receive Date: 03-OCT-02
 Collector: Client

Parameter	Qualifier	Result	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
HPLC-EXPL Federal										
<i>HEXP / HEXPU</i>										
1,3,5-Trinitrobenzene	U	ND	0.249	1.04	ug/L	1	JLW 10/08/02	2110	206481	1
2,4,6-Trinitrotoluene	U	ND	0.779	1.04	ug/L	1				
2,4-Dinitrotoluene	U	ND	0.349	1.04	ug/L	1				
2,6-Dinitrotoluene	U	ND	0.501	1.04	ug/L	1				
2-Amino-4,6-dinitrotoluene	U	ND	0.779	1.04	ug/L	1				
4-Amino-2,6-dinitrotoluene	U	ND	0.409	1.04	ug/L	1				
HMX	U	ND	0.779	1.04	ug/L	1				
Nitrobenzene	U	ND	0.131	1.04	ug/L	1				
RDX	U	ND	0.530	1.04	ug/L	1				
Tetryl	U	ND	0.320	1.04	ug/L	1				
m-Dinitrobenzene	U	ND	0.330	1.04	ug/L	1				
m-Nitrotoluene	U	ND	0.640	1.04	ug/L	1				
o-Nitrotoluene	U	ND	0.640	1.04	ug/L	1				
p-Nitrotoluene	U	ND	0.640	1.04	ug/L	1				

The following Prep Methods were performed

Method	Description	Analyst	Date	Time	Prep Batch
SW846 8330 PREP	8330 EXPLOSIVES BY HPLC Prep in liquid	GMS	10/07/02	1000	206479

The following Analytical Methods were performed

Method	Description	Analyst Comments
I	SW846 8330	

Surrogate recovery	Test	Recovery%	Acceptable Limits
1,2-dinitrobenzene	HEXP / HEXPU	20% *	(59%-118%)

Notes:

The Qualifiers in this report are defined as follows :

- < Actual result is less than amount reported
- > Actual result is greater than amount reported
- B Analyte found in the sample as well as the associated blank.
- E Concentration exceeds instrument calibration range
- H Holding time exceeded
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D

R-20
Drilling Water

Certificate of Analysis

Company : Los Alamos National Lab
 Address : PO Box 1663
 TA-3, Bldg. 271, Drop Pt. 01U
 Los Alamos, New Mexico 87545
 Contact: Keith Greene
 Project: Groundwater Project

Report Date: September 23, 2002

Page 1 of 1

Client Sample ID:	GW20-02-48099 02/03	Project:	LANL00401
Sample ID:	67098001	Client ID:	LANL004
Matrix:	Misc Liquid		
Collect Date:	12-SEP-02		
Receive Date:	14-SEP-02		
Collector:	Client		

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	AnalystDate	Time	Batch Mtd.
Rad Liquid Scint										
<i>LSC, Tritium Dist, Liquid</i>										
Tritium		-180	372	108	250	pCi/L		CAFI 09/20/02	1458	2026871

The following Analytical Methods were performed

Method	Description
1	EPA 906.0

Notes:

TPU is calculated at the 67% confidence level (1-sigma).
 The Qualifiers in this report are defined as follows :

- < Actual result is less than amount reported
- > Actual result is greater than amount reported
- B Analyte found in the sample as well as the associated blank.
- E Concentration exceeds instrument calibration range
- H Holding time exceeded
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D
- U Indicates the compound was analyzed for but not detected above the detection limit
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier - must be fully described in case narrative and data summary package

The above sample is reported on an "as received" basis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Stacy Griffin.

Reviewed by _____

R-20
DRILLING WATER

Certificate of Analysis

Company: Los Alamos National Lab
Address: PO Box 1663
TA-3, Bldg. 271, Drop Pt. 01U
Los Alamos, New Mexico 87545
Contact: Keith Greene
Project: Groundwater Project

Report Date: September 23, 2002

Page 1 of 1

Client Sample ID: GW20-02-48100 02/03
Sample ID: 67098002
Matrix: Misc Liquid
Collect Date: 12-SEP-02
Receive Date: 14-SEP-02
Collector: Client

Project: LANL00401
Client ID: LANL004

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
Rad Liquid Scint												
<i>LSC, Tritium Dist. Liquid</i>												
Tritium		184	381	121	250	pCi/L		CAF1	09/20/02	1629	202687	1

The following Analytical Methods were performed

Method	Description
1	EPA 906.0

Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- < Actual result is less than amount reported
- > Actual result is greater than amount reported
- B Analyte found in the sample as well as the associated blank.
- E Concentration exceeds instrument calibration range
- H Holding time exceeded
- J Indicates an estimated value. The result was greater than the detection limit, but less than the reporting limit.
- P The response between the confirmation column and the primary column is >40%D
- U Indicates the compound was analyzed for but not detected above the detection limit
- UI Uncertain identification for gamma spectroscopy.
- X Lab-specific qualifier - must be fully described in case narrative and data summary package

The above sample is reported on an "as received" basis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, Inc. standard operating procedures. Please direct any questions to your Project Manager, Stacy Griffin.

Reviewed by _____