



OCT 2002

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

Date: October 8, 2002  
Refer to: RRES-WQH: 02-372

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

TA 18

**SUBJECT: NOTICE OF INTENT TO DISCHARGE, HYDROGEOLOGIC WORKPLAN WELL R-32**

Dear Mr. Young and Mr. Frischkorn:

On October 4, 2002, your agency concurred with Los Alamos National Laboratory's proposal to land apply approximately 100,000 gallons of ground water produced during the development of Hydrogeologic Workplan Well R-32 (personal communication, Mr. Roy Bohn, Los Alamos National Laboratory, and Mr. John Young, New Mexico Environment Department, October 4, 2002). The Laboratory's proposal to discharge development water from Workplan Well R-32 was made in accordance with the requirements of 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, when development water produced from a Hydrogeologic Workplan Well exceeds a New Mexico Water Quality Control Commission (NM WQCC) Regulation 3103 ground water standard or a RCRA regulatory limit the Laboratory will coordinate disposal with the NMED. Since the drilling fluids produced from Workplan Well R-32 exceeded the NM WQCC Regulation 3103 ground water standard for manganese (Mn), your agency's concurrence was requested.

The Laboratory has containerized approximately 80,000 gallons of ground water produced during the development of Workplan Well R-32. It is expected that an additional 20,000 gallons of development water will be produced within the next week as well development is completed. Workplan Well R-32 is located along Pajarito Road southeast of Technical Area (TA)-18. In accordance with our proposal, all development water from Workplan Well R-32 will be land applied adjacent to the drill site. 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 development water is provided below.



✓

**Water Quality Data**

The enclosed Table 1.0 is a summary of water quality data (metals, general chemistry, perchlorate, nitrate, tritium, and high explosives) for the approximately 80,000 gallons of containerized development water from Workplan Well R-32. Attachment 1.0 contains copies of the analytical reports. All samples were filtered prior to analysis. Sample results were compliant with all NM WQCC Regulation 3103 ground water standards with the exception of manganese (Mn).

Mn	3.89	0.74	0.2
----	------	------	-----

Cobalt exceeded the NM WQCC ground water standard of 0.05 mg/L in one of the three development water samples collected; however, the average cobalt concentration of 0.036 mg/L was less than the NM WQCC ground water standard. No perchlorate, tritium, or high explosives were detected in the Workplan Well R-32 development water at concentrations greater than the analytical laboratory's Method Detection Limits (MDLs). Nitrate/nitrite (as N) was detected at a maximum concentration of 0.43 mg/L.

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: J. Davis, NMED/SWQB, Santa Fe, NM, w/ enc.
- J. Vozella, DOE/OLASO, w/ enc., MS A316
- G. Turner, DOE/OLASO, w/ enc., MS A316
- M. Johansen, DOE/OLASO, w/ enc., MS A316
- J. Holt, ADO, w/o enc., MS A104
- 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 J978
- S. Rae, RRES-WQH, w/enc., MS K497
- D. Rogers, RRES-WQH, w/o enc., MS K497
- M. Saladen, RRES-WQH, w/enc., MS K497
- R. Bohn, RRES-R, w/enc., MS M992
- D. McInroy, RRES-R, w/o enc., MS M992
- RRES-WQH File, w/enc., MS K497
- IM-5, w/enc., MS A150

**Table 1.0. Screening Results, R-32 Development Water. Filtered Samples.**

Analyte	R-32 Results GW32-02-47655 (mg/L)	R-32 Results GW32-02-47999 (mg/L)	R-32 Results GW32-02-49619 (mg/L)	R-32 Results R-32 10-02-02 (mg/L)	NM WQCC 3103 Standards (mg/L)
Ag	<0.0002	<0.0002	<0.0002		0.05
Al	0.17	0.12	0.041		5.0
As	0.0031	0.0055	0.0017		0.1
Ba	0.11	0.17	0.068		1.0
B	0.04	0.03	0.18		0.75
Cl	26.1	46.0	10.6	7.71	250
ClO4	<0.005	<0.005	<0.002		
Co	0.011	0.084	0.014		0.05
Cd	<0.001	<0.001	<0.001		0.01
Cr	0.009	0.010	0.0024		0.05
Cu	0.019	0.015	0.0046		1.0
F	0.55	0.50	0.67	0.69	1.6
Fe	1.04	0.78	0.46		1.0
<sup>3</sup> H (pCi/L)		<111.23			
HE			<0.01		
Hg (filtered)	0.00009	0.00007	0.00009		0.002 <sup>1</sup>
Mn	1.77	3.89	0.91	0.74	0.2
Mo	0.0070	0.0033	0.0031		1.0
NO3	0.13	<0.2	<0.2	0.43	10.0
Ni	0.077	0.11	0.020		0.2
Pb	0.0010	0.0007	<0.0002		0.05
Se	0.0011	0.0017	<0.001		0.05
SO4	12.3	10.2	8.07	7.29	600
U	<0.0002	<0.0002	0.0003		5.0
Zn	0.012	0.024	0.005		10.0

<sup>1</sup>Total Hg

**ATTACHMENT 1.0**

**ANALYTICAL REPORTS**

**SCREENING RESULTS**

**HYDROGEOLOGIC WORKPLAN WELL R-32**

**DEVELOPMENT WATER**

- **Tritium**
- **HE**
- **Metals**
- **General Inorganics**
- **Perchlorate**



1903 Central Ave. • Los Alamos, New Mexico 87544  
 (505) 663-0363 • Fax (505) 663-0365

ARSNM Tracking Number: ARSNM-02-0112  
 Client I.D.: GW32-02-47999  
 Date Sampled: 09/27/02  
 Time Sampled: 1340  
 Type of Sample: liquid  
 Contact Person: R. Evans

COC Number: 48402  
 ARSNM Sample I.D.: ARSNM-02-0742  
 Date Received: 09/27/02  
 Time Received: 1435  
 Date of Report: 10/03/02  
 Charge Code: REPEATED

Analysis Description	Analysis Result	Analysis Error $\pm 2\sigma$ %	Detection Limit	Analysis Units	Analysis Test Method	Analysis Date & Time	Analysis Technician
Tritium	BDL	N/A	111.23	pCi/l	EPA 906.0M	09/28/02 0758	bz
Gross Alpha	BDL	N/A	190.77	pCi/l	EPA 900M	10/03/02 1025	bz
Gross Beta	BDL	N/A	506.87	pCi/l	EPA 900M	10/03/02 1025	bz
Gross Gamma	913.79	127.47	283.54	pCi/l	EPA 901.1M	09/27/02 1942	bz

*B. Zelenay*  
 Barbara Zelenay

Cost per sample:

Notes: American Radiation Services of New Mexico assumes no liability for the use or interpretation of any analytical results provided other than the cost of the performed analysis itself. Reproduction of this report in less than full requires the written consent of the client.

ER

ER WATER SAMPLES

SAMPLE ID	DESCRIPTION	DATE MM/DD/YY	ER Req#	Temp °C	Ag ppm	Al ppm
GW32-02-49619	R-32, 1320', (TIC/TOC) 10/2/02	09/30/02	1291S	22.1	<0.0002	0.041

ER

SAMPLE ID	Std.D. +/-	Alk(Lab) ppm CaCO3	As Std.D. ppm +/-	B Std.D. ppm +/-	Ba Std.D. ppm +/-	Be ppm	Br ppm
GW32-02-49619	0.001	53.7	0.0017 0.0001	0.18 0.01	0.068 0.001	<0.001	0.19

ER

SAMPLE ID	C TIC ppm	C TOC ppm	Ca ppm	Std.D. +/-	Cd ppm	Cl ppm	ClO3 ppm	ClO4 ppm	Co ppm	Std.D. +/-
GW32-02-49619	18.6 (17.6)	9.32 (7.70)	17.6	0.1	<0.001	10.6	<0.02	<0.002	0.014	0.001



SAMPLE ID	CO3	Cond. (F)	Cr Std.D.		Cs	Cu Std.D.		F	Fe Std.D.	
	ppm	µS/cm	ppm	+/-	ppm	ppm	+/-	ppm	ppm	+/-
GW32-02-49619	0	221	0.0024	0.0001	<0.001	0.0046	0.0001	0.67	0.46	0.01

ER

SAMPLE ID	Hardness CaCO3 ppm	HCO3 ppm	Hg Std.D. ppm +/-	K Std.D. ppm +/-	Li Std.D. ppm +/-	Mg Std.D. ppm +/-	Mn ppm
GW32-02-49619	65.2	65.5	0.00009 0.00001	1.95 0.02	0.035 0.001	5.17 0.03	0.91

ER

SAMPLE ID	Std.D. +/-	Mo ppm	Std.D. +/-	Na ppm	Std.D. +/-	Ni ppm	Std.D. +/-	NO2 ppm	NO3 ppm	Oxalate ppm	Pb ppm
GW32-02-49619	0.04	0.0031	0.0001	21.1	0.2	0.020	0.001	<0.02	<0.02	<0.02	<0.0002

ER

SAMPLE ID	pH		PO4 ppm	Rb ppm	Std.D. +/-	Sb ppm	Se ppm	Si Std.D.		SiO2 ppm calc
	Field	Lab						ppm	+/-	
GW32-02-49619	6.82	6.67	7.39	0.005	0.001	<0.001	<0.001	33.5	0.6	71.7

ER

SAMPLE ID	SO4	Sn	Sr Std.D.		Th	Ti	Tl	U Std.D.		V std.D.	
	ppm	ppm	ppm	+/-	ppm	ppm	ppm	ppm	+/-	ppm	+/-
GW32-02-49619	8.07	<0.001	0.093	0.001	<0.001	<0.001	<0.001	0.0003	0.0001	0.005	0.001

ER

SAMPLE ID	Zn Std.D. ppm +/-	TDS ppm	HMX ppm	RDX ppm	1,3,5-TNB ppm	1,3-DNB ppm	TNT ppm
GW32-02-49619	0.005 0.001	211.8	<0.01	<0.01	<0.01	<0.01	<0.01

ER

SAMPLE ID	NB 2a-4,6-DNT ppm	ppm	2,4-DNT ppm	Acetate ppm	Formate ppm
GW32-02-49619	<0.01	<0.01	<0.01	++	++