

Los Alamos

NATIONAL LABORATORY

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

Date: December 21, 1999
In Reply Refer To: ESH-18/WQ&H:99-0478
Mail Stop: K497
Telephone: (505) 665-1859

Ms. Marcy Leavitt, Chief
Ground Water Quality Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, New Mexico 87502

**SUBJECT: ANALYTICAL RESULTS FROM SAMPLING GROUND WATER
PRODUCED DURING THE DRILLING OF MONITORING WELL R-15 AT
646 FOOT DEPTH**

Dear Ms. Leavitt:

In a December 13, 1999, letter (ESH-18/WQ&H:99-0439) Los Alamos National Laboratory (Laboratory) submitted to your agency the validated analytical results for screening samples collected from Monitoring Well R-15 at the 646 and 1,100 foot depths. Absent from that submittal were the validated analytical results for two filtered screening samples collected from Monitoring Well R-15 at 646 feet, CAMO-99-0102 and CAMO-99-0104. The enclosed Attachment I contains the validated analytical results for these two samples. Discussion of the enclosed results is provided below.

Monitoring Well R-15, located in Mortandad Canyon, was drilled using a casing-advance drilling method. Drilling mud was used as a casing lubricant. This lubricant method was selected to improve drilling speed and cost effectiveness; however, drilling mud was introduced into the produced ground water. As a result, the quality of the produced water is not representative of the ground water in the aquifer.

Attachment I: Filtered Samples: 646 Feet

On July 22, 1999, filtered samples CAMO-99-0102 and CAMO-99-0104 were collected from R-15 at 646 feet. Inorganic analyses did not confirm the presence of any NM WQCC Regulation 3103 contaminants at concentrations greater than standards with the exception of manganese (Mn). Manganese concentrations in CAMO-99-0102 and CAMO-99-0104 were 200 µg/L, and 227 µg/L, respectively. The NM WQCC Regulation 3103 Ground Water Standard for manganese is 200 µg/L. Attachment I contains the validated analytical reports for samples CAMO-99-0102 and CAMO-99-0104 along with a revised Table 1.0 Inorganic Analytical Results summary table for R-15.



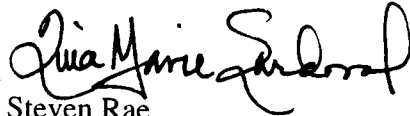
5601

Handwritten notes: HSWA LANL G/M/99 [R-15] TH07

Handwritten initials: TL

Please contact me at 667-1859 or Bob Beers at 667-7969 if you need any additional information regarding this data.

Sincerely,


for Steven Rae,
Group Leader
Water Quality and Hydrology Group

SR:RB/em

Enclosures: a/s

Cy: D. Saracino, Pueblo of San Ildefonso, New Mexico, w/enc.
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T. Gunderson, DIR, w/enc., A100
A. Pratt, EES-13, w/enc., MS M992
D. Broxton, EES-1, w/enc., MS D462
P. Longmire, EES-1, w/enc., MS D469
M. Baker, EM-DO, w/enc., MS J591
J. Canepa, EM/ER, w/enc., MS M992
T. George, EM/ER, w/enc., MS M992
D. McInroy, EM/ER, w/enc., MS M992
R. Bohn, EM/ER, w/enc., MS M992
D. Erickson, ESH-DO, w/enc., MS K491
C. Nylander, ESH-18, w/enc., MS K497
S. Veenis, ESH-18, w/enc., MS K497
M. Saladen, ESH-18, w/enc., MS K497
B. Beers, ESH-18, w/enc., MS K497
H. Decker, ESH-18, w/enc., MS K497
D. Woitte, LC-GEN, w/enc., MS A187
WQ&H File, w/enc., MS K497
CIC-10, w/enc., MS A150

DEC 1999
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ATTACHMENT I

MONITORING WELL R-15

646 FEET

FILTERED SAMPLE RESULTS

CAMO-99-0102

CAMO-99-0104

R-15

646 FL

U.S. EPA - CLP

Handwritten signature

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CAMO-99-0102

Lab Name: PARAGON_ANALYTICS Contract: _____
Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: 5892R
Matrix (soil/water): WATER Lab Sample ID: 9907231-1
Level (low/med): LOW Date Received: 07/28/99
% 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	8.7	U		P
7440-36-0	Antimony	3.4	U		P
7440-38-2	Arsenic	2.7	U		P
7440-39-3	Barium	25.6	B		P
7440-41-7	Beryllium	0.32	B		P
7440-42-8	Boron	42.3	B		P
7440-43-9	Cadmium	0.20	U		P
7440-70-2	Calcium	18300			P
7440-47-3	Chromium	0.50	U		P
7440-48-4	Cobalt	2.5	B		P
7440-50-8	Copper	3.9	B		P
7439-89-6	Iron	8.2	U		P
7439-92-1	Lead	1.3	U		P
7439-95-4	Magnesium	4060	B		P
7439-96-5	Manganese	200			P
7439-97-6	Mercury	0.26			AV
7439-98-7	Molybdenum	75.6			P
7440-02-0	Nickel	13.1	B		P
7440-09-7	Potassium	4070	B	E	P
7782-49-2	Selenium	2.9	U		P
7440-22-4	Silver	0.70	U		P
7440-23-5	Sodium	53200			P
7440-24-6	Strontium	108			P
7440-28-0	Thallium	4.5	U		P
7440-62-2	Vanadium	0.40	B		P
7440-66-6	Zinc	11.3	B		P

Color Before: COLORLESS Clarity Before: CLEAR Texture: N/A
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

R-C

U.S. EPA - CLP

Filtered
▽ 646 ft

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CAMO-99-0104

Lab Name: PARAGON_ANALYTICS Contract: _____
 Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: 5892R
 Matrix (soil/water): WATER Lab Sample ID: 9907231-2
 Level (low/med): LOW Date Received: 07/28/99
 % 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	58.9	B		P
7440-36-0	Antimony	4.8	B		P
7440-38-2	Arsenic	2.7	U		P
7440-39-3	Barium	27.6	B		P
7440-41-7	Beryllium	0.37	B		P
7440-42-8	Boron	38.8	B		P
7440-43-9	Cadmium	0.20	U		P
7440-70-2	Calcium	18700			P
7440-47-3	Chromium	0.60	B		P
7440-48-4	Cobalt	2.9	B		P
7440-50-8	Copper	3.9	B		P
7439-89-6	Iron	8.2	U		P
7439-92-1	Lead	1.3	U		P
7439-95-4	Magnesium	4160	B		P
7439-96-5	Manganese	227			P
7439-97-6	Mercury	0.13	B		AV
7439-98-7	Molybdenum	81.0			P
7440-02-0	Nickel	13.9	B		P
7440-09-7	Potassium	4170	B	E	P
7782-49-2	Selenium	2.9	U		P
7440-22-4	Silver	0.70	U		P
7440-23-5	Sodium	54400			P
7440-24-6	Strontium	115			P
7440-28-0	Thallium	4.5	B		P
7440-62-2	Vanadium	0.56	B		P
7440-66-6	Zinc	11.2	B		P

Color Before: COLORLESS Clarity Before: CLEAR Texture: N/A
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

Table 1.0
Revised: 12/17/99

Inorganic Analytical Results¹
Monitoring Well R-15 Screening Samples
646 and 1,100 Foot Depths
Units: ug/L, unless noted.

12/17/99

Source Depth (ft)	Sample Type	Sample ID No.	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg
646	NF	99-0103	192,200	9.0	46.1	5,120	44.2	67.3	6.0	607,000	832	719	1420	750,000	262	597,000
646	NF	99-0105	173,000	7.4	28.9	2,930	26.4	45.8	4.5	335,000	689	401	937	649,000	231	314,000
1,100	NF	99-0107	43,600	3.4	24.0	2,820	12.3	42.1	0.59	266,000	21.8	107	26	21,300	67.1	58,200
646	F	99-0102	8.7	3.4	2.7	25.6	0.32	42.3	0.20	18,300	0.50	2.5	3.9	8.2	1.3	4,060
646	F	99-0104	58.9	4.8	2.7	27.6	0.37	38.8	0.20	18,700	0.60	2.9	3.9	8.2	1.3	4,160
1,100	F	99-0106	11.2	4.0	2.7	39.6	0.47	46.0	0.20	13,900	0.50	4.0	1.4	22.3	1.3	4,240
<i>WQCC 3101 Standards (ug/L)²</i>			5,000		100	1,000		750	10		50	50	1,000	1,000	50	

Source Depth (ft)	Sample Type	Sample ID No.	Mn	Hg	Mo	Ni	K	Se	Ag	Na	Sr	Tl	V	Zn	Total U
646	NF	99-0103	33,500	0.36	37.2	2,080	30,800	12.6	0.7	126,000	3,250	22.0	129	3,800	30.9
646	NF	99-0105	17,900	0.44	65.5	1,170	21,400	12.4	0.7	104,000	2,220	22.2	142	2,390	34.9
1,100	NF	99-0107	7,270	0.02	5.5	64.2	21,200	3.7	0.7	35,900	1,140	4.5	344	142	NA
646	F	99-0102	200	0.26	75.6	13.1	4,070	2.9	0.7	53,200	108	4.5	0.4	11.3	1.10
646	F	99-0104	227	0.13	81.0	13.9	4,170	2.9	0.7	54,400	115	4.5	0.56	11.2	1.29
1,100	F	99-0106	193	0.02	20.1	5.4	3,300	2.9	1.2	23,000	57.9	5.2	1.6	5.7	2.44
<i>WQCC 3101 Standards (ug/L)²</i>			200	20	1,000	200		50	50					10,000	5,000

Source Depth (ft)	Sample Type	Sample ID No.	NH3 (mg/L)	CaCO ₃ ³ (mg/L)	CN (mg/L)	NO3 (mg/L)	Total P (mg/L)	Br (mg/L)	Cl (mg/L)	F (mg/L)	SO4 (mg/L)	TDS (mg/L)
646	NF	99-0103	0.53	140	0.035	0.5	0.098	0.2	13	1.5	45	NA
646	NF	99-0105	0.53	140	0.03	0.5	0.077	0.2	13	1.4	47	NA
646	F	99-0102	0.54	120	NA	0.93	0.05	0.2	13	1.5	45	260
646	F	99-0104	0.53	120	NA	0.05	0.05	0.2	13	1.3	45	NA
1,100	F	99-0106	0.53	NA	NA	0.052	0.05	0.2	3.7	0.3	15	190
<i>WQCC 3101 Standards (ug/L)²</i>					0.2	10			250	1.6	600	1,000

Notes:

NF means non-filtered sample.

F means that the sample was filtered.

NA means that no analysis was conducted for this analyte.

¹Results not representative of ground water in the aquifer due to introduction of drilling mud.

²NM WQCC 3103 Standards apply to the dissolved portion of the contaminants.

³Bicarbonate as CaCO₃.