



Aerojet Nuclear Company

550 SECOND STREET
IDAHO FALLS, IDAHO 83401


6607300-5

May 6, 1975

A. Ken Dunn, Associate Director
Idaho Dept. of Water Resources
Statehouse
Boise, ID 83707

TRANSMITTAL OF ANALYSIS OF RRGE-1 WATER SAMPLES - Kun-284-75

The attached table gives our "best values" for the cased RRGE-1 well, at this time. In addition, I have recently requested trace analyses for As, Te, Se, and Sb.


J. F. Kunze, Manager
Geothermal Projects

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Attachment

What Report is this from?

COMPOSITIONAL ANALYSIS OF RRGE-1 WATER SAMPLES
AND COMPARISON WITH OTHER WELLS IN AREA

Conditions: Cased hole, full flow and pressurized samples, 205°F (boiling temperature at elevation), samples taken after well allowed to flow freely.

	RRGE-1 ^a	Crank Well	BLM Well	Jack Pierce Well
pH	7.05-7.40	7.94	7.40	7.6
Conductivity (μmhos/cm)	2800.0	6080	3030	1720
Salinity (μg/ml or ppm)	1715.0	3360	1720	1204
Na absorption ratio †	19.5	26.8	18.3	--
Metals:(All values in ppm)				
Ag	ND	--	--	--
Al	m-t	--	0.012 ppm	--
B	0.2	0.25	0.15	--
Ba	<0.4 ppm	ND	ND	--
Be	<0.002 ppm	ND	ND	--
Ca	57 ppm	125 ppm	52 ppm	157 ppm
Cd	ND	--	--	--
Co	NO	--	--	--
Cr	m-t	--	--	--
Cu	t	0.02 ppm	0.02 ppm	--
Fe	0.32 ^b	<0.02	<0.02	--
K	26.7 ppm	32 ppm	21 ppm	16 ppm
Li	1.25 ppm	2.5 ppm	1.4 ppm	--
Mg	0.76 ppm	0.3 ppm	0.2 ppm	18 ppm
Mn	0.07 ppm	0.02 ppm	0.02 ppm	--
Na	400 ppm	1110 ppm	560 ppm	184 ppm
Ni	3.7 ppm	<0.05 ppm	<0.05 ppm	--
Pb	t	<0.06 ppm	<0.06 ppm	--
P	0.016 ppm	--	--	--
Si	46 ± ppm	97 ppm	90 ppm	54 ppm
Sn	ND	--	--	--
Sr	1.44 ppm	2.8 ppm	1.4 ppm	--
Ti	t-m	--	--	--

	<u>RRGE-1^a</u>	<u>Crank Well</u>	<u>BLM Well</u>	<u>Jack Pierce Well</u>
Metals:				
V	ND	--	--	--
Zr	m	--	--	--
Zr	ND	--	--	--

Non-Metals (All values in ppm):

	<u>RRGE-1</u>	<u>Crank</u>	<u>BLM</u>
Cl ⁻	614 ^b	1900	880
Br ⁻	<2.5	3.1	1
I ⁻	0.036	0.06	0.02
F ⁻	5.4	5.7	6.9
PO ₄ ⁼	(0.05) ^c	0.04	0.08
SO ₄ ⁼	61	60	69
S ⁼	<0.2	--	--
NO ₃ ⁻	0.44	<0.5	<0.5
HCO ₃ ⁻	45.4 ^f	33.1	50.7
CO ₃ ⁼	8.8 ^g	16.8	25.5
SiO ₂	99 ^d -105 ^e	94	81
NH ₄ ⁻	1.99	1.4	0.3
Si(OH) ₄	167.2	--	--

- c Calculated from total Phosphorus content
- d Calculated from total Silicon Content
- e Calculated from total Si(OH)₄ content
- f Calculated from Ca(HCO₃)₂ content
- g Calculated from CaCO₃ content

Dissolved Gases (RRGE-1)

Gas	RRGE-1		BLM
	(STP ml/liter H ₂ O)	Volume %	Volume %
Hydrogen	0.28	0.73	--
Helium	0.02	0.051	--
Nitrogen	50.50	87.5	95
Oxygen	0.06	0.19	5.0
Argon	0.82	1.60	
Carbon Dioxide	0.50	9.97	0.84
Methane	--	--	0.25
Total	56.7		

† Sodium Absorption Ratio Calculations

$$\text{Na Abs. Ratio} = \frac{\frac{(\text{Na ppm})}{\text{Mol. wt}} \times \text{ionic charge (1)}}{\frac{(\text{Ca ppm}) \times \text{ionic charge (2)}}{\text{mol. wt}} + \frac{(\text{Mg ppm}) \times \text{ionic charge (2)}}{\text{mol. wt.}}}$$

where ppm = parts per million by weight in solution

$$\text{Na Abs. Ratio} = \frac{(0.0435) (\text{Na ppm})}{\frac{(0.0499) (\text{Ca ppm})}{2} + \frac{(0.0823) (\text{Mg ppm})}{2}}$$

- a RRGE-1 tested for many more metals and non-metals than the Crank, BLM, or fresh water wells. Figures based on average of up to 14 samples from RRGE-1.
- b Eliminated samples because of suggested contamination.

ND = none detected
 M = major = - 5%; m = minor = <5% >0.1%; t = trace = <0.1%