

PDR

40-8783

# URANERZ U.S.A., INC.

800 Werner Court  
Suite 140  
CASPER, WYOMING 82601

Return to:  
396-SS

04008783101E

September 17, 1982



Mr. John J. Linehan  
Section Leader  
Operating Facility Section I  
Uranium Recovery Licensing Branch  
Division of Waste Management  
U. S. Nuclear Regulatory Commission  
7915 Eastern Avenue, Mail Stop 461-SS  
Silver Springs, MD 20910

Re: Docket No. 40-8783  
License No. SUA-1401  
Ruth ISL

Dear Mr. Linehan:

Enclosed are the following:

- Well completion data, Ruth ISL wellfield as per license condition 13, para.5;
- Upper Control Limits as requested in license condition 17;
- Well integrity test results as requested in license condition 36.

Best regards,  
URANERZ U.S.A., INC.  
*Chris Schmidt*  
Dr. Chris Schmidt  
Manager Solution Mining

CS:jm



**FEE EXEMPT**

20751  
Info only

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Well Completion Data  
Ruth ISL Wellfield

Well No.	Aquifer	Completed Interval below Ground		Ground Elevation	
		ft.	(m)	ft.	(m)
1S	20 Sand	523.0-524.5	(159.4-159.9)	4846.0	(1477.1)
2S	20 Sand	523.5-525.0	(159.6-160.0)	4844.9	(1476.7)
3S	20 Sand	520.5-527.5	(158.6-160.8)	4843.3	(1476.2)
4S	20 Sand	523.5-527.5	(159.6-160.8)	4841.7	(1475.8)
5S	20 Sand	517.5-520.5	(157.7-158.6)	4839.5	(1475.1)
6S	20 Sand	515.3-520.3	(157.1-158.6)	4839.3	(1475.0)
7S	20 Sand	515.5-519.5	(157.1-158.3)	4838.2	(1474.7)
8S	20 Sand	510.0-515.0	(155.4-157.0)	4837.0	(1474.3)
9S	20 Sand	509.0-522.0	(155.1-159.1)	4835.0	(1473.7)
10S	20 Sand	509.5-513.0	(155.3-156.4)	4836.0	(1474.0)
11S	20 Sand	515.0-520.5	(155.4-158.6)	4834.5	(1473.6)
12S	20 Sand	507.3-513.6	(154.6-156.5)	4834.3	(1473.5)
13S	20 Sand	506.0-514.0	(154.2-156.7)	4833.0	(1473.1)
14S	20 Sand	506.1-510.5	(154.3-155.6)	4832.5	(1472.9)
15S	20 Sand	505.4-506.4	(154.0-154.4)	4831.5	(1472.6)
16S	20 Sand	508.5-518.5	(155.0-158.0)	4831.5	(1472.6)
17S	20 Sand	507.8-517.8	(154.8-157.8)	4830.8	(1472.4)
18S	20 Sand	504.5-511.5	(153.8-155.9)	4830.0	(1472.2)
19S	20 Sand	503.5-508.0 510.5-511.5	(153.5-154.8) (155.6-155.9)	4830.0	(1472.2)

<u>Well No.</u>	<u>Aquifer</u>	<u>Completed Interval below Ground</u>		<u>Ground Elevation</u>	
		<u>ft.</u>	<u>(m)</u>	<u>ft.</u>	<u>(m)</u>
20S	20 Sand	502.0-507.5	(153.0-154.7)	4829.0	(1471.9)
21S	20 Sand	501.4-504.9	(152.8-153.9)	4828.3	(1471.7)
22S	20 Sand	510.0-514.6	(155.4-156.9)	4827.0	(1471.3)
23S	20 Sand	507.0-512.5	(154.5-156.2)	4826.5	(1471.1)
24S	20 Sand	505.0-514.5	(153.9-156.8)	4826.5	(1471.1)
25S	20 Sand	501.5-506.1	(152.9-154.3)	4826.3	(1471.1)
26S	20 Sand	499.5-504.5	(152.2-153.8)	4826.0	(1471.0)
27S	20 Sand	509.9-512.9	(155.4-156.3)	4825.0	(1470.7)
28S	20 Sand	501.5-508.4	(152.9-155.0)	4824.5	(1470.5)
29S	20 Sand	497.0-506.5	(151.5-154.4)	4824.0	(1470.4)
30S	20 Sand	497.1-499.6	(151.5-152.3)	4824.0	(1470.4)
31S	20 Sand	502.5-505.0	(153.2-153.9)	4822.5	(1469.9)
32S	20 Sand	498.9-503.4	(152.1-153.4)	4821.8	(1469.7)

UPPER CONTROL LIMITS  
Excursion Monitoring For  
Well 1-M-10 - Lower Aquifer

	<u>Baseline Mean</u>	<u>Baseline Maximum</u>	<u>Baseline Std.Dev.</u>	<u>Upper Control Limit (UCL)</u>
TDS, Dried @ 180°C	288	319	20	328
Sodium	105	117	7	119
Sulfate	27	33	6	39
Chloride	6	12	4	14
Carbonate	24	53	18	60
Bicarbonate	232	276	36	304
Total Alkalinity as CaCO <sub>3</sub>	227	267	22	271
Uranium, as U <sub>3</sub> O <sub>8</sub>	0.004	0.008	0.003	0.014

Note:

1. All data reported in milligrams per liter.
2. Upper Control Limit (UCL) is defined as 2.0 sample baseline standard deviation with the result added to sample baseline mean except for uranium, where the UCL is defined as 2.0 times sample baseline standard deviation with the result added to the sample baseline maximum.
3. Sample baseline mean is calculated on the average of 11 samples.

UPPER CONTROL LIMITS  
Excursion Monitoring For  
Well 1-M-30 - Upper Aquifer

	<u>Baseline Mean</u>	<u>Baseline Maximum</u>	<u>Baseline Std.Dev.</u>	<u>Upper Control Limit (UCL)</u>
TDS, Dried @ 180°C	354	381	19	392
Sodium	128	146	10	148
Sulfate	88	105	10	108
Chloride	12	18	3	18
Carbonate	73	126	33	139
Bicarbonate	94	198	67	228
Total Alkalinity as CaCO <sub>3</sub>	192	210	18	228
Uranium, as U <sub>3</sub> O <sub>8</sub>	0.011	0.041	0.015	0.071

Note:

1. All data reported in milligrams per liter.
2. Upper Control Limit (UCL) is defined as 2.0 times sample baseline standard deviation with the result added to sample baseline mean except for uranium, where the UCL is defined as 2.0 times sample baseline standard deviation with the result added to the sample baseline maximum.
3. Sample baseline mean is calculated on the average of 11 samples

UPPER CONTROL LIMITS  
Excursion Monitoring For  
Well 7-M-20 - Production Zone

	<u>Baseline Mean</u>	<u>Baseline Maximum</u>	<u>Baseline Std.Dev.</u>	<u>Upper Control Limit(UCL)</u>
TDS, Dried @ 180°C	323	356	16	355
Sodium	109	112	3	115
Sulfate	88	100	9	106
Chloride	4	8	2	8
Carbonate	17	28	10	37
Bicarbonate	166	195	20	206
Total Alkalinity as CaCO <sub>3</sub>	164	168	4	172
Uranium, as U <sub>3</sub> O <sub>8</sub>	0.014	0.056	0.024	0.104

Note:

1. All data reported in milligrams per liter.
2. Upper Control Limit (UCL) is defined as 2.0 times baseline standard deviation with the result added to sample baseline mean except for uranium, where the UCL is defined as 2.0 times sample baseline standard deviation with the result added to the sample baseline maximum.
3. Sample baseline mean is calculated on the average of 7 samples.

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UPPER CONTROL LIMITS  
Excursion Monitoring For  
Well 1-M-51 - Shallow Aquifer

	<u>Baseline Mean</u>	<u>Baseline Maximum</u>	<u>Baseline Std.Dev.</u>	<u>Upper Control Limit (UCL)</u>
TDS, Dried @ 180°C	318	394	44	406
Sodium	116	139	10	136
Sulfate	16	101	18	52
Chloride	7	11	3	13
Carbonate	12	48	18	48
Bicarbonate	278	329	76	430
Total Alkalinity as CaCO <sub>3</sub>	249	270	35	319
Uranium, as U <sub>3</sub> O <sub>8</sub>	0.011	0.023	0.011	0.045

Note:

1. All data reported in milligrams per liter.
2. Upper Control Limit (UCL) is defined as 2.0 times sample baseline standard deviation with the result added to sample baseline mean except for uranium, where the UCL is defined as 2.0 times sample baseline standard deviation with the result added to the sample baseline maximum.
3. Sample baseline mean is calculated on the average of 7 samples.

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UPPER CONTROL LIMITS  
Excursion Monitoring For  
Well 1-M-20 - Production Zone

	<u>Baseline Mean</u>	<u>Baseline Maximum</u>	<u>Baseline Std.Dev.</u>	<u>Upper Control Limit (UCL)</u>
TDS, Dried @ 180°C	314	358	19	352
Sodium	107	112	4	115
Sulfate	92	126	17	126
Chloride	7	14	3	13
Carbonate	22	48	13	48
Bicarbonate	156	188	35	226
Total Alkalinity as CaCO <sub>3</sub>	154	168	10	174
Uranium, as U <sub>3</sub> O <sub>8</sub>	0.003	0.011	0.003	0.017

Note:

1. All data reported in milligrams per liter.
2. Upper Control Limit (UCL) is defined as 2.0 times sample baseline standard deviation with the result added to sample baseline mean except for uranium, where the UCL is defined as 2.0 times sample baseline standard deviation with the result added to the sample baseline maximum.
3. Sample baseline mean is calculated on the average of 11 samples.



UPPER CONTROL LIMITS  
Excursion Monitoring For  
Well 4-M-20 - Production Zone

	<u>Baseline Mean</u>	<u>Baseline Maximum</u>	<u>Baseline Std.Dev.</u>	<u>Upper Control Limit (UCL)</u>
TDS, Dried @ 180°C	334	345	19	372
Sodium	114	127	8	130
Sulfate	107	128	13	133
Chloride	6	13	3	12
Carbonate	28	67	17	62
Bicarbonate	133	185	46	225
Total Alkalinity as CaCO <sub>3</sub>	142	162	32	206
Uranium, as U <sub>3</sub> O <sub>8</sub>	0.010	0.028	0.009	0.046

Note:

1. All data reported in milligrams per liter.
2. Upper Control Limit (UCL) is defined as 2.0 times sample baseline standard deviation with the result added to sample baseline mean except for uranium, where the UCL is defined as 2.0 times sample baseline standard deviation with the result added to the sample baseline maximum.
3. Sample baseline mean is calculated on the average of 10 samples.

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UPPER CONTROL LIMITS  
Excursion Monitoring For  
Well 5-M-20 - Production Zone

	<u>Baseline Mean</u>	<u>Baseline Maximum</u>	<u>Baseline Std.Dev.</u>	<u>Upper Control Limit (UCL)</u>
TDS, Dried @ 180 <sup>0</sup> C	352	392	20	392
Sodium	114	125	5	124
Sulfate	121	203	30	181
Chloride	6	10	3	12
Carbonate	4	12	7	18
Bicarbonate	117	202	36	249
Total Alkalinity as CaCO <sub>3</sub>	137	166	38	213
Uranium, as U <sub>3</sub> O <sub>8</sub>	0.008	0.045	0.015	0.075

Note:

1. All data reported in milligrams per liter.
2. Upper Control Limit (UCL) is defined as 2.0 times sample baseline standard deviation with the result added to sample baseline mean except for uranium, where the UCL is defined as 2.0 times sample baseline standard deviation with the result added to the sample baseline maximum.
3. Sample baseline mean is calculated on the average of 10 samples.

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U. S. Bureau of Mines

Tests Conducted by Jon Alhness and Mike Pojar

Well Tests - Uranerz U.S.A., Inc. - Ruth ISL Operation

4/27/82 - 5/1/82

DOUBLE PACKER TEST RESULTS

Well casing pressure stabilized at 200 psi for 3 minutes.

Upper packer pressure - 300 psi

Lower packer pressure - 550 psi

Well	Bottom Packer Depth	Test Pressure (psi)		
		Initial	5 Min.	10 Min.
1	494'6"	200	198	197
2	513'8"	200	197	195
13	507'7"	200	199	199
15	494'6"	200	199	198
20	503'0"	200	200	200
21	472'9"	200	199	199
22	513'5"	200	199	199
32	500'4"	200	199	198

SINGLE PACKER TEST RESULTS AFTER CASING REPAIRS

Packer pressure - 300 psi

Well	Test Pressure (psi)		
	Initial	5 Min.	10 Min.
3*	200	198	193
16	200	198	196
18	200	200	198

\*Readings taken with packer set 18'9½" below top of casing

SINGLE PACKER TEST RESULTS AFTER CASING REPAIRS - Conducted by UUS

Well	Test Pressure (psi)		
	Initial	5 Min.	10 Min.
3	199	196	194

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U. S. Bureau of Mines

Tests Conducted by Jon Alhness and Mike Pojar

Well Tests - Uranerz U.S.A, Inc. - Ruth ISL Operation

4/20/82 - 4/26/82

Single Packer Tests - Well Casing Pressures Stabilized at 200 psi for 3 Minutes

Single Packer Pressure 300 psi

Well #	4	5	6	7	8	9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0 Min	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	170	200	200	200	200	200	200	200	200	200	200
5 Min	198	199	198	198	199	196	200	197	197	184	197	158	199	171	199	182	144	190	198	199	198	198	195	199	199	197	197
10 Min	195	198	196	196	199	197	199	195	195	172	196	170	196	142	198	176	141	182	198	198	196	196	191	197	193	194	195

All readings are in psi.

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