

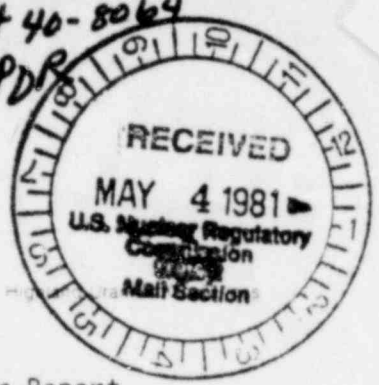
Docket 40-8064

At. to: Andre Tibbs

PDR

EXXON MINERALS COMPANY

POST OFFICE BOX 377 CASPER WYOMING 82401



April 24, 1981

RE: NRC 1981 First Quarter Report
Uranium Solution Mine Pilot
Converse County, Wyoming
License No. SUA-1064
Docket No. 40-8064

U.S. Nuclear Regulatory Commission
Division of Waste Management
Uranium Recovery Licensing Branch
Washington, D. C. 20555

Region IV
Office of Inspection and Enforcement
611 Ryan Plaza, Suite 1000
Arlington, Texas 76011

Attention: Mr. John J. Linehan

Attention: Mr. Glen D. Brown

Gentlemen:

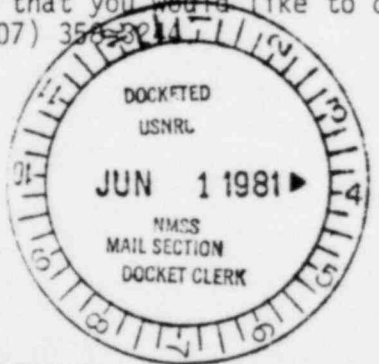
Solution mine pilot testing utilizing the second wellfield at Highland continued throughout the First Quarter of 1981 as scheduled. The following is a summary of liquid volumes:

	1st Qtr. (M gallons)	Project-to-Date (M gallons)
Leach solution injected	4.73	52.40
Leach solution produced	5.19	56.83
Total fluid to tailing pond	0.91	12.29

The volume produced is up from the previous quarter due to bringing wells P-6 and P-9 back on production in February. The volume injected increased only slightly from the previous quarter. About forty percent of the fluid to the tailing pond was produced from the original wellfield.

During March excursions were confirmed in well O-7 where bicarbonate, chloride, and sulfate exceeded upper control limits, and in well O-8 where chloride and sulfate exceeded upper control limits. Excursion circumstances and corrective measures are documented in letters to the U.S. Nuclear Regulatory Commission dated 3-30-81 and 4-16-81.

A map of the second wellfield area and tables of sample analysis results are attached. Should there be any additional details about the performance of this R&D test program that you would like to discuss, please call R. T. Hornsby or C. Barlow at (307) 356-3214.



Sincerely,

Charles F. Lano, Acting Mine Manager



CFL/sc

A DIVISION OF EXXON CORPORATION

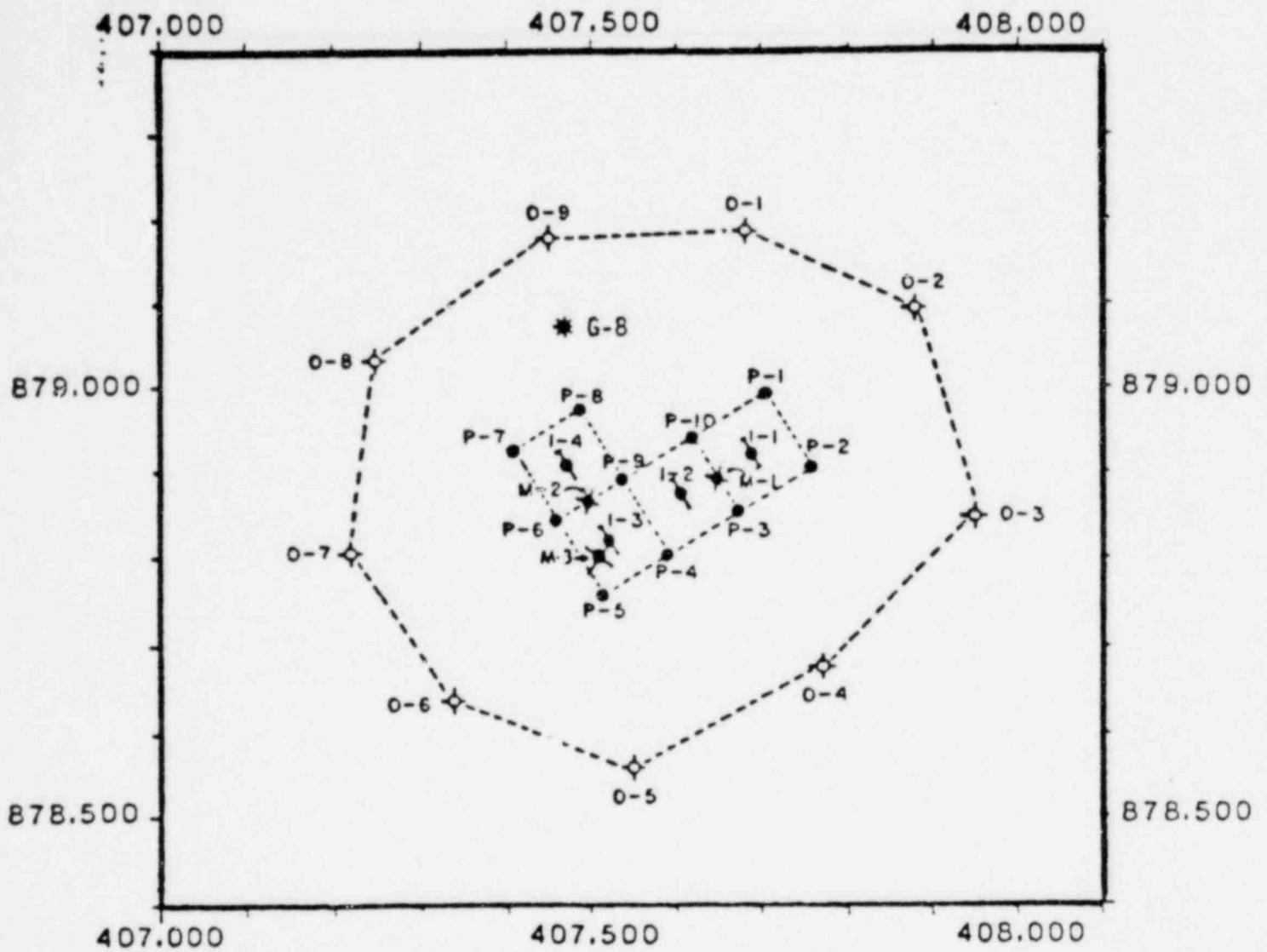
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FEE EXEMPT

10029
Add'l info

FIGURE 1

SOLUTION MINE WELL PATTERN
HIGHLAND R&D PROGRAM
CONVERSE COUNTY, WYOMING



LEGEND

- PRODUCTION WELL
- ⌋ INJECTION WELL
- ⊠ MONITOR WELL

HIGHLAND SOLUTION MINE R&D SITE
SAMPLE ANALYSIS RESULTS

Well 0-1

<u>Sample Date</u>	<u>Carbonate (mg/l)</u>	<u>Bicarbonate (mg/l)</u>	<u>Uranium (mg/l)</u>	<u>Chloride (mg/l)</u>	<u>Conductivity (µmhos)</u>	<u>pH (Units)</u>	<u>Sulfate (mg/l)</u>
UCL	44	221	5	24	-	-	126
01-06-81	<1	207	<1	9	400	7.6	105
01-20-81	<1	198	<1	11	400	7.4	109
02-03-81	<1	195	<1	8	300	7.6	111
02-18-81	<1	207	<1	12	400	7.6	103
03-03-81	<1	177	<1	10	380	8.0	111
03-17-81	<1	207	<1	9	400	7.7	95
03-31-81	<1	201	<1	9	400	7.6	112

Well 0-2

UCL	32	240	5	40	-	-	223
01-06-81	<1	214	<1	8	350	7.4	110
01-20-81	<1	195	<1	7	450	7.3	117
02-03-81	<1	201	<1	7	300	7.4	104
02-18-81	<1	201	<1	8	420	7.5	115
03-03-81	<1	171	<1	7	400	7.3	94
03-17-81	<1	213	<1	8	410	7.6	108
03-31-81	<1	207	<1	7	400	7.4	113

HIGHLAND SOLUTION MINE R&D SITE
SAMPLE ANALYSIS RESULTS

Well 0-3

<u>Sample Date</u>	<u>Carbonate (mg/l)</u>	<u>Bicarbonate (mg/l)</u>	<u>Uranium (mg/l)</u>	<u>Chloride (mg/l)</u>	<u>Conductivity (µmhos)</u>	<u>pH (Units)</u>	<u>Sulfate (mg/l)</u>
UCL	44	224	5	26	-	-	225
01-06-81	<1	195	<1	8	350	7.4	104
01-20-81	<1	177	<1	6	450	7.5	109
02-03-81	<1	195	<1	7	275	7.4	106
02-18-81	<1	189	<1	7	400	7.4	113
03-03-81	<1	171	<1	8	380	7.7	106
03-17-81	<1	201	<1	7	400	7.6	105
03-31-81	<1	201	<1	7	375	7.6	114

Well 0-4

UCL	38	221	5	18	-	-	116
01-06-81	<1	189	<1	13	350	7.3	104
01-20-81	<1	183	<1	8	475	7.4	111
02-03-81	<1	189	<1	13	290	7.3	104
02-18-81	<1	195	<1	6	390	7.6	112
03-03-81	<1	174	<1	7	370	6.6	100
03-17-81	<1	207	<1	9	400	7.4	99
03-31-81	<1	207	<1	10	400	7.4	101

HIGHLAND SOLUTION MINE R&D SITE
SAMPLE ANALYSIS RESULTS

Well 0-5

<u>Sample Date</u>	<u>Carbonate (mg/l)</u>	<u>Bicarbonate (mg/l)</u>	<u>Uranium (mg/l)</u>	<u>Chloride (mg/l)</u>	<u>Conductivity (µmhos)</u>	<u>pH (Units)</u>	<u>Sulfate (mg/l)</u>
UCL	56	191	5	30	-	-	220
01-06-81	<1	177	<1	10	450	7.5	166
01-20-81	<1	171	<1	8	400	7.4	190
02-03-81	<1	183	<1	12	360	7.2	188
02-18-81	<1	177	<1	9	450	8.1	183
03-03-81	<1	152	<1	9	440	6.9	176
03-17-81	<1	186	<1	8	500	7.4	166
03-31-81	<1	177	<1	11	475	7.5	177

Well 0-6

UCL	44	227	5	28	-	-	177
01-06-81	<1	183	<1	13	400	7.4	163
01-20-81	<1	165	<1	10	500	7.3	156
02-03-81	<1	183	<1	12	425	7.5	188
02-18-81	<1	171	<1	11	460	7.3	166
03-03-81	<1	152	<1	11	450	8.1	155
03-17-81	<1	180	<1	12	475	7.6	160
03-23-81	<1	183	<1	9	500	7.5	182
03-30-81	<1	177	<1	11	450	7.7	214

HIGHLAND SOLUTION MINE R&D SITE
SAMPLE ANALYSIS RESULTS

Well 0-7

<u>Sample Date</u>	<u>Carbonate (mg/l)</u>	<u>Bicarbonate (mg/l)</u>	<u>Uranium (mg/l)</u>	<u>Chloride (mg/l)</u>	<u>Conductivity (µmhos)</u>	<u>pH (Units)</u>	<u>Sulfate (mg/l)</u>
UCL	44	240	5	90	-	-	112
01-06-81	<1	183	<1	70	500	7.4	104
01-12-81	<1	128	<1	45	450	8.5	113
01-20-81	<1	104	<1	45	400	7.9	123
01-28-81	10	14	<1	35	290	9.0	135
02-03-81	6	6	<1	26	300	9.1	147
02-11-81	<1	190	<1	86	590	7.3	99
02-18-81	<1	192	<1	92*	650	7.7	110
02-23-81	<1	232	<1	99*	-	-	104
03-03-81	<1	223	<1	101*	650	8.2	118
03-06-81	<1	226	<1	110*	690	7.8	107
03-09-81	<1	250*	<1	111*	750	7.7	118
03-12-81	<1	250*	<1	109*	700	7.8	103
03-14-81	<1	256*	<1	97*	710	7.6	125*
03-17-81	<1	262*	<1	106*	670	7.5	115*
03-23-81	<1	256*	<1	111*	700	7.4	126*
03-30-81	<1	232	<1	107*	650	7.6	137*

*Circumstances surrounding these analyses are documented in letters dated 3-30-81 and 4-16-81.

HIGHLAND SOLUTION MINE R&D SITE
SAMPLE ANALYSIS RESULTS

Well 0-8

<u>Sample Date</u>	<u>Carbonate (mg/l)</u>	<u>Bicarbonate (mg/l)</u>	<u>Uranium (mg/l)</u>	<u>Chloride (mg/l)</u>	<u>Conductivity (µmhos)</u>	<u>pH (Units)</u>	<u>Sulfate (mg/l)</u>
UCL	44	252	5	20	-	-	94
01-06-81	<1	201	<1	36*	425	7.2	89
01-12-81	<1	207	<1	31*	425	7.4	90
01-20-81	<1	207	<1	30*	425	7.3	94
01-28-81	<1	207	<1	36*	340	7.8	90
02-03-81	<1	192	<1	31*	350	7.2	92
02-11-81	<1	177	<1	32*	400	7.4	87
02-18-81	<1	198	<1	39*	470	7.4	94
02-23-81	<1	195	<1	4	-	-	91
03-03-81	<1	198	<1	36*	450	7.9	99*
03-06-81	<1	195	<1	37*	460	7.7	89
03-09-81	<1	214	<1	39*	460	8.0	100*
03-12-81	<1	207	<1	39*	500	8.0	86
03-14-81	<1	225	<1	40*	500	7.7	100*
03-17-81	<1	220	<1	35*	450	7.6	109*
03-23-81	<1	226	<1	36*	450	7.6	106*
03-30-81	<1	214	<1	26*	425	7.4	112*

*Circumstances surrounding these analyses are documented in letters dated 1-23-81, 2-24-81, 3-30-81, and 4-16-81.

HIGHLAND SOLUTION MINE R&D SITE
SAMPLE ANALYSIS RESULTS

Well 0-9

<u>Sample Date</u>	<u>Carbonate (mg/l)</u>	<u>Bicarbonate (mg/l)</u>	<u>Uranium (mg/l)</u>	<u>Chloride (mg/l)</u>	<u>Conductivity (µmhos)</u>	<u>pH (Units)</u>	<u>Sulfate (mg/l)</u>
UCL	68	238	5	128	-	-	106
01-06-81	<1	128	<1	16	400	6.8	103
01-12-81	<1	134	<1	16	400	6.7	108
01-20-81	<1	128	<1	14	400	6.7	113
01-28-81	<1	152	<1	12	400	6.7	107
02-03-81	<1	146	<1	14	290	6.7	107
02-11-81	<1	128	<1	8	385	6.9	114
02-18-81	<1	116	<1	12	420	6.3	114
02-23-81	<1	134	<1	10	-	-	110
03-03-81	<1	140	<1	11	400	7.9	110
03-12-81	<1	140	<1	12	400	7.7	-
03-17-81	<1	153	<1	10	380	6.9	119
03-23-81	<1	156	<1	12	400	6.8	119
03-30-81	<1	159	<1	11	400	6.8	127

HIGHLAND SOLUTION MINE R&D SITE
SAMPLE ANALYSIS RESULTS

Well M-1

<u>Sample Date</u>	<u>Carbonate (mg/l)</u>	<u>Bicarbonate (mg/l)</u>	<u>Uranium (mg/l)</u>	<u>Chloride (mg/l)</u>	<u>Conductivity (umhos)</u>	<u>pH (Units)</u>	<u>Sulfate (mg/l)</u>
UCL	44	227	5	22	-	-	234
01-06-81	<1	153	<1	13	550	7.7	256
01-20-81	<1	171	<1	12	575	7.4	230
02-03-81	<1	174	<1	10	475	7.3	247
02-18-81	<1	140	<1	10	570	7.9	244
03-03-81	<1	152	<1	12	520	7.7	238
03-17-81	<1	177	<1	13	560	7.6	186
03-31-81	<1	171	<1	12	540	7.7	257

Well M-2

UCL	56	190	5	36	-	-	124
01-06-81	<1	55	<1	33	400	6.4	107
01-20-81	<1	92	<1	35	475	6.7	107
02-03-81	<1	30	<1	32	300	6.4	122
02-18-81	<1	37	<1	17	390	5.8	102
03-03-81	<1	43	<1	76*	470	6.2	93
03-17-81	<1	104	<1	29	410	7.1	90
03-31-81	<1	101	<1	30	430	7.1	82

*Unconfirmed anomaly.

HIGHLAND SOLUTION MINE R&D SITE
SAMPLE ANALYSIS RESULTS

Well M-3

<u>Sample Date</u>	<u>Carbonate (mg/l)</u>	<u>Bicarbonate (mg/l)</u>	<u>Uranium (mg/l)</u>	<u>Chloride (mg/l)</u>	<u>Conductivity (umhos)</u>	<u>pH (Units)</u>	<u>Sulfate (mg/l)</u>
01-06-81	<1	201	5	20	650	7.7	273
01-20-81	<1	207	<1	19	675	7.2	292
02-03-81	<1	207	<1	18	550	6.9	296
02-18-81	<1	183	1	15	620	7.6	153
03-03-81	<1	189	<1	16	610	6.8	258
03-17-81	<1	213	<1	20	550	7.2	250
03-31-81	<1	214	<1	20	660	7.4	277

Well G-8

UCL for Well 0-9	68	238	5	128	-	-	106
01-06-81	<1	201	<1	9	350	7.8	100
01-27-81	<1	207	<1	6	345	7.9	107
02-03-81	<1	207	<1	7	400	8.3	104
02-18-81	<1	189	2	8	390	8.4	115
03-03-81	<1	207	<1	6	375	8.2	107
03-17-81	<1	207	<1	8	390	8.3	105
03-31-81	<1	207	<1	7	360	8.4	115