

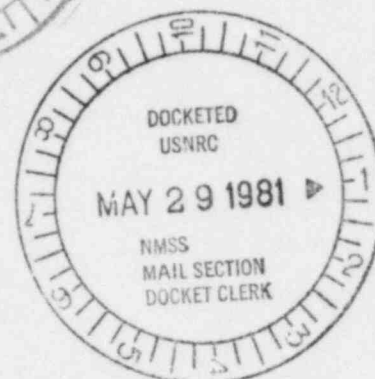
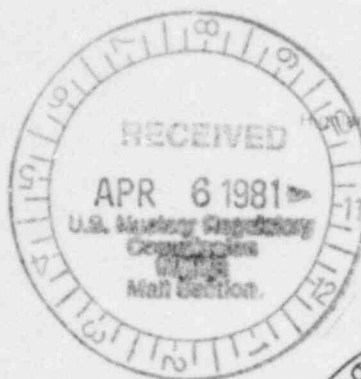
Docket No 40-8064

PDR

**EXXON MINERALS COMPANY**

POST OFFICE BOX 3020 • CASPER, WYOMING 82602

Return to  
D. Cramer  
Highland Uranium Operations  
39655



March 30, 1981

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

Attn: Mr. John J. Linehan

Re: Report of Indicated Excursion  
NRC License No. SUA-1064  
Docket No. 40-8064

Gentlemen:

In the course of routine bi-weekly sampling of excursion indicators on 3/2/81 at Exxon's Pilot Expansion Solution Mine at the Highland Uranium Operations, chloride and sulfate were found to be over the NRC upper control limits in wells E-0-7 and E-0-8 (see attached map). Two subsequent samples from each well, taken within 96 hours of receipt of the first set of analyses, failed to confirm an excursion on the basis of chloride and sulfate analyses. However, the second follow-up sampling showed bicarbonate and chloride levels above the upper control limit in E-0-7. This prompted the third and fourth follow-up samplings which confirmed an excursion on the basis of bicarbonate and chloride in E-0-7 and showed rising bicarbonate and chloride levels in E-0-8. The analyses are summarized in the attached table.

At this time, Exxon believes this excursion probably resulted from testing a technique which involves production from an injection well. The intent of the test is to determine on a pilot scale if leaching fluid can be drawn through the poorly swept area between injection wells. For the test, injection well E-I-4 was put on production and wells E-P-6, E-P-7, E-P-8 and E-P-9 were shut-in between 9/26/80 and 10/4/80. Later a new well (E-P-11) was drilled between E-I-2 and E-I-3 and put on production 11/15/80.

As the test progressed, elevated chloride analyses appeared in well E-0-8 in December, which prompted lowering of the target injection/production (I/P) flow ratio in the third pattern from 0.98 to 0.90 on 1/1/81. In February, elevated chloride concentrations also appeared in well E-0-7. In response, wells E-P-9 and E-P-6 were brought back on production on 2/19/81 and 2/24/81, respectively. When it became apparent that excursion confirmation in well E-0-7 was imminent, the third pattern I/P target was lowered from 0.90 to 0.80 on 3/13/81 and to 0.70 on 3/21/81 to accelerate cleanup.

FEE EXEMPT

A DIVISION OF EXXON CORPORATION  
8107230364 810330  
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C PDR

10101 Add'l info

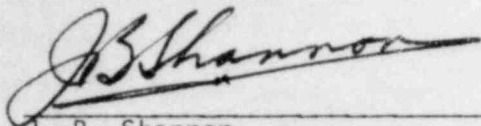
Mr. John J. Linehan  
March 30, 1981  
Page 2

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Planned corrective action consists of maintaining the third pattern I/P target at 0.70 and maximizing production from wells E-I-4 and E-P-6. Also, wells E-0-6, E-0-7, E-0-8 and E-0-9 will be sampled weekly (as opposed to normal bi-weekly) commencing 3/17/81 and samples will be analyzed for sodium, arsenic, selenium and pH in addition to the normal excursion parameters. Analyses from the first two sets of samples are shown in the attached table.

Follow-up reports will be filed until an acceptable resolution of this situation has been reached. If you have any questions, please call Rick Hornsby at 358-3244 ext.356 or Craig Barlow at ext. 358.

Sincerely,



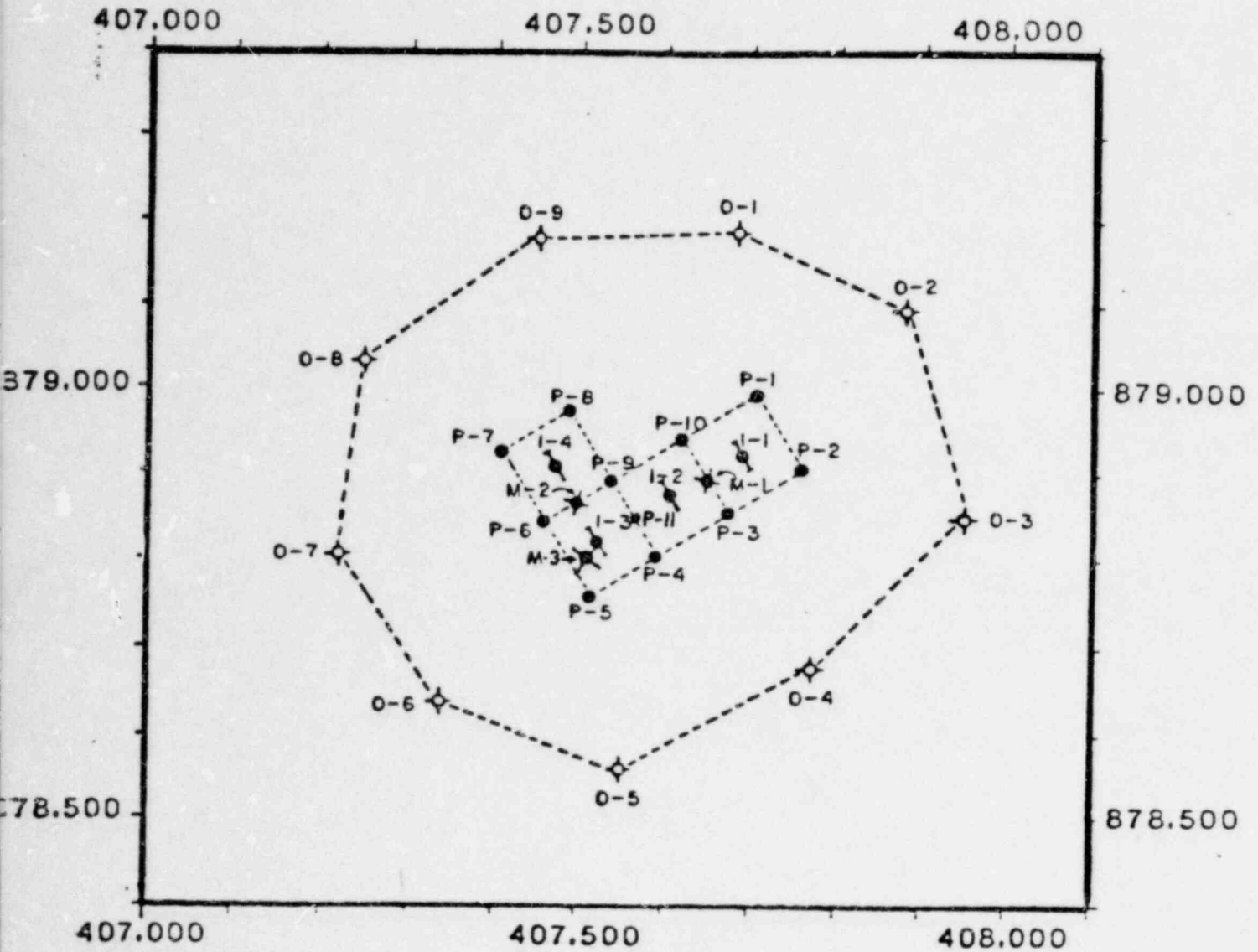
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J. B. Shannon  
Mine Manager

JBS/pg

cc: Mr. Glen D. Brown, Region IV Office of Inspection and Enforcement  
Mrs. Rebecca L. Mathisen, Wyoming Department of Environmental Quality  
R. T. Hornsby  
J. S. Sheffield  
W. J. Taylor  
C. B. Barlow  
R. H. Bissinger  
G. D. Ortloff

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



LEGEND

- PRODUCTION WELL
- ⌋ INJECTION WELL
- ⊠ MONITOR WELL

EXXON MINERALS COMPANY  
 HIGHLAND URANIUM OPERATIONS  
 SOLUTION MINE

Analyses of Samples from Wells E-0-6, E-0-7, E-0-8 and E-0-9  
 EXCURSION INDICATORS

Date Sampled	Analyses in mg/l											
	Chloride				Bicarbonate				Sulfate			
	E-0-6	E-0-7	E-0-8	E-0-9	E-0-6	E-0-7	E-0-8	E-0-9	E-0-6	E-0-7	E-0-8	E-0-9
UCL	28	90	20	128	227	240	252	238	177	112	94	106
3/02/81	--	101	36	--	--	223	198	--	--	118	99	--
3/06/81	--	110	37	--	--	226	195	--	--	107	89	--
3/09/81	--	111	39	--	--	250	214	--	--	118	100	--
3/12/81	--	109	39	--	--	250	207	--	--	103	86	--
3/14/81	--	97	40	--	--	256	225	--	--	125	100	--
3/17/81	12	106	35	10	180	262	220	153	160	115	109	119
3/23/81	9	111	36	12	183	256	226	156	182	126	106	119

Date Sampled	Analyses in mg/l											
	Carbonate				Uranium				pH			
	E-0-6	E-0-7	E-0-8	E-0-9	E-0-6	E-0-7	E-0-8	E-0-9	E-0-6	E-0-7	E-0-8	E-0-9
UCL	44	44	44	68	5	5	5	5	--	--	--	--
3/02/81	--	<1	<1	--	--	<1	<1	--	--	8.2	7.9	--
3/06/81	--	<1	<1	--	--	<1	<1	--	--	7.8	7.7	--
3/09/81	--	<1	<1	--	--	<1	<1	--	--	7.7	8.0	--
3/12/81	--	<1	<1	--	--	<1	<1	--	--	7.8	8.0	--
3/14/81	--	<1	<1	--	--	<1	<1	--	--	7.6	7.7	--
3/17/81	<1	<1	<1	<1	<1	<1	<1	<1	7.6	7.5	7.6	6.9
3/23/81	<1	<1	<1	<1	<1	<1	<1	<1	7.5	7.4	7.6	6.8

NOTE: ANALYSES FOR SODIUM, ARSENIC AND SELENIUM ARE NOT YET AVAILABLE.

CBB/pg  
 3/26/81