

Return to DRFO 467-53

40-8064

PDR

EXXON MINERALS COMPANY

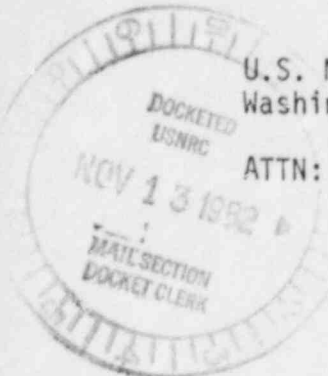
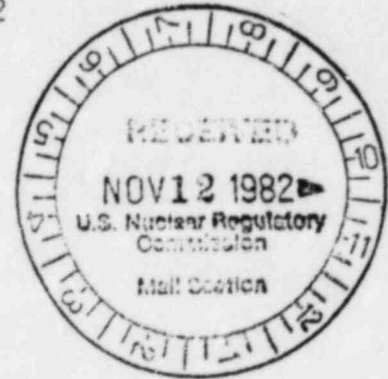
POST OFFICE BOX 3020 • CASPER WYOMING 82602

Highland Uranium Operations

November 2, 1982

U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

ATTN: Mr. J.J. Linehan, Section Leader
Operating Facilities, Section I
Uranium Recovery Licensing Branch
Division of Waste Management



Docket No. 40-8064
NRC 1982 Third Quarter Report
Uranium Solution Mining
Pilot Program
Converse County, Wyoming

Gentlemen:

This report is submitted in accordance with License Condition No. 16 of Source Material License No. SUA-1064 issued June 30, 1982.

Expanded R&D Pilot

Restoration of the Expanded R&D Pilot (second) well field at Highland continued through the third quarter of 1982. Fluids were produced from the original production wells and passed through ion exchange columns for incidental uranium recovery. The fluids were then treated by reverse osmosis (RO) to reduce elemental concentrations, returned to the well field, and injected into the produced aquifer via the original injection wells. Bi-weekly sampling of the observation and monitor wells continued through the report period.

The layout of the Expanded R&D Pilot well field and tables of monitoring well analytical results are presented in Attachment 1 as per Condition No. 30. Due to a significant amount of precipitation in September, Well E-0-4 could not be sampled. Water ponded around the well head and prevented access. When conditions permit, corrective action will be taken to prevent recurrence of this situation. This well was sampled early in October and results will be included in the Fourth Quarter Report.

The uranium content of the composite produced fluid decreased from 9 mg/l in July 1982 to 5 mg/l in September 1982.

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DESIGNATED ORIGINAL

Certified By Betty Foster

A DIVISION OF EXXON CORPORATION

20844
info only

Original Pilot

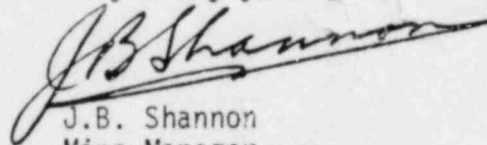
Exxon considers restoration and post restoration monitoring of the Original Pilot well field to be complete. Documentation, analytical data, and conclusions were submitted to the NRC and the Wyoming DEQ on September 29, 1982. Production from the Original Pilot well field was terminated on September 10, 1982.

The Original Pilot observation wells were sampled on a monthly basis as per Condition No. 25. The Original Pilot well field layout and analytical results are presented in Attachment II.

The total volume of liquid wastes discharged from the two pilot solution mining activities to the Highland mill tailings basin during this report period was 1,668 k gallons.

Should there be any questions about the R&D Pilot Solution Mine program, please call Mr. Dave Clark at (307)265-7600.

Very truly yours,



J.B. Shannon
Mine Manager

/ksk

attachments

cc: U.S. Nuclear Regulatory Commission, Region IV
Office of Inspection and Enforcement
611 Ryan Plaza, Suite 1000
Arlington, Texas 76011
Attention: Mr. G.D. Brown

U.S. Nuclear Regulatory Commission
c/o Document Management Branch
Washington, D.C. 20555

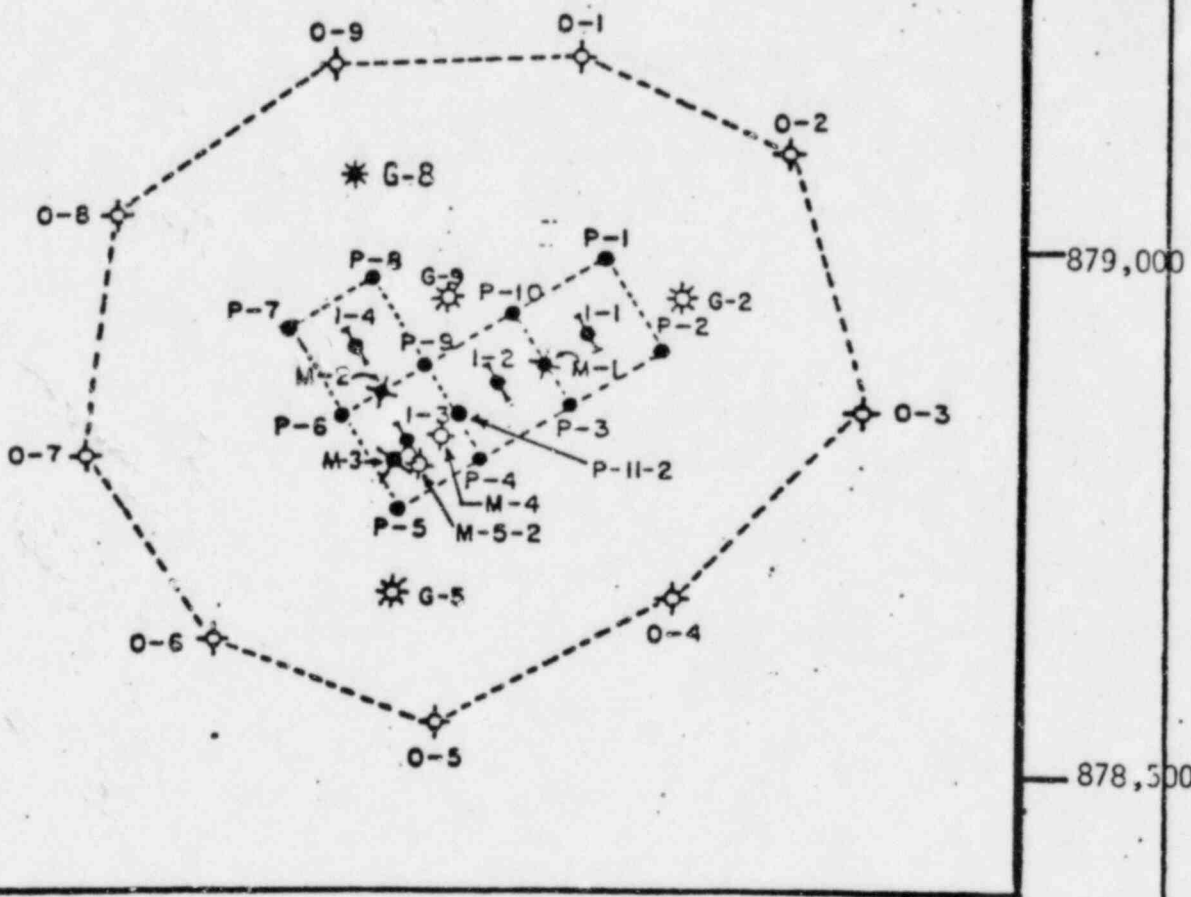
Wyoming Department of Environmental Quality
Land Quality Division
Equality State Bank Building
401 West 19th St.
Cheyenne, Wyoming 82002
Attention: Ms. Cathleen McCarty

HIGHLAND URANIUM OPERATIONS

EXPANDED PILOT
SOLUTION MINE WELL FIELD

407,000

408,000



LEGEND



GUARD WELL



PRODUCTION WELL



INJECTION WELL



MONITOR WELL

DEC/11/1/82

Scale: 1"=180'

ATTACHMENT I
EXPANDED PILOT MONITOR WELLS

<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>SO₄ (mg/l)</u>
WELL 0-1							
UCL	44	221	5	24	-	-	139
7/5/82	<1	200	<1	10	375	7.4	88
7/19/82	<1	200	<1	8	430	7.5	86
8/5/82	<1	195	<1	6	310	7.7	98
8/19/82	<1	198	<1	7	410	7.8	117
9/2/82	<1	199	<1	4	470	7.8	110
9/17/82	<1	185	<1	3	320	8.3	97
WELL 0-2							
UCL	32	240	5	40	-	-	256
7/5/82	<1	202	<1	13	400	7.6	111
7/19/82	<1	198	<1	7	400	7.6	90
8/5/82	<1	194	<1	6	275	7.8	97
8/19/82	<1	200	<1	6	420	8.2	126
9/2/82	<1	195	<1	5	420	7.9	112
9/17/82	<1	193	<1	5	310	8.0	120
WELL 0-3							
UCL	44	224	5	26	-	-	258
7/6/82	<1	173	<1	12	290	7.7	84
7/19/82	<1	195	<1	9	210	8.0	85
8/5/82	<1	193	<1	9	310	7.7	113
8/20/82	<1	200	<1	7	400	8.1	114
9/2/82	<1	195	<1	4	450	7.8	109
9/17/82	<1	190	<1	4	300	8.3	125
WELL 0-4							
UCL	38	221	5	18	-	-	127
7/6/82	<1	205	1	14	550	7.4	90
7/19/82	<1	200	<1	8	280	7.8	90
8/4/82	<1	198	3	10	260	7.6	99
8/20/82	<1	204	<1	9	410	8.1	117

* Unable to collect September Samples.

ATTACHMENT I (CONT)
EXPANDED PILOT MONITOR WELLS

<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>SO₄ (mg/l)</u>
WELL 0-5							
UCL	56	191	5	30	-	-	252
7/13/82	<1	179	<1	7	200	7.4	185
7/19/82	<1	169	<1	9	11	7.9	174
8/4/82	<1	172	<1	7	550	7.5	161
8/17/82	<1	178	<1	7	510	7.9	182
9/1/82	<1	173	<1	6	540	7.5	189
9/16/82	<1	171	<1	4	400	8.0	199
WELL 0-6							
UCL	44	227	5	28	-	-	200
7/6/82	<1	173	<1	14	410	7.6	175
7/19/82	<1	169	<1	11	175	7.9	174
8/4/82	<1	163	<1	9	230	7.7	190
8/17/82	<1	170	<1	9	500	8.0	204
9/1/82	<1	163	<1	7	540	7.7	202
9/16/82	<1	162	<1	6	410	8.2	205
WELL 0-7							
UCL	44	240	5	90	-	-	122
7/13/82	5	27	<1	17	300	8.5	108
7/20/82	<1	51	<1	24	260	7.8	112
8/4/82	2	27	<1	23	340	8.7	109
8/17/82	6	27	<1	17	420	9.2	137
9/1/82	7	27	<1	14	360	9.2	118
9/16/82	8	37	<1	15	240	9.3	139
WELL 0-8							
UCL	44	252	5	20	-	-	101
7/13/82	<1	212	<1	15	400	7.1	88
7/20/82	<1	199	<1	15	350	7.9	90
8/4/82	<1	203	<1	13	450	7.8	90
8/17/82	<1	209	<1	11	440	8.3	100
9/2/82	<1	167	<1	10	420	8.0	109
9/16/82	<1	200	<1	10	340	8.2	100

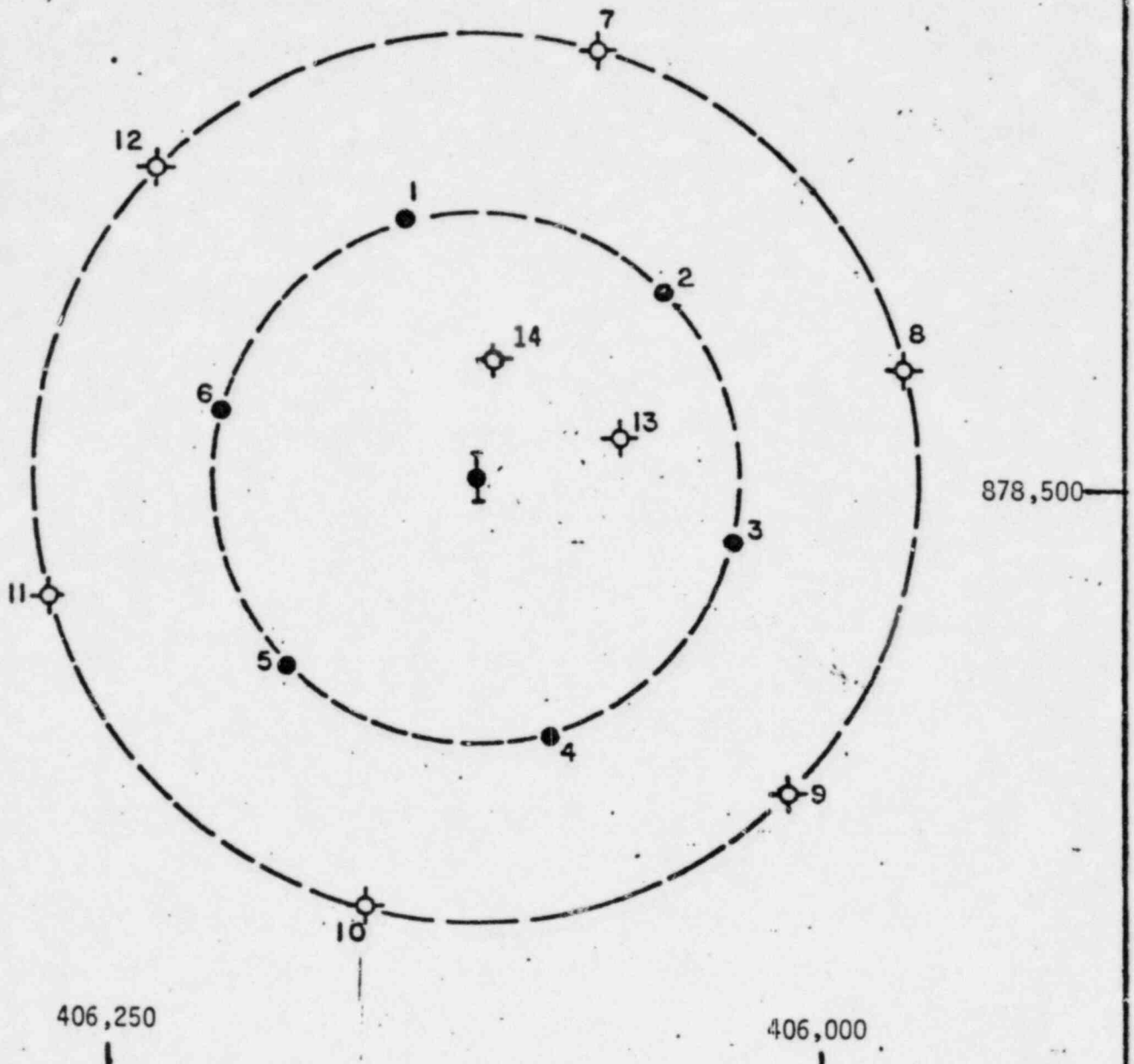
ATTACHMENT I (CONT)

EXPANDED PILOT MONITOR WELLS




<u>Sample Date</u>	<u>Carbonate</u> (mg/l)	<u>Bicarbonate</u> (mg/l)	<u>Uranium</u> (mg/l)	<u>Chloride</u> (mg/l)	<u>Conductivity</u> (umhos)	<u>pH</u> (Units)	<u>SO₄</u> (mg/l)
WELL 0-9							
UCL	68	238	5	128	-	-	115
7/13/82	<1	166	<1	15	120	7.1	88
7/19/82	<1	176	<1	11	480	7.6	90
8/4/82	<1	173	<1	10	410	7.3	95
8/19/82	<1	183	<1	8	360	7.5	108
9/2/82	<1	180	<1	8	450	7.6	126
9/17/82	<1	178	<1	5	310	7.8	111
WELL M-1							
UCL	44	227	5	22	-	-	269
7/5/82	<1	151	<1	17	210	7.7	207
7/20/82	<1	178	<1	9	280	7.8	206
8/6/82	<1	176	<1	11	375	7.6	216
8/20/82	<1	178	<1	9	420	8.0	230
9/3/82	<1	180	<1	6	430	7.6	220
9/16/82	<1	174	<1	8	440	8.0	237
WELL M-2							
UCL	56	190	5	36	-	-	137
7/5/82	<1	110	<1	27	175	7.4	24
7/20/82	<1	79	<1	32	275	6.5	77
8/4/82	<1	112	<1	15	250	7.0	72
8/20/82	<1	159	<1	13	310	7.8	45
9/1/82	<1	124	<1	9	350	7.7	34
9/16/82	<1	166	<1	13	260	8.0	34

DEC/ksk
11/1/82

HIGHLAND URANIUM OPERATIONS
ORIGINAL PILOT SOLUTION MINE WELL FIELD



Original Designations

-  INJECTOR
-  PRODUCER
-  OBSERVATION WELL



ATTACHMENT II
ORIGINAL PILOT MONITOR WELLS

<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>Sulfate (mg/l)</u>
WELL 0-0-7					
7/26/82	36	292	12	22	146
8/10/82	21	281	12	6	142
9/9/82	80	242	13	15	143
WELL 0-0-8					
7/26/82	<1	245	4	10	150
8/10/82	<1	260	3	9	140
9/9/82	7	290	3	6	148
WELL 0-0-9					
7/26/82	<1	202	1	13	151
8/10/82	<1	200	2	10	135
9/9/82	<1	183	1	6	152
WELL 0-0-10					
7/26/82	<1	202	3	13	176
8/10/82	<1	195	2	9	175
9/9/82	<1	85	4	10	187
WELL 0-0-11					
7/26/82	<1	146	4	26	164
8/10/82	<1	188	3	7	170
9/9/82	<1	181	3	6	170
WELL 0-0-12					
7/26/82	<1	161	1	17	146
8/10/82	<1	183	<1	6	132
9/9/82	<1	134	<1	6	145

DEC/ksk
11/1/82