Docket No. 40-8693
SUA-1336

APR 2 8 1981

DISTRIBUTION:
Docket File 40-8693
Mill File
WMUR r/f
WMUR c/f RScarano
WM r/f REBrowning
NMSS r/f JBMartin
PDR
IE-HQ (2)
BFisher

MEMORANDUM FOR: John J. Linehan
Uranium Recovery Licensing Branch

Dan Martin
Uranium Recovery Licensing Branch

FROM: Terry Vandell
Uranium Recovery Licensing Branch

SUBJECT: REVIEW AND CONCLUSIONS REGARDING "SPECIAL REPORT ON MONITOR WELL ANALYTICAL RESULTS," MARCH 25, 1981, FROM OGLE PETROLEUM

Summary and Conclusions

(1) Two "minor" lateral excursions occurred at Ogle Petroleum's R&D well field in wells M-2 and M-4 (see attached Figure 1) where (a) well M-2 exceeded UCL's for Cl and $CO_3 + H_2CO_3$ by a maximum of = 15 ppm and = 118 ppm, respectively, and (b) well M-4 exceeded UCL's for CL, $CO_3 + H_2CO_3$, and specific conductance by a maximum of = 63 ppm, = 118 ppm, and = 71 mhos/cm, respectively.

(2) During the past month or two, well M-2 has been experiencing above-normal values for chloride and carbonate plus bicarbonate which were believed by Ogle to be caused by the normal outside sweep of the lixiviant during mining operations. An expanded outside sweep by the lixiviant was expected due to the increased injection capacity resulting from new injection wells being placed into operation in the southeast corner of the R&D well field.

The sudden increase over a two-week period in carbonate plus bicarbonate, chloride, and specific conductivity at well M-4 is believed by Ogle to have resulted from a typical horizontal excursion which was most likely caused by localized over-injection on the south side of the field well.

(3) Control measures were implemented

(a) plant bleed increased,
(b) injection stopped and reduced and recovery increased, and
(c) fresh water injection into an ore zone control well 50 feet from M-2, to reverse the gradient towards the well field.

(4) All parameters are below their UCL's for well M-4; and although Cl is still high, only $CO_3 + H_2CO_3$ exceeds its UCL at well M-2.

OFFICE					
SURNAME	8105120275		C	THIS DOCUMENT CONTAINS POOR QUALITY PAGES	
DATE					

NRC FORM 318 (10-80) NRCM 0240 OFFICIAL RECORD COPY USGPO 1980—329-824

(5) The results of the routine biweekly sampling of R&D monitor wells on February 4, 1981, showed that wells M-2 and M-4 exceeded their respective UCL values for at least two excursion parameters each. The seven-day confirmation sampling period verified that well M-2 was in an excursion status but indicated that well M-4 was not in an excursion status. The data to date from the sampling program indicate that the horizontal excursion at well M-2 is under control, and that technically speaking the well is no longer in excursion status.

Staff Recommendations

I believe that OPI has implemented very effective clean-up and control techniques and that they are and should continue on with their monitoring and reporting to us, as they have done, if another excursion occurs.

Original Signed By:

Terry Vandell
Uranium Recovery Licensing Branch

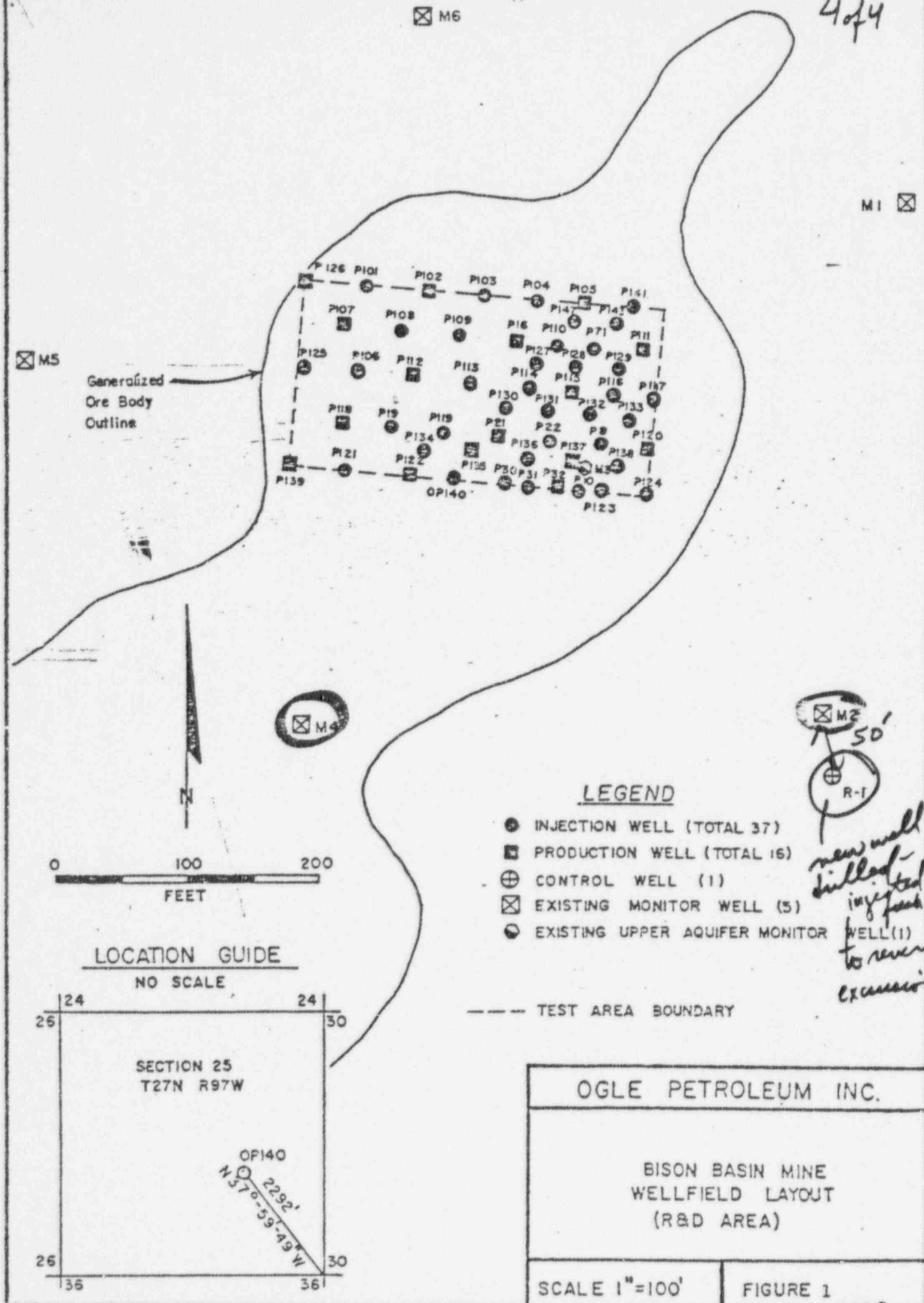
Enclosures:
As stated

Case Closed 04008693m03E

4/20/81

OFFICE	WMUR						
SURNAME	TVandell:ng						
DATE	4/20/81						

NRC FORM 318 (10/80) NRCM 0240 OFFICIAL RECORD COPY ◇ USGPO 1980—329-824



OGLE PETROLEUM INC.

BISON BASIN MINE
WELLFIELD LAYOUT
(R&D AREA)

SCALE 1"=100' | FIGURE 1

18554

April 16, 1981

To: John J. Linehan

Dan Martin

Fm: T. O. Vandell

Re: Review and Conclusions Regarding "Special Report on Monitor Well Analytical Results" March 25, 1981 from Ogle Petroleum

Summary and Conclusions

(1.) Two "minor" lateral excursions occurred at Ogle Petroleum's R&D wellfield in wells M2 and M4 (see attached Figure 1) where (a) well M2 exceeded UCL's for Cl and $CO_3 + H_2CO_3$ by a maximum of ≈ 15 ppm and ≈ 118 ppm respectively, and (b) well M4 exceeded UCL's for Cl, $CO_3 + H_2CO_3$, and Specific Conductance by a maximum of ≈ 163 ppm, ≈ 118 ppm, and ≈ [illegible]71 mhos/cm, respectively.

(2.)

During the past month or two, well M 2 has been experiencing above-normal values for chloride and carbonate plus bicarbonate which were believed to be caused by the normal outside sweep of the lixiviant during mining operations. An expanded outside sweep of the lixiviant was expected due to the increased injection capacity resulting from new injection wells being placed into operation in the southeast corner of the R & D wellfield.

The sudden increase over a two-week period in carbonate plus bicarbonate, chloride, and specific conductivity at well M 4 is believed to have resulted from a typical horizontal excursion which was most likely caused by localized over-injection on the south side of the wellfield.

3) After control measures had been implemented
(a) plant bleed increased
(b) injection stopped and reduced and recovery increased
and
(c) fresh water injection into an excursion control well 58 feet from M 2, to reverse the gradient towards the well field,

(4) All parameters are below their UCLs for well M 4, and although Cl is still high, only $CO_3 + H_2CO_3$ exceeds its UCL at well M 2.

(5) The results of the routine biweekly sampling of R & D monitor wells on February 4, 1981 showed that wells M 2 and M 4 exceeded their respective UCL values for at least two excursion parameters each. The seven-day confirmation sampling period verified that well M 2 was in an excursion status but indicated that well M 4 was not in an excursion status. The data to date from the sampling program indicate that the horizontal excursion at well M 2 is under control, and that technically speaking the well is no longer in excursion status.

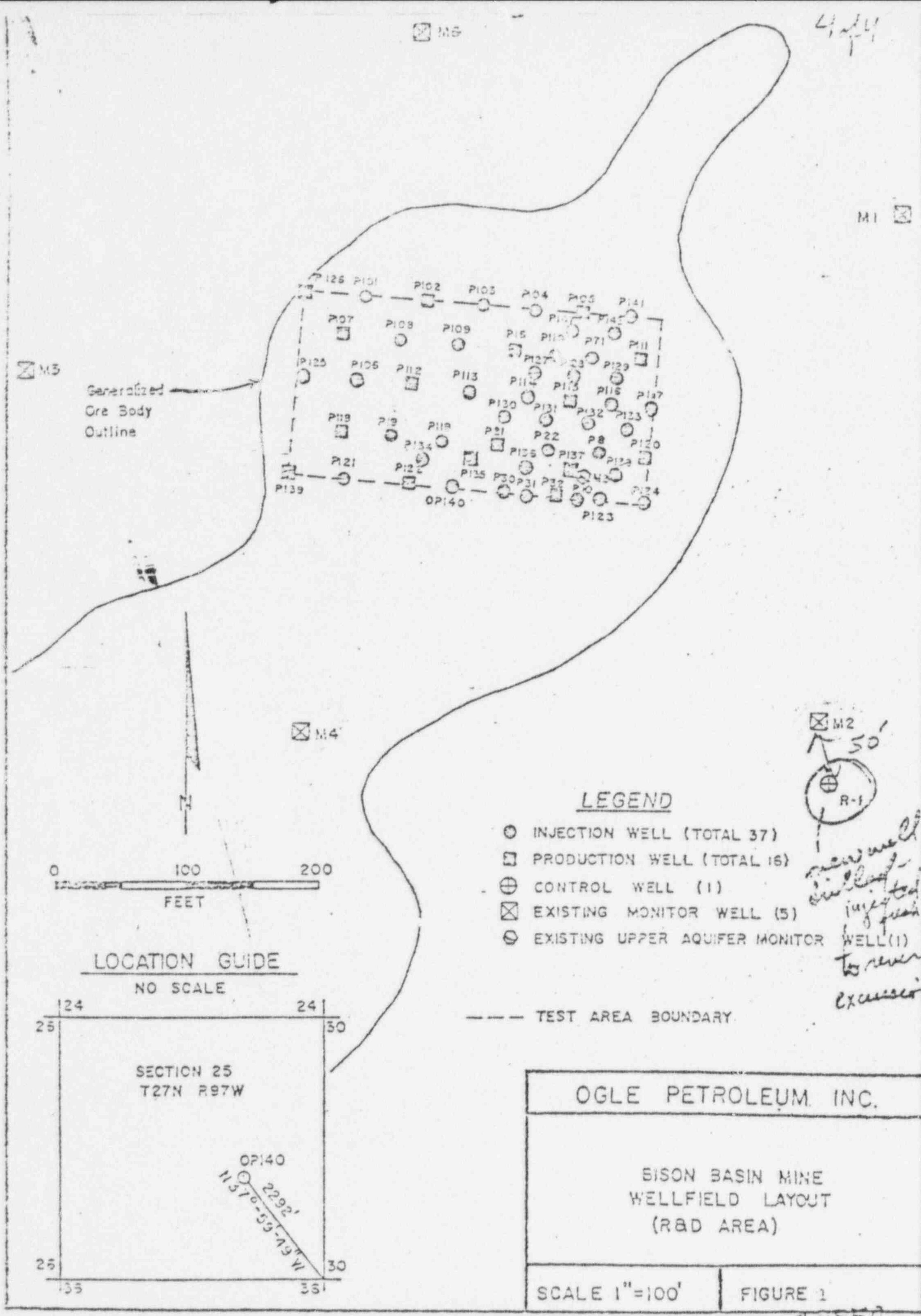
Staff Recommendations

(1) I believe that OPI has implemented very effective clean-up and control techniques and that they are and should continue on with their monitoring and reporting to us, as they have done, if another excursion occurs.

3 of 4

And finally, something OPI presented which I believe we need to keep in mind for Crow Butte application review as well as at other sites:

Due to the positive correlation between a relatively high bleed and drop in excursion parameter values, OPI feels that it can control possible future horizontal excursions if adequate mechanisms are available to dispose of well-field bleed. The present limited pond capacity at our R & D mining operation restricts the amount of bleed that can be routed to the pond. This situation hinders our ability to further reduce the concentrations of chloride and carbonate plus bicarbonate at well M 2 at least until another pond is constructed at the site. Because of this factor, OPI wishes to enter into discussions with DEQ and NRC personnel on the possibility of obtaining a permit to surface discharge water from the pond after it has been treated to meet the applicable discharge standards.



M6
M1
M3
M4
M2
50'
R-1
P126
P101
P102
P103
P104
P105
P141
P107
P108
P109
P15
P71
P11
P125
P106
P112
P113
P129
P116
P118
P19
P21
P22
P8
P120
P121
P122
P135
P30
P31
P32
P124
P123
P139
OP140
P130
P131
P132
P134
P136
P137
Generalized
Ore Body
Outline
LEGEND
INJECTION WELL (TOTAL 37)
PRODUCTION WELL (TOTAL 16)
CONTROL WELL (1)
EXISTING MONITOR WELL (5)
EXISTING UPPER AQUIFER MONITOR WELL (1)
--- TEST AREA BOUNDARY
0
100
200
FEET
LOCATION GUIDE
NO SCALE
24
25
30
36
SECTION 25
T27N R97W
OP140
2292'
N 37°-59'-49" W
OGLE PETROLEUM INC.
BISON BASIN MINE
WELLFIELD LAYOUT
(R&D AREA)
SCALE 1"=100'
FIGURE 1
18554