List of Tables (Continued)

United States Nuclear Regulatory Commission Official Hearing Exhibit

In the Matter of: STRATA ENERGY, INC.
(Ross In Situ Recovery Uranium Project)

ASLBP #: 12-915-01-MLA-BD01
Docket #: 04009091
Exhibit #: JTI016-00-BD01 **Identified:** 9/30/2014
Admitted: 9/30/2014 **Withdrawn:**
Rejected: **Stricken:**
Other:

Additional details such as Mine Area size, Production Area size, monitor well locations, baseline well locations, average depth to the production zone and the elevation, referenced to Mean Sea Level, (MSL) of the production zone are given on Figure 1-4 Production Area Map. Using data from 239 exploration holes, the production zone's depth from surface is given in Table 1.1, and its elevation (top and base with respect to MSL) is shown in Tables 1.2 and 1.3, respectively.

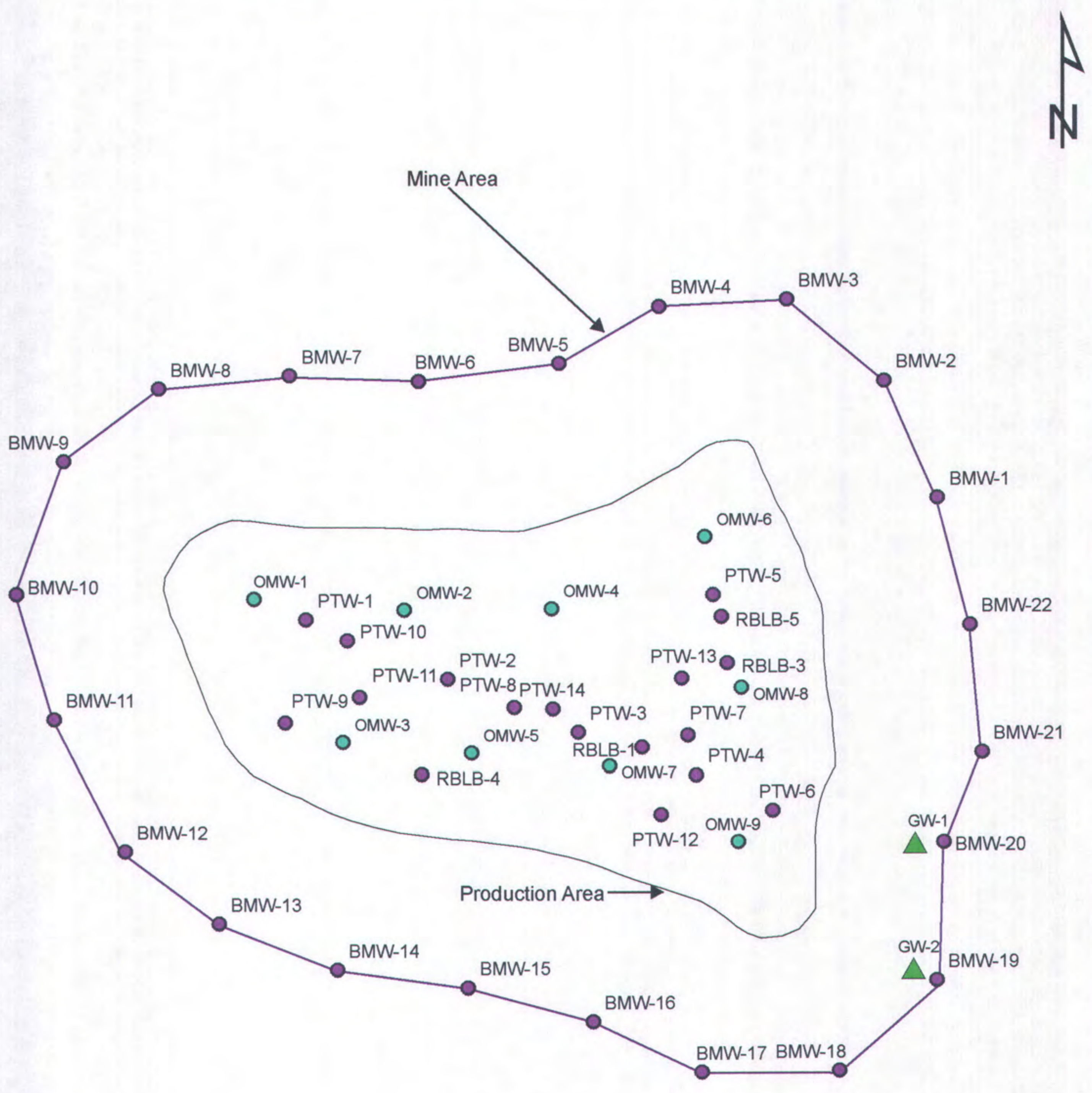
A review of Figure 1-4 shows that the Mine Area of PA-1 encompasses approximately 94 acres while the Production Area comprises just over 36 acres. There are 22 Production Zone Monitor Wells (BMW-1, 2, 3 ... 22) that encircle the proposed Production Zone. Interior wells labeled PTW-1 through PTW-14 (Pump Test Wells) and RBLB-1, 3, 4 and 5 (Regional Baseline Wells) are completed in the Production Zone. A fourth set of wells labeled as OMW-1 through OMW-9 are completed in the overlying Sand A. Lastly, the revised map shows two proposed Guard Wells (GW-1 and GW-2), which will be completed in the production zone. The wells serve the following purposes:

(1) To provide baseline water quality information within the Mine Area, Production Area and overlying aquifer;
(2) To provide a basis for conducting hydrologic testing of the aquifers; and
(3) To provide a pattern of monitor wells for near-future production and restoration activities.

The number and placement of monitor and baseline wells conform to and exceed the requirements given in 30 TAC §§§ 331.82, 103 and 104. For example, according to § 331.82(g) designated monitor wells must be at least 100 feet inside any permit boundary, unless excepted by written authorization from the Executive Director; the nearest designated monitor well in PA-1 to the Mine Permit Boundary is approximately 225 feet inside the western boundary. Distances from all other parts of the monitor well ring to the Mine Permit Boundary significantly exceed the 100 foot requirement (see Figure 1-3 in Appendix B).

In addition to following the 100-foot requirement, the monitor well ring was designed to satisfy the requirements given in § 331.103(a). The monitor wells are within 400 feet of the Production Area; they are no greater than 400 feet apart; and the angle formed by lines drawn from any production well to the two nearest monitor wells does not exceed 75 degrees.

The number of monitor wells that must be completed in the first overlying aquifer is specified in § 331.103(b). According to the rule, a minimum of one well per four acres of production area is required; monitor wells OMW-1 through OMW-9 satisfy this coverage requirement. With respect to production zone monitor well density, revised rule §331.104(c) specifies that a minimum of 5 wells, or 1 well per 4 acres of production area, whichever is greater, shall be completed in the production zone. The production zone monitor well density in PA-1 exceeds the minimum requirement by a factor of 2. Figure 1-4 shows there are 18 production zone monitor wells distributed over 36 acres of production area, or 1 well per 2 acres. The addition of 2 Guard Wells inboard of BMW-19 and BMW-20 provides even more groundwater monitoring coverage than is required by the rules.



Mine Area Acreage: 94.2 acres
Production Area Acreage: 36.1 acres
Average Depth to Production Zone: 152'
Production Zone Elevation: 86' above mean sea level (MSL) to 49' above MSL

Figure 1-4
Production Area Map
1 inch equals 400 feet

0 100 200 400 600 800 1,000 Feet

Legend

▲ Proposed Location of Production Zone Guard Well

● Overlying Monitor Well

● Production Zone Monitor Well

UEC
Uranium Energy Corp

Figure 1-4
Drawn By: M.B.
Checked by: C.H. & J.L.
Date: March 25, 2009

Referring again to Figure 1-4, it can be seen that PA-1 has 36 acres of production area and 9 overlying monitor wells. The distribution of the wells above the 36 acre production zone provides significant coverage for monitoring purposes. The well pattern also served to allow baseline water quality to be assessed throughout the overlying 36 acre zone.

With respect to characterizing Production Area baseline water quality, § 331.104(a)(2) requires the collection of a minimum of one or more samples from at least 5 designated production zone wells. In developing Production Area baseline water quality, UEC exceeded the minimum requirement by completing 17 wells. Sample analyses from 10 of the wells are included in this submission. Seven additional wells are scheduled to be sampled in early September. TCEQ is planning to collect samples from some of the baseline wells during the September sampling period. UEC plans to supplement the production zone water quality baseline data with results from the upcoming sampling.

Expanding the number of samples throughout the Production Area will significantly improve the accuracy of baseline conditions, and this in turn will allow for significant improvement in reaching the goals set out in the required Restoration Table.

As described above on page 1-4, UEC actually installed 8 additional production zone baseline wells, and thus there is a total of 18 monitor wells in the production area.

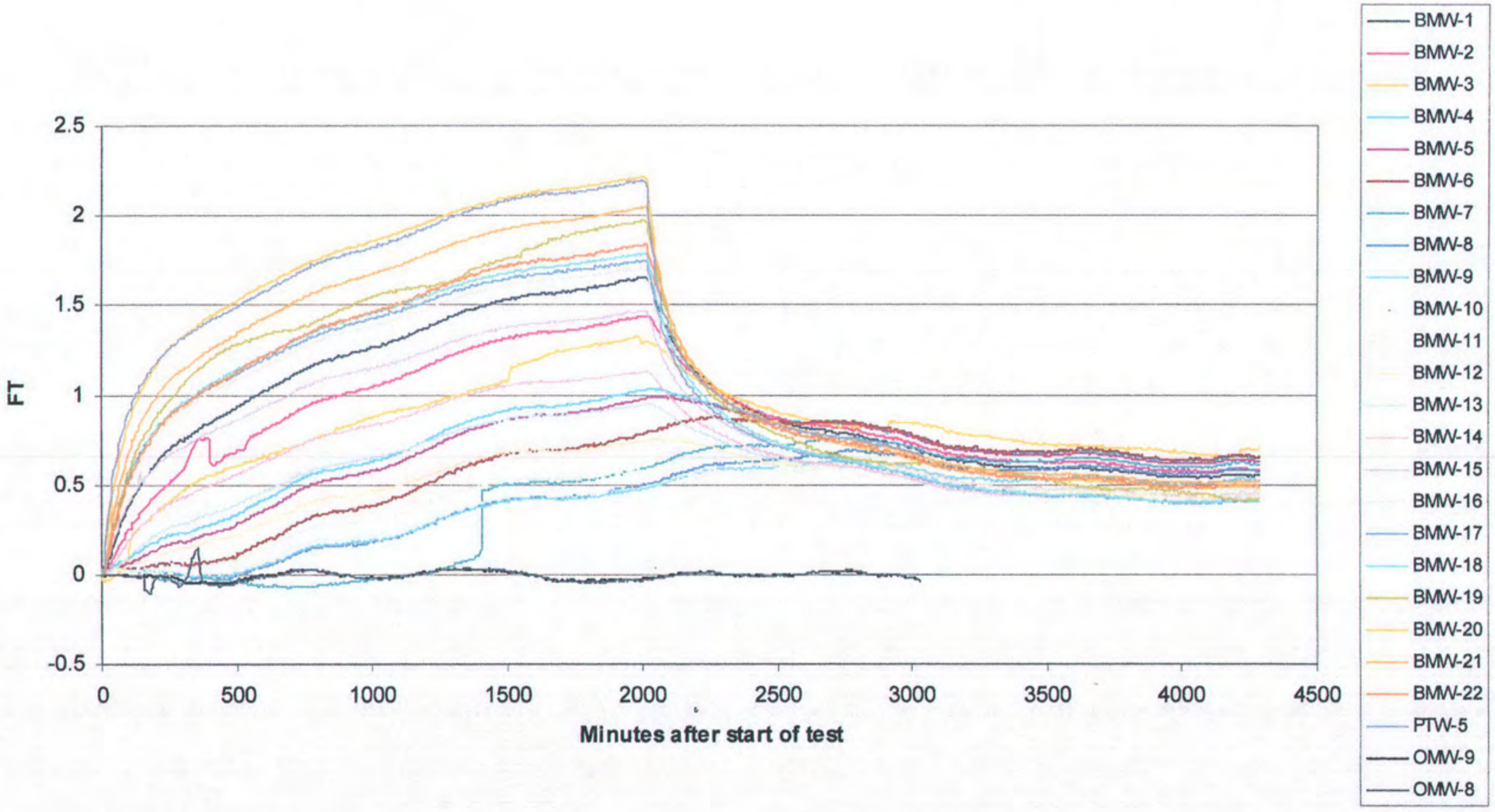


Figure 4.7. Water level drawdown and recovery in Troll observation wells for the PTW-6 test.

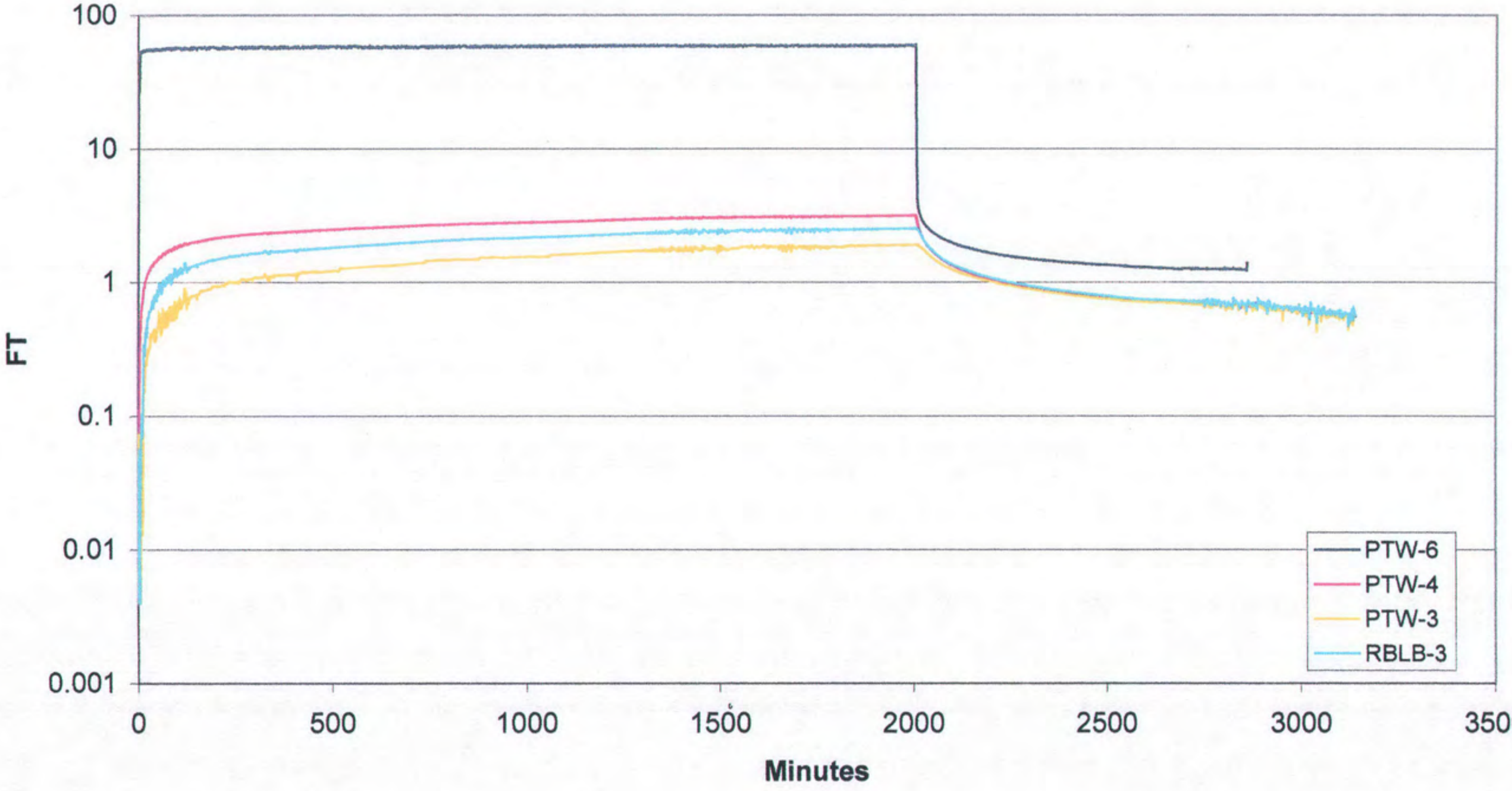


Figure 4.8. Water level drawdown and recovery from the Hermit data logger for the PTW-6 test.

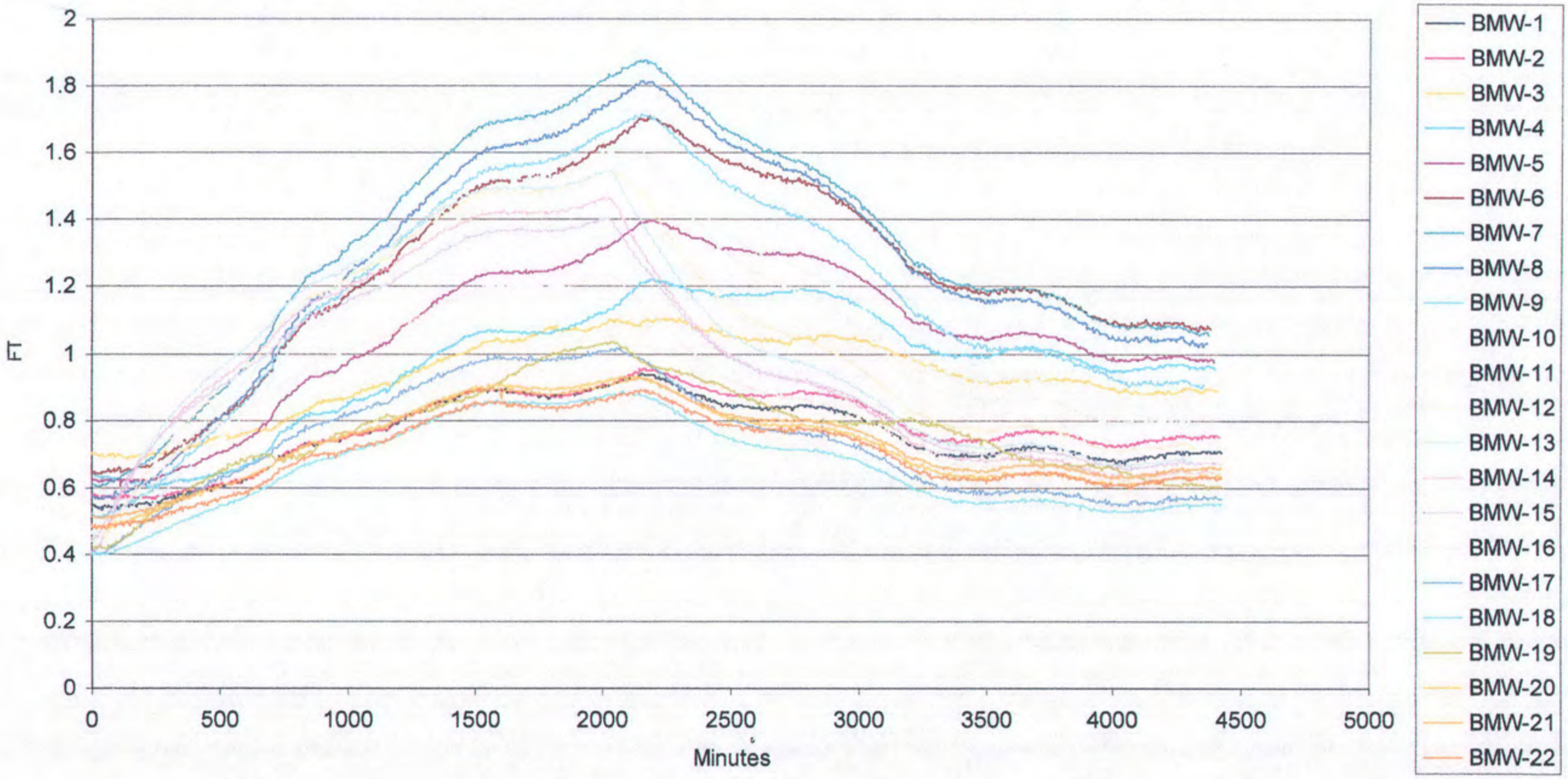


Figure 4.9. Water level drawdown and recovery from the Troll data loggers for the PTW-1 test.

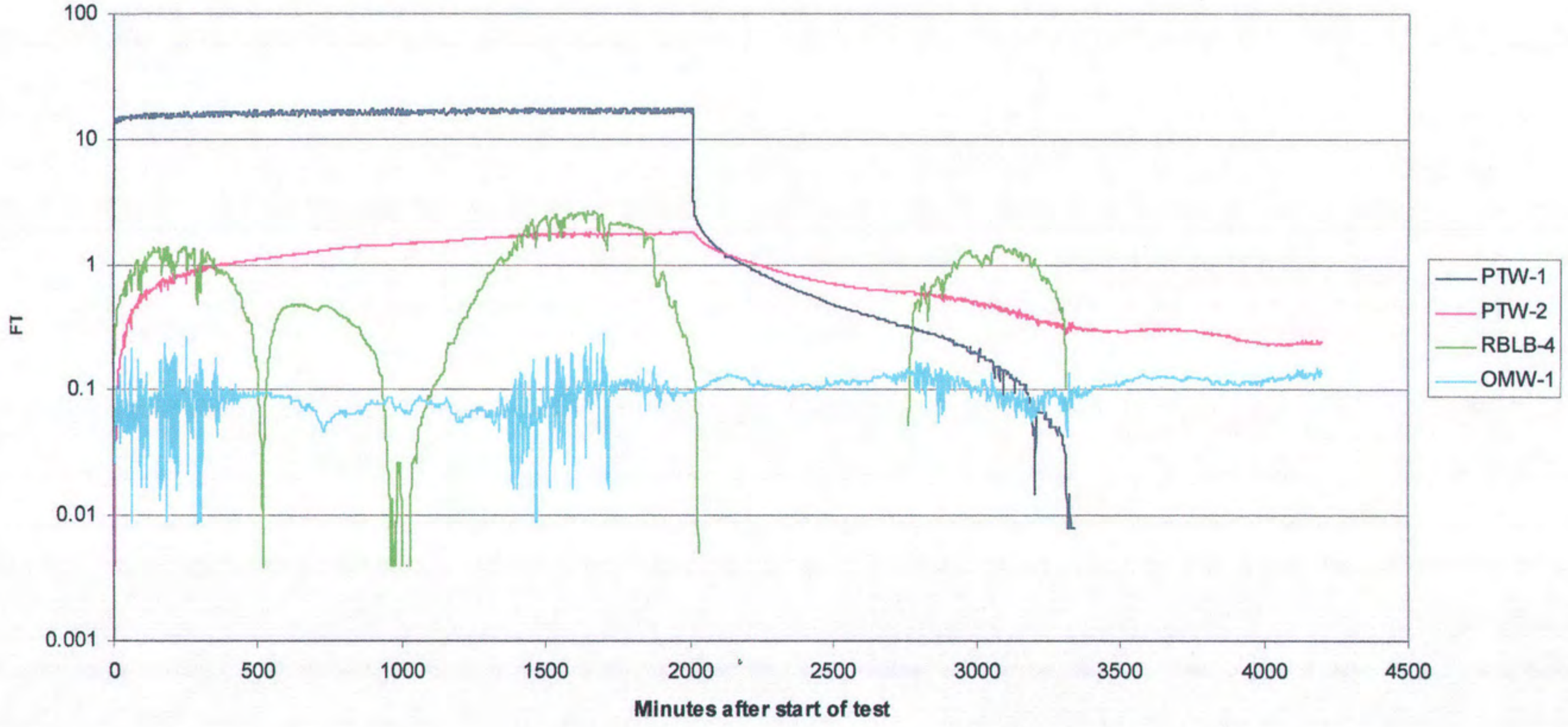


Figure 4.10. Water level drawdown and recovery from the Hermit data logger for the PTW-1 test.

Evaluation of the deeper subsurface geology shows significant confining layers between the base of Sand C and the top of Sand D. As demonstrated in the Mine Permit Application, Sand D too is adequately confined at its top and base with clay/shale layers.

5.2 Production Zone (Sand B)

For the purposes of hydrologic testing and baseline characterization, 18 wells were completed in Production Zone Sand B. As of August 2008, 10 of the wells had been sampled, and the results were included in the PAA application at that time. Anticipating that an additional 8 wells would be installed and made ready for sampling by September of 2008, UEC had requested TCEQ to observe the sampling event and to collect split samples from any of the baseline wells. After receiving the laboratory results on the additional 8 wells and completing a quality assurance/quality control review, UEC supplemented the production zone baseline water quality section of the application with the expanded database.

Figure 1-4 Production Area Map has been updated to show the location of all baseline wells associated with proposed PA-1, including 2 proposed Guard Wells. The wells labeled PTW-1 through PTW-14 and RBLB-1, 3, 4 and 5 are completed in Sand B. As can be seen from the map, the wells are distributed in a pattern that provides coverage throughout the production area. Covering the area in this manner not only provided a better basis for characterizing the water quality, it also provided a wider array of well locations for hydrologic testing (well pumping).

Water quality analyses for the 36-acre Production Area are presented in Table 5.2. A review of the table shows that the water quality fails to meet EPA Primary Drinking Water Standards; TDS, and more importantly uranium and radium-226, are in excess of the standards. Although the average TDS value of 636 mg/l exceeds EPA's 500 mg/l by approximately 138 mg/l, it is the presence of uranium and radium-226 that sets this water quality far apart from water quality that is deemed acceptable for human consumption. Because this 36 acre portion of the aquifer contains natural uranium mineralization, elevated levels of uranium and radium-226 are to be expected; it is the presence of these elements, and to a lesser extent several other constituents which are discussed below, that make Sand B quite different from overlying Sand A.

Table 5.2 Production Zone (Sand B) Water Quality

	PTW-1	PTW-2	PTW-3	PTW-4	PTW-5	PTW-6
Ca	87	90	110	109	104	106
Mg	11.3	10.9	17.5	15.1	15.9	16.5
Na	117	110	100	106	98	102
K	3.3	4.7	2.7	4.5	2.5	2.8
CO3	0	0	0	0	0	0
HCO3	322	251	346	338	360	344
SO4	47	61	45	50	11	38
Cl	165	166	166	166	166	167
NO3-N	< 0.01	0.02	0.02	0.05	< 0.01	< 0.01
F	0.79	0.67	0.65	0.62	0.57	0.57
SIO2	12.1	13.5	14.5	14.3	13.6	14.2
TDS	593	620	640	638	623	620
EC (umhos/cm)	1000	1020	1120	1120	1070	1110
Alk as CaCO3	264	206	284	277	295	282
pH (Std. Unit)	7.32	7.55	7.35	7.37	7.32	7.30
As	0.008	0.010	0.007	0.009	0.002	< 0.002
Cd*	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Fe	0.031	0.017	0.063	< 0.030	< 0.030	< 0.030
Pb*	< 0.002	< 0.002	< 0.002	< 0.002	0.002	0.004
Mn	0.012	0.006	0.025	0.015	0.008	0.013
Hg*	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Mo	0.136	0.070	< 0.010	< 0.043	< 0.010	< 0.010
Se	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
U	0.032	0.009	0.009	0.059	0.005	0.010
Ammonia-N	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Ra-226 (pCi/l)	17.0	17.0	38.0	196.0	357.0	202.0
Plus/Minus	1.0	1.0	1.0	1.0	2.0	1.0

All units are mg/l unless otherwise noted.

*These elements do not occur naturally in the aquifer nor are they part of the process.

Table 5.2 Production Zone (Sand B) Water Quality

	RBLB-1	RBLB-3	RBLB-4	RBLB-5	High	Low	Average	STDEV
Ca	100	91	101	88	110	87	99	8
Mg	19.0	15.8	20.2	16.5	20.2	10.9	15.9	2.8
Na	98	95	100	94	117	94	102	7
K	6.6	8.9	7.1	4.4	8.9	2.5	4.7	2.0
CO3	ND	ND	ND	ND	0	0	0	**
HCO3	332	302	325	340	360	251	326	29
SO4	82	41	69	9	82	9	45	22
Cl	161	163	150	163	167	150	163	5
NO3-N	ND	ND	ND	ND	0.05	0.01	0.02	0.01
F	0.70	0.70	0.70	0.80	0.80	0.57	0.68	0.08
SIO2	32.2	31.6	32.0	31.6	32.2	12.1	21.0	8.9
TDS	644	614	666	584	666	584	624	23
EC (umhos/cm)	1160	1070	1140	1050	1160	1000	1086	50
Alk as CaCO3	272	253	266	279	295	206	268	23
pH (Std. Unit)	7.43	7.79	7.54	7.63	7.79	7.30	7.46	0.15
As	0.006	0.030	0.004	0.009	0.030	<0.002	0.009	0.008
Cd*	ND	ND	ND	ND	<0.001	<0.001	<0.001	**
Fe	ND	ND	ND	ND	0.060	ND	0.029	0.025
Pb*	ND	ND	ND	ND	0.004	<0.002	0.002	**
Mn	0.020	0.020	ND	0.020	0.025	0.006	0.015	0.006
Hg*	ND	ND	ND	ND	<0.0004	<0.0004	<0.0004	**
Mo	ND	ND	ND	ND	0.136	<0.010	0.047	0.046
Se	0.001	0.002	0.001	0.001	0.003	0.001	0.002	**
U	0.062	0.080	0.006	0.060	0.080	0.005	0.033	0.028
Ammonia-N	ND	0.05	0.08	0.06	<0.1	<0.1	<0.1	**
Ra-226 (pCi/l)	393.0	111.0	37.2	1090.0	1090.0	17.0	245.8	309.9
Plus/Minus	5.7	3.9	2.1	9.6				

All unit are mg/l unless otherwise noted.

*These elements do not occur naturally in the aquifer nor are they a part of the process.

**Not calculated - range is insignificant.

Table 5.2 Production Zone (Sand B) Water Quality

	PTW-7	PTW-8	PTW-9	PTW-10	PTW-11	PTW-12	PTW-13	PTW-14
Ca	97	104	94	89.5	87.2	94.6	101	89
Mg	16.4	18.1	13.3	17.4	16.8	15.6	17.5	17.9
Na	109	96	106	102	104	107	102	96
K	15.2	5.4	16.5	8.7	9.27	10.5	10.2	4.3
CO3	0	0	0	0	0	0	0	0
HCO3	325	336	368	354	334	334	331	325
SO4	54	52	19	12	17	31	44	59
Cl	163	166	168	162	163	164	156	164
NO3-N	<0.113	<0.113	1.73	1.43	<0.113	<0.113	<0.113	<0.113
F	<0.50	0.63	<0.50	0.56	0.52	0.52	0.58	0.58
SIO2	35.4	35.1	35.9	33.5	32.9	32.9	37.5	21.8
TDS	668	698	624	614	658	642	672	638
EC (umhos/cm)	987	980	957	953	950	970	1020	1110
Alk as CaCO3	266	275	302	290	282	274	271	266
pH (Std. Unit)	7.55	7.74	7.56	7.59	7.35	7.47	7.54	7.96
As	0.018	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.022
Cd*	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
Fe	<0.01	<0.030	<0.030	<0.030	<0.030	<0.030	0.059	<0.030
Pb*	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012
Mn	<0.010	<0.010	<0.010	<0.010	0.013	<0.010	0.017	0.013
Hg*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0004
Mo	0.026	<0.010	<0.010	<0.010	0.017	0.014	<0.010	0.037
Se	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.003
U	0.804	0.134	0.135	0.099	0.166	0.163	0.156	0.086
Ammonia-N*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ra-226 (pCi/l)	1684.0	397.0	394.0	68.0	296	477.0	10.0	224.0
Plus/Minus	4.0	2.0	2.0	1.0	2.0	2.0	1.0	1.0

*These elements do not occur naturally in the aquifer nor are they part of the process.

All units are mg/l unless otherwise noted.

Revised: March 27, 2009

Table 5.2 Production Zone (Sand B) Water Quality

	RBLB-1	RBLB-3	RBLB-4	RBLB-5
Ca	100	91	101	88
Mg	19.0	15.8	20.2	16.5
Na	98	95	100	94
K	6.6	8.9	7.1	4.4
CO3	ND	ND	ND	ND
HCO3	332	302	325	340
SO4	82	41	69	9
Cl	161	163	150	163
NO3-N	ND	ND	ND	ND
F	0.70	0.70	0.70	0.80
SIO2	32.2	31.6	32.0	31.6
TDS	644	614	666	584
EC (umhos/cm)	1160	1070	1140	1050
Alk as CaCO3	272	253	266	279
pH (Std. Unit)	7.43	7.79	7.54	7.63
As	0.006	0.030	0.004	0.009
Cd*	ND	ND	ND	ND
Fe	ND	ND	ND	ND
Pb*	ND	ND	ND	ND
Mn	0.020	0.020	ND	0.020
Hg*	ND	ND	ND	ND
Mo	ND	ND	ND	ND
Se	0.001	0.002	0.001	0.001
U	0.062	0.080	0.006	0.060
Ammonia-N*	ND	0.05	0.08	0.06
Ra-226 (pCi/l)	393.0	111.0	37.2	1090.0
Plus/Minus	5.7	3.9	2.1	9.6

All units are mg/l unless otherwise noted.

*These elements do not occur naturally in the aquifer nor are they part of the process.

Revised: March 27, 2009

Table 5.2 Production Zone (Sand B) Water Quality

	High	Low	Average	STDEV	EPA Standard
Ca	110	87	97	7	**NS**
Mg	20.2	10.9	16.2	2	**NS**
Na	117	94	103	6	**NS**
K	16.5	2.5	7.5	4	**NS**
CO3	0	0	0	0.0	**NS**
HCO3	368	251	331	24	**NS**
SO4	82	9	42	20	**250**
Cl	168	150	163	4	**250**
NO3-N	1.73	0.02	0.38	0.65	**10**
F	0.80	0.52	0.63	0.09	**4.0**
SIO2	37.5	12.1	26.8	9.4	**NS**
TDS	698	584	638	28	**500**
EC (umhos/cm)	1160	950	1041	68	**NS**
Alk as CaCO3	302	206	272	19	**NS**
pH (Std. Unit)	7.96	7.30	7.52	0.17	**6.5 to 8.5**
As	0.030	0.010	0.011	0.008	**0.010**
Cd*	<0.005	<0.001	<0.005	**	**0.005**
Fe	0.063	0.031	0.034	0.018	**0.300**
Pb*	<0.012	<0.012	<0.012	**	**0.150**
Mn	0.025	<0.010	0.015	0.005	**0.050**
Hg*	<0.0004	<0.0001	<0.0004	**	**0.0020**
Mo	0.136	0.014	0.036	0.036	**NS**
Se	0.010	0.001	0.003	0.002	**0.050**
U	0.804	0.005	0.151	0.230	**0.030**
Ammonia-N*	**	**	**	**	**NS**
Ra-226 (pCi/l)	1684.0	10.0	404.9	502.9	**5.0**
Plus/Minus	4.0	1.0			

All units are mg/l unless otherwise noted.

*These elements do not occur naturlly in the aquifer nor are they part of the process.

**Not calculated - range is insignificant.

Revised: March 27, 2009

NS: No standard

Of the 18 Production Zone Sand B wells, 72% have uranium concentrations in excess of the EPA Drinking Water Standard of 0.030 mg/l. The average for all 18 wells is 0.115 mg/l or 3.8 times the standard. With regard to radium-226, 100% of the wells are in excess of the 5 pCi/l standard. The lowest radium-226 values were recorded in PTW-1, PTW-2 and PTW-13. The values for these wells are 17 pCi/l for both PTW-1 and PTW-2 and 10 pCi/l for PTW-13. Other production area wells have values far in excess of the 5 pCi/l standard. The average radium-226 concentration is 334 pCi/l, which is 67 times higher than the EPA Primary Drinking Water Standard of 5 pCi/l. The lowest radium-226 value of 10 pCi/l is two times higher than the drinking water standard and the highest value of 1,684 exceeds the drinking water standard by 337 times.

In summary, the Sand B aquifer does not meet EPA Primary Drinking Water Standards. Moreover, because of its high radium-226 content, water from this zone would not be suitable for long-term irrigated agriculture. Watering of livestock from this zone should also be avoided, especially since much higher quality water is locally present throughout the non-mineralized portions of the aquifer.

5.3 Mine Area (Sand B Perimeter Monitor Wells)

Referring back again to Figure 1-4 Production Area Map, the Production Zone Monitor Ring can be seen in relation to the 36- acre Production Area. The area encompassed by the monitor well ring is approximately 94 acres. All 22 wells were sampled and analyzed for the same 26 water quality constituents given in the tables for Sand A Non-production Zone and Sand B Production Zone. Not unexpectedly, the subsequent discussion will show that baseline water quality in the Mine Area is more similar to that in the Production Area. Since the Mine Area wells (i.e., those in the Production Zone Monitor Well Ring) are completed in Sand B, water quality should be quite similar; however, the levels of uranium and radium-226 should not be as high as they are in the Production Area.

Table 5.3 summarizes the water quality values for the 22 production zone monitor wells. It is immediately obvious from the table that the water quality in the Mine Area also fails to meet EPA Primary Drinking Water Standards. Unlike Sand B Production Zone, the Mine Area meets the drinking water standard for uranium; however, it does not meet the 5 pCi/l drinking water standard for radium-226.

Table 5.3 Baseline Monitor Wells (Production Zone)

	BMW-6	BMW-7	BMW-8	BMW-9	BMW-10
Ca	105	101	103	108	96
Mg	16.90	14.50	15.50	15.40	14.60
Na	99	100	104	105	103
K	3.16	3.34	3.81	2.92	3.28
CO3	0	0	0	0	0
HCO3	310	294	304	321	309
SO4	57	53	50	48	47
Cl	165	166	164	172	160
NO3-N	< 0.01	< 0.01	< 0.01	0.01	< 0.01
F	0.60	0.60	0.60	0.62	0.60
SIO2	13.3	13.2	12.3	13.0	15.3
TDS	640	653	658	680	610
EC (umhos/cm)	1090	1060	1070	1100	1050
Alk as CaCO3	254	241	249	263	253
pH (Std. Unit)	7.34	7.40	7.42	7.42	7.88
As	0.002	0.002	< 0.002	< 0.002	0.004
Cd*	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Fe	< 0.030	< 0.030	0.036	< 0.030	< 0.030
Pb*	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Mn	0.009	0.007	0.009	0.032	0.007
Hg*	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Mo	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Se	0.004	< 0.003	< 0.003	< 0.003	< 0.003
U	0.002	0.004	0.003	0.188	< 0.001
Ammonia-N*	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Ra-226 (pCi/l)	2.9	1.8	1.7	1.8	1.5
Plus/Minus	0.1	0.1	0.1	0.1	0.1

All units are mg/l unless otherwise noted.

*These elements do not occur naturally in the aquifer nor are they part of the process.

Revised: February 16, 2009

Mine Area water quality also falls short of meeting EPA's Primary Drinking Water Standard for TDS. The average TDS value for the Mine Area is 652 mg/l and the EPA standard is 500 mg/l. The lowest TDS value of 575 mg/l occurred in a single well (BMW-2).

It was previously mentioned that for certain parameters water quality can vary noticeably within an aquifer, and the range of variability for a constituent can be significant over a relatively short distance. A comparison of radium-226 values from the Production Zone with those in the Mine Area provides a good illustration of this point. The average radium-226 level in the monitor well ring is 33 times lower than the average in the Production Area. The monitor well ring average is 12 pCi/l compared to 405 pCi/l in the Production Area which is only 400 feet from the ring. Although radium-226 is considerably lower at a distance of 400 feet from the Production Area, many of the monitor wells have significantly elevated levels. Table 5.3 shows that approximately 45% of the monitor wells have radium-226 in excess of the drinking water standard. Eighteen percent of the wells exceed the 0.03 mg/l drinking water standard for uranium, and one of the monitor wells (BMW-9) is more than 6 times higher than the standard. Again, because the monitor well ring is located very near a delineated ore zone, values such as those listed in the tables are to be expected.

5.4 Water Quality Comparisons

Now that water quality information has been presented for all three zones, a single summary table has been prepared to allow an overall one-page comparison.

At the risk of being repetitive, the water quality comparisons given in Table 5.4 clearly show the significant variability in groundwater from the same aquifer. With the exception of considerably higher radium-226 levels in Production Area, water quality in the Production Area is quite similar to that in the Mine Area. Since wells from these areas are completed in the Production Zone Sand B, similarity can be expected. The main difference between the two areas is that commercial quantities of recoverable uranium are concentrated in the Production Area. However, as discussed above, significant portions of the Production Zone Monitor Well Ring (Mine Area), also have uranium mineralization but the main ore body lies approximately 400 feet inside the ring.

Mine Area water quality also falls short of meeting EPA's Primary Drinking Water Standard for TDS. The average TDS value for the Mine Area is 652 mg/l and the EPA standard is 500 mg/l. The lowest TDS value of 575 mg/l occurred in a single well (BMW-2).

It was previously mentioned that for certain parameters water quality can vary noticeably within an aquifer, and the range of variability for a constituent can be significant over a relatively short distance. A comparison of radium-226 values from the Production Zone with those in the Mine Area provides a good illustration of this point. The average radium-226 level in the monitor well ring is 28 times lower than the average in the Production Area. The monitor well ring average is 12 pCi/l compared to 334 pCi/l in the Production Area which is only 400 feet from the ring. Although radium-226 is considerably lower at a distance of 400 feet from the Production Area, many of the monitor wells have significantly elevated levels. Table 5.3 shows that approximately 45% of the monitor wells have radium-226 in excess of the drinking water standard. Eighteen percent of the wells exceed the 0.03 mg/l drinking water standard for uranium, and one of the monitor wells (BMW-9) is more than 6 times higher than the standard. Again, because the monitor well ring is located very near a delineated ore zone, values such as those listed in the tables are to be expected.

5.4 Water Quality Comparisons

Now that water quality information has been presented for all three zones, a single summary table has been prepared to allow an overall one-page comparison.

At the risk of being repetitive, the water quality comparisons given in Table 5.4 clearly show the significant variability in groundwater from the same aquifer. With the exception of considerably higher radium-226 levels in Production Area, water quality in the Production Area is quite similar to that in the Mine Area. Since wells from these areas are completed in the Production Zone Sand B, similarity can be expected. The main difference between the two areas is that commercial quantities of recoverable uranium are concentrated in the Production Area. However, as discussed above, significant portions of the Production Zone Monitor Well Ring (Mine Area), also have uranium mineralization but the main ore body lies approximately 400 feet inside the ring.

Table 5.4 Water Quality Comparisons (Sand A Non-Production Zone, Production Area Sand B and Production Zone Mine Area

	Overlying Sand A Average	**Production Area Average**	**Production Zone Mine Area Average**
Ca	184	99	97
Mg	18.7	15.9	17.5
Na	110	102	105
K	2.2	4.7	3.79
CO3	0	0	0
HCO3	331	326	319
SO4	99	45	58
Cl	266	163	165
NO3-N	5.26	0.02	0.01
F	0.45	0.68	0.58
SIO2	18.3	21.0	15.7
TDS	904	624	652
EC (umhos/cm)	1520	1086	1104
Alk as CaCO3	271	268	262
pH (Std. Unit)	7.24	7.46	7.58
As	0.018	0.009	0.008
Cd*	0.001	<0.001	0.001
Fe	<0.030	0.029	0.043
Pb*	0.002	0.002	0.002
Mn	0.020	0.015	0.017
Hg*	0.0004	<0.0004	<0.0004
Mo	0.012	0.047	0.035
Se	0.007	0.002	0.003
U	0.009	0.033	0.020
Ammonia-N*	<0.1	<0.1	0.1
Ra-226 (pCi/l)	2.3	245.8	12.1

All units are mg/l unless otherwise noted.

*These elements do not occur naturally in the aquifer nor are they part of the process.

Table 5.4 Water Quality Comparisons (Sand A Non-Production Zone, Production Area Sand B and Production Zone Mine Area

	Overlying Sand A Average	Production Area Average Sand B	Production Zone Mine Area Average
Ca	184	97	97.0
Mg	18.7	16.2	17.5
Na	110	103	105
K	2.2	7.5	3.79
CO3	0	0	0
HCO3	331	331	319
SO4	99	42	58
Cl	266	163	165
NO3-N	5.26	0.38	0.01
F	0.45	0.63	0.58
SIO2	18.3	26.8	15.7
TDS	904	638	652
EC (umhos/cm)	1520	1041	1104
Alk as CaCO3	271	272	262
pH (Std. Unit)	7.24	7.52	7.58
As	0.018	0.011	0.008
Cd*	<0.001	<0.005	0.001
Fe	<0.030	0.034	0.043
Pb*	0.002	<0.012	0.002
Mn	0.020	0.015	0.017
Hg*	<0.0004	<0.0004	<0.0004
Mo	0.012	0.036	0.035
Se	0.007	0.003	0.003
U	0.009	0.151	0.020
Ammonia-N*	<0.1	<0.1	<0.1
Ra-226 (pCi/l)	2.3	404.9	12.1
Plus/Minus			

[redacted]

*These elements do not occur naturally in the aquifer nor are they part of the process.

All units are mg/l unless otherwise noted.

Revised: March 27, 2009

Clearly the biggest water quality difference shown on Table 5.4 is between the Overlying Non-production Sand A and the two areas within Production Zone Sand B (Production Area and Mine Area). Major differences can be seen in 9 of the water quality indicators listed below.

Sand A, the shallowest of the aquifers, has significant levels of nitrate compared to Sand B. The precipitous decline in nitrate levels from Sand A to the lower Sand B is yet another example of the hydraulic separation that exists between the two sands. Significant differences in chloride and TDS are additional indicators of the isolation between the two zones. At the PA-1 location in the proposed permit area, Sand A does not have strong uranium mineralization, and this is another indication that the sands are effectively isolated from one another. Because of their isolation, differences in certain water quality constituents are expected.

Lastly, it should be remembered from earlier discussions in this chapter that Sand A fails to meet EPA Primary Drinking Water Standards for two non-radiological constituents: TDS and arsenic. Unlike Sand A, Production Sand B fails to meet the drinking water standards for one non-radiological parameter (TDS) and two radiological parameters: radium-226 and uranium.

	Sand A Non-Production Zone	Sand B Production Area	Sand B Mine Area
Calcium (mg/l)	184	97	97
Sulfate (mg/l)	99	42	58
Chloride 9mg/l)	266	163	165
Nitrate (mg/l)	5.26	0.38	0.01
TDS* (mg/l)	904	638	652
Arsenic (mg/l)	0.018	0.011	0.008
Molybdenum (mg/l)	0.012	0.036	0.035
Uranium (mg/l)	0.009	0.151	0.020
Radium-226 (pCi/l)	2.3	405	12

*Total Dissolved Solids.

Clearly the biggest water quality difference shown on Table 5.4 is between the Overlying Non-production Sand A and the two areas within Production Zone Sand B (Production Area and Mine Area). Major differences can be seen in 9 of the water quality indicators listed below.

Sand A, the shallowest of the aquifers, has significant levels of nitrate compared to Sand B. The precipitous decline in nitrate levels from Sand A to the lower Sand B is yet another example of the hydraulic separation that exists between the two sands. Significant differences in chloride and TDS are additional indicators of the isolation between the two zones. At the PA-1 location in the proposed permit area, Sand A does not have strong uranium mineralization, and this is another indication that the sands are effectively isolated from one another. Because of their isolation, differences in certain water quality constituents are expected.

Lastly, it should be remembered from earlier discussions in this chapter that Sand A fails to meet EPA Primary Drinking Water Standards for two non-radiological constituents: TDS and arsenic. Unlike Sand A, Production Sand B fails to meet the drinking water standards for one non-radiological parameter (TDS) and two radiological parameters: radium-226 and uranium.

	Sand A Non-Production Zone	Sand B Production Area	Sand B Mine Area
Calcium (mg/l)	184	97	97
Sulfate (mg/l)	99	41	58
Chloride 9mg/l)	266	163	165
Nitrate (mg/l)	5.26	0.41	0.01
TDS* (mg/l)	904	636	652
Arsenic (mg/l)	0.018	0.011	0.008
Molybdenum (mg/l)	0.012	0.037	0.035
Uranium (mg/l)	0.009	0.115	0.020
Radium-226 (pCi/l)	2.3	334	12

*Total Dissolved Solids.

Revised: July 11, 2009

Up to this point the discussion has focused on the number and location of wells sampled, water quality differences, comparisons with drinking water standards, production area and mine area size, etc. Although all of these important and interesting topics are required elements of the PAA Application, additional information on water levels and TDS variability across the proposed Production Area must also be included in the Application. To that end, four maps are included herein: (1) Production Zone TDS Contours Map; (2) Non-production Zone TDS Contour Map; (3) Production Zone Piezometric Map; and (4) Non-production Zone Piezometric Map.

Figure 5-1 Production Zone TDS Contour Map was constructed using TDS from the 22 monitor wells and the 10 interior production zone wells. TDS values from the nine overlying Sand A wells were used in making Figure 5-2 Non-production Zone TDS Contour Map. Similarly, the piezometric maps were made from water level measurements taken from the baseline wells when hydrologic testing was performed in June and July of this year

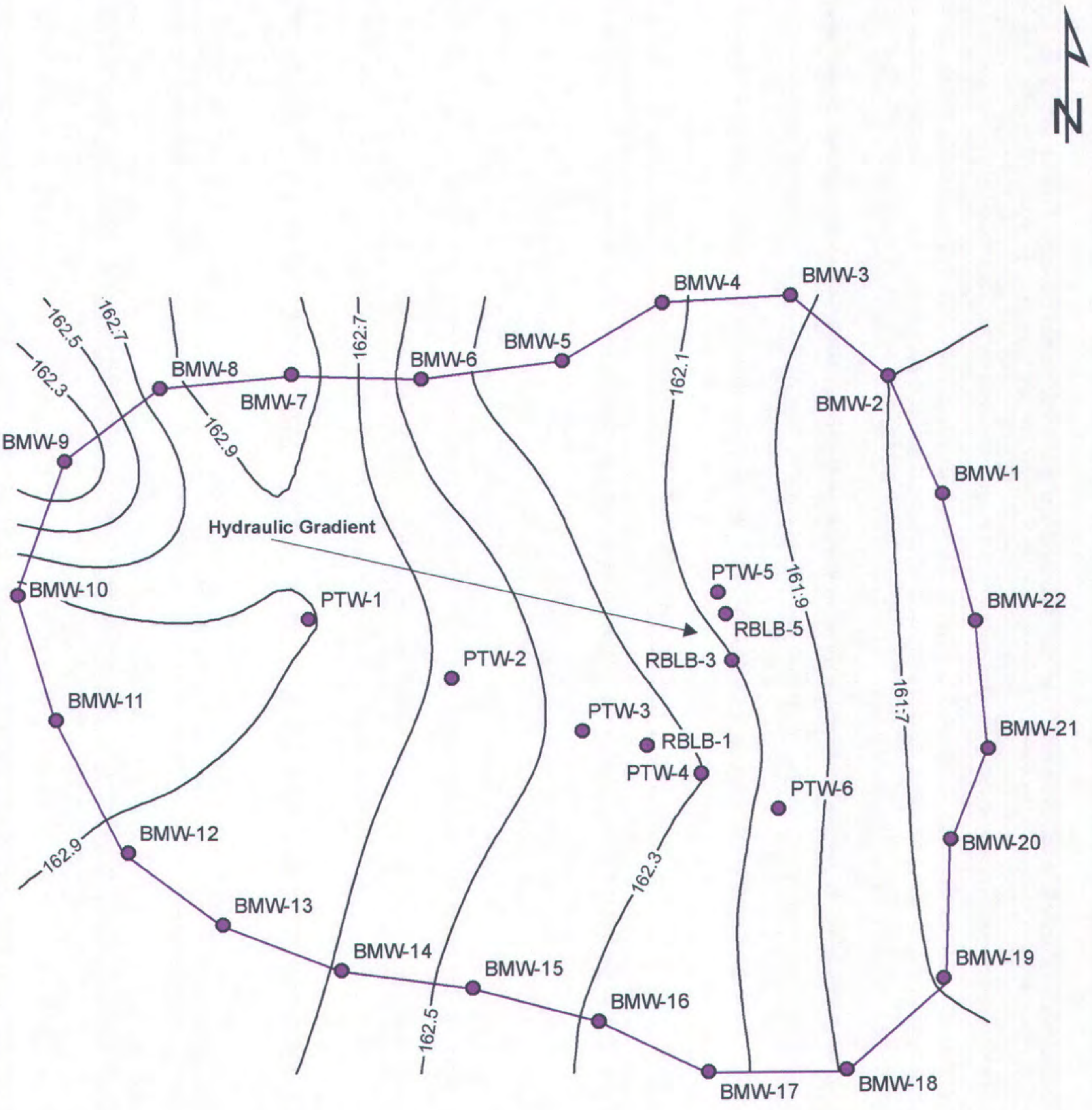


Figure 5-3

Production Zone Piezometric Contours - Sand B

1 inch equals 400 feet

0 105 210 420 630 840 1,050 Feet

Legend

● Well - Sand B

— Piezometric Contour - Sand B

☐ Mining Area

UEC

Uranium Energy Corp

Figure 5-3

Drawn By: M. Bell

Checked by: C.H. & J.L.

Date: February 17, 2009

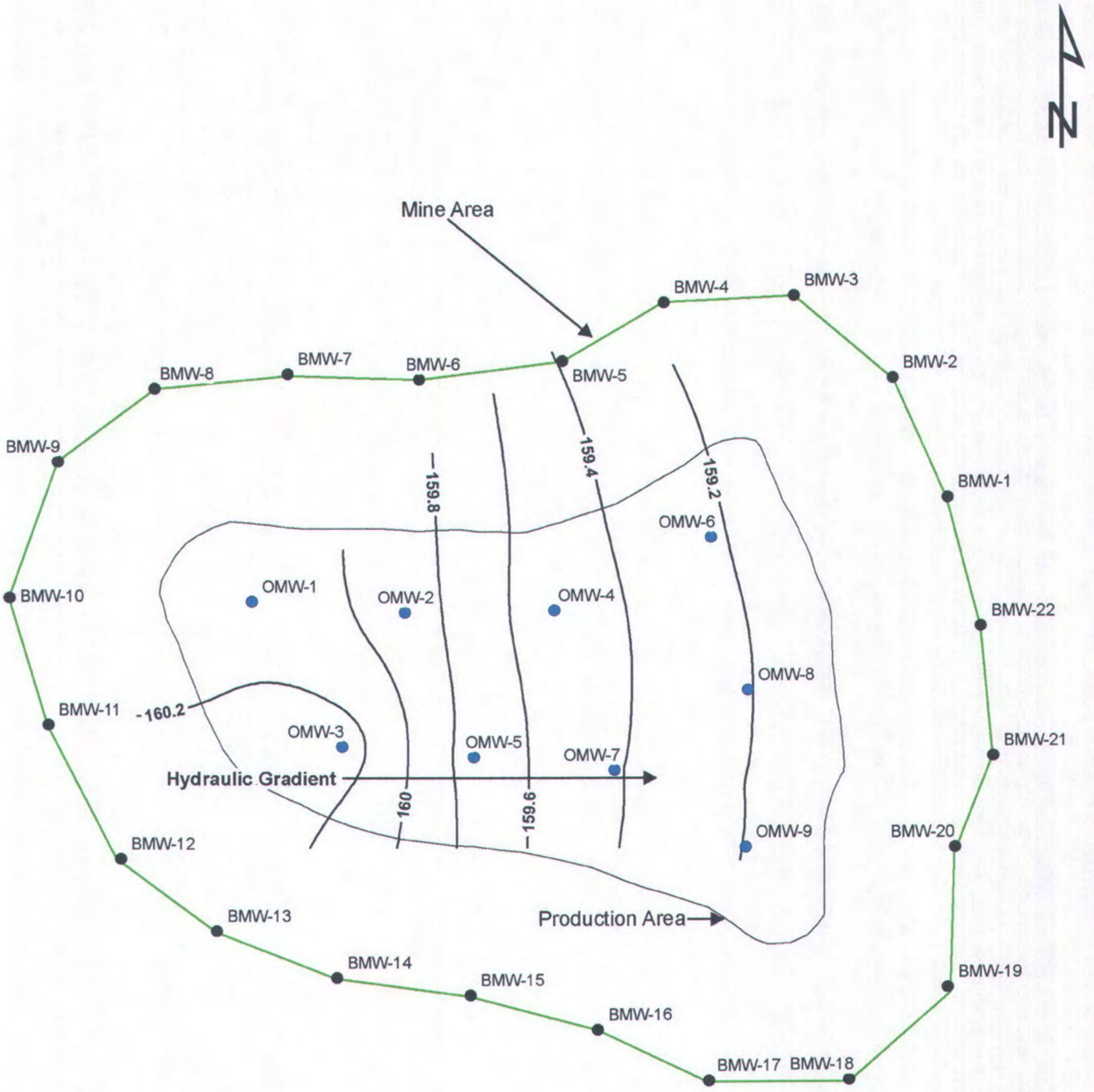


Figure 5-4

Non-production Zone Piezometric Contours - Sand A

1 inch equals 400 feet

Feet
0 105 210 420 630 840 1,050

Legend

●	Well - Sand A
—	Piezometric Contour - Sand A
☐	Production Area
🟩	Mining Area

UEC
Uranium Energy Corp

Figure 5-4
Drawn By: M. Bell
Checked by: C.H. & J.L.
Date: February 17, 2009

6.0 **Proposed Restoration Table, Monitor Well Designations and Upper Control Parameters**

6.1 Groundwater Analysis Report Summary

As required by TCEQ, water quality values for the baseline wells must be given in a table provided by the agency titled Groundwater Analysis Report Summary: this requirement has been followed, and the water quality values for (1) the Non-production Zone (overlying Sand A); (2) Mine Zone Production Area; and (3) Production Area (Sand B) are summarized in Table 6.1. The well identification for each area is also included in the table.

6.2 Proposed Restoration Table

Using the values from Table 6.1, a proposed Restoration Table was prepared. Table 6.2 is the proposed Restoration Table. The revised table was developed in accordance with the revised rules of March 12, 2009 regarding restoration table values (30 TAC §331.104 and §331.107).

6.3 Designated Monitor Wells

The designated monitor wells are listed in Table 6.3.

6.4 Designated Baseline Wells

Designated baseline wells are given in Table 6.4.

6.5 Proposed Upper Limits Control Parameters

By far, the best parameters for indicating a change in water quality associated with in situ recovery or restoration operations are chloride and conductivity. These parameters not only provide the earliest indication of a possible excursion, they are also easy to measure, and changes can be quickly detected. In other words, they provide an immediate and reliable measure of change in water quality, and this in turn allows an operator to take corrective measures as soon as possible.

In the past, uranium was included as a third indicator for possibly suggesting that an excursion has occurred, but there was no scientific basis to support it as a proper indicator.

Table 6.1 GROUNDWATER ANALYIS REPORTS SUMMARY

BASELINE WATER QUALITY

Company: **Uranium Energy Corp**

Mine: **Goliad Project**

Permit: **URO 3075** Prod. Area: **1**

Date Summarized: **September 4, 2008**

	PARAMETER	UNITS	NON PRODUCTION ZONE			PRODUCTION ZONE MINE AREA**			PRODUCTION AREA			WELL I.D. BY AREA* NON PROD. ZONE	PROD. ZONE Mine	Prod.
			low	average	high	low	average	high	low	average	high			
1	Calcium	mg/l	114	184	310	82	97	110	87	97	110	OMW-1	BMW-1	PTW1
2	Magnesium	mg/l	9.2	18.7	32.4	14.5	17.5	20	10.9	16.2	20.2	OMW-2	Through	Thru
3	Sodium	mg/l	83	110	133	93	105	120	94	103	117	OMW-3	BMW-22	PTW-
4	Potassium	mg/l	1.8	2.2	2.6	2.92	3.79	5.13	2.5	7.5	16.5	OMW-4		14
5	Carbonate	mg/l	0	0	0	0	0	0	0	0	0	OMW-5		RBL-1
6	Bicarbonate	mg/l	299	331	370	294	319	350	251	331	368	OMW-6		RBL-3
7	Sulfate	mg/l	47	99	168	15	58	89	9	42	82	OMW-7		RBL-4
8	Chloride	mg/l	146	266	584	158	165	172	150	163	168	OMW-8		RBL-5
9	Fluoride	mg/l	0.36	0.45	0.62	0.51	0.58	0.65	0.52	0.63	0.80	OMW-9		
10	Nitrate – N	mg/l	1.90	5.26	8.20	<0.01	0.01	0.01	0.02	0.38	1.73			
11	Silica	mg/l	16.1	18.3	21.4	12.3	15.7	18.1	12.1	26.8	37.5			
12	pH	std. units	6.98	7.24	7.39	7.28	7.58	8.18	7.30	7.52	7.96			
13	TDS	mg/l	615	904	1340	575	652	705	584	638	698			
14	Conductivity	µmhos	1040	1520	2450	1040	1104	1140	950	1041	1160			
15	Alkalinity	mg/l	245	271	303	241	262	287	206	272	302			
16	Ammonia-N	mg/l	<0.1	<0.1	0.1	<0.1	0.1	0.2	<0.1	<0.1	<0.1			
17	Arsenic	mg/l	0.010	0.018	0.031	<0.002	0.008	0.069	0.010	0.011	0.030			
18	Cadmium	mg/l	<0.001	0.001	0.001	<0.001	0.001	<0.001	<0.001	<0.005	<0.005			
19	Iron	mg/l	<0.030	<0.030	<0.030	<0.030	0.043	0.196	<0.030	0.034	0.063			
20	Lead	mg/l	<0.002	0.002	0.003	<0.002	0.002	<0.002	<0.012	<0.012	<0.012			
21	Manganese	mg/l	<0.003	0.02	0.09	0.007	0.017	0.050	<0.010	0.015	0.025			
22	Mercury	mg/l	<0.0004	0.0004	0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004			
23	Molybdenum	mg/l	<0.010	0.012	0.024	<0.01	0.035	0.481	0.014	0.036	0.136			
24	Selenium	mg/l	<0.003	0.007	0.012	<0.003	0.003	0.006	0.001	0.003	0.010			
25	Uranium	mg/l	0.006	0.009	0.014	<0.001	0.020	0.188	0.005	0.151	0.804			
26	Radium-226	pCi/l	0.5	2.3	6	0.9	12.1	41	10.0	404.9	1684.0			

*** List the identification numbers of wells used to obtain the high and low values for each parameter.**

****Monitor Wells**

Revised: March 27, 2009 to include PTW-6 through PTW-14

Table 6.2 Proposed Restoration Table

Calcium	97
Magnesium	16.2
Sodium	102
Potassium	7.1
Carbonate	0.0
Bicarbonate	332
Sulfate	41
Chloride	163
Fluoride	0.64
Nitrate-N	0.41
Silica	26.4
pH (Standard Units)	7.30 to 7.96
TDS	636
Conductivity (µmhos/cm)	1044
Alkalinity	272
Ammonia-N*	<0.1
Arsenic	0.011
Cadmium*	<0.005
Iron	0.038
Lead*	<0.012
Manganese	0.015
Mercury*	<0.0004
Molybdenum	0.037
Selenium	0.002
Uranium	0.115
Radium-226 (pCi/l)	333.8

All units are mg/l unless otherwise noted.

*These elements do not occur naturally in the aquifer and they are not part of the recovery process. In addition, these parameters have been exhaustively sampled throughout the history of ISR in Texas and shown to be nearly non-existent. Ammonia-N was used at a few project sites during the infancy of the industry but its use was discontinued. Since ammonia is no longer used in ISR operations, it should be removed from the restoration table. The other items (Cadmium, Lead and Mercury) too should be removed for the reasons just noted.

As indicated on Table 6.2 Proposed Restoration Table, ammonia, cadmium, lead and mercury do not naturally occur in the aquifer. A review of the baseline sampling analyses clearly shows this to be the case. It is also mentioned in the footnotes on Table 6.2, that these elements have been sampled exhaustively over the years at other ISR project sites and the record underscores the fact that they do not occur in the aquifers. When ammonia was briefly used at a few sites many years ago, it was certainly an appropriate element for monitoring and for restoration. However, since it is no longer used, there is no reason to include it in the list of pertinent elements.

In accordance with the revised rules, UEC requests that ammonia, cadmium, lead and mercury be excluded from the proposed restoration table. According to 30 TAC 331.104(b), any parameter except uranium and radium-226 may be excluded from a restoration table. In making a decision on this matter, the executive director may consider the following:

1. the element(s) does not naturally occur in the aquifer;
2. the element(s) are not included in the injection solution;
3. the element(s) are not dissolved by the mining process; or
4. any other applicable information provided by the applicant or permittee to support the exclusion of certain elements.

UEC believes that all four of the above points of consideration have been met: the elements do not occur in the production zone; the elements are not included in the proposed injection solution; because the elements are not in the aquifer, they are not subject to being dissolved by mining solutions; and lastly, extensive water quality sampling shows that these elements are not in the aquifer.

Table 6.4 Designated Production Zone Baseline Wells (Production Area)

PTW-1
PTW-2
PTW-3
PTW-4
PTW-5
PTW-6
PTW-7
PTW-8
PTW-9
PTW-10
PTW-11
PTW-12
PTW-13
PTW-14
RBLB-1
PBLB-3
RBLB-4
RBLB-5

Over the history of in situ uranium recovery in Texas, thousands of water samples that were routinely collected from hundreds of monitor wells rarely showed elevated uranium or radium-226. When excursions were detected, the indicators were invariably conductivity and chloride.

The use of uranium as an indicator parameter has come to the attention of the Nuclear Regulatory Commission (NRC). After evaluating it, NRC does not recommend using it as an indicator to detect excursions (see NUREG-1569, Nuclear Regulatory Commission's Standard Review Plan for In Situ Leach Uranium Extraction License Applications, Final Report, June 2003).

UEC is proposing to use the two best indicators (chloride and conductivity) for the Upper Limits Control Parameters. Using chloride and conductivity will provide the earliest warning of a possible excursion. UEC is also proposing that if an excursion is indicated by reaching or exceeding an upper control limit, part of the corrective action would include analyzing the water for uranium, radium-226 and other water quality constituents, as may be requested by TCEQ.

Table 6.5 lists the proposed upper control limits. The values given in Table 6.5 were derived by adding 25% to the highest value recorded in the production zone monitor wells. Non-production zone values were derived by adding 25% to the highest value recorded in overlying Sand A.

Table 6.5 Proposed Upper Limits Control Parameters

Production Area-1 (Overlying Sand A) Non-production Zone

Chloride: 730 mg/l
Conductivity: 3,062 μmhos

Production Area-1 (Production Zone Sand B)

Chloride: 210 mg/l
Conductivity: 1,450 μmhos

7.0 Updated Mine Plan

The affixed seal covers the entire contents of this chapter.

STATE OF TEXAS
HARRY L. ANTHONY IV
47592
LICENSED
PROFESSIONAL ENGINEER

August 27, 2008

Table 7.1

Updated Production and Restoration Schedule

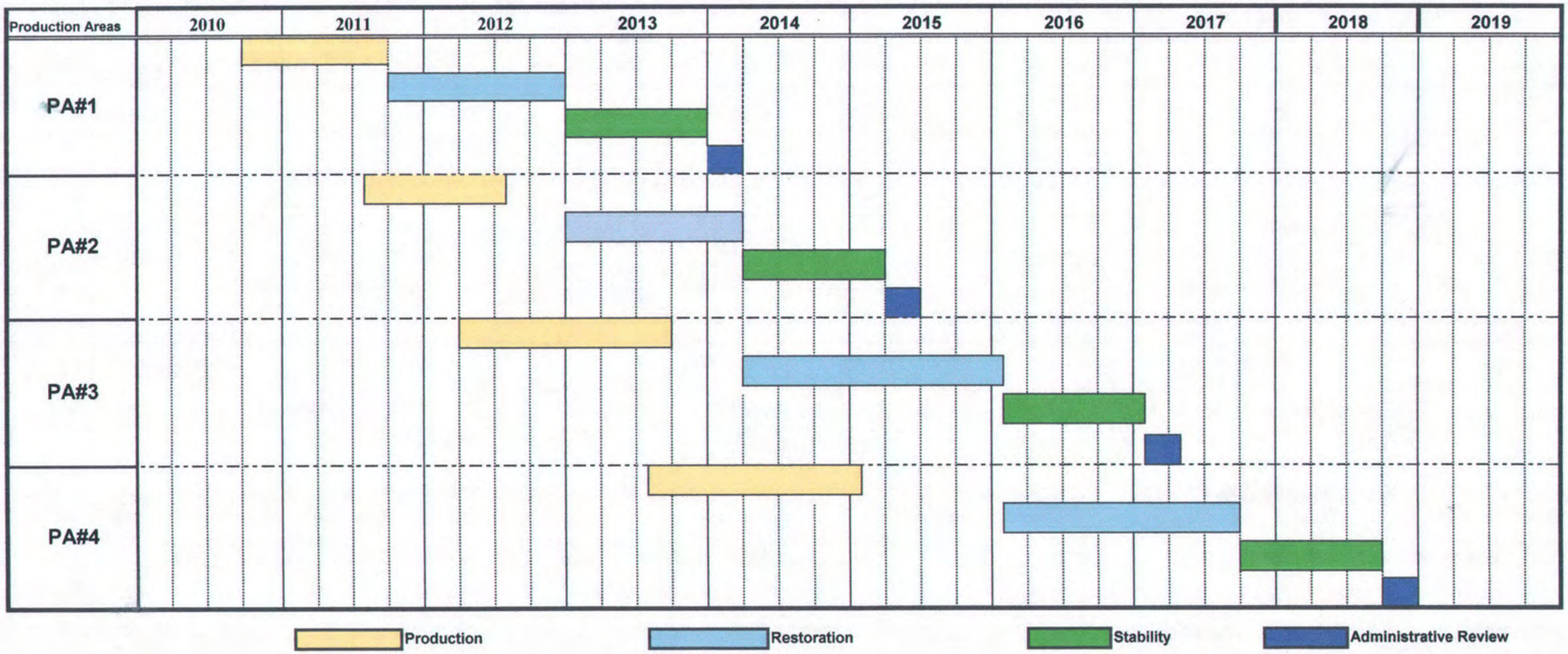


Table 7.2

Updated Fluid Handling Capacity vs. Fluid Disposal Requirements

	Year 1		1	2	3	4	5	6	7	8	9	10	11	12	
	Mine Plan		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	TOTAL
PAA #1	Module 1	(kgals)										108,000	108,000	108,000	324,000
	Module 2	(kgals)													-
	Module 3	(kgals)													-
PAA #2	Module 4	(kgals)													-
	Module 5	(kgals)													-
	Module 6	(kgals)													-
PAA #3	Module 7	(kgals)													-
	Module 8	(kgals)													-
	Module 9	(kgals)													-
	Module 10	(kgals)													-
	Module 11	(kgals)													-
PAA #4	Module 12	(kgals)													-
	Module 13	(kgals)													-
	Module 14	(kgals)													-
	Module 15	(kgals)													-
	Module 16	(kgals)													-
		(kgals)													
	Total Production Flow	**(kgals)**										**108,000**	**108,000**	**108,000**	**324,000**
	Total Restoration Flow	**(kgals)**										-	-	-	-
	RO Feed	**(kgals)**										-	-	-	-
	RO Permeate	**(kgals)**										-	-	-	-
	RO Brine	**(kgals)**										-	-	-	-
	Restoration Re-cycle	**(kgals)**										-	-	-	-
	Restoration-Wellfield Re-injection	**(kgals)**										-	-	-	-
	Disposal Wells Capacity	**(kgals)**										**8,640**	**8,640**	**8,640**	**25,920**
	Production Bleed	(kgals)										1,080	1,080	1,080	3,240
	Other Effluents	(kgals)										173	173	173	518
	Restoration RO Brine	(kgals)										-	-	-	-
	Rain Direct	(kgals)										39	39	39	118
	Total	**(kgals)**										**1,292**	**1,292**	**1,292**	**3,876**
	Net Disposal Capacity	**(kgals)**										**7,348**	**7,348**	**7,348**	**22,044**
	Total Tank Capacity	(kgals)										180	180	180	540
	Emergency Capacity	(kgals)										90	90	90	270
	Emergency Capacity Available	**(kgals)**										**7,438**	**7,438**	**7,438**	**22,314**

Production	
Restoration	
Stab.	Stability Period
Admin.	Closeout Processing
Reclaim.	Well Field Reclamation

Table 7.2 Updated Fluid Handling Capacity vs. Fluid Disposal Requirements - (Continued)

	Year 2 Mine Plan		13 Jan	14 Feb	15 Mar	16 Apr	17 May	18 June	19 July	20 Aug	21 Sept	22 Oct	23 Nov	24 Dec	TOTAL
PAA #1	Module 1	(kgals)	108,000	108,000	108,000					25,920	25,920	25,920	25,920	25,920	453,600
	Module 2	(kgals)		108,000	108,000	108,000	108,000	108,000	108,000						648,000
	Module 3	(kgals)				108,000	108,000	108,000	108,000	108,000	108,000				648,000
PAA #2	Module 4	(kgals)								108,000	108,000	108,000	108,000	108,000	540,000
	Module 5	(kgals)										108,000	108,000	108,000	324,000
	Module 6	(kgals)													-
PAA #3	Module 7	(kgals)													-
	Module 8	(kgals)													-
	Module 9	(kgals)													-
	Module 10	(kgals)													-
	Module 11	(kgals)													-
PAA #4	Module 12	(kgals)													-
	Module 13	(kgals)													-
	Module 14	(kgals)													-
	Module 15	(kgals)													-
	Module 16	(kgals)													-
	Total Production Flow	**(kgals)**	**108,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**2,484,000**
	Total Restoration Flow	**(kgals)**								**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**129,600**
	RO Feed	**(kgals)**								**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**64,800**
	RO Permeate	**(kgals)**								**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**48,600**
	RO Brine	**(kgals)**								**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**16,200**
	Restoration Re-cycle	**(kgals)**								**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**64,800**
	Restoration-Wellfield Re-injection	**(kgals)**								**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**113,400**
	Disposal Wells Capacity	**(kgals)**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**103,680**
	Production Bleed	(kgals)	1,080	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	24,840
	Other Effluents	(kgals)	173	173	173	173	173	173	173	173	173	173	173	173	2,074
	Restoration RO Brine	(kgals)	-	-	-	-	-	-	-	3,240	3,240	3,240	3,240	3,240	16,200
	Rain Direct	(kgals)	39	39	39	39	39	39	39	39	39	39	39	39	472
	Total	**(kgals)**	**1,292**	**2,372**	**2,372**	**2,372**	**2,372**	**2,372**	**2,372**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**43,585**
	Net Disposal Capacity	**(kgals)**	**7,348**	**6,268**	**6,268**	**6,268**	**6,268**	**6,268**	**6,268**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**60,095**
	Total Tank Capacity	(kgals)	180	180	180	180	180	180	180	180	180	180	180	180	2,160
	Emergency Capacity	(kgals)	90	90	90	90	90	90	90	90	90	90	90	90	1,080
	Emergency Capacity Available	**(kgals)**	**7,438**	**6,358**	**6,358**	**6,358**	**6,358**	**6,358**	**6,358**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**61,175**

Production
Restoration
Stab. Stability Period
Admin. Closeout Processing
Reclaim. Well Field Reclamation

Table 7.2

Updated Fluid Handling Capacity vs. Fluid Disposal Requirements - (Continued)

Year 3 Mine Plan		25 Jan	26 Feb	27 Mar	28 Apr	29 May	30 June	31 July	32 Aug	33 Sept	34 Oct	35 Nov	36 Dec	TOTAL
Module 1	(kgals)	Stab.	Stab.	Stab.	Stab.	Stab.	Stab.	Admin.	Admin.	Admin.	Admin.	Admin.	Admin.	-
Module 2	(kgals)	25,920	25,920	25,920	25,920	25,920	Stab.	Stab.	Stab.	Stab.	Stab.	Stab.	Admin.	129,600
Module 3	(kgals)						25,920	25,920	25,920	25,920	25,920	Stab.	Stab.	129,600
Module 4	(kgals)	108,000										25,920	25,920	159,840
Module 5	(kgals)	108,000	108,000	108,000										324,000
Module 6	(kgals)		108,000	108,000	108,000	108,000	108,000	108,000						648,000
Module 7	(kgals)				108,000	108,000	108,000	108,000	108,000	108,000				648,000
Module 8	(kgals)								108,000	108,000	108,000	108,000	108,000	540,000
Module 9	(kgals)										108,000	108,000	108,000	324,000
Module 10	(kgals)													-
Module 11	(kgals)													-
Module 12	(kgals)													-
Module 13	(kgals)													-
Module 14	(kgals)													-
Module 15	(kgals)													-
Module 16	(kgals)													-
Total Production Flow	**(kgals)**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**2,592,000**
Total Restoration Flow	**(kgals)**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**311,040**
RO Feed	**(kgals)**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**155,520**
RO Permeate	**(kgals)**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**116,640**
RO Brine	**(kgals)**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**38,880**
Restoration Re-cycle	**(kgals)**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**155,520**
Restoration-Wellfield Re-injection	**(kgals)**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**272,160**
Disposal Wells Capacity	**(kgals)**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**103,680**
Production Bleed	(kgals)	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	25,920
Other Effluents	(kgals)	173	173	173	173	173	173	173	173	173	173	173	173	2,074
Restoration RO Brine	(kgals)	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	38,880
Rain Direct	(kgals)	39	39	39	39	39	39	39	39	39	39	39	39	472
Total	**(kgals)**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**67,345**
Net Disposal Capacity	**(kgals)**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**36,335**
Total Tank Capacity	(kgals)	180	180	180	180	180	180	180	180	180	180	180	180	2,160
Emergency Capacity	(kgals)	90	90	90	90	90	90	90	90	90	90	90	90	1,080
Emergency Capacity Available	**(kgals)**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**37,415**

Production

Restoration

Stab. Stability Period

Admin. Closeout Processing

Reclaim. Well Field Reclamation

Table 7.2

Updated Fluid Handling Capacity vs. Fluid Disposal Requirements - (Continued)

Year 4 Mine Plan		37 Jan	38 Feb	39 Mar	40 Apr	41 May	42 June	43 July	44 Aug	45 Sept	46 Oct	47 Nov	48 Dec	TOTAL
Module 1	(kgals)	Admin.	Reclaim.											-
Module 2	(kgals)	Admin.	Admin.	Admin.	Admin.	Admin.	Admin.	Reclaim.						-
Module 3	(kgals)	Stab.	Stab.	Stab.	Stab.	Admin.	Admin.	Admin.	Admin.	Admin.	Admin.	Admin.	Reclaim.	-
Module 4	(kgals)	25,920	25,920	25,920	Stab.	Stab.	Stab.	Stab.	Stab.	Stab.	Admin.	Admin.	Admin.	77,760
Module 5	(kgals)				25,920	25,920	25,920	25,920	25,920	Stab.	Stab.	Stab.	Stab.	129,600
Module 6	(kgals)									25,920	25,920	25,920	25,920	103,680
Module 7	(kgals)													-
Module 8	(kgals)	108,000												108,000
Module 9	(kgals)	108,000	108,000	108,000										324,000
Module 10	(kgals)		108,000	108,000	108,000	108,000	108,000	108,000						648,000
Module 11	(kgals)				108,000	108,000	108,000	108,000	108,000	108,000				648,000
Module 12	(kgals)								108,000	108,000	108,000	108,000	108,000	540,000
Module 13	(kgals)										108,000	108,000	108,000	324,000
Module 14	(kgals)													-
Module 15	(kgals)													-
Module 16	(kgals)													-
Total Production Flow	**(kgals)**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**2,592,000**
Total Restoration Flow	**(kgals)**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**311,040**
RO Feed	**(kgals)**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**155,520**
RO Permeate	**(kgals)**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**116,640**
RO Brine	**(kgals)**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**38,880**
Restoration Re-cycle	**(kgals)**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**155,520**
Restoration-Wellfield Re-injection	**(kgals)**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**272,160**
Disposal Wells Capacity	**(kgals)**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**103,680**
Production Bleed	(kgals)	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	25,920
Other Effluents	(kgals)	173	173	173	173	173	173	173	173	173	173	173	173	2,074
Restoration RO Brine	(kgals)	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	38,880
Rain Direct	(kgals)	39	39	39	39	39	39	39	39	39	39	39	39	472
Total	**(kgals)**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**67,345**
Net Disposal Capacity	**(kgals)**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**36,335**
Total Tank Capacity	(kgals)	180	180	180	180	180	180	180	180	180	180	180	180	2,160
Emergency Capacity	(kgals)	90	90	90	90	90	90	90	90	90	90	90	90	1,080
Emergency Capacity Available	**(kgals)**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**37,415**

Production	Restoration	Stab.	Stability Period	Admin.	Closeout Processing	Reclaim.	Well Field Reclamation

Table 7.2 Updated Fluid Handling Capacity vs. Fluid Disposal Requirements - (Continued)

Year 5 Mine Plan		49 Jan	50 Feb	51 Mar	52 Apr	53 May	54 June	55 July	56 Aug	57 Sept	58 Oct	59 Nov	60 Dec	TOTAL
Module 1	(kgals)													-
Module 2	(kgals)													-
Module 3	(kgals)													-
Module 4	(kgals)	Admin.	Admin.	Admin.	Admin.	Reclaim.								-
Module 5	(kgals)	Stab.	Stab.	Admin.	Admin.	Admin.	Admin.	Admin.	Admin.	Admin.	Reclaim.			-
Module 6	(kgals)	25,920	Stab.	Stab.	Stab.	Stab.	Stab.	Stab.	Admin.	Admin.	Admin.	Admin.	Admin.	25,920
Module 7	(kgals)		25,920	25,920	25,920	25,920	25,920	Stab.	Stab.	Stab.	Stab.	Stab.	Stab.	129,600
Module 8	(kgals)							25,920	25,920	25,920	25,920	25,920	Stab.	129,600
Module 9	(kgals)												25,920	25,920
Module 10	(kgals)													-
Module 11	(kgals)													-
Module 12	(kgals)	108,000												108,000
Module 13	(kgals)	108,000	108,000	108,000										324,000
Module 14	(kgals)		108,000	108,000	108,000	108,000	108,000	108,000						648,000
Module 15	(kgals)				108,000	108,000	108,000	108,000	108,000	108,000				648,000
Module 16	(kgals)								108,000	108,000	108,000	108,000	108,000	540,000
Total Production Flow	**(kgals)**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**216,000**	**108,000**	**108,000**	**108,000**	**2,268,000**
Total Restoration Flow	**(kgals)**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**25,920**	**311,040**
RO Feed	**(kgals)**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**155,520**
RO Permeate	**(kgals)**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**9,720**	**116,640**
RO Brine	**(kgals)**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**3,240**	**38,880**
Restoration Re-cycle	**(kgals)**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**12,960**	**155,520**
Restoration-Wellfield Re-injection	**(kgals)**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**22,680**	**272,160**
Disposal Wells Capacity	**(kgals)**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**103,680**
Production Bleed	(kgals)	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	1,080	1,080	1,080	22,680
Other Effluents	(kgals)	696	173	173	173	173	173	173	173	173	173	173	173	2,596
Restoration RO Brine	(kgals)	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	3,240	38,880
Rain Direct	(kgals)	39	39	39	39	39	39	39	39	39	39	39	39	472
Total	**(kgals)**	**6,135**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**5,612**	**4,532**	**4,532**	**4,532**	**64,628**
Net Disposal Capacity	**(kgals)**	**2,505**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**3,028**	**4,108**	**4,108**	**4,108**	**39,052**
Total Tank Capacity	(kgals)	180	180	180	180	180	180	180	180	180	180	180	180	2,160
Emergency Capacity	(kgals)	90	90	90	90	90	90	90	90	90	90	90	90	1,080
Emergency Capacity Available	**(kgals)**	**2,595**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**3,118**	**4,198**	**4,198**	**4,198**	**40,132**

Production

Restoration

Stab. Stability Period

Admin. Closeout Processing

Reclaim. Well Field Reclamation

Table 7.2

Updated Fluid Handling Capacity vs. Fluid Disposal Requirements - (Continued)

Year 6 Mine Plan		61 Jan	62 Feb	63 Mar	64 Apr	65 May	66 June	67 July	68 Aug	69 Sept	70 Oct	71 Nov	72 Dec	TOTAL
Module 1	(kgals)													-
Module 2	(kgals)													-
Module 3	(kgals)													-
Module 4	(kgals)													-
Module 5	(kgals)													-
Module 6	(kgals)	Admin.	Admin.	Reclaim.										-
Module 7	(kgals)	Admin.	Admin.	Admin.	Admin.	Admin.	Admin.	Admin.	Reclaim.					-
Module 8	(kgals)	Stab.	Stab.	Stab.	Stab.	Stab.	Admin.	Admin.	Admin.	Admin.	Admin.	Admin.	Admin.	-
Module 9	(kgals)	25,920	25,920	25,920	25,920	Stab.	Stab.	Stab.	Stab.	Stab.	Stab.	Admin.	Admin.	103,680
Module 10	(kgals)					32,400	32,400	32,400	32,400	Stab.	Stab.	Stab.	Stab.	129,600
Module 11	(kgals)									32,400	32,400	32,400	32,400	129,600
Module 12	(kgals)													-
Module 13	(kgals)													-
Module 14	(kgals)													-
Module 15	(kgals)													-
Module 16	(kgals)	108,000												108,000
Total Production Flow	**(kgals)**	**108,000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**108,000**
Total Restoration Flow	**(kgals)**	**25,920**	**25,920**	**25,920**	**25,920**	**32,400**	**32,400**	**32,400**	**32,400**	**32,400**	**32,400**	**32,400**	**32,400**	**362,880**
RO Feed	**(kgals)**	**12,960**	**12,960**	**12,960**	**12,960**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**181,440**
RO Permeate	**(kgals)**	**9,720**	**9,720**	**9,720**	**9,720**	**12,150**	**12,150**	**12,150**	**12,150**	**12,150**	**12,150**	**12,150**	**12,150**	**136,080**
RO Brine	**(kgals)**	**3,240**	**3,240**	**3,240**	**3,240**	**4,050**	**4,050**	**4,050**	**4,050**	**4,050**	**4,050**	**4,050**	**4,050**	**45,360**
Restoration Re-cycle	**(kgals)**	**12,960**	**12,960**	**12,960**	**12,960**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**181,440**
Restoration-Wellfield Re-injection	**(kgals)**	**22,680**	**22,680**	**22,680**	**22,680**	**28,350**	**28,350**	**28,350**	**28,350**	**28,350**	**28,350**	**28,350**	**28,350**	**317,520**
Disposal Wells Capacity	**(kgals)**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**103,680**
Production Bleed	(kgals)	1,080	-	-	-	-	-	-	-	-	-	-	-	1,080
Other Effluents	(kgals)	696	173	173	173	173	173	173	173	173	173	173	173	2,596
Restoration RO Brine	(kgals)	3,240	3,240	3,240	3,240	4,050	4,050	4,050	4,050	4,050	4,050	4,050	4,050	45,360
Rain Direct	(kgals)	39	39	39	39	39	39	39	39	39	39	39	39	472
Total	**(kgals)**	**5,055**	**3,452**	**3,452**	**3,452**	**4,262**	**4,262**	**4,262**	**4,262**	**4,262**	**4,262**	**4,262**	**4,262**	**49,508**
Net Disposal Capacity	**(kgals)**	**3,585**	**5,188**	**5,188**	**5,188**	**4,378**	**4,378**	**4,378**	**4,378**	**4,378**	**4,378**	**4,378**	**4,378**	**54,172**
Total Tank Capacity	(kgals)	180	180	180	180	180	180	180	180	180	180	180	180	2,160
Emergency Capacity	(kgals)	90	90	90	90	90	90	90	90	90	90	90	90	1,080
Emergency Capacity Available	**(kgals)**	**3,675**	**5,278**	**5,278**	**5,278**	**4,468**	**4,468**	**4,468**	**4,468**	**4,468**	**4,468**	**4,468**	**4,468**	**55,252**

Production

Restoration

Stab. Stability Period

Admin. Closeout Processing

Reclaim. Well Field Reclamation

Table 7.2

Updated Fluid Handling Capacity vs. Fluid Disposal Requirements - (Continued)

Year 7 Mine Plan		73 Jan	74 Feb	75 Mar	76 Apr	77 May	78 June	79 July	80 Aug	81 Sept	82 Oct	83 Nov	84 Dec	TOTAL
Module 1	(kgals)													-
Module 2	(kgals)													-
Module 3	(kgals)													-
Module 4	(kgals)													-
Module 5	(kgals)													-
Module 6	(kgals)													-
Module 7	(kgals)													-
Module 8	(kgals)													-
Module 9	(kgals)	Admin.	Admin.	Admin.	Admin.	Admin.	Reclaim.							-
Module 10	(kgals)	Stab.	Stab.	Admin.	Admin.	Admin.	Admin.	Admin.	Admin.	Admin.	Reclaim.			-
Module 11	(kgals)	Stab.	Stab.	Stab.	Stab.	Stab.	Stab.	Admin.	Admin.	Admin.	Admin.	Admin.	Admin.	-
Module 12	(kgals)	32,400	32,400	32,400	32,400	Stab.	Stab.	Stab.	Stab.	Stab.	Stab.	Admin.	Admin.	129,600
Module 13	(kgals)					32,400	32,400	32,400	32,400	Stab.	Stab.	Stab.	Stab.	129,600
Module 14	(kgals)									32,400	32,400	32,400	32,400	129,600
Module 15	(kgals)													-
Module 16	(kgals)													-
Total Production Flow	**(kgals)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total Restoration Flow	**(kgals)**	**32,400**	**32,400**	**32,400**	**32,400**	**32,400**	**32,400**	**32,400**	**32,400**	**32,400**	**32,400**	**32,400**	**32,400**	**388,800**
RO Feed	**(kgals)**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**194,400**
RO Permeate	**(kgals)**	**12,150**	**12,150**	**12,150**	**12,150**	**12,150**	**12,150**	**12,150**	**12,150**	**12,150**	**12,150**	**12,150**	**12,150**	**145,800**
RO Brine	**(kgals)**	**4,050**	**4,050**	**4,050**	**4,050**	**4,050**	**4,050**	**4,050**	**4,050**	**4,050**	**4,050**	**4,050**	**4,050**	**48,600**
Restoration Re-cycle	**(kgals)**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**194,400**
Restoration-Wellfield Re-injection	**(kgals)**	**28,350**	**28,350**	**28,350**	**28,350**	**28,350**	**28,350**	**28,350**	**28,350**	**28,350**	**28,350**	**28,350**	**28,350**	**340,200**
Disposal Wells Capacity	**(kgals)**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**103,680**
Production Bleed	(kgals)	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Effluents	(kgals)	173	173	173	173	173	173	173	173	173	173	173	173	2,074
Restoration RO Brine	(kgals)	4,050	4,050	4,050	4,050	4,050	4,050	4,050	4,050	4,050	4,050	4,050	4,050	48,600
Rain Direct	(kgals)	39	39	39	39	39	39	39	39	39	39	39	39	472
Total	**(kgals)**	**4,262**	**4,262**	**4,262**	**4,262**	**4,262**	**4,262**	**4,262**	**4,262**	**4,262**	**4,262**	**4,262**	**4,262**	**51,145**
Net Disposal Capacity	**(kgals)**	**4,378**	**4,378**	**4,378**	**4,378**	**4,378**	**4,378**	**4,378**	**4,378**	**4,378**	**4,378**	**4,378**	**4,378**	**52,535**
Total Tank Capacity	(kgals)	180	180	180	180	180	180	180	180	180	180	180	180	2,160
Emergency Capacity	(kgals)	90	90	90	90	90	90	90	90	90	90	90	90	1,080
Emergency Capacity Available	**(kgals)**	**4,468**	**4,468**	**4,468**	**4,468**	**4,468**	**4,468**	**4,468**	**4,468**	**4,468**	**4,468**	**4,468**	**4,468**	**53,615**

Production	Production		
Restoration	Restoration		
Stab.	Stability Period		
Admin.	Closeout Processing		
Reclaim.	Well Field Reclamation		

Table 7.2

Updated Fluid Handling Capacity vs. Fluid Disposal Requirements - (Continued)

Year 8		85	86	87	88	89	90	91	92	93	94	95	96	
Mine Plan		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	TOTAL
Module 1	(kgals)													-
Module 2	(kgals)													-
Module 3	(kgals)													-
Module 4	(kgals)													-
Module 5	(kgals)													-
Module 6	(kgals)													-
Module 7	(kgals)													-
Module 8	(kgals)													-
Module 9	(kgals)													-
Module 10	(kgals)													-
Module 11	(kgals)	Admin.	Reclaim.											-
Module 12	(kgals)	Admin.	Admin.	Admin.	Admin.	Admin.	Reclaim.							-
Module 13	(kgals)	Stab.	Stab.	Admin.	Admin.	Admin.	Admin.	Admin.	Admin.	Admin.	Reclaim.			-
Module 14	(kgals)	Stab.	Stab.	Stab.	Stab.	Stab.	Stab.	Admin.	Admin.	Admin.	Admin.	Admin.	Admin.	-
Module 15	(kgals)	32,400	32,400	32,400	32,400	Stab.	Stab.	Stab.	Stab.	Stab.	Stab.	Admin.	Admin.	129,600
Module 16	(kgals)					32,400	32,400	32,400	32,400	Stab.	Stab.	Stab.	Stab.	129,600
Total Production Flow	**(kgals)**	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Restoration Flow	**(kgals)**	**32,400**	**32,400**	**32,400**	**32,400**	**32,400**	**32,400**	**32,400**	**32,400**	-	-	-	-	**259,200**
RO Feed	**(kgals)**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	-	-	-	-	**129,600**
RO Permeate	**(kgals)**	**12,150**	**12,150**	**12,150**	**12,150**	**12,150**	**12,150**	**12,150**	**12,150**	-	-	-	-	**97,200**
RO Brine	**(kgals)**	**4,050**	**4,050**	**4,050**	**4,050**	**4,050**	**4,050**	**4,050**	**4,050**	-	-	-	-	**32,400**
Restoration Re-cycle	**(kgals)**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	**16,200**	-	-	-	-	**129,600**
Restoration-Wellfield Re-injection	**(kgals)**	**28,350**	**28,350**	**28,350**	**28,350**	**28,350**	**28,350**	**28,350**	**28,350**	-	-	-	-	**226,800**
Disposal Wells Capacity	**(kgals)**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**103,680**
Production Bleed	(kgals)	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Effluents	(kgals)	173	173	173	173	173	173	173	173	-	-	-	-	1,382
Restoration RO Brine	(kgals)	4,050	4,050	4,050	4,050	4,050	4,050	4,050	4,050	-	-	-	-	32,400
Rain Direct	(kgals)	39	39	39	39	39	39	39	39	39	39	39	39	472
Total	**(kgals)**	**4,262**	**4,262**	**4,262**	**4,262**	**4,262**	**4,262**	**4,262**	**4,262**	**39**	**39**	**39**	**39**	**34,254**
Net Disposal Capacity	**(kgals)**	**4,378**	**4,378**	**4,378**	**4,378**	**4,378**	**4,378**	**4,378**	**4,378**	**8,601**	**8,601**	**8,601**	**8,601**	**69,426**
Total Tank Capacity	(kgals)	180	180	180	180	180	180	180	180	180	180	180	180	2,160
Emergency Capacity	(kgals)	90	90	90	90	90	90	90	90	90	90	90	90	1,080
Emergency Capacity Available	**(kgals)**	**4,468**	**4,468**	**4,468**	**4,468**	**4,468**	**4,468**	**4,468**	**4,468**	**8,691**	**8,691**	**8,691**	**8,691**	**70,506**

Production	Restoration	Stab.	Stability Period	Admin.	Closeout Processing	Reclaim.	Well Field Reclamation

Table 7.2

Updated Fluid Handling Capacity vs. Fluid Disposal Requirements - (Continued)

Year 9 Mine Plan		97 Jan	98 Feb	99 Mar	100 Apr	101 May	102 June	103 July	104 Aug	105 Sept	106 Oct	107 Nov	108 Dec	TOTAL
Module 1	(kgals)													-
Module 2	(kgals)													-
Module 3	(kgals)													-
Module 4	(kgals)													-
Module 5	(kgals)													-
Module 6	(kgals)													-
Module 7	(kgals)													-
Module 8	(kgals)													-
Module 9	(kgals)													-
Module 10	(kgals)													-
Module 11	(kgals)													-
Module 12	(kgals)													-
Module 13	(kgals)													-
Module 14	(kgals)	Admin.	Reclaim.											-
Module 15	(kgals)	Admin.	Admin.	Admin.	Admin.	Admin.	Reclaim.							-
Module 16	(kgals)	Stab.	Stab.	Admin.	Admin.	Admin.	Admin.	Admin.	Admin.	Admin.	Reclaim.			-
Total Production Flow	**(kgals)**	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Restoration Flow	**(kgals)**	-	-	-	-	-	-	-	-	-	-	-	-	-
RO Feed	**(kgals)**	-	-	-	-	-	-	-	-	-	-	-	-	-
RO Permeate	**(kgals)**	-	-	-	-	-	-	-	-	-	-	-	-	-
RO Brine	**(kgals)**	-	-	-	-	-	-	-	-	-	-	-	-	-
Restoration Re-cycle	**(kgals)**	-	-	-	-	-	-	-	-	-	-	-	-	-
Restoration-Wellfield Re-injection	**(kgals)**	-	-	-	-	-	-	-	-	-	-	-	-	-
Disposal Wells Capacity	**(kgals)**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**8,640**	**103,680**
Production Bleed	(kgals)	-	-	-	-	-	-	-	-	-	-			-
Other Effluents	(kgals)	-	-	-	-	-	-	-	-	-	-			-
Restoration RO Brine	(kgals)	-	-	-	-	-	-	-	-	-	-			-
Rain Direct	(kgals)	39	39	39	39	39	39	39	39	39	39			393
Total	**(kgals)**	**39**	**39**	**39**	**39**	**39**	**39**	**39**	**39**	**39**	**39**			**393**
Net Disposal Capacity	**(kgals)**	**8,601**	**8,601**	**8,601**	**8,601**	**8,601**	**8,601**	**8,601**	**8,601**	**8,601**	**8,601**			**86,007**
Total Tank Capacity	(kgals)	180	180	180	180	180	180	180	180	180	180			1,800
Emergency Capacity	(kgals)	90	90	90	90	90	90	90	90	90	90			900
Emergency Capacity Available	**(kgals)**	**8,691**	**8,691**	**8,691**	**8,691**	**8,691**	**8,691**	**8,691**	**8,691**	**8,691**	**8,691**			**86,907**

Production | Restoration | Stab. Stability Period | Admin. Closeout Processing | Reclaim. Well Field Reclamation

During operations, UEC will submit plugging and abandonment cost estimates for the anticipated number of wells needed as the project goes forward. The cost estimates will be in current dollars and will include labor, materials, equipment and supplies.

For PA-1, it is anticipated that the wells listed in Table 8-1 will be needed. As the table shows, 18 production zone baseline wells and 22 production zone monitor wells are in place, and it is estimated that 192 injection and recovery wells will be needed for operations in PA-1.

With respect to total depth and casing size, the proposed injectors and extractors will be completed at an average total depth of approximately 200 feet below ground level, and the well casing will be 6 inch diameter PVC. For the existing wells, actual total depths are known, and these depths are summarized in Table 8-2.

Table 8.1 Wells Existing and Planned for PA-1

Injectors/ Extractors	Overlying Monitor Wells	Production Zone Baseline Wells	Production Zone Monitor Wells
192*	9**	18**	22**

*To be completed.

** Existing

Revised: March 27, 2009

Table 8.2 Total Depth of Existing Wells in PA-1

	Depth (Feet)		Depth (Feet)		Depth (Feet)		Depth (Feet)
OMW-1	97	BMW-1	209	BMW-10	194	BMW-19	218
OMW-2	110	BMW-2	206	BMW-11	183	BMW-20	200
OMW-3	106	BMW-3	205	BMW-12	180	BMW-21	206
OMW-4	119	BMW-4	193	BMW-13	188	BMW-22	208
OMW-5	120	BMW-5	204	BMW-14	206		
OMW-6	123	BMW-6	201	BMW-15	210		
OMW-7	119	BMW-7	199	BMW-16	206		
OMW-8	119	BMW-8	195	BMW-17	191		
OMW-9	113	BMW-9	197	BMW-18	212		
PTW-1	190						
PTW-2	211						
PTW-3	210						
PTW-4	208						
PTW-5	207						
PTW-6	206						
PTW-7	201						
PTW-8	216						
PTW-9	206						
PTW-10	210						
PTW-11	206						
PTW-12	215						
PTW-13	216						
PTW-14	228						
RBLB-1	205						
RBLB-3	220						
RBLB-4	205						
RBLB-5	183						

A well plugging and abandonment cost estimate is provided in Table 8.3. Information in support of the estimate is summarized in Table 8.4. The estimate is based on current costs and a 20% contingency is included.

With the adoption of new rules as of March 12, 2009, applicants are required to provide a cost estimate for groundwater restoration in a production area authorization application. UEC has completed a detailed cost estimate and it is summarized in Table 8.5.

Table 8.3 Well Plugging and Abandonment Cost Estimate

PLUGGING COST COMPONENT			Unit	Quantity	$ Cost/ Unit	Total Cost
1.	Cement Costs					
	a)	Plugging Monitor Wells (MW-1, MW-2,...etc.)	Each Well	22	$ 191.00	$4,202
	b)	Plugging Overlying Wells (OMW-1, OMW-2,...etc.)	Each Well	9	$ 109.00	$981
	c)	Plugging Baselne Wells (PTW-1, RBLB-1,...etc.)	Each Well	18	$ 233.00	$4,194
	d)	Plugging Injection Wells (Proposed Wells)	Each Well	67	$ 275.00	$18,425
	e)	Plugging Extractor Wells (Proposed Wells)	Each Well	125	$ 275.00	$34,375
	SUBTOTAL			241		$62,177
2.	Labor Costs					
	a)	Foreman (@ 10 wells per day)	Per Day	24	$ 640.00	$15,424
	b)	2 Equipment Operator (@10 wells per day)	Per Day	24	$ 800.00	$19,280
	c)	4 Laborer (@ 10 wells per day)	Per Day	24	$ 480.00	$11,568
	SUBTOTAL					$46,272
3.	Other Costs					
	a)	Cement Plugging Charge (Equipment)	Each Well	241	$ 50.00	$12,050
	b)	Dirt Work & Reclamation (2 hours)	Each Well	241	$ 100.00	$24,100
	c)	Surveying	Each Well	241	$ 35.00	$8,435
	SUBTOTAL					$36,150
4.	SUBTOTAL					$144,599
					20% Contingency	$28,920
			TOTAL PLUGGING COST			$173,519
		AVERAGE PLUGGING COSTS PER WELL		241 Wells		$720 /well

Table 8.4 Support Information for P&A Cost Estimate

Monitor Well Cement Costs

Well Name	Well Depth (ft)	Casing Size (in)	Sacks Req'd	$/Sack	Total Cost
BMW-1	209	5	28.50	7.00	199.49
BMW-2	206	5	28.09	7.00	196.62
BMW-3	205	5	27.95	7.00	195.67
BMW-4	193	5	26.32	7.00	184.21
BMW-5	204	5	27.82	7.00	194.71
BMW-6	201	5	27.41	7.00	191.85
BMW-7	199	5	27.13	7.00	189.94
BMW-8	195	5	26.59	7.00	186.12
BMW-9	197	5	26.86	7.00	188.03
BMW-10	194	5	26.45	7.00	185.17
BMW-11	183	5	24.95	7.00	174.67
BMW-12	180	5	24.54	7.00	171.81
BMW-13	188	5	25.63	7.00	179.44
BMW-14	206	5	28.09	7.00	196.62
BMW-15	210	5	28.63	7.00	200.44
BMW-16	206	5	28.09	7.00	196.62
BMW-17	191	5	26.04	7.00	182.31
BMW-18	212	5	28.91	7.00	202.35
BMW-19	218	5	29.73	7.00	208.08
BMW-20	200	5	27.27	7.00	190.90
BMW-21	206	5	28.09	7.00	196.62
BMW-22	208	5	28.36	7.00	198.53
				Average	191.37

Overlying Well Cement Costs

Well Name	Well Depth (ft)	Casing Size (in)	Sacks Req'd	$/Sack	Total Cost
OMW-1	97	5	13.23	7.00	92.58
OMW-2	110	5	15.00	7.00	104.99
OMW-3	106	5	14.45	7.00	101.17
OMW-4	119	5	16.23	7.00	113.58
OMW-5	120	5	16.36	7.00	114.54
OMW-6	123	5	16.77	7.00	117.40
OMW-7	119	5	16.23	7.00	113.58
OMW-8	119	5	16.23	7.00	113.58
OMW-9	113	5	15.41	7.00	107.86
				Average	108.81

Baseline Cement Costs

Well Name	Well Depth (ft)	Casing Size (in)	Sacks Req'd	$/Sack	Total Cost
PTW-1	190	5	25.91	7.00	181.35
PTW-2	211	5	28.77	7.00	201.39
PTW-3	210	5	28.63	7.00	200.44
PTW-4	208	5	28.36	7.00	198.53
PTW-5	207	5	28.23	7.00	197.58
PTW-6	206	5	28.09	7.00	196.62
PTW-7	201	6	39.47	7.00	276.26
PTW-8	216	6	42.41	7.00	296.88
PTW-9	206	6	40.45	7.00	283.14
PTW-10	210	6	41.23	7.00	288.63
PTW-11	206	6	40.45	7.00	283.14
PTW-12	215	6	42.22	7.00	295.51
PTW-13	216	6	42.41	7.00	296.88
PTW-14	228	5	31.09	7.00	217.62
RBLB-1	205	5	27.95	7.00	195.67
RBLB-3	220	5	30.00	7.00	209.98
RBLB-4	205	5	27.95	7.00	195.67
RBLB-5	183	5	24.95	7.00	174.67
				Average	232.78

Injector & Extractor Cement Costs

Well Name	Well Depth (ft)	Casing Size (in)	Sacks Req'd	$/Sack	Total Cost
injector	200	6	39.27	7.00	274.89
extractor	200	6	39.27	7.00	274.89

Labor Costs 241 wells

Qty.	Type	Rate/hr	hrs/day	Wells / day	# days	day rate
1	Foreman	$ 80.00	8	10	24	$ 640.00
2	Equipment Operator	$ 50.00	8	10	24	$ 800.00
4	Laborers	$ 15.00	8	10	24	$ 480.00

Table 8.5 Groundwater Restoration Cost Estimate
Uranium Energy Corp - Goliad Project
Mining Unit Groundwater Restoration Costs
Production Area-1 (Sand B)

Wellfield	Nominal Pattern Dimensions	Nominal Pattern Area (ft²)	Number of Patterns	Average Open Interval (ft)	Effective Porosity	Flare Factor		Wellfield Affected Pore Volume (gallons)
PAA-B	144 x 144	20695	30	11	0.28	1.875		26,818,944

1 APV = 26,818,944

Number of APV Circulated: 6

6 APV = 160,913,663

RESTORATION COST COMPONENT					Total Gallons Treated	Operating Flow Rate GPM	Total Cost	Number of Days
1.	Pumping and Electrical Costs							
	a)	Groundwater Pumping from Wellfield /1,000 gal.	$	0.294	160,913,663	600	$47,250	186
	b)	Groundwater Circulation for Reinjection			80,456,832	300		
	c)	RO Feed for Treatment	$	0.440	80,456,832	300	$35,401	186
	d)	RO Permeate for Reinjection /1,000 gal.			60,342,624	225		
	e)	Surface Reinjection /1,000 gal.	$	0.209	140,799,455	525	$29,376	186
	f)	Wastewater Disposal /1,000 gal.	$	1.437	20,114,208	75	$28,910	186
	SUBTOTAL						$140,937	186
2.	Treatment Costs							
	a)	IX Treatment Costs			No. Elutions	37	$14,880	186
		$400/elution, 1 elution every 5 days (assuming 5 mg/l and 2 lb/ft^3 loading)						
	b)	Operating Costs for Reverse Osmosis Unit ($0.937/1,000gal incl. chemicals and membranes			80,456,832	300	$75,388	
	SUBTOTAL						$90,266	
3.	Repairs and Maintenance							
	a)	Wellfield and Waste Water Treatment /mo	$	21,740	6	months	$130,440	
	b)	RO and process equipment /mo	$	4,500	6	months	$27,000	
	SUBTOTAL						$0	
4.	Labor							
	a)	Project Engineer	$100.00	per hour	16	months	$302,400	
	b)	Engineer	$100.00	per hour	6	months	$100,800	
	c)	RSO	$100.00	per hour	18	months	$302,400	
	d)	Office Manager	$100.00	per hour	6	months	$100,800	
	e)	Electrician	$100.00	per hour	6	months	$100,800	
	f)	Geologist	$100.00	per hour	6	months	$100,800	
	g)	Foreman	$100.00	per hour	6	months	$100,800	
	h)	4 Operators	$100.00	per hour	6	months	$100,800	
	i)	2 Laborers	$100.00	per hour	6	months	$100,800	
	SUBTOTAL						$1,310,400	
5.	Contract Laboratory Analysis							
	a)	22 Monitor Wells (88 UCL samples per year @$100)			1.5	years	$13,200	
		Stabilization Samples						
	b)	18 Wells - 3 complete Assays @$350					$18,900	
	SUBTOTAL						$32,100	
6.	Operating Expenses							
	a)	Supplies /mo	$	3,480	6		$20,880	
	b)	Vehicle Fuel /mo	$	1,000	6		$6,000	
	c)	Office Utilities /mo	$	1,950	6		$11,700	
	SUBTOTAL						$38,580	
7.	SUBTOTAL						$1,612,285	
						20% Contingency	$322,457	
	TOTAL OPERATING COST TO RESTORE GROUNDWATER AT FULL PRODUCTION (Nominal Mine Unit						$1,934,742	
	UNIT RESTORATION OPERATING COST					30 Patterns	$64,491	/Pattern

GROUND WATER ANALYSIS REPORT - IN SITU URANIUM MINING

Company:	**Uranium Energy Corp.**	**Report Date:**	**10/17/2008**
Identification:	**Goliad**	Work Order No.:	**312096-001**
Sample Id:	**PTW-7**	Lab Description:	**M46-1073**
Laboratory:	**Jordan Laboratories (A Xenco Laboratories Company)**	Sample Date/Time:	**09/09/2008 10:25**

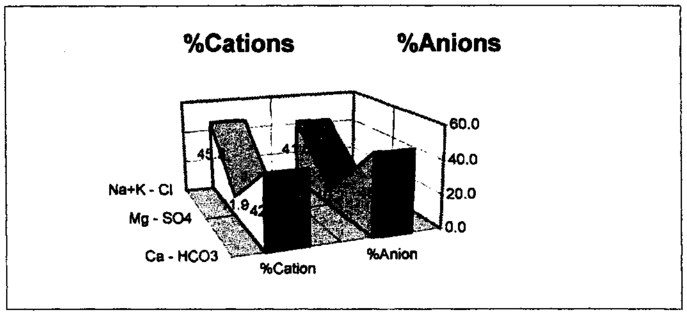
MAJOR AND SECONDARY CONSTITUENTS (Group 1)

ITEM	mg/L	epm	Conductance	%epm
CALCIUM (Ca)	97.00	4.84	251.70	42.76
MAGNESIUM (Mg)	16.40	1.35	62.85	11.92
SODIUM (Na)	109.00	4.74	231.84	41.89
POTASSIUM (K)	15.20	0.39	27.99	3.43
	TOTAL CATION	11.32		
CARBONATE (CO_3)	0.0	0.00	0.00	0.00
BICARBONATE (HCO_3)	325.0	5.33	232.22	48.17
SULFATE (SO_4)	54.4	1.13	83.70	10.24
CHLORIDE (Cl)	163.0	4.60	348.99	41.59
NITRATE (NO_3-N)	<0.113			
FLUORIDE (F)	<0.5	Total Conductance:	1239.29	
SILICA (SIO_2)	35.4			
	TOTAL ANION	11.06		
TOTAL ION	815			

TDS (180 c)	668.0	
TDS (total ion - 0.5 HCO3)	652.9	
EC (25 c)	987.0	umhos/cm
EC (DIL) = 101.6 X 12.50 =	1270.0	umhos/cm
ALK. as $CaCO_3$	266.0	
pH	7.55	Std. Unit

ACCURACY CHECK

		RANGE
ION	1.024	0.96 to 1.04
TDS	1.023	0.90 to 1.10
EC	1.025	0.95 to 1.05



MINOR and TRACE CONSTITUENTS (Group 2)

ITEM	mg/L
ARSENIC (As)	0.018
CADMIUM (Cd)	<0.005
IRON (Fe)	<0.010
LEAD (Pb)	<0.012
MANGANESE (Mn)	<0.010
MERCURY (Hg)	<0.0001
MOLYBDENUM (Mo)	0.026
SELENIUM (Se)	<0.010
URANIUM (U)	0.804
AMMONIA-N (NH_3-N)	<0.1
TURBIDITY (NTU)	4.47

RADIATION-PICOCURIES/LITER

RADIUM 226	1684.0	+/-	4.0
Gross Alpha		+/-	
Gross Beta		+/-	

NOTE: QC documentation is on file at Jordan Labs
842 Cantwell Ln
Corpus Christi, TX 78408

Remarks:

Checked by:

GROUND WATER ANALYSIS REPORT - IN SITU URANIUM MINING

Company:	**Uranium Energy Corp.**	**Report Date:**	**10/17/2008**
Identification:	**Goliad**	Work Order No.:	**311727-001**
Sample Id:	**PTW-8**	Lab Description:	**M46-1062**
Laboratory:	**Jordan Laboratories (A Xenco Laboratories Company)**	Sample Date/Time:	**09/03/2008 00:00**

MAJOR AND SECONDARY CONSTITUENTS (Group 1)

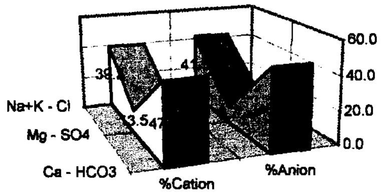
ITEM	mg/L	epm	Conductance	%epm
CALCIUM (Ca)	104.00	5.19	269.86	47.14
MAGNESIUM (Mg)	18.10	1.49	69.36	13.52
SODIUM (Na)	96.40	4.19	205.04	38.09
POTASSIUM (K)	5.39	0.14	9.93	1.25
	TOTAL CATION	11.01		
CARBONATE (CO_3)	0.0	0.00	0.00	0.00
BICARBONATE (HCO_3)	336.0	5.51	240.08	48.82
SULFATE (SO_4)	52.4	1.09	80.62	9.67
CHLORIDE (Cl)	166.0	4.68	355.41	41.51
NITRATE (NO_3-N)	<0.113			
FLUORIDE (F)	0.63	Total Conductance:	1230.31	
SILICA (SiO_2)	35.1			
	TOTAL ANION	11.28		
TOTAL ION	814			

TDS (180 c)	698.0		
TDS (total ion - 0.5 HCO3)	646.0		
EC (25 c)	980.0 umhos/cm		
EC (DIL) =	103.2	X 12.50	= 1290.0 umhos/cm
ALK. as $CaCO_3$	275.0		
pH	7.74 Std. Unit		

ACCURACY CHECK

		RANGE
ION	0.976	0.96 to 1.04
TDS	1.080	0.90 to 1.10
EC	1.049	0.95 to 1.05

%Cations %Anions



MINOR and TRACE CONSTITUENTS (Group 2)

ITEM	mg/L
ARSENIC (As)	<0.010
CADMIUM (Cd)	<0.005
IRON (Fe)	<0.030
LEAD (Pb)	<0.012
MANGANESE (Mn)	<0.010
MERCURY (Hg)	<0.0001
MOLYBDENUM (Mo)	<0.010
SELENIUM (Se)	<0.010
URANIUM (U)	0.134
AMMONIA-N (NH_3-N)	<0.1
TURBIDITY (NTU)	

RADIATION-PICOCURIES/LITER

		+/-	
RADIUM 226	397.0	+/-	2.0
Gross Alpha		+/-	
Gross Beta		+/-	

NOTE: QC documentation is on file at Jordan Labs
842 Cantwell Ln
Corpus Christi, TX 78408

Remarks:

Checked by:

GROUND WATER ANALYSIS REPORT - IN SITU URANIUM MINING

Company:	Uranium Energy Corp.	Report Date:	10/17/2008
dentification:	Goliad	Work Order No.:	312051-002
Sample Id:	PTW-9	Lab Description:	M46-1070
Laboratory:	Jordan Laboratories (A Xenco Laboratories Company)	Sample Date/Time:	09/08/2008 11:15

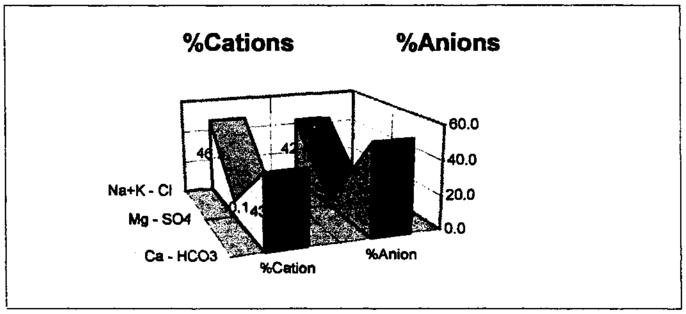
MAJOR AND SECONDARY CONSTITUENTS (Group 1)

ITEM	mg/L	epm	Conductance	%epm
CALCIUM (Ca)	94.10	4.70	244.17	43.39
MAGNESIUM (Mg)	13.30	1.09	50.97	10.11
SODIUM (Na)	106.00	4.61	225.46	42.60
POTASSIUM (K)	16.50	0.42	30.38	3.90
	TOTAL CATION	10.82		
CARBONATE (CO_3)	0.0	0.00	0.00	0.00
BICARBONATE (HCO_3)	368.0	6.03	262.94	54.00
SULFATE (SO_4)	19.1	0.40	29.39	3.56
CHLORIDE (Cl)	168.0	4.74	359.70	42.44
NITRATE (NO_3-N)	1.73			
FLUORIDE (F)	<0.5	Total Conductance:	1203.01	
SILICA (SiO_2)	35.9			
	TOTAL ANION	11.17		
TOTAL ION	823			

TDS (180 c)				624.0
TDS (total ion - 0.5 HCO3)				638.6
EC (25 c)				957.0 umhos/cm
EC (DIL) =	96.0	X	12.50 =	1200.0 umhos/cm
ALK. as $CaCO_3$				302.0
pH				7.56 Std. Unit

ACCURACY CHECK

		RANGE
ION	0.969	0.96 to 1.04
TDS	0.977	0.90 to 1.10
EC	0.997	0.95 to 1.05



MINOR and TRACE CONSTITUENTS (Group 2)

ITEM	mg/L
ARSENIC (As)	<0.010
CADMIUM (Cd)	<0.005
IRON (Fe)	<0.030
LEAD (Pb)	<0.012
MANGANESE (Mn)	<0.010
MERCURY (Hg)	<0.0001
MOLYBDENUM (Mo)	<0.010
SELENIUM (Se)	<0.010
URANIUM (U)	0.135
AMMONIA-N (NH_3-N)	<0.1
TURBIDITY (NTU)	9.4

RADIATION-PICOCURIES/LITER

RADIUM 226	394.0	+/-	2.0
Gross Alpha		+/-	
Gross Beta		+/-	

NOTE: QC documentation is on file at Jordan Labs
842 Cantwell Ln
Corpus Christi, TX 78408

Remarks:

Checked by:

GROUND WATER ANALYSIS REPORT - IN SITU URANIUM MINING

Company:	**Uranium Energy Corp.**	**Report Date:**	**10/17/2008**
Identification:	**Goliad**	Work Order No.:	**312051-001**
Sample Id:	**PTW-10**	Lab Description:	**M46-1069**
Laboratory:	**Jordan Laboratories (A Xenco Laboratories Company)**	Sample Date/Time:	**09/08/2008 09:50**

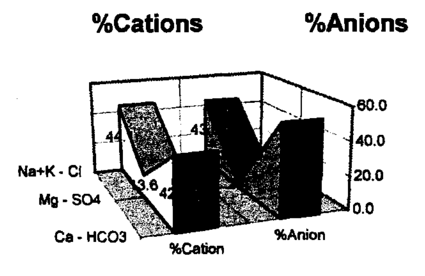
MAJOR AND SECONDARY CONSTITUENTS (Group 1)

ITEM	mg/L	epm	Conductance	%epm
CALCIUM (Ca)	89.50	4.47	232.24	42.31
MAGNESIUM (Mg)	17.40	1.43	66.68	13.56
SODIUM (Na)	102.00	4.44	216.96	42.03
POTASSIUM (K)	8.70	0.22	16.02	2.11
	TOTAL CATION	10.56		
CARBONATE (CO_3)	0.0	0.00	0.00	0.00
BICARBONATE (HCO_3)	354.0	5.80	252.94	54.59
SULFATE (SO_4)	12.3	0.26	18.93	2.41
CHLORIDE (Cl)	162.0	4.57	346.85	43.00
NITRATE (NO_3-N)	1.43			
FLUORIDE (F)	0.56	Total Conductance:	1150.61	
SILICA (SIO_2)	33.5			
	TOTAL ANION	10.63		
TOTAL ION	781			

TDS (180 c)	614.0	
TDS (total ion - 0.5 HCO3)	604.4	
EC (25 c)	953.0	umhos/cm
EC (DIL) = 95.2 X 12.50 =	1190.0	umhos/cm
ALK. as $CaCO_3$	290.0	
pH	7.59	Std. Unit

ACCURACY CHECK

		RANGE
ION	0.993	0.96 to 1.04
TDS	1.016	0.90 to 1.10
EC	1.034	0.95 to 1.05



MINOR and TRACE CONSTITUENTS (Group 2)

ITEM	mg/L
ARSENIC (As)	<0.010
CADMIUM (Cd)	<0.005
IRON (Fe)	<0.030
LEAD (Pb)	<0.012
MANGANESE (Mn)	<0.010
MERCURY (Hg)	<0.0001
MOLYBDENUM (Mo)	<0.010
SELENIUM (Se)	<0.010
URANIUM (U)	0.099
AMMONIA-N (NH_3-N)	<0.1
TURBIDITY (NTU)	<1.00

RADIATION-PICOCURIES/LITER

RADIUM 226	68.0	+/-	1.0
Gross Alpha		+/-	
Gross Beta		+/-	

NOTE: QC documentation is on file at Jordan Labs
842 Cantwell Ln
Corpus Christi, TX 78408

Remarks:

Checked by: James Mett

GROUND WATER ANALYSIS REPORT - IN SITU URANIUM MINING

Company:	**Uranium Energy Corp.**	**Report Date:**	**10/17/2008**
dentification:	**Goliad**	Work Order No.:	312207-01
Sample Id:	**PTW-11**	Lab Description:	M46-1085
Laboratory:	**Jordan Laboratories (A Xenco Laboratories Company)**	Sample Date/Time:	09/10/2008 09:05

MAJOR AND SECONDARY CONSTITUENTS (Group 1)

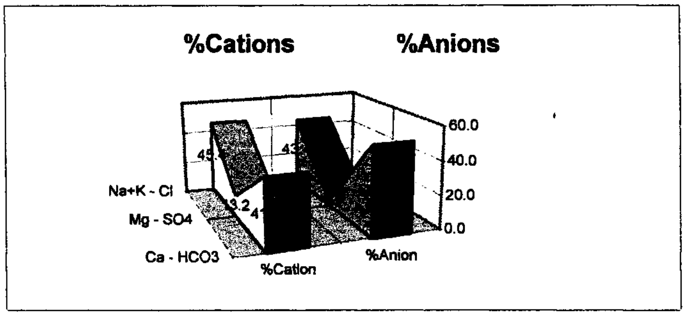
ITEM	mg/L	epm	Conductance	%epm
CALCIUM (Ca)	87.20	4.35	226.27	41.47
MAGNESIUM (Mg)	16.80	1.38	64.38	13.17
SODIUM (Na)	104.00	4.52	221.21	43.11
POTASSIUM (K)	9.27	0.24	17.07	2.26
	TOTAL CATION	10.49		
CARBONATE (CO_3)	0.0	0.00	0.00	0.00
BICARBONATE (HCO_3)	344.0	5.64	245.79	53.21
SULFATE (SO_4)	17.3	0.36	26.62	3.40
CHLORIDE (Cl)	163.0	4.60	348.99	43.40
NITRATE (NO_3-N)	<0.113			
FLUORIDE (F)	0.52	Total Conductance:	1150.33	
SILICA (SIO_2)	32.9			
	TOTAL ANION	10.60		

TOTAL ION 775

TDS (180 c)	658.0	
TDS (total ion - 0.5 HCO3)	603.0	
EC (25 c)	950.0	umhos/cm
EC (DIL) = 96.0 X 12.50 =	1200.0	umhos/cm
ALK. as $CaCO_3$	282.0	
pH	7.35	Std. Unit

ACCURACY CHECK

		RANGE
ION	0.990	0.96 to 1.04
TDS	1.091	0.90 to 1.10
EC	1.043	0.95 to 1.05



MINOR and TRACE CONSTITUENTS (Group 2)

ITEM	mg/L
ARSENIC (As)	<0.010
CADMIUM (Cd)	<0.005
IRON (Fe)	<0.030
LEAD (Pb)	<0.012
MANGANESE (Mn)	0.013
MERCURY (Hg)	<0.0001
MOLYBDENUM (Mo)	0.017
SELENIUM (Se)	<0.010
URANIUM (U)	0.166
AMMONIA-N (NH3-N)	<0.1
TURBIDITY (NTU)	<1.00

RADIATION-PICOCURIES/LITER

RADIUM 226	296.0	+/-	2.0
Gross Alpha		+/-	
Gross Beta		+/-	

NOTE: QC documentation is on file at Jordan Labs
842 Cantwell Ln
Corpus Christi, TX 78408

Remarks:

Checked by:

GROUND WATER ANALYSIS REPORT - IN SITU URANIUM MINING

Company:	**Uranium Energy Corp.**	**Report Date:**	**10/17/2008**
dentification:	**Goliad**	Work Order No.:	**312096-003**
Sample Id:	**PTW-12**	Lab Description:	**M46-1075**
Laboratory:	**Jordan Laboratories (A Xenco Laboratories Company)**	Sample Date/Time:	**09/09/2008 13:15**

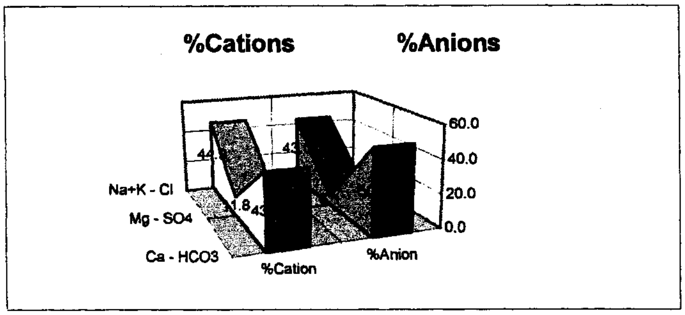
MAJOR AND SECONDARY CONSTITUENTS (Group 1)

ITEM	mg/L	epm	Conductance	%epm
CALCIUM (Ca)	94.60	4.72	245.47	43.29
MAGNESIUM (Mg)	15.60	1.28	59.78	11.76
SODIUM (Na)	106.50	4.63	226.53	42.48
POTASSIUM (K)	10.50	0.27	19.34	2.46
	TOTAL CATION	10.90		
CARBONATE (CO_3)	0.0	0.00	0.00	0.00
BICARBONATE (HCO_3)	334.0	5.47	238.65	50.91
SULFATE (SO_4)	31.3	0.65	48.16	6.06
CHLORIDE (Cl)	164.0	4.63	351.13	43.03
NITRATE (NO_3-N)	<0.113			
FLUORIDE (F)	0.52	Total Conductance:	1189.05	
SILICA (SIO_2)	32.9			
	TOTAL ANION	10.75		
TOTAL ION	790			

TDS (180 c)					642.0
TDS (total ion - 0.5 HCO3)					622.9
EC (25 c)					970.0 umhos/cm
EC (DIL) =	98.4	X	12.50	=	1230.0 umhos/cm
ALK. as $CaCO_3$					274.0
pH					7.47 Std. Unit

ACCURACY CHECK

		RANGE
ION	1.014	0.96 to 1.04
TDS	1.031	0.90 to 1.10
EC	1.034	0.95 to 1.05



MINOR and TRACE CONSTITUENTS (Group 2)

ITEM	mg/L
ARSENIC (As)	<0.010
CADMIUM (Cd)	<0.005
IRON (Fe)	<0.030
LEAD (Pb)	<0.012
MANGANESE (Mn)	<0.010
MERCURY (Hg)	<0.0001
MOLYBDENUM (Mo)	0.014
SELENIUM (Se)	<0.010
URANIUM (U)	0.163
AMMONIA-N (NH_3-N)	<0.1
TURBIDITY (NTU)	<1.00

RADIATION-PICOCURIES/LITER

RADIUM 226	477.0	+/-	2.0
Gross Alpha		+/-	
Gross Beta		+/-	

NOTE: QC documentation is on file at Jordan Labs
842 Cantwell Ln
Corpus Christi, TX 78408

Remarks:

Checked by: James Mott

GROUND WATER ANALYSIS REPORT - IN SITU URANIUM MINING

Company:	**Uranium Energy Corp.**	**Report Date:**	**10/17/2008**
Identification:	**Goliad**	Work Order No.:	312096-002
Sample Id:	PTW-13	Lab Description:	M46-1074
Laboratory:	**Jordan Laboratories (A Xenco Laboratories Company)**	Sample Date/Time:	09/09/2008 11:55

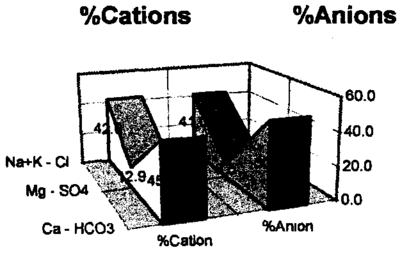
MAJOR AND SECONDARY CONSTITUENTS (Group 1)

ITEM	mg/L	epm	Conductance	%epm
CALCIUM (Ca)	101.00	5.04	262.08	45.09
MAGNESIUM (Mg)	17.50	1.44	67.06	12.88
SODIUM (Na)	102.00	4.44	216.96	39.70
POTASSIUM (K)	10.20	0.26	18.78	2.33
	TOTAL CATION	11.18		
CARBONATE (CO_3)	0.0	0.00	0.00	0.00
BICARBONATE (HCO_3)	331.0	5.42	236.51	50.51
SULFATE (SO_4)	43.9	0.91	67.55	8.51
CHLORIDE (Cl)	156.0	4.40	334.00	40.98
NITRATE (NO_3-N)	<0.113			
FLUORIDE (F)	0.58	Total Conductance:	1202.93	
SILICA (SIO_2)	37.5			
	TOTAL ANION	10.74		
TOTAL ION	800			

TDS (180 c)	672.0	
TDS (total ion - 0.5 HCO3)	634.2	
EC (25 c)	1020.0	umhos/cm
EC (DIL) = 100.8 X 12.50 =	1260.0	umhos/cm
ALK. as $CaCO_3$	271.0	
pH	7.54	Std. Unit

ACCURACY CHECK

		RANGE
ION	1.041	0.96 to 1.04
TDS	1.060	0.90 to 1.10
EC	1.047	0.95 to 1.05



MINOR and TRACE CONSTITUENTS (Group 2)

ITEM	mg/L
ARSENIC (As)	<0.010
CADMIUM (Cd)	<0.005
IRON (Fe)	0.059
LEAD (Pb)	<0.012
MANGANESE (Mn)	0.017
MERCURY (Hg)	0.0001
MOLYBDENUM (Mo)	<0.010
SELENIUM (Se)	<0.010
URANIUM (U)	0.156
AMMONIA-N (NH_3-N)	<0.1
TURBIDITY (NTU)	2.56

RADIATION-PICOCURIES/LITER

RADIUM 226	10.0	+/-	1.0
Gross Alpha		+/-	
Gross Beta		+/-	

NOTE: QC documentation is on file at Jordan Labs
842 Cantwell Ln
Corpus Christi, TX 78408

Remarks:

Checked by: Jame Matt

GROUND WATER ANALYSIS REPORT - IN SITU URANIUM MINING

Company:	**URANIUM ENERGY CORP**	**Report Date:**	**04/02/2009**
Identification:		Work Order No.:	**307201**
Sample Id:	PTW-14/CBP-1	Lab Description:	**M46-885**
Laboratory:	**Jordan Laboratories (A Xenco Laboratories Company)**	Sample Date/Time:	**07/02/2008 13:45**

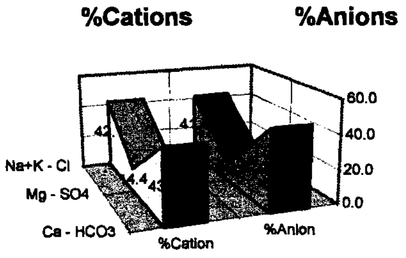
MAJOR AND SECONDARY CONSTITUENTS (Group 1)

ITEM	**mg/L**	**epm**	**Conductance**	**%epm**
CALCIUM (Ca)	89.10	4.45	231.20	43.52
MAGNESIUM (Mg)	17.90	1.47	68.60	14.41
SODIUM (Na)	96.30	4.19	204.83	41.00
POTASSIUM (K)	4.28	0.11	7.88	1.07
	TOTAL CATION	**10.22**		
CARBONATE (CO_3)	0.0	0.00	0.00	0.00
BICARBONATE (HCO_3)	325.0	5.33	232.22	47.66
SULFATE (SO_4)	58.7	1.22	90.32	10.94
CHLORIDE (Cl)	164.0	4.63	351.13	41.40
NITRATE (NO_3-N)	<0.113			
FLUORIDE (F)	0.58	**Total Conductance:**	**1186.17**	
SILICA (SiO_2)	21.8			
	TOTAL ANION	**11.17**		
TOTAL ION	778			

TDS (180 c)	638.0	
TDS (total ion - 0.5 HCO3)	615.2	
EC (25 c)	1110.0	umhos/cm
EC (DIL) = 103.1 X 12.50 =	1288.8	umhos/cm
ALK. as $CaCO_3$	266.0	
pH	7.96	Std. Unit

ACCURACY CHECK

		RANGE
ION	0.914	0.96 to 1.04
TDS	1.037	0.90 to 1.10
EC	1.086	0.95 to 1.05



MINOR and TRACE CONSTITUENTS (Group 2)

ITEM	**mg/L**
ARSENIC (As)	0.022
CADMIUM (Cd)	<0.001
IRON (Fe)	<0.030
LEAD (Pb)	<0.012
MANGANESE (Mn)	0.013
MERCURY (Hg)	<0.0001
MOLYBDENUM (Mo)	0.037
SELENIUM (Se)	<0.012
URANIUM (U)	0.086
AMMONIA-N (NH_3-N)	<0.1
Turbidity	9.15 NTU

RADIATION-PICOCURIES/LITER

RADIUM 226	224.0	+/-	1.0
RADON 222		+/-	

NOTE: QC documentation is on file at Jordan Labs
842 Cantwell Ln
Corpus Christi, TX 78408

Remarks: Turbidity= 9.15 NTU Note: Samples are reduced & contain H2S that can lead to a significant increase in Turbidity.

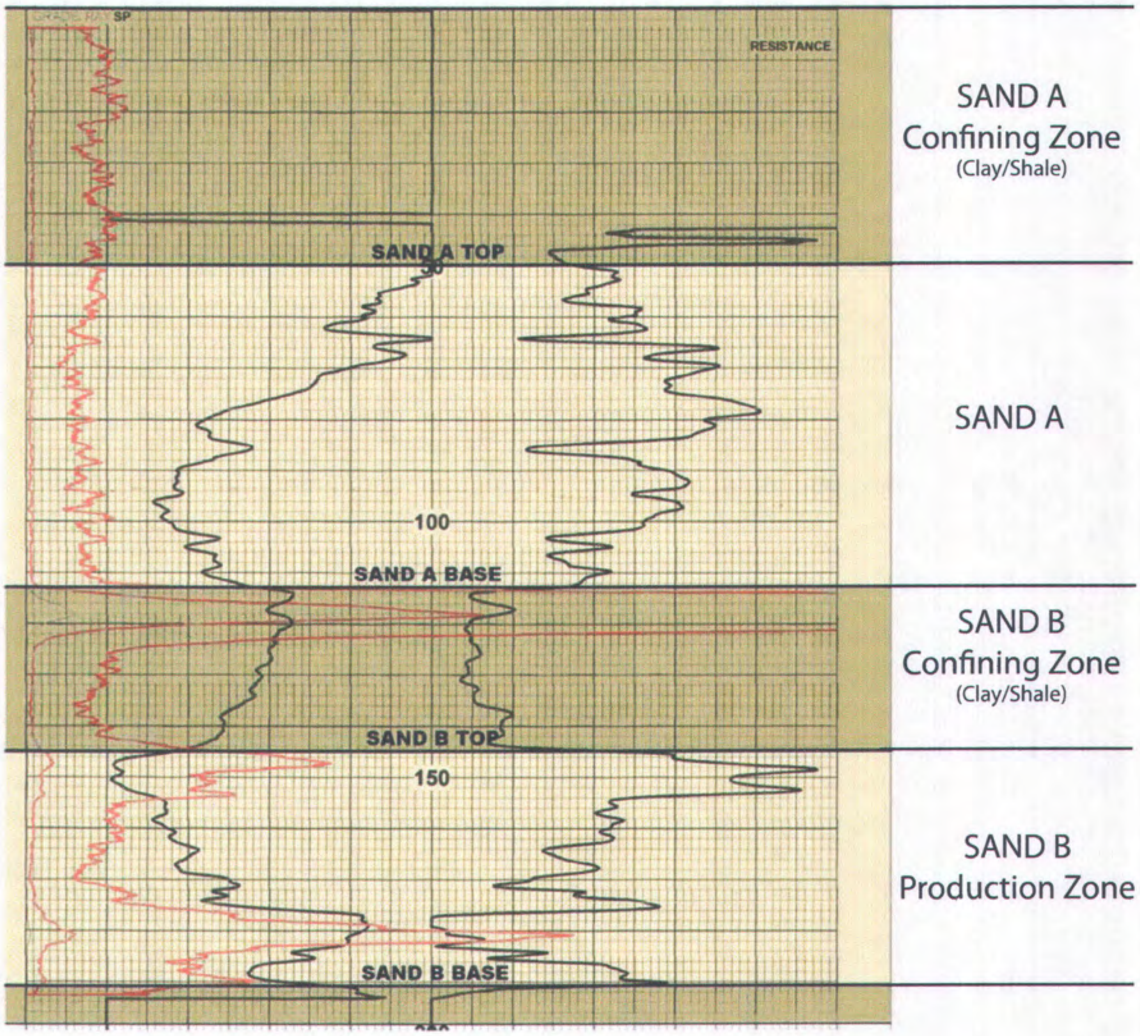
Checked by:

Ion and EC accuracy checks are out of control limits due to low Cation results. Cation results and QC are within acceptable limits.

32201-BMW-9

○

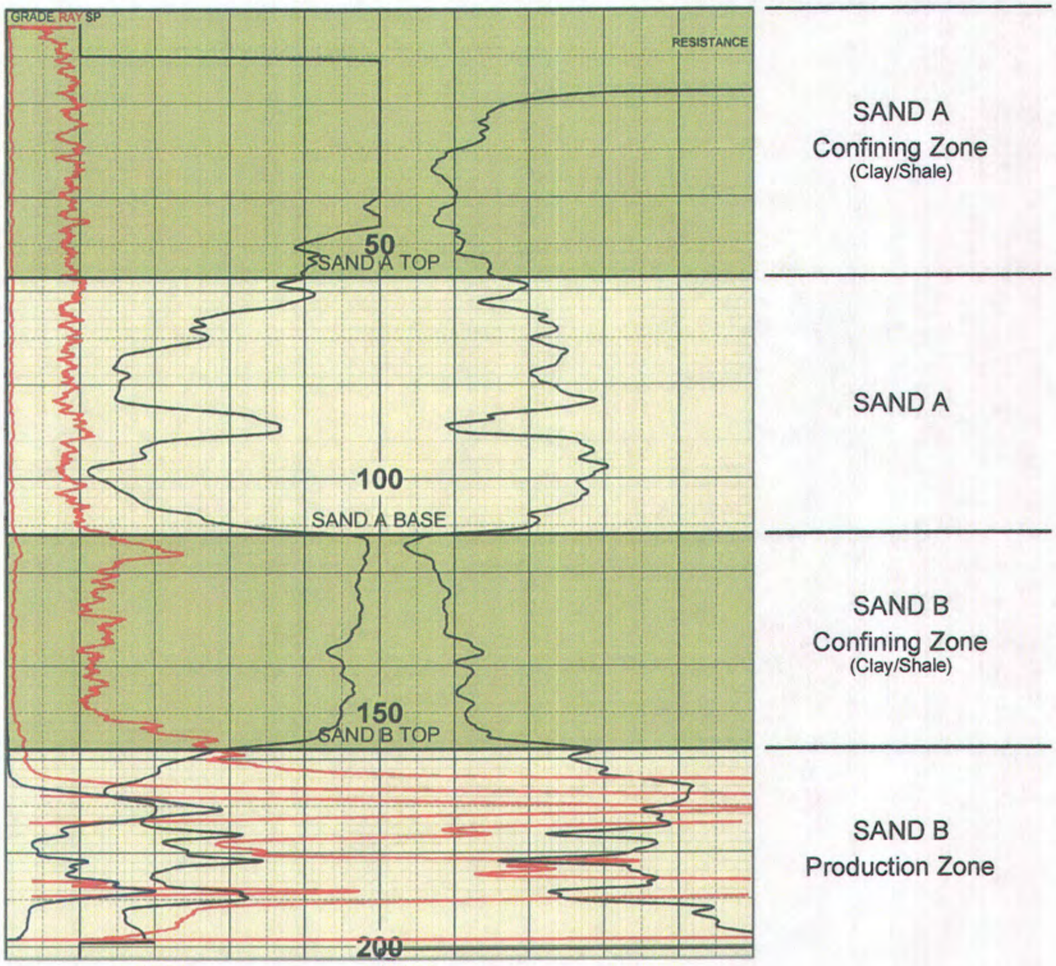
TD 195 FT
GL 230.8 FT

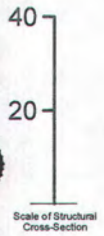


32201-PTW-7

○

TD 201 FT
GL 232.3 FT





TD = Total Depth
GL = Ground Level
FT = Feet

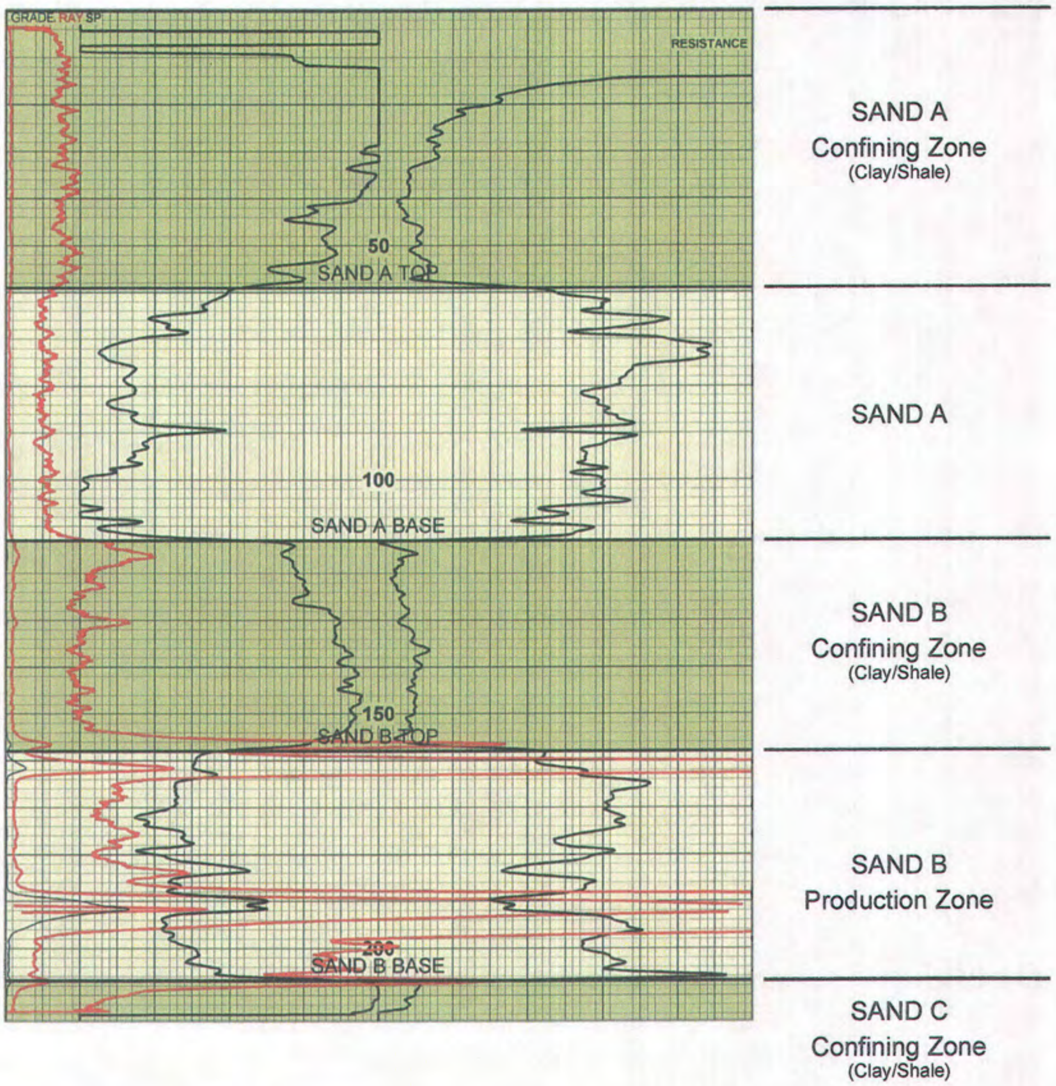
Mini-Logs

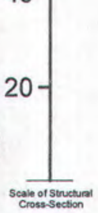
UEC
Uranium Energy Corp

DRAWN BY: C. Bordovsky, UEC	DATE: 3-18-09
DRAWING NO. minilogs_PTWs_CBP1_3-18-09.dwg	SCALE: See Scale Bar

32201-PTW-8

TD 216 FT
GL 237.4 FT





TD = Total Depth
GL = Ground Level
FT = Feet

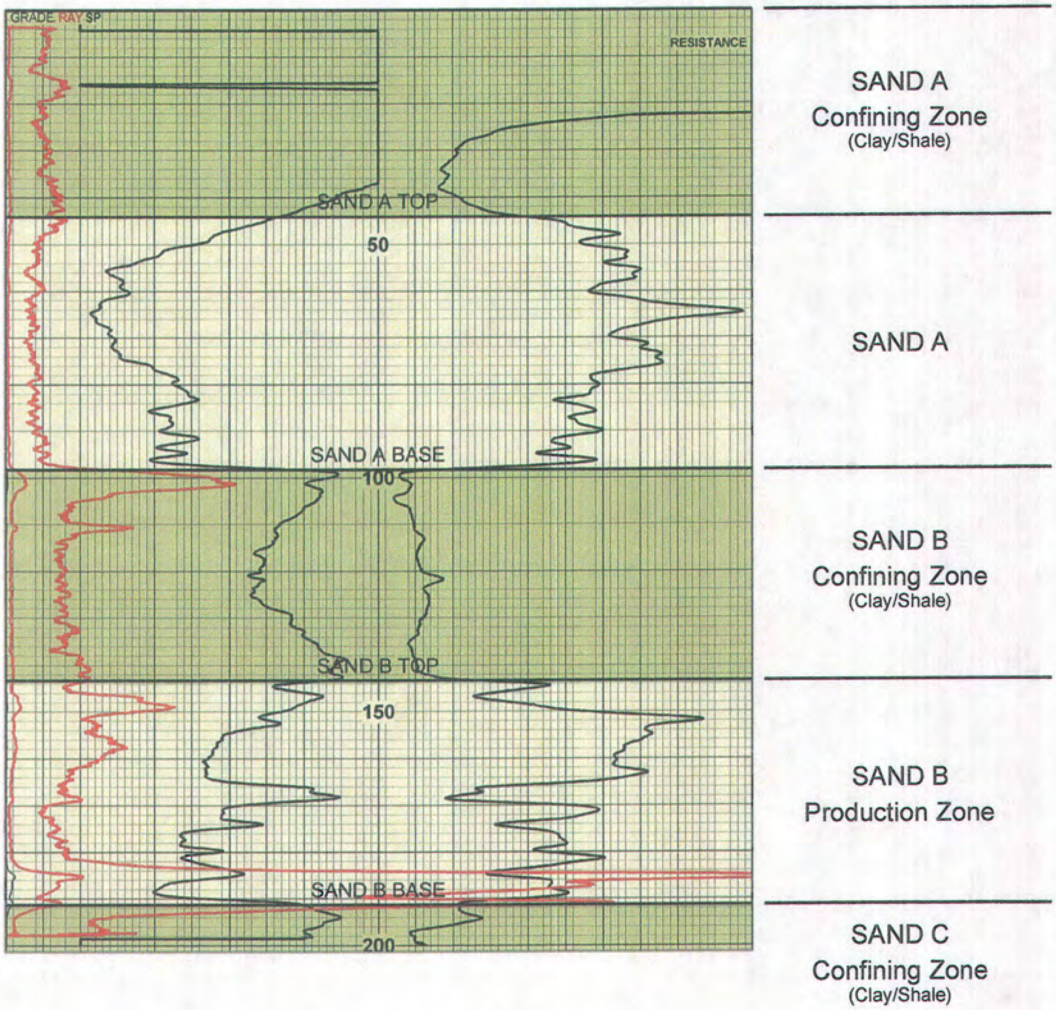
Mini-Logs

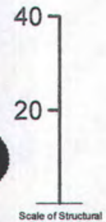
Uranium Energy Corp

DRAWN BY: C. Bordovsky, UEC	DATE: 3-18-09
DRAWING NO. minilogs_PTWs_CBP1_3-18-09.dwg	SCALE: See Scale Bar

32201-PTW-10

TD 200 FT
GL 226.8 FT





Scale of Structural Cross-Section

TD = Total Depth
GL = Ground Level
FT = Feet

Mini-Logs

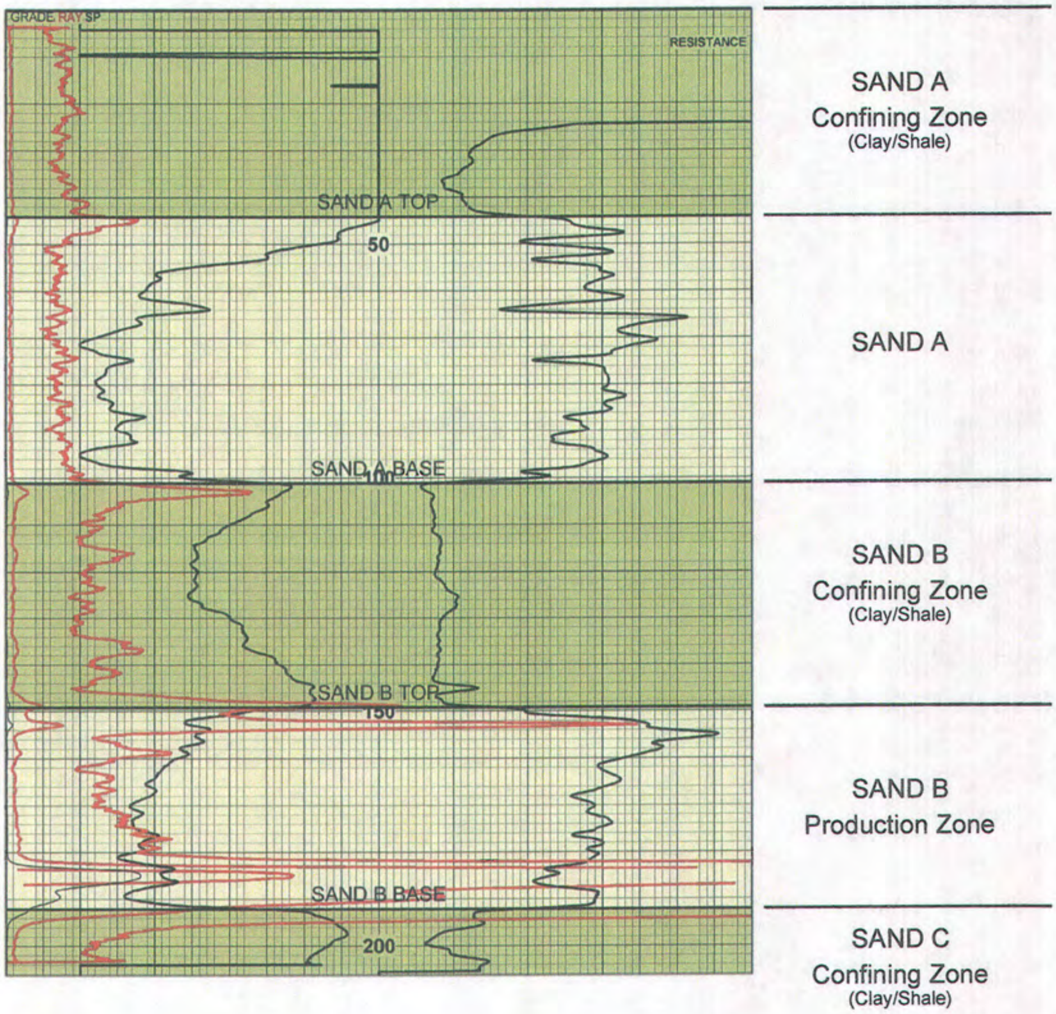
Uranium Energy Corp

DRAWN BY: C. Bordovsky, UEC	DATE: 3-18-09
DRAWING NO. minilogs_PTWs_CBP1_3-18-09.dwg	SCALE: See Scale Bar

32201-PTW-11

○

TD 206 FT
GL 227.6 FT



40
20
Scale of Structural Cross-Section

TD = Total Depth
GL = Ground Level
FT = Feet

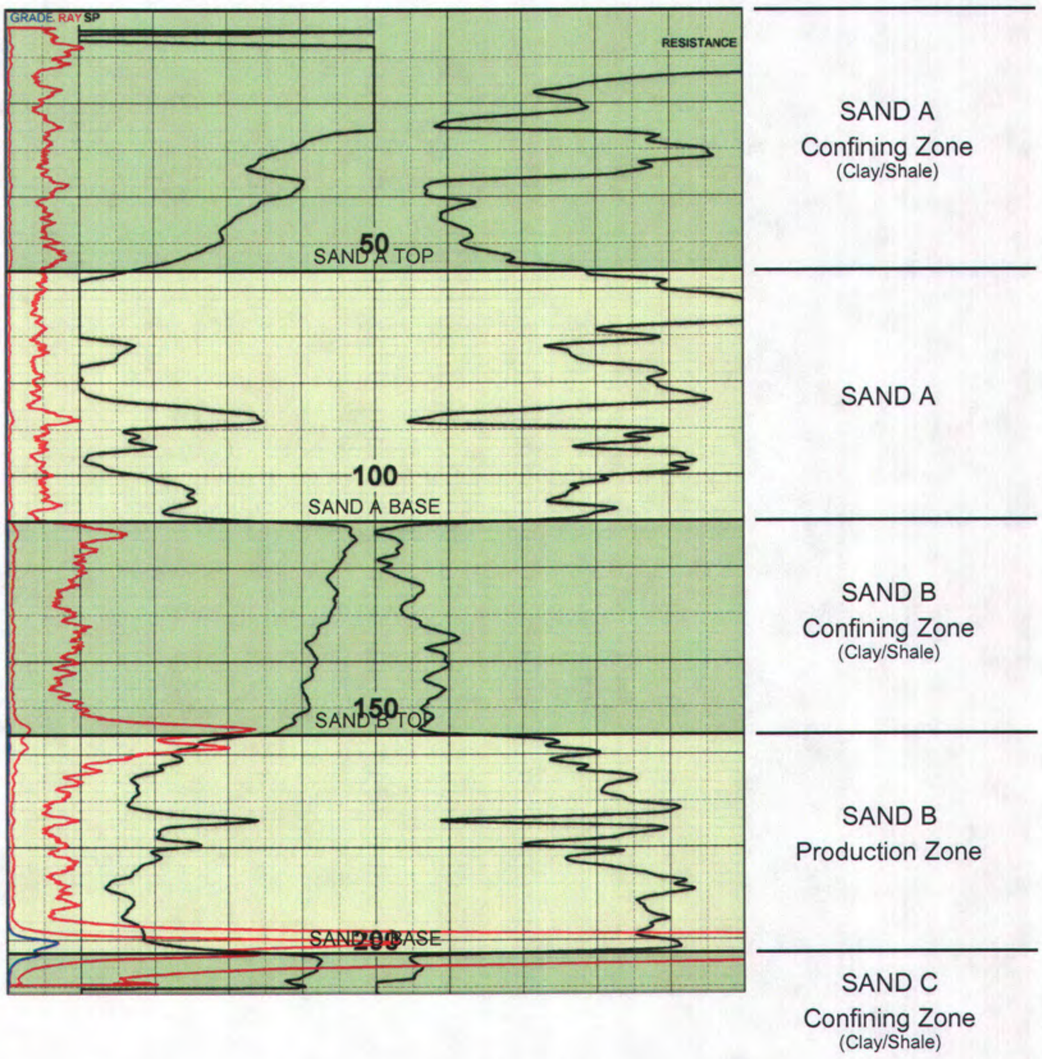
Mini-Logs

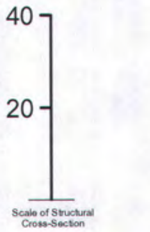
UEC
Uranium Energy Corp

DRAWN BY: C. Bordovsky, UEC	DATE: 3-18-09
DRAWING NO. minilogs_PTWs_CBP1_3-18-09.dwg	SCALE: See Scale Bar

32201-PTW-12

TD 212 FT
GL 232.2 FT





TD = Total Depth
GL = Ground Level
FT = Feet

Mini-Logs

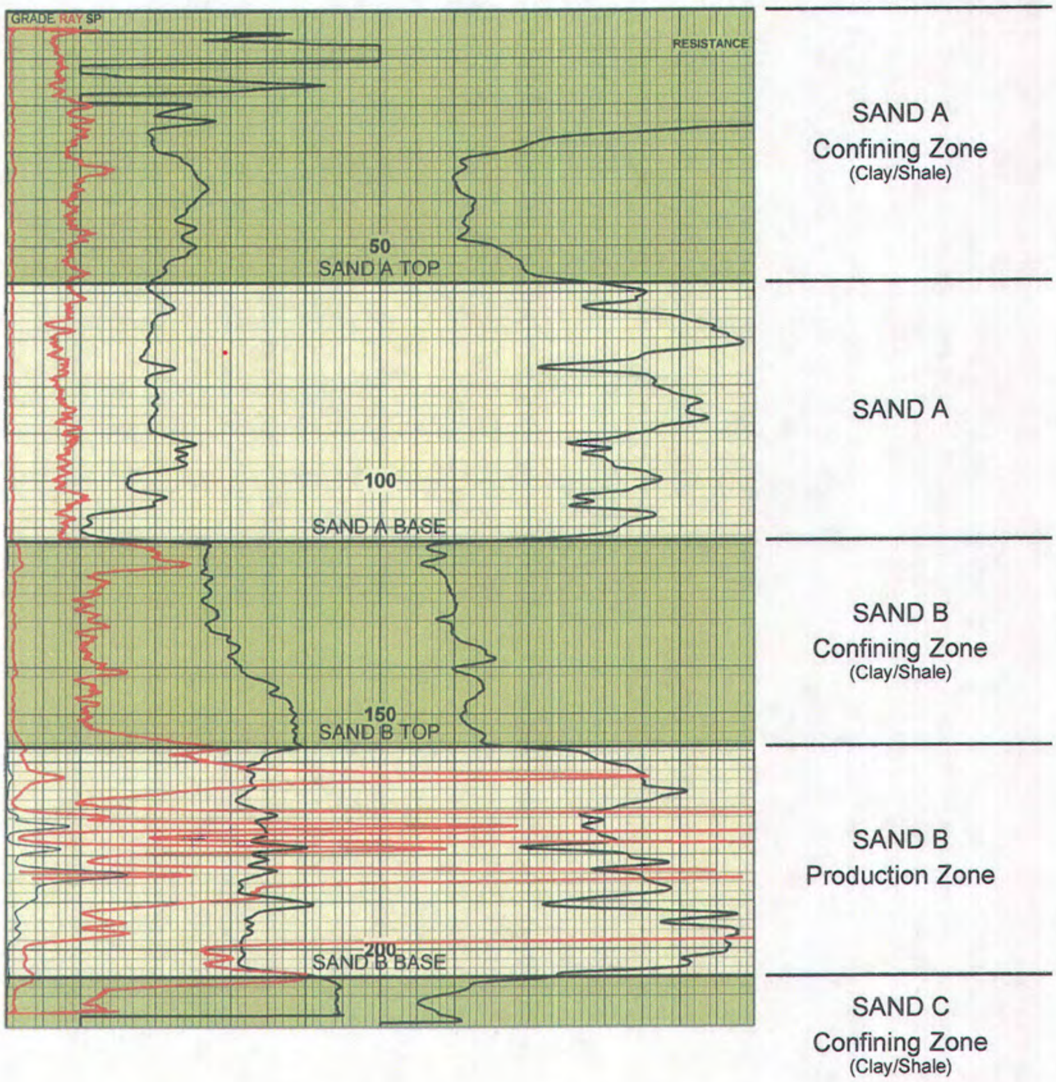
Uranium Energy Corp

DRAWN BY: C. Bordovsky, UEC	DATE: 3-18-09
DRAWING NO. minilogs_PTWs_CBP1_3-18-09.dwg	SCALE: See Scale Bar

32201-PTW-13

○

TD 216 FT
GL 232.3 FT



40
20
Scale of Structural Cross-Section

TD = Total Depth
GL = Ground Level
FT = Feet

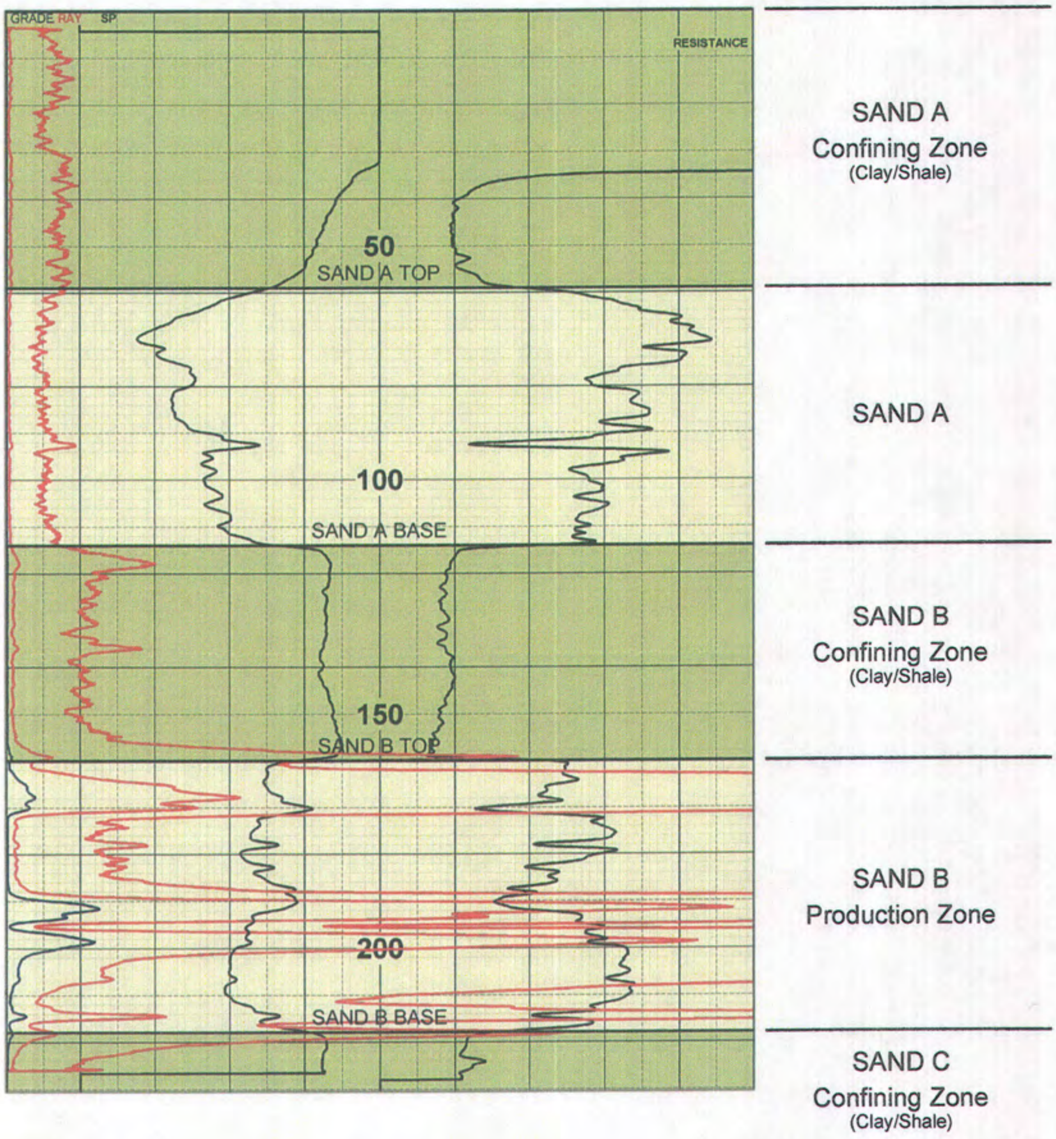
Mini-Logs

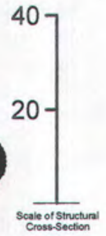
Uranium Energy Corp

DRAWN BY: C. Bordovsky, UEC	DATE: 3-18-09
DRAWING NO. minilogs_PTWs_CBP1_3-18-09.dwg	SCALE See Scale Bar

32201-CBP-1/PTW-14

TD 228 FT
GL 237.7 FT





TD = Total Depth
GL = Ground Level
FT = Feet

Mini-Logs

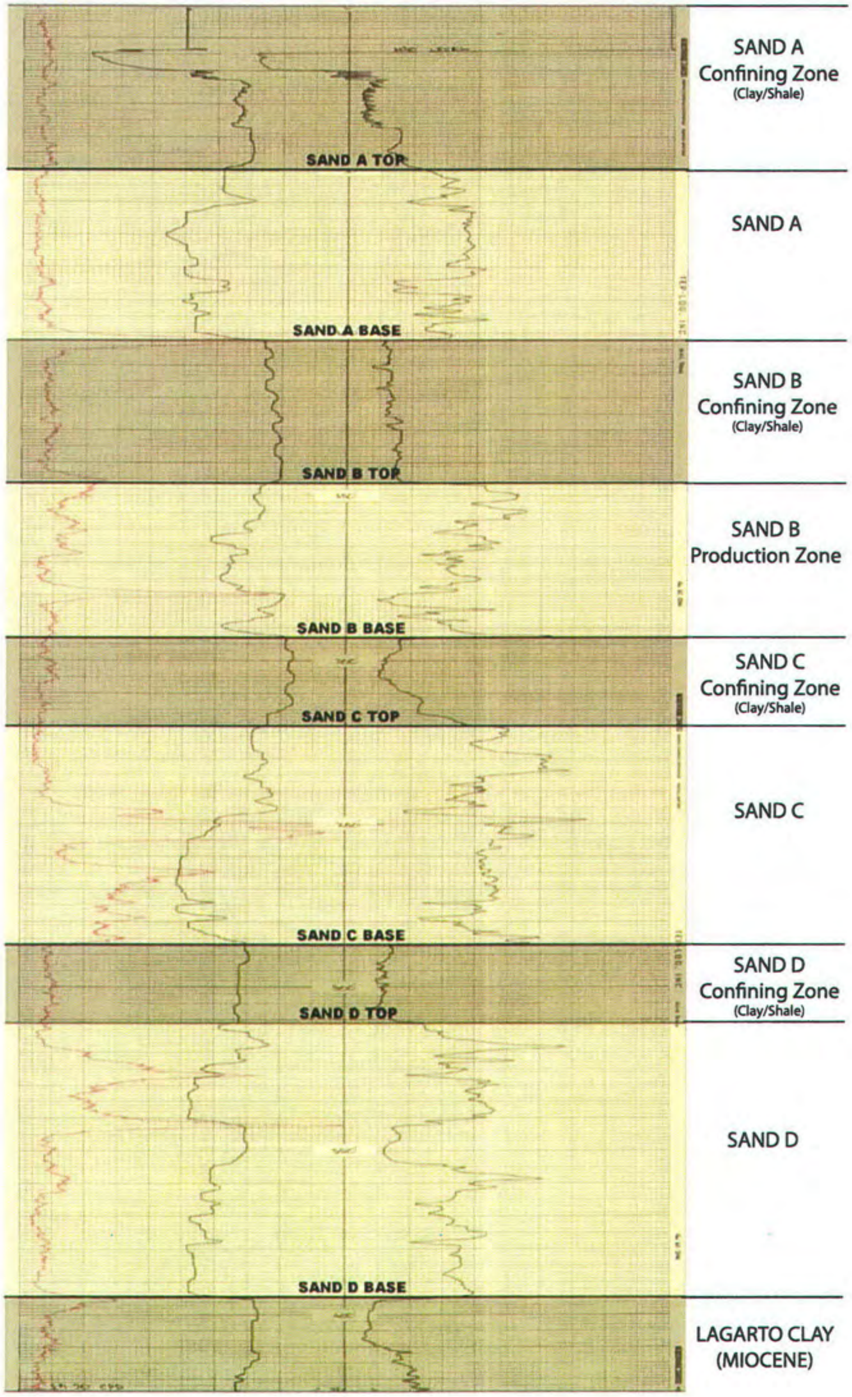
UEC
Uranium Energy Corp

DRAWN BY: C. Bordovsky, UEC	DATE: 3-18-09
DRAWING NO. minilogs_PTWs_CBP1_3-18-09.dwg	SCALE See Scale Bar

32201-38

○

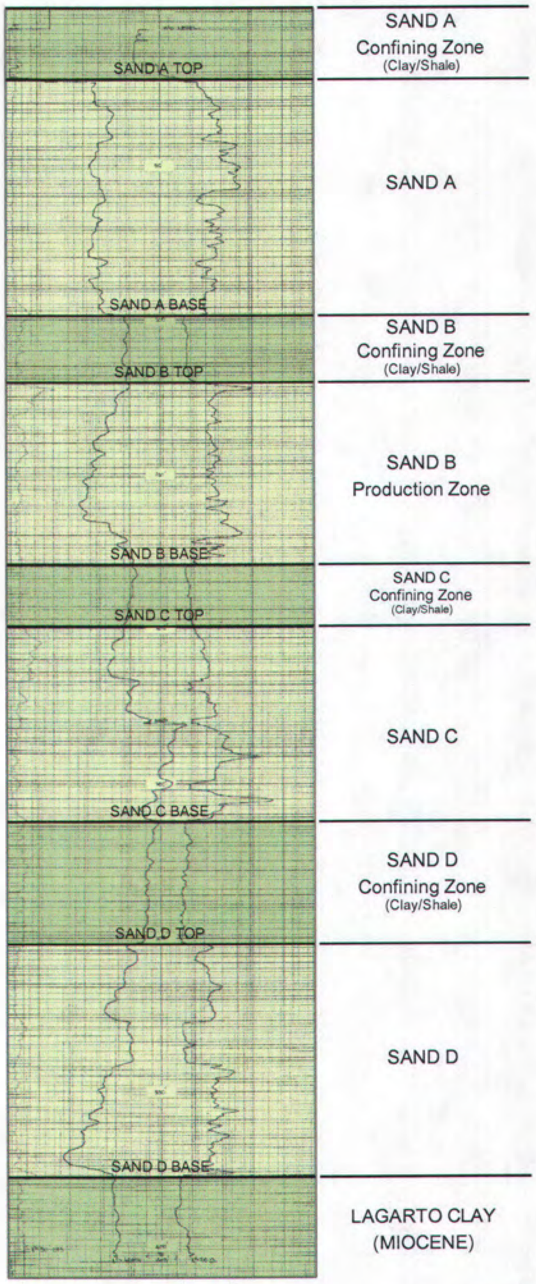
TD 424 FT
GL 230.8 FT

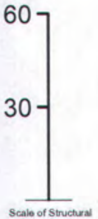


32201-54

○

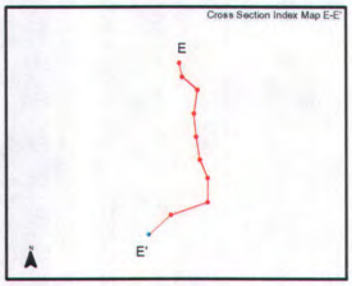
TD 400 FT
GL 210.8 FT





Scale of Structural Cross-Section

TD = Total Depth
GL = Ground Level
FT = Feet



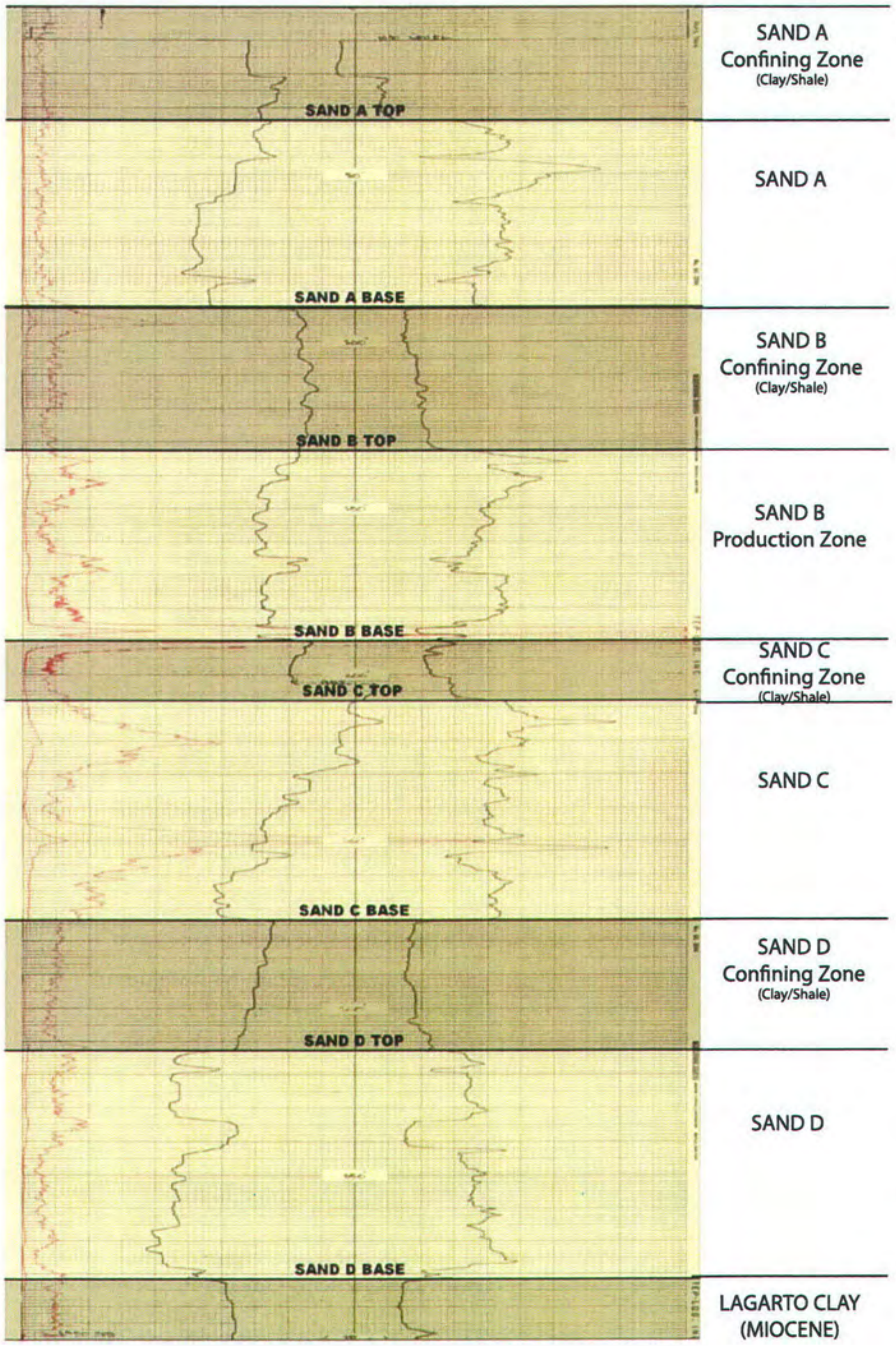
Cross Section E-E'

Uranium Energy Corp

DRAWN BY: C. Bardevsky, UEC	DATE: 2-17-09
DRAWING NO. UEC PERMIT: minilogs_cross_sectionE-E' 2-11-09.dwg	SCALE: See Scale Bar

32201-65

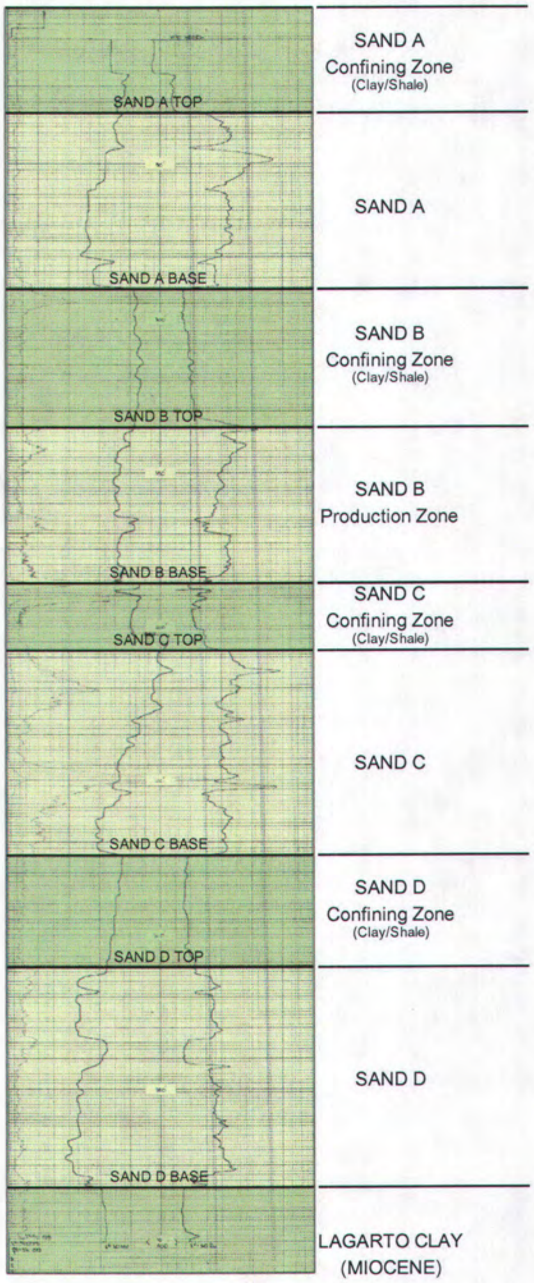
TD 400 FT
GL 220.4 FT

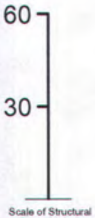


32201-65

○

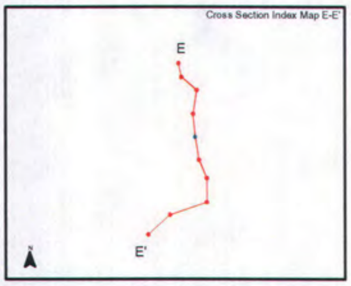
TD 400 FT
GL 220.4 FT





Scale of Structural Cross-Section

TD = Total Depth
GL = Ground Level
FT = Feet



Cross Section E-E'

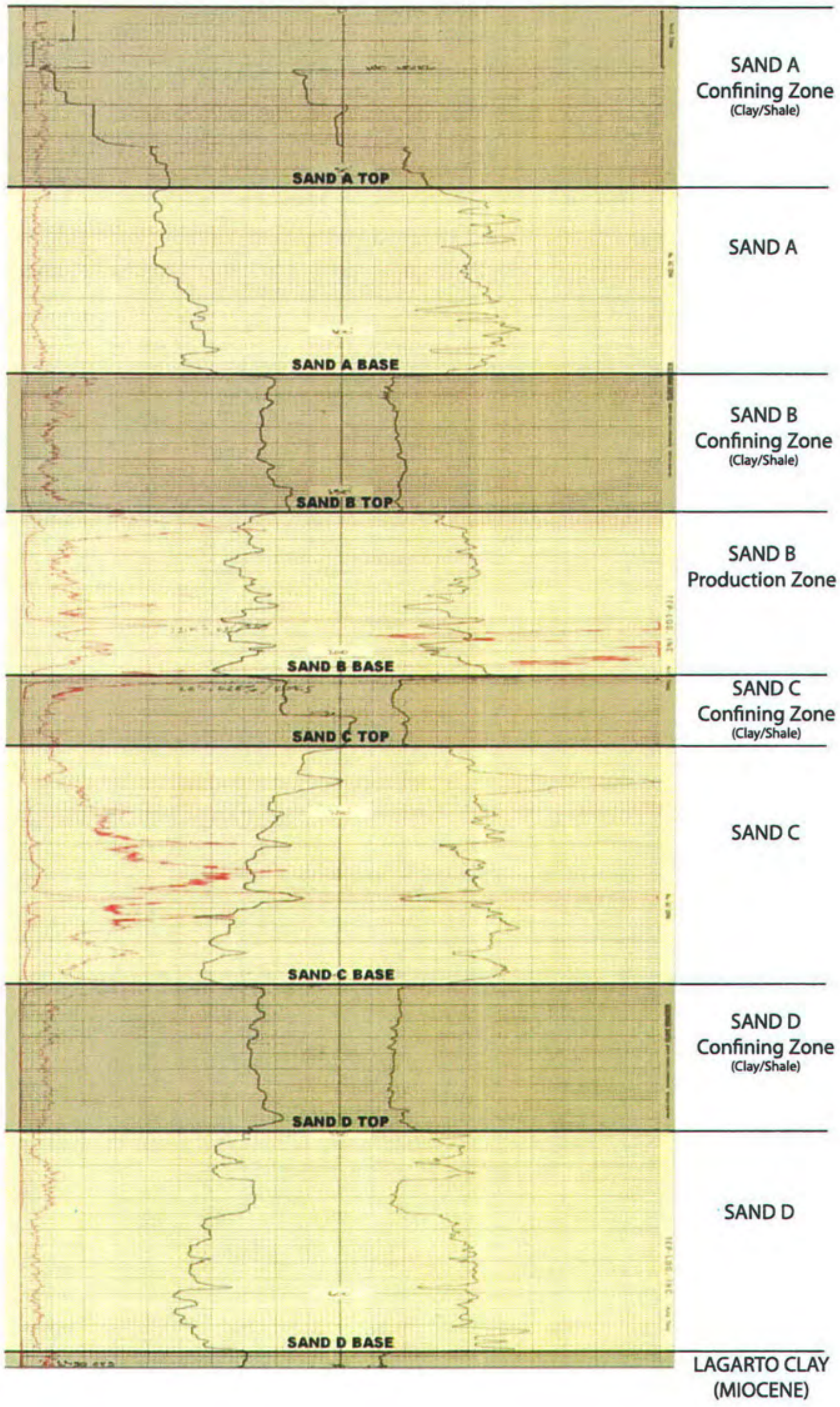
Uranium Energy Corp

DRAWN BY: C. Bordovsky, UEC	DATE: 2-17-09
DRAWING NO. UEC PERMIT: minilogs_cross_sectionE-E'.2-11-09.dwg	SCALE: See Scale Bar

32201-66

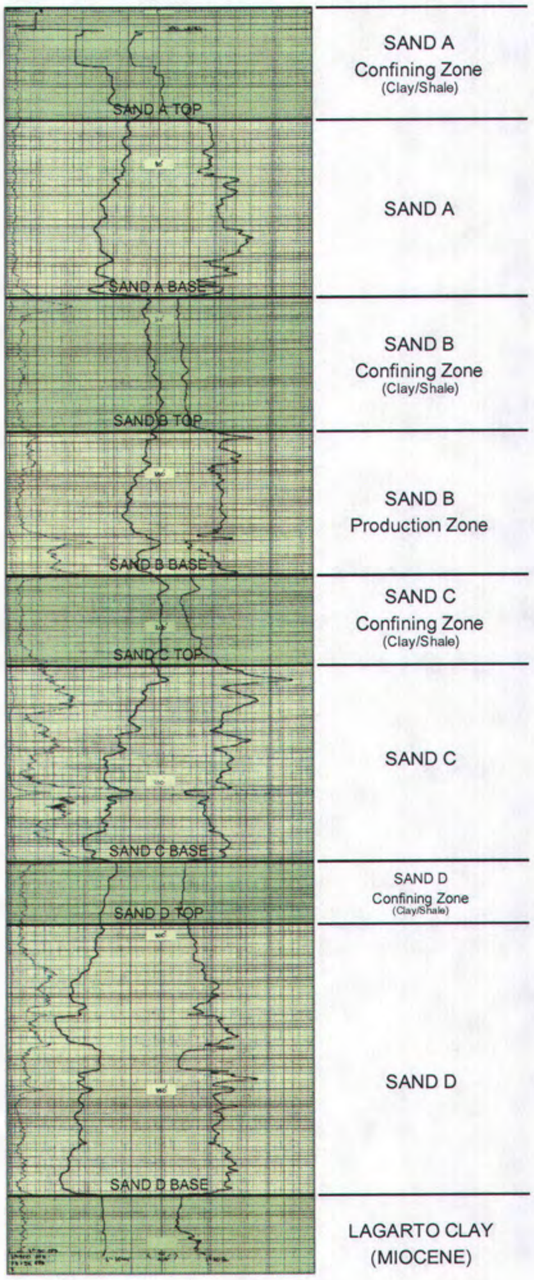
○

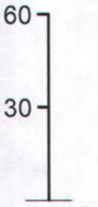
TD 424 FT
GL 235.5 FT



32201-67

TD 400 FT
GL 223.9 FT

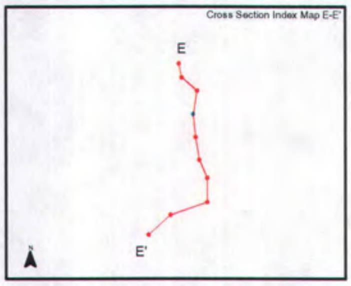




Scale of Structural Cross-Section

TD = Total Depth
GL = Ground Level
FT = Feet

Cross Section Index Map E-E'



Cross Section E-E'

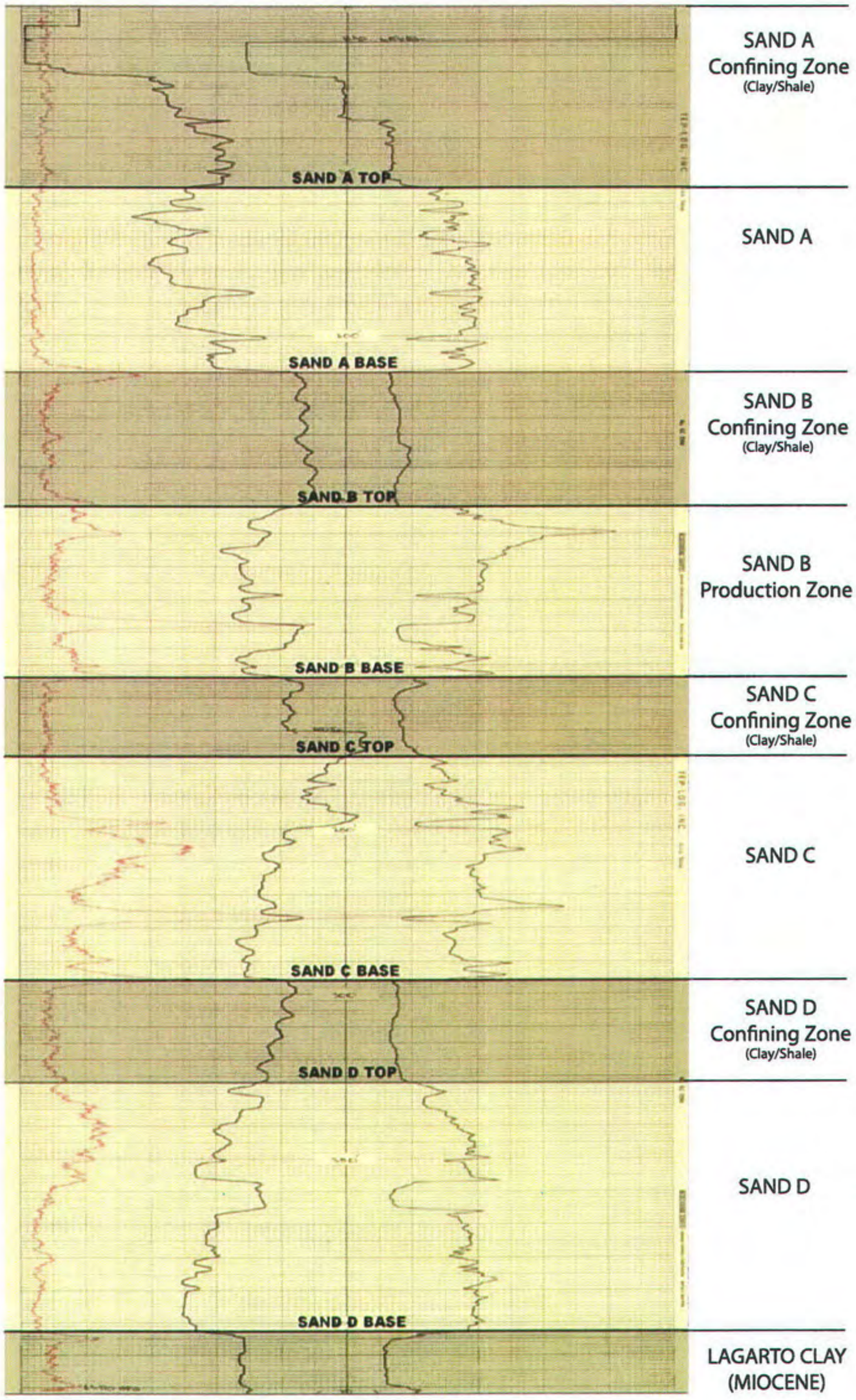
Uranium Energy Corp

DRAWN BY: C. Bordovsky, UEC	DATE: 2-17-09
DRAWING NO: UEC PERMIT: minilogs_cross_sectionE-E' 2-11-09.dwg	SCALE: See Scale Bar

32201-68

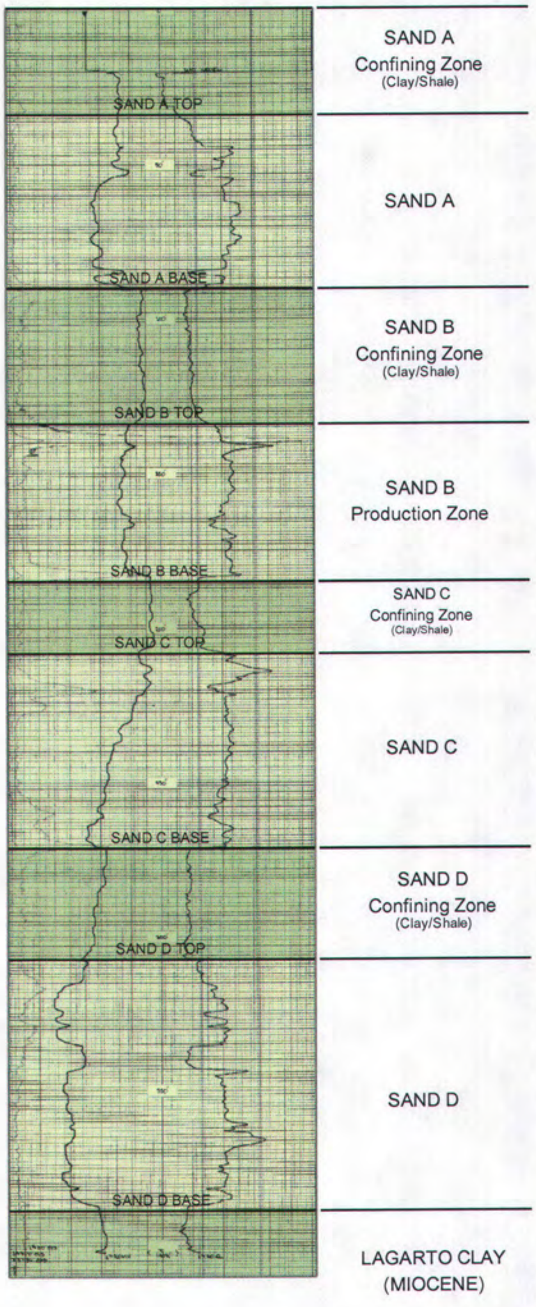
○

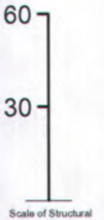
TD 422 FT
GL 234.9 FT



32201-69

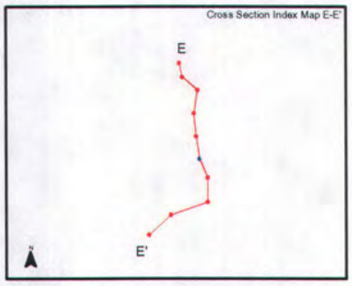
TD 400 FT
GL 218.1 FT





Scale of Structural Cross-Section

TD = Total Depth
GL = Ground Level
FT = Feet



Cross Section E-E'

Uranium Energy Corp

DRAWN BY: C. Bordovsky, UEC

DATE: 2-17-09

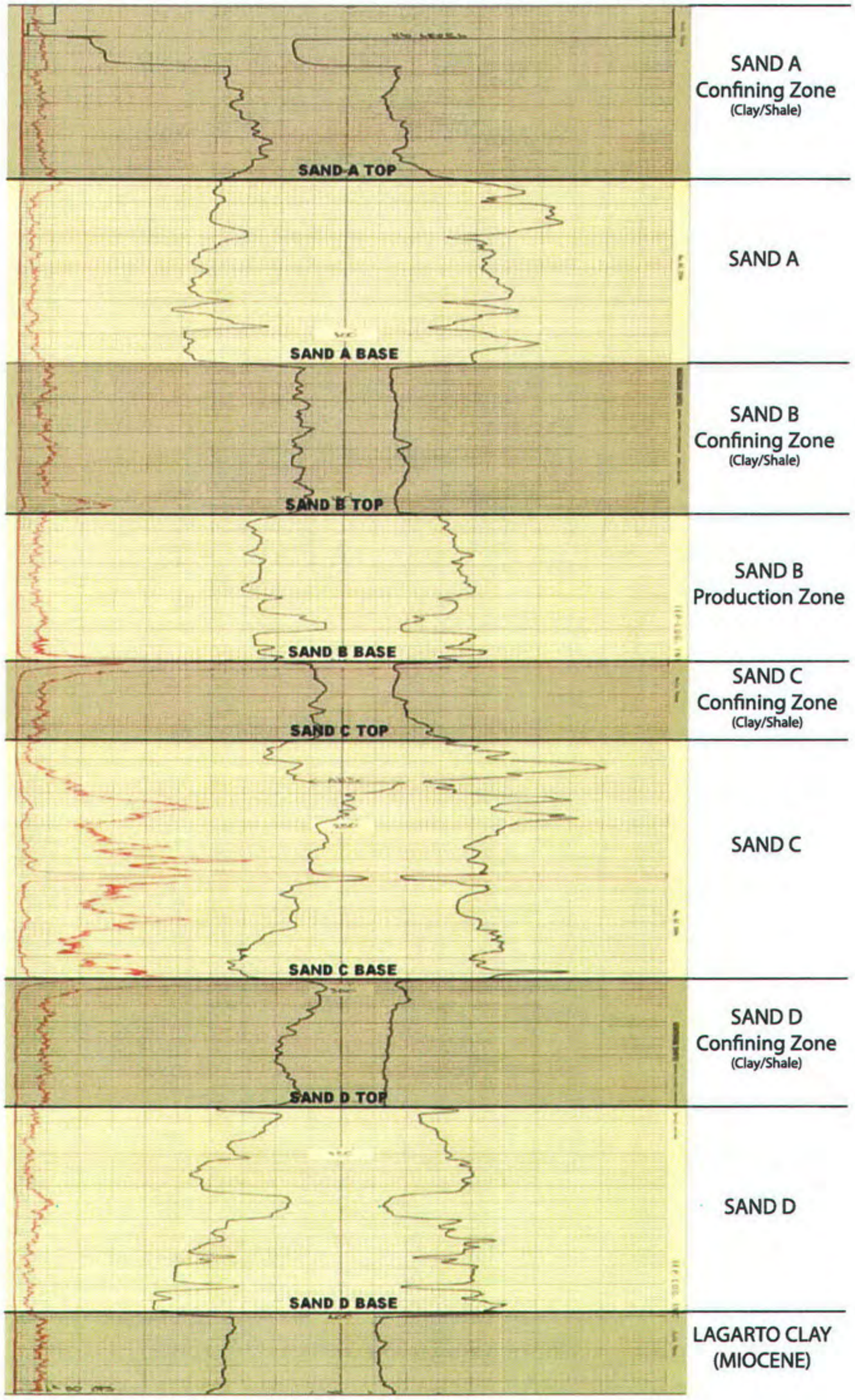
DRAWING NO. UEC PERMIT: minilogs_cross_sectionE-E'.2-11-09.dwg

SCALE: See Scale Bar

32201-80

○

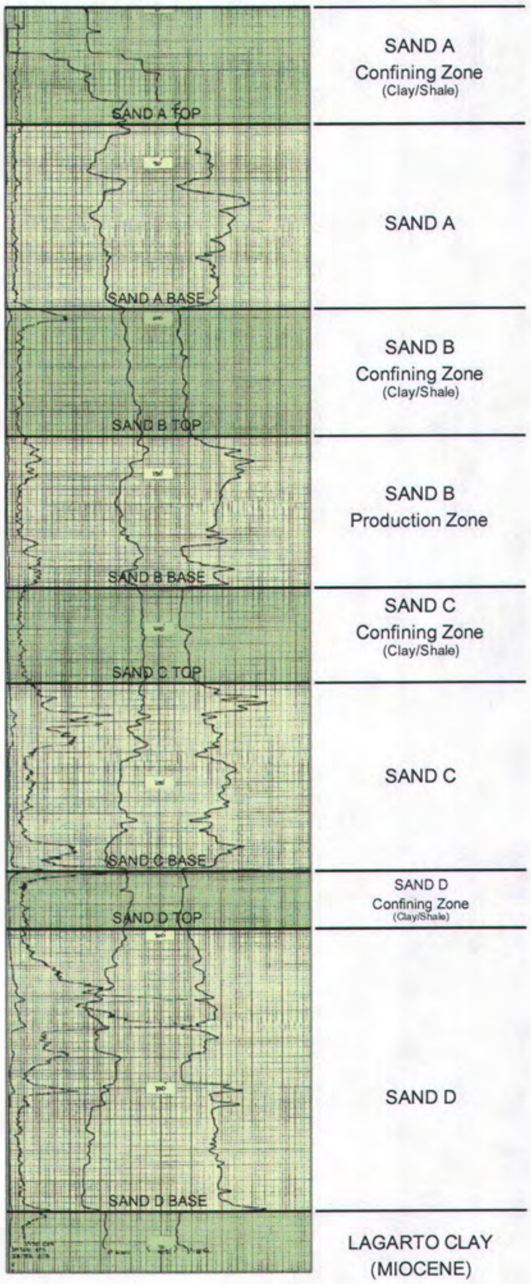
TD 424 FT
GL 231.9 FT

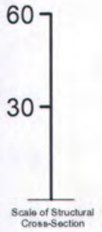


32201-120

○

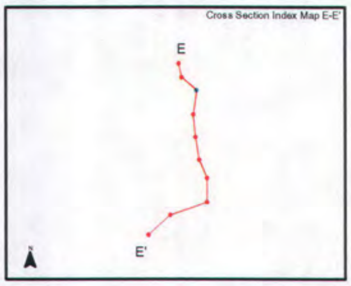
TD 400 FT
GL 227.1 FT





Scale of Structural Cross-Section

TD = Total Depth
GL = Ground Level
FT = Feet



Cross Section E-E'

Uranium Energy Corp

DRAWN BY: C. Bordovsky, UEC

DATE: 2-17-09

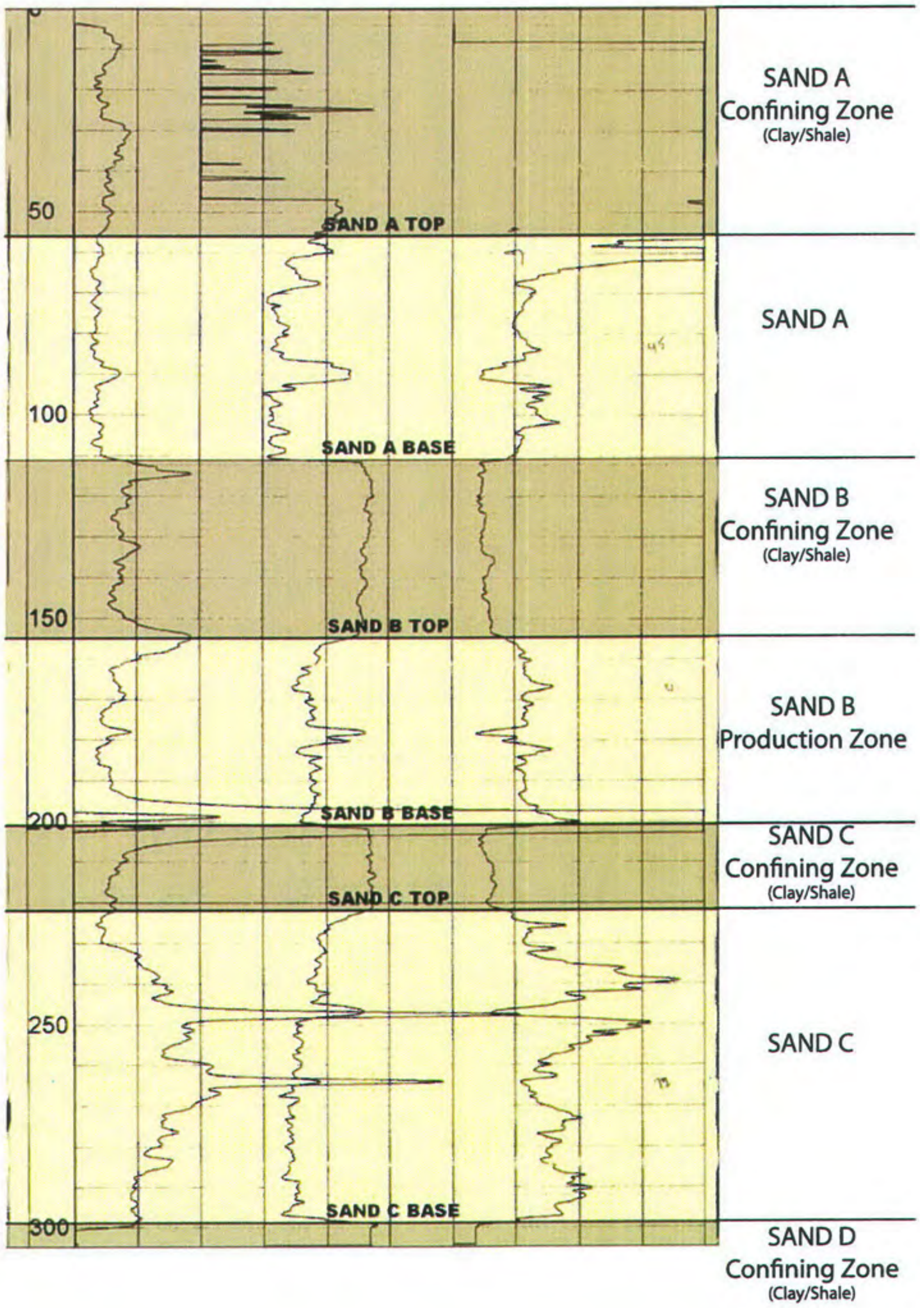
DRAWING NO. UEC PERMIT: minilogs_cross_sectionE-E'.2-11-09.dwg

SCALE: See Scale Bar

32201-N83

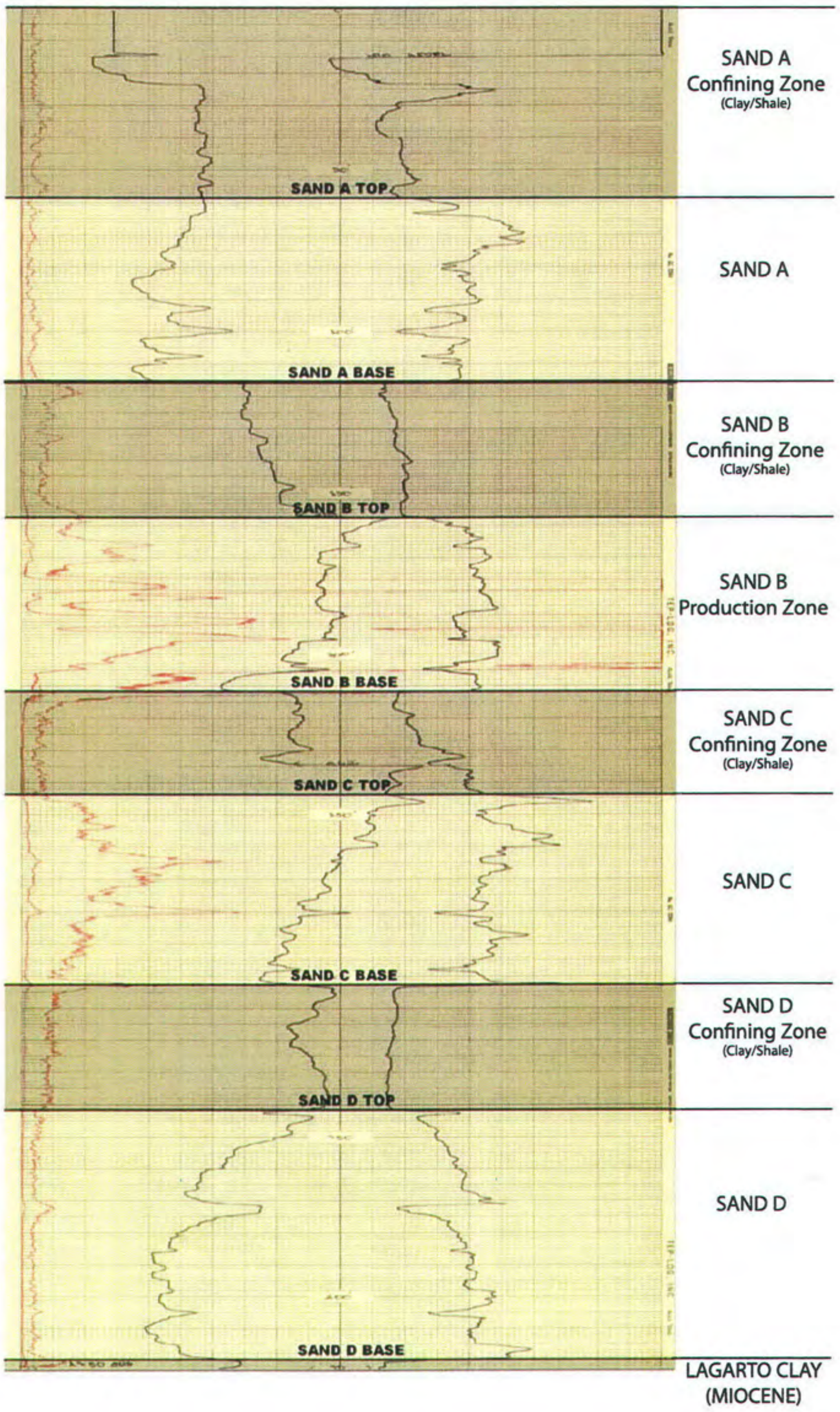
○

TD 305 FT
GL 230.5 FT



32201-84

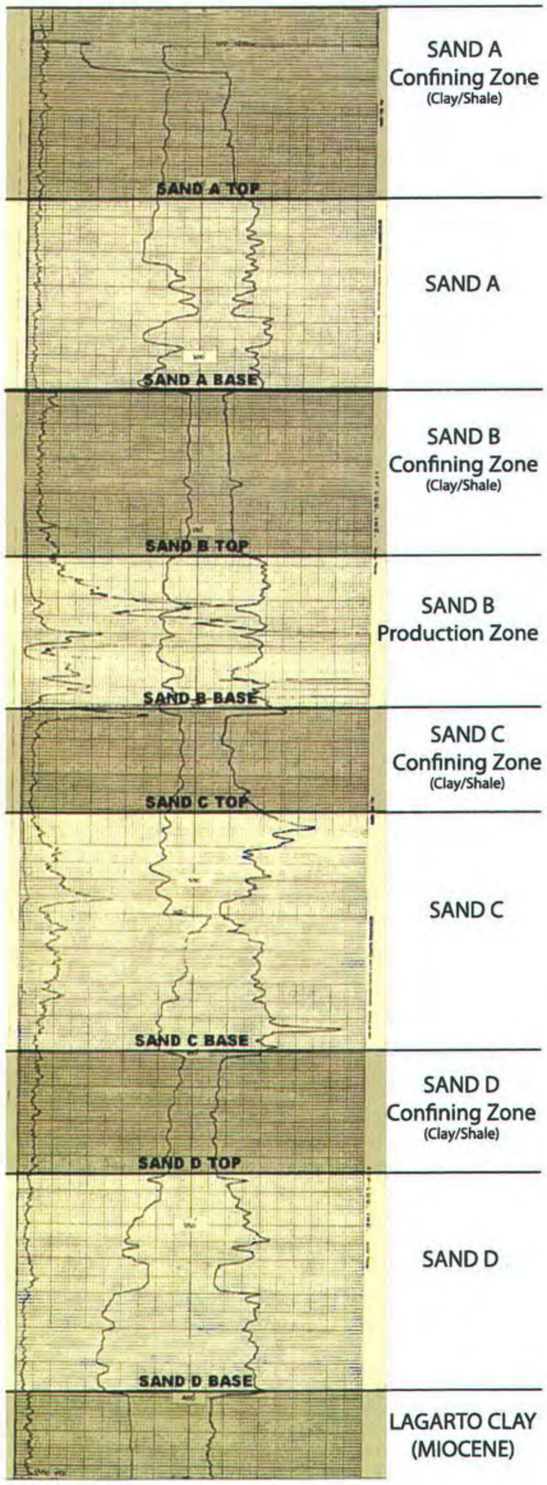
TD 423 FT
GL 234.4 FT



32201-87

○

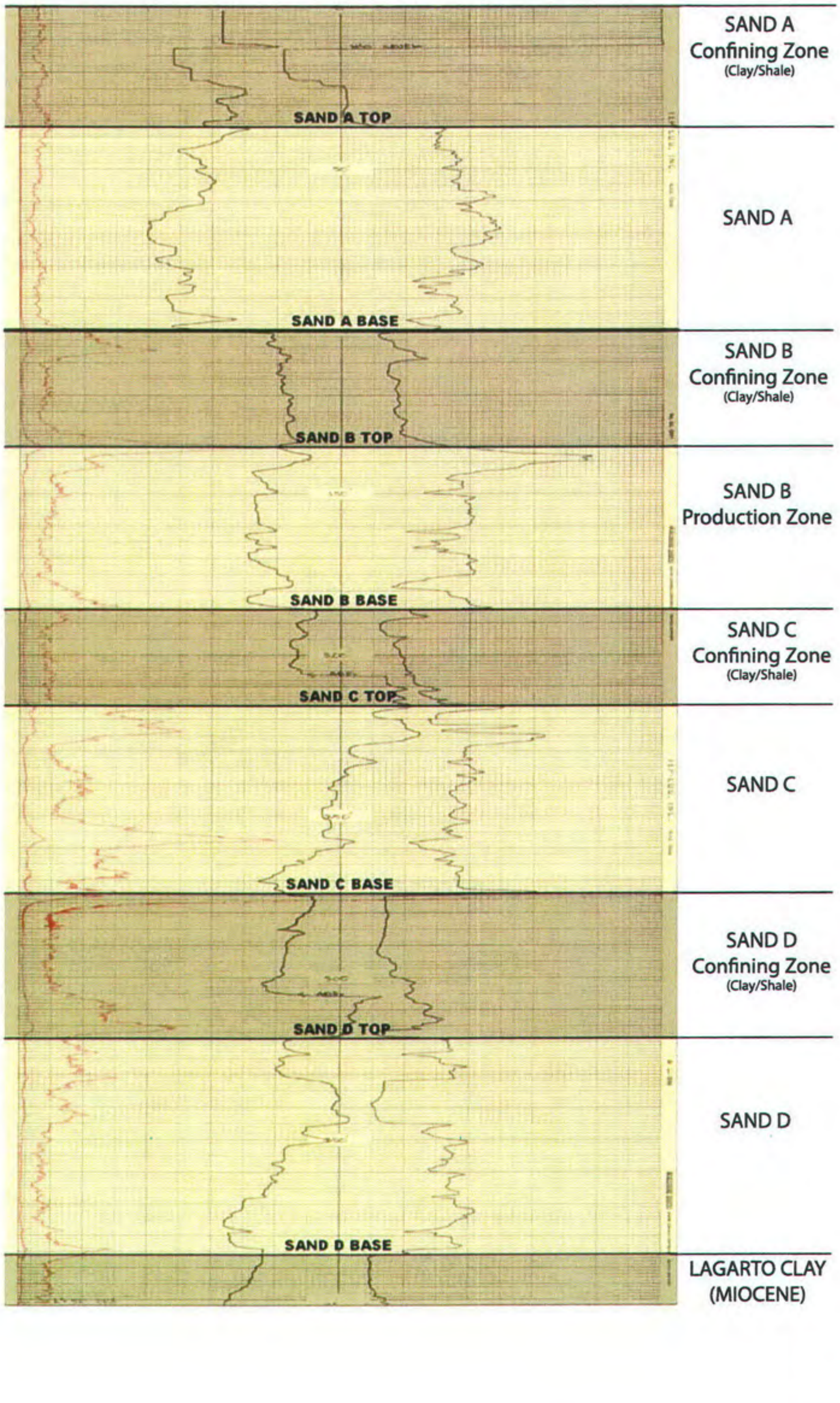
TD 425 FT
GL 228.3 FT



32201-90

○

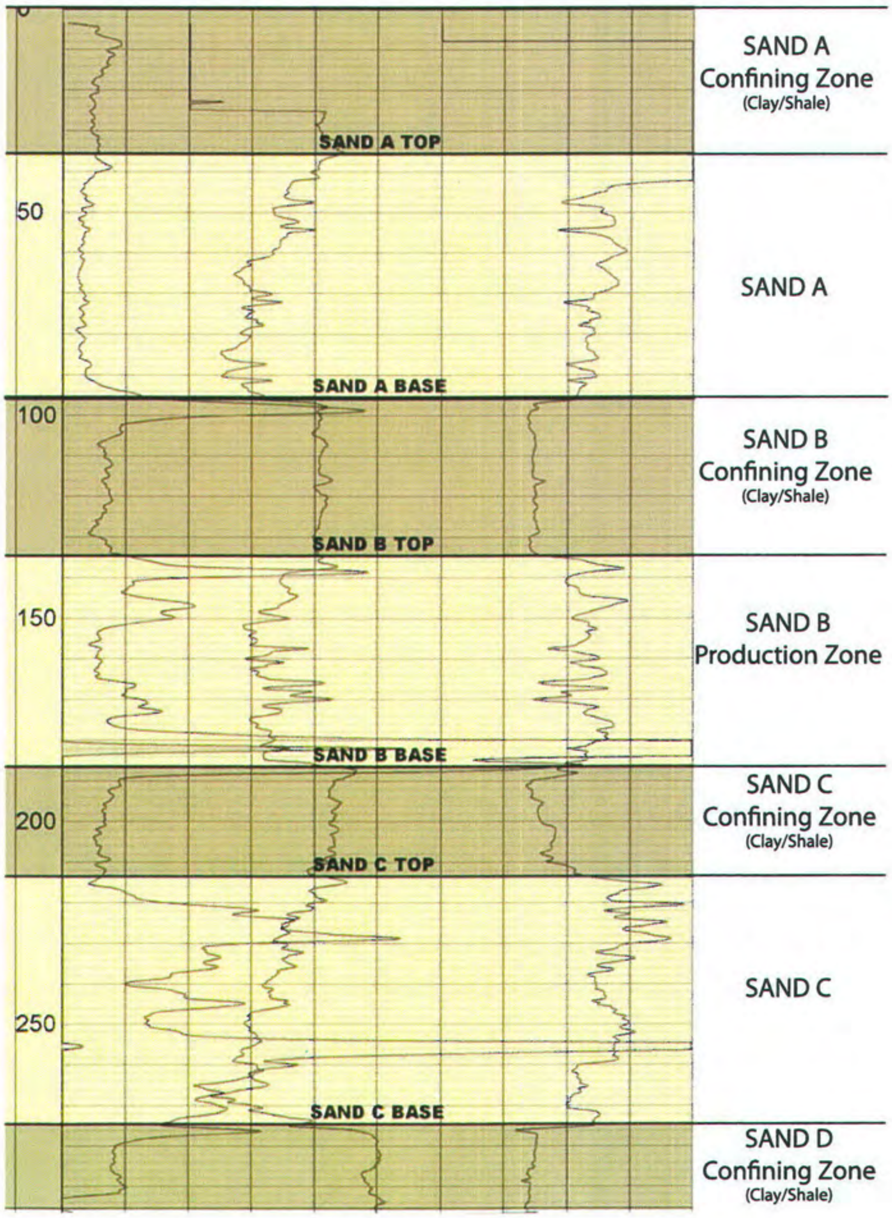
TD 402 FT
GL 224.7 FT



32201-N41

○

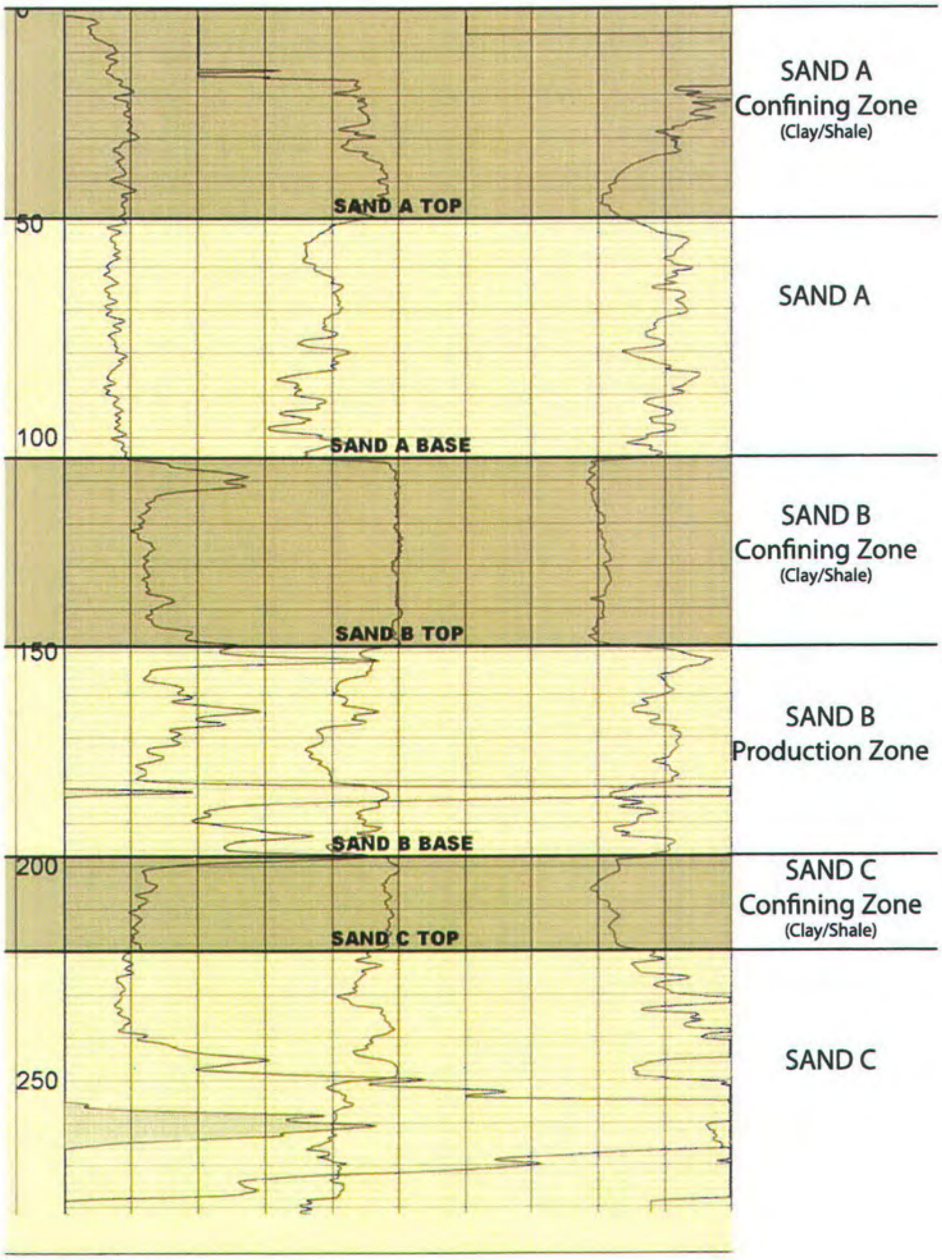
TD 297 FT
GL 222.9 FT



32201-N53

○

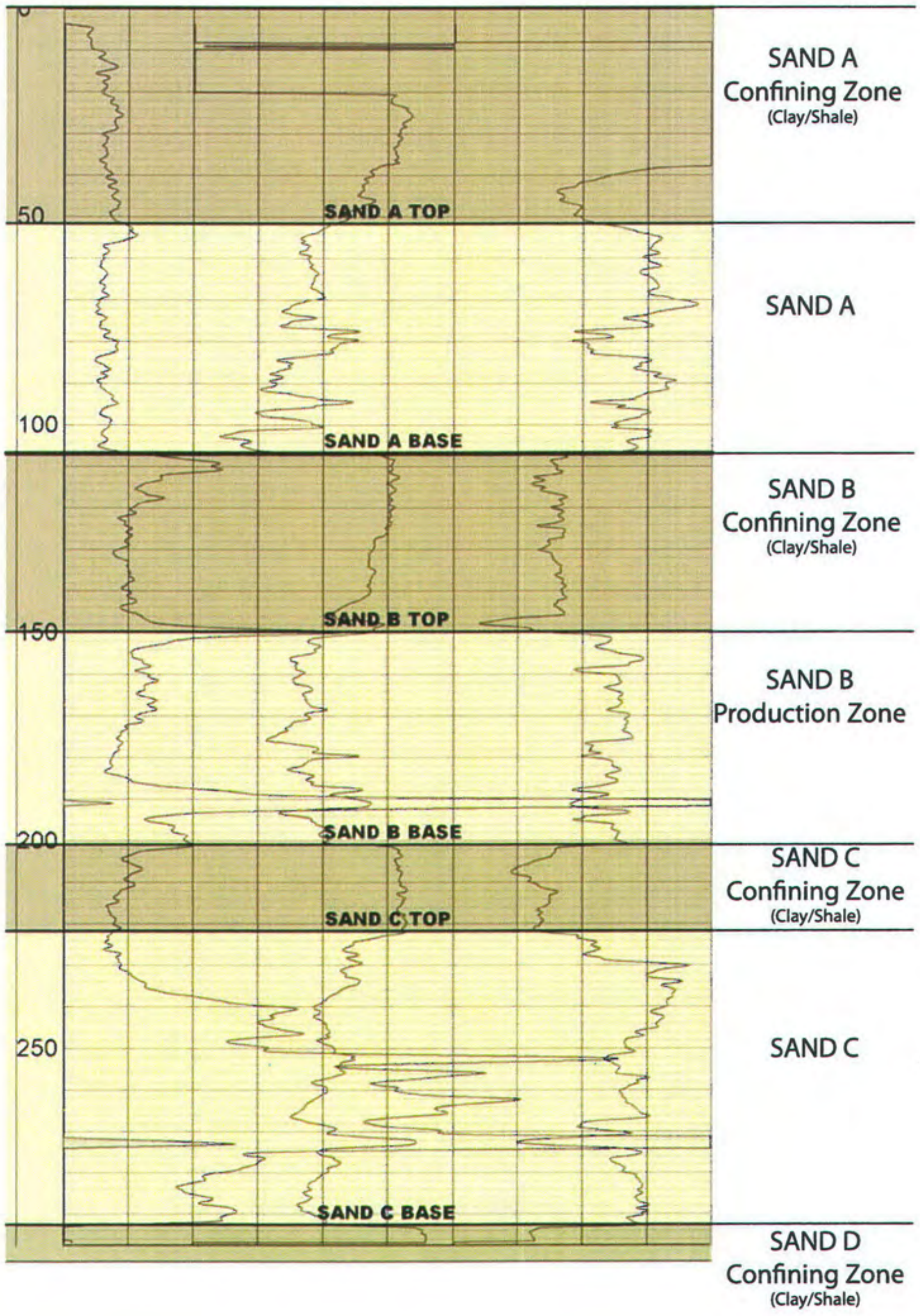
TD 283 FT
GL 231.5 FT



32201-N55

○

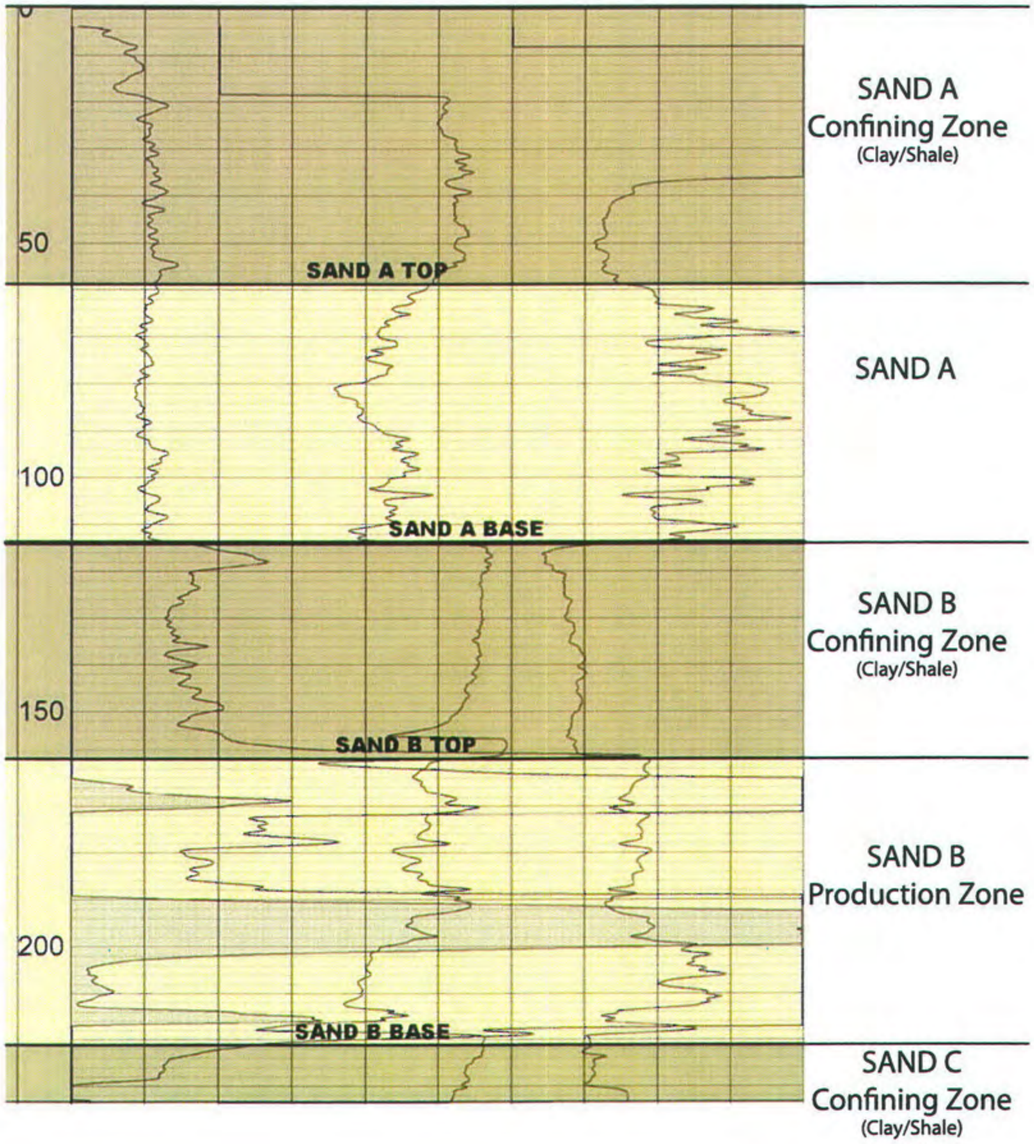
TD 297 FT
GL 232.4 FT



32201-N65

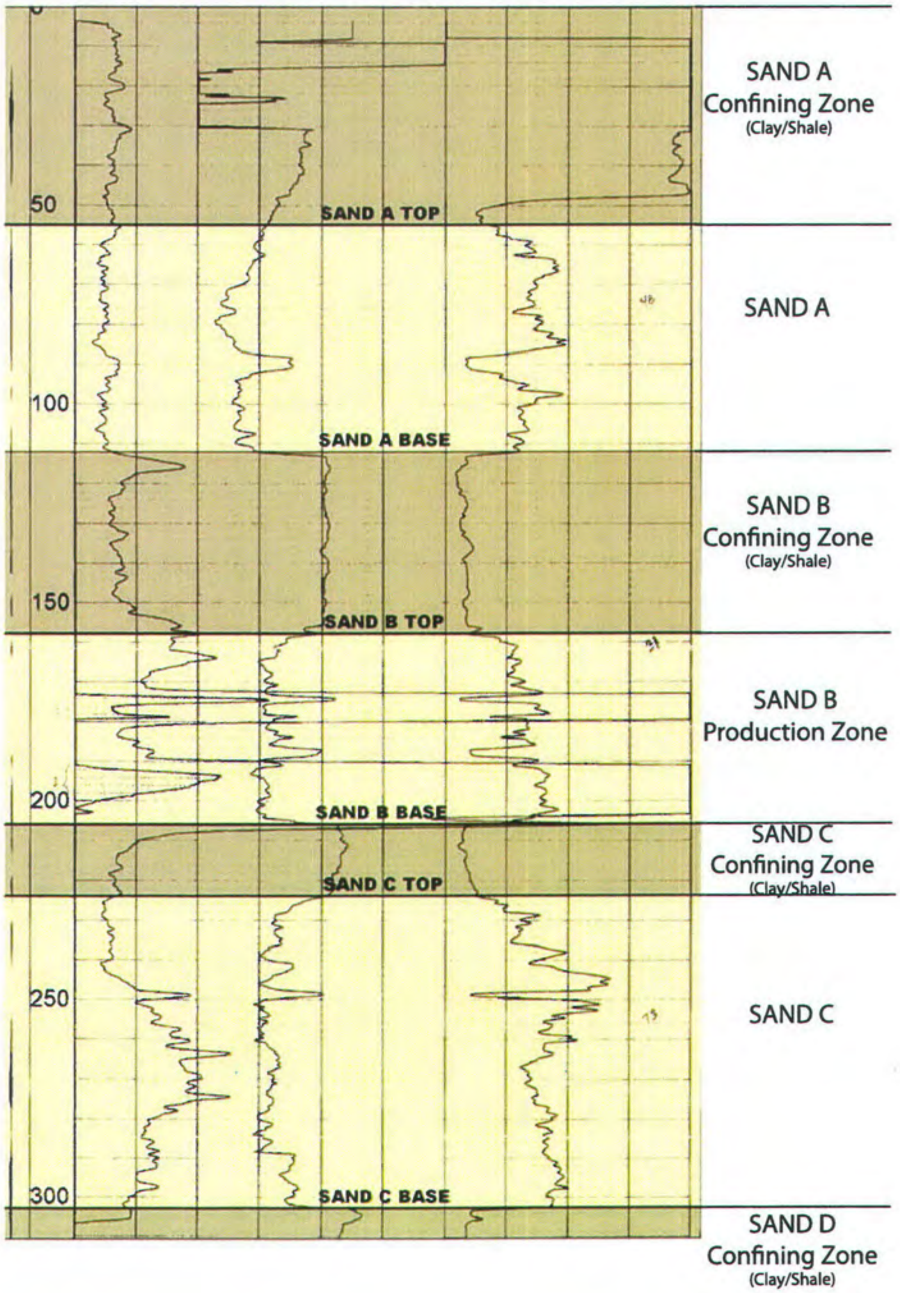
○

TD 234 FT
GL 237.2 FT



32201-N82

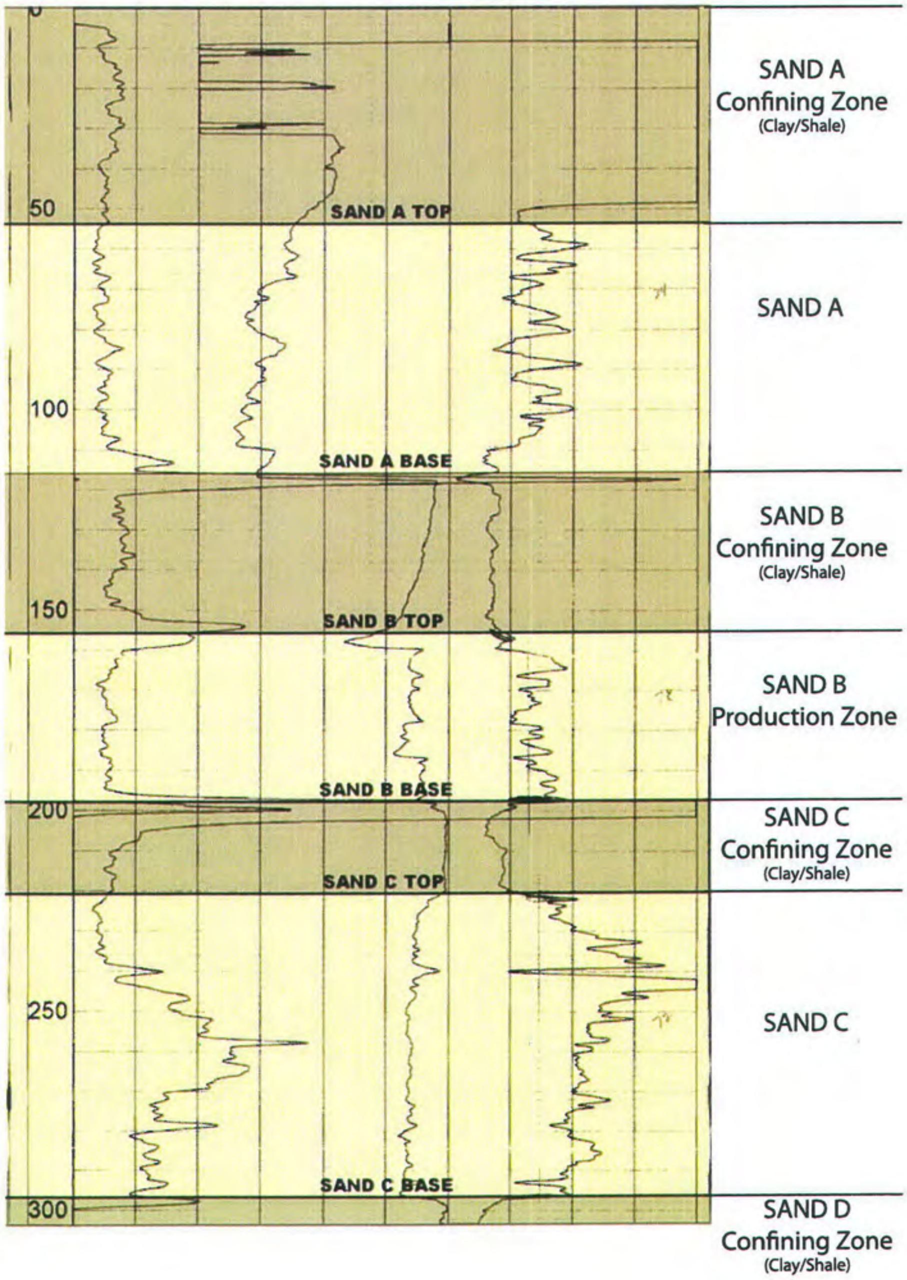
TD 311 FT
GL 231.3 FT



32201-N84

○

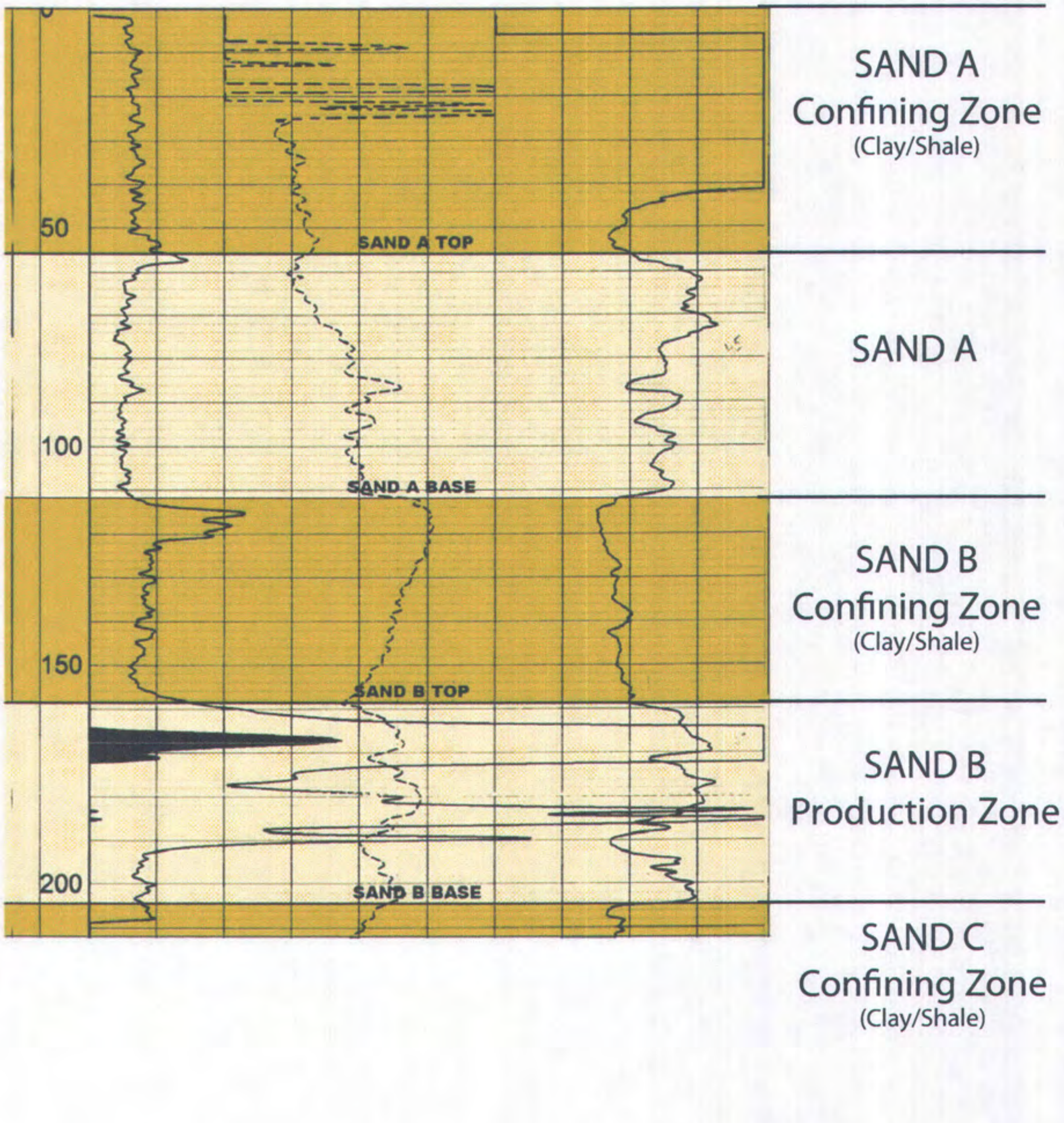
TD 304 FT
GL 229.8 FT



32201-N119

○

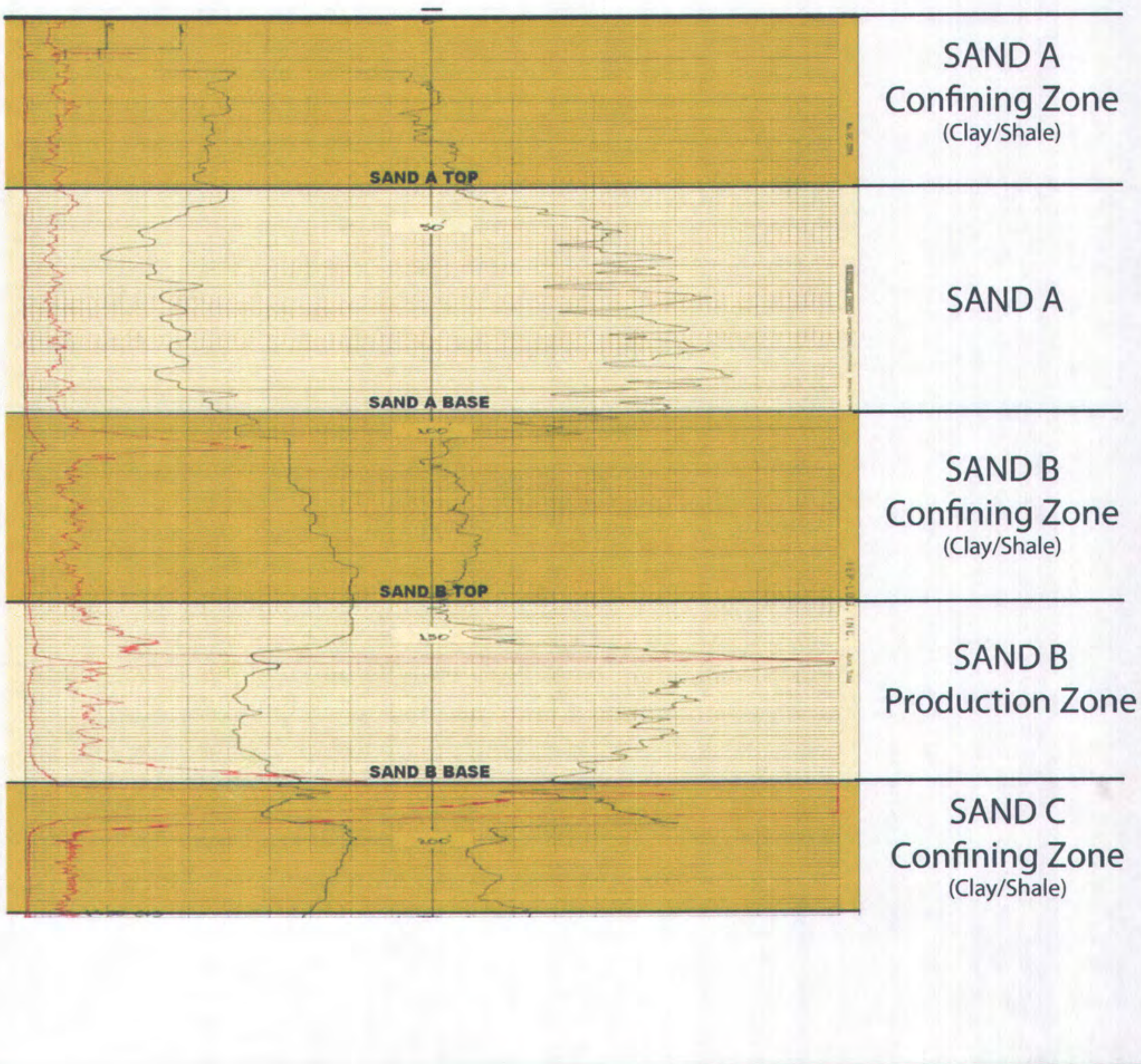
TD 213 FT
GL 232.7 FT



32201-126

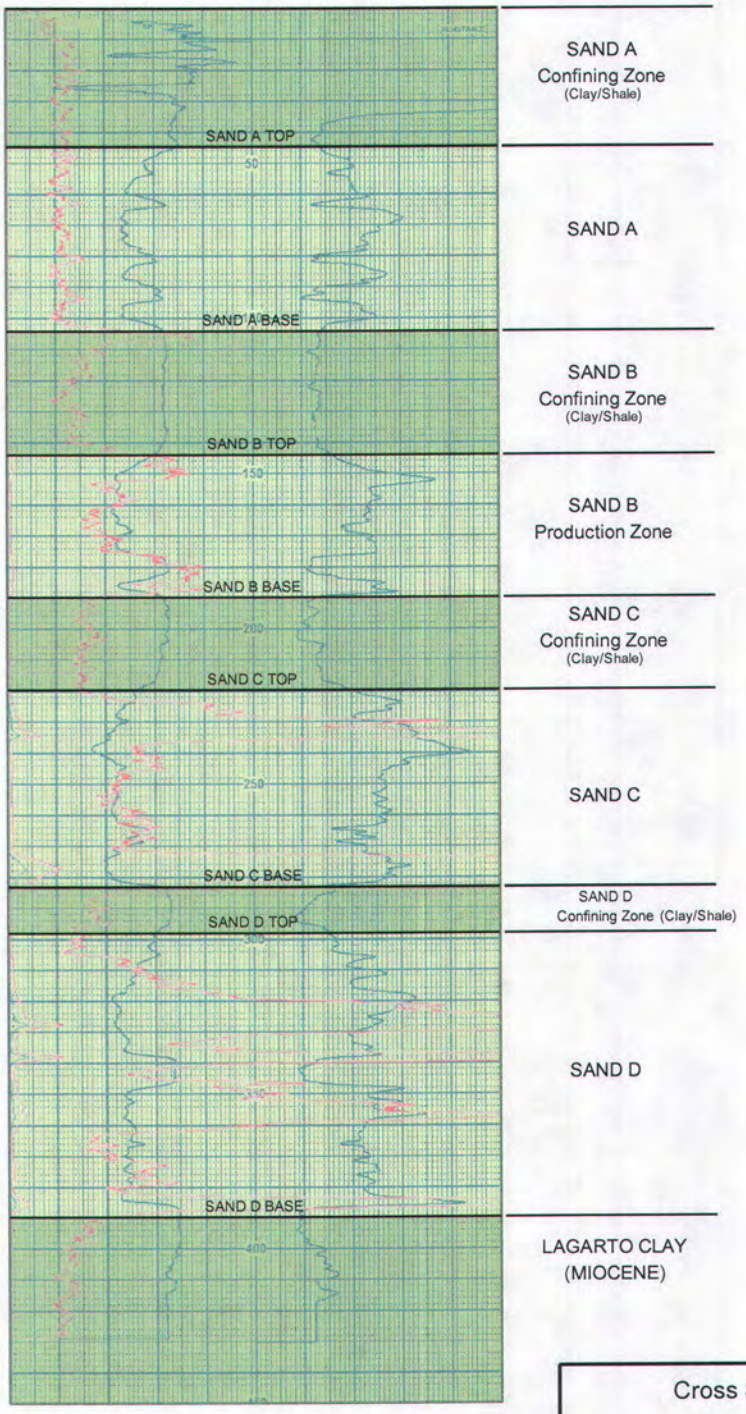
○

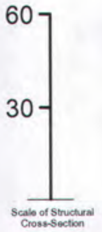
TD 220 FT
GL 227.1 FT



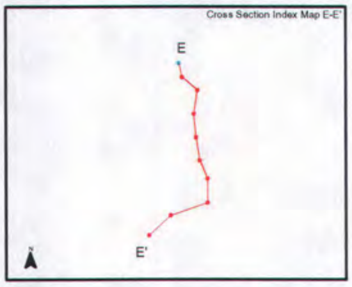
32201-N178

TD 430 FT
GL 230.5 FT





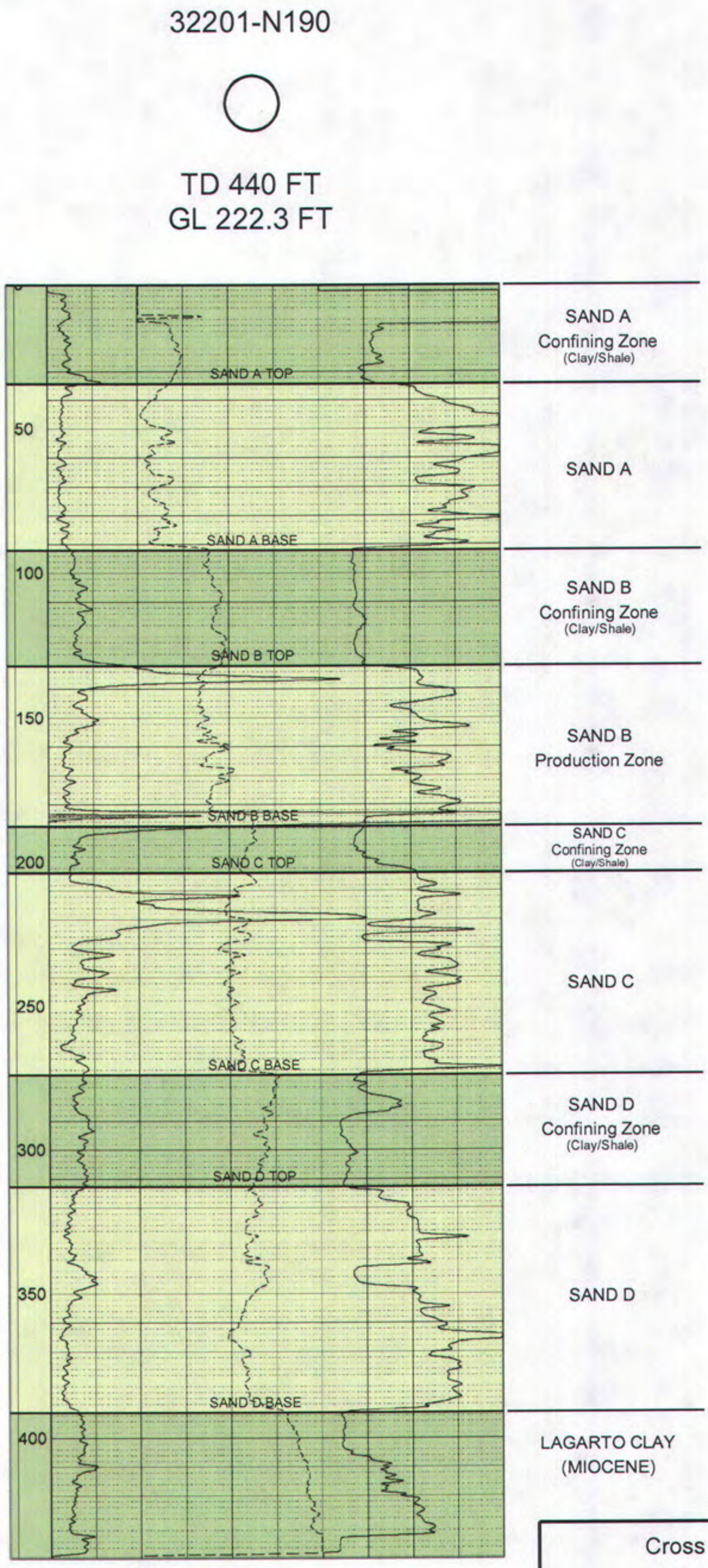
TD = Total Depth
GL = Ground Level
FT = Feet

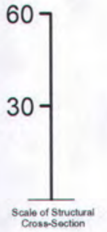


Cross Section E-E'

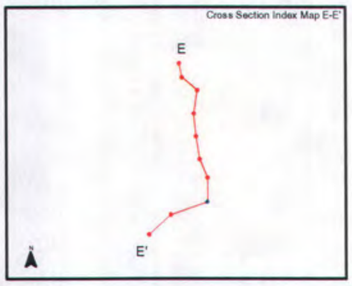
Uranium Energy Corp

DRAWN BY: C. Bordovsky, UEC	DATE: 2-17-09
DRAWING NO: UEC PERMIT: minilogs_cross_sectionE-E' 2-11-09.dwg	SCALE: See Scale Bar





TD = Total Depth
GL = Ground Level
FT = Feet



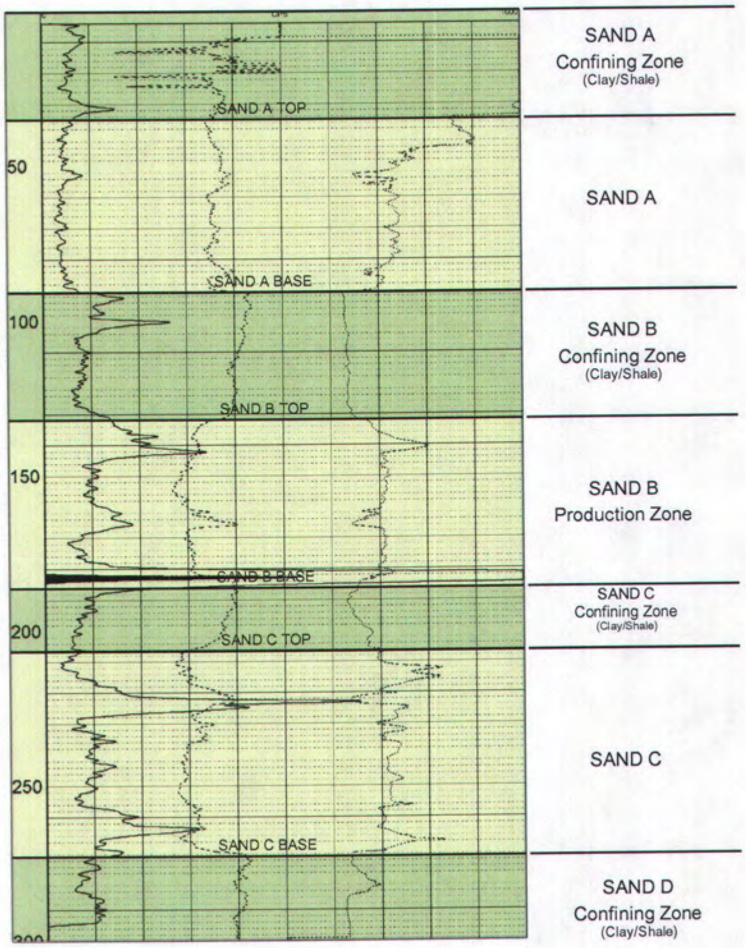
Cross Section E-E'

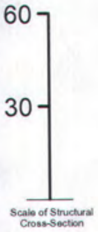
Uranium Energy Corp

DRAWN BY:	DATE:
C. Bordovsky, UEC	2-17-09
DRAWING NO.	SCALE:
UEC PERMIT: minlogs_cross_sectionE-E' 2-11-09.dwg	See Scale Bar

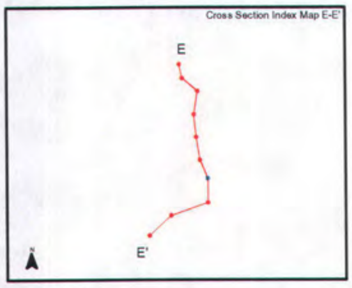
32201-N270

TD 300 FT
GL 219.9 FT





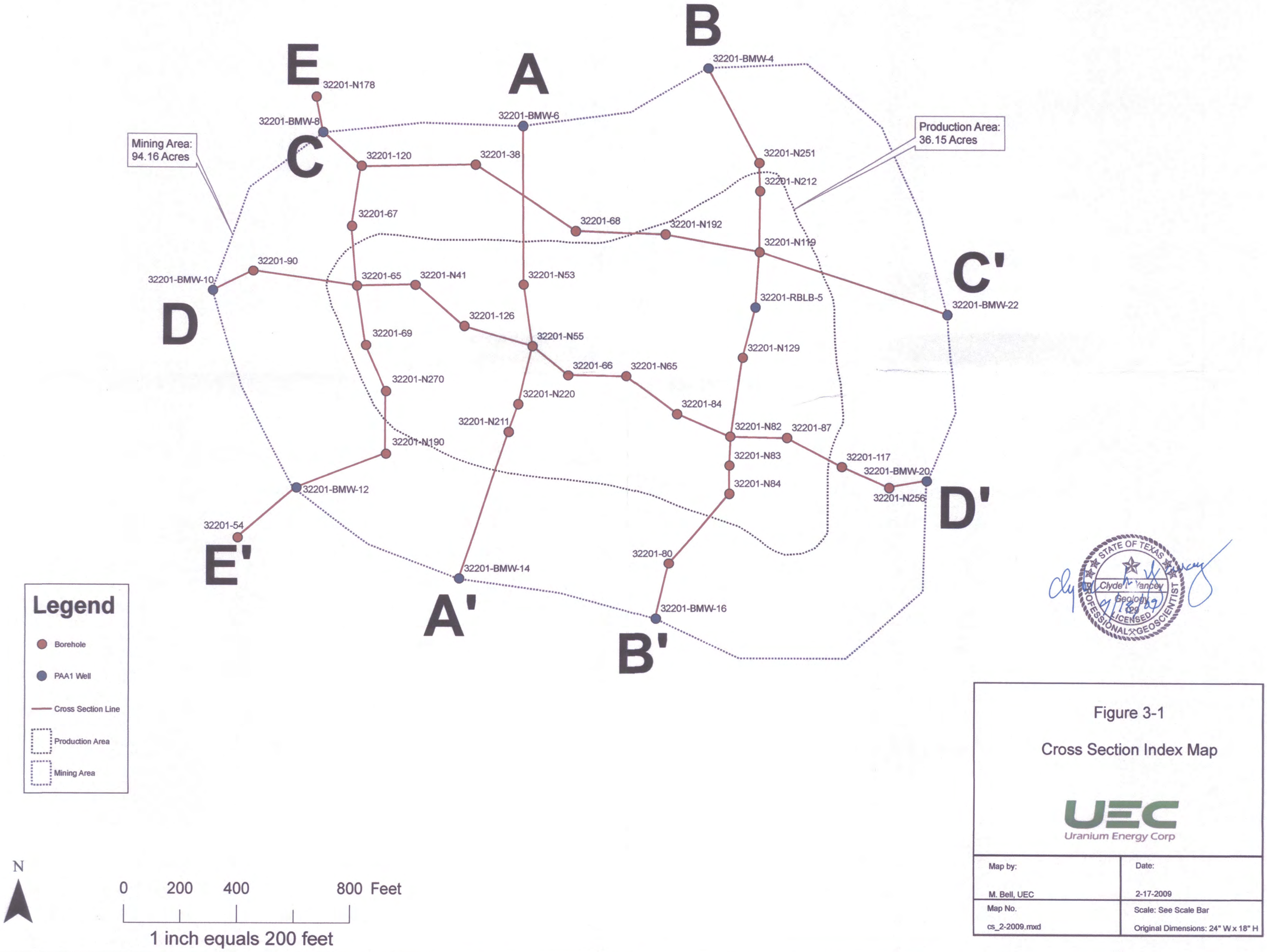
TD = Total Depth
GL = Ground Level
FT = Feet



Cross Section E-E'

Uranium Energy Corp

DRAWN BY: C. Bordovsky, UEC	DATE: 2-17-09
DRAWING NO. UEC PERMIT: minilogs_cross_sectionE-E' 2-11-09.dwg	SCALE: See Scale Bar



Clyde L. Yancey

Figure 3-1

Cross Section Index Map

Uranium Energy Corp

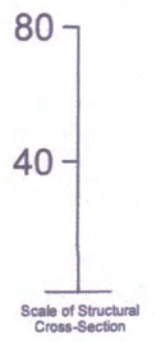
Map by:
M. Bell, UEC

Date:
2-17-2009

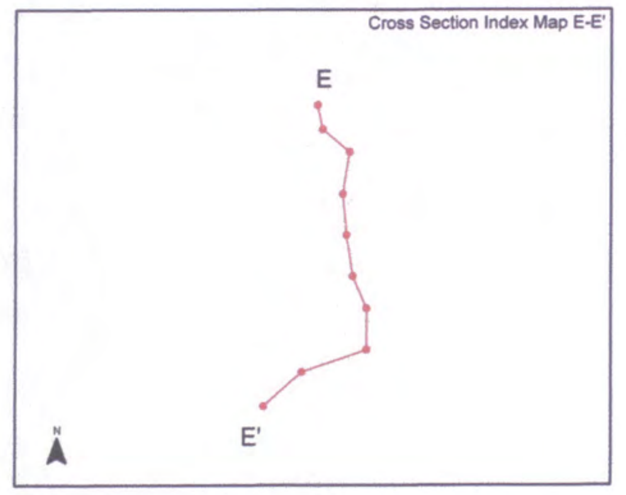
Map No.
cs_2-2009.mxd

Scale: See Scale Bar

Original Dimensions: 24" W x 18" H



TD = Total Depth
GL = Ground Level
FT = Feet


Cross Section Index Map E-E'

Clyde L. Yancey
2-11-09

Figure No. 3-5a

Cross Section E-E'

Uranium Energy Corp

DRAWN BY: C. Yancey, UEC (Breaks) C. Bordovsky, UEC (CAD)	DATE: 2-11-09
DRAWING NO. UEC PERMIT: cross_sectionE-E'.2-11-09.dwg	SCALE: See Scale Bar