

QUARTERLY REPORT - 3rd QUARTER 1987
O-SAND IN-SITU URANIUM R&D PROJECT

Converse County, Wyoming

NRC Source Material License SUA-1387
NRC Docket No. 40-8768
Wyoming DEQ LQD - License 13RD

Project Status

Leaching operations continued as scheduled during the third quarter 1987. Fluid production and injection during the period totaled 17.5 million gallons and 16.6 million gallons, respectively. Overrecovery during the period totaled 0.9 million gallons. Waste water from the O-sand project routed to the evaporation ponds during the quarter totaled 64,020 gallons. Production, 3rd Quarter 1984 through report period has averaged approximately 142 gallons per minute.

Excursion Monitoring

There were no wellfield excursions detected during the Quarter. Excursion monitoring data is presented in both tabular and graphical form in Attachment A. Monitor well fluid level data is presented in tabular and graphical forms in Attachment B.

The "O" sand monitor well water level decline indicated in September is due to increased withdrawal from the Bill Smith Mine. The shaft pump malfunctioned August 4, and was replaced August 11. The new unit is discharging approximately 250 gallons per minute.

Excursion parameter data indicate confinement of the leach solutions, therefore no significant change in the control program is anticipated.

Water Quality Data

The required analyses for the evaporation ponds and bleed stream samples are included as Attachments C-1 and C-2, respectively.

Radon Survey

The quarterly sample for Radon²²², obtained from a continuous passive radon detector at the downwind location was 1.50 pCi/L.

8711230153 871106
PDR ADOCA 04008758
C PDR

Direct Gamma Survey

Operational direct gamma surveys conducted for the 3rd Quarter, 1987, are as follows:

	<u>μR/Hr.</u>
Upwind Radon Sample Location	14
Downwind Radon Sample Location	20
Pregnant Surge Tank Area	76
Evaporation Pond Area	23

Sediment/Soil Surveys

Operational surveys for Radium²²⁶ in the sediment in the Bill Smith Mine water treatment system drainage are as follows:

	<u>pCi Ra²²⁶/g</u>
Outfall From Final Treatment	1.5 $\pm$ 0.1
At Ross Road	0.8 $\pm$ 0.3
1½ Miles Below Discharge Point	4.2 $\pm$ 0.2

Water Survey

The operational survey for Radium²²⁶ and Thorium²³⁰ at the outfall of the final treatment unit consist of composite samples for Radium²²⁶ and a grab sample for Thorium²³⁰. The Radium²²⁶, as shown on the attached NPDES report, varied from a minimum of 1.0 pCi/L to a maximum of 2.2 pCi/L, and averaged 1.6 pCi/L. A grab sample, taken at the outfall on August 14, 1987, contained 0.9 $\pm$ 0.7 pCi/L Thorium²³⁰.

NPDES

A copy of the quarterly report required under NPDES Permit No. WY-0022411 is included in Attachment D.

ATTACHMENT A

Monitor Well Excursion Parameter Analyses

Monitor well excursion parameter analyses data and upper control limit (UCL) values for the monitor wells are presented in tabular form in Tables A-1 through A-6, and are presented in graphical form in Figures A-1 through A-24.

There were no excursions during the report period.

TABLE A-1
MONITOR WELL OM-1, OM-2 EXCURSION PARAMETER DATA
O-SAND ISL PROJECT SPRB, WYOMING

DATE	OM-1					OM-2			
	(1) HCO3	CL	SO4	SP.COND	*	HCO3	CL	SO4	SP.COND
UCL	283	17	345	1018	*	304	18	345	1032
01-Jan-86	166	6	300	861	*	168	5	310	883
15-Jan-86	151	6	300	849	*	150	6	300	870
05-Feb-86	224	6	280	840	*	239	5	275	882
18-Feb-86	207	5	280	896	*	206	5	310	896
05-Mar-86	238	5	290	835	*	240	5	270	865
19-Mar-86	238	5	275	840	*	238	5	295	862
02-Apr-86	244	5	280	830	*	240	5	290	842
16-Apr-86	238	5	290	810	*	238	5	290	853
07-May-86	250	5	290	821	*	247	5	300	845
21-May-86	250	5	295	850	*	253	5	300	897
04-Jun-86	250	5	300	828	*	247	5	290	859
18-Jun-86	250	5	300	882	*	247	5	295	892
02-Jul-86	252	5	295	840	*	252	5	290	851
16-Jul-86	257	5	290	850	*	257	5	280	840
06-Aug-86	260	5	290	860	*	257	4	285	880
20-Aug-86	253	5	275	856	*	249	5	265	867
03-Sep-86	244	5	280	864	*	250	4	260	864
17-Sep-86	250	4	260	838	*	250	5	280	849
08-Oct-86	251	5	250	848	*	245	4	280	848
22-Oct-86	245	6	270	816	*	245	5	280	858
05-Nov-86	249	8	252	880	*	234	10	265	890
19-Nov-86	244	7	240	890	*	249	7	246	900
04-Dec-86	248	5	280	862	*	248	5	290	880
17-Dec-86	242	5	290	829	*	242	5	300	839
07-Jan-87	237	6	250	806	*	237	5	275	847
21-Jan-87	244	8	211	920	*	244	8	227	920
04-Feb-87	269	5	260	833	*	262	5	280	853
18-Feb-87	259	6	290	849	*	250	6	300	890
04-Mar-87	256	7	260	919	*	256	7	275	929
18-Mar-87	244	6	254	860	*	249	7	262	870
01-Apr-87	244	6	270	820	*	244	7	290	874
15-Apr-87	255	6	275	861	*	255	7	260	872
06-May-87	252	6	290	858	*	249	6	295	879
20-May-87	258	6	300	844	*	249	6	300	887
03-Jun-87	248	5	275	861	*	245	5	275	861
17-Jun-87	254	5	260	849	*	251	5	255	869
08-Jul-87	254	5	275	846	*	245	5	275	857
22-Jul-87	254	5	290	788	*	245	5	275	851
12-Aug-87	262	7	274	860	*	256	7	264	880
26-Aug-87	252	5	270	834	*	255	5	285	877
09-Sep-87	253	4	290	846	*	249	5	275	841
23-Sep-87	249	5	280	877	*	249	5	280	866

(1) All analysis in mg/l except
Sp. Cond. which is umhos/cm

TABLE A-2
MONITOR WELL OM-3, OM-4 EXCURSION PARAMETER DATA
O-SAND ISL PROJECT SPRB, WYOMING

DATE	OM-3				*	OM-4			
	(1) HCO3	CL	SO4	SP.COND		HCO3	CL	SO4	SP.CCND
UCL	287	17	334	1020	*	275	20	334	952
01-Jan-86	167	5	300	840	*	166	5	275	862
15-Jan-86	144	5	275	849	*	145	5	290	849
05-Feb-86	235	5	270	862	*	238	4	270	862
18-Feb-86	204	5	285	853	*	203	5	340	896
05-Mar-86	217	5	230	744	*	244	5	290	855
19-Mar-86	226	5	280	809	*	235	5	270	830
02-Apr-86	238	5	255	796	*	244	5	270	830
16-Apr-86	238	5	265	821	*	232	4	280	810
07-May-86	240	5	265	809	*	250	4	270	821
21-May-86	250	5	290	838	*	250	5	280	873
04-Jun-86	238	5	260	787	*	244	5	290	828
18-Jun-86	244	5	260	832	*	244	5	290	852
02-Jul-86	246	5	250	818	*	252	5	290	818
16-Jul-86	260	5	250	820	*	254	4	280	840
06-Aug-86	254	5	275	820	*	251	5	275	860
20-Aug-86	236	5	250	795	*	256	5	260	856
03-Sep-86	232	4	260	780	*	241	4	275	832
17-Sep-86	234	5	240	776	*	213	4	240	725
08-Oct-86	229	5	240	790	*	242	5	245	828
22-Oct-86	229	5	250	774	*	242	5	280	795
05-Nov-86	215	8	246	830	*	234	8	230	860
19-Nov-86	244	8	236	850	*	244	7	234	880
03-Dec-86	232	5	250	820	*	235	5	280	830
17-Dec-86	242	5	260	779	*	242	5	260	899
07-Jan-87	231	5	250	785	*	234	4	250	806
21-Jan-87	229	8	218	890	*	205	7	176	790
04-Feb-87	245	5	260	813	*	240	4	260	793
18-Feb-87	232	6	275	870	*	226	5	260	797
04-Mar-87	232	7	275	897	*	210	6	225	771
18-Mar-87	234	6	262	850	*	224	7	230	780
01-Apr-87	226	6	290	830	*	238	7	250	808
15-Apr-87	233	6	280	882	*	211	7	240	756
06-May-87	233	5	290	879	*	236	6	250	825
20-May-87	218	5	275	876	*	218	5	230	792
03-Jun-87	229	5	290	861	*	235	5	240	798
17-Jun-87	229	5	310	869	*	232	5	240	777
08-Jul-87	235	5	325	857	*	242	5	250	824
22-Jul-87	245	4	295	820	*	248	5	290	799
12-Aug-87	256	8	285	855	*	244	11	272	825
26-Aug-87	249	5	255	866	*	249	5	285	856
09-Sep-87	246	5	260	830	*	243	5	250	810
23-Sep-87	249	5	270	856	*	240	5	260	834

(1) All analysis in mg/l except
Sp. Cond. which is umhos/cm

TABLE A-3
MONITOR WELL OM-5, OMS-1 EXCURSION PARAMETER DATA
O-SAND ISL PROJECT SPRB, WYOMING

DATE	OM-5					OMS-1			
	(1) HCO3	CL	SO4	SP.COND	*	HCO3	CL	SO4	SP.COND
UCL	306	19	328	1012	*	359	22	276	1007
01-Jan-86	168	4	310	904	*	199	11	225	862
15-Jan-86	142	5	325	912	*	166	12	230	870
05-Feb-86	239	5	300	914	*	124	13	225	967
18-Feb-86	203	5	340	938	*	230	11	225	896
05-Mar-86	238	5	310	885	*	287	12	230	845
19-Mar-86	238	5	320	883	*	287	11	230	851
02-Apr-86	240	4	300	888	*	287	11	230	854
16-Apr-86	238	5	300	874	*	284	9	225	832
07-May-86	244	5	300	880	*	296	11	230	857
21-May-86	247	4	325	909	*	290	11	235	885
04-Jun-86	253	5	320	890	*	289	11	225	839
18-Jun-86	250	5	310	892	*	288	11	220	843
02-Jul-86	252	5	300	840	*	309	11	225	840
16-Jul-86	260	4	295	880	*	298	13	230	800
06-Aug-86	254	5	290	890	*	305	13	225	840
20-Aug-86	256	5	275	877	*	246	12	230	847
03-Sep-86	250	4	290	884	*	300	11	240	832
17-Sep-86	238	4	260	844	*	294	11	235	828
08-Oct-86	244	5	255	867	*	289	11	225	809
22-Oct-86	245	4	260	837	*	292	13	250	785
05-Nov-86	239	7	255	890	*	278	12	205	890
19-Nov-86	244	6	296	930	*	288	12	208	880
03-Dec-86	245	5	280	872	*	280	12	235	851
17-Dec-86	245	5	280	859	*	280	13	225	779
07-Jan-87	247	5	260	837	*	273	12	225	837
21-Jan-87	234	9	232	910	*	273	12	192	910
04-Feb-87	262	5	260	843	*	312	12	275	833
18-Feb-87	256	6	300	900	*	299	13	250	890
04-Mar-87	250	6	300	929	*	293	12	250	887
18-Mar-87	244	6	288	860	*	283	10	210	850
01-Apr-87	238	6	300	853	*	281	10	230	842
15-Apr-87	249	6	300	904	*	295	11	240	851
06-May-87	243	6	300	911	*	292	12	235	836
20-May-87	249	5	275	897	*	274	11	240	845
03-Jun-87	248	5	260	872	*	280	11	220	804
17-Jun-87	260	5	290	869	*	299	13	215	849
08-Jul-87	248	5	275	879	*	292	12	225	813
22-Jul-87	245	6	300	840	*	283	12	220	840
12-Aug-87	256	14	310	905	*	305	18	218	850
26-Aug-87	245	5	290	909	*	287	10	215	856
09-Sep-87	249	5	295	841	*	292	11	225	831
23-Sep-87	253	5	294	888	*	295	12	220	823

(1) All analysis in mg/l except
Sp. Cond. which is umhos/cm

TABLE A-4
MONITOR WELL OMW-1, OMM-1 EXCURSION PARAMETER DATA
O-SAND ISL PROJECT SPRB, WYOMING

DATE	OMW-1					OMM-1				
	(1) HCO3	CL	SO4	SP.COND	*	HCO3	CL	SO4	SP.COND	*
UCL	238	16	55	418	*	224	16	104	534	*
01-Jan-86	111	4	14	347	*	111	6	70	452	*
15-Jan-86	95	5	16	297	*	98	6	75	424	*
05-Feb-86	159	5	14	357	*	161	7	66	504	*
18-Feb-86	132	4	15	352	*	129	6	72	459	*
05-Mar-86	165	4	17	322	*	171	6	69	382	*
19-Mar-86	166	4	17	336	*	165	6	68	462	*
02-Apr-86	168	4	16	353	*	165	6	80	455	*
16-Apr-86	168	4	15	331	*	165	8	68	427	*
07-May-86	174	4	18	345	*	171	7	72	440	*
21-May-86	171	4	15	371	*	174	5	75	460	*
04-Jun-86	177	4	15	320	*	177	6	68	456	*
18-Jun-86	171	5	14	357	*	174	6	70	456	*
02-Jul-86	180	4	15	300	*	186	5	70	442	*
16-Jul-86	171	4	18	385	*	171	5	70	440	*
06-Aug-86	178	4	18	300	*	174	6	68	430	*
20-Aug-86	183	4	19	336	*	190	6	62	439	*
03-Sep-86	172	4	18	343	*	178	6	68	416	*
17-Sep-86	181	4	17	342	*	169	6	64	404	*
08-Oct-86	172	4	14	313	*	175	5	60	419	*
22-Oct-86	172	4	18	335	*	172	5	62	408	*
05-Nov-86	171	7	17	330	*	173	9	63	410	*
19-Nov-86	171	6	17	340	*	172	7	60	420	*
03-Dec-86	168	5	20	315	*	172	6	65	463	*
17-Dec-86	172	5	18	350	*	175	6	60	409	*
07-Jan-87	167	4	16	330	*	167	6	66	429	*
21-Jan-87	171	7	17	400	*	171	8	52	490	*
04-Feb-87	177	4	18	317	*	180	6	64	407	*
18-Feb-87	177	5	20	342	*	171	6	72	445	*
04-Mar-87	177	5	22	338	*	177	6	68	443	*
18-Mar-87	171	7	19	300	*	168	7	64	380	*
01-Apr-87	171	6	18	327	*	177	7	66	470	*
15-Apr-87	180	6	18	336	*	180	7	60	420	*
06-May-87	174	5	20	300	*	174	6	70	407	*
20-May-87	174	5	20	348	*	174	6	72	443	*
03-Jun-87	178	4	18	331	*	172	6	65	430	*
17-Jun-87	181	4	18	320	*	178	7	62	435	*
08-Jul-87	175	4	18	308	*	178	7	70	440	*
22-Jul-87	175	4	18	315	*	178	7	65	399	*
12-Aug-87	183	7	18	295	*	195	9	58	395	*
26-Aug-87	174	4	18	346	*	174	7	70	412	*
09-Sep-87	177	4	18	327	*	174	6	65	405	*
23-Sep-87	174	4	18	336	*	187	6	66	433	*

(1) All analysis in mg/l except
Sp. Cond. which is umhos/cm

TABLE A-5
MONITOR WELLS OMO-1, OT-1
EXCURSION PARAMETER DATA
O-SAND ISL PROJECT SPRB, WYOMING
OMO-1 OT-1

DATE	(1) HCO3	CL	SO4	SP.COND	*	HCO3	CL	SO4	SP.COND
01-Jan-86	126	5	215	683	*				
15-Jan-86	107	5	225	679	*	134	5	290	870
05-Feb-86	180	5	200	715	*				
18-Feb-86	149	5	210	704	*	250	5	340	1002
05-Mar-86	183	4	210	624	*				
19-Mar-86	183	4	200	640	*	244	6	260	799
02-Apr-86	189	4	220	683	*				
16-Apr-86	183	5	215	661	*	238	5	260	821
07-May-86	183	5	225	655	*				
21-May-86	192	4	210	696	*	256	5	260	850
04-Jun-86	186	4	210	663	*				
18-Jun-86	189	4	200	714	*	247	5	290	853
02-Jul-86	205	5	220	640	*				
16-Jul-86	203	4	225	660	*	431	5	310	1060
06-Aug-86	203	4	220	670	*				
20-Aug-86	200	4	220	673	*	541	31	310	1285
03-Sep-86	194	4	225	665	*	263	7	280	895
17-Sep-86	178	3	240	673	*	288	8	290	911
08-Oct-86	184	4	200	655	*				
22-Oct-86	184	4	225	638	*	248	5	275	847
05-Nov-86	188	8	195	700	*				
19-Nov-86	188	7	195	710	*	307	13	270	1020
03-Dec-86	188	4	240	662	*				
17-Dec-86	181	4	220	629	*	298	7	300	879
07-Jan-87	186	5	210	649	*	359	15	290	1057
21-Jan-87	183	8	174	760	*	239	8	244	950
04-Feb-87	198	4	220	635	*				
18-Feb-87	189	5	230	704	*	250	4	290	859
04-Mar-87	195	5	240	707	*				
18-Mar-87	173	6	199	660	*	244	17	294	880
01-Apr-87	183	6	220	656	*				
15-Apr-87	187	6	200	694	*	249	9	290	840
06-May-87	174	5	200	643	*				
20-May-87	180	4	190	676	*	236	5	250	845
03-Jun-87	181	4	200	662	*				
17-Jun-87	191	4	200	662	*	254	4	290	849
08-Jul-87	191	5	200	660	*				
22-Jul-87	191	4	225	641	*	242	4	300	840
12-Aug-87	287	6	215	660	*	268	13	284	860
26-Aug-87	187	4	210	672	*	252	7	290	888
09-Sep-87	203	4	215	633	*	253	5	290	831
23-Sep-87	197	4	220	660	*	253	5	290	812

(1) All analysis in mg/l except
Sp. Cond. which is umhos/cm

TABLE A-6
MONITOR WELL WW-109
EXCURSION PARAMETER DATA

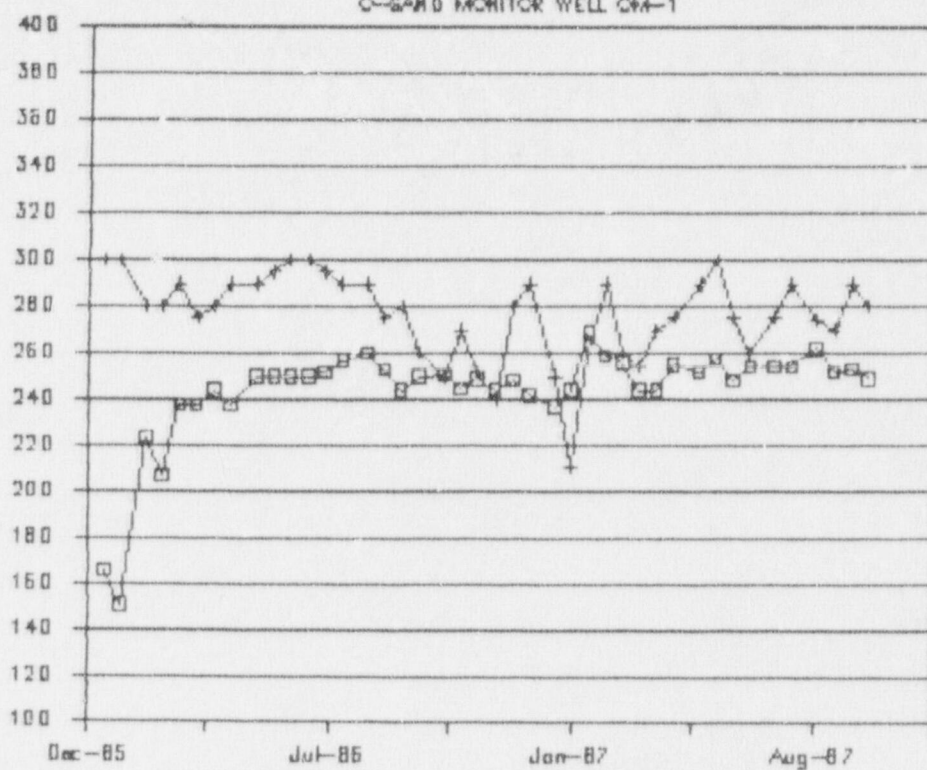
(1)				
DATE	HCO ₃	CL	SO ₄	Sp. Cond.
18-Jun-85	298	14	74	580
04-Oct-85	298	10	87	690
27-Mar-86	386	45	120	940
10-Apr-86	390	38	125	950
15-Aug-86	278	26	39	680
27-Oct-86	337	24	113	750
09-Feb-87	346	32	119	910
12-May-87	434	41	191	1110
31-Aug-87	400	23	144	952

(1)

ALL ANALYSIS IN MG/L EXCEPT SP.COND. WHICH IS UMHOS/CM

FIGURE A-1

O-SAND MONITOR WELL CM-1

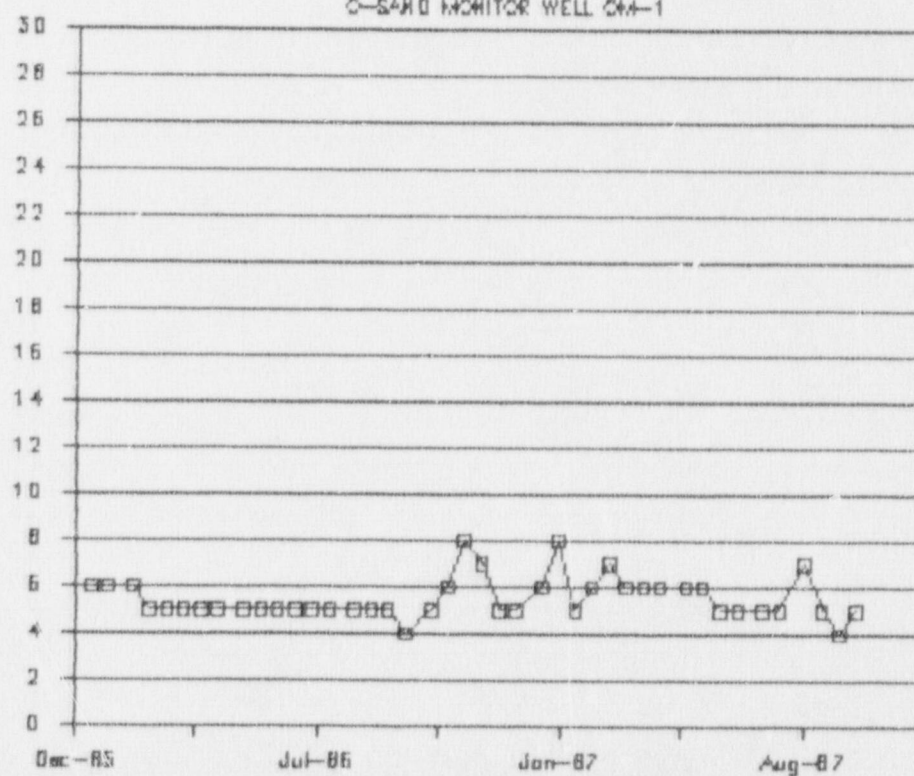


□ HCO₃ mg/L (UCL 283)

+ SO₄ mg/L (UCL 345)

FIGURE A-2

O-SAND MONITOR WELL CM-1



□ DL mg/L (UCL 17)

FIGURE A-3

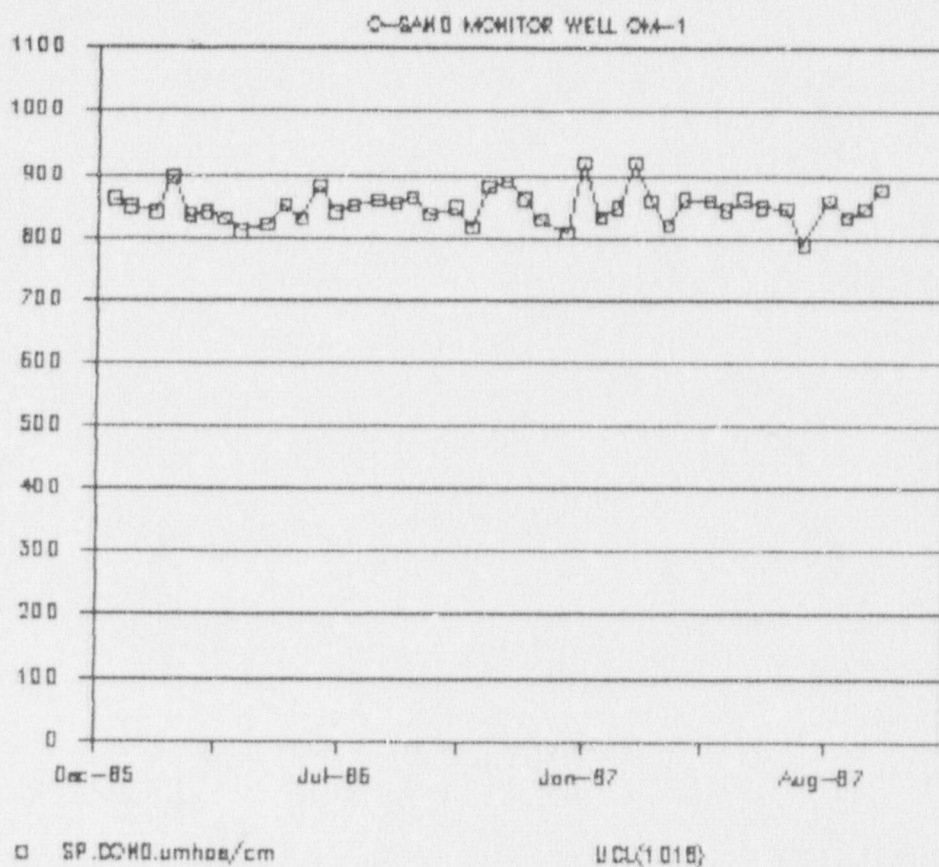


FIGURE A-4

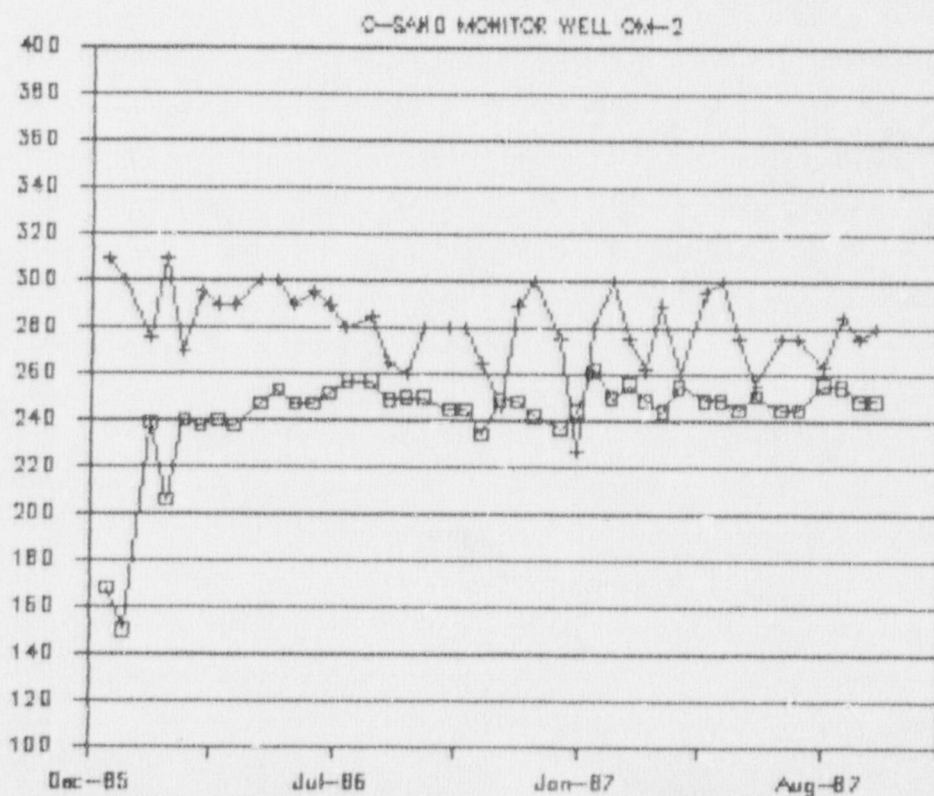


FIGURE A-5

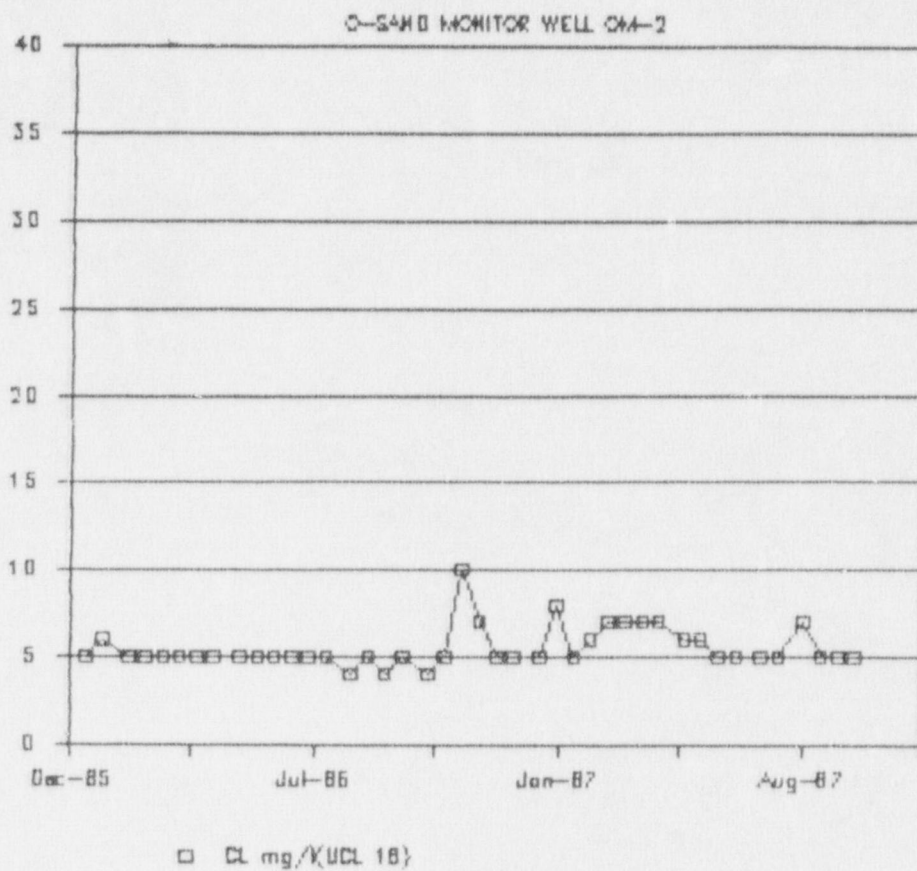


FIGURE A-6

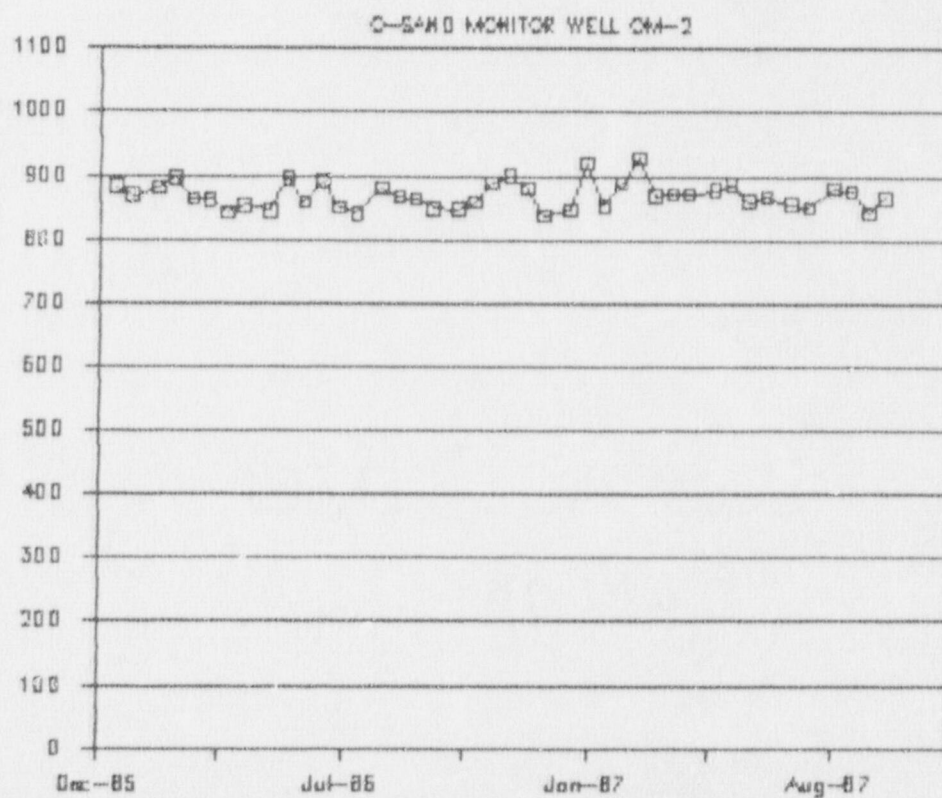
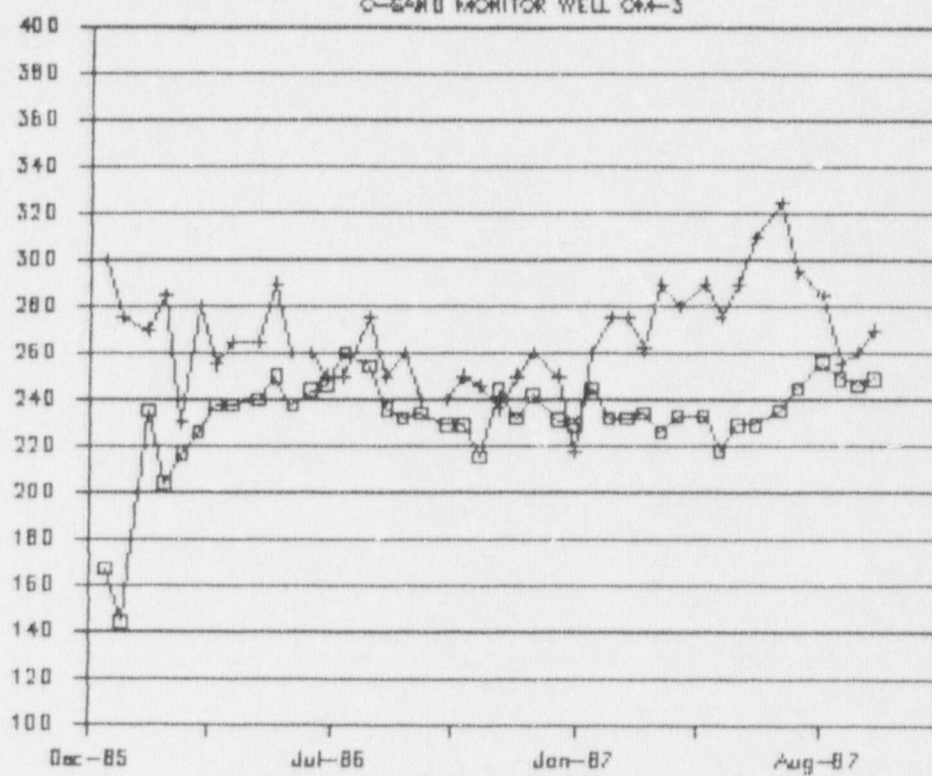


FIGURE A-7

O-SAND MONITOR WELL CAA-3

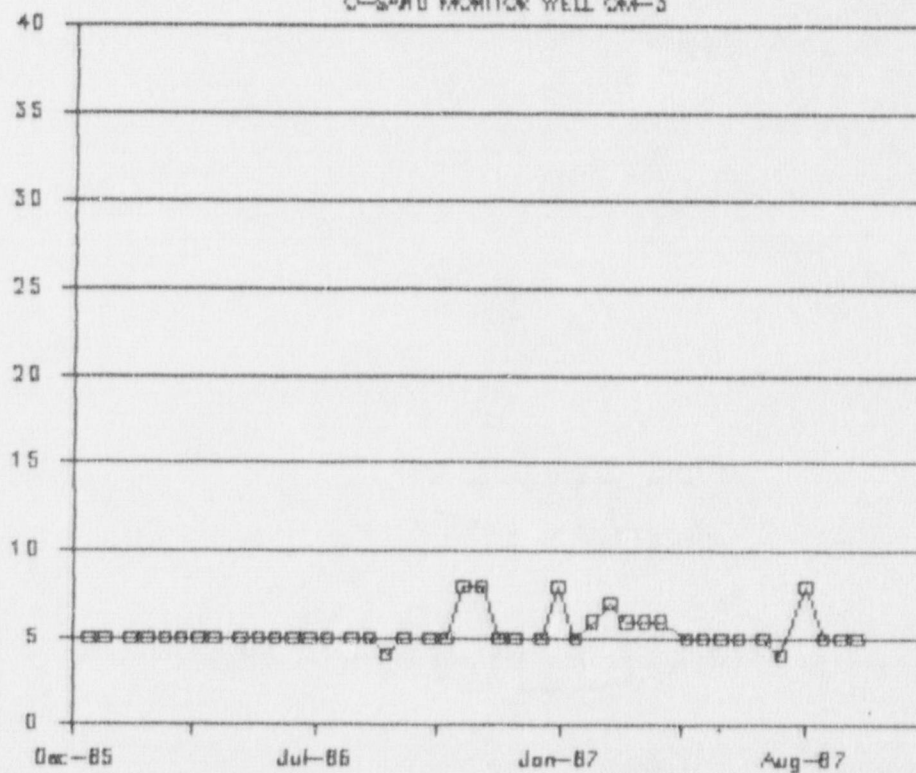


□ HDO3 mg/l (UCL 287)

+ SO4 mg/l (UCL 334)

FIGURE A-8

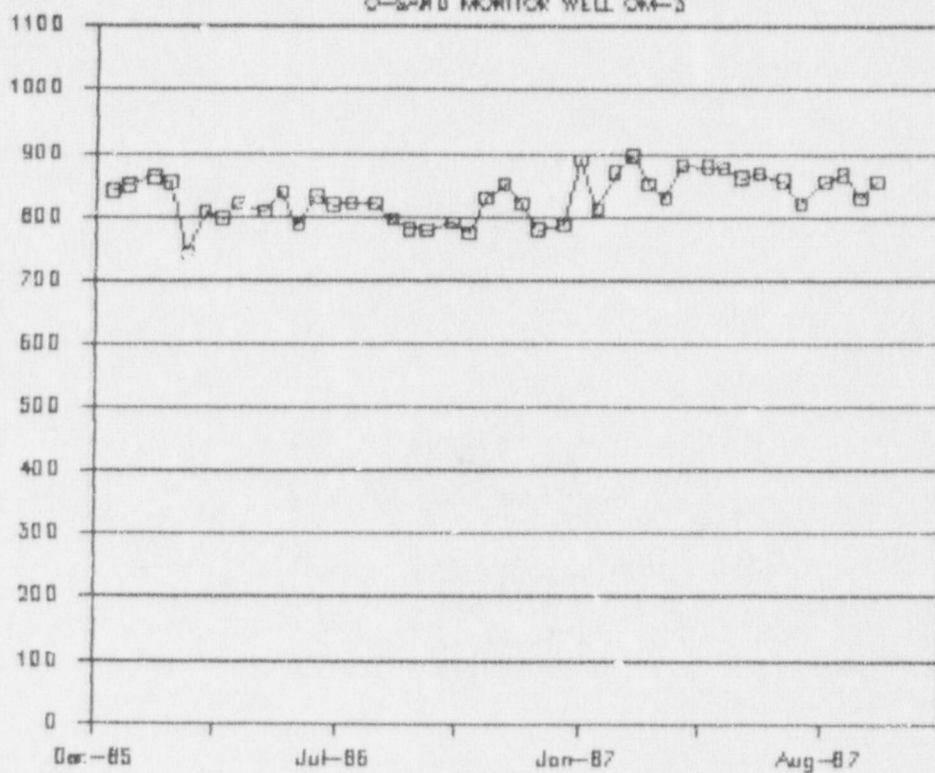
O-SAND MONITOR WELL CAA-3



□ CL mg/l (UCL 17)

FIGURE A-9

C-SAND MONITOR WELL CMA-3

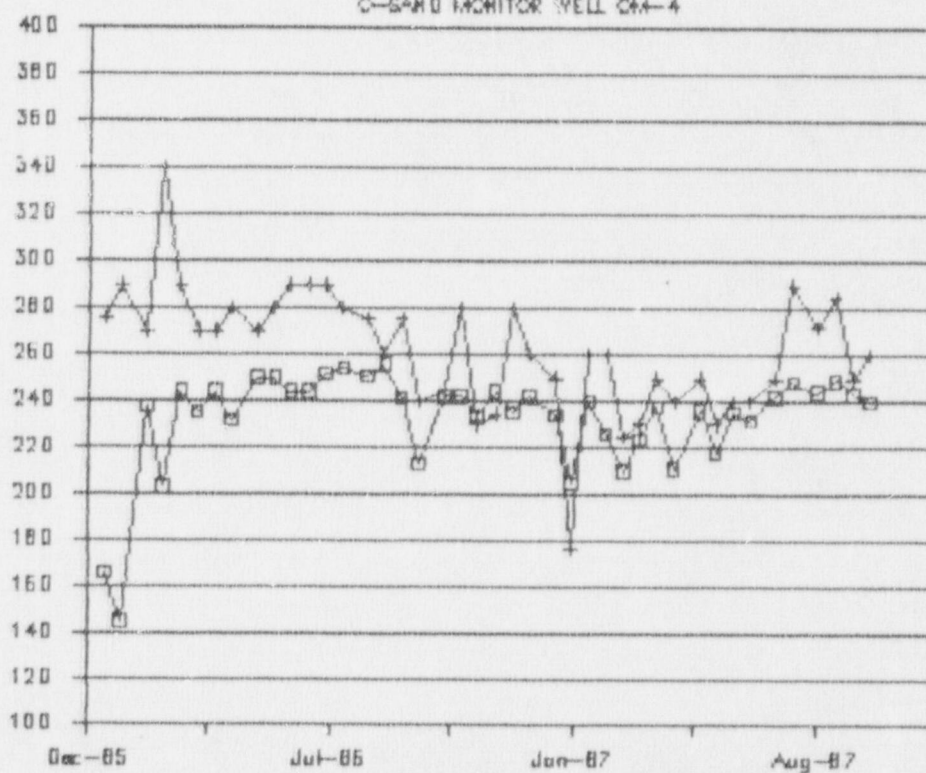


□ SP.DC.MD.umhos/cm

UCL 1020

FIGURE A-10

C-SAND MONITOR WELL CMA-4



□ HCO₃ mg/l (UCL 275)

+ SO₄ mg/l (UCL 334)

FIGURE A-11

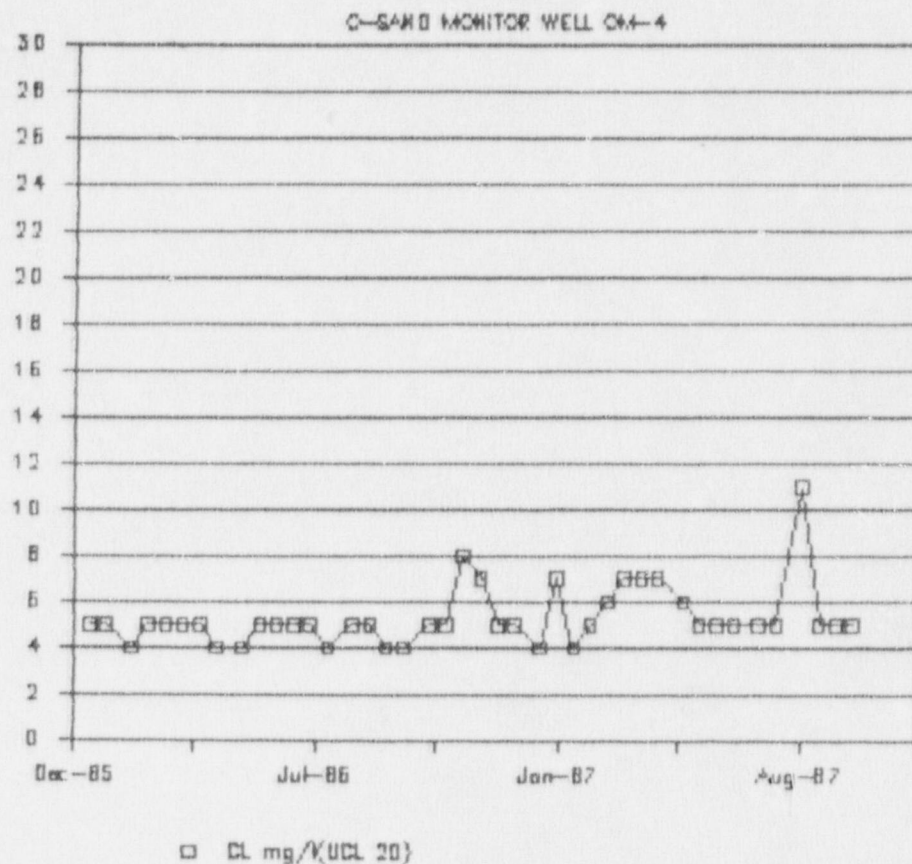


FIGURE A-12

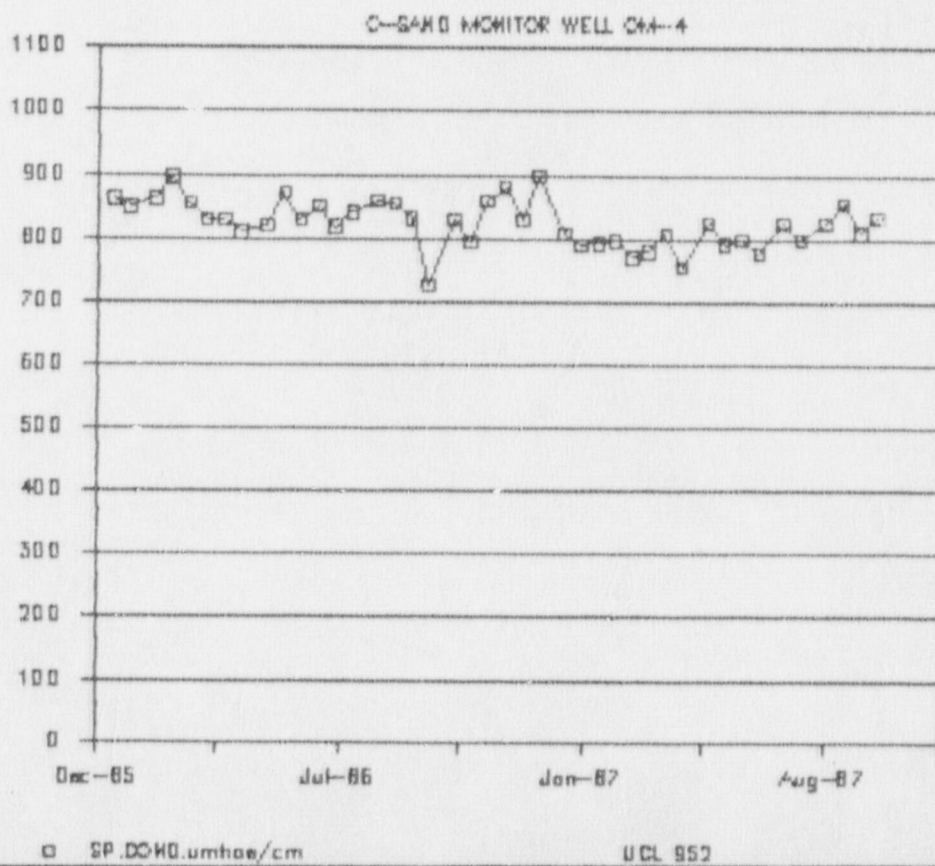
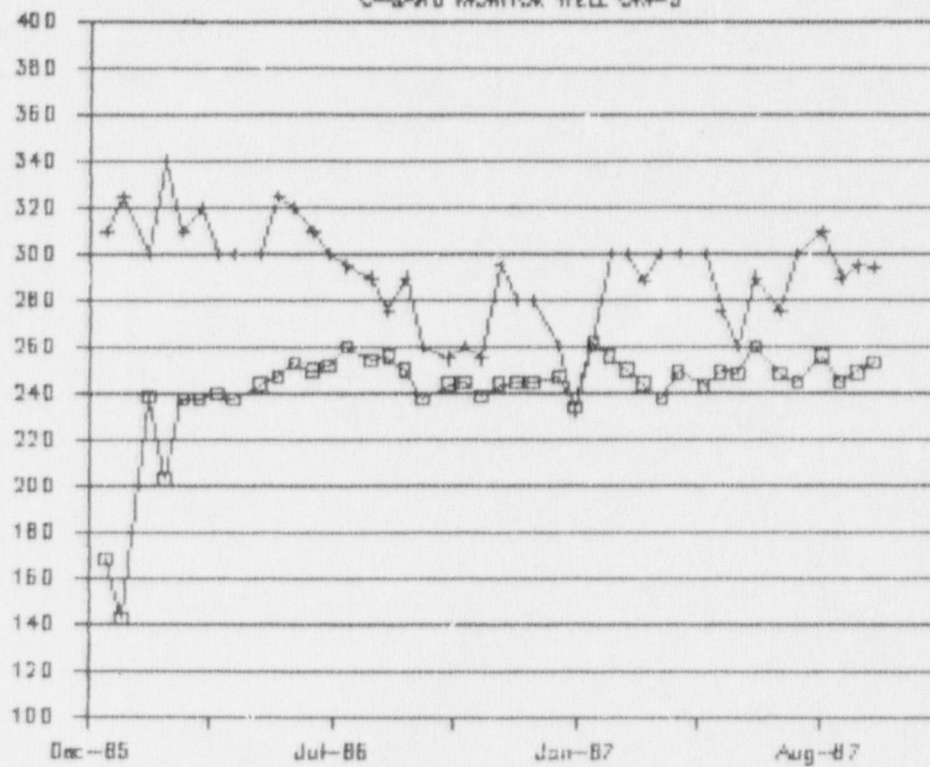


FIGURE A-13

O-SAND MONITOR WELL CNA-5

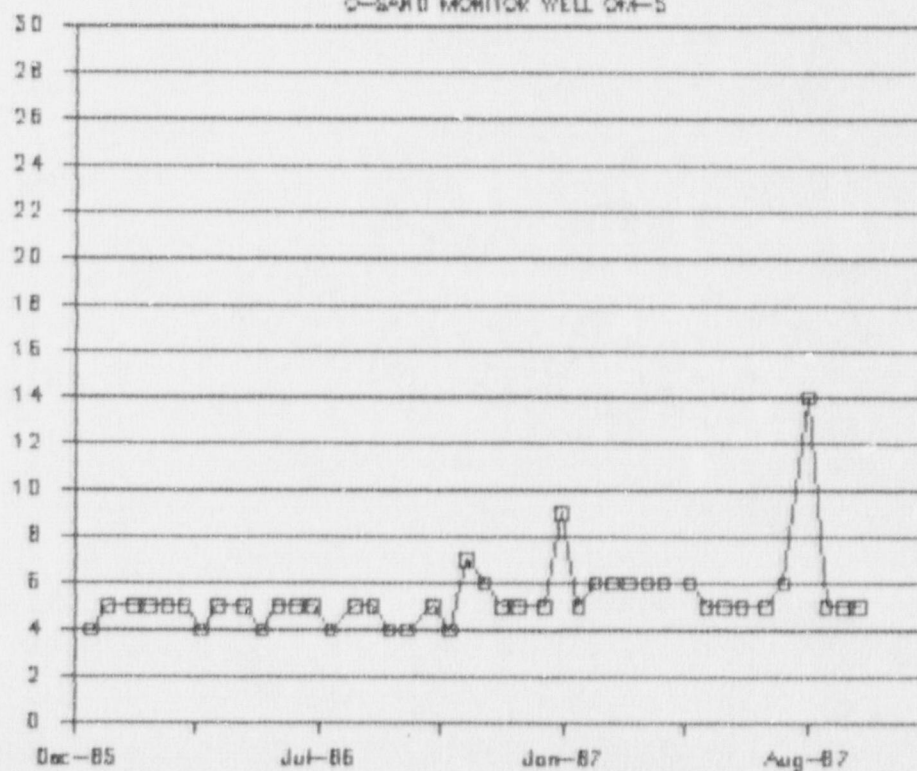


□ HCO3 mg/l(UCL 306)

+ SO4 mg/l(UCL 328)

FIGURE A-14

O-SAND MONITOR WELL CNA-5



□ Cl mg/l(UCL 19)

FIGURE A-15

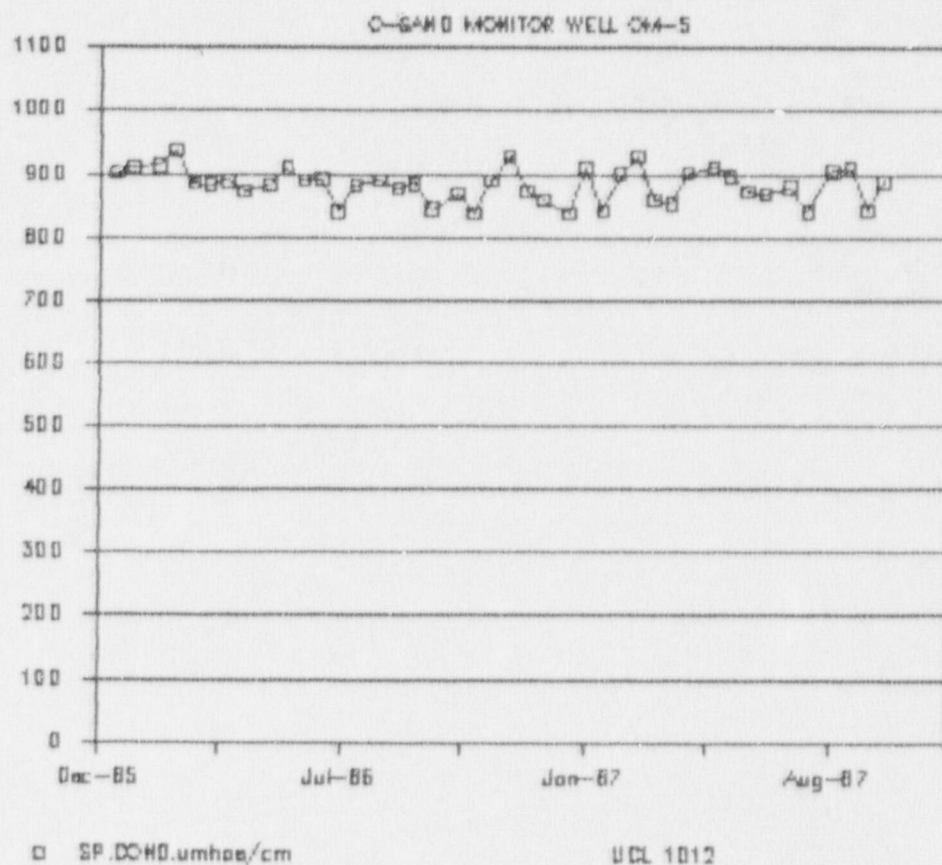


FIGURE A-16

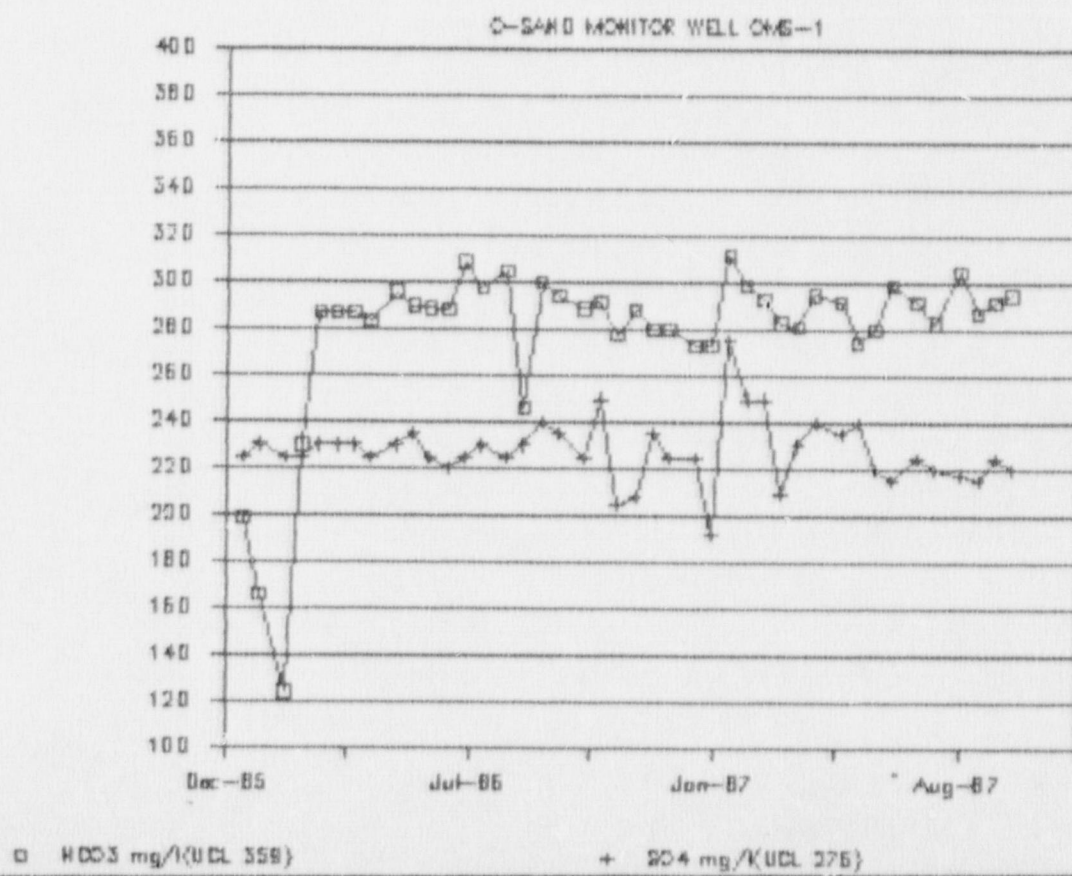


FIGURE A-17

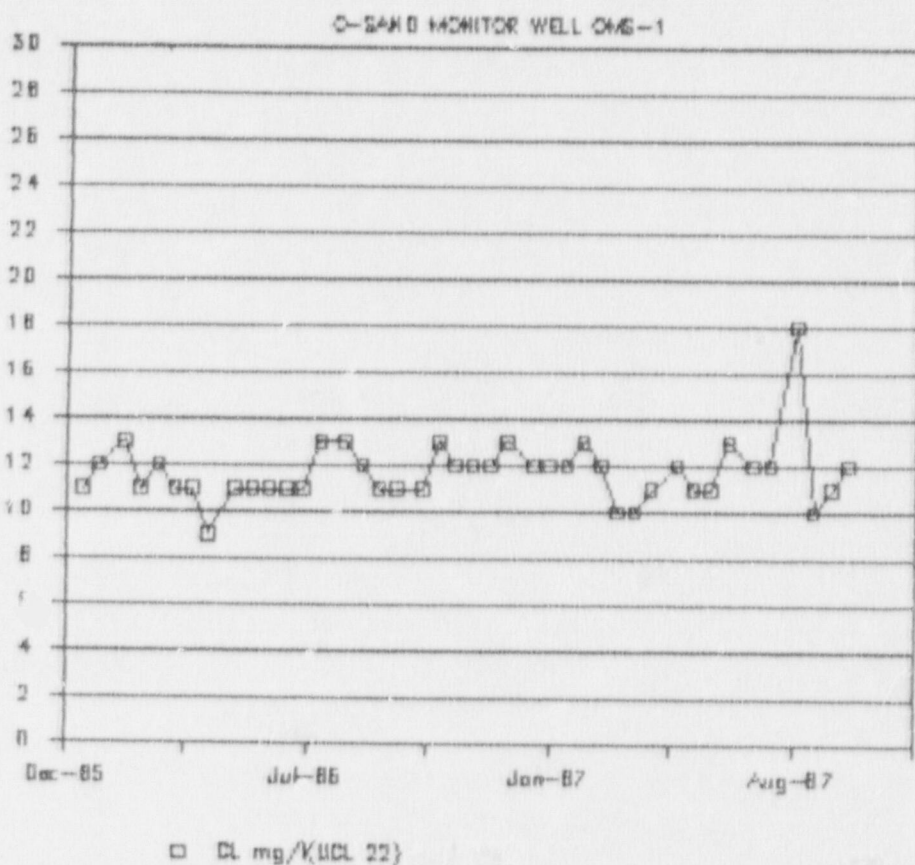


FIGURE A-18

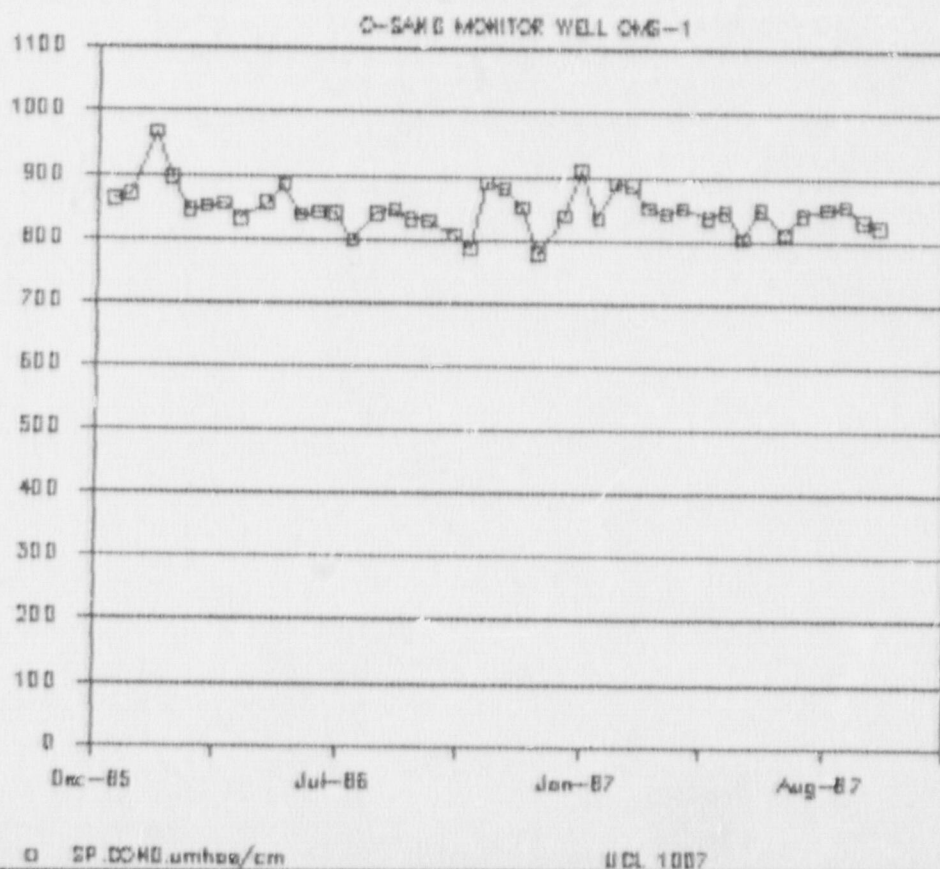


FIGURE A-19

O-SAND MONITOR WELL QMW-1

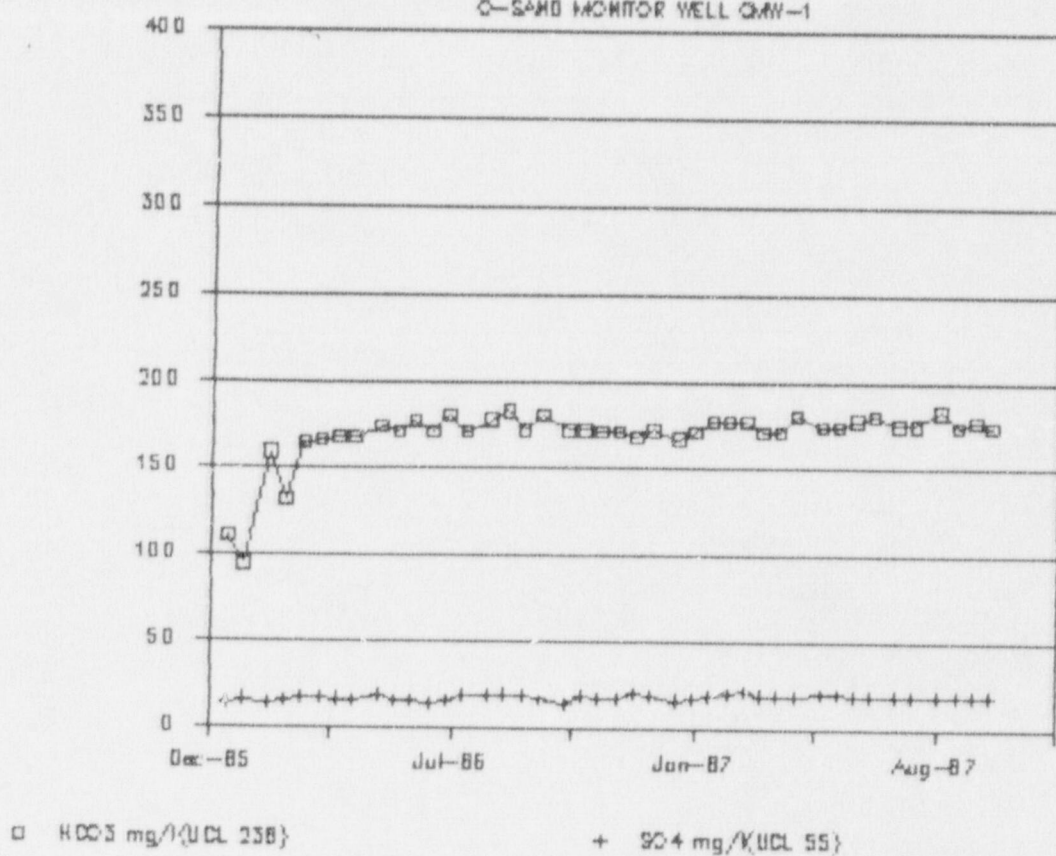


FIGURE A-20

O-SAND MONITOR WELL QMW-1

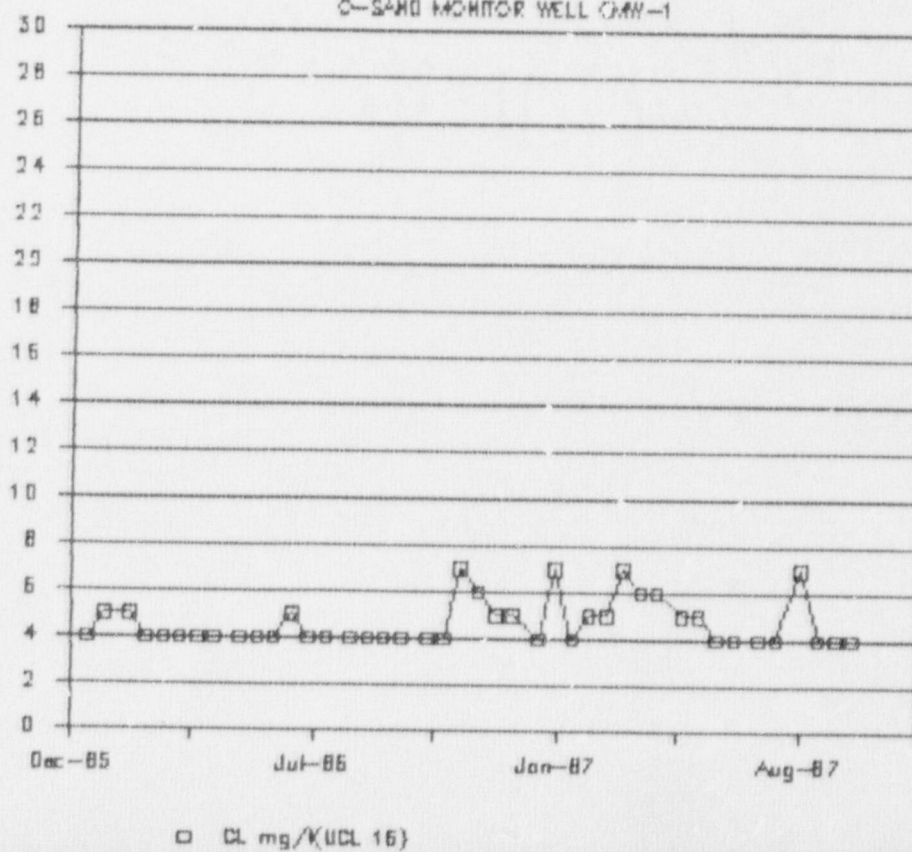


FIGURE A-21

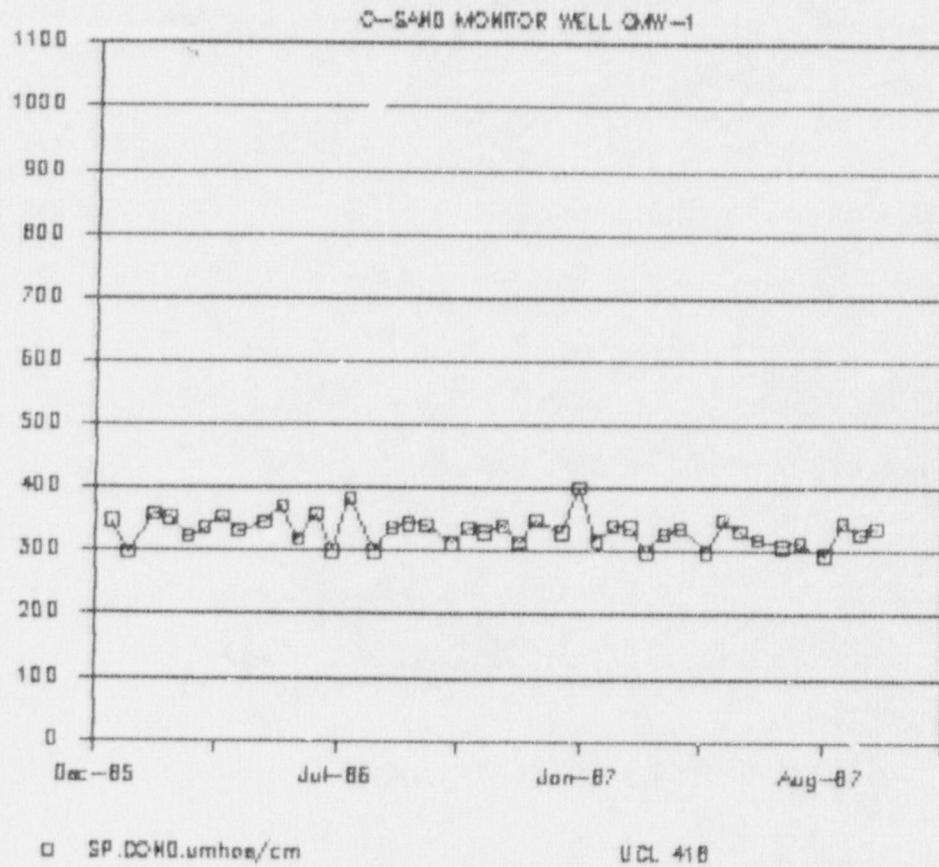


FIGURE A-22

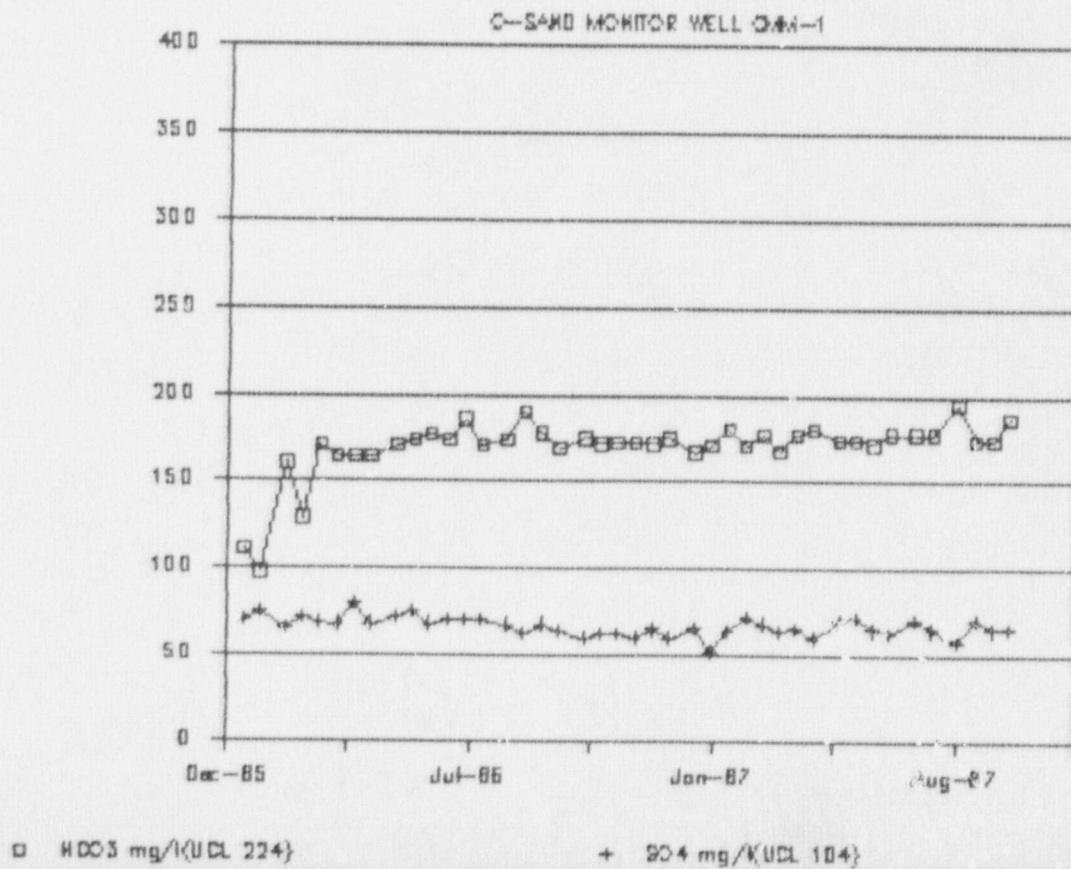


FIGURE A-23

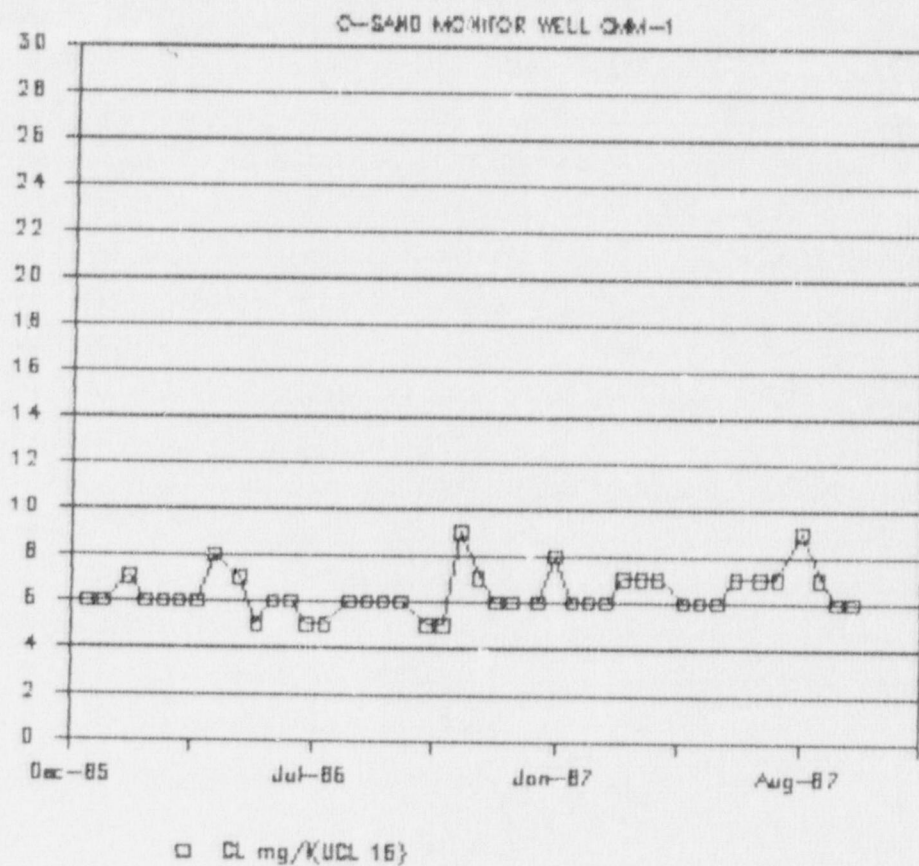
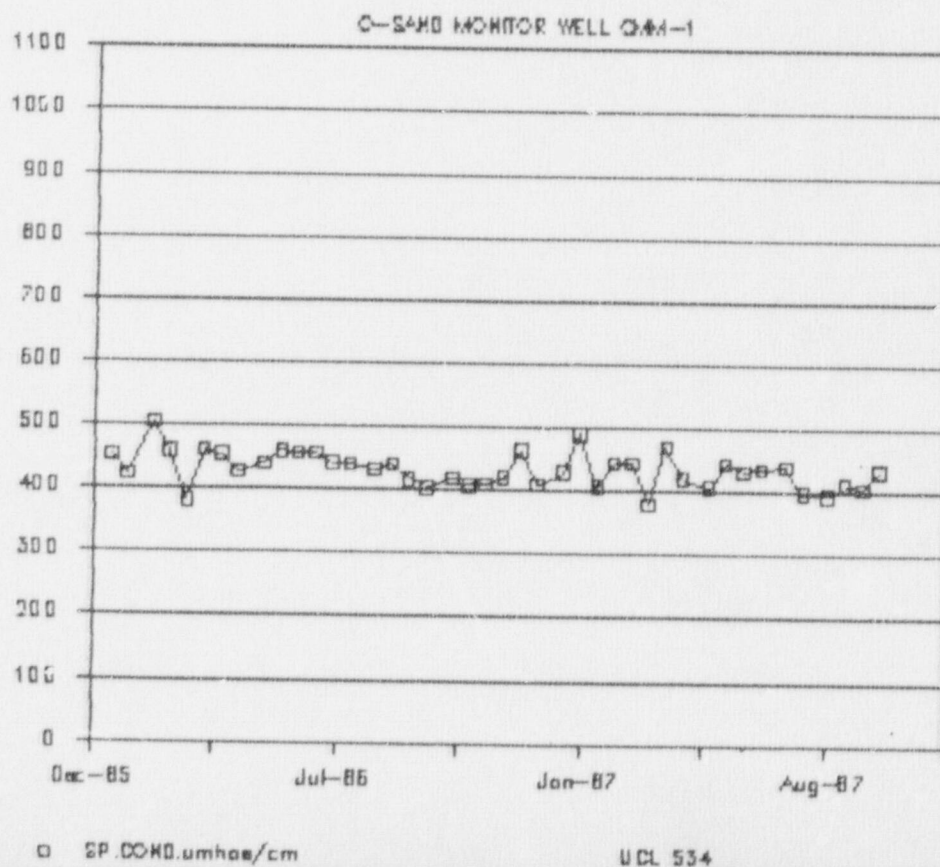
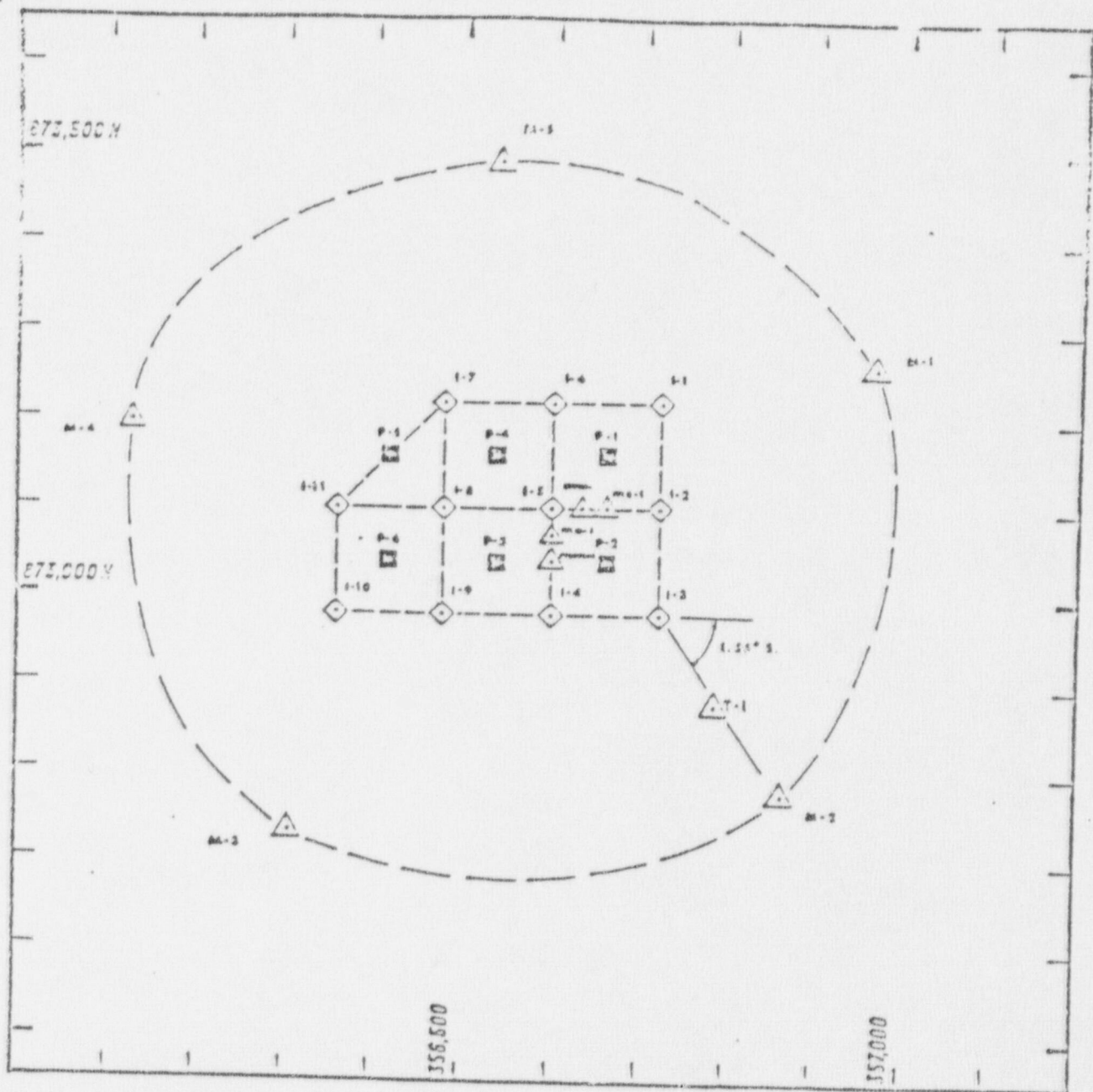


FIGURE A-24



"O" SAND WELL PATTERN

Section 26, T-36N; R-74W



Legend

- Monitor Well
- Production Well
- Injection Well
- Upper Zone Monitor Wells
- Lower Zone Monitor Wells

120 ft Spacing Between Injection Wells



NORTH

6-13-81

0 100 200

SCALE 1" = 200'

ATTACHMENT B

Monitor Well Fluid Level Data

Monitor well fluid level data is presented in tabular form in Table B-1 and in graphical form in Figures B-1 through B-8. Net production and barometric pressure are also presented in tabular form in Table B-1 and in graphical form in Figures B-9 and B-10. Baseline water levels are recorded on the left margin of Figures B-1 through B-8.

TABLE B-1
O-SAND ISL MONITOR WELL FLUID LEVEL DATA
FEET ABOVE MSL

DATE	(1) OM-1	OM-2	OM-3	OM-4	OM-5	OT-1	OMM-1
17-Jul-85	5164.27	5143.57	5163.98	5165.25	5165.33	5145.45	5187.22
06-Aug-85		5162.76				5162.41	
21-Aug-85	5165.26	5164.23	5165.26	5166.57	5166.02	5163.88	5187.88
18-Sep-85	5164.69	5163.97	5166.05	5167.46	5166.04	5164.18	5189.02
23-Sep-85		5167.78				5165.06	
30-Sep-85		5163.30				5163.75	
16-Oct-85	5164.53	5163.96	5164.74	5165.92	5165.25	5163.16	5189.93
20-Nov-85	5168.28	5164.75	5168.43	5169.48	5169.48	5167.83	5189.63
18-Dec-85	5168.88	5168.41	5166.04	5170.70	5168.37	5168.41	5190.90
15-Jan-86	5170.18	5164.11	5171.09	5172.46	5172.15	5170.72	5192.17
18-Feb-86	5172.28	5172.07	5172.56	5173.84	5173.12	5172.02	5193.06
19-Mar-86	5172.34	5172.07	5172.71	5173.79	5173.22	5172.02	5194.27
16-Apr-86	5174.02	5173.71	5174.56	5175.54	5175.05	5173.75	5195.45
21-May-86	5176.22	5175.80	5175.84	5176.80	5176.77	5175.56	5196.60
18-Jun-86	5177.59	5177.22	5177.50	5178.81	5178.31	5177.53	5197.20
16-Jul-86	5177.94	5177.42	5178.40	5178.56	5178.00	5177.63	5198.27
20-Aug-86	5177.24	5175.57	5176.23	5178.45	5177.84	5176.09	5198.29
17-Sep-86	5177.94	5176.65	5177.70	5179.04	5178.38	5177.53	5199.02
22-Oct-86	5179.56	5178.65	5178.96	5180.33	5180.15	5178.35	5198.62
19-Nov-86	5181.52	5181.12	5181.52	5182.80	5182.43	5181.08	5199.67
17-Dec-86	5183.35	5182.78	5183.66	5184.10	5184.12	5182.76	5200.14
21-Jan-87	5185.74	5183.72	5185.55	5185.54	5185.08	5185.52	5201.13
18-Feb-87	5186.59	5185.92	5186.55	5187.66	5187.06	5185.63	5202.32
18-Mar-87	5187.99	5187.57	5188.00	5189.31	5188.62	5187.53	5203.42
15-Apr-87	5189.43	5188.95	5189.84	5190.82	5190.22	5188.84	5204.02
20-May-87	5191.02	5190.52	5190.39	5191.74	5191.68	5188.63	5205.42
17-Jun-87	5190.62	5189.96	5190.00	5191.74	5191.62	5189.91	5205.42
22-Jul-87	5189.83	5189.14	5189.95	5190.83	5191.75	5189.23	5206.10
26-Aug-87	5189.95	5189.17	5190.22	5191.51	5191.64	5188.99	5205.30
23-Sep-87	5186.34	5185.97	5186.24	5187.91	5187.18	5185.41	5206.79

(1) FLUID LEVEL DATA IS PRESENTED GRAPHICALLY ON FIGURES B-1 THROUGH B-9

TABLE B1 continued

DATE	OMS-1	OMW-1	OMO-1	BAROMETRIC PRESSURE In. Hg	NET PRODUCTION GPM
17-Jul-85	5299.37	5391.86	5164.25	30.04	7.6
21-Aug-85	5299.30	5393.32	5164.50	29.92	8.0
18-Sep-85	5299.18	5391.86	5164.84	29.82	9.5
16-Oct-85	5299.52	5393.42	5166.00	29.90	21.0
20-Nov-85	5298.78	5391.30	5167.99	29.94	6.5
18-Dec-85	5297.43	5391.03	5166.79	30.07	8.9
15-Jan-86	5299.15	5391.74	5170.79	29.70	14.8
18-Feb-86	5297.16	5392.10	5173.25	30.02	11.5
19-Mar-86	5299.35	5391.96	5174.59	29.96	22.3
16-Apr-86	5299.23	5392.06	5174.30	29.68	20.8
21-May-86	5299.17	5392.07	5176.29	29.68	41.6
18-Jun-86	5299.84	5392.81	5177.51	29.91	10.4
16-Jul-86	5300.16	5391.64	5177.59	29.86	14.0
20-Aug-86	5299.85	5391.78	5176.81	30.30	3.2
17-Sep-86	5299.74	5392.54	5177.44	29.94	6.5
22-Oct-86	5298.94	5391.66	5178.69	29.91	3.9
19-Nov-86	5299.89	5392.26	5181.41	29.66	5.9
17-Dec-86	5299.16	5391.58	5183.47	29.90	5.7
21-Jan-87	5300.11	5391.71	5185.54	29.86	0.4
18-Feb-87	5299.56	5392.01	5186.51	29.84	11.2
18-Mar-87	5299.84	5392.21	5188.14	29.41	3.0
15-Apr-87	5299.41	5391.84	5189.13	29.80	4.9
20-May-87	5299.71	5391.44	5186.32	29.72	20.3
17-Jun-87	5299.53	5391.36	5190.85	29.92	8.5
22-Jul-87	5299.87	5391.74	5189.47	29.85	7.7
26-Aug-87	5299.65	5391.45	5188.55	30.04	2.8
23-Sep-87	5299.55	5392.06	5186.59	30.01	7.2

(1) FLUID LEVEL DATA IS PRESENTED GRAPHICALLY ON FIGURES B-1 THROUGH B-9

FIGURE B-1
MONITOR WELL OM-1 FLUID LEVEL

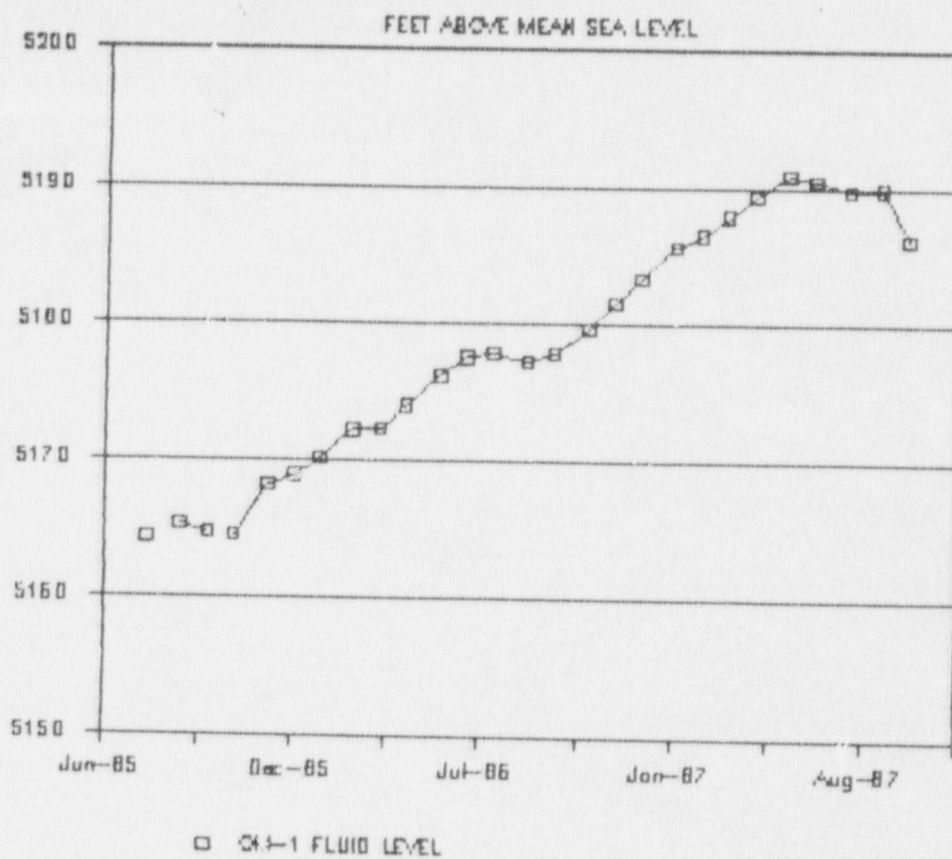
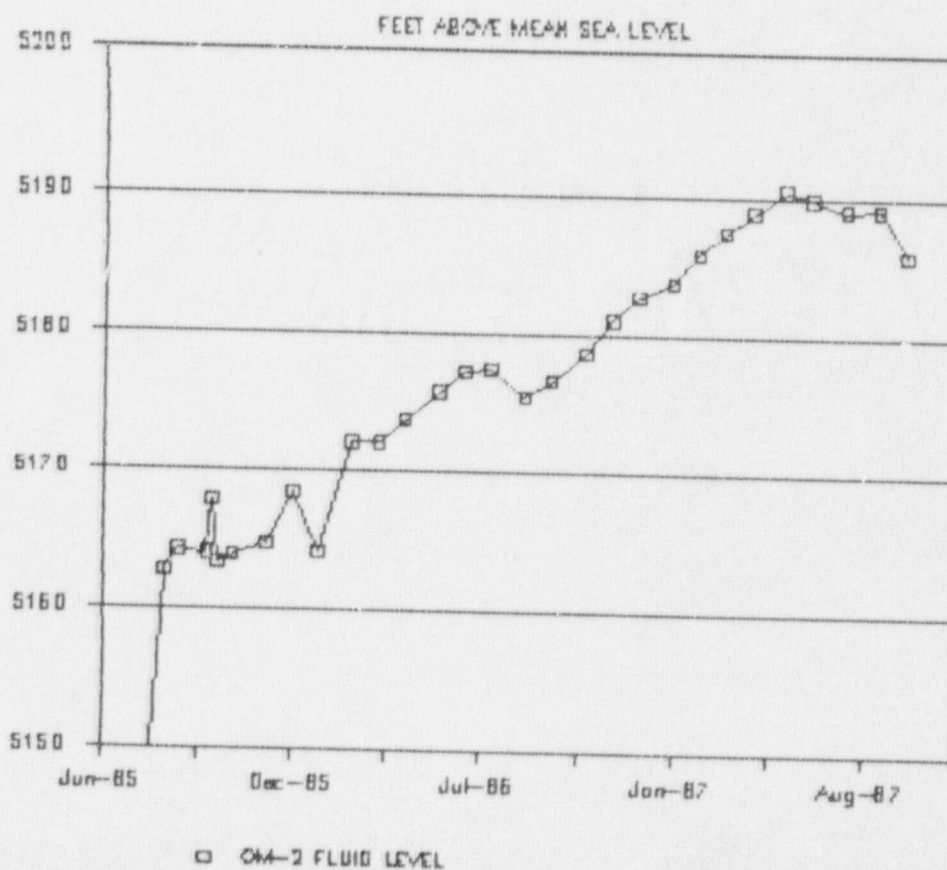


FIGURE B-2
MONITOR WELL OM-2 FLUID LEVEL



BASELINE LEVEL 5142.72

BASELINE LEVEL 5142.00

BASELINE LEVEL 5143.17

FIGURE B-3
MONITOR WELL OM-3 FLUID LEVEL

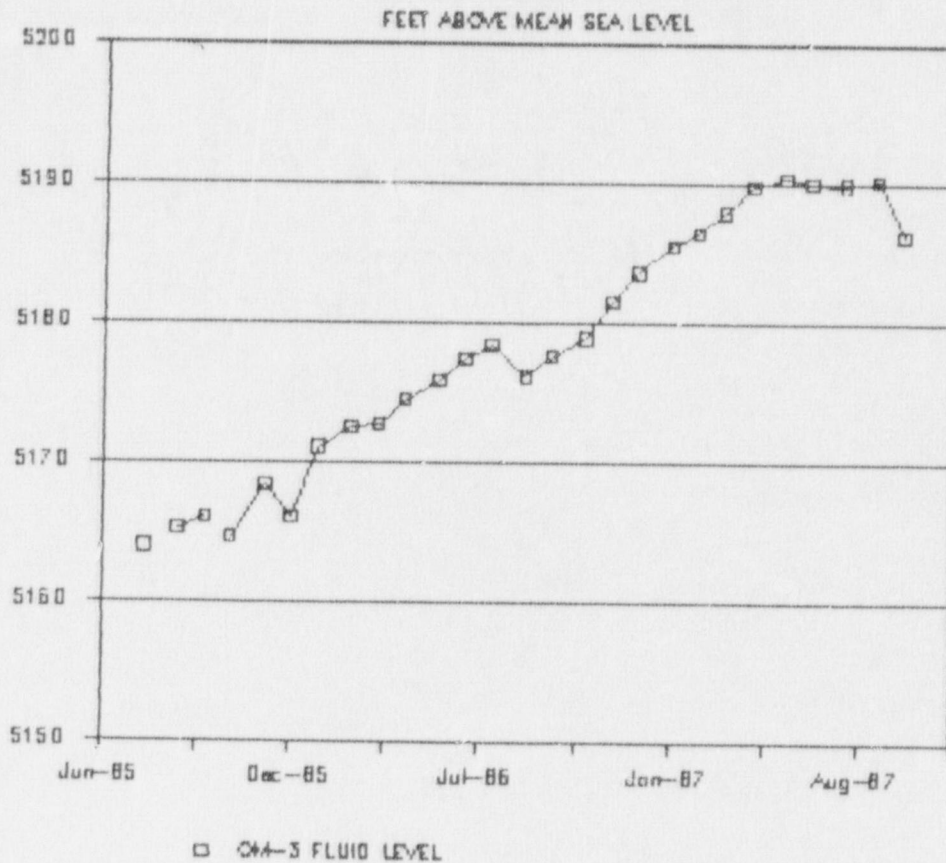
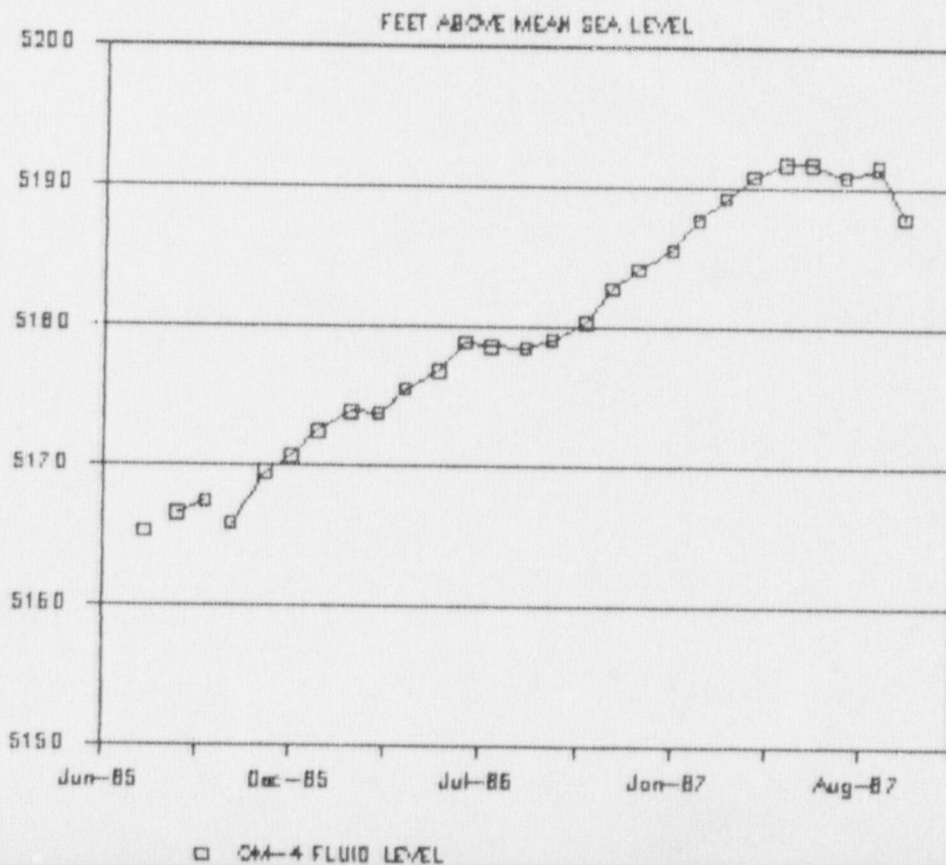


FIGURE B-4
MONITOR WELL OM-4 FLUID LEVEL



BASELINE LEVEL 5144.03

BASELINE LEVEL 5144.45

FIGURE B-5
MONITOR WELL OM-5 FLUID LEVEL

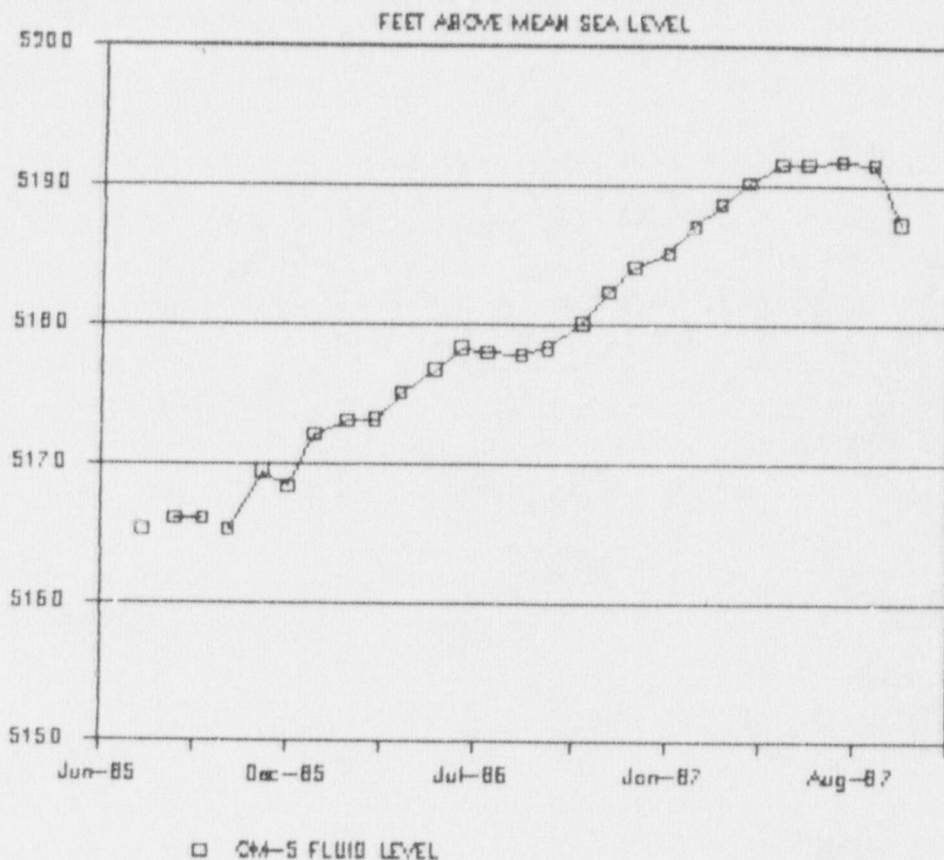
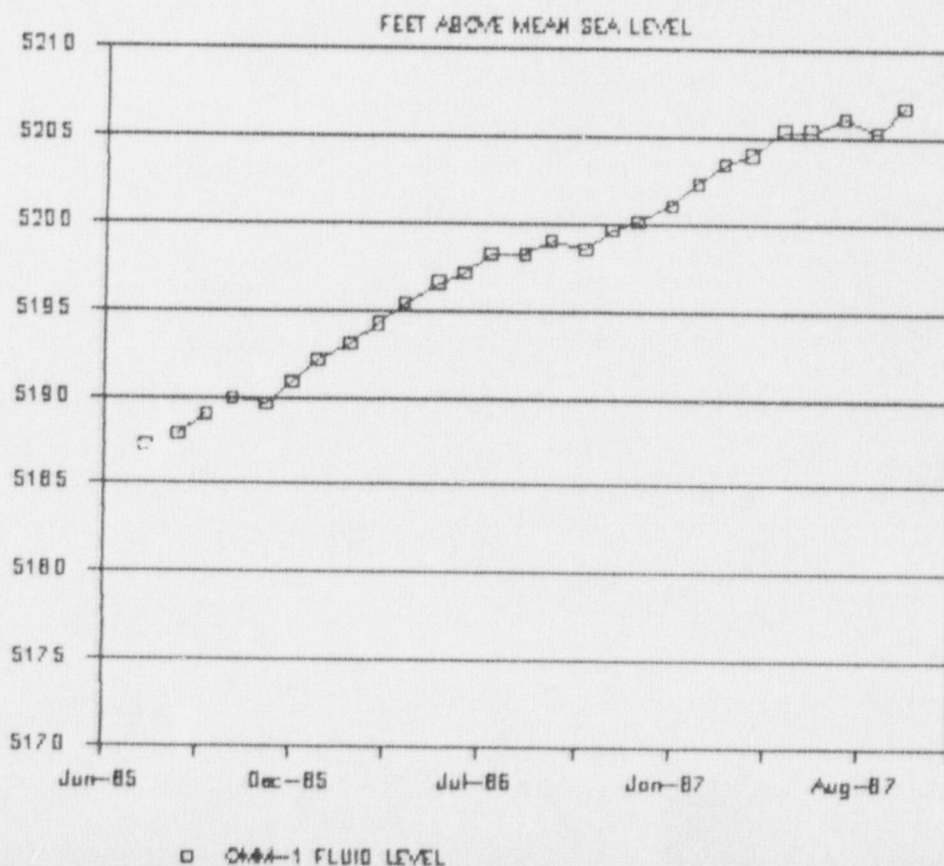


FIGURE B-6
MONITOR WELL OMM-1 FLUID LEVEL



BASELINE LEVEL 5166.82

FIGURE B-7

MONITOR WELL OMS-1 FLUID LEVEL

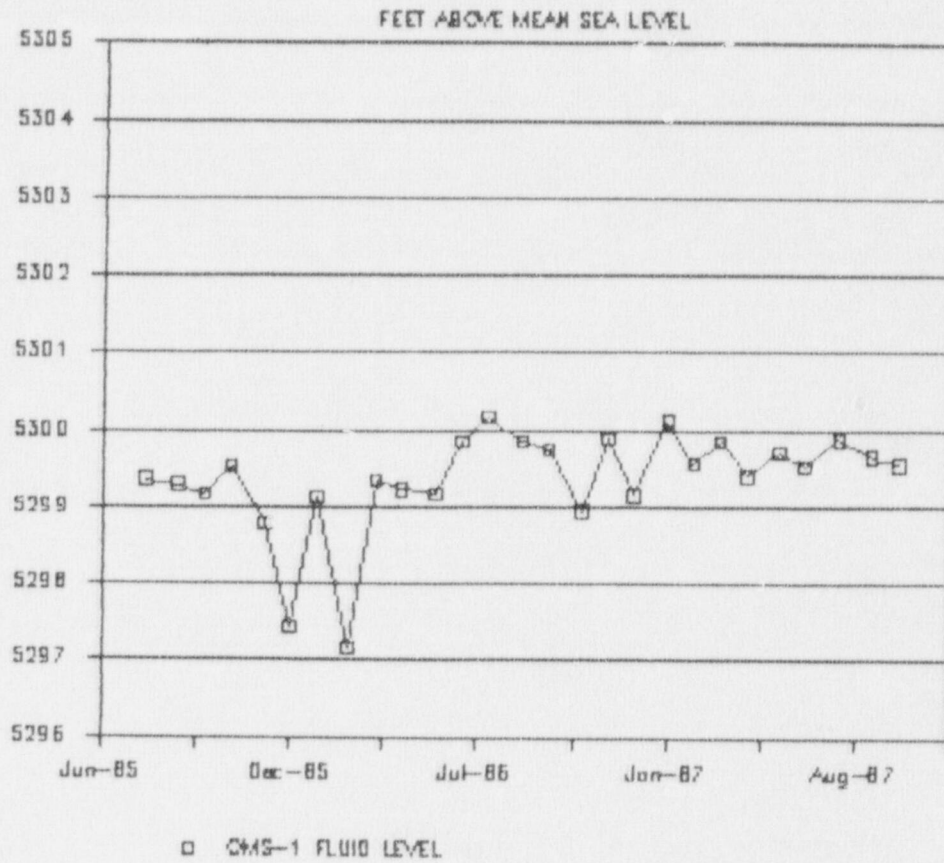
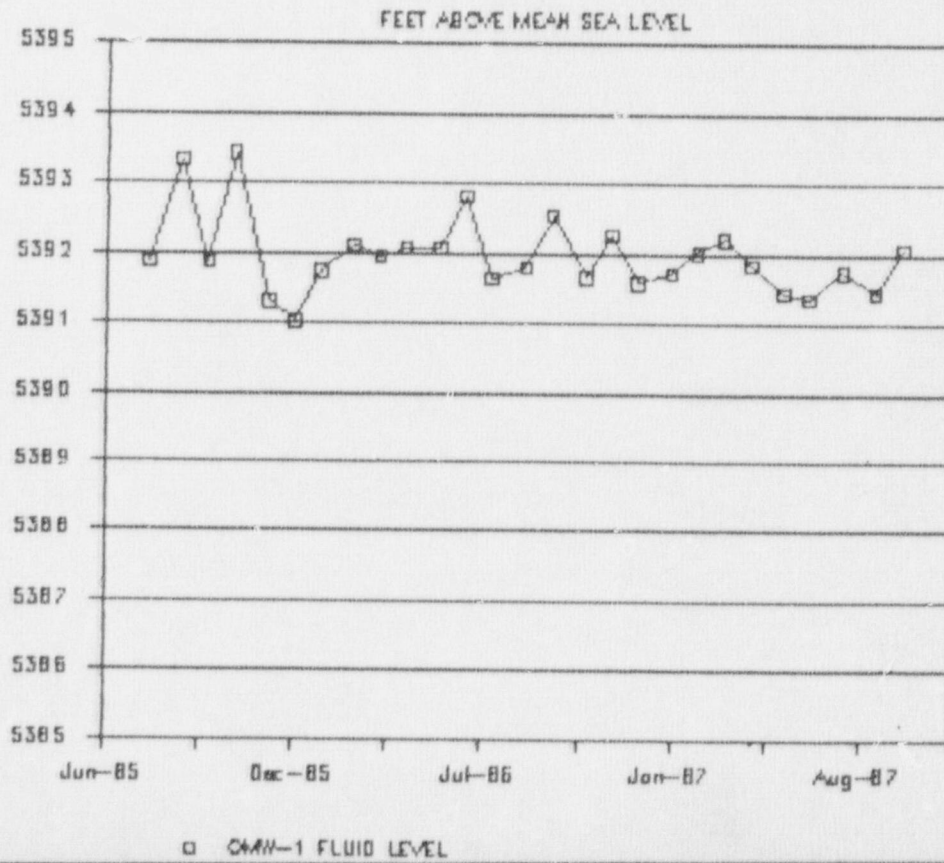


FIGURE B-8

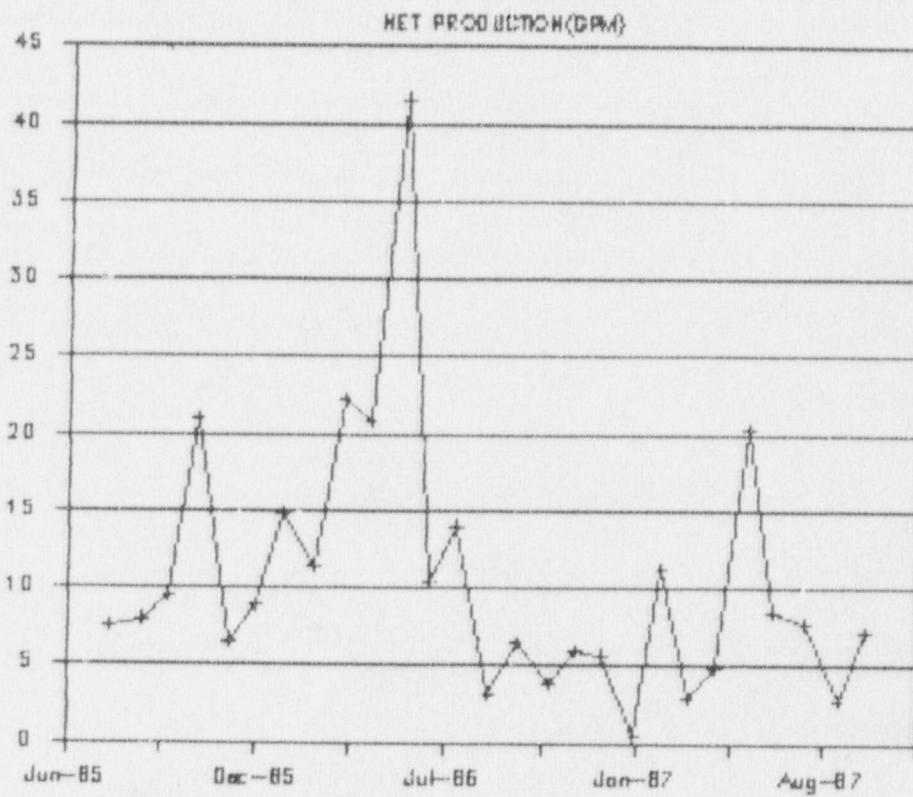
MONITOR WELL OMW-1 FLUID LEVEL



BASELINE LEVEL 5298.01

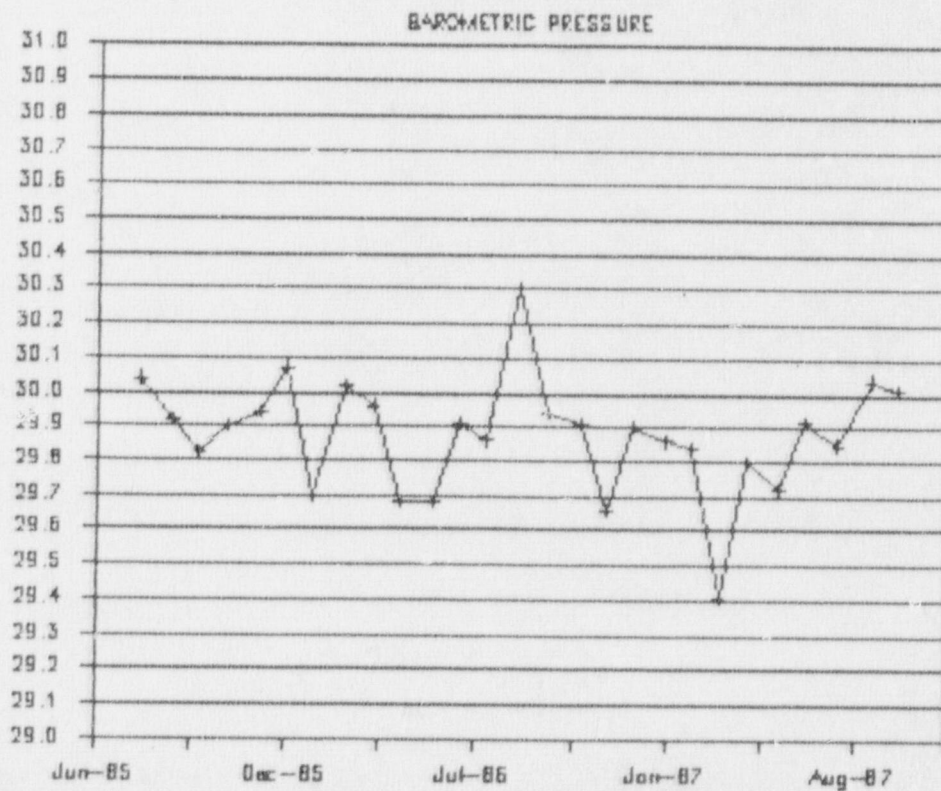
BASELINE LEVEL 5390.84

FIGURE B-9



+ NET PRODUCTION (DPM)

FIGURE B-10



+ BAROMETRIC PRESSURE

ATTACHMENT C

Water Quality Data

Analyses of the evaporation pond water samples are shown on Table C-1 and analyses of the bleed stream samples are shown on Table C-2. A total of 64,020 gallons was routed to the evaporation ponds during this quarter.

TABLE C-1

Evaporation Pond Water Analyses
ISL Pilot

<u>Parameter</u>	<u>Units</u>	<u>East Pond</u> <u>8-12-87</u>	<u>West Pond</u> <u>8-12-87</u>
Chloride	g/l	97.0	89.0
Sodium	g/l	63.4	62.8
TDS	g/l	167.5	172.7
Uranium	g/l	0.361	0.399
Arsenic	mg/l	0.009	0.009
Sulfate	mg/l	6150	5600
Alkalinity	meq/l	23.4	23.0
Radium	pCi/l	2294 ± 85	538 ± 29

TABLE C-2
Bleed Stream Water Analyses ⁽²⁾
ISL Pilot

<u>Parameter</u> ⁽¹⁾	<u>7-10-87</u>	<u>8-12-87</u>	<u>9-25-87</u>
Bicarbonate	1415	555	1098
Carbonate	0	0	0
Chloride	138	75	160
Selenium	0.476	0.002	1.61
Sodium	320	195	415
Sulfate	720	504	650
Uranium	1.950	4.4	5.966
TDS	2245	1282	2601
Radium ²²⁶	-	723 ± 30	-
Thorium	-	0.7 ± 0.7	-

(1) All units are mg/l except radium and thorium which are pCi/L.

(2) Samples prior to mine water barium chloride treatment system.

ATTACHMENT D

NPDES Permit No. WY-0022411

Attached are copies of the discharge monitoring reports submitted to the Wyoming Department of Environmental Quality for the 3rd Quarter, 1987. The report titled "Location 003" shows an average flow of 0.013 million gallons per day (MGD) from the two leaching projects to the minewater treatment system. All parameters for this flow are within the control limits.

NAME SEQUOIA FUELS CORPORATION
ADDRESS P.O. BOX 1120
GLENN, CA 96037

PERMIT NUMBER
WY0022411

DISCHARGE NUMBER
001

MONITORING PERIOD			
FROM	YEAR	MO	DAY
	87	07	01
TO	YEAR	MO	DAY
	87	09	30

NOTE: Read Instructions before completing this form.

PARAMETER (32-37)	(3 Card Only) QUANTITY OR LOADING (46-53)			(4 Card Only) QUALITY OR CONCENTRATION (54-61)			UNITS	NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
	AVERAGE (46-53)	MAXIMUM (54-55)	UNITS (56-57)	MINIMUM (58-59)	AVERAGE (60-61)	MAXIMUM (62-63)				
LOW IN CONDUIT 0050 I O EFFLUENT	SAMPLE MEASUREMENT	0.29	0.43	N/A	N/A	N/A	N/A	0	Cont	D.T.
	PERMIT REQUIREMENT	N/A	N/A	MGD	N/A	N/A	N/A		CONT	D.I.
SOLIDS TOTAL SUSP 0530 I O EFFLUENT	SAMPLE MEASUREMENT	N/A	N/A	N/A	1.0	8.0	MG/L	0	14/90	GR
	PERMIT REQUIREMENT	N/A	N/A	N/A	N/A	45	MG/L		1/7	GRAB
INC TOTAL (AS2W) 1092 I O EFFLUENT	SAMPLE MEASUREMENT	N/A	N/A	N/A	0.01	1.027	MG/L	0	3/90	GR
	PERMIT REQUIREMENT	N/A	N/A	N/A	N/A	1.5	MG/L		1/90	GRAB
MEDIUM 226 DIS 0503 I O EFFLUENT	SAMPLE MEASUREMENT	N/A	N/A	N/A	1.0	2.2	PC/L	0	9/90	Comp
	PERMIT REQUIREMENT	N/A	N/A	N/A	N/A	15	PC/L		1/30	Comp
MANGANESE TOTAL 0708 I O EFFLUENT	SAMPLE MEASUREMENT	N/A	N/A	N/A	0.69	1.58	MG/L	0	4/90	Comp
	PERMIT REQUIREMENT	N/A	N/A	N/A	N/A	6.0	MG/L		1/30	Comp
OIL & GREASE VISU 0066 I O EFFLUENT	SAMPLE MEASUREMENT	N/A	N/A	N/A	None Visible	10	MG/L	0	Cont	VISL
	PERMIT REQUIREMENT	N/A	N/A	N/A	N/A	8.1	MG/L		CONT	VISL
400 I O EFFLUENT	SAMPLE MEASUREMENT	N/A	N/A	N/A	8.0	8.1	S.U.	0	2/90	GR
	PERMIT REQUIREMENT	N/A	N/A	N/A	6.0	9.0	S.U.		1/90	GRAB

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER
John D. Anttila

SIGNATURE OF AUTHORIZED AGENT

TELEPHONE
307 358-3744

DATE
87 10 22

SAMPLES SHALL BE COLLECTED AT THE CUTOFF OF THE FINAL TREATMENT UNIT AND PRIOR TO ADMIXTURE WITH OILWATER WATERS OR RECEIVING STREAM

NAME SEQUOYA FUELS CORP-BILL SMITH
ADDRESS P.O. BOX 1120
GLENROCK, NY 12637

FACILITY CONVERSE

LOCATION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

(2-16)

PERMIT NUMBER
NYC022411

DISCHARGE NUMBER
CC3

MONITORING PERIOD

FROM YEAR 87 MO 01 DAY 01 TO YEAR 87 MO 05 DAY 20

NOTE: Read instructions before completing this form.

PARAMETER (32-37)	(3 Card Only) (46-53)		QUANTITY OR LOADING (34-61)		QUALITY OR CONCENTRATION (46-53)		FREQUENCY OF ANALYSIS (44-48)		SAMPLE TYPE (49-70)		
	AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS	NO. EX (42-43)			
LOW 0050 I O EFFLUENT	SAMPLE MEASUREMENT	0.013	0.090	N/A	N/A	N/A	N/A	0	CONT	D.T.	
	PERMIT REQUIREMENT	N/A	N/A	MGD	N/A	N/A	N/A				
CODUP, TOTAL 0529 I O EFFLUENT	SAMPLE MEASUREMENT	N/A	N/A	N/A	N/A	N/A	N/A	0	CLNT	D.I.	
	PERMIT REQUIREMENT	N/A	N/A	MGC	195	310	415	0	3/90	GR	
ICARECINATE ICN 0440 I C EFFLUENT	SAMPLE MEASUREMENT	N/A	N/A	N/A	N/A	N/A	N/A	0	1120	GRAB	
	PERMIT REQUIREMENT	N/A	N/A	N/A	555	1023	1415	0	3/90	GR	
HLCRICE 0940 I O EFFLUENT	SAMPLE MEASUREMENT	N/A	N/A	N/A	N/A	N/A	N/A	0	1120	GRAB	
	PERMIT REQUIREMENT	N/A	N/A	N/A	75	124	160	0	3/90	GR	
ARSENIC 1252 I O EFFLUENT	SAMPLE MEASUREMENT	N/A	N/A	N/A	N/A	N/A	N/A	0	1120	GRAB	
	PERMIT REQUIREMENT	N/A	N/A	N/A	LT 0.001	LT 0.001	LT 0.001	0	1/90	GR	
ELEMNIUM TOTAL 1147 I O EFFLUENT	SAMPLE MEASUREMENT	N/A	N/A	N/A	N/A	N/A	N/A	0	1150	GRAB	
	PERMIT REQUIREMENT	N/A	N/A	N/A	1.6	1.6	1.6	0	1/90	GR	
C400 I O EFFLUENT	SAMPLE MEASUREMENT	N/A	N/A	N/A	N/A	N/A	N/A	0	1150	GRAB	
	PERMIT REQUIREMENT	N/A	N/A	N/A	6.9	6.9	6.9	0	1/90	GR	
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER		I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED ON MY INQUIRY WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON THE INFORMATION I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT. SEE 18 USC 1001 AND 33 USC 1319. (Penalties under these statutes may include fines up to \$10,000 and/or maximum imprisonment of between 6 months and 5 years.)		TELEPHONE		DATE		AREA CODE		NUMBER	
JAMES RANDOLPH, PRESIDENT		Carm Altner		307 358-3744		87 10		22			
TYPED OR PRINTED		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		AREA CODE		NUMBER		YEAR		MO DAY	
		Carm Altner		307 358-3744		87 10		22			

STATEMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

SAMPLES SHALL BE COLLECTED AT THE OUTFALL OF THE FINAL
TREATMENT UNIT AND PRIOR TO ADMIXTURE WITH CILUENT WATERS OF RECEIVING STREAM

SEQUOYAH FUELS CORPORATION

P.O. BOX 1120 * GLENROCK, WYOMING 82637

October 23, 1987

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Maggie Davison
Department of
Environmental Quality
Water Quality Division
Herschler Building
122 West 25th Street
Cheyenne, WY 82002

RE: Permit WY-0026221

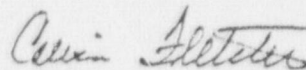
Dear Ms. Davison:

Attached is the monitoring report for Sequoyah Fuels Section 3 Mine, Permit WY-0026221, for the quarterly report period ending September 30, 1987. Intermittent minewater discharge began during the week of July 27, 1987, and a sustained flow started on July 31. The discharge at the Section 3 Mine had been suspended since September 1980.

During dewatering of the Section 3 Pit in August and September, 1987, we were unable to meet the daily average limitation for uranium, and discharge of minewater was suspended on September 30. A Notice of Noncompliance was mailed to you on October 23, when the remaining analytical results were received.

The uranium extraction system is being reevaluated and will be modified if further pumping of minewater is necessary. Additional dewatering may be required during reclamation of the pit in 1988.

Sincerely,



Calvin Fletcher
Environmental Services

CF/dw

cc: U. S. EPA
Attn: Enforcement-Permits
One Denver Place
999 18th St., Suite 1300
Denver, CO 80202-2413

Sequoyah Fuels Corporation
P. O. Box 1120
Glenrock, WY

INSTRUCTIONS

1. Provide data for period covered by this report in spaces marked "REPORTING PERIOD".
2. Enter reported minimum, average and maximum values under "QUANTITY" and "CONCENTRATION" in the units specified for each parameter as appropriate. Do not enter values in bases containing asterisks. "AVERAGE" is average computed over actual time discharge in bases containing asterisks. "MINIMUM" are extreme values observed during the reporting period.
3. Specify the number of analyzed samples that exceed the maximum (and/or minimum as appropriate) potential results in the column labeled "No. Ex." If none, enter "0".
4. Specify frequency of analysis for each parameter as follows: days (e.g., "3/3") is equivalent to 3 analyses performed every 3 days. If continuous enter "CONT." If frequency was continuous, enter "N/A".
5. Specify sample type ("grab" or "hr. composite") as applicable.
6. Appropriate signature is required on bottom of this form.
7. Process carbon and retain copy for year records.
8. Field along dotted lines, single and multi Original to office specified in permit.

Section 3 Mine

PRMIT NUMBER 0026221	DATE 002	TIME 1094	LATITUDE	LONGITUDE
REPORTING PERIOD FROM 8/17/01	TO 8/19/01	YEAR 8/17	MO 01	DAY 19

PARAMETER	QUANTITY (15-21)			CONCENTRATION (15-21)			UNITS	NO. EX.	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	MINIMUM (15-21)	AVERAGE (15-21)	MAXIMUM (15-21)	MINIMUM (15-21)	AVERAGE (15-21)	MAXIMUM (15-21)				
Flow in Conduit 50050	0	0.43	0.72	NGD	NGD	NGD	0	CONT	0.5	
Ra ²²⁶ Diss. (Dissolved) 09503	*****	*****	*****	NGD	NGD	NGD	0	1/7	INST	
Zinc, Total (as Zn) 01092	*****	*****	*****	*****	1.6	1.8	0	3/60	GR	
Solids, Tot, SUS (Suspended) 00530	*****	*****	*****	*****	3.0	10.0	0	1/30	GRAB	
Uranium, Total A0001	*****	*****	*****	*****	0.5	1.0	0	2/60	GR	
Oil and Grease (Visual) A0002	*****	*****	*****	*****	3.3	9.0	0	8/60	GR	
pH, Field 00400	*****	*****	*****	*****	20.0	30.0	0	1/7	GRAB	
	*****	*****	*****	*****	4.1	5.1	1	5/60	GR	
	*****	*****	*****	*****	2.0	4.0	0	1/30	GRAB	
	*****	*****	*****	*****	NONE	NONE	0	2/60	VISL.	
	*****	*****	*****	*****	10.0	10.0	0	1/30	VISL.	
	*****	*****	*****	*****	8.0	8.0	0	4/60	GR	
	*****	*****	*****	*****	9.0	9.0	0	1/90	GRAB	

I certify that I am familiar with the information contained in this report and that to the best of my knowledge and belief such information is true, complete, and accurate.

NAME OF PRINCIPAL EXECUTIVE OFFICER: James G. Randolph
TITLE: President
DATE: 8/17/01
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER: *James G. Randolph*
OFFICER OR AUTHORIZED AGENT

QUARTERLY REPORT - 3rd QUARTER 1987
Q-SAND IN-SITU URANIUM R&D PROJECT

Converse County, Wyoming

NRC Source Material License SUA-1387
NRC Docket No. 40-8768
Wyoming DEQ LQD - License 5RD

Project Status

Restoration and stability of the Q-Sand pilot was approved by NRC in an August 11, 1987 Amendment to License SUA-1387. Wyoming DEQ has indicated acceptance of the pilot restoration, however written confirmation has not been received as of this date. Plugging of the production area wells will proceed when written confirmation is received.

Excursion Monitoring

All Q-Sand excursion monitoring was terminated in the Second Quarter 1987.