

U.S. NUCLEAR REGULATORY COMMISSION
DOCKET NO. 040-08714
SOURCE MATERIAL LICENSE NO. SUA-1352

QUARTERLY REPORT for July 1, 1982
to September 30, 1982

Prepared By

THE CLEVELAND-CLIFFS IRON COMPANY
P. O. Box 3140
Casper, Wyoming 82602

NRC QUARTERLY REPORT

Period July - September, 1982

INTRODUCTION

Per Condition 29 of the United States Nuclear Regulatory Commission Source Material License No. SUA-1352, Docket Number 040-08714, this quarterly report is being submitted. This license authorizes the possession and use of source material in connection with a uranium solution extraction test program at the Collins Draw site in Campbell County, Wyoming.

STATUS of PROGRAM

All mine well fields at Collins Draw are believed to be restored and there are no plans for additional lixiviant injection. Figure 1 shows the A-1 and B pattern areas.

There were no major excursions, spills, or other permit or license events which would have resulted in a shutdown or change of operation. We have recorded a slightly elevated (2.7 ppm) uranium (U_{38}) level in Monitor Well 298. This 2.7 ppm uranium is the average of the eight samples collected during the third quarter. Monitor Well 298 monitors the ore zone aquifer. Its location can also be found in Figure 1. Monitor Well 298 is located southeast of the B pattern area and is approximately 200 feet from the nearest production well. The uranium (U_{38}) level in Monitor Well 298 is below drinking water standards.

RADIATION MONITORING PROGRAM

Sampling results for Radon/Radon Daughters still show levels below twenty-five (25) percent of the applicable maximum permissible concentration specified by 10CFR, Part 20. Results of these samplings are given below.

Radon/Radon Daughter sampling during the third quarter of 1982 has shown no recordable amounts. Working Levels/ Working Level Months results were recorded at 0.00 during the third quarter of 1982.

Uranium particulate sampling results are listed in Table A.

Water Quality

The baseline data and the biweekly well field monitor well analyses are given on Tables 1 through 6. The second quarter full suite of water quality parameters for these monitor wells is included in this report in Table 7.

Surface Discharge

All information regarding surface discharge can be found in Exhibit 1, which is the quarterly discharge report. Table 8 contains the lab assay results from the September 23, 1982, injection grab sample. The Thorium 230 level was 1.3 ± 1.0 pCi/l.

This concludes the report for the third quarter of 1982 as specified by Condition 29 of License SUA-1352.

Attachments: Figure 1
Exhibit A

DJW:ceg
Casper, Wyoming
Nov. 3, 1982

CD5H

URANIUM PARTICULATE SAMPLING

SAMPLE NUMBER	SAMPLE COLLECTION TIME AND DATE	WEIGHT OF PAPER	WEIGHT OF PAPER AND PARTICULATES	WEIGHT OF PARTICULATES	URANIUM CONCENTRATION	COMMENTS
P-1	Jan. 6 - Jan. 13	.1225	.1541	.0316	223 μg	3.7×10^{-19} $\mu\text{Ci/ml}$ Wamco Lab.
P-2	Feb. 17 - Feb. 24	.1220	.1439	.0219	117 μg	1.96×10^{-19} $\mu\text{Ci/ml}$ Wamco Lab.
P-3	March 10 - March 17	.1232	.1474	.0242	112 μg	1.88×10^{-19} $\mu\text{Ci/ml}$ Wamco Lab.
P-4	April 7 - April 14	.1230	.1377	.0147	151 μg	2.53×10^{-19} $\mu\text{Ci/ml}$ Wamco Lab.
P-5	May 5 - May 12	.1218	.1450	.0232	105 μg	1.76×10^{-19} $\mu\text{Ci/ml}$ Wamco Lab.
P-6	June 9 - June 16	.1225	.1456	.0231	33 μg	5.50×10^{-20} $\mu\text{Ci/ml}$ Wamco Lab.
P-7	July 7 - July 14	.1226	.1338	.0112	100 μg	1.67×10^{-19} $\mu\text{Ci/ml}$ Wamco Lab.
P-8	August 11 - August 18	.1230	.1360	.0130	75 μg	1.26×10^{-19} $\mu\text{Ci/ml}$ Wamco Lab.
P-9	Sept. 8 - Sept. 15	.1220	.1406	.0186	126 μg	2.12×10^{-19} $\mu\text{Ci/ml}$ Wamco Lab.

* μg = microgram* μCi = microCurie

Table 1

Thunderbird Joint Venture
Collins Draw Project
Environmental Monitoring - 230W, Upper Aquifer

Well Depth
396 Feet

Distance from Well Field
Located in Well Field
Monitors Upper Aquifer

Formation Sampled
Upper Aquifer of "A" Sand

Date	Remarks	Total Dis-solved Solids		Bicar-bonate mg/l	Sulfate mg/l	(as U ₃ O ₈)		pH	Arsenic mg/l	Selenium mg/l	Water Levels
		TOS mg/l	Car-bonate mg/l			Uranium mg/l	Ammonia mg/l				
06/20/78	Baseline	508	0	146	255	0.060	0.22	8.1	--	--	--
07/07/78	Baseline	626	0	317	245	0.020	0.32	7.8	--	--	--
07/25/78	Baseline	498	0	159	210	0.012	0.46	8.0	--	--	--
11/15/79	Baseline	541	18	116	258	<0.001	0.01	8.2	--	--	--
12/07/79	Baseline	435	0	137	205	0.008	0.10	7.0	--	--	--
	E.P.A. Drinking Water Standards	500	None	None	250	None	None	6.5-8.5	0.05	0.01	--
	Upper Control Limits										
	N.R.C.	720	Carbonate-Bicarbonate 365		297	1.02	0.53	10.0	--	--	--
	D.E.Q.	653	+20%	248	284	0.04	0.40	--	--	--	--
04/02/80 Start Chemicals											
04/02/80	Wamco #1501	580	0	107	315	0.002	0.33	7.6	--	--	--
04/16/80	Wamco #1544	538	0	112	314	0.007	0.27	7.73	--	--	--
04/30/80	C.G.L. #34039	492	0	127	255	0.001	0.10	8.20	--	--	76' 4"
04/30/80	Wamco #1580	480	Trace	117	274	0.010	0.12	8.18	--	--	76' 4"
05/02/80	W. #1593 - Extra Compliance Sample	528	0	129	300	0.002	<0.01	7.93	--	--	--
05/03/80	W. #1593	516	0	154	266	0.0035	0.22	7.89	--	--	--
05/04/80	W. #1593	606	0	171	316	0.014	0.29	7.82	--	--	--
05/05/80	W. #1599	616	0	166	330	0.037	0.14	7.77	--	--	--
05/06/80	W. #1599	614	0	161	322	0.015	0.18	7.76	--	--	--
05/07/80	W. #1599	606	0	159	322	0.052	0.01	7.74	--	--	--
05/08/80	W. #1609	622	0	171	316	0.025	0.01	7.80	--	--	--
05/09/80	W. #1609	626	0	168	330	0.021	0.13	7.79	--	--	--
05/10/80	Wamco #1619 Confirmation Sample	612	0	171	316	0.025	<0.01	7.75	--	--	--
05/11/80	Wamco #1619	616	0	171	308	0.020	<0.01	7.72	--	--	--
05/14/80	Wamco #1619	574	0	159	324	0.011	<0.01	7.90	--	--	75' 9"
05/28/80	W. #1654 Monitor Round @ 1300 Hrs.	620	0	146	180	0.044	<0.01	7.67	--	--	78' 7"
06/11/80	Wamco	560	0	134	316	0.031	<0.01	7.71	--	--	75' 6"
06/14/80	Wamco #1689	538	0	207	256	0.025	<0.01	7.70	--	--	--
06/14/80	C.G.L. #34478 Confirm Samples	--	--	--	270	--	--	--	--	--	--
06/15/80	Wamco #1689	500	0	170	232	0.011	<0.01	7.84	--	--	--
06/15/80	C.G.L. #34478 Confirm Samples	--	--	--	250	--	--	--	--	--	--
06/16/80	Wamco #1689	514	0	207	232	0.004	<0.01	7.54	--	--	--
06/16/80	C.G.L. #34478 Confirm Samples	--	--	--	255	--	--	--	--	--	--
06/17/80	Wamco #1689	536	0	146	256	0.010	<0.01	7.48	--	--	--
06/17/80	C.G.L. #34478 Confirm Samples	--	--	--	265	--	--	--	--	--	--
06/25/80	Wamco #1714	596	0	122	232	<0.001	<0.01	7.27	--	--	76' 10"
07/09/80	Wamco #1747 Quarterly Sample	552	0	134	288	0.030	<0.01	7.79	--	--	76' 5"
07/23/80	Wamco #1768	538	0	119	84	<0.001	<0.01	7.85	--	--	77' 0"
08/07/80	Wamco #1798	472	0	115	262	<0.001	<0.01	8.92	--	--	78' 6"
08/21/80	Wamco #1832	594	0	120	243	<0.001	<0.01	7.83	--	--	--
09/03/80	Wamco #1861	486	0	122	243	0.001	<0.01	7.99	--	--	79' 9"
09/17/80	Wamco #1893	326	0	183	215	<0.001	<0.01	7.62	--	--	76' 3"
10/01/80	Wamco #1934	458	0	122	205	0.005	<0.01	7.82	--	--	77' 4"
10/15/80	Wamco #1962	440	0	116	244	0.002	<0.01	7.90	--	--	77' 4"
10/29/80	Wamco #1988	488	0	140	235	0.002	<0.01	7.86	--	--	--
11/17/80	Wamco #2022	460	0	127	235	0.001	<0.01	--	--	--	77' 2"
11/26/80	Wamco #2017	484	0	122	251	0.001	<0.01	7.26	--	--	01' 0"
12/10/80	Wamco #2054	492	0	122	262	0.001	<0.01	7.72	--	--	--
12/23/80	Wamco #2085	480	0	110	251	0.001	<0.01	7.73	--	--	77' 0"
01/07/81	Wamco #2111	436	0	122	243	0.001	<0.01	7.18	--	--	77' 0"
01/21/81	Wamco #2150	442	0	122	225	0.001	<0.01	7.41	--	--	78' 0"
02/03/81	Wamco #2183	494	0	128	272	0.003	<0.01	7.65	--	--	79' 0"
02/18/81	Wamco #2213	519	0	140	282	0.001	<0.01	7.61	--	--	78' 0"

Thunderbird Joint Venture
Collins Draw Project
Environmental Monitoring - 230W, Upper Aquifer

Well Depth
386 Feet

Distance from Well Field
Located in Well Field
Monitors Upper Aquifer

Formation Sampled
Upper Aquifer of "A" Sand

DATE	Remarks	Total Dis-solved Solids- TDS mg/l	Car-bonate mg/l	Bicar-bonate mg/l	Sulfate mg/l	(as U ₃ O ₈) Uranium mg/l	(as N) Ammonia mg/l	pH	Arsenic mg/l	Selenium mg/l	Water Levels
03/04/81	WASCO #2244	572	0	127	350	0.060	<0.01	7.52	<0.001	<0.001	80' 0"
03/05/81	WASCO Confirm Samples	--	--	--	326	--	--	--	<0.001	<0.001	--
03/10/81	WASCO	--	--	--	316	--	--	--	<0.001	<0.001	--
03/11/81	WASCO	--	--	--	316	--	--	--	<0.001	<0.001	--
03/12/81	WASCO	--	--	--	316	--	--	--	<0.001	<0.001	--
03/13/81	WASCO	--	--	--	315	--	--	--	<0.001	<0.001	--
03/14/81	WASCO	--	--	--	284	--	--	--	<0.001	<0.001	--
03/15/81	WASCO	--	--	--	284	--	--	--	<0.001	<0.001	--
03/16/81	WASCO	--	--	--	304	--	--	--	<0.001	<0.001	--
03/17/81	WASCO	--	--	--	294	--	--	--	<0.001	<0.001	--
03/18/81	WASCO #2280	562	0	153	300	0.002	<0.01	7.28	<0.001	<0.001	76' 0"
03/19/81	WASCO	--	--	--	282	--	--	--	<0.001	<0.001	--
03/20/81	WASCO	--	--	--	306	--	--	--	<0.001	<0.001	--
03/21/81	WASCO	--	--	--	300	--	--	--	<0.001	<0.001	--
03/22/81	WASCO	--	--	--	300	--	--	--	<0.001	<0.001	--
03/23/81	WASCO	--	--	--	290	--	--	--	<0.001	<0.001	--
03/24/81	WASCO	--	--	--	290	--	--	--	<0.001	<0.001	--
03/25/81	WASCO	683	--	--	288	--	--	--	<0.001	<0.001	--
04/01/81	WASCO #2318	510	0	140	288	0.003	<0.01	7.26	<0.001	<0.001	77' 0"
04/14/81	WASCO #2348	435	0	122	284	0.002	<0.01	7.76	--	--	79' 0"
04/29/81	WASCO #2380	531	0	129	263	0.001	<0.01	7.42	--	--	80' 0"
05/13/81	Chem Lab	576	0	137	304	0.001	<0.01	7.30	--	--	83' 2"
05/14/81	WASCO #2429 Confirmation	--	--	--	287	--	--	--	--	--	--
05/27/81	WASCO #2449	544	0	122	271	0.002	<0.01	7.61	--	--	82' 3"
06/10/81	Chem Lab #37738	605	0	154	314	<0.001	<0.01	7.30	<0.001	<0.001	--
06/12/81	WASCO #2501 Confirmation Sample	--	--	--	275	--	--	--	--	--	--
06/24/81	WASCO #2518	561	0	134	262	0.001	<0.01	7.48	--	--	81' 0"
07/08/81	WASCO #2556	564	0	128	288	0.002	<0.01	7.40	--	--	78' 0"
07/22/81	Chem Lab #38150	526	0	123	292	<0.001	<0.01	7.90	--	--	79' 1"
08/05/81	WASCO #2623	536	0	95	264	0.018	<0.01	7.25	--	--	79' 0"
08/19/81	WASCO #2670	594	0	134	260	<0.001	<0.01	7.55	--	--	79' 0"
09/02/81	WASCO #2704	570	0	117	286	0.001	<0.01	7.38	<0.001	<0.001	79' 0"
09/16/81	WASCO #2746	536	0	122	292	0.003	<0.05	7.64	--	--	81' 7"
09/30/81	WASCO #2780	527	0	117	286	0.001	<0.05	7.62	--	--	79' 0"
10/14/81	WASCO #2810	595	0	146	294	0.033	<0.05	7.54	--	--	79' 0"
10/28/81	WASCO #2845	565	0	117	314	0.017	<0.10	7.46	--	--	81' 0"
11/11/81	WASCO #2879	576	0	124	280	0.001	<0.10	8.01	--	--	77' 0"
11/25/81	WASCO #2995	556	0	134	294	0.012	<0.10	7.52	--	--	77' 0"
12/09/81	WASCO #2917	543	0	122	278	0.017	<0.10	7.88	--	--	78' 2"
12/23/81	Chem Lab #39493	520	0	139	284	0.001	<0.10	7.60	<0.001	<0.001	79' 10"
01/06/82	WASCO #2972	675	0	120	336	0.002	<0.05	7.26	--	--	77' 5"
01/20/82	WASCO #2999	575	0	122	310	<0.001	<0.05	7.79	--	--	77' 8"
02/03/82	WASCO #3034	555	0	126	318	<0.001	<0.05	7.75	--	--	76' 0"
02/17/82	WASCO #3066	555	0	134	252	<0.001	<0.10	7.75	--	--	79' 3"
03/03/82	WASCO #3101	604	0	126	276	0.005	<0.05	8.02	<0.001	<0.001	81' 0"
03/17/82	WASCO #3134	482	0	114	242	0.010	<0.05	7.43	--	--	82' 0"
03/31/82	WASCO #3171	370	0	110	252	0.003	<0.05	7.49	--	--	82' 0"
04/14/82	WASCO #3192	482	0	124	259	0.006	<0.05	7.77	--	--	79' 6"
04/28/82	WASCO #3222	479	0	118	278	0.015	<0.05	7.59	--	--	78' 0"
05/13/82	WASCO #3236	487	0	115	256	<0.001	<0.05	7.59	--	--	77' 4"
05/26/82	WASCO #3261	462	0	102	240	<0.001	<0.05	7.94	--	--	76' 10"
06/09/82	WASCO #3282	463	0	105	244	<0.001	<0.05	7.78	<0.001	<0.001	77' 2"
06/23/82	WASCO #3341	475	0	122	268	0.002	<0.05	7.55	--	--	76' 6"
07/07/82	WASCO #3371	413	0	115	261	0.001	<0.05	7.64	--	--	76' 0"
07/21/82	WASCO #3411	527	0	110	263	<0.001	<0.05	8.14	--	--	83' 8"
08/04/82	WASCO #3444	608	0	120	348	0.010	<0.05	7.63	--	--	87' 0"
08/18/82	WASCO #3488	594	0	141	291	0.020	<0.05	7.47	--	--	91' 0"
09/01/82	WASCO #3516	556	0	149	259	0.020	<0.05	6.40	<0.001	<0.001	83' 0"
09/15/82	WASCO #3552	500	0	98	281	0.001	<0.05	7.86	--	--	82' 0"
09/29/82	WASCO #3583	488	0	103	275	<0.001	<0.05	7.64	--	--	82' 0"

Table 2
Thunderbird Joint Venture
Collins Draw Project
Environmental Monitoring - 238W

Date	Remarks	Total Dissolved Solids mg/l	Car-bonate mg/l	Bicar-bonate mg/l	Sulfate mg/l	(as U ₃ O ₈) Uranium mg/l	(as N) Ammonia mg/l	pH	Formation Sampled		
									Arsenic mg/l	Selenium mg/l	
06/02/78	Baseline	391	24	116	138	0.450	0.03	8.6	--	--	
06/22/78	Baseline	320	12	134	135	0.466	0.36	8.5	--	--	
07/12/78	Baseline	350	0	146	143	0.406	0.07	8.0	--	--	
07/31/78	Baseline	394	12	134	148	0.370	0.12	8.3	--	--	
11/16/79	Baseline	346	0	165	125	0.081	<0.01	8.12	--	--	
E.P.A. Drinking Water Standards		500	None	None	250	None	None	6.5-8.5	0.05	0.01	
Upper Control Limits											
H.R.C.		453	190	Carbonate-Bicarbonate	170	1.35	0.41	10.3	--	--	
D.F.Q.		437	14	158	169	0.50	0.18	--	--	--	
04/02/80 Start Chemicals											
04/02/80	Waco #1501	363	0	156	140	0.088	0.27	7.62	--	--	
04/16/80	Waco #1544	456	0	151	166	0.069	0.37	7.71	--	--	
04/30/80	C.40.L. #34039	350	0	156	147	0.120	0.10	7.90	--	--	
04/30/80	Waco #1580	352	0	134	168	0.122	0.12	7.58	--	80' 8"	
05/14/80	Waco #1619 Conf. Sample	362	0	196	115	0.096	<0.01	7.94	--	93' 4"	
05/26/80	Waco	396	0	171	130	0.078	<0.01	7.56	--	95' 0"	
06/11/80	Waco	380	0	171	100	0.093	<0.01	7.72	--	93' 0"	
06/23/80	Waco #1714	426	0	149	88	0.097	<0.01	7.63	--	93' 6"	
07/09/80	Waco #1747	420	0	133	170	0.081	<0.01	7.75	--	94' 3"	
07/23/80	Waco #1768	378	0	154	180	0.085	<0.01	7.75	--	105' 10"	
07/30/80	Waco #1779	374	0	--	75	0.063	<0.01	--	--	--	
08/07/80	Waco #1798	290	0	146	154	0.089	<0.01	8.23	--	97' 6"	
08/21/80	Waco #1832	368	0	151	133	0.066	<0.01	7.70	--	--	
09/03/80	Waco #1861	352	0	140	145	0.064	<0.01	7.90	--	--	
09/17/80	Waco #1893	184	0	126	135	0.038	<0.01	7.50	--	115' 1"	
10/01/80	Waco #1914	352	0	152	150	0.057	<0.01	8.00	--	105' 0"	
10/15/80	Waco #1962	290	0	140	153	0.078	<0.01	7.67	--	98' 3"	
10/29/80	Waco #1988	324	0	134	115	0.108	<0.01	7.77	--	73' 9"	
11/12/80	Waco #2022	330	0	146	135	0.100	<0.01	--	--	--	
11/26/80	Waco #2017	378	0	146	133	0.036	<0.01	7.55	--	70' 0"	
12/10/80	Waco #2054	330	0	146	128	0.073	<0.01	7.28	--	101' 0"	
12/23/80	Waco #2085	354	0	140	151	0.052	<0.01	7.49	--	90' 0"	
01/07/81	Waco #2111	282	0	146	142	0.064	<0.01	7.20	--	85' 0"	
01/21/81	Waco #2150	422	0	127	178	0.040	<0.01	7.46	--	80' 3"	
01/23/81	Waco #2156	--	--	--	220	--	--	--	--	<0.001	
01/24/81	Waco #2156	--	--	--	220	--	--	--	--	<0.001	
01/25/81	Waco #2156	--	--	--	225	--	--	--	--	<0.001	
01/26/81	Waco #2165	--	--	--	220	--	--	--	--	<0.001	
01/27/81	Waco	--	--	--	205	--	--	--	--	<0.001	
01/28/81	Waco	--	--	--	203	--	--	--	--	<0.001	
01/29/81	Waco	384	--	--	207	--	--	--	--	<0.001	
01/30/81	Waco	436	--	--	214	--	--	--	--	<0.001	
01/31/81	Waco	--	--	--	191	--	--	--	--	<0.001	
02/01/81	Waco	--	--	--	180	--	--	--	--	<0.001	
02/02/81	Waco #2183	--	--	--	190	--	--	--	--	<0.001	
02/03/81	Waco #2183	412	0	134	178	0.042	<0.01	7.78	<0.001	<0.001	
02/04/81	Waco	--	--	--	202	--	--	--	--	<0.001	
02/05/81	Waco	--	--	--	202	--	--	--	--	<0.001	
02/06/81	Waco	--	--	--	(119)	--	--	--	--	<0.001	
02/07/81	Waco	--	--	--	205	--	--	--	--	<0.001	
02/08/81	Waco	--	--	--	219	--	--	--	--	<0.001	

Table 2 - Page Two
 Thunderbird Joint Venture
 Collins Draw Project
 Environmental Monitoring - 238W

Well Depth
 503 Feet

Distance from Well Field
 113 Feet

Formation Sampled
 #1 Sand

Date	Remarks	Total Dis-solved Solids-TDS mg/l	Car-bonate mg/l	Bicar-bonate mg/l	Sulfate mg/l	(as U ₃ O ₈) Uranium mg/l	(as N) Ammonia mg/l	pH	Arsenic mg/l	Selenium mg/l	Water Levels
02/09/81	WASCO	--	--	--	205	--	--	--	<0.001	<0.001	--
02/10/81	WASCO #2197	--	--	--	196	--	--	--	<0.001	<0.001	--
02/11/81	WASCO #2197	--	--	--	220	--	--	--	<0.001	<0.001	--
02/12/81	WASCO #2197	--	--	--	202	--	--	--	<0.001	0.008	--
02/13/81	WASCO	--	--	--	219	--	--	--	<0.001	0.017	--
02/14/81	WASCO	--	--	--	219	--	--	--	<0.001	0.037	--
02/15/81	WASCO	--	--	--	204	--	--	--	<0.001	0.033	--
02/16/81	WASCO	--	--	--	204	--	--	--	<0.001	0.070	--
02/17/81	WASCO #2213	504	0	116	229	0.026	<0.01	7.76	<0.001	0.072	85' 0"
02/18/81	WASCO #2213	--	--	--	246	--	--	--	<0.001	0.090	--
02/19/81	WASCO	--	--	--	240	--	--	--	<0.001	0.150	--
02/20/81	WASCO	638	--	--	240	--	--	--	<0.001	0.290	--
02/21/81	WASCO Conf. Sample	605	--	--	258	--	--	--	<0.001	0.250	--
02/22/81	WASCO	--	--	--	276	--	--	--	<0.001	0.370	--
02/23/81	WASCO	--	--	--	285	--	--	--	<0.001	0.265	--
02/24/81	WASCO	--	--	--	272	--	--	--	<0.001	0.280	--
02/25/81	WASCO	--	--	--	284	--	--	--	<0.001	0.279	--
02/26/81	WASCO	637	--	--	284	--	--	--	<0.001	0.256	--
02/27/81	WASCO	588	--	--	270	--	--	--	<0.001	0.164	--
02/28/81	WASCO	718	--	--	292	--	--	--	<0.001	0.120	--
03/01/81	WASCO	741	--	--	328	--	--	--	<0.001	0.164	--
03/02/81	WASCO	732	--	--	304	--	--	--	<0.001	0.200	--
03/03/81	WASCO	753	0	90	315	0.037	<0.01	7.87	<0.001	0.232	88' 0"
03/04/81	WASCO #2244 Quarterly Sample	793	--	--	301	--	--	--	<0.001	0.292	--
03/05/81	WASCO	785	--	--	292	--	--	--	<0.001	0.304	--
03/06/81	WASCO	755	--	--	282	--	--	--	<0.001	0.304	--
03/07/81	WASCO	818	--	--	326	--	--	--	<0.001	0.228	--
03/08/81	WASCO	842	--	--	338	--	--	--	<0.001	0.336	--
03/09/81	WASCO	873	--	--	326	--	--	--	<0.001	0.370	--
03/10/81	WASCO	916	--	--	339	--	--	--	<0.001	0.430	--
03/11/81	WASCO	917	--	--	360	--	--	--	<0.001	0.340	--
03/12/81	WASCO	1,071	--	--	392	--	--	--	<0.001	0.450	--
03/13/81	WASCO	960	--	--	355	--	--	--	<0.001	0.330	--
03/14/81	WASCO	890	--	--	336	--	--	--	<0.001	0.400	--
03/15/81	WASCO	917	--	--	348	--	--	--	<0.001	0.360	--
03/16/81	WASCO	907	--	--	348	--	--	--	<0.001	0.300	--
03/17/81	WASCO	984	0	128	370	0.220	<0.01	7.48	<0.001	0.480	87' 0"
03/18/81	WASCO #2280	1,040	--	--	392	--	--	--	<0.001	0.600	--
03/19/81	WASCO	1,010	--	--	370	--	--	--	<0.001	0.520	--
03/20/81	WASCO	970	--	--	360	--	--	--	<0.001	0.480	--
03/21/81	WASCO	965	--	--	348	--	--	--	<0.001	0.480	--
03/22/81	WASCO	895	--	--	360	--	--	--	<0.001	0.310	--
03/23/81	WASCO	921	--	--	348	--	--	--	<0.001	0.420	--
03/24/81	WASCO	929	--	--	338	--	--	--	<0.001	0.410	--
03/25/81	WASCO	1,015	--	--	336	--	--	--	<0.001	0.460	--
03/26/81	WASCO	954	--	--	322	--	--	--	<0.001	0.460	--
03/27/81	WASCO	910	--	--	355	--	--	--	<0.001	0.400	--
03/28/81	WASCO	1,054	--	--	372	--	--	--	<0.001	0.670	--
03/29/81	WASCO	1,042	--	--	458	0.263	<0.01	7.76	<0.001	0.500	--
03/30/81	WASCO	1,204	0	68	452	--	--	--	<0.001	0.500	--
04/01/81	WASCO #2318	1,077	--	--	470	--	--	--	<0.001	0.440	--
04/02/81	WASCO	1,224	--	--	448	--	--	--	<0.001	0.440	--
04/03/81	WASCO	1,035	--	--	--	--	--	--	<0.001	0.440	--
04/04/81	WASCO	--	--	--	--	--	--	--	<0.001	0.440	--

Table 2 - Page three
 Thunderbird Joint Venture
 Collins Draw Project
 Environmental Monitoring - 238W

		Well Depth		Distance from Well Field		Formation Sampled					
		503 Feet		113 Feet		#1 Sand					
Date	Remarks	Total Dis-solved Solids- TDS mg/l	Car-bonate mg/l	Bicar-bonate mg/l	Sulfate mg/l	(as U ₃ O ₈) Uranium mg/l	(as N) Ammonia mg/l	pH	Arsenic mg/l	Selenium mg/l	Water Levels
04/05/81	Wamco	1,199	--	--	464	--	--	--	<0.001	0.430	--
04/06/81	Wamco	1,246	--	--	460	--	--	--	<0.001	0.450	88' 0"
04/07/81	Wamco	1,126	--	--	438	--	--	--	<0.001	0.360	--
04/08/81	Wamco	869	--	--	528	--	--	--	<0.001	0.470	--
04/09/81	Wamco #2334	1,246	0	59	526	0.525	<0.01	8.09	<0.001	0.058	--
04/15/81	Wamco #2350	1,013	0	46	480	0.575	<0.01	8.20	<0.001	0.610	86' 0"
04/22/81	Wamco #2357	1,279	0	42	516	0.575	<0.01	7.58	<0.001	0.730	--
04/29/81	Wamco #2381	1,436	0	46	543	0.760	<0.01	7.42	<0.001	1.520	110' 0"
05/06/81	Wamco #2397	1,317	0	51	474	0.901	<0.01	7.82	<0.001	0.860	--
05/11/81	Wamco #2418	1,274	0	24	547	0.748	<0.01	7.98	<0.001	0.430	128' 2"
05/20/81	Wamco #2441	1,461	5	29	508	1.278	<0.01	8.33	<0.001	1.120	--
05/27/81	Wamco #2450	891	0	63	430	0.360	<0.01	8.06	<0.001	0.380	139' 4"
06/03/81	Wamco #2470	1,217	0	49	590	0.755	<0.01	7.44	<0.001	1.600	--
06/10/81	Chem. Lab #3773B	1,070	0	37	566	1.450	0.14	7.40	<0.001	0.400	116' 0"
06/17/81	Wamco #2513	1,407	0	29	522	0.680	<0.01	7.90	--	--	--
06/24/81	Wamco #2518	1,389	0	24	500	0.687	<0.01	8.32	--	--	107' 0"
07/01/81	Wamco #2543	1,419	0	27	522	1.173	<0.01	7.72	--	--	--
07/08/81	Wamco #2556	1,366	0	29	536	0.410	<0.01	8.19	--	--	--
07/15/81	Wamco #2572	1,240	0	146	542	1.714	<0.01	7.52	--	--	83' 0"
07/22/81	Chem. Lab. #38150	1,366	0	34	584	1.000	0.19	7.70	--	--	64' 10"
07/29/81	Wamco #2600	1,368	0	29	540	0.560	<0.01	8.19	--	--	--
08/05/81	Wamco #2623	1,246	7	22	540	0.258	<0.01	8.20	--	--	66' 0"
08/12/81	Wamco #2641	1,270	0	34	215	2.004	<0.01	8.18	--	--	--
08/19/81	Wamco #2670	1,287	0	29	476	0.644	<0.01	7.72	--	--	75' 0"
08/26/81	Wamco #2684	1,233	0	29	440	0.501	0.20	8.15	--	--	--
09/02/81	Wamco #2704	1,261	17	10	598	2.200	0.33	8.26	<0.001	0.810	77' 0"
09/06/81	Wamco #2718	--	--	--	--	--	<0.05	--	--	--	--
09/09/81	Wamco #2724	1,295	0	34	520	0.668	<0.05	7.81	--	--	--
09/16/81	Wamco #2746	1,236	12	24	520	0.651	<0.05	8.42	--	--	57' 11"
09/23/81	Wamco #2764	1,233	12	12	532	0.935	0.24	8.44	--	--	--
09/30/81	Wamco #2780	1,275	7	22	660	1.360	0.45	8.35	--	--	57' 0"
10/02/81	Wamco #2788	--	--	--	--	1.235	0.36	--	--	--	--
10/03/81	Wamco #2790	--	--	--	--	0.900	0.51	--	--	--	--
10/06/81	Wamco #2798	1,276	--	--	520	0.700	13.80	--	<0.001	<0.001	--
10/07/81	Wamco #2798	1,231	--	--	528	0.850	12.40	--	<0.001	<0.001	--
10/14/81	Wamco #2810	1,304	--	159	580	0.651	0.45	7.71	--	--	75' 0"
10/28/81	Wamco #2845	1,285	19	10	556	0.080	9.90	9.16	--	--	68' 0"
11/11/81	Wamco #2879	1,209	10	20	532	1.640	8.50	8.71	--	--	101' 9"
11/25/81	Wamco #2895	1,244	24	--	525	0.664	4.65	8.94	--	--	--
12/09/81	Wamco #2917	1,192	0	41	513	1.000	6.50	7.58	<0.001	0.850	Pumping
12/23/81	Chem Lab #39493	1,124	20	39	522	2.400	5.50	9.00	--	--	62' 4"
01/06/82	Wamco #2972	1,084	10	17	500	3.400	3.00	8.46	--	--	104' 6"
01/20/82	Wamco #2999	947	2	34	428	0.420	1.82	8.72	--	--	82' 8"
02/03/82		Because of low water level, sample not obtainable.									220' 6"
02/17/82	Wamco #3066	564	12	29	246	2.875	0.20	8.89	--	--	285' 0"
03/03/82	Wamco #3101	448	7	61	188	3.924	<0.05	8.61	0.006	0.575	310' 0"
03/17/82	Wamco #3134	381	0	83	144	7.000	<0.05	7.88	--	--	Pumping
03/31/82	Wamco #3171	387	0	83	152	7.000	<0.05	7.75	--	--	Pumping
04/14/82	Wamco #3192	398	0	90	179	6.600	<0.05	7.65	--	--	Pumping
04/28/82	Wamco #3222	394	0	89	170	4.200	<0.05	7.28	--	--	Pumping
05/11/82	Wamco #3236	395	0	98	176	4.500	<0.05	7.40	--	--	99' 8"
05/26/82	Wamco #3261	361	0	98	166	1.550	<0.05	8.18	--	--	Pumping
06/09/82	Wamco #3282	417	0	106	174	2.300	<0.05	7.39	<0.001	0.104	Pumping
06/23/82	Wamco #3341	377	0	110	177	6.900	<0.05	7.30	--	--	Pumping
07/07/82	Wamco #3371	379	0	107	170	3.750	<0.05	7.68	--	--	Pumping
07/21/82	Wamco #3411	392	0	122	146	2.025	<0.05	7.92	--	--	216' 0"
08/04/82	Wamco #3444	394	0	132	174	2.500	<0.05	7.99	--	--	213' 0"
08/18/82	Wamco #3488	375	0	132	147	5.186	<0.05	7.90	--	--	196' 0"
09/01/82	Wamco #3516	332	0	154	125	4.900	<0.05	8.00	0.005	0.146	166' 0"
09/15/82	Wamco #3552	342	0	124	141	1.000	<0.05	7.88	--	--	171' 0"
09/29/82	Wamco #3583	331	0	124	111	1.100	<0.05	7.89	--	--	179' 0"

Table 3
 Thunderbird Joint Venture
 Collins Draw Project
 Environmental Monitoring - 239W

Date	Remarks	Well Depth 465 Feet		Distance from Well Field 200 Feet			Formation Sampled #1 Sand		
		Total Dis-solved Solids-TDS mg/l	Car-bonate mg/l	Bicar-bonate mg/l	Sulfate mg/l	(as U ₃ O ₈) Uranium mg/l	(as N) Ammonia mg/l	pH	Water Levels
07/31/78	Baseline	438	9	220	136	0.180	0.10	7.7	--
06/05/78	Baseline	494	0	220	155	0.061	0.01	8.1	--
06/21/78	Baseline	440	0	195	130	0.050	0.14	7.9	--
07/12/78	Baseline	446	0	195	125	0.049	0.04	7.6	--
11/15/79	Baseline	345	0	177	113	0.004	0.04	7.9	--
E.P.A. Drinking Water Standards		500	None	None	250	None	None	6.5-8.5	--
Upper Control Limits									
N.R.C.		568	Carbonate-Bicarbonate 263		178	1.07	0.16	9.8	--
D.E.Q.		545	2.4	250	163	0.03	0.08	--	--
04/02/80 Start Chemicals									
04/12/80	Wamco #1501	343	0	159	132	0.027	0.23	7.62	--
04/16/80	Wamco #1544	388	0	163	138	0.021	0.27	7.65	--
04/30/80	C.G.L. #34039	324	0	176	124	0.030	<0.10	7.60	54' 7"
04/30/80	Wamco #1580	348	0	173	129	0.038	<0.01	7.04	54' 7"
05/14/80	Wamco #1619 Confirmation Sample	360	0	207	118	0.035	<0.01	7.54	52' 9"
05/28/80	Wamco #1654 Monitor Round	410	0	159	120	0.130	<0.01	8.76	56' 1"
06/11/80	Wamco	376	0	146	116	0.023	<0.01	7.37	53' 5"
06/25/80	Wamco #1714	358	0	156	158	0.042	<0.01	7.40	52' 5"
07/09/80	Wamco #1747 Quarterly Sample	412	0	159	146	0.010	<0.01	7.45	53' 3"
07/23/80	Wamco #1768	402	0	154	180	0.011	<0.01	7.62	65' 6"
07/30/80	Wamco #1779 Confirmation Sample	382	--	--	67	0.030	<0.01	--	--
08/07/80	Wamco #1798	318	0	151	163	0.003	<0.01	8.28	57' 0"
08/21/80	Wamco #1832	350	0	144	145	0.041	<0.01	7.57	--
09/03/80	Wamco #1861	360	0	159	145	0.032	<0.01	7.80	70' 11"
09/17/80	Wamco #1893	196	0	159	143	0.032	<0.01	7.47	62' 8"
10/01/80	Wamco #1934	356	0	146	160	0.047	<0.01	8.02	57' 9"
10/15/80	Wamco #1962	318	0	153	148	0.070	<0.01	7.79	98' 9"
10/29/80	Wamco #1988	306	0	151	124	0.066	<0.01	7.80	--
11/12/80	Wamco #2022	330	0	146	115	0.030	<0.01	--	--
11/26/80	Wamco #2017	342	0	146	133	0.030	<0.01	7.57	61' 0"
12/10/80	Wamco #2054	322	0	146	123	0.028	<0.01	7.82	--
12/23/80	Wamco #2085	360	1	134	160	0.013	<0.01	7.53	63' 0"
01/07/81	Wamco #2111	265	0	150	133	0.048	<0.01	7.18	59' 0"
01/21/81	Wamco #2150	270	0	146	128	0.065	<0.01	7.50	48' 0"
02/03/81	Wamco #2183	347	0	153	148	0.060	<0.01	7.64	57' 0"
02/18/81	Wamco #2213	334	0	165	146	0.043	<0.01	7.80	60' 0"
03/04/81	Wamco #2244	348	0	144	158	0.033	<0.01	7.76	70' 0"
03/18/81	Wamco #2280	343	0	159	148	0.038	<0.01	7.55	65' 0"
04/01/81	Wamco #2318	345	0	149	136	0.033	<0.01	7.64	74' 0"
04/15/81	Wamco #2348	253	0	177	155	0.048	<0.01	7.90	70' 0"
04/29/81	Wamco #2380	352	0	154	136	0.066	<0.01	7.74	70' 0"
05/13/81	Chem. Lab. #37257-3	364	0	151	146	0.055	<0.01	7.70	69' 9"
05/27/81	Wamco #2440	352	0	122	144	0.014	<0.01	8.05	103' 9"
06/10/81	Chem. Lab.	298	0	166	162	0.054	<0.01	7.90	77' 0"
06/24/81	Wamco #2518	366	0	143	118	0.033	<0.01	7.73	67' 0"
07/08/81	Wamco #2556	362	0	15	138	0.019	<0.01	7.57	67' 0"
07/22/81	Chem. Lab. #38150	334	0	17	144	0.044	<0.01	8.00	47' 9"
08/05/81	Wamco #2623	332	0	149	130	0.029	<0.01	7.31	42' 0"
08/19/81	Wamco #2670	405	0	146	124	0.029	<0.01	7.91	31' 0"
09/02/81	Wamco #2704	360	0	146	148	0.044	<0.01	7.79	45' 0"
09/16/81	Wamco #2746	360	0	144	136	0.028	<0.05	7.60	31' 6"
09/30/81	Wamco #2780	363	0	146	124	0.044	<0.05	7.56	28' 0"

Table 3 - Page two
 Thunderbird Joint Venture
 Collins Draw Project
 Environmental Monitoring - 239W

Date	Remarks	Well Depth 465 Feet		Distance from Well Field 200 Feet			Formation Sampled #1 Sand		
		Total Dis- solved Solids- TDS mg/l	Car- bonate mg/l	Bicar- bonate mg/l	Sulfate mg/l	(as U ₃ O ₈) Uranium mg/l	(as N) Ammonia mg/l	pH	Water Levels
10/14/81	Wamco #2810	369	0	134	135	0.048	<0.05	7.63	36' 0"
10/28/81	Wamco #2845	360	0	151	136	0.024	<0.10	7.67	32' 0"
11/11/81	Wamco #2879	341	0	151	132	0.014	<0.10	7.86	48' 6"
11/25/81	Wamco #2895	351	0	155	139	0.037	<0.10	7.50	53' 0"
12/09/81	Wamco #2917	356	0	195	123	0.033	<0.10	7.62	52' 9"
12/23/81	Chem Lab #39493	364	0	173	143	0.062	<0.10	8.00	53' 1"
01/06/82	Wamco #2972	468	0	151	100	0.050	<0.05	7.87	51' 7"
01/20/82	Wamco #2999	415	0	146	136	0.005	<0.05	8.04	41' 6"
02/03/82	Wamco #3034	374	0	142	121	0.027	<0.05	8.06	122' 0"
02/17/82	Wamco #3066	365	0	142	134	0.039	<0.10	8.06	201' 0"
03/03/82	Wamco #3101	380	0	146	122	0.024	<0.05	8.13	196' 6"
03/17/82	Wamco #3134	346	0	146	121	0.160	<0.05	8.00	192' 0"
03/31/82	Wamco #3171	473	0	151	121	0.024	<0.05	7.88	101' 0"
04/14/82	Wamco #3192	335	0	156	139	0.037	<0.05	7.95	77' 0"
04/28/82	Wamco #3222	348	0	156	137	0.038	<0.05	7.84	68' 0"
05/13/82	Wamco #3236	374	0	154	146	0.054	<0.05	7.76	61' 7"
05/26/82	Wamco #3261	358	0	151	150	0.028	<0.05	7.86	54' 6"
06/09/82	Wamco #3282	361	0	146	127	0.017	<0.05	7.95	114' 6"
06/23/82	Wamco #3341	348	0	155	154	0.006	<0.05	7.26	74' 8"
07/07/82	Wamco #3371	363	0	154	137	0.039	<0.05	7.82	75' 0"
07/21/82	Wamco #3411	355	0	151	130	0.030	<0.05	7.88	116' 6"
08/04/82	Wamco #3444	377	0	151	161	0.051	<0.05	8.01	149' 0"
08/18/82	Wamco #3488	356	0	149	134	0.055	<0.05	8.05	141' 7"
09/01/82	Wamco #3516	342	0	166	128	0.065	<0.05	7.80	116' 0"
09/15/82	Wamco #3552	357	0	149	148	0.019	<0.05	7.63	110' 0"
09/29/82	Wamco #3583	349	0	149	115	0.019	<0.05	7.64	111' 0"

CD1X

Table 4
Thunderbird Joint Venture
Collins Draw Project
Environmental Monitoring - 240W

Well Depth
502 Feet

Distance from Well Field
133 Feet

Formation Sampled
#1 Sand

Date	Remarks	Total Dissolved Solids-TDS mg/l	Car-bonate mg/l	Bicar-bonate mg/l	Sulfate mg/l	(as U ₃ O ₈) Uranium mg/l	(as U ₃ O ₈) Ammonia mg/l	pH	Arsenic mg/l	Selenium mg/l	Water Levels
05/23/78	Baseline	430	12	146	143	0.020	0.03	8.2	--	--	--
06/07/78	Baseline	442	12	146	139	--	0.05	8.2	--	--	--
06/22/78	Baseline	344	10	153	125	0.033	0.07	8.1	--	--	--
07/11/78	Baseline	378	0	146	128	0.029	0.11	7.2	--	--	--
342	0	146	145	0.001	0.12	8.0	--	--	--	--	--
500	None	None	250	None	None	6.5-8.5	0.05	0.01	--	--	--
E.P.A. Drinking Water Standards											
Upper Control Limits											
508			182	Carbonate-Bicarbonate	167	1.03	0.14	9.9	--	--	--
464			176		163	0.012	0.10	--	--	--	--
D.E.Q.											
04/02/80 Start Chemicals											
04/02/80	Wanco #1501	328	0	154	128	0.105	<0.01	7.63	--	--	--
04/16/80	Wanco #1544	389	0	151	133	0.015	0.16	7.67	--	--	--
04/30/80	Chem. Lab. #34039	358	0	151	137	0.010	<0.10	8.00	--	--	92' 4"
04/30/80	Wanco #1580	360	0	151	158	0.035	<0.01	7.54	--	--	92' 4"
05/14/80	Wanco #1619 Confirmation Sample	382	0	159	175	0.026	<0.01	7.86	--	--	82' 0"
05/28/80	Wanco #1654 Monitor Round	412	0	146	135	0.008	<0.01	7.64	--	--	93' 3"
06/11/80	Wanco	394	0	159	125	0.005	<0.01	7.73	--	--	86' 0"
06/25/80	Wanco #1714	368	0	146	67	0.013	<0.01	7.67	--	--	82' 0"
07/09/80	Wanco #1747 Quarterly Sample	398	0	153	148	0.005	<0.01	7.67	--	--	86' 6"
07/23/80	Wanco #1768	412	0	148	158	0.006	<0.01	7.82	--	--	101' 8"
08/07/80	Wanco #1798	320	0	144	172	0.070	<0.01	8.33	--	--	97' 10"
08/12/80	Wanco #1814	374	--	--	113	--	--	--	--	--	--
08/21/80	Wanco #1832	374	0	146	162	0.001	<0.01	7.75	--	--	--
09/03/80	Wanco #1861	368	0	146	149	0.005	<0.01	7.92	--	--	108' 8"
09/17/80	Wanco #1893	180	0	159	125	0.003	<0.01	7.52	--	--	103' 9"
10/01/80	Wanco #1934	366	0	146	145	0.007	<0.01	7.92	--	--	98' 3"
10/15/80	Wanco #1962	326	0	146	144	0.011	<0.01	7.85	--	--	149' 7"
10/29/80	Wanco #1988	334	0	146	133	0.011	<0.01	7.70	--	--	--
11/12/80	Wanco #2022	350	0	139	125	0.004	<0.01	--	--	--	152' 2"
11/26/80	Wanco #2017	356	0	140	128	0.001	<0.01	7.70	--	--	85' 0"
12/10/80	Wanco #2054	336	0	146	133	0.003	<0.01	7.85	--	--	--
12/23/80	Wanco #2055	362	0	140	151	0.004	<0.01	7.50	--	--	89' 0"
01/07/81	Wanco #2111	262	0	140	133	0.006	<0.01	7.24	--	--	85' 0"
01/21/81	Wanco #2150	280	0	146	133	0.011	<0.01	7.40	--	--	91' 0"
02/03/81	Wanco #2183	339	0	140	150	0.003	<0.01	7.71	--	--	90' 0"
02/18/81	Wanco #2213	337	0	146	141	0.005	<0.01	7.93	--	--	101' 0"
03/04/81	Wanco #2244	337	0	146	148	0.001	<0.01	7.78	--	--	95' 0"
03/18/81	Wanco #2280	348	0	146	148	0.008	<0.01	7.50	--	--	105' 0"
04/01/81	Wanco #2318	353	0	146	136	0.013	<0.01	7.57	--	--	109' 0"
04/15/81	Wanco #2348	251	0	149	147	0.005	<0.01	7.96	--	--	103' 0"
04/29/81	Wanco #2380	349	0	151	136	0.004	<0.01	7.72	--	--	102' 0"
05/13/81	Chem. Lab. #3257-3	376	0	151	151	0.006	<0.01	7.70	--	--	116' 5"
05/27/81	Wanco #2449	366	0	153	130	0.001	<0.01	7.93	--	--	141' 8"
06/10/81	Chem. Lab. #3738	392	0	163	155	0.001	<0.01	7.90	--	--	115' 0"
06/24/81	Wanco #2518	708	0	140	253	0.004	<0.01	7.70	--	--	114' 0"
06/28/81	Wanco #2527 Confirmation Sample	847	--	--	346	--	--	--	--	--	--
06/29/81	Wanco #2539	819	--	--	301	--	--	--	<0.001	1.40	--
06/30/81	Wanco #2539	689	--	--	370	--	--	--	<0.001	1.50	--

Well Depth 502 Feet
 Distance from Well Field 133 Feet
 Formation Sampled #1 Sand

Date	Remarks	Total Dissolved Solids-TDS mg/l	Car-bonate mg/l	Bicar-bonate mg/l	Sulfate mg/l	(as U ₃ O ₈) Uranium mg/l	(as N) Ammonia mg/l	pH	Arsenic mg/l	Selenium mg/l	Water Levels
07/01/81	Wanco #2543	781	--	--	327	--	--	--	<0.001	0.84	--
07/02/81	Wanco #2554	686	--	--	290	--	--	--	<0.001	1.90	--
07/03/81	Wanco #2554	606	--	--	260	--	--	--	<0.001	1.34	--
07/04/81	Wanco #2554	587	--	--	252	--	--	--	<0.001	1.87	--
07/05/81	Wanco #2554	556	--	--	236	--	--	--	<0.001	2.30	--
07/06/81	Wanco #2554	561	--	--	240	--	--	--	<0.001	1.90	--
07/07/81	Wanco #2554	548	0	73	236	0.008	<0.01	7.65	<0.001	1.75	87' 0"
07/08/81	Wanco #2556	500	--	--	206	--	--	--	<0.001	0.85	--
07/09/81	Wanco #2562	456	--	--	210	--	--	--	<0.001	1.23	--
07/10/81	Wanco #2570	420	--	--	190	--	--	--	<0.001	1.00	--
07/11/81	Wanco #2570	398	--	--	195	--	--	--	<0.001	0.85	--
07/12/81	Wanco #2565	413	--	--	190	--	--	--	<0.001	0.85	--
07/13/81	Wanco #2565	408	--	--	200	--	--	--	<0.001	0.50	--
07/14/81	Wanco #2570	388	--	--	166	--	--	--	<0.001	0.52	--
07/15/81	Wanco #2572	304	--	--	178	--	--	--	<0.001	0.120	--
07/16/81	Wanco #2576	--	--	--	178	--	--	--	0.028	0.123	--
07/17/81	Wanco #2585	--	--	--	160	--	--	--	0.018	0.121	--
07/18/81	Wanco #2585	--	--	--	166	--	--	--	0.034	0.123	--
07/19/81	Wanco #2585	--	--	--	166	--	--	--	0.055	0.122	--
07/20/81	Wanco #2585	--	--	--	222	--	--	--	0.060	0.120	--
07/21/81	Wanco #2586	--	0	66	206	0.034	0.01	7.48	0.050	0.167	88' 3"
07/22/81	Wanco #2589	387	--	--	194	--	--	--	0.040	0.169	--
07/23/81	Wanco #2589	--	--	--	176	--	--	--	0.096	0.086	--
07/24/81	Wanco #2595	--	--	--	176	--	--	--	0.108	0.082	--
07/25/81	Wanco #2595	--	--	--	192	--	--	--	0.156	0.105	--
07/26/81	Wanco #2595	--	--	--	192	--	--	--	0.172	0.080	--
07/27/81	Wanco #2597	--	--	--	178	--	--	--	0.215	0.059	--
07/28/81	Wanco #2600	--	--	--	178	--	--	--	0.071	0.051	--
07/29/81	Wanco #2600	--	--	--	130	--	--	--	0.220	0.035	--
07/30/81	Wanco #2603	--	--	--	142	--	--	--	0.042	0.019	--
07/31/81	Wanco #2610	--	--	--	142	--	--	--	0.124	0.008	--
08/01/81	Wanco #2610	--	--	--	154	--	--	--	0.062	<0.001	--
08/02/81	Wanco #2610	--	--	--	176	--	--	--	0.172	<0.001	--
08/03/81	Wanco #2610	--	--	--	184	0.001	0.01	7.43	--	--	94' 0"
08/05/81	Wanco #2623	373	0	68	194	--	--	--	0.133	<0.001	--
08/09/81	Wanco #2640	--	--	--	188	--	--	--	0.103	<0.001	--
08/10/81	Wanco #2640	--	--	--	200	--	--	--	0.128	<0.001	--
08/11/81	Wanco #2636	--	--	--	212	--	--	--	0.110	<0.001	--
08/12/81	Wanco #2636	--	--	--	170	--	--	--	0.087	<0.001	--
08/13/81	Wanco #2646	--	--	--	185	--	--	--	0.119	<0.001	--
08/14/81	Wanco #2657	--	--	--	224	--	--	--	0.168	<0.001	--
08/15/81	Wanco #2661	--	--	--	212	--	--	--	0.168	<0.001	--
08/16/81	Wanco #2661	--	--	--	218	--	--	--	0.152	<0.001	--
08/17/81	Wanco #2661	--	--	--	218	--	--	--	0.176	<0.001	--
08/18/81	Wanco #2665	--	--	--	210	0.002	0.01	7.83	0.168	<0.001	83' 0"
08/19/81	Wanco #2670	604	0	102	210	--	--	--	0.126	<0.001	--
08/21/81	Wanco #2667	513	--	--	200	--	--	--	0.167	<0.001	--
08/22/81	Wanco #2667	546	--	--	194	--	--	--	0.149	<0.001	--
08/23/81	Wanco #2667	576	--	--	210	--	--	--	0.116	<0.001	--
08/24/81	Wanco #2683	494	--	--	216	--	--	--	0.112	<0.001	--
08/25/81	Wanco #2683	567	--	--	216	--	--	--	0.133	<0.001	--
08/26/81	Wanco #2683	572	--	--	190	--	--	--	0.131	<0.001	--
08/27/81	Wanco #2691	562	--	--	188	--	--	--	0.115	<0.001	--
08/28/81	Wanco #2693	554	--	--	206	--	--	--	0.110	<0.001	--
08/29/81	Wanco #2697	601	--	--	236	--	--	--	0.101	<0.001	--
08/30/81	Wanco #2709	699	--	--	266	--	--	--	0.001	0.213	--
08/31/81	Wanco #2709	687	--	--	266	--	--	--	0.001	0.213	--

Confirmation Samples

Confirmation Sample

Table 4 - page three
 Thunderbird Joint Venture
 Collins Draw Project
 Environmental Monitoring - 240W

Well Depth
 502 Feet

Distance from Well Field
 133 Feet

Date	Remarks	Total Dissolved Solids-TDS mg/l	Car-bonate mg/l	Bicar-bonate mg/l	Sulfate mg/l	(as U ₃ O ₈) Uranium mg/l	(as N) Ammonia mg/l	pH	Arsenic mg/l	Selenium mg/l	Water Levels
09/01/81	Wasco #2702	687	--	--	238	--	--	--	0.370	<0.001	--
09/02/81	Wasco #2704	558	0	159	244	0.015	<0.01	7.84	0.043	<0.001	56' 0"
09/06/81	Wasco #2718	614	--	--	220	--	--	--	--	--	--
09/09/81	Wasco #2723	642	--	--	244	--	--	--	0.114	<0.001	--
09/10/81	Wasco #2730	640	--	--	208	--	--	--	0.101	<0.001	--
09/11/81	Wasco #2740	616	--	--	208	--	--	--	0.199	<0.001	--
09/12/81	Wasco #2740	639	--	--	208	--	--	--	0.149	<0.001	--
09/13/81	Wasco #2740	629	--	--	194	--	--	--	0.176	<0.001	--
09/14/81	Wasco #2740	637	--	--	194	--	--	--	0.132	<0.001	--
09/15/81	Wasco #2742	624	--	--	172	--	--	--	0.141	<0.001	81' 3"
09/16/81	Wasco #2746	574	0	151	195	0.012	<0.05	7.86	--	--	--
09/18/81	Wasco #2752	552	--	--	208	--	--	--	0.165	<0.001	--
09/20/81	Wasco #2760	564	--	--	224	--	--	--	0.109	<0.001	--
09/21/81	Wasco #2760	572	--	--	224	--	--	--	0.134	<0.001	--
09/22/81	Wasco #2763	569	--	--	206	--	--	--	0.118	<0.001	--
09/23/81	Wasco #2763	571	--	--	214	--	--	--	0.148	<0.001	--
09/24/81	Wasco #2769	543	--	--	210	--	--	--	0.165	<0.001	--
09/25/81	Wasco #2776	562	--	--	214	--	--	--	0.180	<0.001	--
09/26/81	Wasco #2776	544	--	--	236	--	--	--	0.123	<0.001	--
09/27/81	Wasco #2776	553	--	--	222	--	--	--	0.199	<0.001	--
09/28/81	Wasco #2776	553	--	--	230	--	--	--	0.174	<0.001	--
09/29/81	Wasco #2776	541	--	--	222	--	--	--	0.177	<0.001	75' 0"
09/30/81	Wasco #2780	531	0	154	230	0.016	<0.05	7.67	--	--	--
10/01/81	Wasco #2787	553	--	--	244	--	--	--	0.168	<0.001	--
10/02/81	Wasco #2784	555	--	--	250	--	--	--	0.207	<0.001	--
10/03/81	Wasco #2791	573	--	--	202	--	--	--	0.174	<0.001	--
10/04/81	Wasco #2791	571	--	--	210	--	--	--	0.177	<0.001	--
10/05/81	Wasco #2791	564	--	--	194	--	--	--	0.192	<0.001	--
10/06/81	Wasco #2798	529	--	--	200	--	--	--	0.088	<0.001	--
10/07/81	Wasco #2798	514	--	--	180	--	--	--	0.128	<0.001	--
10/08/81	Wasco #2802	555	--	--	208	--	--	--	0.154	<0.001	--
10/09/81	Wasco #2802	538	--	--	194	--	--	--	0.135	<0.001	--
10/10/81	Wasco #2802	549	--	--	202	--	--	--	0.170	<0.001	--
10/11/81	Wasco #2802	549	--	--	208	--	--	--	0.140	<0.001	--
10/12/81	Wasco #2811	542	--	--	194	--	--	--	0.156	<0.001	82' 0"
10/13/81	Wasco #2811	539	0	122	194	0.006	<0.05	7.54	0.127	<0.001	--
10/14/81	Wasco #2810	525	--	--	200	--	--	--	0.070	--	--
10/15/81	Wasco #2815	534	--	--	200	--	--	--	0.212	0.136	--
10/16/81	Wasco #2824	473	--	--	176	--	--	--	0.224	0.136	--
10/17/81	Wasco #2824	512	--	--	200	--	--	--	0.268	0.136	--
10/18/81	Wasco #2824	542	--	--	197	--	--	--	0.256	0.144	--
10/19/81	Wasco #2832	542	--	--	180	--	--	--	0.178	0.168	--
10/20/81	Wasco #2832	543	--	--	207	--	--	--	0.288	0.208	--
10/21/81	Wasco #2838	528	--	--	203	--	--	--	0.108	0.352	--
10/22/81	Wasco #2838	514	--	--	208	--	--	--	0.192	0.135	--
10/23/81	Wasco #2843	521	--	--	196	--	--	--	0.186	0.162	--
10/24/81	Wasco #2843	506	--	--	186	--	--	--	0.183	0.186	--
10/25/81	Wasco #2843	502	--	--	200	--	--	--	0.240	0.159	--
10/26/81	Wasco #2843	503	0	156	176	0.010	<0.10	7.85	--	--	72' 0"
10/28/81	Wasco #2845	--	--	--	230	--	--	--	0.210	0.400	--
10/29/81	Wasco #2847	--	--	--	166	--	--	--	0.192	0.380	--
10/30/81	Wasco #2850	--	--	--	166	--	--	--	0.192	0.190	--
10/31/81	Wasco #2850	--	--	--	194	--	--	--	0.234	0.350	--
11/01/81	Wasco #2850	--	--	--	186	--	--	--	0.234	0.320	--
11/02/81	Wasco #2850	499	0	149	175	0.070	<0.10	7.87	--	--	89' 6"
11/11/81	Wasco #2879	495	0	151	180	0.020	<0.10	7.83	--	--	80' 0"
11/25/81	Wasco #2895	--	--	--	--	--	--	--	--	--	--

Well Depth 502 Feet
 Distance from Well Field 133 Feet
 Formation Sampled #1 Sand

Date	Remarks	Total Dissolved Solids- TDS mg/l	Car-bonate mg/l	Bicar-bonate mg/l	Sulfate mg/l	(as U ₃ O ₈) Uranium mg/l	(as N) Ammonia mg/l	pH	Arsenic mg/l	Selenium mg/l	Water Levels
12/09/81	Manco #2917	504	0	146	200	0.008	<0.10	7.81	0.230	<0.001	78' 8"
12/23/81	Chem Lab #39493	498	0	158	198	0.007	0.12	8.00	--	--	77' 3"
01/06/82	Manco #2972	533	0	137	210	0.012	<0.05	7.85	--	--	82' 8"
01/20/82	Manco #2959	588	0	134	228	0.001	<0.05	8.13	--	--	71' 8"
02/03/82											171' 6"
02/17/82	Manco #3066	477	0	138	169	0.006	<0.10	7.83	--	--	236' 0"
03/03/82	Manco #3101	472	0	146	171	0.006	<0.05	7.96	0.504	<0.001	234' 6"
03/17/82	Manco #3134	392	0	148	138	0.023	<0.05	8.07	--	--	231' 6"
03/31/82	Manco #3171	444	0	100	336	0.018	<0.05	7.99	--	--	118' 0"
04/14/82	Manco #3192	388	0	151	169	0.014	<0.05	8.03	--	--	99' 0"
04/28/82	Manco #3272	407	0	151	161	0.011	<0.05	7.84	--	--	90' 0"
05/13/82	Manco #3276	436	0	146	167	0.042	<0.05	7.91	--	--	80' 6"
05/26/82	Manco #3261	422	0	149	174	0.003	<0.05	8.02	--	--	82' 4"
06/09/82	Manco #3282	422	0	146	167	0.006	<0.05	7.63	0.134	<0.001	133' 9"
06/23/82	Manco #3341	423	0	142	187	0.001	<0.05	7.66	--	--	95' 4"
07/07/82	Manco #3371	446	0	149	167	0.008	<0.05	7.72	--	--	87' 0"
07/21/82	Manco #3411	400	0	144	150	0.006	<0.05	7.28	--	--	194' 6"
08/04/82	Manco #3444	436	0	146	180	0.042	<0.05	7.93	--	--	200' 0"
08/18/82	Manco #3488	387	0	146	141	0.015	<0.05	7.99	--	--	175' 0"
09/01/82	Manco #3516	369	0	166	135	0.014	<0.05	7.90	0.046	<0.001	141' 0"
09/15/82	Manco #3552	383	0	146	148	0.014	<0.05	7.74	--	--	136' 0"
09/29/82	Manco #3583	361	0	146	150	0.003	<0.05	7.69	--	--	141' 0"

Table 3
Thunderbird Joint Venture
Collins Draw Project
Environmental Monitoring - 341W

Well Depth
475 Feet

Distance from Well Field
172 Feet

Formation Sampled
#1 Sand

Date	Remarks	Total Dissolved Solids-TDS mg/l	Car-bonate mg/l	Bicer-bonate mg/l	Sulfate mg/l	(as U ₃ O ₈) Uranium mg/l	(as N) Ammonia mg/l	pH	Arsenic mg/l	Selenium mg/l	Water Levels
06/05/78	Baseline	424	12	134	140	0.054	0.01	8.5	--	--	--
06/27/78	Baseline	361	24	134	130	0.042	0.12	8.4	--	--	--
07/11/78	Baseline	371	12	134	123	0.071	<0.01	8.3	--	--	--
07/23/78	Baseline	333	12	146	140	0.027	0.09	8.3	--	--	--
11/16/79	Baseline	360	0	171	130	0.005	<0.01	8.1	--	--	--
E.P.A. Drinking Water Standards											
		500	None	None	250	None	None	6.5-8.5	0.05	0.01	--
Upper Control Limits											
		488	18	197	161	1.04	0.14	10.3	--	--	--
N.R.C.											
D.E.Q.											
04/02/80 Start Chemicals											
04/02/80	Manco #15011	352	0	171	125	0.001	<0.01	7.56	--	--	--
04/16/80	Manco #1544	374	0	156	125	0.048	0.16	7.66	--	--	58' 3"
04/30/80	Chem. Lab. #34039	330	0	161	122	0.070	0.10	8.30	--	--	58' 3"
04/30/80	Manco #1580	326	0	159	126	0.059	<0.01	7.73	--	--	60' 7"
05/14/80	Manco #1619 Confirmation Sample	350	0	174	137	0.071	<0.01	7.89	--	--	60' 0"
05/28/80	Manco #1654 Monitor Round	388	0	159	115	0.101	<0.01	7.75	--	--	58' 9"
06/11/80	Manco	384	0	159	128	0.088	<0.01	7.93	--	--	50' 3"
06/25/80	Manco #1714	370	0	146	142	0.095	<0.01	7.91	--	--	62' 3"
07/09/80	Manco #1747 Quarterly Sample	410	0	165	128	0.092	<0.01	7.83	--	--	73' 10"
07/23/80	Manco #1768	414	0	148	100	0.000	<0.01	7.89	--	--	61' 0"
08/07/80	Manco #1798	930	0	163	59	0.016	<0.01	8.25	--	--	--
08/12/80	Manco #1814	350	--	--	114	--	--	--	--	--	--
08/21/80	Manco #1832	352	0	144	153	0.042	<0.01	7.72	--	--	72' 1"
09/03/80	Manco #1861	376	0	159	135	0.053	<0.01	7.94	--	--	69' 11"
09/17/80	Manco #1893	338	0	146	135	0.042	<0.01	7.50	--	--	63' 11"
10/01/80	Manco #1934	338	0	146	155	0.209	<0.01	7.99	--	--	111' 7"
10/15/80	Manco #1962	316	0	153	144	0.058	<0.01	7.84	--	--	--
10/29/80	Manco #1988	250	0	159	115	0.078	<0.01	7.81	--	--	115' 1"
11/12/80	Manco #2022	332	0	146	115	0.062	<0.01	--	--	--	82' 0"
11/26/80	Manco #2017	350	0	146	128	0.038	<0.01	7.64	--	--	--
12/10/80	Manco #2054	335	0	153	130	0.001	<0.01	7.84	--	--	80' 0"
12/23/80	Manco #2085	344	0	146	151	0.013	<0.01	7.52	--	--	68' 0"
01/07/81	Manco #2111	276	0	153	133	0.080	<0.01	7.36	--	--	68' 0"
01/21/81	Manco #2159	290	0	144	133	0.057	<0.01	7.51	--	--	70' 0"
02/01/81	Manco #2183	366	0	146	151	0.059	<0.01	7.72	--	--	65' 0"
02/18/81	Manco #2213	385	0	146	151	0.044	<0.01	7.83	--	--	--
03/04/81	Manco #2244	399	0	137	180	0.040	<0.01	7.80	--	--	--
03/06/81	Manco #2254 Confirmation Sample	--	--	--	152	--	--	7.45	--	--	80' 0"
03/18/81	Manco #2280	414	0	146	163	0.044	<0.01	--	--	--	--
03/20/81	Manco #2786 Confirmation Sample	--	--	--	150	--	--	--	--	--	86' 0"
04/03/81	Manco #2318	411	0	132	158	0.044	<0.01	7.68	--	--	70' 0"
04/14/81	Manco #2348	694	0	116	255	0.030	<0.01	7.98	--	--	--
04/27/81	Manco #2377	630	--	--	228	--	--	--	--	--	92' 0"
04/29/81	Manco #2380	763	0	115	288	0.048	<0.01	7.93	<0.001	0.112	0.112
04/30/81	Manco #2380	764	--	--	288	--	--	--	<0.001	0.118	0.118
05/01/81	Manco #2377	622	--	--	232	--	--	--	<0.001	0.084	0.084
05/02/81	Manco #2377	612	--	--	228	--	--	--	<0.001	0.088	0.088
05/03/81	Manco #2377	620	--	--	228	--	--	--	<0.001	0.122	0.122
05/04/81	Manco #2377	588	--	--	224	--	--	--	<0.001	0.116	0.116
05/05/81	Manco #2403	605	--	--	228	0.060	--	--	<0.001	0.036	0.036
05/06/81	Manco #2398	625	--	--	204	0.023	--	--	<0.001	0.075	0.075

Table 5 - Page two
 Thunderbird Joint Venture
 Collins Draw Project
 Environmental Monitoring - 241W

Date	Remarks	Total Dissolved Solids TDS mg/l	Cat-bonate mg/l	Bicar-bonate mg/l	Sulfate mg/l	(as U ₃ O ₈) Uranium mg/l	(as N) Ammonia mg/l	pH	Arsenic mg/l	Selenium mg/l	Water Levels	Well Depth		Distance from Well Field		Formation Sampled	
												475 Feet	475 Feet	172 Feet	172 Feet	#1 Sand	#1 Sand
05/07/81	Wanco #2412	682	--	--	255	0.043	--	--	<0.001	0.036	--	--	--	--	--	--	--
05/08/81	Wanco #2415	562	--	--	204	0.013	--	--	<0.001	0.036	--	--	--	--	--	--	--
05/09/81	Wanco #2415	530	--	--	192	0.035	--	--	<0.001	0.042	--	--	--	--	--	--	--
05/10/81	Wanco #2415	526	--	--	192	0.045	--	--	<0.001	0.060	--	--	--	--	--	--	--
05/11/81	Wanco #2415	530	--	--	192	0.048	--	--	<0.001	0.066	--	--	--	--	--	--	--
05/12/81	Wanco #2416	532	--	--	192	0.075	--	--	<0.001	0.077	--	--	--	--	--	--	--
05/13/81	Wanco #2419	469	0	130	173	0.036	<0.01	7.8	<0.001	0.092	112' 1"	--	--	--	--	--	--
05/14/81	Wanco #2430	476	--	--	228	--	--	--	<0.001	0.114	--	--	--	--	--	--	--
05/15/81	Wanco #2430	401	--	--	184	--	--	--	<0.001	0.064	--	--	--	--	--	--	--
05/16/81	Wanco #2430	384	--	--	184	--	--	--	<0.001	0.084	--	--	--	--	--	--	--
05/17/81	Wanco #2430	455	--	--	210	--	--	--	<0.001	0.108	--	--	--	--	--	--	--
05/18/81	Wanco #2430	--	--	--	200	--	--	--	<0.001	0.078	--	--	--	--	--	--	--
05/19/81	Wanco #2440	--	--	--	253	--	--	--	<0.001	0.106	--	--	--	--	--	--	--
05/20/81	Wanco #2440	--	--	--	225	--	--	--	<0.001	0.108	--	--	--	--	--	--	--
05/21/81	Wanco #2440	--	--	--	237	--	--	--	<0.001	0.084	--	--	--	--	--	--	--
05/22/81	Wanco #2451	--	--	--	165	--	--	--	<0.001	0.070	--	--	--	--	--	--	--
05/23/81	Wanco #2451	--	--	--	176	--	--	--	<0.001	0.071	--	--	--	--	--	--	--
05/24/81	Wanco #2451	--	--	--	206	--	--	--	<0.001	0.078	--	--	--	--	--	--	--
05/25/81	Wanco #2451	--	--	--	188	--	--	--	<0.001	0.108	--	--	--	--	--	--	--
05/26/81	Wanco #2451	--	--	--	184	--	--	--	<0.001	0.087	--	--	--	--	--	--	--
05/27/81	Wanco #2449	458	0	140	184	0.018	<0.01	7.87	<0.001	0.070	--	--	--	--	--	--	--
05/28/81	Wanco #2457	--	--	--	194	--	--	--	<0.001	0.049	--	--	--	--	--	--	--
05/29/81	Wanco #2457	--	--	--	176	--	--	--	<0.001	0.065	--	--	--	--	--	--	--
05/30/81	Wanco #2457	--	--	--	188	--	--	--	<0.001	0.061	--	--	--	--	--	--	--
05/31/81	Wanco #2474	--	--	--	212	--	--	--	<0.001	0.059	--	--	--	--	--	--	--
06/01/81	Wanco #2474	--	--	--	184	--	--	--	<0.001	0.082	--	--	--	--	--	--	--
06/02/81	Wanco #2474	--	--	--	190	--	--	--	<0.001	0.095	--	--	--	--	--	--	--
06/03/81	Wanco #2471	--	--	--	188	--	--	--	<0.001	0.082	--	--	--	--	--	--	--
06/04/81	Wanco #2483	--	--	--	166	--	--	--	<0.001	0.072	--	--	--	--	--	--	--
06/05/81	Wanco #2483	--	--	--	190	--	--	--	<0.001	0.069	--	--	--	--	--	--	--
06/06/81	Wanco #2403	--	--	--	178	--	--	--	<0.001	0.065	--	--	--	--	--	--	--
06/07/81	Wanco #2486	--	--	--	172	--	--	--	<0.001	0.054	--	--	--	--	--	--	--
06/08/81	Wanco #2468	--	--	--	166	--	--	--	<0.001	0.063	--	--	--	--	--	--	--
06/09/81	Wanco #2492	--	--	--	166	--	--	--	<0.001	0.067	--	--	--	--	--	--	--
06/10/81	Chem. Lab. #37738	435	0	149	184	0.084	<0.01	7.80	<0.001	0.066	--	--	--	--	--	--	Pumping
06/11/81	Wanco #2501	--	--	--	168	--	--	--	<0.001	0.094	--	--	--	--	--	--	--
06/12/81	Wanco #2501	--	--	--	171	--	--	--	<0.001	0.090	--	--	--	--	--	--	--
06/13/81	Wanco #2505	--	--	--	174	--	--	--	<0.001	0.044	--	--	--	--	--	--	--
06/14/81	Wanco #2505	--	--	--	141	--	--	--	<0.001	0.056	--	--	--	--	--	--	--
06/15/81	Wanco #2505	--	--	--	139	--	--	--	<0.001	0.058	--	--	--	--	--	--	--
06/16/81	Wanco #2505	--	--	--	153	--	--	--	<0.001	0.068	--	--	--	--	--	--	--
06/17/81	Wanco #2505	--	--	--	130	--	--	--	<0.001	0.080	--	--	--	--	--	--	--
06/22/81	Wanco #2518	449	0	141	144	0.051	<0.01	7.90	--	--	--	--	--	--	--	--	Pumping
07/04/81	Wanco #2556	624	0	117	215	0.050	<0.01	7.66	--	--	--	--	--	--	--	--	48' 0"
07/11/81	Wanco #2570	433	--	--	220	--	--	--	<0.001	0.010	--	--	--	--	--	--	--
07/12/81	Wanco #2565	453	--	--	172	--	--	--	<0.001	0.070	--	--	--	--	--	--	--
07/13/81	Wanco #2565	456	--	--	166	--	--	--	<0.001	0.010	--	--	--	--	--	--	--
07/14/81	Wanco #2570	445	--	--	160	--	--	--	<0.001	0.010	--	--	--	--	--	--	--
07/15/81	Wanco #2572	368	--	--	166	--	--	--	<0.001	0.070	--	--	--	--	--	--	--
07/16/81	Wanco #2576	--	--	--	166	--	--	--	<0.001	0.035	--	--	--	--	--	--	--
07/17/81	Wanco #2585	--	--	--	172	--	--	--	<0.001	0.030	--	--	--	--	--	--	--
07/18/81	Wanco #2585	--	--	--	178	--	--	--	<0.001	0.014	--	--	--	--	--	--	--
07/19/81	Wanco #2585	--	--	--	178	--	--	--	<0.001	0.033	--	--	--	--	--	--	--
07/20/81	Wanco #2585	--	--	--	206	--	--	--	<0.001	0.029	--	--	--	--	--	--	--
07/21/81	Wanco #2586	--	--	--	194	0.056	<0.01	7.77	<0.001	0.028	--	--	--	--	--	--	Pumping
07/22/81	Wanco #2589	459	0	134	194	--	--	--	<0.001	0.057	--	--	--	--	--	--	--

Well Depth
 475 Feet

Distance from Well Field
 172 Feet

Formation Sampled
 #1 Sand

Date	Remarks	Total Dissolved Solids- TDS mg/l	Car-bonate mg/l	Bicar-bonate mg/l	Sulfate mg/l	(as U ₃ O ₈) Uranium mg/l	(as N) Ammonia mg/l	pH	Arsenic mg/l	Selenium mg/l	Water Levels
07/23/81	Wasco #2595	--	--	--	184	--	--	--	<0.001	0.041	--
07/24/81	Wasco #2595	--	--	--	176	--	--	--	<0.001	0.055	--
07/25/81	Wasco #2595	--	--	--	188	--	--	--	<0.001	0.078	--
07/26/81	Wasco #2595	--	--	--	176	--	--	--	<0.001	0.076	--
07/27/81	Wasco #2597	--	--	--	184	--	--	--	<0.001	0.053	--
07/28/81	Wasco #2600	--	--	--	160	--	--	--	<0.001	0.057	--
07/29/81	Wasco #2600	--	--	--	148	--	--	--	<0.001	0.057	--
07/30/81	Wasco #2603	--	--	--	154	--	--	--	<0.001	0.017	--
07/31/81	Wasco #2611	--	--	--	154	--	--	--	<0.001	0.036	--
08/01/81	Wasco #2611	--	--	--	135	--	--	--	<0.001	0.150	--
08/02/81	Wasco #2611	--	--	--	112	--	--	--	<0.001	0.270	--
08/03/81	Wasco #2611	--	--	--	118	--	--	--	<0.001	0.585	--
08/05/81	Wasco #2623	365	0	149	148	0.074	<0.01	7.38	--	0.052	62' 0"
08/19/81	Wasco #2670	447	0	139	136	0.070	<0.01	7.94	--	0.044	48' 0"
09/02/81	Wasco #2704	399	0	137	168	0.066	<0.01	7.86	<0.001	0.064	72' 0"
09/16/81	Wasco #2746	609	0	115	256	0.090	<0.05	7.79	--	0.080	40' 3"
09/20/81	Wasco #2760	646	--	--	278	--	--	--	<0.001	0.124	--
09/22/81	Wasco #2763	641	--	--	264	--	--	--	<0.001	0.096	--
09/23/81	Wasco #2763	632	--	--	264	--	--	--	<0.001	0.108	--
09/24/81	Wasco #2769	585	--	--	250	--	--	--	<0.001	0.108	--
09/25/81	Wasco #2776	626	--	--	270	--	--	--	<0.001	0.480	--
09/26/81	Wasco #2776	595	--	--	250	--	--	--	<0.001	0.160	--
09/27/81	Wasco #2776	619	--	--	264	--	--	--	<0.001	0.320	--
09/28/81	Wasco #2776	616	--	--	264	--	--	--	<0.001	0.270	--
09/29/81	Wasco #2776	646	--	--	264	--	--	--	<0.001	0.230	--
09/30/81	Wasco #2780	668	0	117	292	0.078	<0.05	7.63	<0.001	0.260	31' 0"
10/01/81	Wasco #2787	621	--	--	306	--	--	--	<0.001	0.290	--
10/02/81	Wasco #2784	695	--	--	335	--	--	--	<0.001	0.180	--
10/03/81	Wasco #2791	659	--	--	250	--	--	--	<0.001	0.110	--
10/04/81	Wasco #2791	659	--	--	256	--	--	--	<0.001	0.240	--
10/05/81	Wasco #2791	666	--	--	264	--	--	--	<0.001	0.440	--
10/06/81	Wasco #2798	591	--	--	216	--	--	--	<0.001	0.414	--
10/07/81	Wasco #2798	619	--	--	250	--	--	--	<0.001	0.376	--
10/08/81	Wasco #2802	651	--	--	256	--	--	--	<0.001	0.296	--
10/09/81	Wasco #2802	577	--	--	250	--	--	--	<0.001	0.336	--
10/10/81	Wasco #2802	606	--	--	222	--	--	--	<0.001	0.240	--
10/11/81	Wasco #2802	581	--	--	222	--	--	--	<0.001	0.440	--
10/12/81	Wasco #2811	570	--	--	222	--	--	--	<0.001	0.110	--
10/13/81	Wasco #2811	638	--	--	222	--	--	7.43	<0.001	0.110	44' 0"
10/14/81	Wasco #2810	680	0	73	222	0.065	<0.05	--	<0.001	0.110	--
10/15/81	Wasco #2815	658	--	--	272	--	--	--	<0.001	0.240	--
10/16/81	Wasco #2824	659	--	--	272	--	--	--	<0.001	0.240	--
10/17/81	Wasco #2824	639	--	--	250	--	--	--	<0.001	0.440	--
10/18/81	Wasco #2824	618	--	--	256	--	--	--	<0.001	0.414	--
10/19/81	Wasco #2824	686	--	--	292	--	--	--	<0.001	0.376	--
10/20/81	Wasco #2832	711	--	--	278	--	--	--	<0.001	0.336	--
10/21/81	Wasco #2838	696	--	--	278	--	--	--	<0.001	0.296	--
10/22/81	Wasco #2838	591	--	--	214	--	--	--	<0.001	0.240	--
10/23/81	Wasco #2843	709	--	--	272	--	--	--	<0.001	0.440	--
10/24/81	Wasco #2843	686	--	--	272	--	--	--	<0.001	0.414	--
10/25/81	Wasco #2843	798	--	--	328	--	--	--	<0.001	0.376	--
10/26/81	Wasco #2843	697	--	--	286	--	--	--	<0.001	0.222	--
10/27/81	Wasco #2854	938	--	--	244	--	--	--	<0.001	0.396	--
10/28/81	Wasco #2845	707	0	107	286	--	--	7.83	<0.001	0.110	--
10/29/81	Wasco #2847	686	--	--	278	0.054	<0.10	--	<0.001	0.650	31' 0"
10/30/81	Wasco #2850	484	--	--	166	--	--	--	0.004	0.330	--
10/31/81	Wasco #2850	725	--	--	286	--	--	--	<0.001	0.520	--

Date	Penacks	Total Dis-solved Solids- TDS mg/l	Car-bonate mg/l	Bicar-bonate mg/l	Sulfate mg/l	(as U ₃ O ₈) Uranium mg/l	(as N) Ammonia mg/l	pH	Arsenic mg/l	Selenium mg/l	Water Levels
11/01/81	Wanco #2850	468	--	--	130	--	--	--	<0.001	0.310	--
11/01/81	Wanco #2850	453	--	--	138	--	--	--	<0.001	0.410	--
11/11/81	Wanco #2879	458	0	136	122	0.076	<0.10	7.90	--	--	61' 0"
11/25/81	Wanco #2895	383	0	130	153	0.070	<0.10	7.64	--	--	63' 0"
12/09/81	Wanco #2917	400	0	138	152	0.039	<0.10	7.82	<0.001	0.290	61' 0"
12/23/81	Chem Lab #39493	450	0	156	174	0.125	<0.10	8.00	--	--	55' 0"
01/06/82	Wanco #2972	547	0	129	172	0.096	<0.05	7.93	--	--	68' 4"
01/20/82	Wanco #2999	490	0	130	192	0.008	<0.05	8.14	--	--	52' 6"
02/03/82	Wanco #3034	387	0	155	99	0.064	<0.05	8.16	--	--	174' 0"
02/17/82	Wanco #3066	361	7	146	104	0.525	<0.10	8.21	--	--	Not Available
03/03/82	Wanco #3101	357	0	163	105	0.006	<0.05	8.09	0.003	0.058	239' 0"
03/17/82	Wanco #3134	339	0	159	104	0.038	<0.05	8.01	--	--	232' 0"
03/31/82	Wanco #3171	372	0	156	114	0.098	<0.05	8.12	--	--	97' 0"
04/14/82	Wanco #3192	348	0	154	139	0.084	<0.05	8.06	--	--	86' 0"
04/28/82	Wanco #3222	354	0	154	137	0.091	<0.05	7.87	--	--	71' 0"
05/13/82	Wanco #3236	389	0	148	149	0.110	<0.05	7.94	--	--	62' 8"
05/26/82	Wanco #3261	370	0	144	153	0.019	<0.05	8.00	--	--	63' 6"
06/09/82	Wanco #3282	353	0	146	134	0.038	<0.05	7.62	<0.001	0.013	150' 0"
06/23/82	Wanco #3341	383	0	151	164	0.030	<0.05	7.72	--	--	65' 0"
07/07/82	Wanco #3371	384	0	144	147	0.104	<0.05	7.78	--	--	69' 0"
07/21/82	Wanco #3411	361	0	149	136	0.038	<0.05	7.32	--	--	176' 4"
08/04/82	Wanco #3444	577	0	159	150	0.090	<0.05	7.85	--	--	175' 0"
08/18/82	Wanco #3472	334	0	159	114	0.072	<0.05	7.43	--	--	--
08/18/82	Wanco #3488	350	0	163	113	0.115	<0.05	8.07	--	--	159' 0"
09/01/82	Wanco #3516	352	0	166	128	0.068	<0.05	7.00	<0.001	0.050	132' 0"
09/15/82	Wanco #3552	362	0	156	148	0.022	<0.05	7.63	--	--	140' 0"
09/29/82	Wanco #3583	341	0	159	100	0.039	<0.05	7.66	--	--	139' 0"

Table 6
Thunderbird Joint Venture
Collins Draw Project
Environmental Monitoring - 1988

Well Depth 494 Feet
Distance from Well Field 200 Feet
Formation Sampled #1 Sand

Date	Remarks	Total Dis-solved Solids-TDS mg/l	Car-bonate mg/l	Bicer-bonate mg/l	Sulfate mg/l	(as U ³⁺ Uranium mg/l)	(as U ⁶⁺ Ammonia mg/l)	pH	Arsenic mg/l	Selenium mg/l	Water Levels
05/07/81	Baseline	412	24	98	158	0.021	0.27	8.60	--	--	--
05/13/81	Baseline	355	0	122	171	0.023	<0.01	7.90	--	--	123' 0"
05/27/81	Baseline	394	7	115	156	0.027	<0.01	8.35	--	--	125' 0"
06/09/81	Baseline	376	0	151	153	0.086	<0.01	8.00	--	--	107' 0"
06/24/81	Baseline	351	0	116	180	0.079	<0.01	7.81	--	--	96' 0"
E.P.A. Drinking Water Standards											
		500	None	None	250	None	None	6.5-8.5	0.05	0.01	--
Upper Control Limits											
	Well 298	474	201	Carbonate-Bicarbonate	207	1.05	0.31	10.1	--	--	--
07/01/81	Manco #2543	450	0	109	152	0.082	<0.01	7.84	--	--	78' 0"
07/08/81	Manco #2556	443	6	110	160	0.078	<0.01	7.66	--	--	67' 4"
07/22/81	Chem. Lab. #38150	423	0	100	174	0.340	<0.10	8.10	--	--	--
07/27/81	Manco #2597 Conf. Sample	--	--	--	192	--	--	--	<0.001	0.123	--
07/30/81	Manco #2612	--	--	--	166	--	--	--	<0.001	0.181	--
07/31/81	Manco #2612	--	--	--	160	--	--	7.41	<0.001	0.158	61' 0"
08/01/81	Manco #2612	--	--	--	166	--	--	--	<0.001	0.849	--
08/05/81	Manco #2623	494	0	100	178	0.066	<0.01	--	<0.001	0.916	--
08/09/81	Manco #2640 Conf. Sample	488	--	--	160	--	--	--	<0.001	0.759	--
08/10/81	Manco #2640	491	--	--	--	--	--	--	<0.001	0.660	--
08/10/81	Manco #2640	547	--	--	--	--	--	--	<0.001	0.800	--
08/11/81	Manco #2636	581	--	--	--	--	--	--	<0.001	1.102	--
08/12/81	Manco #2636	581	--	--	--	--	--	--	<0.001	0.874	--
08/13/81	Manco #2646	542	--	--	--	--	--	--	<0.001	0.475	--
08/14/81	Manco #2657	470	--	--	--	--	--	--	<0.001	0.684	--
08/15/81	Manco #2662	541	--	--	--	--	--	--	<0.001	0.884	--
08/16/81	Manco #2662	540	--	--	--	--	--	7.98	<0.001	0.480	61' 0"
08/17/81	Manco #2662	553	--	--	--	--	--	7.90	<0.001	0.312	72' 0"
08/18/81	Manco #2665	488	--	--	--	--	--	--	<0.001	0.264	--
08/19/81	Manco #2670	589	0	95	170	0.257	<0.01	--	<0.001	0.280	--
08/19/81	Manco #2670	371	--	--	166	--	--	--	<0.001	0.248	--
08/21/81	Manco #2667 Conf. Sample	574	0	134	208	0.120	<0.01	--	<0.001	0.208	--
09/02/81	Manco #2704	591	--	--	206	--	--	--	<0.001	0.240	--
09/06/81	Manco #2718 Conf. Sample	647	--	--	200	--	--	--	<0.001	0.264	--
09/09/81	Manco #2723	718	--	--	236	--	--	--	<0.001	0.244	--
09/10/81	Manco #2730	721	--	--	215	--	--	--	<0.001	0.280	--
09/11/81	Manco #2740	779	--	--	224	--	--	--	<0.001	0.264	--
09/12/81	Manco #2740	743	--	--	230	--	--	--	<0.001	0.264	--
09/13/81	Manco #2740	734	--	--	264	--	--	7.83	<0.001	0.280	--
09/14/81	Manco #2740	753	--	--	364	--	--	--	<0.001	0.280	--
09/15/81	Manco #2742	697	0	71	206	0.070	<0.05	--	<0.001	0.096	--
09/16/81	Manco #2746	649	--	--	235	--	--	--	<0.001	0.128	--
09/18/81	Manco #2752	760	--	--	286	--	--	--	<0.001	0.112	--
09/20/81	Manco #2760	787	--	--	286	--	--	--	<0.001	0.056	--
09/21/81	Manco #2760	796	--	--	278	--	--	--	<0.001	0.124	--
09/22/81	Manco #2783	761	--	--	270	--	--	--	<0.001	0.068	--
09/23/81	Manco #2763	718	--	--	308	--	--	--	<0.001	0.146	--
09/24/81	Manco #2769	781	--	--	328	--	--	--	<0.001	0.156	--
09/25/81	Manco #2776	848	--	--	320	--	--	--	<0.001	0.132	--
09/26/81	Manco #2776	840	--	--	314	--	--	--	<0.001	0.160	--
09/27/81	Manco #2776	840	--	--	314	--	--	7.67	<0.001	0.216	50' 0"
09/28/81	Manco #2776	815	--	--	336	0.260	<0.05	--	<0.001	0.148	--
09/29/81	Manco #2776	834	--	--	336	--	--	--	<0.001	0.148	--
09/30/81	Manco #2780	867	0	68	336	--	--	--	<0.001	0.600	--
10/01/81	Manco #2787	804	--	--	335	--	--	--	<0.001	0.400	--
10/02/81	Manco #2784	808	--	--	300	--	--	--	<0.001	0.760	--
10/03/81	Manco #2791	857	--	--	320	--	--	--	<0.001	0.460	--
10/04/81	Manco #2791	909	--	--	315	--	--	--	<0.001	0.460	--
10/05/81	Manco #2791	908	--	--	312	--	--	--	<0.001	0.460	--
10/06/81	Manco #2798	868	--	--	312	--	--	--	<0.001	0.460	--

Date	Remarks	Total Dis-solved Solids- TDS mg/l	Car-bonate mg/l	Bic-car-bonate mg/l	Sulfate mg/l	(as U ₃ O ₈) Uranium mg/l	(as N) Ammonia mg/l	pH	Arsenic mg/l	Selenium mg/l	Water Levels
10/07/98	Wanco #2798	878			312				<0.001	0.570	
10/08/91	Wanco #2802	912			278				<0.001	0.500	
10/09/81	Wanco #2802	860			300				<0.001	0.510	
10/10/81	Wanco #2802	862			308				<0.001	0.490	
10/11/81	Wanco #2802	890			300				<0.001	0.330	
10/12/81	Wanco #2811	866			294				<0.001	0.370	
10/13/81	Wanco #2011	924			306				<0.001	0.440	
10/14/81	Wanco #2810	903	0	76	300	1.102	<0.05	7.33	<0.001	0.400	58' 0"
10/15/81	Wanco #2815	658			322				<0.001	0.410	
10/16/81	Wanco #2832	904			306				<0.001	0.536	
10/17/81	Wanco #2824	783			300				<0.001	0.560	
10/18/81	Wanco #2824	886			306				<0.001	0.584	
10/19/81	Wanco #2832	914			314				<0.001	0.584	
10/20/81	Wanco #2832	936			328				<0.001	0.624	
10/21/81	Wanco #2838	1,007			350				<0.001	0.592	
10/22/81	Wanco #2838	974			350				<0.001	0.544	
10/23/81	Wanco #2843	939			292				<0.001	0.438	
10/24/81	Wanco #2854	941			308				<0.001	0.730	
10/25/81	Wanco #2843	882			286				<0.001	0.510	
10/26/81	Wanco #2843	796			250				<0.001	0.510	
10/27/81	Wanco #2854	759			250				<0.001	0.546	
10/28/81	Wanco #2845	743	0	90	250	6.250	<0.10	7.78	<0.001	0.770	83' 0"
10/29/81	Wanco #2847	830			286				0.003	0.430	
10/30/81	Wanco #2850	836			278				<0.001	0.780	
10/31/81	Wanco #2850	847			278				<0.001	0.790	
11/01/81	Wanco #2850	641			236				<0.001	0.840	
11/02/81	Wanco #2850	784			272				<0.001	0.800	
11/11/81	Wanco #2879	582	0	122	204	3.600	<0.10	7.83			86' 6"
11/25/81	Wanco #2895	566	0	134	182	41.200	<0.10	7.68			104' 0"
12/09/81	Wanco #2917	485	10	122	172	5.800	<0.10	8.35	0.150	0.140	109' 2"
12/23/81	Chem Lab #39493	480	17	139	167	29.000	<0.05	8.50			92' 5"
01/06/82	Wanco #2972	569	0	149	154	19.500	<0.05	8.14			67' 5"
01/20/82	Wanco #2999	453	10	144	154	1.400	<0.05	8.72			72' 9"
02/03/82	Wanco #3034	463	5	142	154	27.000	<0.05	8.33			190' 6"
02/17/82	Wanco #3066	440	7	142	131	23.800	<0.10	8.44			273' 6"
03/03/82	Wanco #3101	446	12	129	150	11.520	<0.05	8.44	0.071	0.086	269' 6"
03/17/82	Wanco #3134	355	0	137	121	1.875	<0.05	8.24			Pumping
03/31/82	Wanco #3171	374	0	151	122	1.450	<0.05	8.09			Pumping
04/14/82	Wanco #3192	339	0	154	139	1.150	<0.05	8.11			Pumping
04/28/82	Wanco #3222	361	0	161	142	1.600	<0.05	7.88			119' 0"
05/13/82	Wanco #3236	382	0	154	143	3.200	<0.05	7.99			91' 0"
05/26/82	Wanco #3261	371	0	151	157	1.250	<0.05	8.08			111' 10"
06/09/82	Wanco #3282	366	0	154	133	1.700	<0.05	7.84	0.006	0.002	181' 0"
06/23/82	Wanco #3341	370	0	159	157	3.550	<0.05	7.84			110' 0"
07/07/82	Wanco #3371	378	0	151	143	4.375	<0.05	7.96			112' 0"
07/21/82	Wanco #3411	367	0	156	134	1.925	<0.05	7.38			196' 4"
08/04/82	Wanco #3444	427	0	161	154	2.400	<0.05	7.98			197' 0"
08/18/82	Wanco #3488	362	0	159	134	5.057	<0.05	8.19			180' 0"
09/01/82	Wanco #3516	352	0	176	125	5.185	<0.05	7.85	0.009	0.001	153' 0"
09/15/82	Wanco #3552	363	0	154	135	1.600	<0.05	7.80			154' 0"
09/29/82	Wanco #3583	347	0	159	108	1.400	<0.05	7.76			161' 0"

P. O. Box 2753 - Casper, WY 82402

ANALYSIS REPORT

COMPANY: Cleveland Cliffs Iron Company

DATE: Sept. 29, 1982

Date Rec'd 9/01/82

Sample type Monitor Wells 7-1-82

W. O. No. 3516

Analysis in Milligrams per Liter except where Noted
Limits of Detection are Noted Following Less Than Mark (<)

Sample No.	230	238	239	240	241
Total Diss. Solids	556	332	342	369	352
Sodium (Na)	117	87	82	96	88
Potassium (K)	7	6	5	6	5
Calcium (Ca)	44	27	40	27	27
Magnesium (Mg)	10	4	2	4	6
Sulfate (SO ₄)	259	125	128	135	128
Chloride (Cl)	13	19	16	19	17
Carbonate (CO ₃)	0	0	0	0	0
Bicarbonate (HCO ₃)	149	154	166	166	166
pH Units	6.40	8.00	7.80	7.90	7.80
Conduct. uMhos/cm 24 C	340	540	540	570	540
Major Cations, Millieq.	8.29	5.61	5.86	6.01	5.80
Major Anions, Millieq.	8.20	5.67	5.83	6.07	5.86
Absolute Value, Chg.Bal.	0.55	-.53	0.26	-.50	-.51
Ammonia (NH ₃ as N)	<.05	<.05	<.05	<.05	<.05
Nitrate (NO ₃ as N)	0.70	0.22	0.20	0.17	0.20
Nitrite (NO ₂ as N)	0.004	0.042	0.014	0.003	0.029
Fluoride (F)	<.05	0.17	0.22	0.20	0.18
Total Alkalinity (CaCO ₃)	122	127	136	136	136
Total Hardness (CaCO ₃)	151	84	108	84	92
Boron (B)	0.07	<.01	0.05	0.06	<.01
Aluminum (Al)	<.10	<.10	<.10	<.10	<.10
Arsenic (As)	<.001	0.005	0.006	0.046	<.001
Barium (Ba)	<.10	<.10	<.10	<.10	<.10
Cadmium (Cd)	<.002	<.002	<.002	<.002	<.002
Chromium (Cr)	<.01	<.01	<.01	<.01	<.01
Copper (Cu)	<.01	<.01	<.01	<.01	<.01
Iron (Fe)	1.06	0.30	<.01	0.02	0.01
Lead (Pb)	<.05	<.05	<.05	<.05	<.05
Manganese (Mn)	0.09	<.01	0.02	0.04	0.02
Mercury (Hg)	<.0002	<.0002	<.0002	<.0002	<.0002
Nickel (Ni)	<.02	<.02	<.02	<.02	<.02
Selenium (Se)	<.001	0.146	<.001	<.001	0.050
Zinc (Zn)	<.005	<.005	<.005	<.005	<.005
Molybdenum (Mo)	<.10	<.10	<.10	0.10	<.10
Radium (U308) PPB	20	4900	65	14	68
Vanadium (V205)	<.10	<.10	<.10	<.10	<.10
Radium-226 pCi/L	2.3+-1.5	22+-5	2.0+-1.4	3.2+-1.7	4.8+-2.1

P. O. Box 2953 -- Casper, WY 82602

ANALYSIS REPORT

COMPANY: Cleveland Cliffs Iron Company

DATE: Sept. 29, 1982

Date Rec'd 9/01/82

Sample type Monitor Wells 9-1-82

W. O. No. 3516

Analysis in Milligrams per Liter except where Noted
Limits of Detection are Noted Following Less Than Mark (<)

Sample No.	298
Total Dissolved Solids	352
Sodium (Na)	88
Potassium (K)	5
Calcium (Ca)	32
Magnesium (Mg)	4
Sulfate (SO ₄)	125
Chloride (Cl)	18
Carbonate (CO ₃)	0
Bicarbonate (HCO ₃)	176
pH, Units	7.85
Conductivity uMhos/cm 25 C	550
Major Cations, Milliequiv.	5.93
Major Anions, Milliequiv.	6.00
Absolute Value, Charged Bal.	-.59
Ammonia (NH ₃ as N)	<.05
Nitrate (NO ₃ as N)	0.24
Nitrite (NO ₂ as N)	0.011
Fluoride (F)	0.20
Total Alkalinity as CaCO ₃	145
Total Hardness as CaCO ₃	97
Boron (B)	0.19
Aluminum (Al)	<.10
Arsenic (As)	0.009
Barium (Ba)	<.10
Cadmium (Cd)	<.002
Chromium (Cr)	<.01
Copper (Cu)	<.01
Iron (Fe)	0.01
Lead (Pb)	<.05
Manganese (Mn)	0.02
Mercury (Hg)	<.0002
Nickel (Ni)	<.02
Selenium (Se)	<.001
Zinc (Zn)	<.005
Molybdenum (Mo)	0.10
Uranium (U308) PPB	5185
Vanadium (V205)	<.10
Radium-226 pCi/L +- Prec	98+-10

ANALYSIS REPORT

COMPANY: Cleveland Cliffs Iron Company

DATE: October 14, 1982

Date Rec'd 9/24/82

W. O. No. 3568

Sample type Discharge 9-23-82 1400 Hr.

Analysis in Milligrams per Liter except where Noted
Limits of Detection are Noted Following Less Than Mark (<)

Sample No.	1
Total Dissolved Solids	681
Sodium (Na)	77
Potassium (K)	130
Calcium (Ca)	11
Magnesium (Mg)	2
Sulfate (SO ₄)	275
Chloride (Cl)	33
Carbonate (CO ₃)	192
Bicarbonate (HCO ₃)	54
pH, Units	8.84
Conductivity μ Mhos/cm 25 C	1300
Total Suspended Solids	< 1
Major Cations, Milliequiv.	NF
Major Anions, Milliequiv.	NF
Absolute Value, Charged Bal.	NF
Ammonia (NH ₃ as N)	84.4
Nitrate (NO ₃ as N)	0.20
Nitrite (NO ₂ as N)	0.20
Fluoride (F)	0.45
Total Alkalinity as CaCO ₃	365
Total Hardness as CaCO ₃	36
Boron (B)	0.16
Aluminum (Al)	<.10
Arsenic (As)	0.022
Barium (Ba)	<.10
Barium (Ba)	<.002
Cadmium (Cd)	<.01
Chromium (Cr)	<.01
Copper (Cu)	0.59
Iron (Fe)	<.01
Lead (Pb)	<.05
Lead (Pb)	<.01
Manganese (Mn)	<.0002
Mercury (Hg)	<.02
Nickel (Ni)	0.630
Selenium (Se)	0.055
Zinc (Zn)	0.15
Molybdenum (Mo)	0.15
Uranium (U308) PPB	2463
Vanadium (V205)	1.40
Radium-226 pCi/L +- Prec	9.5+-3.5
Thorium-230 pCi/L +- Prec	1.3+-1.0

DOCUMENT/ PAGE PULLED

ANO. 8211240053

NO. OF PAGES 1

REASON

PAGE ILLEGIBLE.

HARD COPY FILED AT: PDR CF

OTHER _____

BETTER COPY REQUESTED ON _____

PAGE TOO LARGE TO FILM.

HARD COPY FILED AT: PDR

CF

OTHER _____

FILMED ON APERTURE CARD NO

8211240053-01



Western Division

R. M. DeGabriele, General Manager, Western Operations
R. M. Tuthill, Manager Uranium
R. W. Riedel, Assistant to the General Manager
E. D. Lindquist, Assistant Manager Special Projects

300 Country Club Road
P.O. Box 3140
Casper, Wyoming 82602-3140
Phone: 307-234-9133

October 22, 1982

Mr. John Wagner
Wyoming Department of Environmental Quality
Water Quality Division
1111 East Lincolnway
Cheyenne, WY 82002

Dear John;

Re: NPDES Permit No. WY-0030783

Enclosed is the 1982 third quarter surface discharge report. A total of 4,443,007 gallons of water were discharged. All individual assay results were below our maximum allowable discharge limits.

Sincerely,

CLEVELAND-CLIFFS

Donald J. Wodek
Administrator - Health and Safety

DJW:ceg

Enclosure

C: Mr. Roger Williams
U.S. Environmental Protection Agency
1860 Lincoln St., Suite 900
Denver, Colorado 80295

Mr. John Linehan, Section Leader
Uranium Recovery Division
Division of Waste Management
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Source Material License No. SUA-1352
Docket No. 040-08714

DJW/JW1

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if different)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) DISCHARGE MONITORING REPORT (DMR)

Form Approved OMB No. 158-R0073

NAME THE CLEVELAND CLIFFS IRON CO.
 ADDRESS P. O. BOX 3140
 CASPER, WY
 82602
 FACILITY COLLINS DRAW R AND U IN-SITU
 LOCATION

WY00030783 (2-16) 001 (17-19)
 PERMIT NUMBER DISCHARGE NUMBER
 MONITORING PERIOD
 FROM YEAR 82 MO 07 DAY 01 TO YEAR 82 MO 09 DAY 30
(20-21) (22-23) (24-25) (26-27) (28-29) (30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)	X	(3 Card Only) QUANTITY OR LOADING (54-57)			(4 Card Only) QUALITY OR CONCENTRATION (54-57)			NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM			
FLOW	SAMPLE MEASUREMENT	0.050	0.139	MGD	N/A	N/A	N/A	N/A	Daily	Inst.
	PERMIT REQUIREMENT	N/A	N/A		N/A	N/A	N/A		1/7	INST
TOTAL SUSPENDED SOLIDS	SAMPLE MEASUREMENT	N/A	N/A	N/A	1	1	1	MG/L	1/7	Grab
	PERMIT REQUIREMENT	N/A	N/A		N/A	20	30		1/7	GRAB
TOTAL ZINC	SAMPLE MEASUREMENT	N/A	N/A	N/A	N/A	N/A	0.055	MG/L	1/90	Grab
	PERMIT REQUIREMENT	N/A	N/A		N/A	.5	1.0		1/90	GRAB
DISS. RADIUM 226	SAMPLE MEASUREMENT	N/A	N/A	N/A	4.9	10.1	15.0	PC/L	1/30	Grab
	PERMIT REQUIREMENT	N/A	N/A		N/A	3	10		1/30	GRAB
TOTAL RADIUM 226	SAMPLE MEASUREMENT	N/A	N/A	N/A	-	-	-	PC/L	-	-
	PERMIT REQUIREMENT	N/A	N/A		N/A	10	30		NOT	RQ
TOTAL URANIUM	SAMPLE MEASUREMENT	N/A	N/A	N/A	2.09	3.31	3.98	MG/L	1/30	Grab
	PERMIT REQUIREMENT	N/A	N/A		N/A	2.0	4.0		1/30	GRAB
COD	SAMPLE MEASUREMENT	N/A	N/A	N/A	-	-	-	MG/L	-	-
	PERMIT REQUIREMENT	N/A	N/A		N/A	100	200		NOT	RQ

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER: _____
 TYPED OR PRINTED: _____
 I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING 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.)
 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT: _____
 TELEPHONE: _____ DATE: _____
 AREA CODE: _____ NUMBER: _____ YEAR: _____ MO: _____ DA: _____

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here) IN ADDITION TO THE DAILY MAXIMUM LIMITATION, ANALYSIS OF SINGLE GRAB SAMPLE SHALL NOT EXCEED 150% OF THE DAILY MAXIMUM CONCENTRATION FOR TSS., DISS. RA. 226, T. RA. 226 AND T. URANIUM.

Facility Name/Location if different

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 158-R0003

NAME THE CLEVELAND CLIFFS IRON CO.
ADDRESS P. O. BOX 3140
CASPER, WY
82602
FACILITY COLLINS DRAW R AND U IN-SITU
LOCATION _____

WY0030783
PERMIT NUMBER

001
DISCHARGE NUMBER

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
82	07	01	82	09	30
(20-21)	(22-23)	(24-25)	(26-27)	(28-29)	(30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)	X	(3 Card Only) QUANTITY OR LOADING (45-53)			(4 Card Only) QUALITY OR CONCENTRATION (38-43)			NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM			
PH	SAMPLE MEASUREMENT	N/A	N/A	N/A	8.43	N/A	8.43		1/90	Grab
	PERMIT REQUIREMENT	N/A	N/A	N/A	6.0	N/A	9.0		1/90	GRAB
OIL AND GREASE	SAMPLE MEASUREMENT	N/A	N/A	N/A	—	—	—		—	—
	PERMIT REQUIREMENT	N/A	N/A	N/A	N/A	N/A	10		CONT	VISL
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING 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.)

Donald J. Wade
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE

DATE

Donald J. Wade
TYPED OR PRINTED

307 234-9133 82 10 20
AREA CODE NUMBER YEAR MO DA

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

IN ADDITION TO THE DAILY MAXIMUM LIMITATION, ANALYSIS OF A

SINGLE GRAB SAMPLE SHALL NOT EXCEED 150% OF THE DAILY MAXIMUM CONCENTRATION FOR TSS., DISS. RA. 226, T. RA. 226 AND T. URANIUM.