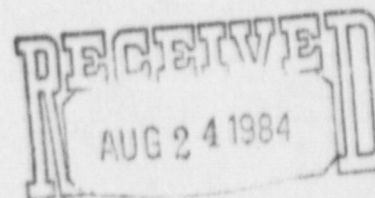


ANACONDA Minerals Company
New Mexico Operations
P.O. Box 638
Grants, New Mexico 87020
Telephone 505 876 2211



August 16, 1984



RADIATION PROTECTION BUREAU

Mr. Steven Asher, Director
Environmental Improvement Division
P. O. Box 968
Santa Fe, New Mexico 87503

RE: Amendment 5, DP-21 and DP-255 Semi-Annual Report

Dear Mr. Asher:

This is the first report being submitted collectively under the new semi-annual reporting approval given to us in your letter of December 12, 1983. The report is a combination of the requirements contained in Amendment 5 of SUA-647, DP-21 and DP-255. The enclosures are as follows:

1. Average airborne concentration of Uranium-Natural, Thorium-230, Radium-226, Lead-210 and Radon-222, as collected from the permanent air sampling stations;
2. First quarter and second quarter (annual sampling) chemical and radio-chemistry analysis of water in Anaconda's monitoring network;
3. Monthly (including annual parameters) chemical and radiological analysis of decant solution in evaporation ponds;
4. Monthly (including annual sampling) chemical and radiological analysis of Seepage Detection Wells having water in them, including quarterly sample results of H(C);
5. Monthly water levels for Tailings Pond Monitor Wells and map showing their location; and,
6. Monthly fluid production of Tailings Pond Wells and a map of their location.

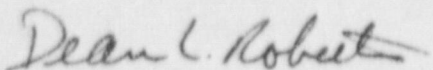
Please note that no data is submitted for raffinate application because none was applied to the sands in the Tailings Pond Area.

9712150067 840816
PDR ADOCK 04008902
C PDR

Mr. Steven Asher
August 16, 1984
Page 2

If you have questions concerning this data being submitted, please call me.

Sincerely,



Dean L. Roberts
Chief Environmental Engineer

CDW:mis

ps: Thomas Buhl, Radiation Protection Bureau
Maxine Goad, Water Pollution Control Bureau - Groundwater Section
MAS
CDW
File

AVERAGE AIRBORNE
CONCENTRATION OF U-NATURAL, THORIUM-230, RADIUM-226, LEAD-210 & RADON-222
(COLLECTED AT THE PERMANENT AIR SAMPLING STATIONS)
(REPORT/FIRST 6 MONTHS, 1984)

<u>Location</u>	<u>U-Nat (uCi/ml x 10⁻¹⁵)</u>	<u>Th-230 (uCi/ml x 10⁻¹⁵)</u>	<u>Ra-226 (uCi/ml x 10⁻¹⁵)</u>	<u>Pb-210 (uCi/ml x 10⁻¹⁵)</u>	<u>Rn-222 (pCi/l)</u>
Weather Station	1.01	2.03	1.63	39.28	0.48
North Perimeter	1.01	0.84	0.86	29.46	<0.20
Community Site	1.00	0.81	1.04	38.24	<0.20
Golf Course	1.13	1.04	0.40	44.41	0.30

NEW MEXICO OPERATION

DESCRIPTION	Date	Water Level	pH	Elect. Cond. @ Field	Temp. °C	DO %	Salinity ppt	Turbidity NTU	NO ₃ ppm	TDS ppm	Ra-226 pci/L	Gross Alpha pci/L	Gross Beta pci/L
ENGINEER'S	2-09-84	6522.17	7.78	Temp. 900	11.5			56	15.9	736	1.21	< 3	5
B(M)	2-13-84	6520.51	6.42	7400	15.0		3411	3279	61.0	10224	0.33	1300	670
C(M)	3-12-84	6512.61	6.77	980	16.0		313	84	9.4	852	0.6	26	21
U(M)	3-12-84	6485.83	7.24	2680	17.0		3	675	23.7	2269	0.05	200	120
X(M)	3-12-84	6478.33	7.21	2980	17.0		1332	1160	152.0	3796	0.46	130	70
L(SC)	2-09-84	6492.80	6.99	2200	18.0		622	238	1.5	1888	3.17	11	10
S(SC)	2-15-84	6476.98	6.81	x = 2625	15.0		1673	970	4.9	4028	0.52	480	490
I(SC)	3-12-84	6467.06	6.91	2400	18.0		1155	530	10.8	2744	0.79	140	90

WELL NAME	DATE	WATER LEVEL	TEMP. °C	pH	ELECT. COND. @ Field	HCO ₃ ppm	CO ₃ ppm	Cl ppm	SO ₄ ppm	Na ppm	K ppm	Ca ppm	Mg ppm	Mn ppm	NO ₃ ppm	F ppm	TDS ppm	NI ppm
ENGINEER'S	5-09-84	6522.13	13.5	7.59	Temp. 1120	298	Nil	63.4	$\bar{x} = 392.5$	86	5.7	$\bar{x} = 156.5$	51.7	0.10	$\bar{x} = 74$	0.23	1338	1.0
B(M)	5-07-84	6519.12	16.0	6.42	11000	608	Nil	3009	3654	1860	29.9	719	600	16.7	51.6	0.24	10549	5.7
C(M)	4-16-84	6512.24	17.0	6.73	1190	332	Nil	100	325	99	4.3	132	57	< 0.05	24.8	0.26	1074	< 1.0
T(M)	4-17-84	6492.52	16.5	7.14	1610	464	Nil	159	435	300	7.4	97	42	0.08	33.1	0.36	1538	13.2
K(M)	5-16-84	6549.14	17.0	6.80	7900	329	Nil	2099	2432	1050	4.8	810	210	0.68	97	0.15	7333	1.0
U(M)	4-17-84	6485.76	17.0	6.93	3850	361	Nil	870	1192	680	13.0	395	84	< 0.05	68.2	0.22	3664	1.0
X(M)	4-17-84	6477.29	17.5	7.18	4470	332	Nil	995	1448	630	11.3	485	146	< 0.05	152	0.24	4200	< 1.0
L(SG)	6-07-84	6494.57	17.5	7.28	2230	720	Nil	277	624	280	10.9	183	82	0.065	1.8	0.57	2280	< 1.0
S(SG)	5-07-84	6476.90	16.5	6.96	4210	442	Nil	950	1850	670	15.1	398	260	1.9	13.4	0.36	4625	4.2
OBS-3	5-07-84	6474.56	17.0	6.92	4260	337	Nil	910	1722	629	16.8	406	215	1.4	25.8	0.11	4263	2.3
W(SG)	6-07-84	6461.58	16.0	6.82	2850	338	Nil	419	1098	363	15.8	370	106	< 0.05	91	0.52	2851	2.0
C(SG)	4-16-84	6471.47	17.0	6.98	2610	427	Nil	345	927	272	9.8	263	137	0.30	28.7	0.27	2410	1.4
H(SG)	6-07-84	6482.72	16.5	7.39	1500	468	Nil	117	533	159	18.7	205	52	0.020	4.3	0.73	1558	< 1.0
NORTH WELL	5-15-84	6479.65	19.0	6.92	1600	327	Nil	196	499	238	12.4	107	61	0.053	9.3	0.46	1450	1.9
MONITOR WELL	5-16-84	6473.17	17.0	6.90	2560	512	Nil	355	971	342	15.5	250	105	0.042	3.5	0.63	2598	< 1.0
I(SG)	5-23-84	6467.46	17.5	6.81	3300	503	Nil	525	1218	439	16.0	350	134	< 0.05	1	0.55	3210	< 1.0
BERRYHILL HOUSE	5-09-84	6522.13	14.5	7.57	930	304	Nil	48.4	349	63	4.3	160	44.6	< 0.05	28.6	0.22	1002	< 1.0
FLOYD ARAGON	5-09-84	6531.77	14.5	7.22	990	266	Nil	59.8	354	26.2	2.9	180	48.2	< 0.05	21.2	0.23	959	< 1.0

DESCRIPTION	DATE	Cd ppm	Pb ppm	Se ppm	Cu ppm	Fe ppm	Co ppm	Ni ppm	U-Nat mg/L	Pa-230 pCi/L	Th-230 pCi/L	Gross Alpha pCi/L	Gross Beta pCi/L
ENGINEER'S WELL	5-09-84	0.001	<0.01	<0.005	0.044	0.015	<0.005	0.007	0.013	0.47	3.19	2.38	6
3(M)	5-07-84	0.002	0.02	<0.005	0.005	0.32	0.006	0.036	2.504	0.35	62.25	376.12	1700
C(M)	4-16-84								0.091	0.16	<0.20	59	25
T(M)	4-17-84								0.286	0.07	<0.20	106	80
V(M)	5-16-84								0.370	0.35	15.97	95.55	70
U(M)	4-17-84								0.711	<0.05	<0.02	180	200
X(M)	4-17-84								0.319	<0.05	<0.20	120	100
L(SG)	6-07-84	<0.001	0.01	<0.005	0.004	0.42	<0.005	<0.005	0.005	3.30	1.31	12.68	<10
S(SG)	5-07-84	<0.001	0.01	<0.005	0.002	20.0	<0.005	0.017	0.504	0.24	15.20	408	380
OBS-3	5-07-84								0.807	0.78	7.27	491	290
W(SG)	6-07-84	<0.001	0.01	<0.005	0.003	<0.05	<0.005	<0.005	0.060	0.94	2.33	69	20
C(SG)	4-16-84	<0.001	<0.01	<0.005	0.001	0.42	<0.005	0.012	0.896	0.36	<0.20	300	240
M(SG)	6-07-84	<0.001	0.01	<0.005	0.003	0.57	<0.005	<0.005	0.010	0.42	1.05	15	8
NORTH WELL	5-15-84	<0.001	0.01	<0.005	0.002	0.23	<0.005	<0.005	0.012	0.36	1.72	6.42	14
MONITOR WELL	5-16-84	<0.001	<0.01	<0.005	0.003	3.1	<0.005	0.014	0.239	1.96	17.61	35.07	70
I(SG)	5-23-84								0.444	0.83	0.90	162.54	50
BERRYHILL HOUSE	5-09-84								0.011	0.14	2.94	2.33	5
FLOYD ARACON	5-09-84								0.005	0.10	2.10	2.64	4

NEW MEXICO OPERATION

FOR THE MONTH OF

DESCRIPTION	DATE	Cd ppm	Pb ppm	Se ppm	Cu ppm	Fe ppm	Co ppm	Ni ppm	U-Nat. mg/L	Ra-226 pCi/L	Th-230 pCi/L	Gross Alpha pCi/L	Gross Beta pCi/L
E(M)	4-12-84								0.018	< 0.6	< 0.20	19	12
F(M)	4-17-84								0.006	< 5	0.50	5	5
BERRYHILL SEC 5	5-09-84								0.001	4.07	1.67	16.72	18
BOWLINS'	5-09-84								0.010	0.57	3.44	5.57	27
*PAYNE	5-09-84	0.001	< 0.01	< 0.005	0.006	0.012	< 0.005	< 0.005	0.006	0.30	2.02	2.1?	< 4
ANA #4	4-26-84								0.004	0.22	< 0.20	< 10	7
ANA #5	5-17-84								0.064	0.35	3.58	5.67	13
MEXICAN CAMP	4-26-84								0.006	0.19	0.30	< 3	6
SABRE PINON	4-26-84								0.014	0.12	< 0.20	< 10	10
BOUNDY (HARMON) HOUSE	5-09-84								.006	1.94	2.43	5.01	< 4

* Major parameter exceeded previously reported by > 20% after $\bar{x}$ was determined.

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DESCRIPTION	DATE	WATER LEVEL	pH	ELECT COND	HCO ₃ ppt	CO ₃ ppm	Cl ppm	SO ₄ ppm	Na ppm	K ppm	Ca ppm	Mg ppm	Mn ppm	NO ₃ ppm	SiO ₂ ppm	TDS ppm	U-Nat mg/L	Pd-226 pCi/L
EVAP POND 1A	1-04-84	-	0.74	163000	NIL	NIL	9450	106000	6690	760	488	4290	5000	35.2	2239	201275	22.79	157.1
1B	1-04-84	-	0.82	101500	NIL	NIL	6750	64000	4250	530	560	3270	3200	22	1576	126650	7.22	111.0
11R	1-04-84	-	0.70	159500	NIL	NIL	10950	114000	6910	680	504	4950	5050	35.2	2566	195925	7.17	249.3
11IA	1-04-84	-	0.68	135000	NIL	NIL	7500	90000	4930	610	504	3480	1800	30.8	1812	149025	25.35	88.4
11IB	1-04-84	-	1.01	105500	NIL	NIL	6150	40000	3920	470	520	2450	2950	26.4	1516	125075	2.51	53.6
11IC	1-04-84	-	0.76	112500	NIL	NIL	6050	62000	3700	410	488	2510	2900	24.2	1418	115000	6.61	101.4
TAILINGS MIXED LIQUOR	1-04-84	-	1.86	16500	NIL	NIL	2150	12000	1590	140	456	1080	1550	26.4	133	47850	99.62	142.3

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DESCRIPTION	DATE	WATER LEVEL	PH	ELECT COND	HCO ₃ ppm	CO ₃ ppm	Cl ppm	SO ₄ ppm	Na ppm	K ppm	Ca ppm	Mg ppm	Mn ppm	NO ₃ ppm	SiO ₂ ppm	TDS ppm	U-Nat mg/L	Hu-226 pCi/L
EVAP POND 1A	3-06-84	-	0.86	113000	N11	N11	13750	95000	6200	730	756	3610	400	61.6	2191	147700	26.11	67
1B	3-06-84	-	0.98	119500	N11	N11	7500	74000	4600	550	687	2830	2900	22.0	1656	113175	13.90	56
11B	3-06-84	-	0.73	379500	N11	N11	13200	36000	8000	750	741	4780	5000	44.0	3337	182925	13.52	68
111A	3-06-84	-	0.88	119000	N11	N11	9800	94000	4900	520	724	3410	3300	52.8	1921	135950	46.63	78
111B	3-06-84	-	0.87	115000	N11	N11	8450	77000	4700	670	720	2920	2800	66.0	1772	125125	6.30	62
111C	3-06-84	-	0.87	129000	N11	N11	7160	75000	4300	610	739	2910	2700	70.4	1605	110450	9.79	57
TAILINGS MIXED LIQUOR	3-06-84	-	1.64	16200	N11	N11	2170	25500	1200	190	569	1050	1400	35.2	170	42175	119.03	32

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SRI Field Temp.																						
DESCRIPTION	DATE	WATER LEVEL	pH	ELECT COND	HCO ₃ ppm	°C ppm	Cl ppm	SO ₄ ppm	Na ppm	K ppm	Ca ppm	Mg ppm	Mn ppm	NO ₃ ppm	SiO ₂ ppm	TDS ppm	U-Nat mg/L	Ra-226 pCi/L	Th-230 pCi/L	Gross Alpha pCi/L	Ra-228 pCi/L	Gross Beta pCi/L
EVAP POND 1A	05-03-84	-	0.86	152500	Nil	Nil	23600	124000	9050	570	680	10950	4400	26.4	2363	218000	27.94	88	5.8E05	6.2E05	40	8.8E04
1B	05-03-84	-	0.99	112000	Nil	Nil	9800	82000	5640	440	860	3960	2900	30.8	1928	144000	10.81	60	3.3E05	4.2E05	50	6.0E04
IIIB	05-03-84	-	0.65	212500	Nil	Nil	21200	176000	14800	550	480	17100	7300	39.6	290	309000	12.95	37	8.3E05	8.6E05	50	1.0E05
IIIA	05-03-84	-	1.06	104000	Nil	Nil	1060	84000	6240	190	560	4400	3000	22.0	1964	150000	34.90	80	3.6E05	4.6E05	20	7.6E04
IIIB	05-03-84	-	1.09	155000	Nil	Nil	7800	66000	4560	---	760	3120	2300	26.4	2254	114000	5.95	62	8.0E05	3.5E05	80	5.3E04
IIIC	05-03-84	-	0.88	160500	Nil	Nil	10100	72000	6180	500	900	4050	2900	30.8	2228	149000	8.03	54	4.3E05	4.2E05	50	6.0E04
TAILINGS MIXED LIQUOR	05-03-84	-	2.09	22800	Nil	Nil	3500	24000	1850	70	520	1260	1200	26.4	83	43000	123.37	16	7.8E04	9.5E04	<20	4.9E04
DESCRIPTION	DATE	As ppm	Ba ppm	Cd ppm	Cr ppm	F ppm	Pb ppm	Hg ppm	Se ppm	Ag ppm	Cu ppm	Fe ppm	Zn ppm	Al ppm	B ppm	Co ppm	Mo ppm	Ni ppm	V ppm	PO ₄ ppm		
EVAP POND 1A	05-03-84	2.5	<1.0	0.36	3.5	74	1.5	<0.002	1.0	0.08	6.9	19000	66	9000	1.8	9.0	3.5	2.2	345	260		
1B	05-03-84	1.6	<1.0	0.30	2.8	58	1.4	<0.002	1.8	0.06	3.7	11000	41	6600	1.1	4.5	0.6	0.4	195	175		
IIIB	05-03-84	3.0	<1.0	0.28	2.1	120	1.4	<0.002	3.7	0.08	9.5	18000	115	12000	2.9	11.3	2.9	6.0	546	500		
IIIA	05-03-84	1.5	<1.0	0.12	2.6	79	1.3	<0.002	1.6	0.05	4.1	13000	44	7500	3.1	4.9	1.1	1.0	229	210		
IIIB	05-03-84	1.2	<1.0	0.38	2.3	50	1.1	<0.002	3.2	0.05	2.9	9800	32	6400	1.0	4.1	1.6	0.7	157	150		
IIIC	05-03-84	2.8	<1.0	0.43	2.8	55	1.4	<0.002	1.8	0.07	4.1	23500	43	7000	1.8	5.6	2.1	0.5	218	200		
TAILINGS MIXED LIQUOR	05-03-84	0.6	<1.0	0.29	1.1	25	0.3	<0.002	0.4	0.02	1.25	4000	17	2900	0.2	1.9	0.8	<0.1	527	350		

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DESCRIPTION	DATE	WATER LEVEL	PH	ELECT COND	HCO ₃ ppm	CO ₃ ppm	Cl ppm	SO ₄ ppm	Na ppm	K ppm	Ca ppm	Mg ppm	Mn ppm	NO ₃ ppm	SiO ₂ ppm	TDS ppm	U-NH ₄ mg/L	Po-226 pCi/L
EVAP POND 1A	6-05-84	-	0.52	220000	Nil	Nil	24000	24000	13000	720	326	7560	6000	79.2	1118	34350	55.88	153.0
1B	6-05-84	-	0.85	119000	Nil	Nil	8500	95000	6100	520	275	3200	2900	26.4	2176	232250	16.96	119.0
11B	NO SAMPLE	/	IS DEF	---														
111A	6-05-84	-	0.84	155000	Nil	Nil	9500	86000	6200	550	365	3370	3000	17.6	2264	187250	54.67	110.5
11B	6-05-84	-	0.76	170000	Nil	Nil	9600	02000	6700	610	389	3530	3500	52.8	2570	200750	10.82	74.8
111C	6-05-84	-	0.70	179500	Nil	Nil	11500	102000	7500	680	315	4060	4000	70.4	3015	232250	10.03	136.6
TAILINGS MIXED LIQUOR	6-05-84	-	2.02	19300	Nil	Nil	2000	24000	1400	75	182	1160	1200	8.8	162	43250	17.30	64.7

NEW MEXICO OPERATION

DESCRIPTION	Date	Water Level	pH	Elect. Cond. @ field	Temp. °C	DO ppm	Temp. °C	DO ppm	DO ppm	Total Alpha pci/L	Ra-226 pci/L	Total Beta pci/L
SUS #5	01-04-84	6582.29	7.89	1340	12.5	382	56	2.8	1316	6.32	0.37	8.88
#6	01-05-84	6588.05	7.62	9000	11.5	5247	3565	31.0	10348	96.31	0.24	57.78
#7	01-05-84	6583.55	6.70	10800	9.5	1923	4034	56.0	10804	45.70	1.19	52.92
#15	01-05-84	6551.68	7.73	800	10.5	249	59	15.9	588	7.41	1.14	41.58
#19	01-05-84	6547.46	8.13	1200	11.0	382	96	51	976	6.83	0.47	1.32

NEW MEXICO OPERATION

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ANACONDA MINERALS COMPANY
NEW MEXICO OPERATION

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NEW MEXICO OPERATION

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NEW MEXICO OPERATION

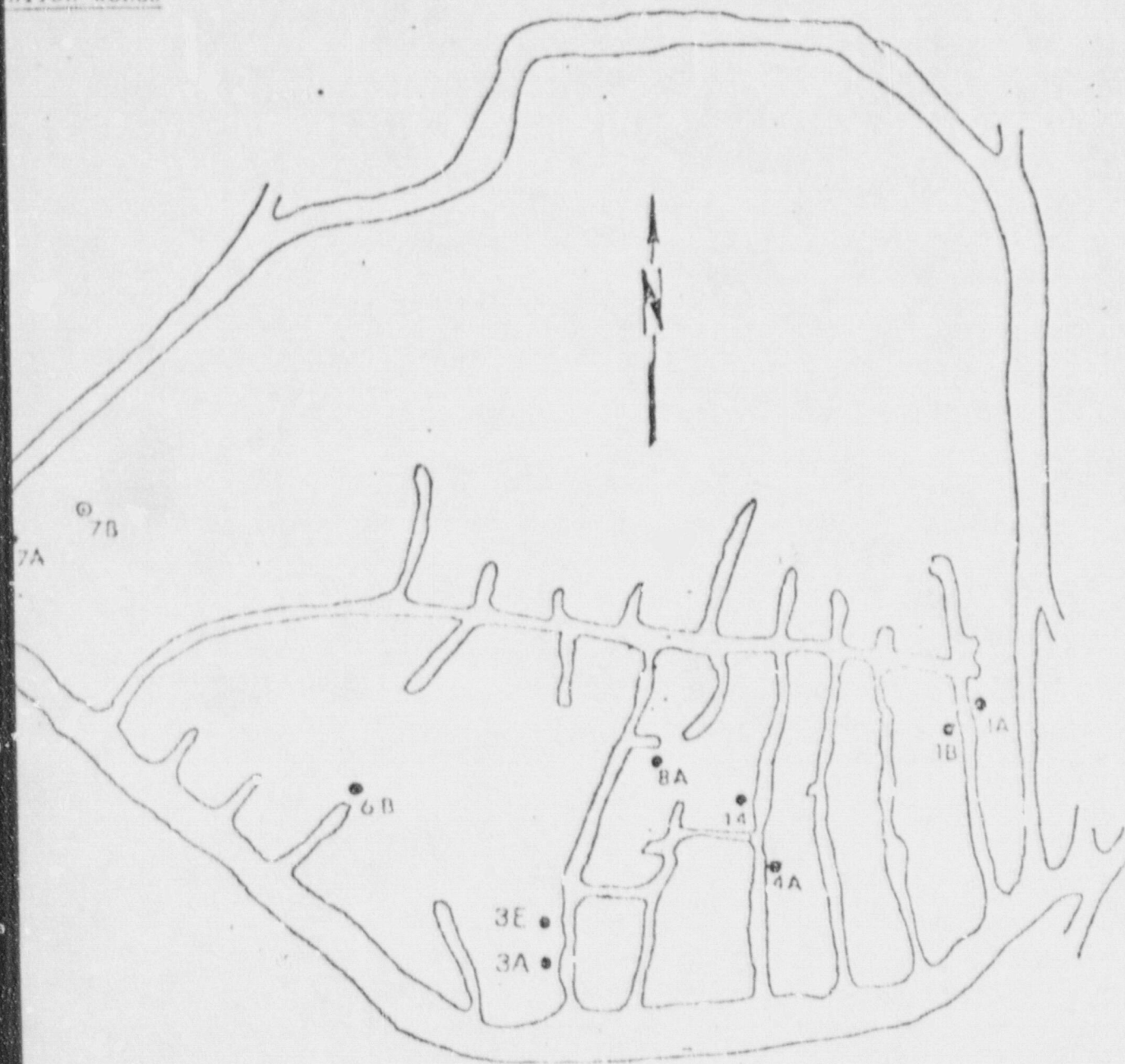
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YACONDA MINERALS COMPANY
NEW MEXICO OPERATIONS

(STATIC LEVEL MEASUREMENTS)

LOCATION	FT. CASING DEPTH	STATIC WATER LEVEL					
		1/84	2/84	3/84	4/84	5/84	6/84
TP-1A	52'00"	35'06"	36'10"	37'06"	31'10"	31'07"	32'11"
TP-1B	52'00"	35'01"	35'07"	36'06"	31'00"	31'00"	31'07"
TP-3E	100'08"	88'07"	88'08"	89'01"	84'01"	84'05"	84'00"
TP-4A	84'00"	68'02"	69'00"	60'11"	64'03"	64'09"	65'00"
TP-6B	54'00"	50'00"	50'00"	50'00"	49'00"	49'00"	45'00"
TP-7A	33'06"	28'05"	26'05"	28'05"	25'10"	25'10"	23'03"
TP-8A	74'06"	52'06"	52'05"	52'00"	47'00"	47'00"	47'02"
TP-14	80'00"	61'06"	61'06"	62'05"	55'05"	58'02"	58'10"

MONITOR WELLS



WELL STATUS

● ACTIVE

○ INACTIVE

TAILINGS POND -- WELL LOCATIONS

Fig. 3

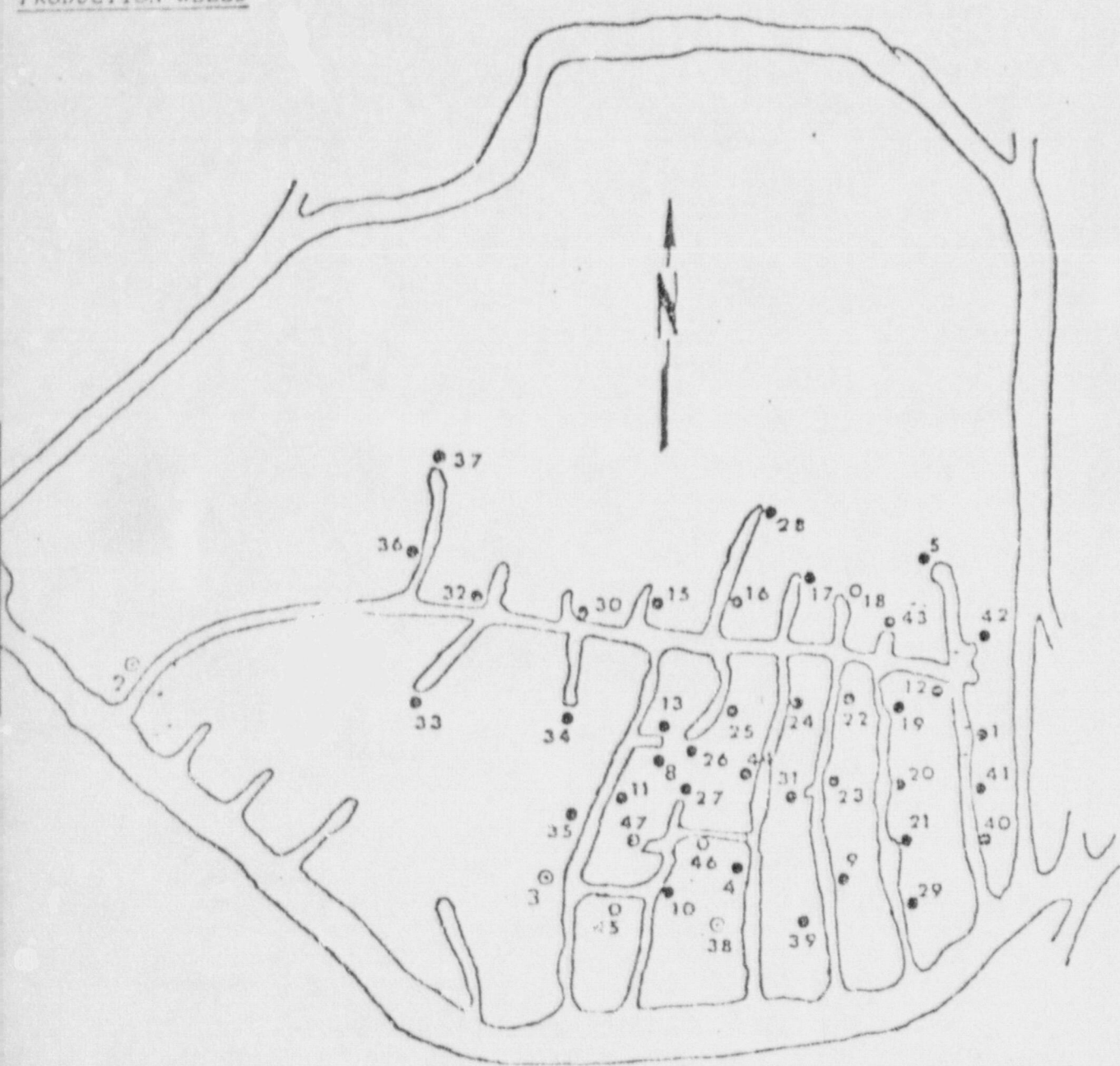
ANACONDA MINERALS COMPANY
NEW MEXICO OPERATIONS

(AVERAGE PUMPING RATES)

Well No.	Jan. 84 gpm	Feb. 84 gpm	Mar. 84 gpm	Apr. 84 gpm	May 84 gpm	June 84 gpm
1	2.03	2.90	1.35	0.61	0.78	1.50
4	1.40	2.08	0.56	0.93	0.43	0.69
9	1.07	1.40	1.72	2.28	2.37	1.35
11	0.87	1.00	2.58	1.43	2.77	1.65
12	0.58	1.00	1.06	1.12	1.66	1.52
16	3.51	4.15	4.00	1.41	3.38	1.65
17	1.84	1.80	1.80	1.21	2.90	2.63
19	2.32	2.13	1.99	1.07	1.36	1.22
20	1.61	2.15	0.82	1.18	1.10	1.66
21	1.87	1.75	1.55	1.08	1.32	1.15
22	0.95	1.00	0.94	0.92	1.02	1.83
23	1.70	2.12	1.91	0.90	1.65	1.27
24	1.27	0.14	0.48	1.00	0.75	0.79
25	3.34	2.73	2.13	1.34	1.18	1.09
26	1.82	2.26	2.17	1.95	2.12	2.89
28	1.81	1.97	2.20	1.79	1.65	1.63
29	1.73	1.89	1.07	1.50	0.95	1.23
30	0.86	1.32	1.10	0.91	2.31	2.58
31	1.52	1.89	1.49	1.27	1.10	1.07
33	0.91	1.23	1.59	1.01	2.67	2.71
34	2.00	0.99	1.34	0.80	1.46	1.72
35	2.00	1.97	1.66	1.49	1.30	0.99
38	1.14	1.65	2.15	1.53	1.81	1.65
39	1.15	1.91	2.10	1.90	1.84	1.71
40	1.47	1.91	1.10	0.92	0.95	0.91
41	0.00	1.86	0.69	0.21	1.06	1.51
42	1.45	1.38	0.59	0.52	0.57	1.91
43	2.97	2.87	2.70	1.97	2.55	1.88
44	1.57	2.01	1.23	0.60	2.58	3.46
46	1.17	2.84	2.39	2.15	3.60	2.96
47	3.57	3.50	3.83	3.15	2.90	1.94
49	3.76	4.00	3.28	2.53	4.17	3.71
50	2.58	4.00	4.00	4.00	4.00	3.96
51	1.22	1.13	1.17	1.11	1.07	0.78

*Inactive Well

PRODUCTION WELLS



WELL STATUS

- ACTIVE
- INACTIVE

TAILINGS POND — WELL LOCATIONS

Fig. 2