ANACONDA Copper C npany
New Mexico Operations
P.O. Box 638
Grants, New Mexico 87020
505/876-2211

September 8, 1981

Mr. Ed Sandell
Deputy Conservation Manager
UNITED STATES DEPARTMENT OF INTERIOR
GEOLOGICAL SURVEY
P.O. Box 26124
Albuquerque, New Mexico 87125

Dear Sir:

The following information is being submitted in accordance with the Jackpile-Paguate Minesite Sampling Program for the Second Quarter of 1981.

1. Radiological Analysis of Ground and Surface Water.

2. Chemical Analysis of Ground and Surface Water.

3. Maps Showing Ground and Surface Water Sampling Locations.

4. Results of the Air Monitoring Program.

5. Results of the Ambient Radon Monitoring Program.

6. Map Showing location of Air and Radon Monitoring Stations.

Sincerely,

Meade A. Stirland, Manager
ENVIRONMENT, HEALTH & SAFETY

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Enclosures

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ALBUQUERQUE, NEW MEXICO

AIR QUALITY MONITORING PROGRAM

One 168-hour sample is taken each month at each of the four locations specified by Marc Nelson. They are collected about three meters above the ground on GF/A Glass Microfibre filter paper, using an RAC Heavy-duty Sampler.

AMBIENT RADON STUDY

Radon-222 is monitored continuously at each of the air sampling locations specified by Marc Nelson. The samples are monitored by the use of the Model RGM-2 Radon Gas Monitor. Normal data output is printed hourly and a 24-hour average is printed at the end of a 24-hour period.

JACKPILE - WATER RADIOLOGICAL ANALYSIS

(SECOND QUARTER, 1981)

DESCRIPTIVE LOCATION	Radium-226 pCi/L			Uranium-Natural ppm		
	April	May	June	April	May	June
Rio Paguate Upstream	0.57	0.59	0.46	0.011	0.006	0.013
Rio Moquino Upstream	0.27	0.22	0.24	0.010	0.008	0.012
Rio Paguate Above the Confluence	3.46	2.46	12.17	0.032	0.023	0.063
Rio Moquino Above the Confluence	1.55	0.68	2.87	0.027	0.017	0.041
Rio Paguate Ford Crossing	3.13	3.81	2.90	0.053	0.058	0.219
Paguate Reservoir	1.00	1.32	3.01	1.214	0.508	0.396
Jackpile Well #4	0.50	0.51	1.32	0.015	0.005	0.008
Jackpile New Shop	3.38	1.94	4.64	0.011	0.007	0.012
Jackpile Old Shop	4.04	3.19	2.37	0.145	0.272	0.301

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ANACONDA COPPER COMPANY
NEW MEXICO OPERATION

FOR THE MONTH OF: APRIL 1981

DESCRIPTION	DATE	pH	TDS ppm	Cond umhos	HCO_3^- ppm	Cl^- ppm	$SO_4^=$ ppm	Na^+ ppm	K^+ ppm	Ca^{++} ppm	Mg^{++} ppm	NO_3^- ppm	F^- ppm	SiO_2 ppm	Mn^{++} ppm
Rio Paguate Upstream	4-07-81	8.3	462	545	244	7	80	27	4	62	22	1.4	0.35	18.0	<0.005
Rio Moquino Upstream	4-07-81	8.0	1417	1650	256	11	775	154	7	124	86	2.2	0.54	9.3	<0.005
Rio Paguate Above the Confluence	4-07-81	8.2	499	570	258	7	108	32	5	63	23	1.2	0.37	17.0	<0.005
Rio Moquino Above the Confluence	4-07-81	8.0	1686	1890	251	13	966	213	8	124	106	1.2	0.64	8.4	<0.005
Rio Paguate Ford Crossing	4-07-81	8.1	1126	1300	275	11	544	119	6	101	66	1.5	0.52	12.0	<0.005
Paguate Reservoir	4-07-81	7.7	2591	2790	122	44	1699	319	2	245	135	1.6	0.35	2.9	<0.005
Jackpile #4	4-07-81	8.3	1021	1240	353	15	315	313	1	4	< 1	2.0	1.15	7.0	0.007
Jackpile New Shop	4-07-81	8.4	1546	1890	380	26	653	452	2	13	2	2.7	1.25	7.4	0.017
Jackpile Old Shop	4-07-81	8.3	1987	2340	283	48	1057	405	5	92	68	11.0	1.05	5.1	0.007

	DATE	As ppm	Ba ppm	Cd ppm	Cr ppm	Pb ppm	Hg ppm	Se ppm	Cu ppm	Fe ppm	Zn ppm	Mo ppm	Ni ppm	V ppm
Rio Paguate Upstream	4-07-81	<0.005	0.09	<0.001	<0.005	<0.005	<.0005	0.005	0.006	0.310	0.007	<0.01	<0.005	<0.05
Rio Moquino Upstream	4-07-81	<0.005	0.10	<0.001	<0.005	<0.005	<.0005	<0.005	0.004	0.012	0.013	<0.01	<0.005	<0.05
Rio Paguate Above the Confluence	4-07-81	<0.005	0.10	<0.001	<0.005	<0.005	<.0005	<0.005	0.008	0.013	0.010	<0.01	<0.005	<0.05
Rio Moquino Above the Confluence	4-07-81	<0.005	0.10	<0.001	<0.005	<0.005	<.0005	<0.005	0.004	0.012	0.180	<0.01	<0.005	<0.05
Rio Paguate Ford Crossing	4-07-81	<0.005	0.10	<0.001	<0.005	<0.005	<.0005	<0.005	0.003	0.007	0.006	<0.01	<0.005	<0.05
Paguate Reservoir	4-07-81	<0.005	0.09	<0.001	<0.005	<0.005	<.0005	0.005	0.006	0.018	0.007	<0.01	<0.005	<0.05
Jackpile #4	4-07-81	<0.005	<0.05	<0.001	<0.005	<0.005	<.0005	<0.005	0.004	0.028	0.006	<0.01	<0.005	<0.05
Jackpile New Shop	4-07-81	<0.005	<0.05	<0.001	<0.005	<0.005	<.0005	<0.005	0.004	0.041	0.037	<0.01	<0.005	<0.05
[illegible]	4-07-81	<0.005	0.06	<0.001	<0.005	<0.005	<.0005	0.007	0.007	0.006	0.120	<0.01	<0.005	[illegible]

ANACONDA COPPER COMPANY
NEW MEXICO OPERATION

FOR THE MONTH OF: MAY 1981

DESCRIPTION	DATE	pH	TDS ppm	Cond umhos	HCO_3^- ppm	Cl^- ppm	$SO_4^=$ ppm	Na^+ ppm	K^+ ppm	Ca^{++} ppm	Mg^{++} ppm	NO_3^- ppm	F^- ppm	SiO_2 ppm	Mn^{++} ppm			
Rio Paguate Upstream	5-07-81	8.1	656	800	292	6	192	37	6	88	32	<0.1	0.41	33.4	<0.005			
Rio Moquino Upstream	5-07-81	8.1	1564	1790	258	9	875	180	8	144	88	0.6	0.54	18.8	<0.005			
Rio Paguate Above the Confluence	5-07-81	8.2	638	790	263	8	210	44	6	66	38	<0.1	0.44	34.7	<0.005			
Rio Moquino Above the Confluence	5-07-81	8.2	1814	2010	256	12	1049	228	8	158	101	0.4	0.60	22.7	<0.005			
Rio Paguate Ford Crossing	5-07-81	8.1	1546	1750	273	11	835	192	8	138	86	0.6	0.62	23.1	<0.005			
Paguate Reservoir	5-07-81	7.6	2469	2950	106	37	1619	360	21	184	139	0.4	0.80	1.8	<0.005			
Jackpile #4	5-07-81	8.3	1032	1290	370	13	324	306	1	4	1	0.4	1.20	9.4	0.007			
Jackpile New Shop	5-07-81	8.3	1597	2050	358	23	679	485	3	13	2	0.6	1.20	13.3	0.015			
Jackpile Old Shop	5-07-81	8.2	3784	4190	263	89	2349	550	10	282	198	40.0	0.68	8.1	0.013			
	DATE	As ppm	Ba ppm	Cd ppm	Cr ppm	Pb ppm	Hg ppm	Se ppm	Cu ppm	Fe ppm	Zn ppm	Mo ppm	Ni ppm	V ppm				
Rio Paguate Upstream	5-07-81	<0.005	<0.05	<0.001	<0.005	0.011	<.0005	<0.005	0.002	0.006	0.003	<0.01	<0.005	<0.05				
Rio Moquino Upstream	5-07-81	<0.005	<0.05	<0.001	<0.005	0.017	<.0005	<0.005	0.002	0.005	0.033	<0.01	<0.005	<0.05				
Rio Paguate Above the Confluence	5-07-81	<0.005	<0.05	<0.001	<0.005	0.008	<.0005	<0.005	0.003	0.021	0.002	<0.01	<0.005	<0.05				
Rio Moquino Above the Confluence	5-07-81	<0.005	<0.05	<0.001	<0.005	0.019	<.0005	<0.005	0.002	0.008	0.007	<0.01	<0.005	<0.05				
Rio Paguate Ford Crossing	5-07-81	<0.005	<0.05	<0.001	<0.005	0.015	<.0005	<0.005	0.003	0.017	0.005	<0.01	<0.005	<0.05				
Paguate Reservoir	5-07-81	<0.005	<0.05	<0.001	<0.005	0.020	<.0005	<0.005	0.004	0.008	0.010	<0.01	<0.005	<0.05				
Jackpile #4	5-07-81	<0.005	<0.05	<0.001	<0.005	0.006	<.0005	<0.005	0.004	0.018	0.012	<0.01	<0.005	<0.05				
Jackpile New Shop	5-07-81	<0.005	<0.05	<0.001	<0.005	0.012	<.0005	<0.005	0.002	0.011	0.018	<0.01	<0.005	<0.05				
	-81	<0.005	<0.05	<0.001	<0.005	0.026	<.000	0.160	0.002	0.008	1.200	<0.01	<0.					

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ANACONDA COPPER COMPANY
NEW MEXICO OPERATION

FOR THE MONTH OF: JUNE 1981

DESCRIPTION	DATE	pH	TDS ppm	Cond umhos	HCO_3^- ppm	Cl^- ppm	$SO_4^=$ ppm	Na^+ ppm	K^+ ppm	Ca^{++} ppm	Mg^{++} ppm	NO_3^- ppm	F^- ppm	SiO_2 ppm	Mn^{++} ppm
Rio Paguate Upstream	6-15-81	7.9	1316	1550	292	24	653	97	8.8	160	78	1.1	0.47	25.3	<.005
Rio Moquino Upstream	6-15-81	8.2	2538	2850	248	22	1592	320	9.6	160	180	2.9	0.90	12.4	0.005
Rio Paguate Above the Confluence	6-15-81	7.9	1324	1570	268	25	677	110	8.8	144	87	1.9	0.50	20.5	<.005
Rio Moquino Above the Confluence	6-15-81	8.2	2505	2800	292	19	1522	312	9.1	192	155	1.9	0.96	13.7	<.005
Rio Paguate Ford Crossing	6-15-81	8.2	2140	2360	305	26	1244	243	10.2	156	153	1.9	0.74	15.8	<.005
Paguate Reservoir	6-15-81	7.8	4547	4800	89	105	3090	625	45.8	309	279	2.5	1.00	0.2	<.005
Jackpile #4	6-15-81	8.1	1001	1250	380	15	301	287	8.2	4	1	2.3	1.10	5.6	0.007
Jackpile New Shop	6-15-81	8.2	1585	1980	402	25	671	465	2.7	12	2	2.4	1.30	8.8	0.016
Jackpile Old Shop	6-15-81	8.1	3774	3700	246	109	2323	560	9.3	301	182	41	0.74	4.3	0.012

	DATE	As ppm	Ba ppm	Cd ppm	Cr ppm	Pb ppm	Hg ppm	Se ppm	Cu ppm	Fe ppm	Zn ppm	Mo ppm	Ni ppm	V ppm
Rio Paguate Upstream	6-15-81	<.005	<0.05	<.001	<.005	0.02	<.0005	<.005	0.003	0.01	0.004	<0.01	<.005	<0.05
Rio Moquino Upstream	6-15-81	<.005	<0.05	<.001	<.005	0.02	<.0005	<.005	0.004	0.05	0.006	<0.01	.005	<0.05
Rio Paguate Above the Confluence	6-15-81	<.005	<0.05	<.001	<.005	0.02	<.0005	<.005	0.003	0.01	0.003	<0.01	<.005	<0.05
Rio Moquino Above the Confluence	6-15-81	<.005	<0.05	<.001	<.005	0.02	<.0005	<.005	0.005	0.05	<.001	<0.01	<.005	<0.05
Rio Paguate Ford Crossing	6-15-81	<.005	<0.05	<.001	<.005	0.05	<.0005	<.005	0.016	0.08	0.038	<0.01	<.005	<0.05
Paguate Reservoir	6-15-81	<.005	<0.05	<.001	<.005	0.02	<.0005	<.005	0.003	0.01	0.004	<0.01	<.005	<0.05
Jackpile #4	6-15-81	<.005	<0.05	<.001	<.005	0.02	<.0005	<.005	0.004	0.01	0.004	<0.01	<.005	<0.05
Jackpile New Shop	6-15-81	<.005	<0.05	<.001	<.005	0.02	<.0005	<.005	0.004	0.08	0.062	0.02	<.005	<0.05
	-81	<.005	<0.05	<.001	<.005	0.02	<.00 5	0.11	0.008	0.03	10	<0.01	<.0	

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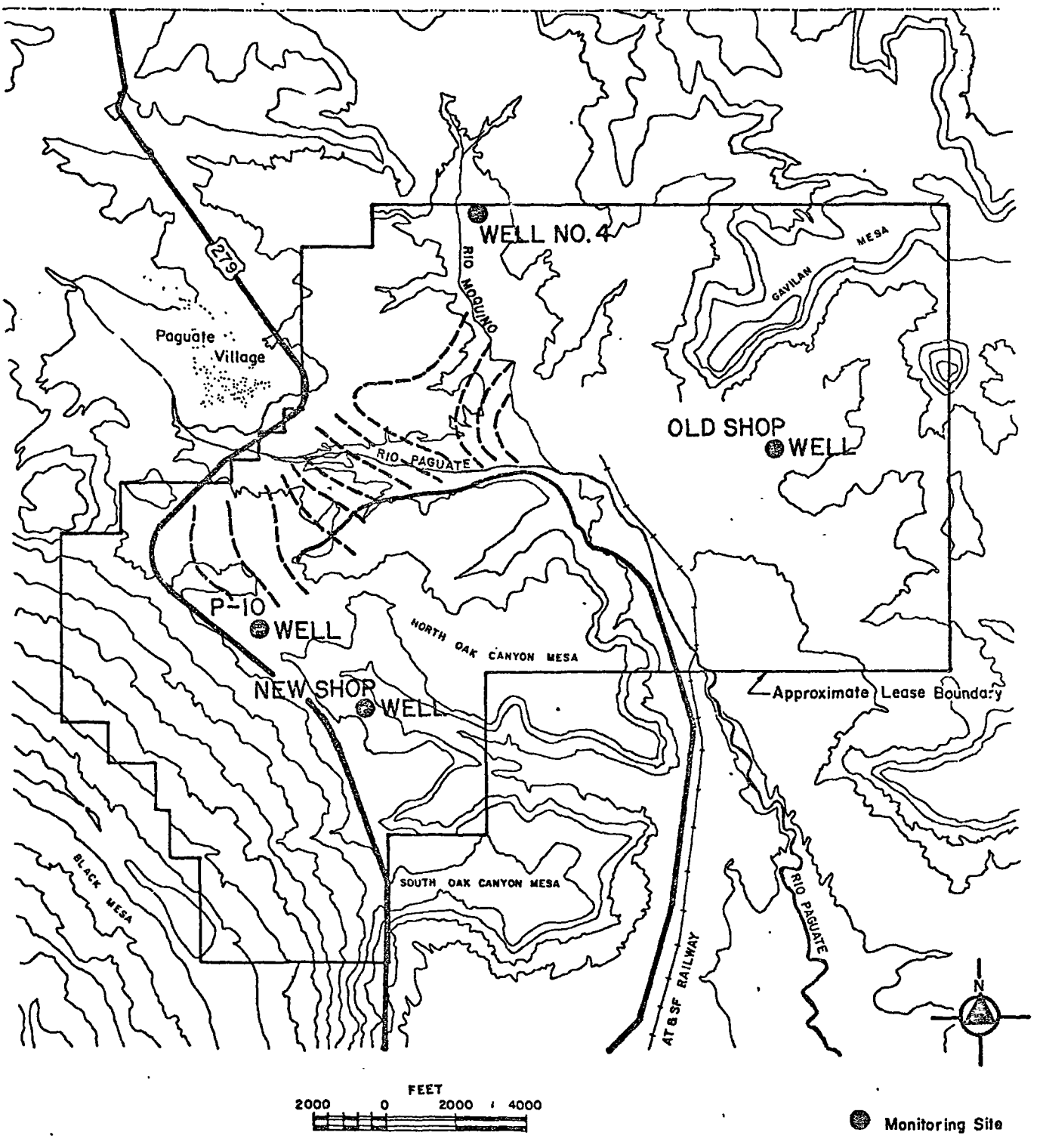
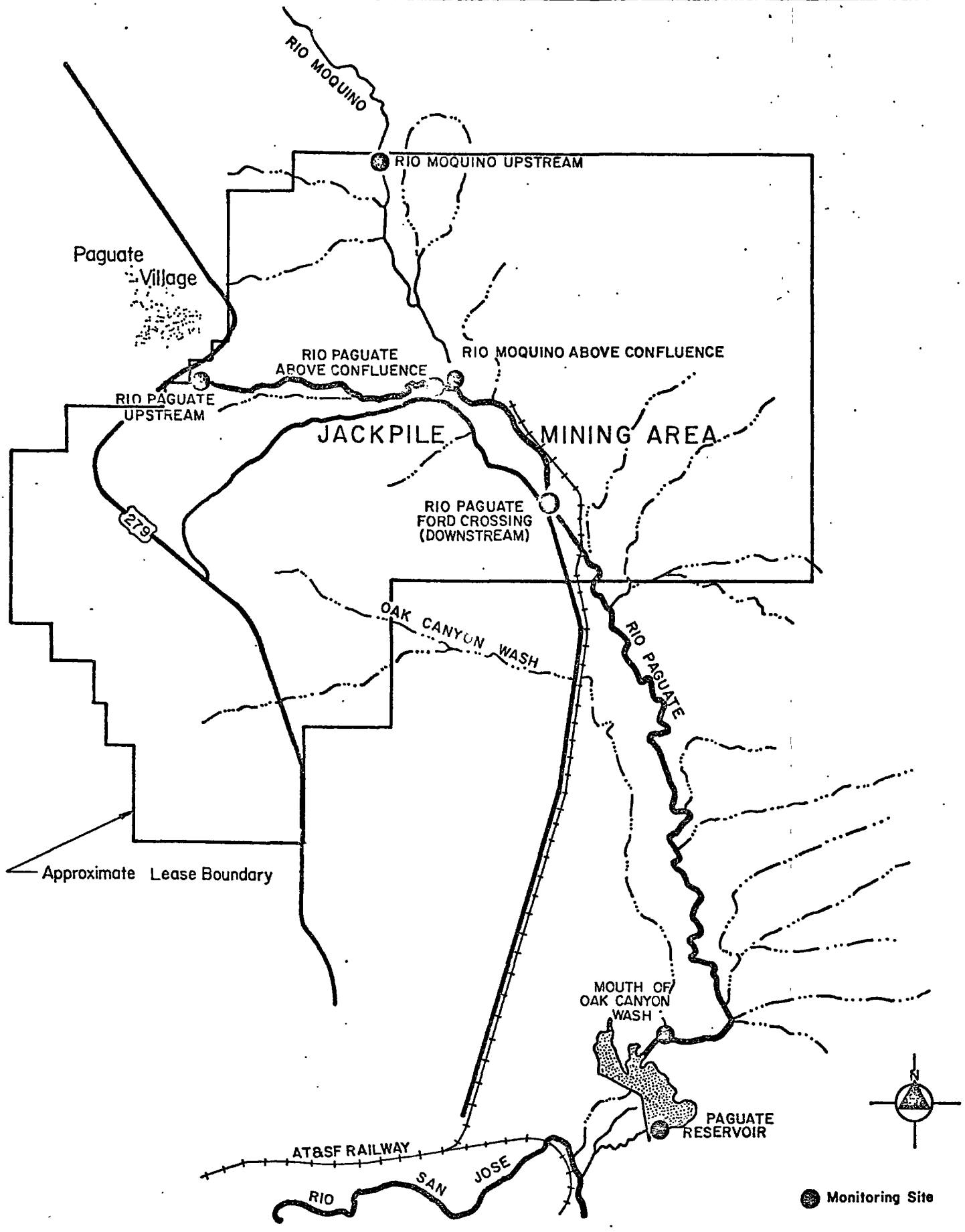
LOCATION OF GROUND WATER MONITORING STATIONS





LOCATION OF
SURFACE WATER MONITORING STATIONS

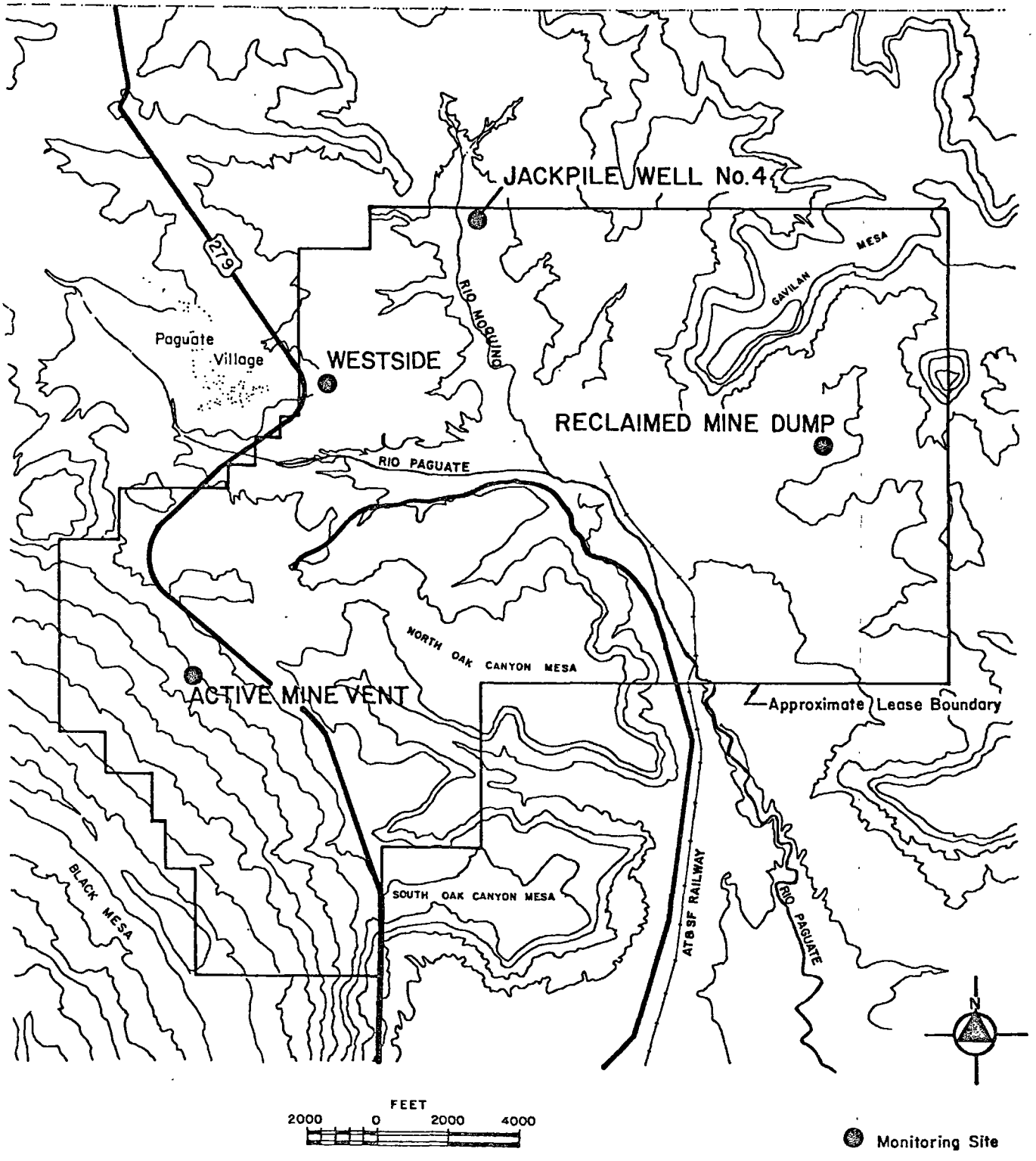
JACKPILE - AIR SAMPLING SURVEY

SECOND QUARTER, 1981

LOCATION	DATE	Total Particulate $mg/M^3 x10^{-8}$	U-Nat. $\mu ci/ml x10^{-15}$	Ra-226 $\mu ci/ml x10^{-15}$	Th-230 $\mu ci/ml x10^{-15}$	Pb-210 $\mu ci/ml x10^{-15}$
1. Dump F	4/81	2.76	20.08	2.56	2.02	28.30
	5/81	4.77	3.73	2.11	2.96	29.58
	6/81	1.97	9.70	0.46	2.51	27.40
2. Mine Vent	4/81	2.23	30.40	1.46	3.12	33.33
	5/81	4.64	2.96	1.48	1.74	53.54
	6/81	2.31	0.85	3.02	2.38	34.76
3. West Gate	4/81	4.89	10.70	0.84	2.13	20.00
	5/81	4.90	6.67	0.65	0.85	28.10
	6/81	5.37	4.25	1.14	2.57	31.14
4. Well #4	4/81	3.79	9.39	0.54	0.81	18.24
	5/81	3.80	1.70	0.68	2.72	20.41
	6/81	0.28	7.05	0.90	1.28	26.92

JACKPILE - AMBIENT RADON SURVEY

SECOND QUARTER, 1981

LOCATION	DATE	Rn-222 pCi/1
1. Dump F	4/81	1.67
	5/81	1.65
	6/81	1.42
2. Mine Vent	4/81	1.52
	5/81	1.19
	6/81	0.82
3. Well #4	4/81	1.75
	5/81	1.33
	6/81	1.61
4. Westgate	4/81	1.69
	5/81	1.63
	6/81	1.59

LOCATION OF
AIR QUALITY MONITORING STATIONS