



**STATE OF NEW MEXICO**  
**INSPECTOR OF MINES DEPARTMENT**  
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JOE D. LONGACRE, SR.  
 STATE INSPECTOR OF MINES

RADIATION  
**REPORT OF INSPECTION**

I.D. No. 2901364  
 Ruby No. 1 Mine (Western Nuclear, Inc.) (Name) } Mine  
 Typed June 7, 1977  
 May 18, 1977 (Date of Inspection)

Uranium (Classification of Mine)      McKinley (County in which located)      Rolf Ornelas, Sampler (Company representative present at inspection)

Pursuant to the Mining Laws of the State of New Mexico, Section 63-4-8, an inspection, as designated above, has been made. During this inspection the following was noted:

**INTRODUCTION**

The object of this inspection was to check the radon-daughter concentrations in each working place of the mine and to measure the quantity of air supplied to each man working underground and to calculate a time-weighted exposure for each of the various classes of mine personnel.

The above is in compliance with the Federal Metal and Nonmetallic Mine Safety Act (Public Law 89-577), U. S. Department of Interior, Mining Enforcement and Safety Administration, formerly U. S. Bureau of Mines, and the State of New Mexico as of February 3, 1972.

For collecting the alpha particles, the MSA Monitaire air sampler, U. S. Bureau of Mines approval No. 2F-2004 was used. For counting the alpha disintegration, the PS-1 Eberline pulse rate meter in combination with the SPA-1 Eberline millipore filter radon probe was used.

**GENERAL INFORMATION**

Owner of Property: Department of Interior, Bureau of Indian Affairs

Company Officials:  
 R. G. Peets, Resident Manager  
 M. Johnson, Mine Foreman  
 Ralph Pickle, Mine Engineer  
 Rolf Ornelas, Ventilation Technician  
 Dan Stucker, Chief Electrician

Owner of Minerals: Western Nuclear, Inc.

Location: 17 miles N of Thoreau, on NM Hwy. 57, then on Mariano Lake road.

Mining method: modified room and pillar

Employment: 72

Work Schedule:  
 Hours per shift 8  
 Shifts per day 2  
 Hours per week 40

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The inspector was accompanied by Mr. Rolf Ornelas. Mr. Omer Sauvageau of the Mining Enforcement and Safety Administration also participated during this inspection.

The mine is opened by a 9'x14' decline, 2,134 feet in length deepening at 11% grade. This decline is used primarily for hauling ore, ventilation and as travelway for all mine personnel.

### VENTILATION AND RADIATION

The mine was ventilated by some 243,120 cubic feet per minute of uncontaminated air delivered and exhausted through the openings listed below:

<u>Opening</u>	<u>Size</u>	<u>Air Direction</u>	<u>Ventilation c.f.m.</u>	<u>Make of Fan</u>	<u>Fan HP</u>	<u>Depth</u>
Decline	9'x14'	intake	43,120	-	-	2,134'
W borehole	60"ID	exhaust	70,000	Hartzell	1-100	301'
W borehole	60"ID	intake	70,000	-	-	301'
E borehole	60"ID	exhaust	65,000	Hartzell	1-100	388'
E borehole	60"ID	intake	65,000	-	-	388'
Middle borehole	60"ID	exhaust	65,000	Bonanza	1-125	367'

The main fans are surface mounted axial flow type, electrically powered units. The boreholes are steel lined throughout the length of the opening. The primary and secondary ventilation in this mine is well planned and controlled.

Air flow underground was distributed to the working places by directing the primary airflow towards them with the aid of auxiliary fans and vent tubing. Air flow underground was controlled by vent doors and bulkheads.

The following is a list of radon-daughter concentrations, air volume measurements, and time-weighted exposure for each of the various classes of mine personnel.

<u>Sample No.</u>	<u>Sample Location</u>	<u>Ventilation c.f.m.</u>	<u>Man-Shift Exposure</u>			<u>Working Level</u>
			<u>M&amp;M</u>	<u>Stopes</u>	<u>Haulages</u>	
1	25S going E off 91W drill	1,200	1.0	4.0		0.3
2	25S off 80W haulage	3,200	1.0		2.0	2.5*
3	79W going S off 23S drill	4,800	1.0	4.0		Nil
4	19S & 24W area drill	7,000	1.0	4.0		Nil
5	98E-25S stope slusher	10,000	1.0	3.0		0.2
6	98E-25S stope drill	10,000	1.0	1.0		0.1
7	88W muck bay	9,000	1.0	3.0		0.4
8	82E & 23 stope drill	12,000	1.0	3.0		0.5
9	80E & F haulage rockbolting	10,000	1.0	2.0		Nil
10	E haulage	25,000	1.0		2.0	Nil
11	14S going W off 32E bolting	3,600	1.0	4.0		0.1
12	tool room	3,200	2.0		2.0	0
	TOTALS		13.0	28.0	6.0	

\* Cease Work Order Issued.

The time-weighted exposure for the various classes of mine personnel and the mine exposure index are as follow:

Maintenance and Management - 0.3 x working level  
Stopes and Developments - 0.2 x working level  
Haulageways - 0.8 x working level  
Total Mine Exposure Index - 0.3 x working level

CEASE WORK ORDER ISSUED MAY 18, 1977

Order No. 1, SIM Rule No. 76-1(2c): No person shall be exposed to concentrations of radon-daughters above 1.0 working level in 25S off 80W haulage development. (57.5-39M) Abated 5-18-77.

NOTICES ISSUED MAY 18, 1977

Notice No. 1, SIM Rule No. 76-1(2c): Evidence of smoking was found by tool room. (57.5-41M) Abated 5-18-77.

Notice No. 2, SIM Rule No. 76-1(2c): Evidence of smoking was found around W intake borehole. (57.5-41M) Abated 5-18-77.

Notice No. 3, SIM Rule No. 76-1(2c): Evidence of smoking was found around 19S and 24W stope powder box. (57.5-41M) Abated 5-18-77.

Notice No. 4, SIM Rule No. 76-1(2c): The oil drums by the tool room shall be stored away from the main haulage. (57.4-50M) Abated 5-18-77.

Notice No. 5, SIM Rule No. 71-1(2c): The oil storage by the tool room shall be provided with "No Open Flame" signs. (57.4-2M) Abated 5-18-77.

Notice No. 6, SIM Rule No. 71-1(2c): The electric circuit at 64W shall be de-energized and isolated. (57.4-11M) Abated 5-18-77.

Notice No. 7, SIM Rule No. 74-1(2c): The 7½ HP fan in 80W drift shall have frame ground. (57.12-25M) Abated 5-18-77.

Notice No. 8, SIM Rule No. 74-1(2c): The 30 HP fan in 80 drift shall have the frame ground repaired. (57.12-25M) Abated 5-18-77.

Notice No. 9, SIM Rule No. 75-1(2c): The air hose for the drill machine in 25S going E off 91W shall have safety chain. (57.13-21M) Abated 5-18-77.

Notice No. 10, SIM Rule No. 75-1(2c): The air hose for the drill machine in 19S and 24W shall have safety chain. (57.13-21M) Abated 5-18-77.

Notice No. 11, SIM Rule No. 75-1(2c): The air hose in 88W muck bay shall be provided with safety chain. (57.13-21M) Abated 5-18-77.

Notice No. 12, SIM Rule No. 74-1(2c): The fan in 14S going W off 32E shall be provided with frame ground. (57.12-25M) Abated 5-18-77.

Notice No. 13, SIM Rule No. 74-1(2c): The fence gate for the 0 crosscut fan shall have frame ground. (57.12-25M) Abated 5-18-77.

Notice No. 14, SIM Rule No. 71-1(2c): The electric outlet for the light bulb in 98E-25S stope shall be removed. (57.4-11M) Abated 5-18-77.

Notice No. 15, SIM Rule No. 74-1(c): The slusher in 98E and 25S stope shall be provided with button drum covers. (57.9-15M) Abated 5-18-77.

Notice No. 16, Section 63-28-9, NMSA: The entrance to the open stope in 98E and 25S stope shall be posted with "Keep Out" signs. Abated 5-18-77.

Notice No. 17, Rules Governing Diesel Equipment in Underground Mines for the State of New Mexico, Rule No. 4(b): At least 75 cubic feet per minute of fresh air per brake horsepower of diesel engine shall be provided in 25S going E off 91W haulage. A Red Tag was issued. Abate by 5-27-77.

Notice No. 18, SIM Rule No. 71-1(2c): Nonconductive containers with tight fitting covers shall be used to carry capped fuses in 25S going E off 91W drift development. (57.6-57M) Abate by 5-27-77.

Notice No. 19, SIM Rule No. 74-1(2c): The vehicle to transport explosives shall have non sparking metal exposed in the cargo space. (57.6-47M) Abate by 5-27-77.

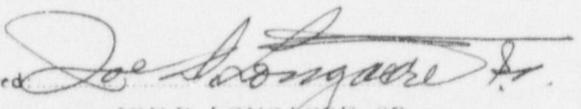
Notice No. 20, SIM Rule No. 74-1(2c): The vehicle transporting explosives shall be posted with proper warning signs. (57.6-43M) Abate by 5-27-77.

At the conclusion of the inspection, all orders and notices were discussed with Messrs. Bob Peets, Ralph Pickle, Dan Stucker, Chief Electrician and Rolf Ornelas. Mr. Omer Sauyageau, MESA, also participated in this discussion.

#### ACKNOWLEDGEMENT

The courtesy and cooperation of the staff and personnel of the Ruby No. 1 Mine during this inspection are hereby gratefully acknowledged.

Inspected and Reported by:  
L. A. Quinones  
Dust and Mine Gas Engineer  
Deputy Inspector of Mines

Approved:   
JOE D. LONGACRE, SR.  
State Inspector of Mines