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Memorandum

To: **LaDonna Turner, Site Assessment Manager**
Technical and Enforcement Branch
U.S. Environmental Protection Agency, Region 6

From: **Dana Bahar, Manager, Superfund Oversight Section**
Ground Water Quality Bureau, New Mexico Environment Department

Date: **August 17, 2010**

Subject: **Pre-CERCLIS screening assessment of the Dysart #2 mine (Grants Mining District), McKinley County, New Mexico: Further action under CERCLA recommended**

Site name Dysart #2 **Alternative names** Section 11 mine, Section 11 SE shaft
Street address not applicable **City** not applicable **State** New Mexico
Zip code not applicable **County** McKinley
Latitude 35.454 **Longitude** -107.859 **TRS** 14N, 10W, s. 11 SE, 12 SW

Site physical description:
The Dysart #2 minesite ("Site") currently comprises an approximately 700-foot deep mineshaft with headframe and operational hoist (see P1). The mineshaft is reported in literature to have been 450 (Ref. 1), 490 or 550 feet (ft) deep (Ref. 2). Near to the mine shaft is a collapse crater, which marks the location of a ventilation shaft (see P2). Another ventilation shaft structure is visible at some distance from the location of the main shaft (see P3). In a 1980 inspection, two ventilation shafts existed, which were located 100 ft west and 800 ft north of the headframe respectively (Ref. 1). Additionally, an unused substation is near to the main shaft, which currently is outfitted with a generator that is used to run the hoist. A1980 inspection (Ref. 1) describes sprawling mine dumps comprising clusters of conical piles and elongate ridges that extended for over 500 ft; however no piles were noted in the most recent Site reconnaissance.

Martin Draw is located approximately 200 ft east of the Site, and Ambrosia Lake is located approximately 1200 ft east of the Site.

Site identification:
The site is one of numerous legacy uranium sites within the Grants Mining District.

Site summary:
Underground mining from the ore deposit accessed through the Dysart #2 mine occurred between 1959 and 1962, during which over 894,000 pounds of U_3O_8 was produced from the Westwater Canyon member of the Morrison Formation at an average grade of 0.18% (Ref. 3). The mine was dry during operation (Ref. 4). In 1980, scintillometer readings of 1500 cps (20 times background) were recorded along a prominent 200 ft long waste dump ridge at the intersection with the access road. Another compact dump area immediately northeast of the ridge, which was 3 to 5 ft high and 250 ft long, had a maximum scintillometer reading of 1100 cps; this site was then partially revegetated, and cattle were noted to be grazing in the area (Ref. 1).

The mineshaft and hoist currently is used to access the Section 12 mine, which is located approximately 0.4 miles to the east. In 1980, the shaft had been leased from Homestake-Sapin Partners for use as a ventilation and escape-way for this mine (Ref. 1). To date, the Site has not yet been fully reclaimed (Ref. 5). The minesite currently is involved with permitting through the Mining Act Reclamation Program (Ref. 6).

Targets:
The Site is located in close proximity to both the ephemeral Martin Draw and Ambrosia Lake, which had water at the time of the Site reconnaissance. Ground water is reportedly encountered at a depth of 550 ft (Ref. 4, p. 8). Well records from the New Mexico Office of the State Engineer that are located within a four-mile radius of the Site are shown in the table following (Ref. 7).

Site ownership and Potential Responsible Parties:
Southwest Resources Inc. currently owns the surface and mineral rights to the Site; Mr. Lotspeich is president of Southwest Resources, Inc. (Ref. 4, p. 5, 10). Ownership of the property was quitclaimed to Southwest Resources, Inc. either in 1973 by Hydro Nuclear Corporation (Ref. 8, p. 14) or in 1994 by Cobb Resources Corporation (Ref. 8, p. 13).

Rio de Oro operated the mine between 1959 and 1961; Mid-Continent Uranium Corporation also operated in 1959. Between 1961 and 1962, the Dysart #2 was operated by Homestake-Sapin Partners (Ref. 3, Ref. 2). Alternatively, Sabre-Pinon Corporation may have operated the mine between 1959 and 1963. As of 1980, the last registration with the State Mine Inspector's office was dated September 1961 (Ref. 1). United Nuclear-Homestake Partners owned the mine by 1980, but did not conduct active mining. Between 1980 and 1983, Cobb Resources Corporation (or Cobb Nuclear Corporation) used the shaft for ventilation of the Section 12 mine (Ref. 1, Ref. 2). Southwest Resources Inc. submitted a permit for exploration at the Site (Ref. 4), which was subsequently withdrawn by late 2007 (Ref. 8).

Distance from Site (miles)	OSE record number	Owner's last name	use	finish date	depth well (ft)	depth to water (ft)	casing diameter (in.)	yield (gpm)
1.0 – 2.0	B 00366	RIO ALGOM MINING LLC	MIN	12/31/1955	760	0	4.5	10.0
	B 00372	SABRE-PINON CORPORATION	MIN	09/12/1956	796	0	8.63	75.0
	B 00373	RIO ALGOM MINING LLC	MIN	12/31/1956	1003	0	13.38	90.0
	B 00994	RIO ALGOM MINING LLC	MIN	01/02/1958	827	0		
2.0 – 3.0	B 00143	ANDREWS	DOM	07/18/1960	90	60		
	B 00362	RIO ALGOM MINING LLC	MIN	11/30/1956	3093	0	10.75	475.0
	B 00363	RIO ALGOM MINING LLC	MIN	04/30/1956	745	0	4.5	20.0
	B 00371	SABRE-PINON CORPORATION	MIN	08/25/1956	752	0	8.63	100.0
	B 00522	UNITED NUCLEAR-HOMESTAKE PTNRS	MON	02/07/1978	70	0		
	B 00522	UNITED NUCLEAR-HOMESTAKE PTNRS	MON	02/07/1978	70	0	5.0	0.0
	B 00994	RIO ALGOM MINING LLC	MIN	09/18/1958	857	0		
3.0 – 4.0	B 01087	ALBERS BROTHERS	STK	05/25/1985	651	566	5.0	6.0
	B 01246	ELKINS	STK	04/29/1992	1200	700	6.63	100.0

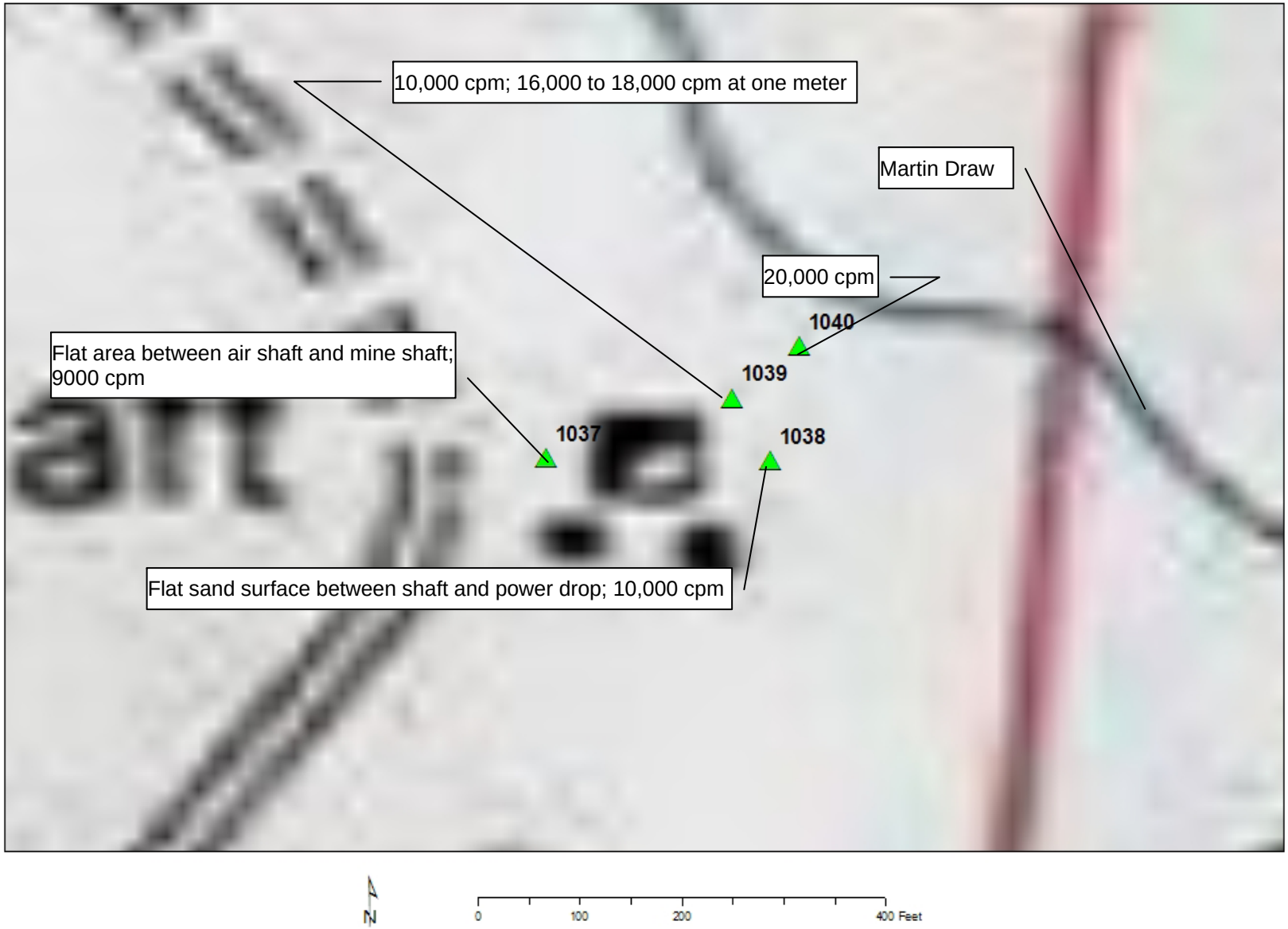
DOM -- 72-12-1 DOMESTIC ONE HOUSEHOLD
MIN -- MINING OR MILLING OR OIL
MON -- MONITORING WELL
STK -- 72-12-1 LIVESTOCK WATERING

File review:
Files that were reviewed for this assessment are listed below.

Site reconnaissance:
Personnel from NMED and New Mexico Energy, Minerals, and Natural Resources visited the Site on July 29, 2010 in the company of Mr. George Lotspeich (president of Southwest Resources, Inc.) and personnel from Neutron Energy, Inc. All gamma readings shown on the figure accompanying this report were made with a Ludlum 14-C analog scintillometer (serial number 194209) with an uncollimated Ludlum 44-2 gamma detector (serial number PR241278), for which readings are recorded in counts per minute ("cpm"). Contact readings from this instrument ranged from 9000 to 20,000 cpm.

Recommendation:
Site reconnaissance and characterization under CERCLA is recommended to determine the existence and extent of elevated radiological readings to assess threats to human health and the environment; background gamma radiation at other sites that have been assessed in the area generally ranges between 2000 and 5000 cpm. Additionally, the Site reconnaissance should assess physical features, such as debris, other unmarked shafts, or exploration drillholes that may pose safety hazards to human trespassers or livestock. Investigation of sediments in Martin Draw in the vicinity of erosional features originating or crossing this Site also is recommended to assess the potential occurrence of impacts from dispersal of waste materials that have been left on-Site.

Currently, the existence of regional impacts from legacy uranium sites to the ground water system has not been determined. Ground water impacts from "dry" mines such as this Site initially would impact the alluvial ground water system through leaching of on-site waste materials and ore stockpiles. Such impacts, if they exist, predominantly may be localized to alluvial ground water in the vicinity of the Site. Alternatively ground water impacts may be more widespread, contributing to the overall potential degradation of the alluvial ground water regionally, as well as potentially to impacts to ground water in underlying bedrock aquifers. A generalized investigation of "dry" former uranium mines within the Grants Mining District is recommended as part of the characterization of ground water quality in the Grants Mining District.



Observation from 7/29/2010 reconnaissance of Dysart #2 minesite
(all gamma readings represent surface contact unless otherwise noted)

P1: Operational hoist over mineshaft

P2: Collapse crater marking location of ventilation shaft

P3: A ventilation shaft distant from main shaft

1. Anderson, Orin J., undated (reporting investigations between August 1979 and May 1980) "Abandoned or inactive uranium mines in New Mexico." New Mexico Bureau of Mines and Mineral Resources Open-file report 148.
2. New Mexico Energy, Minerals, and Natural Resources Department, undated. "2007-07-20 to NMED-GWQ-Sfund.xls." Spreadsheet excerpt.
3. McLemore, Virginia T. and William L. Chenoweth, revised December 1991. "Uranium mines and deposits in the Grants district, Cibola and McKinley counties, New Mexico." New Mexico Bureau of Mines and Mineral Resources Open-file report 353.
4. New Mexico Energy, Mineral and Natural Resources Department, date illegible. "Subpart 3: Minimal impact exploration permit application." Submitted for Section 11 mine.
5. Ennis, David (New Mexico Energy, Minerals, and Natural Resources Department), June 16, 2010. "RE: Request for information on the Dysart #2 mine." Email to David L. Mayerson, NMED.
6. Pfeil, John (New Mexico Energy, Minerals, and Natural Resources Department), July 20, 2010. "RE: Request for update." Email to David L. Mayerson (New Mexico Environment Department).
7. New Mexico Office of the State Engineer. "May_06_wells." Shapefile.
8. New Mexico Energy, Minerals, and Natural Resources Department, November 20, 2007. "RE: Exploration application, Section 11 Mine MK021EM." Letter to George Lotspeich, Southwest Resources, Inc..