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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 16, 2010

**Subject:** Pre-CERCLIS screening assessment of the Dysart #1 mine  
(Grants Mining District), McKinley County, New Mexico:  
Further action under CERCLA is recommended

<b>Site name</b>	Dysart #1	<b>Alternative names</b>	Rio de Oro, Section 11
<b>Street address</b>	not applicable	<b>City</b>	not applicable
<b>State</b>	New Mexico	<b>Zip code</b>	not applicable
<b>County</b>	McKinley	<b>Latitude</b>	35.45525
<b>Longitude</b>	-107.872056	<b>TRS</b>	14N, 10W, s. 1SW

**Site physical description:**

Information on the current physical description of the Dysart #1 minesite ("Site") is summarized from the April 10, 2010 Site visit report by Intera, Inc., contractor to the New Mexico Energy, Mineral, and Natural Resources Department (NMEMND; Ref. 1).

Surficial Site reclamation occurred after 1980 (Ref. 1, p. 3) Current Site features include a possible subsidence feature, four waste piles, one open cut, one foundation, and power lines. The waste piles are soil-capped and may be comprised of soil, with some rock and associated uranium minerals.

**Site identification:**

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

**Site summary:**

The Dysart #1 mine operated between 1956 and 1962 (Ref. 2) or 1961 when the orebody had been mined-out (Ref. 3, p. 60) producing nearly 892,000 tons of ore from the Westwater Canyon member of the Morrison Formation with an average grade of 0.21% uranium oxide ( $U_3O_8$ ), and over 47,000 pounds of vanadium oxide ( $V_2O_5$ ; Ref. 4). Mining occurred underground through a 395 ft shaft (Ref. 5). All workings were completely dry. The mostly black uranium mineralization was accompanied by minor occurrences of molybdenum minerals on the fringes of the ore, and of native selenium, which mostly was found in the southeastern area of the mine (Ref. 3, p. 60).

In the recent Site reconnaissance, the highest gamma radiation reading on one waste pile was 350 microRoentgens per hour ( $\mu R/hr$ ) at 0 feet (ft) above ground surface ("ags;" Ref. 1, p. 2-3). The highest overall Site gamma radiation reading was 450  $\mu R/hr$  at 0 ft ags (Ref. 1, p. 4). Site background gamma radiation level was determined to be 24  $\mu R/hr$  at both 0 and 4 ft ags (Ref. 1, p. 3).

**Targets:**

Site surface runoff drains to Martin Draw, which is within about 1000 ft of the Site and joins the Arroyo del Puerto nearby (Ref. 1, p. 2). Hoof prints on the Site suggest the presence of grazing cattle (Ref. 1, p. 4).

Wells that are registered with the New Mexico Office of the State Engineer and located within a 4-mile radius of the Site are shown in the table following (Ref. 6).

**Site ownership and Potential Responsible Parties:**

Ref. 1 (p. 3) indicates that George Lotspeich currently owns the minesite; Mr. Lotspeich is President of Southwest Resources, Inc. (Ref. 7, p. 2, 3).

Peabody and Fraka constructed the mineshaft in 1955. Rio de Oro operated the mine between 1956 and 1960 and Mid-Continent Exploration Company operated between 1961 and 1962 (Ref. 5). Alternatively Rio de Oro and Mid-Continent Exploration Company may have jointly operated the mine between 1959 and 1961; Homestake-Sapin Partners operated between 1961 and 1962 (Ref. 4; Ref. 5). United Nuclear-Homestake Partners owned the mine in 1980, but did not conduct any mining (Ref. 5).

**File review:**

Files that were reviewed for this assessment are listed below.

**Site reconnaissance:**

The most recent Site reconnaissance was performed by NMEMNRD contractor Intera Inc. on April 10, 2010.

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Distance from Site (miles)	OSE record number	Owner's first name	Owner's last name	use	finish date	depth of well (ft)	depth to water (ft)	casing diameter (in.)	yield (gpm)
1.0 -2.0	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 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	IRVIN R.	ANDREWS	DOM	07/18/1960	90	60		
	B 00366		RIO ALGOM MINING LLC	MIN	12/31/1955	760	0	4.5	10.0
	B 00371		SABRE-PINON CORPORATION	MIN	08/25/1956	752	0	8.63	100.0
	B 00994		RIO ALGOM MINING LLC	MIN	09/18/1958	857	0		
	B 01087		ALBERS BROTHERS	STK	05/25/1985	651	566	5.0	6.0
	B 01246	JERRY & LUANN	ELKINS	STK	04/29/1992	1200	700	6.63	100.0
3.0 -4.0	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 01558	LARRY D.	GRIDER	STK	03/19/2004	800	660	5.0	10.0

DOM -- 72-12-1 DOMESTIC ONE HOUSEHOLD

MIN -- MINING OR MILLING OR OIL

MON -- MONITORING WELL

STK -- 72-12-1 LIVESTOCK WATERING

**Recommendation:**

Additional investigation of the Site under CERCLA authority is recommended to assess any physical hazards as well as the areal extent of elevated radioactivity readings noted in the most recent Site reconnaissance to determine if threats to human health and the environment exist. NMED also recommends assessment of sediments in surface water drainages originating or crossing this Site to evaluate 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 from leaching prior to Site reclamation. 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 potential alluvial ground water impacts from “dry” former uranium mines within the Grants Mining District is recommended as part of regional ground water quality characterization. Depending upon the results of this investigation, additional site-specific alluvial ground water characterization might be considered.

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1. Intera Inc., May 28, 2010. “Abandoned uranium mine assessment for the Dysart No. 1 site (NM0041).” Prepared for the New Mexico Energy, Minerals and Natural Resources Department.
  2. Lucas Kamat, Susan (NMEMNRD), February 3, 2010. “Request for information.” Email to David L. Mayerson, NMED.
  3. Cronk, R.J., 1963. “Geology of the Dysart No. 1 mine, Ambrosia Lake area.” Included within “Geology and technology of the Grants uranium region,” New Mexico Bureau of Mines and Mineral Resources Memoir 15.
  4. 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.
  5. New Mexico Energy, Mineral and Natural Resources Department, undated. “2007-07-20 to NMED-GWQ-Sfund.xls.” Spreadsheet excerpt.
  6. New Mexico Office of the State Engineer. “May\_06\_wells.” Shapefile.
  7. New Mexico Energy, Mineral and Natural Resources Department, date illegible. “Subpart 3: Minimal impact exploration permit application.” Submitted for Section 11 mine.