



BILL RICHARDSON
Governor
DIANE DENISH
Lieutenant Governor

NEW MEXICO
ENVIRONMENT DEPARTMENT

Ground Water Quality Bureau

Harold Runnels Building
1190 St. Francis Drive, P.O. Box 5469
Santa Fe, NM 87502-5469
Phone (505) 827-2900 Fax (505) 827-2965
www.nmenv.state.nm.us



RON CURRY
Secretary
SARAH COTTRELL
Deputy Secretary

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 John Bull Mine,
New Mexico: Further action under CERCLA recommended

Site name	John Bully mine	Alternative names	John Bill, John Bull, John Bully shaft
Street address	not applicable	City	not applicable
State	New Mexico	County	McKinley
Zip code	not applicable	Latitude	35.400139
Longitude	-107.780463	TRS	14N, 9W, s. 34

Site physical description:

In 2007, the John Bully minesite ("Site") comprised an approximately 4-acre reclaimed area. The mineshaft was initially reclaimed and seeded in 1994. The only remaining visible feature then was an abandoned wooden-framed electrical substation structure (Ref. 1).

Site identification:

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

Site summary:

The Site was operated between 1959 and 1963 by Phillips Petroleum, and from 1963 until 1980 by United Nuclear Corporation ("UNC;" Ref. 2). Mining operations necessitated dewatering of the ore body; uranium was extracted from the mine water effluent during the operation (Ref. 3).

Targets:

The Site is located within 600 ft of the Voght Tank and 300 ft of a ditch shown on the

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topographic map; the Voght Tank is documented to have received effluent from mining operations, and drains into the Arroyo del Puerto (“AdP”).

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. 4).

Site ownership and Potential Responsible Parties:

Surface rights are owned by UNC. Hecla Mining Company owns the mineral rights (Ref. 5).

File review:

Files that were reviewed for this assessment are listed below.

Site reconnaissance:

The most recent site reconnaissance occurred in 2007.

Recommendation:

The New Mexico Environment Department has found little specific documentation about the Site. A current Site reconnaissance is recommended. A radiological survey of surface drainages and erosional features crossing or originating from the Site is recommended to assess possible impacts to sediments.

Currently, the existence of regional impacts from legacy uranium sites to the ground water system has not been determined. Ground water was pumped from the John Bully mine in order to access the ore deposits and probably was discharged into the nearby ditch, which empties to the Voght Tank and eventually to the AdP drainage. This ditch near the Site and the Voght Tank should be surveyed to attempt to determine where the effluent discharge may have been routed; radiological surveying and sediment sampling to depth also is recommended to determine potential impacts to sediments. Impacts from the Site may be difficult to discriminate from impacts originating from other legacy uranium sites that utilized the same drainage system. A generalized investigation of potential alluvial ground water impacts from “wet” former uranium mines within the Grants Mining District is recommended as part of regional ground water quality characterization. If this generalized investigation were to indicate a potential for alluvial ground water impacts, on-Site installation of one or more monitor wells then should be considered.

Data from other former “wet” mines suggest that repressurization of the ore-host rock, following cessation of pumping for mine dewatering, may be causing mobilization of uranium and associated minerals, and consequent degradation of ground water quality, due to influx of oxygenated ground water. The potential for such impacts, on both regional and site-specific scales, should also be assessed and characterized.

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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)
2.0 – 3.0	B 01190	MARQUEZ	STK	08/31/1989	390	37		15.0
3.0 – 4.0	B 00456	SANDOVAL	STK		0	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 01104	SANDOVAL	DOM	04/02/1986	303	247	4.0	12.0
	B 01115	MARQUEZ	DOM	07/21/1986	478	204	4.0	30.0
	B 01544	JACKSON	DOM	06/14/2003	715	624	5.0	6.0
	B 01636	GARCIA	DOM	05/10/2005	260	80	4.0	5.0

DOM -- 72-12-1 DOMESTIC ONE HOUSEHOLD

MON -- MONITORING WELL

STK -- 72-12-1 LIVESTOCK WATERING

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1. New Mexico Energy, Mineral, and Natural Resources Department, November 15, 2007. "Mining inspection report, Anne-Lee and John-Bill mines."
 2. New Mexico Energy, Mineral, and Natural Resources Department. 2007-07-20_to_NMED-GWQ-Sfund.xls.
 3. New Mexico Energy, Mineral, and Natural Resources Department. AUM_AOI_10Mar09.xls.
 4. New Mexico Office of the State Engineer. "May_06_wells." Shapefile.
 5. New Mexico Energy, Mineral, and Natural Resources Department. 20100603_LUMs_Assessment_List_EPA_NMED.xls.