SAND2010-3713P

ER Site 49: Building 9820 Drains (Lurance Canyon)

ADS: 1295
Operable Unit: Septic Tanks and Drainfields

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Site History

ER Site 49 included the area immediately surrounding the outfall from Building 9820 and the former location of a trailer used as a darkroom for photo processing. Building 9820, located in Coyote Canyon about 3.6 km (1.5 mi) from the Sol se Mete Aerial Cable Site, was constructed in 1958 for explosive compounds synthesis. The facility also was used for some animal experiments in 1958 and 1959, but little is known about these activities. A machine shop was opened in the mid-1960s and may have discharged organic compounds to the floor drains. Washing of nickel-cadmium batteries with dilute acetic acid in the past may have discharged up to 4 L (1 gal.) of the acid into the drains or sinks. Some photo processing was performed in the past. There is currently no activity in the building. The site is adjacent to an Air Force training range. Spent cartridges and debris from flares, smoke bombs, and other devices used in training are often found at the site.

Building 9820 has no toilet facilities. Non-potable water was trucked in periodically to fill a 3800-L (1000-gal.) storage tank at the facility. No estimates of volume of water used exist. There are five floor drains in the building and one hand sink located in a former woodworking shop. The sink discharges into a 4-in. asbestos-cement drain line, which drains east from the building to a surface outfall near the bottom of a small arroyo. This arroyo is a tributary of Coyote Canyon. The floor drains, which are now sealed, discharged through the same line. The drain system is no longer in use. The discharge point is vegetated with a type of cane often used in landscaping that dies back in cold weather or during dry periods and shows regrowth with rain. A thick mat of dead vegetation has built up around the discharge point.

No depth-to-groundwater data is available for the area in which this site is located. Groundwater in the nearest groundwater monitoring well, CYN-MW5, approximately 1,500 feet northwest of Bldg. 9820 is approximately 107 feet below ground surface.

Corrective Action

A passive soil gas survey was conducted in the surface outfall area in June 1994. No significant VOC or SVOC anomalies were detected as a result of this survey.

A total of 57 confirmatory soil samples were collected in October 1994 from four boreholes near the surface outfall. Samples were collected from depths of 1 and 11 feet, and were analyzed for VOCs, SVOCs, cyanide, the high explosives (HE) compound trinitrotoluene (TNT), RCRA metals, hexavalent chromium, isotopic uranium, and radionuclides by gamma spectroscopy. Trace levels of two VOCs and one SVOC were detected, and cyanide and TNT were not detected in the samples. Mercury and silver were also detected at concentrations slightly higher than background in four and one of the metals samples, respectively. Hexavalent chromium was not detected. Radionuclide analyses indicated that there was no evidence of radionuclide contamination at the site.

An additional 12 confirmatory soil samples were collected in May 1995 from two boreholes at the darkroom trailer surface discharge location. These samples were also collected from depths of 1 and 11 feet, and were analyzed for cyanide and RCRA metals. Cyanide was not detected, and none of the metals were detected at above-background concentrations in the samples.

The distal end of the Bldg. 9820 outfall drain pipe was sealed with mortar in November 1995.

A confirmatory sampling No Further Action (NFA) proposal for this site was submitted to New Mexico Environment Department/Hazardous Radioactive Materials Bureau (NMED/HRMB) in June 1996. NMED issued a Request for Supplemental Information (RSI) in June 1998. SNL/NM responded to the RSI in November 1998. NMED issued a second RSI in June 2000 and required that a monitoring well be installed near this site. SNL/NM responded to the second RSI in September 2000.

In August 2001 a groundwater monitoring well (well CYN-MW5) was installed approximately 1,500 feet northwest of and downstream of the site, at the confluence of the minor tributary in which ER Site 49 is located, and Lurance Canyon. A total of eight quarters of groundwater samples were collected from this well starting in July 2002, and ending in May 2004. Groundwater samples were analyzed for VOCs, SVOCs, HE compounds, RCRA metals, hexavalent chromium, nitrate plus nitrite, major anions and cations, and gross alpha and beta activity. VOCs and HE compounds were not detected, and one SVOC was detected in the samples. For the metals, only barium and hexavalent

chromium were detected at concentrations slightly above background. Nitrate/nitrite and fluoride were detected at concentrations below promulgated regulatory groundwater standards, and gross alpha and beta activities were below promulgated standards in all of the samples.

A third RSI response was submitted to the NMED in June 2005. This document described the results of environmental investigation work completed at SWMU 49 since the June 1996 NFA report was written, and also included an updated risk assessment evaluation for the site.

On September 13, 2005, NMED found the NFA petition for Site 49 to be acceptable. Information about the site was presented at a public poster session in March 2006.

Constituents Investigated

VOCs, SVOCs, cyanide, TNT, RCRA metals, hexavalent chromium, isotopic uranium, and radionuclides by gamma spectroscopy. Groundwater samples from well CYN-MW5 were analyzed for VOCs, SVOCs, HE compounds, RCRA metals, hexavalent chromium, nitrate plus nitrite, major anions and cations, and gross alpha and beta activity.

Institutional Controls

Pending regulatory approval, institutional controls will be determined.

Current Regulatory Status

Corrective action is complete at Site 49. NMED has approved the NFA request, and this site is currently in the permit modification process.

Results of Risk Analysis

Because COCs were present in concentrations greater than background-screening levels or because constituents were present that did not have background-screening numbers, it was necessary to perform a risk assessment for the site. The risk assessment analysis evaluated the potential for adverse health effects for an industrial and residential land-use scenario. The results of the risk assessment were below the NMED risk guidelines for both the industrial and residential land-use scenarios. As summarized in the table below, none of the non-radiological constituents contributed significantly to the overall risks.

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Sampling conducted at Site 49 has indicated that there is no evidence of radiological contamination, and the site has been approved by the U.S. Department of Energy for unrestricted radiological release.

Using the SNL predictive ecological risk assessment methodology, the ecological risk for ER Site 49 is predicted to be low.

In conclusion, human health and ecological risks are acceptable per NMED guidance for a residential land-use scenario. Thus, the petition for NFA without controls for ER Site 49 is expected to be officially approved by the NMED soon.

Risk Assessment Values for DSS SWMU 49 Nonradiological COCs

COC	Maximum Concentration (All Samples) (mg/kg)	Industrial Land-Use Scenario[a]		Residential Land-Use Scenario[a]	
		Hazard Index	Cancer Risk	Hazard Index	Cancer Risk
Inorganic					
Chromium VI	0.025[b]	0.00	5E-11	0.00	1E-10
Cyanide	0.5[b]	0.00	--	0.00	--
Mercury	0.077 J	0.00	--	0.00	--
Silver	1.7	0.00	--	0.00	--
Organic					
bis(2-Ethylhexyl) phthalate	0.19 J	0.00	1E-9	0.00	4E-9
Methylene chloride	0.0033 J	0.00	2E-8	0.00	5E-8
Toluene	0.0025[b]	0.00	--	0.00	--
Total		**0.00**	**2E-8**	**0.00**	**5E-8**

[a]EPA 1989.
[b]Nondetected concentration (i.e., one-half the maximum detection limit is greater than the maximum detected concentration).
COC = Constituent of concern.
DSS = Drain and Septic Systems.
EPA = U.S. Environmental Protection Agency.
J = Concentration was qualified as an estimated value.
mg/kg = Milligram(s) per kilogram.
SWMU = Solid Waste Management Unit.
-- = Information not available.

Waste Volume Estimated/Generated

Two drums of non-regulated asbestos pipe were generated.

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