



**BILL RICHARDSON**  
GOVERNOR

*State of New Mexico*  
**ENVIRONMENT DEPARTMENT**

*Hazardous Waste Bureau*  
2905 Rodeo Park Drive East, Building 1  
Santa Fe, New Mexico 87505-6303  
Telephone (505) 428-2500  
Fax (505) 428-2567  
[www.nmenv.state.nm.us](http://www.nmenv.state.nm.us)



**RON CURRY**  
SECRETARY

**DERRITH WATCHMAN-MOORE**  
DEPUTY SECRETARY

**MEMORANDUM**

**TO:** Will Moats, Albuquerque Group Manager

**FROM:** Carolyn Cooper

**SUBJECT:** **SUMMARY OF THE RCRA CLOSURE REPORT FOR THE SNL/NM INTERIM STORAGE SITE (ISS), REVISION 2.0, JANUARY 2002**

**DATE:** October 7, 2004

**Background:**

- Compacted soil area 200 ft x 215 ft, surrounded by 4 foot high fence, located above the southern portion of the Mixed Waste Landfill
- Used for storage of containerized RCRA-regulated hazardous and mixed waste, from April 1989 to January 1996
- No documented releases or documented waste-handling incidents that might have resulted in contamination of soil or equipment
- Scintillation cocktails were the only liquid wastes stored at the ISS; they were contained in vials within 55-gallon drums
- Sources of potential contaminants of concern (COC) at the ISS are the materials that were present in the waste during the handling, moving, and storage activities at the ISS
- Inventory included chemical waste, process waste, reactive waste, used batteries, elemental lead, contaminated soil, contaminated debris, contaminated equipment, scintillation cocktails, and treatment residues
- Inventory and disposition of waste listed in Appendix A of report
- Storage capacity: 18,000 cubic feet

**Confirmatory Sampling:**

- Designed to characterize the nature and extent of any releases that may have occurred from the containers stored on the surface of the site
- 25 surface (0-6") soil samples collected from a grid in January 2001
- Samples analyzed for total metals, beryllium, uranium, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), tritium, gross alpha, gross beta, gamma spectroscopy, isotopic plutonium
- Barium was detected above background at a maximum concentration of 135 mg/kg

- Cadmium, mercury, and selenium were detected but did not have quantifiable background screening concentrations for comparison
- Cadmium was detected at a maximum concentration of 0.23 mg/kg
- Mercury was detected at a maximum concentration of 0.01 mg/kg
- Selenium was detected at a maximum concentration of 0.57 mg/kg
- Tritium was detected above background at a maximum level of 0.133 pCi/g
- U-238 was detected above background at a maximum level of 2.41 pCi/g
- Pu-238 was detected above the expected worldwide atmospheric fallout level at a maximum level of 0.0467 pCi/g
- Pu-239 was detected above the expected worldwide atmospheric fallout level at a maximum level of 0.00457 pCi/g
- Data tables in Appendix D

#### Risk Assessment:

- Surface soil is the primary receptor; wind is the primary transport mechanism
- The site is designated for a future industrial land-use scenario
- Maximum values were used in the risk assessment to provide conservative results
- Non-radiologic COCs detected and used in the assessment were: Ba, Cd, Hg, and Se
- Silver was not detected, but a value equal to ½ the detection limit was used in the risk assessment
- Radiologic COCs detected and used in the risk assessment were: tritium, U-238, Pu-238, and Pu-239
- Industrial Hazard Index = 0.00; cancer risk = 8E-11
- Residential HI = 0.4; cancer risk = 1E-10; cadmium (HI= 0.18) and selenium (HI= 0.20) are the risk drivers for the hazard index
- For radiologic COCs under an industrial land-use scenario: Total Effective Dose Equivalent (TEDE) is 2.8E-2mrem/yr [US EPA's guideline is 15 mrem/yr]; radiologic cancer risk is 3.1E-7
- For radiologic COCs under a residential land-use scenario: TEDE is 7.08E-2 mrem/yr; radiologic cancer risk is 4.1E-7
- Conclusion: the ISS poses an insignificant risk to human health under either the industrial or the residential land-use scenario

#### Eco-Risk Screening:

- Site is disturbed grassland habitat, approximately 1 acre in size
- Complete ecological pathways may exist at the site
- Several COPECS exist at the site: barium, cadmium, mercury, selenium, silver, tritium, U-238, Pu-238, and Pu-239
- Total radiologic doses rates for all species were less than the benchmark of 0.1 rad/day
- Maximum concentrations were used to provide a conservative exposure scenario
- The Hazard Quotient exceeded unity for deer mice, due to elevated barium. The average barium value for the site was calculated, and it was found to be within the range of background concentrations
- Conclusion: ecological risks associated with the ISS are expected to be low

#### Site Closure:

- Closure of the ISS was certified by an independent engineer on May 22, 2001
- Closure of the ISS was approved by NMED on March 8, 2002

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