

Kieling, John, NMENV

From: Gould, John [jgould@doeal.gov]
Sent: Monday, November 19, 2007 3:50 PM
To: Bearzi, James, NMENV
Cc: Kieling, John, NMENV; Moats, William, NMENV
Subject: FW: Documents for Comment on 48, 135, 148, 152 and 276
Attachments: Comment on NMED Decision to Place Land-Use Restriction on SWMUs 137, 148, 152 and 276 w Sandia footnote.pdf

James, Due to delays caused by Patty being out of the office till today, we are sending this by e-mail. Paper copy follows. Thanks, John

Dear Mr. Bearzi:

On behalf of the Department of Energy (DOE) and Sandia Corporation, DOE is submitting comments on the decision by the New Mexico Environment Department (NMED) Hazardous Waste Bureau to designate Solid Waste Management Units (SWMUs) 137, 148, 152, and 276 as "Corrective Action Complete with Controls." The NMED decision is documented in Public Notice No. 07-16, dated September 20, 2007 and titled "Notice of Public Comment Period and Intent to Approve a Permit Modification of the U.S. Department of Energy/Sandia Corporation's RCRA Permit for Sandia National Laboratories." Attached is a detailed discussion of our objection to the designation. We request that the NMED decision be revised to reflect that no future land-use restrictions are needed for these sites.

A certified copy of this transmittal is in the mail to you.

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11/21/2007



**Comment on NMED Decision to Place Land-Use Restrictions on
SWMUs 137, 148, 152, and 276
November 2007**

The Department of Energy (DOE) and Sandia Corporation (Sandia) have concerns with the decision by the New Mexico Environment Department (NMED) Hazardous Waste Bureau to place land-use restrictions on Solid Waste Management Units (SWMUs) 137, 148, 152, and 276. The NMED decision is documented in Public Notice No. 07-15, dated September 20, 2007 and titled "Notice of Public Comment Period and Intent to Approve a Permit Modification of the U.S. Department of Energy/Sandia Corporation's RCRA Permit for Sandia National Laboratories."

In the Statement of Basis (SOB) attached to the notice, the following is stated:

- SWMUs 148, 152 and 276 have unacceptable excess cancer risk.
- The small number of samples collected at Site 137 does not justify the use of the UCL of the mean concentration for arsenic, cyanide and silver in the risk calculations.

Arsenic dominates the excess cancer risk for SWMUs 137, 148, 152 and 276 (See Attachment 1 for the risk tables for these sites). There is no process knowledge or site history that indicates that arsenic should be a constituent of concern (COC) at any of these sites. The arsenic concentrations at these sites only slightly exceed the NMED-approved background value (Dinwiddie, 1997) and are within the range of background arsenic concentrations for the designated background area (IT, March 1996).

SWMU 276 is located in the background study region designated as the North Area Supergroup and SWMUs 137, 148 and 152 are located in the background study region designated as the Southwest Area Supergroup. The same samples were used to determine the arsenic background concentration for both the North and Southwest Area Supergroups (IT, March 1996). All of the samples collected at these sites were subsurface samples; the depths of the samples ranged from 5 to 24 feet below ground surface. For the North and Southwest Area Supergroups, the NMED-approved background concentration for subsurface soils is 4.4 mg/kg. This background value is the 95% upper tolerance limit of the background study sample set, and therefore, by definition, approximately 5% of the site data that would be considered to be background concentrations are expected to "exceed" the background value. The range of arsenic concentrations for subsurface soil samples used in the background study was 0.033 to 17 mg/kg.

The maximum arsenic concentration detected at each of the sites of concern is as follows: SWMU 137 (6.2 mg/kg), SWMU 148 (8.5 mg/kg); SWMU 152 (7.9 mg/kg); and SWMU 276 (5.93 mg/kg). Attachment 2 includes graphs of all the data for these sites; the graphs also include a reference line for the NMED-approved background concentrations and the Residential Soil Screening Levels (NMED, June 2006). For each of these sites, only one of the arsenic concentrations exceeds the NMED-Approved Background Concentration.

In summary:

- All of the maximum arsenic concentrations for these sites are within the range of arsenic concentrations for subsurface soil samples that were used in the background study.
- Only one sample at each of the sites exceeded the NMED-approved background concentration, and
- There is no process knowledge that indicates that arsenic should be a COC at any of these sites.

Based on these points, these sites are acceptable for residential land use and should be designated as Corrective Action Complete without Controls.

NMED identified a second concern for SWMU 137 that there were not a sufficient number of samples collected at the site. Attachment 2 includes data graphs for arsenic, cyanide and silver for this site. There were 60 soil samples analyzed for arsenic; two of the arsenic soil samples had concentrations that exceed the Residential Soil Screening Value. There were 57 soil samples analyzed for cyanide; all of the cyanide soil samples had concentrations far below the Residential Soil Screening Value. There were 65 soil samples analyzed for silver; two of the silver soil samples had concentrations above the Residential Soil Screening Value. Because of the large number of soil samples that were collected and the distribution of the soil concentrations in relationship to the Residential Soil Screening Values, the use of UCLs at SWMU 137 is a realistic representation of existing soil conditions. The use of UCLs at this site should not be disallowed. Based on the data collected, SWMU 137 is acceptable for residential usage and should be designated as Corrective Action Complete without Controls.

References

Dinwiddie, R.S. (New Mexico Environment Department), September 1997. Letter to M.J. Zamorski (U.S. Department of Energy), "Request for Supplemental Information: Background Concentrations Report, SNL/KAFB." September 24, 1997.

IT Corporation, March 1996. "Background Concentrations of Constituents of Concern to the Sandia National Laboratories/New Mexico Environmental Restoration Project and the Kirtland Air Force Base Installation Restoration Program," IT Corporation, Albuquerque, NM.

New Mexico Environment Department (NMED), June 2006. "Technical Background Document for Development of Soil Screening Levels, Revision 4.0," Hazardous Waste Bureau, Ground Water Quality Bureau, and Voluntary Remediation Program, New Mexico Environment Department, Santa Fe, New Mexico.

NMED, see New Mexico Environment Department.

Attachment 1
Risk Assessment Tables for SWMUs 137, 148, 152 and 276

Table 1. Risk Assessment Values for SWMU 137 Nonradiological COCs

COC	Maximum Concentration /UCL (mg/kg)	Industrial Land-Use Scenario ^a		Residential Land-Use Scenario ^a	
		Hazard Index	Cancer Risk	Hazard Index	Cancer Risk
<i>Inorganic</i>					
Arsenic	6.2/ 3.0	0.02	4E-6	0.29/ Below Background	2E-5/ Below Background
Barium	241	0.00	--	0.05	--
Chromium, total	46.7	0.00	--	0.00	--/--
Cyanide	920/ 17.7	0.07	--	0.75/ 0.14	--/--
Silver	1,170/ 267	0.24	--	3.08/ 0.70	--/--
<i>Organic</i>					
Acetone	0.023	0.00	--	0.00	--
2,4-Dichlorophenol	0.33	0.00	--	0.00	--
Diethylphthalate	0.5	0.00	--	0.00	--
Di-n-butylphthalate	0.77	0.00	--	0.00	--
bis(2-Ethylhexyl) phthalate	0.165b	0.00	9E-10	0.00	4E-9
Methyl isobutyl ketone	0.005b	0.00	--	0.00	--
Methylene chloride	0.0073	0.00	5E-8	0.00	1E-7
Toluene	0.0027b	0.00	--	0.00	--
Total		0.35	4E-6	4.16/ 0.90	2E-5/ 1E-7

^aEPA 1989.

^bNondetected concentration (i.e., one-half the maximum detection limit is greater than the maximum detected concentration).

Bold values represent UCLs and calculations with UCLs.

COC = Constituent of concern.

DSS = Drain and Septic Systems.

EPA = U.S. Environmental Protection Agency.

mg/kg = Milligram(s) per kilogram.

SWMU = Solid Waste Management Unit.

-- = Information not available.

Note: Using the average concentration for arsenic, cyanide, and silver in the risk analysis reduces the total excess cancer risk value to 3E-8 and reduces the total hazard index to 0.90. Thus, using realistic concentrations in the risk calculations that more accurately depict actual site conditions results in the total estimated excess cancer risk and the total hazard index being below NMED guidelines.

Table 2. Risk Assessment Values for DSS SWMU 148 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					
Arsenic	8.5	0.03	5E-6	0.39	2E-5
Cyanide	0.00025 ^b	0.00	–	0.00	–
Organic					
Methylene chloride	0.0025 ^b	0.00	2E-8	0.00	3E-8
Toluene	0.0025 ^b	0.00	–	0.00	–
Total		0.03	5E-6	0.39	2E-5

^aEPA 1989.

^bNondetected 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.

mg/kg = Milligram(s) per kilogram.

SWMU = Solid Waste Management Unit

– = Information not available.

Note: Using the average concentration for arsenic in the risk analysis reduces the total excess cancer risk value to 3E-8. Thus, using realistic concentrations in the risk calculations that more accurately depict actual site conditions, results in the total estimated excess cancer risk being below NMED guidelines.

Table 3. Risk Assessment Values for DSS SWMU 152 Nonradiological COCs

COC	Maximum Concentration (mg/kg)	Industrial Land-Use Scenario ^a		Residential Land-Use Scenario ^a	
		Hazard Index	Cancer Risk	Hazard Index	Cancer Risk
Inorganic					
Arsenic	7.9	0.03	5E-6	0.37	2E-5
Cyanide	0.25 ^b	0.00	–	0.00	–
Organic					
Acetone	0.0096 J	0.00	–	0.00	–
Methylene chloride	0.004 J	0.00	3E-8	0.00	5E-8
Total		0.03	5E-6	0.37	2E-5

^aEPA 1989.

^bNondetected 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.

mg/kg = Milligram(s) per kilogram.

SWMU = Solid Waste Management Unit

– = Information not available.

Table 4. Risk Assessment Values for DSS Site 276 Nonradiological COCs

COC	Maximum Concentration (mg/kg)	Industrial Land-Use Scenario ^a		Residential Land-Use Scenario ^a	
		Hazard Index	Cancer Risk	Hazard Index	Cancer Risk
Inorganic					
Arsenic	5.93	0.02	4E-6	0.27	2E-5
Chromium	13.6 J	0.00	–	0.00	–
Chromium VI	0.0265 ^b	–	6E-11	–	1E-10
Cyanide	0.0495 J	0.00	–	0.00	–
Organic					
2-Butanone	0.00761	0.00	–	0.00	–
Total		0.02	4E-6	0.27	2E-5

^aEPA 1989.

^bParameter was not detected. Concentration is one-half the maximum detection limit.

COC = Constituent of concern.

DSS = Drain and Septic Systems.

EPA = U.S. Environmental Protection Agency.

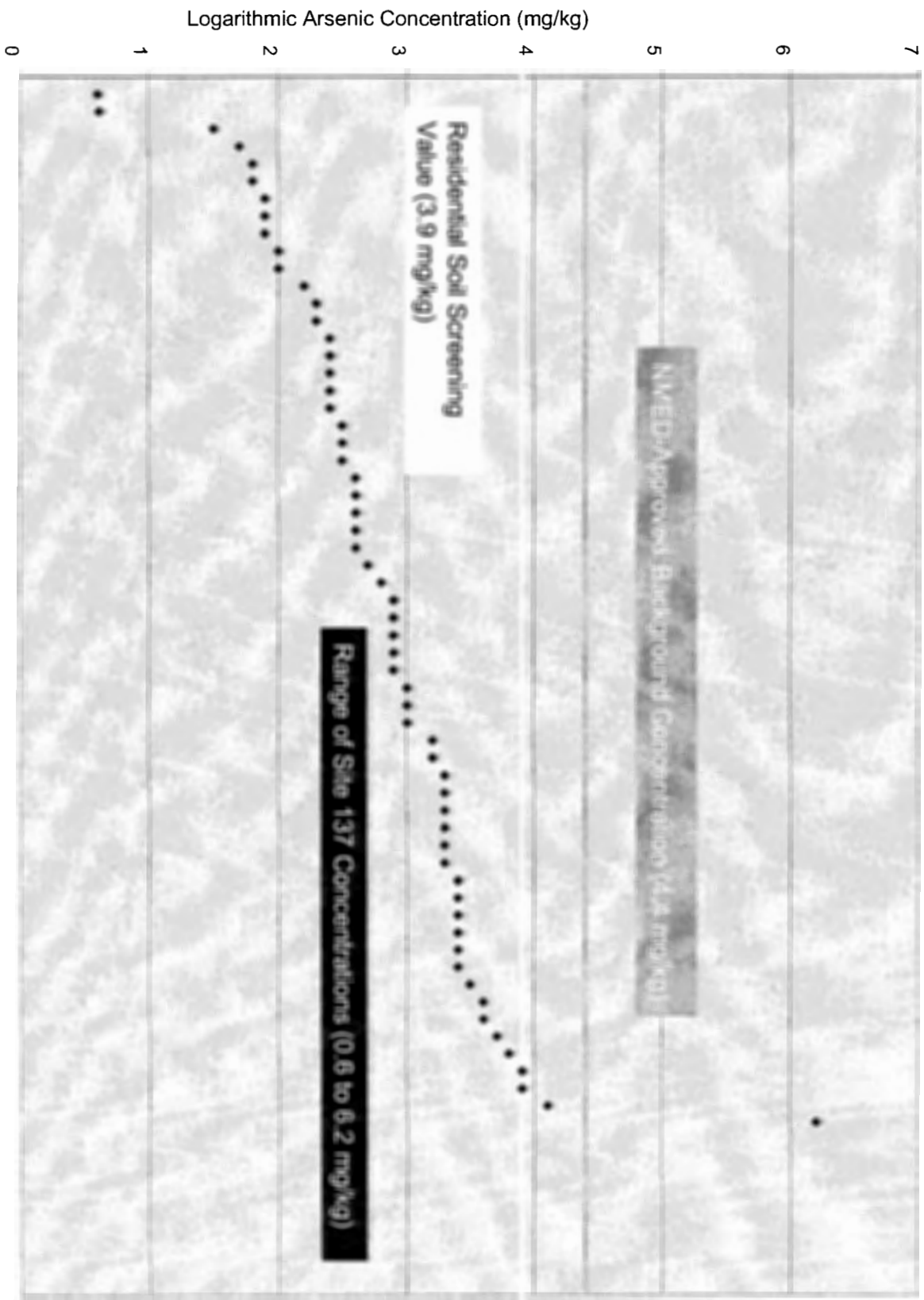
J = Estimated concentration.

mg/kg = Milligram(s) per kilogram.

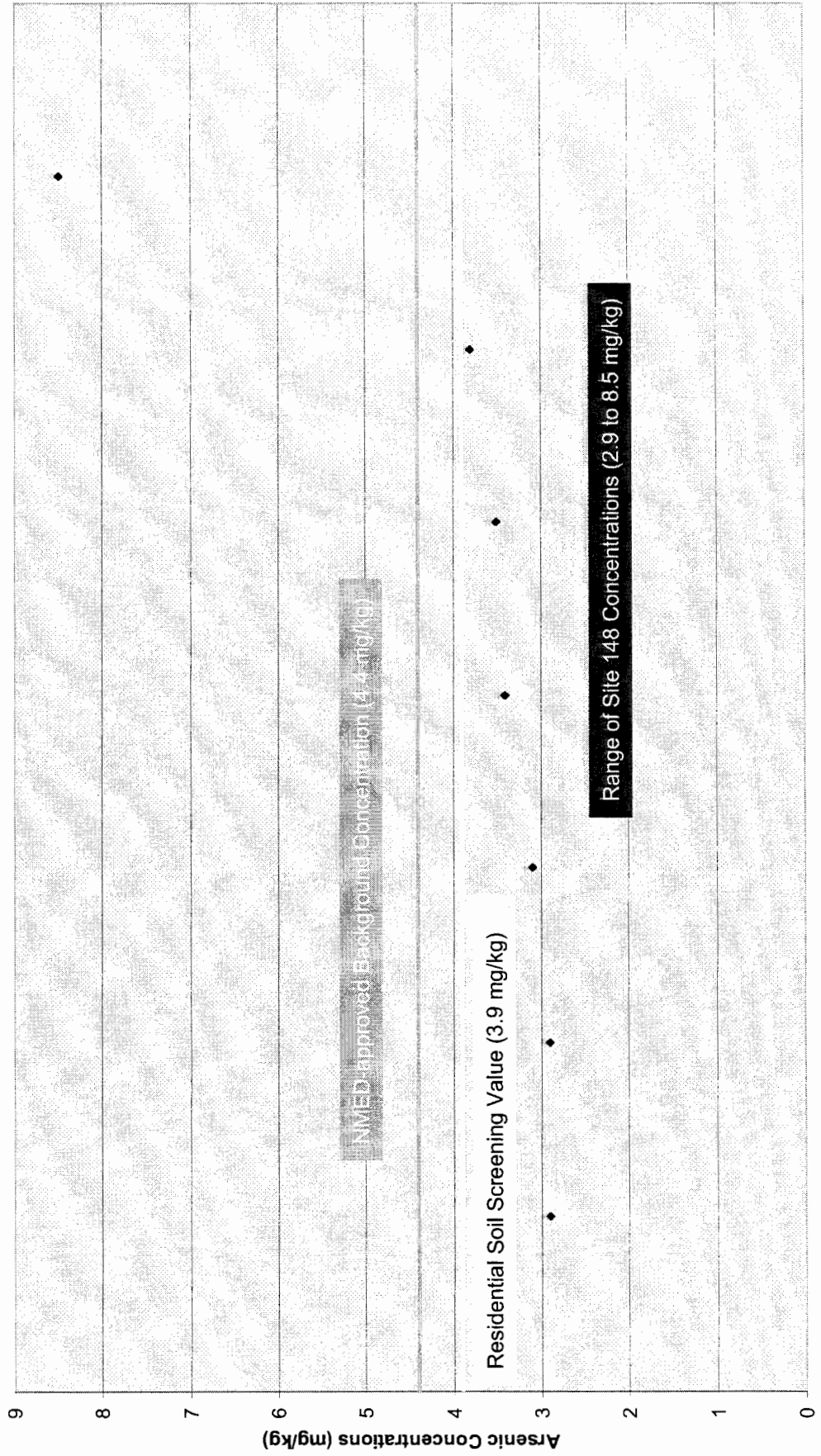
– = Information not available.

Attachment 2
Data Tables for SWMUs 137, 148, 152 and 276

SWMU 137 Arsenic Concentrations



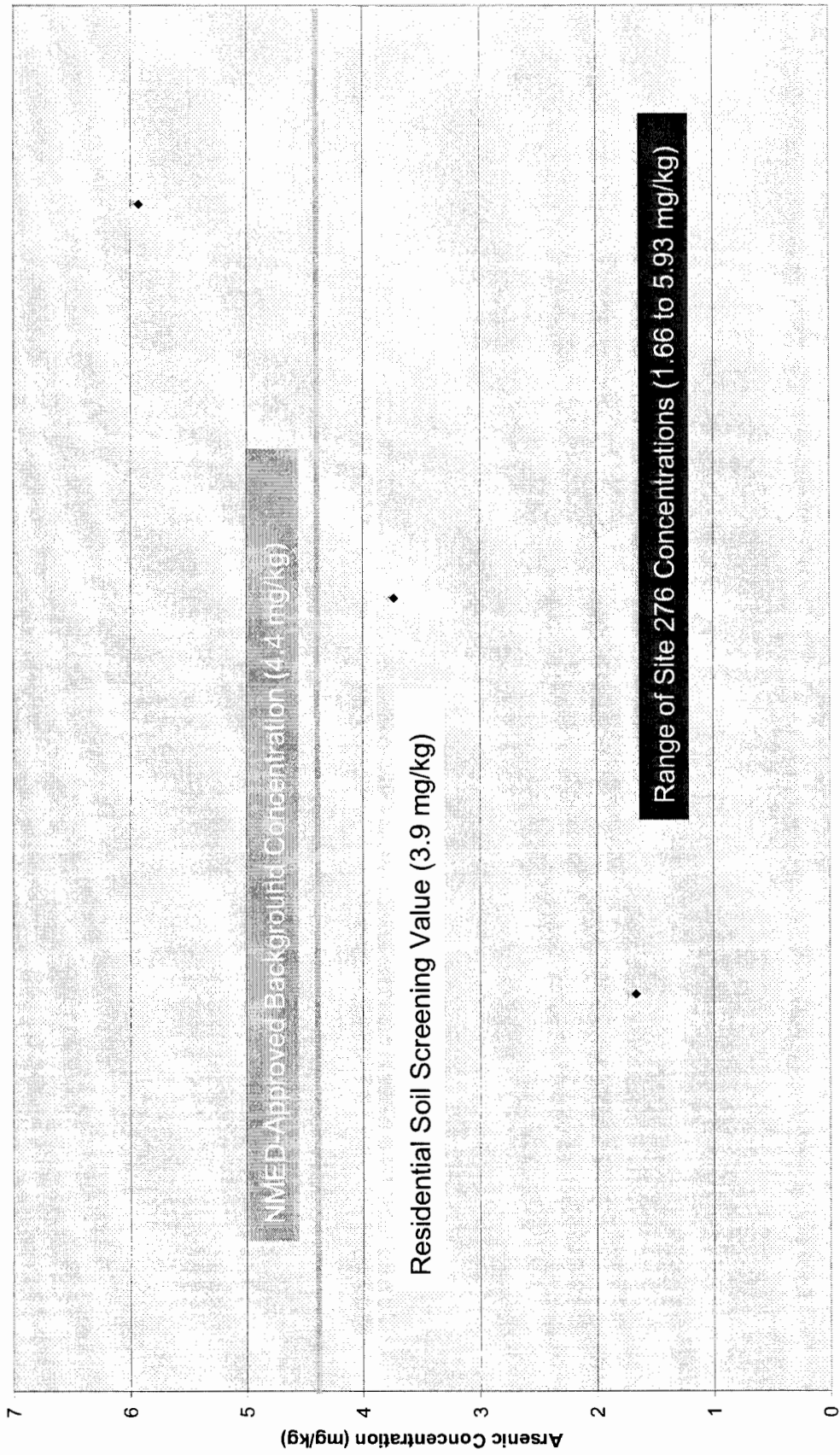
SWMU 148 Arsenic Concentrations



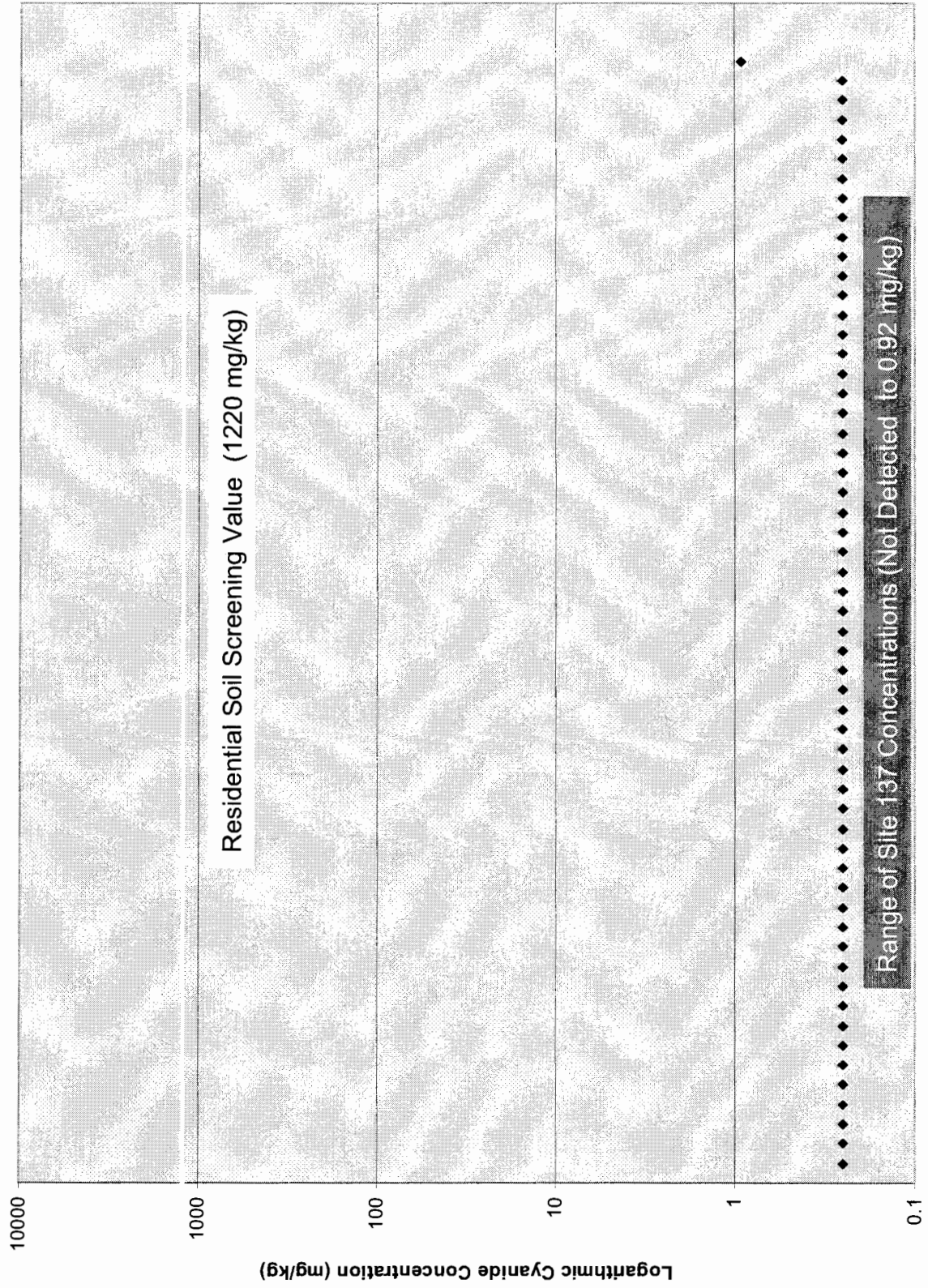
SWMU 152 Arsenic Concentrations



SWMU 276 Arsenic Concentrations



SWMU 137 Cyanide Concentrations



SWMU 137 Silver Concentrations

