National Nuclear Security Administration
Sandia Site Office
P.O. Box 5400
Albuquerque, New Mexico 87185-5400

FEB 07 2008

RECEIVED
FEB 12 2008

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Mr. John Kieling, Program Manager
Permits Management Program
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive, East
Building 1
Santa Fe, New Mexico 87505-6303

Dear Mr. Kieling:

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) 46, 52, 68, 234, and AOC 1090 as Corrective Action Complete (CAC) with Controls. The NMED decision is documented in Public Notice No. 07-22, dated December 10, 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." We have enclosed a detailed discussion of our objection to the designation and we request that the NMED designate SWMUs 52, 68, 234, and AOC 1090 as CAC Without Controls.

If you have any questions or concerns regarding these comments, please contact me at 845-6036, or Dan Pellegrino of my staff at (505) 845-5398.

Sincerely,

Patty Wagner

Patty Wagner
Manager

Enclosure

cc w/enclosure:
W. Moats, NMED (Via Certified Mail)
L. King, USEPA, Region VI (Via Certified Mail)
L. Skibitski, NMED-OB
B. Birch, NMED-OB

cc w/o enclosure:
A. Blumberg, SNL/NM, Org. 11100, MS 0141
F. Nimick, SNL/NM, Org. 06790, MS 0701
D. R. Miller, SNL/NM, Org. 06765, MS 0718
P. Freshour, SNL/NM, Org. 06765, MS 1089
B. Langkopf, SNL/NM, Org. 06765, MS 1089
M. L. Miller, SNL/NM, Org. 04133, MS 1042
M. J. Davis, SNL/NM, Org. 06765, MS 1089
Records Center, SNL/NM, Org. 06765, MS 1089
J. Estrada, SSO, MS 0184
T. Longo, HQ/GTN, NA-56

AOP 95-45, 06

CERTIFICATION STATEMENT FOR APPROVAL AND FINAL RELEASE OF DOCUMENTS

Document title: **Comment on NMED Decision to Place Land-Use Restrictions on SWMUs 46, 52, 68, 234, and AOC 1090, February 2008**

Document author(s): Brenda Langkopf, Dept. 06765 and Mark L. Miller, Dept. 04133

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

Signature: _____ 1/29/08

Francis B. Wilmick
Deputy to the Director
Nuclear Energy & Global Security Technologies
Division 6700
Sandia National Laboratories/New Mexico
Albuquerque, New Mexico 87185
Operator

Date

and

Signature: _____ 2-8-08

Patty Wagner
Manager
U.S. Department of Energy
National Nuclear Security Administration
Sandia Site Office
Owner and Co-Operator

Date

Comments on NMED Decision to Place Land-Use Restrictions on SWMUs 46, 52, 68, 234, and AOC 1090
February 2008

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) 46, 52, 68, 234, and AOC 1090. The NMED decision is documented in Public Notice No. 07-22, dated December 10, 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."

All of these sites were issued letters of Corrective Action Complete (CAC) Without Controls prior to the NMED decision of December 10, 2007. The dates and references for these letters are as follows:

- SWMU 46; March 1, 2006 (NMED March 2006),
- SWMUs 52 and 234; November 2, 2005 (NMED November 2005),
- SWMU 68; October 26, 2005 (NMED October 2005), and
- AOC 1090; February 20, 2006 (NMED February 2006).

The following discussion contests the NMED decisions to impose land use restrictions on SWMUs 52, 68, 234, and 1090, as well as the bases for those decisions as documented in the Statement of Basis (SOB) attached to the December 10, 2007 notice. The following discussion also contests the conclusion regarding radiological risk for SWMU 46. The bold text at the start of each site-specific section is a brief summary of the information provided in the SOB that is used for determining the acceptable land use for each site.

As a general comment, DOE and Sandia object to any restrictions related to radiological constituents. As noted in the April 30, 2006 letter from Patty Wagner to James Bearzi (DOE 2006), the radiological risk concerns of any given site are the jurisdiction of the DOE, not NMED. This division of authority was formally recognized by the NMED in a letter dated 01/08/2007 regarding Environmental Restoration (ER) Site 28-2 and acknowledging that radiological risk will not be considered in Corrective Action Complete determinations (NMED January 2007). This position is consistent with the 2004 Compliance Order on Consent (NMED 2004), which states: "The requirements of this Order do not apply to radionuclides..." DOE has agreed to voluntarily provide information to the NMED on radiological constituents and continues to provide that information, but such information is not subject to enforcement under the Order (see Section III.A of the Consent Order). Please note that the pertinent reference value that has been agreed to between NMED and DOE in 1998 regarding the discussion of radiological aspects of No Further Action (NFA) documents is dose, not risk [SNL/NM January 1998].

SWMUs 52 and 68

SWMUs 52 and 68 are listed as having an unacceptable cancer risk associated with radiological constituents of concern (COCs).

For SWMU 52, the activities of the radiological COCs (thorium-232 and tritium) were used to calculate a total effective dose equivalent (TEDE) of 1.7 millirem (mrem)/year (yr) which is less than the residential standard of 75 mrem/yr. For SWMU 68, the activities of the radiological COCs (cesium-137, thorium-232, uranuim-235 and uranium-238) were used to calculate a TEDE of 8.1 mrem/yr. The TEDEs for both SWMU 52 and 68 are less than the residential standard of 75 mrem/yr. The radiological standards have been met at this site for residential land use and should be stated as such in a correction to the SOB.

Both of these sites meet the radiological dose requirements, and the nonradiological risk is acceptable for a residential land-use scenario. Therefore, both SWMUs 52 and 68 should be on the permit as CAC Without Controls.

SWMU 46

For SWMU 46, the individual Hazard Quotient (HQ) for cadmium exceeds the NMED standard of 1.0. Thus this site is unacceptable for residential land-use. Also SWMU 46 is listed as having an unacceptable cancer risk associated with radiological COCs for a residential land-use scenario.

For SWMU 46, the individual HQ for cadmium using the UCL of the mean concentrations had an HQ of 1.03 which is only slightly greater than 1.0. Thus NMED judges the nonradiological risk for this site to be unacceptable for residential land-use. DOE and Sandia do not object to the imposition of land use controls for SWMU 46 based on nonradiological risk.

However, DOE and Sandia contest the discussion of and conclusions regarding radiological risk in the SOB. The activities of the radiological COCs (thorium-232, uranuim-235 and uranium-238) were used to calculate a TEDE of 55 mrem/yr which is below the 75 mrem/year value, the threshold action level for residential land use. The radiological standards have been met at this site for residential land use and should be stated as such in a correction to the SOB.

Therefore, as result of the cadmium HQ, SWMU 46 should be listed on the permit as CAC With Controls. However, the radiological standards have been met at this site for residential land use and should be stated as such in a correction to the SOB.

SWMU 234

SWMU 234 is listed as having an estimated cancer risk for nonradiological constituents that is not acceptable for the residential-land use scenario. Also this site is listed as having an unacceptable cancer risk associated with radiological COCs.

Arsenic dominates the excess cancer risk for SWMU 234 (See Table 1 for the risk table for this site). There is no process knowledge or site history that indicates that arsenic should be a COC at this site. Figure 1 is a graph of all the arsenic samples from SWMU 234; it shows their relationship to the background concentration and the NMED soil screening level. Sixteen soil samples were collected and analyzed for arsenic; half of the samples were surface samples and the other half had sample depths ranging from 0.5 to 5 ft bgs. There is not an established background concentration for the surface samples. But, comparing all samples to the subsurface background concentration of 4.4 (Dinwiddie, 1997), four of the surface samples had concentrations exceeding the background concentration with a range of 4.41 to 7 mg/kg, and two of the subsurface samples exceeded the background concentration with values of 4.8 and 5.4 mg/kg. The remaining ten samples were below the background concentration of 4.4 and ranged from 0.9 mg/kg to 3.99 mg/kg. The background value is the 95% upper tolerance limit (UTL) 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.

Regarding the radiological constituents at SWMU 234, the activities of the radiological COCs (thorium-232, tritium, uranuim-235 and uranium-238) were used to calculate a TEDE of 23 mrem/yr which is below the 75 mrem/year value, the threshold action level for residential land use. The radiological standards have been met at this site for residential land use and should be stated as such in a correction to the SOB.

Because there is no process knowledge to indicate that the nonradiological constituent, arsenic, should be a contaminant and because the range of SWMU 234 arsenic concentrations is well within the range of concentrations of the background samples used to determine the background, the arsenic at the site is likely naturally occurring arsenic. SWMU 234 meets the radiological dose requirements for residential land use. Therefore, SWMU 234 should be designated as CAC Without Controls.

<u>AOC 1090</u>

AOC 1090 is listed as having an estimated cancer risk for nonradiological constituents that is not acceptable for the residential-land use scenario.

Originally AOC 1090 (Building 6721 Septic System) received a designation of CAC With Controls (NMED May 2005). This designation was in response to risk results reported in "SWMU Assessment Report and Proposal for Corrective Action Complete, Drain and Septic Systems Site 1090, Building 6721 Septic System," (SNL December 2004). The risk assessment in this report indicated that semi-volatile organic compounds (SVOCs) were the main risk drivers for cancer risk, based on SVOCs at relatively high concentrations that were detected in only one of the seven SVOC soil samples collected from this site. The report stated that:

"The sample was located in the shallow (4-foot interval) soil sample in borehole BH2. The SVOC compounds detected in this sample are indicative of bituminous pipe

fragments present at the site. It is therefore believed that the SVOC compounds detected in the samples represent residual drainfield pipe fragments at the site and do not indicate significant or widespread SVOC contamination that could pose a threat to human health or the environment." The only other significant contributor to the cancer risk was arsenic; one of the seven metals samples that was collected had an arsenic concentration that was slightly above the background concentration.

In response to the NMED letter of May 2005, DOE and Sandia requested a meeting with NMED personnel to discuss possible additional work that could be completed that would potentially result in a determination of CAC Without Controls for the site. A meeting was held on June 2, 2005, with participation by SNL/NM representatives and the NMED Hazardous Waste Bureau staff. At this meeting, it was agreed that SNL/NM representatives would collect additional shallow interval soil samples from the same three locations that were originally sampled in September 2002. Re-sampling would only be required from the shallow intervals, as all but one of the SVOC detections were found in the shallow samples from this site. It was agreed that the new samples would be collected by first removing the upper 4 feet of soil at each of the three sampling locations, in order to remove any soil potentially contaminated with pieces of piping or asphalt. The additional sample would then be collected by retrieving subsurface soil starting at a depth of 4 ft bgs in the bottom of each of the three drain-line trenches. The new samples would then be analyzed for SVOCs only to determine whether the SVOC detections found in the original samples were in fact caused by bituminous drain pipe and/or asphalt contamination, or whether ubiquitous SVOC contamination unrelated to the piping and/or surficial asphalt was present at the site.

The additional SVOC sampling was completed on August 26, 2005 as agreed. There were no SVOCs detected in the soil samples. This re-sampling was used as the basis for not including the anomalous, September 2002 SVOC concentrations in the risk assessment for the site (December 2005). NMED, in turn, designated AOC 1090 as CAC Without Controls in February 2006 (NMED February 2006).

With the removal of the SVOC concentrations [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and benzo(g,h,i)perylene] in the risk assessment for a residential land-use scenario, the cancer risk is reduced to 1E-5. Arsenic is the only significant contributor to the cancer risk; at the maximum arsenic concentration of 4.96 J mg/kg found at the site, the arsenic cancer risk is 1E-5. Figure 2 shows all of the arsenic concentrations from the site and their relationship to the background concentration and the NMED soil screening level (NMED June 2006). The UCL of the arsenic concentration from AOC 1090 is 4.2 mg/kg which is below the background concentration; thus arsenic can be removed from consideration as a contributor to cancer risk for the residential land-use scenario. With the removal of both the SVOCs and arsenic from consideration in the risk assessment, the cancer risk is reduced to 9E-7 as shown in Table 2. Thus AOC 1090 has an acceptable cancer risk for a residential land-use scenario, and should be designated as CAC 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.

Department of Energy (DOE), April 2006, Letter from Patty Wagner to Bearzi, "Re: Request for Reconsideration of Denial of Proposal for No Further Action for SWMU 28-2," National Nuclear Security Administration, Sandia Site Office, Albuquerque, NM.

DOE, see U.S. Department of Energy.

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), April 2004. "Compliance Order on Consent Pursuant to New Mexico Hazardous Waste Act 74-4-10, " New Mexico Environment Department, Santa Fe, New Mexico. April 29, 2004.

New Mexico Environment Department (NMED), May 2005. Letter from William P. Moats to Patty Wagner and Peter B. Davies, "Re: Certificates of Completion : Environmental Restoration Project SWMU Assessment Reports and Proposals for Corrective Action Complete: Drain and Septic Systems Sites 276, 1004, 1031, 1052, 1080, 1087, 1090, 1102, and 1113 (DSS Round 7): December 2004, Sandia National Laboratories, EPA ID# NM5890110518, HWB-SNL-05-008," State of New Mexico Environment Department, Hazardous Waste Bureau, Santa Fe, New Mexico. May 5, 2005.

New Mexico Environment Department (NMED), October 2005. Letter from James P. Bearzi to Patty Wagner and Peter B. Davies, "Re: Notice of Approval: Final Investigation Report and Proposal for Corrective Action Complete solid Waste Management Unit 68 Old Burn Site, September 2005, Sandia National Laboratories, EPA ID# NM5890110518, HWB-SNL-05-022," State of New Mexico Environment Department, Hazardous Waste Bureau, Santa Fe, New Mexico. October 26, 2005.

New Mexico Environment Department (NMED), November 2005. Letter from James P. Bearzi to Patty Wagner and Peter B. Davies, "Re: Notice of Approval: SWMUs 52, 233 and 234, Notice of Disapproval: SWMUs 4 and 5, Environmental Restoration Project Supplemental Risk Document, June 2005, Sandia National Laboratories, EPA ID# NM5890110518, HWB-SNL-99-006 and 99-020," State of New Mexico Environment Department, Hazardous Waste Bureau, Santa Fe, New Mexico. November 2, 2005.

New Mexico Environment Department (NMED), February 2006. Letter from James P. Bearzi to Patty Wagner and Peter B. Davies, "Re: Notice of Approval and Certificate of Completion: Drain and Septic systems Site 1090, Building 6721 Septic system, Semivolatile Organic compound Soil resampling report, December 2005, Sandia National Laboratories, EPA ID#

NM5890110518, HWB-SNL-05-008," State of New Mexico Environment Department, Hazardous Waste Bureau, Santa Fe, New Mexico. February 20, 2006.

New Mexico Environment Department (NMED), March 2006. Letter from James P. Bearzi to Patty Wagner and Les E. Shephard, "Re: Notice of Approval: Response to Request for Supplemental Information and Notice of Deficiency for SWMU 46, October 2005, Sandia National Laboratories, EPA ID# NM5890110518, HWB-SNL-99-006," State of New Mexico Environment Department, Hazardous Waste Bureau, Santa Fe, New Mexico. March 1, 2006.

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.

New Mexico Environment Department (NMED), January 2007. Letter from James P. Bearzi to Patty Wagner and Peter B. Davies, "Re: Corrective Action Complete and Request for Reconsideration of Denial of Proposal for No Further Action for SWMU 28-2, April 3, 2006, Sandia National Laboratory, EPA ID # NM 5890110518, SNL-04-023," State of New Mexico Environment Department, Hazardous Waste Bureau, Santa Fe, New Mexico. January 8, 2007.

NMED, see New Mexico Environment Department.

Sandia National Laboratories/New Mexico (SNL/NM), January 1998. "RESRAD Input Parameter Assumptions and Justification, Participants: B. Toth, NMED, S. Kruse, NMED, S. Hoier, SNL, C. Brown, SNL, and E. Oms, DOE/KAO," Environmental Restoration Project, Sandia National Laboratories Albuquerque, New Mexico. January 26, 1998.

Sandia National Laboratories/New Mexico (SNL/NM), December 2004. "Environmental Restoration Project SWMU Assessment Reports and Proposals for Corrective Action Complete, Drain and septic systems Sites 276, 1004, 1031, 1052, 1080, 1087, 1090, 1102, and 1113, Drain and Septic Systems Round 7 Final," Sandia National Laboratories, Albuquerque, New Mexico.

Sandia National Laboratories/ New Mexico (SNL/NM), December 2005. "Environmental Restoration Project Drain and Septic Systems Site 1090, Building 6721 Septic System, Semivolatile Organic Compound Soil Resampling Report," Sandia National Laboratories, Albuquerque, New Mexico.

SNL/NM, see Sandia National Laboratories/New Mexico.

Table 1. Risk Assessment Values for SWMU 234 Nonradiological COCs

COC	Maximum Concentration /UCL Concentration (mg/kg)	Industrial Land-Use Scenario[a]		Residential Land-Use Scenario[a]	
		Hazard Index	Cancer Risk	Hazard Index	Cancer Risk
Inorganic					
Arsenic	7/**4.60**	0.02/**0.02**	4E-6/**3E-6**	0.32/**0.21**	2E-5/**1E-5**
Barium	240	0.00		0.05	
Cadmium	2.9	0.01	1E-9	0.07	2E-9
Chromium, total	17.7	0.00		0.00	
Chromium VI	2.08	0.00	5E-9	0.01	1E-8
Organic					
Acenaphthene	0.00626 J	0.00		0.00	
Acetone	0.015	0.00		0.00	
Anthracene	0.0212 J	0.00		0.00	
Benzo(a)anthracene	0.258/**0.242**	0.00/**0.00**	7E-8/**7E-8**	0.00/**0.00**	4E-7/**4E-7**
Benzo(a)pyrene	0.435/**0.234**	0.00/**0.00**	1E-6/**6E-7**	0.00/**0.00**	7E-6/**4E-6**
Benzo(b)fluoranthene	0.506/**0.375**	0.00/**0.00**	1E-7/**7E-8**	0.00/**0.00**	8E-7/**6E-7**
Benzo(ghi)perylene	0.309/**0.267**	0.00/**0.00**	8E-7/**7E-7**	0.00/**0.00**	5E-6/**4E-6**
Benzo(k)fluoranthene	0.471	0.00	1E-8	0.00	8E-8
Carbazole	0.0182 J	0.00	1E-10	0.00	6E-10
Chrysene	0.435	0.00	1E-9	0.00	7E-9
Di-n-butyl phthalate	0.0207 J	0.00		0.00	
Di-n-octyl phthalate	0.0102 J	0.00		0.00	
bis(2-Ethylhexyl) phthalate	0.28 JB	0.00	1E-9	0.00	6E-9
Fluoranthene	0.450	0.00		0.00	
Fluorene	0.00666 J	0.00		0.00	
Indeno(1,2,3-c,d) pyrene	0.345 J	0.00	9E-8	0.00	6E-7
Phenanthrene	0.139	0.00		0.00	
Pyrene	0.603	0.00		0.00	
Total		0.03/**0.03**	6E-6/**4E-6**	0.46/**0.35**	3E-5/**2E-5**

Note: UCLs are calculated only for risk drivers. UCL concentrations and associated risk are in **bold**.

[a]EPA 1989. B = Analyte detected in method blank.

COC = Constituent of concern.

EPA = U.S. Environmental Protection Agency.

J = Estimated concentration.

mg/kg = Milligram(s) per kilogram.

SWMU = Solid Waste Management Unit.

Table 2. Risk Assessment Values for AOC 1090 Nonradiological COCs

COC	Maximum Concentration/ **UCL Concentration** (mg/kg)	Residential Land-Use Scenario[a]	
		Hazard Index	Cancer Risk
Inorganic			
Arsenic	4.96 J/**4.2**	0.23/ **Below Background**	1E-5 / **Below Background**
Barium	260	0.05	
Cyanide	0.278	0.00	
Organic			
Acenaphthene	0.14	0.00	
Acetone	0.00535	0.00	
Anthracene	0.519	0.00	
2-Butanone	0.0365	0.00	
Carbazole	0.403	0.00	1E-8
Chrysene	1.13	0.00	2E-8
Dibenzofuran	0.063 J	0.00	
Fluoranthene	2.13	0.00	
Fluorene	0.179	0.00	
Indeno(1,2,3-cd)pyrene	0.511	0.00	8E-7
Phenanthrene	2.05	0.00	
Pyrene	1.8 J	0.00	
Total		**0.28/0.05**	**1E-5/ 9E-7**

[a] EPA 1989.
AOC = Area of concern.
COC = Constituent of concern.
EPA = U.S. Environmental Protection Agency.
J = Concentration was qualified as an estimated value.
mg/kg = Milligram(s) per kilogram.

Figure 1. SWMU 234 Arsenic Concentrations

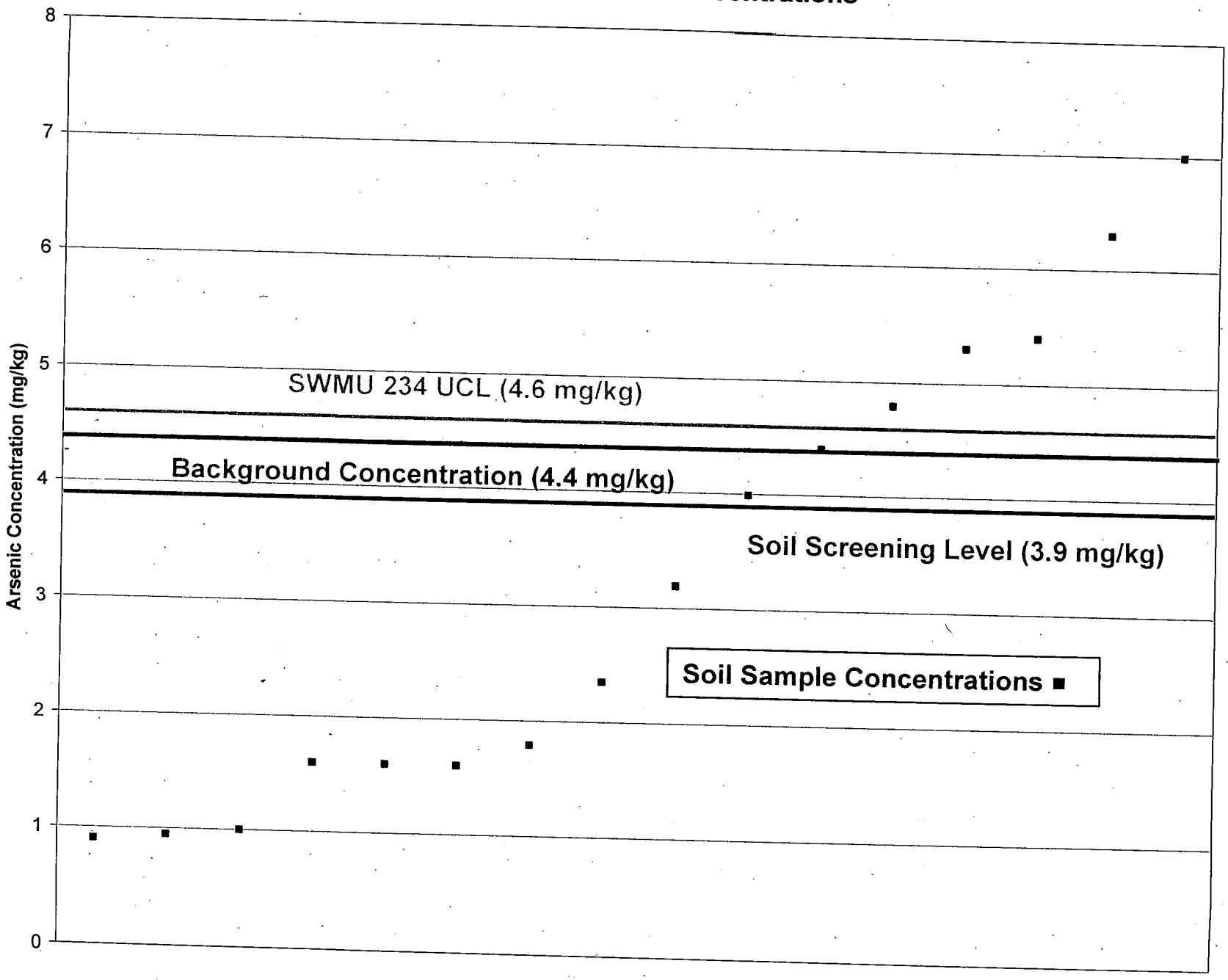
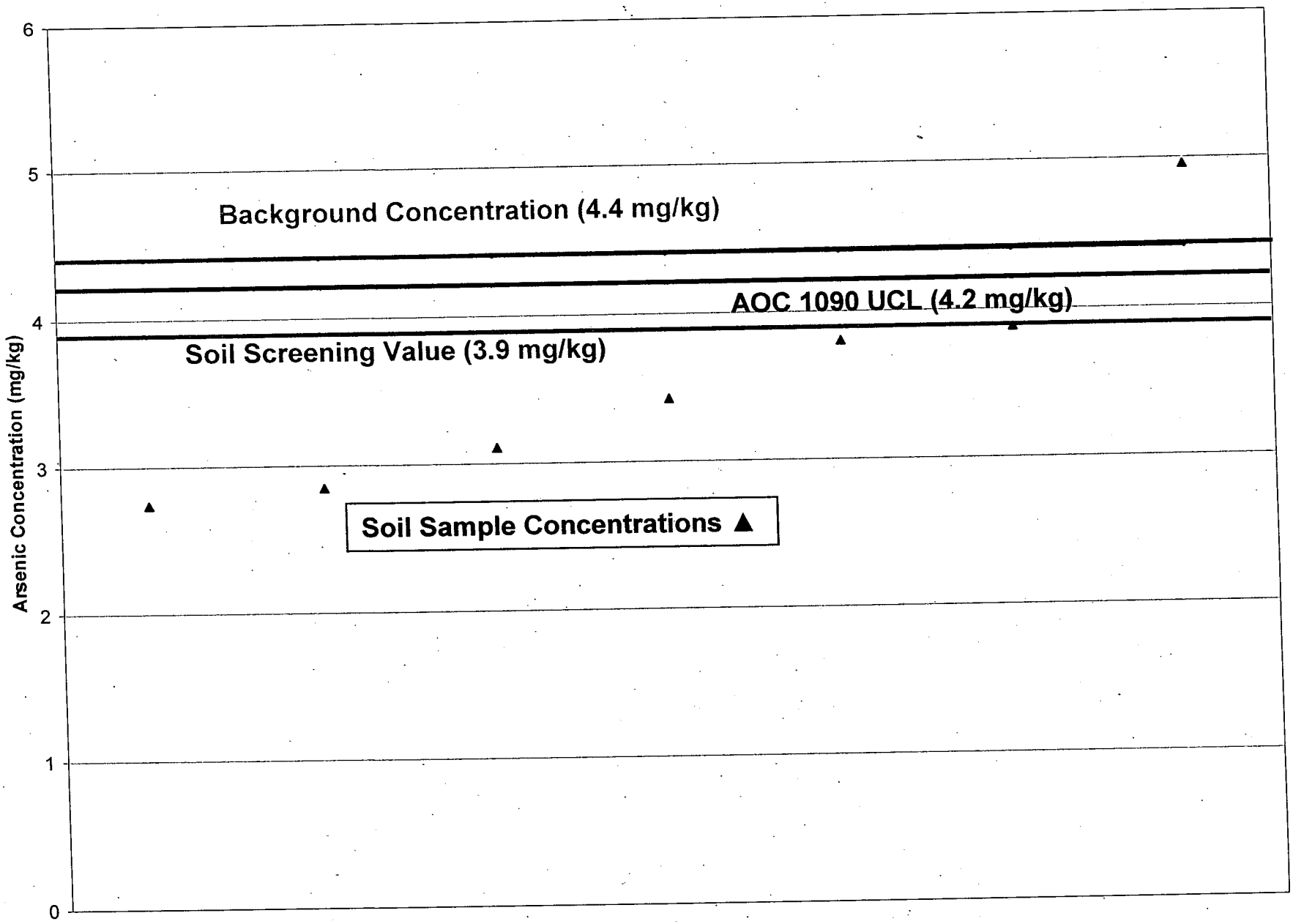
Figure 2. AOC 1090 Concentrations