TA-16

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Date: September 3, 2004
Refer To: ER2004-0433

Mr. John Young, Corrective Action Project Leader
Permits Management Program
NMED – Hazardous Waste Bureau
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Santa Fe, NM 87505-6303

SUBJECT: REQUEST FOR "NO LONGER CONTAINED IN" DETERMINATION FOR SOIL, TUFF, AND SEDIMENT AT THE TA-16-340 COMPLEX, SOLID WASTE MANAGEMENT UNITS 13-003(a)-99, 16-003(n)-99, 16-003(o), 16-026(j2), and 16-029(f) AT TECHNICAL AREA (TA) 16

Dear Mr. Young:

The purpose of this letter is to request that the New Mexico Environment Department (NMED) Hazardous Waste Bureau use its discretionary authority to determine that environmental media (e.g., sediment, soil, and tuff) excavated as part of the Laboratory's interim action for the TA-16-340 Complex, Solid Waste Management Units 13-003(a)-99, 16-003(n)-99, 16-003(o), 16-026(j2), and 16-029(f) (hereinafter referred to as the TA-16-340 Complex) do not warrant management as F-listed hazardous waste, pursuant to the requirements of 20.4.1.200 NMAC §261.31.

Activities at the TA-16-340 Complex will include excavating environmental media in an effort to reduce risk to human health via exposure to potential contamination that may be present in sediment, soil, and tuff. Some of this excavated material may contain low levels of organic constituents that may have originated from processes for which F-listed hazardous wastes are identified.

The Los Alamos National Laboratory (LANL) proposes the use of U.S. Environmental Protection Agency (EPA) Region 6 Human Health Medium-Specific Screening Levels (MSSLs) and NMED Soil Screening Levels (SSLs) for comparison to maximum concentrations of organic constituents detected in samples of environmental media from the TA-16-340 Complex, to determine whether the media must be managed as F-listed hazardous waste. A summary of the historical analytical results for maximum concentrations of all organic constituents detected in sediment, soil, or tuff samples at the TA-16-340 Complex is provided in Attachment 1. The comparison is limited to those organic constituents in Attachment 1 that are potentially F-listed hazardous wastes (i.e., acetone, 2-

butanone, methylene chloride, nitrobenzene, and trichlorofluoromethane), based on historical knowledge of their uses. The proposed MSSLs and SSLs are based on the industrial receptor using direct exposure routes (inhalation, ingestion, and dermal contact) and are derived using conservative exposure parameters for reasonable maximum exposure. The maximum detected concentrations of acetone, 2-butanone, methylene chloride, nitrobenzene, and trichlorofluoromethane in the environmental media to date are below these industrial-based MSSLs and SSLs, as shown in Table 1.

Table 1
Comparison of Potential F-Listed Organic Constituents Detected in TA-16-340 Complex Environmental Media Samples to MSSLs, SSLs, and LDR Treatment Standards

Constituent	Location	Sample No.	Depth (ft)	Matrix	Maximum Concentration (mg/kg)	EPA Region 6 Human Health MSSL (mg/kg)	NMED SSL (mg/kg)	LDR Treatment Standards (mg/kg)
Acetone	16-02166	0316-95-0503	5-7	Qbt4	0.058	100,000	100,000	160
Butanone[2-] (MEK)	16-01662	0316-95-0219	2.5-3.5	Qbt4	0.003 J	34,000	2,100	36
Methylene Chloride	16-01664	0316-95-0238	0-0.33	Sediment	0.021 JB	22	440	30
Nitrobenzene	16-01536	0316-95-0226	0-0.33	Sediment	0.215	110	136	14
Trichloro-fluoromethane	16-01537	0316-95-0236	2.5-3.5	Qbt4	0.015 B	1,400	959	30

B = constituent detected in the method blank.
ft = feet
J = estimated value between method detection limit and practical quantitation limit.
LDR = Land Disposal Restrictions
mg/kg = milligrams per kilogram soil
MSSL = medium specific screening level
NMED = New Mexico Environment Department
Qbt4 = Tshirege Member Unit 4 of the Bandelier Tuff
SSL = soil screening level

According to EPA documents and associated guidance, the authorized state may also make a determination on a case-specific basis as to how the Land Disposal Restrictions (LDRs) apply to the waste when a "no longer contained in" determination has been made. Because the maximum detected concentration of acetone, 2-butanone, methylene chloride, nitrobenzene, and trichlorofluoromethane in the environmental media at the TA-16-340 Complex are below their respective LDR treatment standards, as shown in the table above, LANL also requests a determination from NMED that LDRs will not apply to this environmental media, and that it may be disposed of at an appropriate permitted solid waste facility.

The organic constituent concentrations shown in Table 1 were detected in samples collected from the same environmental media (i.e., sediment, soil, or tuff) planned for excavation and removal from the TA-16-340 Complex. A map depicting the sample locations listed above and the proposed locations for soil, sediment, and tuff removal at the TA-16-340 Complex is provided as Figure 1.

LANL also reviewed the analytical data from samples collected from the Fish Ladder Seep, located in Fish Ladder Canyon downstream from the TA-16-340 Complex. This review was performed to determine if other potential F-listed organic constituents, not previously detected in the sediment, soil, and tuff of the TA-16-340 Complex, are present. Attachment 2 provides a summary of the historical analytical results for all organic constituents detected in the water samples collected from the Fish Ladder Seep. The analytical results presented in Attachment 2, combined with process knowledge for the site, were used to develop Table 2, which identifies additional potential F-listed organic constituents detected in the seep water that may also be detected in the sediment, soils, and tuff planned for excavation and removal (Note that no water will be managed as a waste stream; the water data is provided only as an indicator of other potential F-listed organic constituents in excavated soil, sediment, and tuff). Toluene is included in this table, although it has not yet been detected in environmental media associated with the TA-16-340 Complex, because process knowledge (a 1970 memo detailing solvent use at TA-16) shows that it was used in large quantities in TA-16-340).

Table 2
Summary of Historical Analytical Results for Potential F-Listed Organic Constituents Detected in the Fish Ladder Seep

Location	Sample No.	Constituent	Max Results (µg/L) [b]	Qualifier	EPA Region 6 Human Health MSSL (µg/L) [c]
16-02654	RE16-98-3021	Acetone [a]	40		33,000
16-02654	RE16-00-3133	Methylene Chloride [a]	2	JB	4.3
16-02654	RE16-98-3021	Toluene	1	U	720
16-02654	RE16-00-3133	Tetrachloroethylene/ Tetrachloroethene [a]	42		0.028
16-02654	RE16-00-3133	Trichloroethylene/Trichloroethene [a]	10		0.1

a. Indicates a potential F-listed organic constituent detected above the detection limit.
b. Concentrations with a U qualifier are listed at the detection limit.
c. MSSL (for tap water) is provided to compare against the detection limit.
µg/L = micrograms per liter
B = constituent detected in the method blank.
J = estimated value between method detection limit and practical quantitation limit.
MSSL = medium specific screening level.
U = undetected at the detection limit.

LANL proposes comparing the analytical results from the verification samples of the excavated sediment, soil, and tuff to be collected during this interim action to the appropriate EPA Region 6 Human Health MSSLs, SSLs, and LDR treatment standards. Proposed sample locations are shown in Figure 1. If the concentrations of potential F-listed organic constituents shown in Tables 1 and 2 are below the screening levels, the Laboratory requests that NMED include these constituents in the "no longer contained in" determination. If the concentrations of potential F-listed organic constituents exceed the screening levels, the media will be managed as hazardous waste. If additional F-listed constituents (i.e., other than those identified in Tables 1 and 2) are detected in waste samples from the soil removal action at the TA-16-340 Complex, an addendum to this no-longer contained in request will be submitted to NMED.

LANL believes that a "no longer contained in" determination for the organic constituents shown in Tables 1 and 2 is appropriate. It would still be protective of human health and the environment, and would allow for cost-effective removal of the environmental media at the TA-16-340 Complex. If you have any questions, please contact Donald Hickmott at (505) 667-8753 or Lance Woodworth at (505) 665-5820.

DM/DG/KV/jr

Sincerely,

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Deputy Project Director
Remediation Services
Los Alamos National Laboratory

Sincerely,

David Gregory,
Federal Project Director
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RPF, MS M707

Attachment 1
Summary of Historical Analytical Results for Detected Organic Constituents, Technical Area 16-340 Complex

Constituent	Location	Sample No.	Depth	Matrix	Result (mg/kg)	Qualifier	EPA Region 6 Human Health MSSL (mg/kg)	NMED SSL (mg/kg)
Acenaphthene	16-01663	0316-95-0229	0-0.33	Soil	9.8		33,000	34,800
Acenaphthylene	16-01552	0316-95-0251	0-0.5	Sediment	0.045	J	320,000	31,300
Acetone	16-02166	0316-95-0503	5.0-7.0	Soil	0.058		100,000	100,000
Amino-2,6-dinitrotoluene[4-]	16-01536	0316-95-0226	0-0.33	Soil	1.07		680	NA
Amino-4,6-dinitrotoluene[2-]	16-01530	0316-95-0220	0-0.5	Sediment	0.714		680	NA
Anthracene	16-01663	0316-95-0229	0-0.33	Soil	14		100,000	264,000
Benzo(a)anthracene	16-01663	0316-95-0229	0-0.33	Soil	26		2.3	23.4
Benzo(a)pyrene	16-01663	0316-95-0229	0-0.33	Soil	26		0.23	2.34
Benzo(b)fluoranthene	16-01663	0316-95-0229	0-0.33	Soil	38		2.3	23.4
Benzo(g,h,i)perylene	16-01663	0316-95-0229	0-0.33	Soil	8.7		32,000	31,300
Benzo(k)fluoranthene	16-01663	0316-95-0229	0-0.33	Soil	13		23	234
Benzoic Acid	16-01553	0316-95-0252	0-0.5	Sediment	2.1	J	100,000	NA
Benzyl Alcohol	16-01662	0316-95-0218	0-0.16	Sediment	0.25	J	100,000	NA
Bis(2-ethylhexyl)phthalate	16-01663	0316-95-0229	0-0.33	Soil	150	B	140	1,370
Butanone[2-]	16-01662	0316-95-0219	2.5-3.5	Qbt4	0.003	J	34,000	2,100
Butylbenzylphthalate	16-01662	0316-95-0218	0-0.16	Sediment	13		240	NA
Chrysene	16-01663	0316-95-0229	0-0.33	Soil	35		230	2340
Dibenz(a,h)anthracene	16-01663	0316-95-0229	0-0.33	Soil	2.9	J	0.23	2.34
Dibenz(a,h)anthracene	16-01536	0316-95-0226	0-0.33	Soil	1.7		1,700	3,170
Dibenzofuran	16-01663	0316-95-0229	0-0.33	Soil	6.2		100,000	100,000
Diethylphthalate	16-01662	0316-95-0219	2.5-3.5	Qbt4	0.26	J	68,000	68,400
Di-n-butylphthalate	16-01662	0316-95-0218	0-0.16	Sediment	0.18	J	68,000	68,400
Dinitrobenzene[1,3-]	16-01663	0316-95-0229	0-0.33	Soil	0.114		68	NA
Dinitrotoluene[2,4-]	16-01530	0316-95-0220	0-0.5	Sediment	0.612		1,400	1,370
Di-n-octylphthalate	16-01662	0316-95-0218	0-0.16	Sediment	4.5		27,000	NA
Fluoranthene	16-01663	0316-95-0229	0-0.33	Soil	51		24,000	24,400
Fluorene	16-01663	0316-95-0229	0-0.33	Soil	9.7		26,000	29,400
HMX	16-01662	0316-95-0218	0-0.16	Sediment	624		34,000	34,200
Indeno(1,2,3-cd)pyrene	16-01663	0316-95-0229	0-0.33	Soil	10		2.3	23.4
Methylene Chloride	16-01664	0316-95-0238	0-0.33	Soil	0.021	JB	580	NA
Methylnaphthalene[2-]	16-01663	0316-95-0229	0-0.33	Soil	4.2		210	98.3
Methylphenol[4-]	16-01664	0316-95-0238	0-0.33	Soil	1	J	3,400	NA
Naphthalene	16-01663	0316-95-0229	0-0.33	Soil	9.7		210	98.3
Nitrobenzene	16-01536	0316-95-0226	0-0.33	Soil	0.215		110	136
Phenanthrene	16-01663	0316-95-0229	0-0.33	Soil	43		32,000	20,500
Pyrene	16-01663	0316-95-0229	0-0.33	Soil	43		32,000	31,300
RDX	16-01671	0316-95-0233	0-0.5	Soil	40.7		17	174
Tetryl	16-01536	0316-95-0226	0-0.33	Soil	3.04		10,000	NA
Trichlorofluoromethane	16-01537	0316-95-0236	2.5-3.5	Qbt4	0.015	B	1,400	959
Trinitrotoluene[2,4,6-]	16-01536	0316-95-0226	0-0.33	Soil	3.03		64	342

B = constituent detected in the method blank.
NA = no SSL available for this constituent
mg/kg = milligrams per kilogram of soil
NMED = New Mexico Environment Department
SSL = soil screening level
J = estimated value between method detection limit and practical quantitation limit.
EPA = U.S. Environmental Protection Agency
MSSL = medium specific screening level

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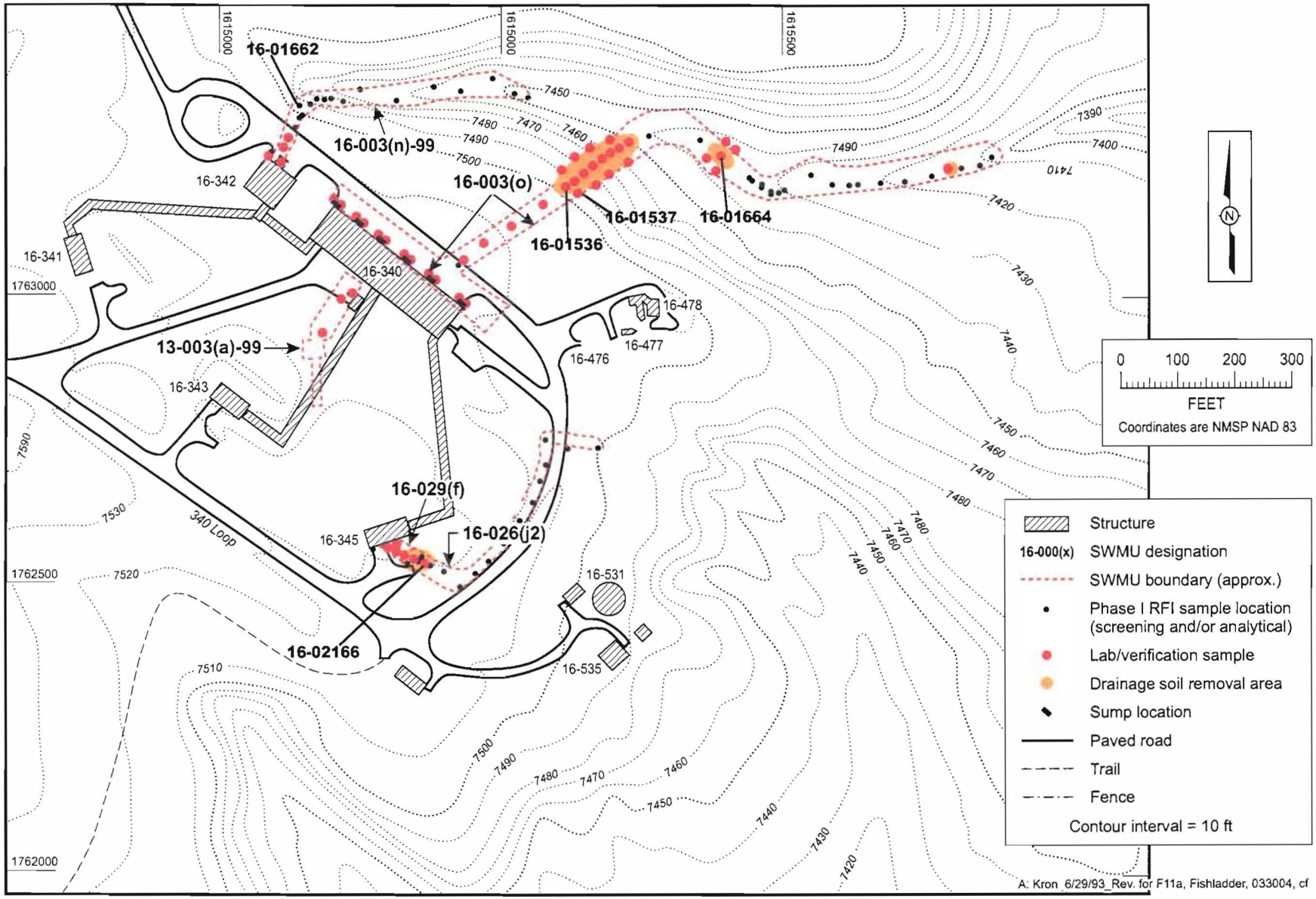

Figure 1. Historical sampling locations corresponding to the maximum concentrations of F-listed organic constituents detected in sediment and tuff at the TA-16-340 Complex.