



DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 27th FIGHTER WING (ACC)
CANNON AIR FORCE BASE, NEW MEXICO

07 SEP 1993

Cannon AFB - Red. 93

27 FW/CC
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Cannon AFB NM 88103-5214

Ms Barbara Hoditschek
Program Manager, RCRA Permits
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
1190 St Francis Drive
Santa Fe NM 87502

XII



RE: ARARs for RFI Landfill 5 SWMU 113, Cannon AFB

Dear Ms Hoditschek

Enclosed are the ARARs for the RCRA Facility Investigation (RFI) to be conducted at Landfill 5 SWMU 113 Cannon AFB. These ARARs will be incorporated into the RFI Work Plan for this site. According to the schedule provided to your office on August 30, 1993, which incorporated your requested review times, your comments on these ARARs should be submitted to Cannon AFB by October 7, 1993. This will allow the RFI to proceed on schedule.

If you have any questions regarding this matter please contact Dr Janice Stowell at (505) 784-4348.

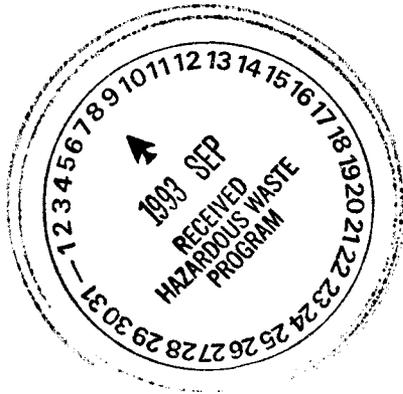
Sincerely

Lance L. Smith

LANCE L. SMITH, Colonel, USAF
Commander

1 Atch
ARARs

cc: Mr William Honker, EPA
Mr Dave Morgan, NMED



APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs)

Both RCRA and CERCLA requirements for evaluating the nature and extent of hazardous wastes potentially occurring at Landfill No. 5 will be addressed in the investigations at Cannon AFB.

Cannon AFB must evaluate the SWMUs identified by the USEPA during the RFA as a condition of their RCRA Part B permit. The investigations conducted by W-C are designed to satisfy RFI guidance for characterizing the SWMUs and developing and implementing corrective action measures, if necessary.

Cannon AFB is conducting this investigation under the Air Force's IRP. The IRP requires that the investigation follow the regulatory requirements of CERCLA and is the basis for assessment and response actions on USAF installations under the provisions of CERCLA. SARA augmented the scope and requirements of CERCLA and gave specific directives to federal facilities regarding investigation of waste disposal sites. Under SARA, determination of ARARs is required, and potential remediation alternatives should be considered at the initiation of a RI/FS (EPA 1988, 1989b).

As part of future CMS's (FS's under CERCLA), alternative remedial or corrective action measures will be evaluated to assess the degree to which they attain or exceed applicable or relevant and appropriate federal and state public health and environmental standards. A preliminary identification and discussion of ARARs for the planned RFI at Cannon AFB is presented below. Review of these ARARs will highlight any site-specific regulatory conditions that might either limit the choice of alternatives or place limits on contaminant concentrations at the site.

The ARARs presented herein are chemical-specific and location-specific. Identification of action-specific ARARs can only be addressed once detailed remedial alternatives are developed.

4.1 DEFINITION OF ARARs

Cleanup standards for remedial actions must attain a general standard of cleanup that assures protection of human health and the environment, is cost-effective, and uses permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent

practicable. In addition, SARA requires that any hazardous substance or pollutant remaining on site meet the level or standard of control established by standards, requirements, criteria, or limitations that have been established under any federal environmental law, or any more stringent standards, requirements, criteria, or limitations promulgated in accordance with a state environmental statute.

A requirement may be either applicable or relevant and appropriate to remedial activities at a site, but not necessarily both. Applicable requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstances at a site.

If a regulation is not applicable, it may still be relevant and appropriate. The basic considerations are whether the requirement (1) regulates or addresses problems or situations sufficiently similar to those encountered at the subject site (i.e., relevance), and (2) is appropriate to the circumstances of the release or threatened release, such that its use is well suited to the particular site. Determining whether a requirement is relevant and appropriate is site-specific and must be based on best professional judgment. This judgment is based on a number of factors, including the characteristics of the remedial action, the hazardous substances present at the site, and the physical circumstances of the site and of the release, as compared to the statutory or regulatory requirement. Compliance with all requirements found to be applicable or relevant and appropriate is mandatory under SARA unless a waiver is obtained from EPA.

"To be considered" materials (TBCs) are nonpromulgated advisories, proposed rules, criteria, or guidance documents issued by federal or state governments that do not have the status of potential ARARs. However, these advisories and guidance are to be considered when determining protective cleanup levels where no ARAR exists, or where ARARs are not sufficiently protective of human health and the environment. In these circumstances, TBC values are used to establish cleanup targets.

4.2 CHEMICAL-SPECIFIC ARARS

The chemical-specific ARARs and other criteria or guidelines to be considered are presented in Tables 4-1 and 4-2. This information is based on standards, guidelines, and criteria found in relevant literature, discussions with appropriate state regulatory agency personnel, and past project experience.

Chemical-specific requirements are based on health or risk-based concentration limits of discharge limitations in environmental media (i.e., water, soil) for specific hazardous chemicals. These requirements may be used to set cleanup levels for the chemicals of concern in the designated media, or to set a safe level of discharge (e.g., wastewater discharge, taking into account water quality standards) where a discharge occurs as part of the remedial activity.

Sources for potential target cleanup levels included selected standards, criteria, and guidelines that are typically considered as ARARs for remedial actions conducted under CERCLA, as well as some recently published guidance and proposed action levels developed under RCRA that should be regarded as TBCs. In addition, New Mexico has developed cleanup levels for special wastes and underground storage tank-related remediation, as well as standards for groundwater. A summary of these federal and state regulations, standards, and guidance is presented in Table 4-1.

For groundwater, MCLs or non-zero Maximum Contaminant Level Goals (MCLGs) established under the Safe Drinking Water Act (SDWA) are often accepted by regulatory agencies as cleanup levels for groundwater remedial activities, especially if the groundwater is or could be a drinking water source.

Since groundwater in the vicinity of Cannon AFB is classified as a current source of drinking water (Class IIA Groundwaters), the identification of potential target cleanup levels for groundwater samples from Cannon AFB focused on standards, criteria, and guidelines primarily for drinking water. These standards include MCLs and MCLGs, as well as the New Mexico drinking water standards, and are presented in Table 4-2. Also included are hazardous constituent concentration limits under RCRA Subpart F, which are applicable to releases from RCRA-regulated units. Secondary maximum contamination levels (SMCLs) established under SDWA are also presented in Table 4-2 although they are not federally enforceable and should be regarded as TBCs. In addition, the MCLs for several chemicals (footnoted by (d) in Table 4-2) are not yet in effect and should be considered TBCs. If no value is shown for a possible contaminant in Table 4-2, there are currently no standards for that contaminant. Repeated nondetect analytical results for any constituent during routine groundwater monitoring may allow the constituent to be dropped from the list of analytes.

State and federal standards and criteria for surface water quality are not considered applicable or relevant and appropriate as long as there is no possibility of remedial activities impacting surface water bodies. The nearest off-site surface water body is 1.1 miles from Landfill No. 5 and is upgradient, so there is little possibility of remedial activities impacting the off-site water

body. There is currently no on-site water body. At one time, a playa lake was located immediately due west of the landfill; however, the lake has been filled in with rubble and construction debris so it can no longer be considered a surface water body. However, should any remediation of the landfill involve discharge of contaminated groundwater to a surface water body, compliance with both the state and federal surface water quality standards and criteria would be required.

A letter dated January 8, 1992 from Col. David Benson to the New Mexico Environmental Department states that asbestos containing materials had been disposed of in Landfill 5 in accordance with New Mexico Solid Waste Regulations, special Waste Requirements (USAF 1992). This regulation is considered applicable if asbestos waste continues to be disposed of in Landfill 5 or is removed and disposed of elsewhere.

4.3 TBCs

In general, very few cleanup standards exist for soil contamination. Often cleanup levels are based on guidance developed from Underground Storage Tank (UST) investigations or, if non-petroleum wastes are involved, levels are based on site-specific risk assessment, hazardous waste definition, or background levels. Recently some human health-based criteria for soil and water contaminant levels have been published as guidance for RFIs (hereinafter referred to as the RFI Guidance), and RCRA-related action levels have been proposed (Tables 4-3 and 4-4). However, these figures were developed specifically for application in RCRA-related activities, although it appears they are being used as proposed ARARs, where no other standards exist. These guidelines are presented, therefore, as TBCs rather than as chemical-specific ARARs and represent "potential" cleanup levels only. Actual cleanup levels that may be applied to a particular area will depend on site-specific requirements based in part on the RCRA facility investigation and are subject to final approval by the appropriate regulatory agency or agencies. The RCRA levels are presented and used for the purposes of this ARARs investigation because there are no other sources of standards or guidance for contaminated soils cleanup levels.

The RFI guidance levels presented in Tables 4-3 and 4-4 for cleanup of contaminated soils are based on EPA-derived chronic exposure assumptions and are intended as screening levels at RCRA facilities to determine if a more detailed health-risk evaluation (CMS) is warranted. As previously discussed, they do not necessarily represent a target cleanup level. The proposed RCRA action levels, also presented in Tables 4-3 and 4-4, if exceeded, would also trigger a CMS. However, because these levels are only proposed, at this time they are not enforceable

under RCRA (55 FR 30798, July 27, 1990). The equations used to derive the action levels/criteria use essentially identical parameters.

Other regulations or requirements that may need "to be considered" included the New Mexico UST Regulations and the New Mexico Special Waste Requirements Regulations. Those regulations set cleanup standards for soils contaminated with petroleum hydrocarbons (so called BTEX compounds and total petroleum hydrocarbons).

4.4 LOCATION-SPECIFIC ARARS

Although the universe of location-specific ARARs is identified in Table 4-5, only those regulations that are deemed ARARs for the Cannon site are discussed below. Location-specific ARARs are restrictions placed on the types of activities that may occur in particular locations. Potential location-specific ARARs for Cannon AFB are presented in Table 4-5 with an explanation as to whether the regulation is applicable or relevant and appropriate and why. The location of a site may be an important characteristic in determining its impact on human health and the environment; thus, individual states may establish location-specific ARARs. These ARARs may restrict or preclude certain remedial actions or may apply only to certain portions of a site. Examples of location-specific ARARs include federal and state requirements for preservation of historic landmarks, endangered species and wetlands protection, and the restrictions on management of hazardous waste in floodplain areas.

Due to the possible presence of both federal- and state-listed threatened/endangered (T/E) species at the site, the federal and state Endangered Species Acts are both considered "potentially" applicable. If T/E species are found at the site, these acts would be applicable. In addition, there are bald eagles, peregrine falcons, other raptors and waterfowl, and their habitat within a 50-mile radius of Cannon AFB (Lee Wan and Associates 1990). Both the Migratory Bird Treaty Act and the Bald Eagle Protection Act are considered applicable if any of the species protected by these two Acts or their habitats are impacted by remedial actions.

Section 106 of the National Historic Preservation Act, the Historic and Archaeological Data Preservation Act, and the Archaeological Resource Protection Act are also considered "potentially" applicable due to a federal agency having authority over any actions that could impact on historically significant objects, buildings, or structures at the site. Although no buildings, objects, or structures at Cannon AFB have yet been placed on the National Register of Historic Places, the evaluation process is still ongoing at the base. Due to both architectural and archaeological surveys being conducted on Cannon AFB, the State Cultural Properties Act

is also considered "potentially" applicable and negotiations with the State Historic Preservation Office should be renewed prior to any remedial activity.

While there is uncertainty concerning the future definition of wetlands, it is the opinion of the U.S. Fish and Wildlife Service that the playas at the base fall under the current definition of wetland areas under federal wetland delineation guidance (Hagenbuck 1991). The federal regulations governing wetlands, however, are not considered ARARs as long as the project does not impact the wetland areas. If the playa lakes on base continue to be considered wetlands and if the remedial activities should impact these wetland areas, then the regulations would be considered applicable and coordination with the U.S. Fish and Wildlife Service would need to be initiated prior to any remedial activity. The State of New Mexico does not have its own wetlands regulations at this time.

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- New Mexico Department of Environmental Improvement. 1988. New Mexico Underground Storage Tank Regulations.
- New Mexico Department of Environmental Improvement. 1991. New Mexico Drinking Water Regulations. April.
- New Mexico Department of Environmental Improvement. 1992. New Mexico Solid Waste Regulations, Part VII. New Mexico Special Waste Restrictions Regulations, adopted effective January 30, 1992.
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- New Mexico Water Quality Control Commission. 1967. New Mexico Water Quality Regulations, amended through August 17, 1991.

- U.S. Air Force. 1992. Letter from Col. David A. Benson, Commander, Cannon AFB, to New Mexico Environment Department, dated January 8, 1992.
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- U.S. Environmental Protection Agency (EPA). 1991c. National Primary and Secondary Drinking Water Regulations. 56 Federal Register 30266. July 1.
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U.S. Environmental Protection Agency (EPA). 1993. Integrated Risk Information System (IRIS).

U.S. Fish and Wildlife Service (USFWS). 1987. Endangered and Threatened Species of Arizona and New Mexico.

Woodward-Clyde Consultants. 1993. Concentrations of Selected Naturally Occurring Chemical Constituents in Soil and Groundwater at Cannon Air Force Base. Clovis, New Mexico. March 1993.

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TABLE 4-1

SUMMARY OF
POTENTIAL CHEMICAL-SPECIFIC ARARS/TBCs
CANNON AFB - LANDFILL 5

Standard, Requirement, or Criteria	Description	Comment
FEDERAL		
<u>Safe Drinking Water Act (40 USC Sect. 300)</u>		
National Primary Drinking Water Standards [40 CFR Parts 141, 142, (1990, 1991)]	Establishes maximum contaminant levels (MCLs) for specific contaminants which are health-based standards for public drinking water systems.	MCLs are applicable for drinking water at the tap. MCLs are relevant and appropriate for organic and inorganic contamination of groundwater that is or may be used for drinking.
National Secondary Drinking Water Standards (40 CFR Part 143)	Establishes secondary maximum contaminant levels (SMCLs) which are nonenforceable guidelines for public drinking water systems to protect the aesthetic quality of the water.	SMCLs may be "to be considered" if groundwater is used as a drinking water source.
Maximum Contaminants Level Goals (MCLGs) [PL No. 99-339, 100 Stat. 642 (1986), (1990, 1991); 40 CFR 141,142]	Establishes drinking water quality goals at a level at which no adverse health effects may occur with an adequate margin of safety.	MCLGs set above zero levels are relevant and appropriate for existing or potential sources of drinking water. MCLGs may be relevant and appropriate if the risk posed by multiple contaminants or pathways is in excess of 10 ⁻⁴ .
<u>Resource, Conservation, and Recovery Act (RCRA)</u>		
Releases from Solid Waste Management Units (40 CFR Part 264)	Subpart F (264.94) gives concentration limits in groundwater for hazardous constituents from a regulated unit.	Applicable if organic and inorganic contamination of groundwater is found at a RCRA regulated unit.

**TABLE 4-1
SUMMARY OF
POTENTIAL CHEMICAL-SPECIFIC ARARS/TBCs
CANNON AFB - LANDFILL 5**

Standard, Requirement, or Criteria	Description	Comment
RCRA Facility Investigation Guidance (EPA, 1989)	Guidance levels for cleanup of contaminated soils based on EPA-derived chronic exposure assumptions; intended as screening levels at RCRA facilities to determine if a more detailed health-risk evaluation is warranted.	To be considered if contaminated soils are found.
Proposed RCRA Action Levels (55 FR 30798, 27 July 1990)	Risk-based action levels for contaminants in soil which, if exceeded, would trigger the need for a Corrective Measures Study.	To be considered if contaminated soils are found.
<u>STATE</u>		
<u>New Mexico Water Quality Act, 1978</u>		
New Mexico Drinking Water Regulations (4/16/91)(New Mexico Water Supply Regulations, Sections 202 to 203)	Establishes MCLs and standards for sources of drinking water.	State MCLs are applicable or relevant and appropriate to contaminated water if the state MCL is more stringent than federal requirements.
New Mexico Water Quality Regulations, amended through August 17, 1991 (WQCCR Part 3, Sections 100 through 103)	Establishes human health, domestic water supply, and irrigation use standards for ground water protection.	Applicable if remedial activities include discharges onto or below the surface of the ground.
<u>New Mexico Hazardous Waste Act 1978</u>		
New Mexico Underground Storage Tank Regulations, amended through July 18, 1991, Section 1209	Sets cleanup levels for soils contaminated with benzene, aromatic hydrocarbons, or petroleum products.	May be "to be considered" if soils are contaminated with benzene, aromatic hydrocarbons, or petroleum products.

**TABLE 4-1
SUMMARY OF
POTENTIAL CHEMICAL-SPECIFIC ARARS/TBCs
CANNON AFB - LANDFILL 5**

Standard, Requirement, or Criteria	Description	Comment
<u>New Mexico Solid Waste Regulations</u>		
New Mexico Special Waste Requirements Regulations, adopted effective January 30, 1992, Part VII	Sets disposal levels for soils contaminated with BTEX compounds and total petroleum hydrocarbons. Also sets disposal standards for asbestos waste.	May be "to be considered" if soils are contaminated with petroleum hydrocarbons. Asbestos requirements may be applicable if asbestos waste continues to be disposed in Landfill 5 or is removed and placed elsewhere.

TABLE 4-2

POTENTIAL SITE-WIDE CHEMICAL-SPECIFIC ARARS/TBCs
GROUNDWATER QUALITY STANDARDS
CANNON AFB - LANDFILL 5
(ug/l unless otherwise noted)

Parameter	Type	FEDERAL STANDARDS			STATE STANDARDS NMWQCC Groundwater Quality Standards (g)			
		SDWA Maximum Contaminant Level (a)	SDWA Maximum Contaminant Level Goal (a) ARARS/TBCs	RCRA Subpart F Concentration Limit (40 CFR 264.94) (b)	Community Water Supply System (h)	Human Health	Other Standards for Domestic Water Supply	Irrigation Use
pH	Field Parameter	6.5-8.5'					6.0-9.0	6.0-9.0
Total Dissolved Solids	Indicator	500,000 ug/l'					1,000,000 ug/l	1,000,000 ug/l
Carbonate	Anion							
Chloride	Anion	250,000 ug/l'					250,000 ug/l	250,000 ug/l
Fluoride	Anion	4,000 ug/l, 2,000 ug/l'	4,000 ug/l		4,000 ug/l	1,600 ug/l		1,600 ug/l
N as Nitrate	Anion	10,000 ug/l	10,000 ug/l(c)		10,000 ug/l	10,000 ug/l		10,000 ug/l
N as Nitrate + Nitrite	Anion	10,000 ug/l(c)	10,000 ug/l(c)					
N as Nitrite	Anion	1,000 ug/l(c)	1,000 ug/l(c)					
Potassium	Anion							
Sulfate	Anion	250,000 ug/l'					600,000 ug/l	600,000 ug/l
Aluminum	Metal	0.5 to 200 ug/l'(c)						5,000 ug/l
Antimony	Metal	6 ug/l(d)	6 ug/l(d)					
Arsenic	Metal	50 ug/l		50 ug/l	50 ug/l	100 ug/l		100 ug/l
Barium	Metal	2,000 ug/l(e)	2,000 ug/l(c)	1,000 ug/l	1,000 ug/l	1,000 ug/l		1,000 ug/l
Beryllium	Metal	4.0 ug/l(d)	4 ug/l(d)					
Boron	Metal							750 ug/l
Cadmium	Metal	5 ug/l(c)	5 ug/l(c)	10 ug/l	10 ug/l	10 ug/l		10 ug/l
Calcium	Metal							
Chromium	Metal	100 ug/l(c)	100 ug/l(c)	50 ug/l	50 ug/l	50 ug/l		50 ug/l

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TABLE 4-2
POTENTIAL SITE-WIDE CHEMICAL-SPECIFIC ARARS/TBCs
GROUNDWATER QUALITY STANDARDS
CANNON AFB - LANDFILL 5
(ug/l unless otherwise noted)

Parameter	Type	FEDERAL STANDARDS			STATE STANDARDS NMWQCC Groundwater Quality Standards (g)			
		SDWA Maximum Contaminant Level (a)	SDWA Maximum Contaminant Level Goal (a) ARARs/TBCs	RCRA Subpart F Concentration Limit (40 CFR 264.94) (b)	Community Water Supply System (h)	Human Health	Other Standards for Domestic Water Supply	Irrigation Use
Cobalt	Metal							50 ug/l
Copper	Metal	1,000 ug/l' 1,300 ug/l'''	1,300 ug/l(f)				1,000 ug/l	1,000 ug/l
Cyanide	Metal	200 ug/l(d)	200 ug/l(d)			200 ug/l		200 ug/l
Iron	Metal	300 ug/l'					1,000 ug/l	1,000 ug/l
Lead	Metal	50 ug/l 15 ug/l'''	0(f)	50 ug/l	50 ug/l	50 ug/l		50 ug/l
Magnesium	Metal							
Manganese	Metal	50 ug/l'					200 ug/l	200 ug/l
Mercury	Metal	2 ug/l	2 ug/l(c)	2 ug/l	2 ug/l	2 ug/l		2 ug/l
Molybdenum	Metal							1,000 ug/l
Nickel	Metal	100 ug/l(d)	100 ug/l(d)					200 ug/l
Selenium	Metal	50 ug/l(c)	50 ug/l(c)	10 ug/l	10 ug/l	50 ug/l		50 ug/l
Silver	Metal	100 ug/l'(c)		50 ug/l	50 ug/l	50 ug/l		50 ug/l
Sodium	Metal							
Thallium	Metal	2 ug/l(d)	0.5 ug/l(d)					
Tin	Metal							
Titanium	Metal							
Tungsten	Metal							
Vanadium	Metal							

**TABLE 4-2
 POTENTIAL SITE-WIDE CHEMICAL-SPECIFIC ARARS/TBCs
 GROUNDWATER QUALITY STANDARDS
 CANNON AFB - LANDFILL 5
 (ug/l unless otherwise noted)**

Parameter	Type	FEDERAL STANDARDS			STATE STANDARDS NMWQCC Groundwater Quality Standards (g)			
		SDWA Maximum Contaminant Level (a)	SDWA Maximum Contaminant Level Goal (a) ARARs/TBCs	RCRA Subpart F Concentration Limit (40 CFR 264.94) (b)	Community Water Supply System (h)	Human Health	Other Standards for Domestic Water Supply	Irrigation Use
Zinc	Metal	5,000 ug/l					10,000 ug/l	10,000 ug/l
Gross Alpha	Radionuclide	15 pCi/l			15 pCi/l			
Gross Beta	Radionuclide	4 mrem/yr						
Radium 226 + 228	Radionuclide	5 pCi/l			5 pCi/l	30 pCi/l		30 pCi/l
Strontium 90	Radionuclide	8 pCi/l			8 pCi/l			
Tritium	Radionuclide	20,000 pCi/l			20,000 pCi/l			
Uranium (total)	Radionuclide					5,000 ug/l		5,000 ug/l
1,1-Dichloroethane	Volatile					25 ug/l		25 ug/l
1,1-Dichloroethene	Volatile	7 ug/l	7 ug/l		7 ug/l	5 ug/l		5 ug/l
1,1,1-Trichloroethane	Volatile	200 ug/l	200 ug/l		200 ug/l	60 ug/l		60 ug/l
1,1,2,2-Tetrachloroethane	Volatile					10 ug/l		10 ug/l
1,1,2,2-Tetrachloroethene	Volatile					20 ug/l		20 ug/l
1,1,2-Trichloroethane	Volatile	5 ug/l(d)	3 ug/l(d)			10 ug/l		10 ug/l
1,1,2-Trichloroethene	Volatile					100 ug/l		100 ug/l
1,2-Dichloroethane	Volatile	5 ug/l	0 ug/l		5 ug/l	10 ug/l		10 ug/l
1,2-Dichloroethene	Volatile							
1,2-Dichloropropane	Volatile	5 ug/l(c)	0 ug/l(c)					
4-Methyl-2-pentanone	Volatile							
Acetone	Volatile							
Benzene	Volatile	5 ug/l	0 ug/l		5 ug/l	10 ug/l		10 ug/l

TABLE 4-2
POTENTIAL SITE-WIDE CHEMICAL-SPECIFIC ARARS/TBCs
GROUNDWATER QUALITY STANDARDS
CANNON AFB - LANDFILL 5
(ug/l unless otherwise noted)

Parameter	Type	FEDERAL STANDARDS			STATE STANDARDS NMWQCC Groundwater Quality Standards (g)			
		SDWA Maximum Contaminant Level (a)	SDWA Maximum Contaminant Level Goal (a) ARARs/TBCs	RCRA Subpart F Concentration Limit (40 CFR 264.94) (b)	Community Water Supply System (h)	Human Health	Other Standards for Domestic Water Supply	Irrigation Use
Bromodichloromethane	Volatile							
Bromoform	Volatile	Tot THM' <100 ug/l						
Bromomethane	Volatile							
Carbon Tetrachloride	Volatile	5 ug/l	0 ug/l		5 ug/l	10 ug/l		10 ug/l
Chlorobenzene (mono)	Volatile	100 ug/l(c)	100 ug/l(c)					
Chlorobenzilate	Volatile							
Chloroethane	Volatile							
Chloroform	Volatile	Tot THM'' <100 ug/l			Tot THM'' 100 ug/l	100 ug/l		100 ug/l
Chloroprene	Volatile							
Chloromethane	Volatile							
Cis-1,2-Dichloroethene	Volatile	70 ug/l(c)	70 ug/l(c)					
Cis-1,3-Dichloropropene	Volatile							
Dibromochloromethane	Volatile	Tot THM** <100 ug/l						
Ethyl Benzene	Volatile	700 ug/l(c)	700 ug/l(c)			750 ug/l		750 ug/l
Methylene Chloride	Volatile	5 ug/l(d)	0 ug/l(d)			100 ug/l		100 ug/l
Styrene	Volatile	100 ug/l(c)	100 ug/l(c)					
Tetrachloroethanes	Volatile							
Tetrachloroethene	Volatile	5 ug/l(c)	0 ug/l(c)					

TABLE 4-2
POTENTIAL SITE-WIDE CHEMICAL-SPECIFIC ARARS/TBCs
GROUNDWATER QUALITY STANDARDS
CANNON AFB - LANDFILL 5
(ug/l unless otherwise noted)

Parameter	Type	FEDERAL STANDARDS			STATE STANDARDS NMWQCC Groundwater Quality Standards (g)			
		SDWA Maximum Contaminant Level (a)	SDWA Maximum Contaminant Level Goal (a) ARARs/TBCs	RCRA Subpart F Concentration Limit (40 CFR 264.94) (b)	Community Water Supply System (h)	Human Health	Other Standards for Domestic Water Supply	Irrigation Use
Toluene	Volatile	1,000 ug/l(c)	1,000 ug/l(c)			750 ug/l		
Total Trihalomethanes	Volatile	100 ug/l						
Total Xylenes	Volatile	10,000 ug/l(c)	10,000 ug/l(c)			620 ug/l		620 ug/l
Trans-1,2-Dichloroethene	Volatile	100 ug/l(c)	100 ug/l(c)					
Trans-1,3-Dichloropropene	Volatile							
Trichloroethanes	Volatile							
Trichloroethene	Volatile	5 ug/l	0 ug/l		5 ug/l			
Vinyl Acetate	Volatile							
Vinyl Chloride	Volatile	2 ug/l	0 ug/l		2 ug/l	1ug/l		1 ug/l
1,2-Dichlorobenzene (ortho)	Semi-Volatile	600 ug/l(c)	600 ug/l(c)					
1,3-Dichlorobenzene (meta)	Semi-Volatile	600 ug/l	600 ug/l					
1,4-Dichlorobenzene (para)	Semi-Volatile	75 ug/l	75 ug/l		75 ug/l			
1,2,4-Trichlorobenzene	Semi-Volatile	70 ug/l(d)	70 ug/l(d)					
2-Chloronaphthalene	Semi-Volatile							
2-Chlorophenol	Semi-Volatile							
2-Methylnaphthalene	Semi-Volatile							
2-Nitroaniline	Semi-Volatile							
2-Nitrophenol	Semi-Volatile							
2,3,7,8-Tetrachlorodibenzo-p-dioxin	Semi-Volatile	3x10 ⁻⁴ (d)	0 ug/l(d)					

TABLE 4-2
POTENTIAL SITE-WIDE CHEMICAL-SPECIFIC ARARS/TBCs
GROUNDWATER QUALITY STANDARDS
CANNON AFB - LANDFILL 5
(ug/l unless otherwise noted)

Parameter	Type	FEDERAL STANDARDS			STATE STANDARDS NMWQCC Groundwater Quality Standards (g)			
		SDWA Maximum Contaminant Level (a)	SDWA Maximum Contaminant Level Goal (a) ARARs/TBCs	RCRA Subpart F Concentration Limit (40 CFR 264.94) (b)	Community Water Supply System (h)	Human Health	Other Standards for Domestic Water Supply	Irrigation Use
2,4-Dichlorophenol	Semi-Volatile							
2,4-Dichlorophenoxyacetic Acid (2,4-D)	Semi-Volatile (H)	70 ug/l(c)	70 ug/l(c)	100 ug/l	100 ug/l			
2,4-Dimethylphenol	Semi-Volatile							
2,4-Dinitrophenol	Semi-Volatile							
2,4-Dinitrotoluene	Semi-Volatile							
2,4,5-TP Silvex	Semi-Volatile (H)	50 ug/l(c)	50 ug/l(c)	10 ug/l	10 ug/l			
2,4,6-Trichlorophenol	Semi-Volatile							
3-Nitroaniline	Semi-Volatile							
4-Bromophenyl Phenylether	Semi-Volatile							
4-Chloroaniline	Semi-Volatile							
4-Chlorophenyl Phenyl Ether	Semi-Volatile							
4-Chloro-3-methylphenol	Semi-Volatile							
4-Nitroaniline	Semi-Volatile							
4,6-Dinitro-2-methylphenol	Semi-Volatile							
Acenaphthalene	Semi-Volatile							
Acrylonitrile	Semi-Volatile							
Alachlor	Semi-Volatile	2 ug/l	0 ug/l					
Aldicarb	Semi-Volatile (P)	3 ug/l(c)	1 ug/l(c)					
Aldicarb Sulfone	Semi-Volatile (P)	2 ug/l	1 ug/l					

TABLE 4-2
POTENTIAL SITE-WIDE CHEMICAL-SPECIFIC ARARS/TBCs
GROUNDWATER QUALITY STANDARDS
CANNON AFB - LANDFILL 5
(ug/l unless otherwise noted)

Parameter	Type	FEDERAL STANDARDS			STATE STANDARDS NMWQCC Groundwater Quality Standards (g)			
		SDWA Maximum Contaminant Level (a)	SDWA Maximum Contaminant Level Goal (a) ARARs/TBCs	RCRA Subpart F Concentration Limit (40 CFR 264.94) (b)	Community Water Supply System (h)	Human Health	Other Standards for Domestic Water Supply	Irrigation Use
Aldicarb Sulfoxide	Semi-Volatile (P)	4 ug/l	1 ug/l					
Aldrin	Semi-Volatile (P)							
Aniline	Semi-Volatile							
Anthracene	Semi-Volatile							
Atrazine	Semi-Volatile	3 ug/l(c)	3 ug/l(c)					
Benzo(a)anthracene	Semi-Volatile							
Benzo(a)pyrene	Semi-Volatile	0.2 ug/l(d)	0 ug/l(d)			0.7 ug/l		0.7 ug/l
Benzo(b)fluoranthene	Semi-Volatile							
Benzo(g,h,i)perylene	Semi-Volatile							
Benzo(k)fluoranthene	Semi-Volatile							
Benzyl Alcohol	Semi-Volatile							
Bis(2-Chloroethoxy)methane	Semi-Volatile							
Bis(2-Chloroethyl)ether	Semi-Volatile							
Bis(2-Chloroisopropyl)ether	Semi-Volatile							
Bis(2-Ethylhexyl)phthalate	Semi-Volatile							
Butyl Benzylphthalate	Semi-Volatile							
Carbofuran	Semi-Volatile (P)	40 ug/l(c)	40 ug/l(c)					
Carbon Disulfide	Semi-Volatile							
Chlordane	Semi-Volatile (P)	2 ug/l(c)	0 ug/l(c)					
Chlorophenol	Semi-Volatile							

**TABLE 4-2
 POTENTIAL SITE-WIDE CHEMICAL-SPECIFIC ARARS/TBCs
 GROUNDWATER QUALITY STANDARDS
 CANNON AFB - LANDFILL 5
 (ug/l unless otherwise noted)**

Parameter	Type	FEDERAL STANDARDS			STATE STANDARDS NMWQCC Groundwater Quality Standards (g)			
		SDWA Maximum Contaminant Level (a)	SDWA Maximum Contaminant Level Goal (a) ARARs/TBCs	RCRA Subpart F Concentration Limit (40 CFR 264.94) (b)	Community Water Supply System (h)	Human Health	Other Standards for Domestic Water Supply	Irrigation Use
DDT	Semi-Volatile (P)							
DDT metabolite (DDE)	Semi-Volatile (P)							
DDT metabolite (DDD)	Semi-Volatile (P)							
Dalapon	Semi-Volatile (P)	200 ug/l(d)	200 ug/l(d)					
Diallite	Semi-Volatile							
Dibenzofuran	Semi-Volatile							
Dibenz(a,h)anthracene	Semi-Volatile							
Dibromochloropropane	Semi-Volatile (P)	0.2 ug/l	0 ug/l					
Dichlorobenzene	Semi-Volatile							
Dichlorobenzidine	Semi-Volatile							
Dieldrin	Semi-Volatile (P)							
Di(2-ethylhexyl)adipate	Semi-Volatile (P)	400 ug/l(d)	400 ug/l(d)					
Diethylphthalate	Semi-Volatile							
Di(2-ethylhexyl)phthalate	Semi-Volatile	6.0 ug/l(d)	0 ug/l(d)					
Dimethoate	Semi-Volatile							
Dimethylphthalate	Semi-Volatile							
Dinitrotoluene	Semi-Volatile							
Dinoseb	Semi-Volatile(H)	7 ug/l(d)	7 ug/l(d)					
Di-n-octylphthalate	Semi-Volatile							
Diquat	Semi-Volatile(P)	20 ug/l(d)	20 ug/l(d)					

**TABLE 4-2
 POTENTIAL SITE-WIDE CHEMICAL-SPECIFIC ARARS/TBCs
 GROUNDWATER QUALITY STANDARDS
 CANNON AFB - LANDFILL 5
 (ug/l unless otherwise noted)**

Parameter	Type	FEDERAL STANDARDS			STATE STANDARDS NMWQCC Groundwater Quality Standards (g)			
		SDWA Maximum Contaminant Level (a)	SDWA Maximum Contaminant Level Goal (a) ARARs/TBCs	RCRA Subpart F Concentration Limit (40 CFR 264.94) (b)	Community Water Supply System (h)	Human Health	Other Standards for Domestic Water Supply	Irrigation Use
Endosulfan I	Semi-Volatile (P)							
Endosulfan II	Semi-Volatile (P)							
Endosulfan Sulfate	Semi-Volatile (P)							
Endothall	Semi-Volatile (P)	100 ug/l	100 ug/l					
Endrin	Semi-Volatile (P)	2.0 ug/l(d)	2.0 ug/l(d)	0.2 ug/l	0.2 ug/l			
Ethylene Dibromide	Semi-Volatile	0.05 ug/l(c)	0 ug/l(c)			0.1 ug/l		0.1 ug/l
Fluoranthene	Semi-Volatile							
Fluorene	Semi-Volatile							
Glyphosate	Semi-Volatile(P)	700 ug/l(d)	700 ug/l(d)					
Heptachlor	Semi-Volatile (P)	0.4 ug/l(c)	0 ug/l(c)					
Heptachlor Epoxide	Semi-Volatile (P)	0.2 ug/l(c)	0 ug/l(c)					
Hexachlorobenzene	Semi-Volatile	1.0 ug/l(d)	0 ug/l(d)					
Hexachlorobutadiene	Semi-Volatile							
Hexachlorocyclohexane, Alpha	Semi-Volatile (P)							
Hexachlorocyclohexane, Beta	Semi-Volatile (P)							
Hexachlorocyclohexane, (Lindane)	Semi-Volatile (P)	0.2 ug/l(c)	0.2 ug/l(c)	4 ug/l	4 ug/l			
Hexachlorocyclohexane, Technical	Semi-Volatile (P)							
Hexachlorocyclopentadiene	Semi-Volatile	50 ug/l(d)	50 ug/l(d)					

**TABLE 4-2
 POTENTIAL SITE-WIDE CHEMICAL-SPECIFIC ARARS/TBCs
 GROUNDWATER QUALITY STANDARDS
 CANNON AFB - LANDFILL 5
 (ug/l unless otherwise noted)**

Parameter	Type	FEDERAL STANDARDS			STATE STANDARDS NMWQCC Groundwater Quality Standards (g)			
		SDWA Maximum Contaminant Level (a)	SDWA Maximum Contaminant Level Goal (a) ARARs/TBCs	RCRA Subpart F Concentration Limit (40 CFR 264.94) (b)	Community Water Supply System (h)	Human Health	Other Standards for Domestic Water Supply	Irrigation Use
Hexachloroethane	Semi-Volatile							
Indeno(1,2,3-cd)pyrene	Semi-Volatile							
Methoxychlor	Semi-Volatile (P)	40 ug/l	40 ug/l(c)	100 ug/l	100 ug/l			
Naphthalene	Semi-Volatile							
Nitrobenzene	Semi-Volatile							
Nitrophenols	Semi-Volatile							
Nitrosodibutylamine	Semi-Volatile							
Nitrosodiethylamine	Semi-Volatile							
Nitrosodimethylamine	Semi-Volatile							
Nitrosopyrrolidine	Semi-Volatile							
N-Nitrosodiphenylamine	Semi-Volatile							
N-Nitroso-di-n-dipropylamine	Semi-Volatile							
Oxamyl	Semi-Volatile(P)	200 ug/l(d)	200 ug/l(d)					
PCBs	PCBs	0.5 ug/l(c)	0 ug/l(c)			1 ug/l		1 ug/l
Pentachlorinated Ethanes	Semi-Volatile							
Pentachlorophenol	Semi-Volatile	1 ug/l(c)	0 ug/l(c)					
Phenanthrene	Semi-Volatile							
Phenol	Semi-Volatile				5 ug/l		5 ug/l	5 ug/l
Picloram	Semi-Volatile (H)	500 ug/l	500 ug/l					

**TABLE 4-2
POTENTIAL SITE-WIDE CHEMICAL-SPECIFIC ARARS/TBCs
GROUNDWATER QUALITY STANDARDS
CANNON AFB - LANDFILL 5
(ug/l unless otherwise noted)**

Parameter	Type	FEDERAL STANDARDS			STATE STANDARDS NMWQCC Groundwater Quality Standards (g)			
		SDWA Maximum Contaminant Level (a)	SDWA Maximum Contaminant Level Goal (a) ARARs/TBCs	RCRA Subpart F Concentration Limit (40 CFR 264.94) (b)	Community Water Supply System (h)	Human Health	Other Standards for Domestic Water Supply	Irrigation Use
Polynuclear Aromatic Hydrocarbons (total PAH)	Semi-Volatile				30 ug/l	30 ug/l		30 ug/l
Pyrene	Semi-Volatile							
Simazine	Semi-Volatile(P)	4 ug/l(d)	4 ug/l(d)					
Trans-1,2-Dichloroethene	Semi-Volatile	100 ug/l	100 ug/l					
Toxaphene	Semi-Volatile (P)	3 ug/l(c)	0 ug/l(c)	5 ug/l	5 ug/l			

EXPLANATION OF TABLE

(P) Pesticide (H) Herbicide

' = secondary maximum contaminant level (TBCs)

" = total trihalomethanes: chloroform, bromoform, bromodichloromethane, dibromochloromethane

*** = action levels in no more than 10% of tap samples, 56 FR 26460, 6/7/91, effective 12/7/92

NMWQCC = New Mexico Water Quality Control Commission

RCRA = Resource Conservation and Recovery Act

SDWA = Safe Drinking Water Act

(a) EPA National Primary and Secondary Drinking Water Regulations, 40 CFR 141 and 40 CFR 143 (as of 5/1990)

(b) NCP, 40 CFR 300; NCP Preamble 55 FR 8764; CERCLA Compliance with Other Laws Manual EPA/540/G-89/006, August 1988

(c) EPA National Primary and Secondary Drinking Water Regulations, 40 CFR Parts 141, 142, 143, Final Rule, Effective July 30, 1992 (56 Federal Register 3526; 1/30/91)

(d) EPA National Primary Drinking Water Regulations, 40 CFR 141 and 40 CFR 142, Final Rule (57FR 31776, 7/17/92); Effective date is January 17, 1994, (therefore TBCs) except for endrin, which is effective 8/17/92.

(e) EPA National Primary and Secondary Drinking Water Regulations, 40 CFR Parts 141, 142, 143, Final Rule, Effective January 1, 1993 (56 FR 30266, 7/01/91)

(f) EPA Maximum Contaminant Level Goals and National Primary Drinking Water Regulations for Lead and Copper, 40 CFR 141 and 142; effective December 7, 1992 (56 FR 26460, 6/7/91)

(g) NM Water Quality Control Commission, NM Water Quality Regulations, Part 3, Section 3-103, 11/16/1967 amended through August 17, 1991

TABLE 4-2
POTENTIAL SITE-WIDE CHEMICAL-SPECIFIC ARARS/TBCs
GROUNDWATER QUALITY STANDARDS
CANNON AFB - LANDFILL 5
(ug/l unless otherwise noted)

(h) New Mexico Drinking Water/Water Supply Regulations, adopted April 16, 1991

If no values are shown for a possible contaminant, there are no standards at this time.

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TABLE 4-3

POTENTIAL SCREENING CONCENTRATIONS FOR ORGANIC COMPOUNDS IN SOIL
(To Be Considered)
CANNON AFB

	RFI Guidance(a) TBCs (mg/kg)	Proposed RCRA Action Level(b) TBCs (mg/kg)	Proposed RCRA Action Level(c) TBCs (mg/kg)	Other TBCs (mg/kg)
Herbicides				
2,4,5-T	-	-	800.00	-
2,4,5-TP (Silvex)	600.00	-	640.00	-
2,4-D	800.00	800.00	800.00	-
2,4-DB	-	-	640.00	-
Dalaphon	-	-	2400.00	-
Dicamba	-	-	2400.00	-
Dichlorprop	-	-	-	-
Dinoseb	80.00	-	80.00	-
MCPA	-	-	40.00	-
MCPP	-	-	80.00	-
Pesticides				
4,4'-DDT*	2.10	2.00	2.06	-
4,4'-DDE*	2.10	2.00	2.06	-
Aldrin*	0.04	0.04	0.04	-
alpha-BHC*	-	0.10	0.11	-
alpha-Chlordane*	0.54	0.50	0.27	-
Aroclor-1016*	0.09	(e)	0.09	-
Aroclor-1221*	0.09	(e)	0.09	-
Aroclor-1232*	0.09	(e)	0.09	-
Aroclor-1242*	0.09	(e)	0.09	-
Aroclor-1248*	0.09	(e)	0.09	-
Aroclor-1254*	0.09	(e)	0.09	-
Aroclor-1260*	0.09	(e)	0.09	-
beta-BHC*	-	4.00	0.39	-

TABLE 4-3

POTENTIAL SCREENING CONCENTRATIONS FOR ORGANIC COMPOUNDS IN SOIL
(To Be Considered)
CANNON AFB

	RFI Guidance(a) TBCs (mg/kg)	Proposed RCRA Action Level(b) TBCs (mg/kg)	Proposed RCRA Action Level(c) TBCs (mg/kg)	Other TBCs (mg/kg)
delta-BHC	-	-	-	-
Dieldrin*	0.04	0.04	0.044	-
Endosulfan I**	4.00	0.04	-	-
Endosulfan II**	4.00	4.00	-	-
Endrin	20.00	20.00	-	-
Endrin ketone	-	-	-	-
gamma-BHC	20.00	0.50	24	-
gamma-Chlordane*	0.54	0.50	0.27	-
Heptachlor	40.00	0.20	0.16	-
Heptachlor epoxide*	0.80	0.08	0.077	-
Methoxychlor	-	-	400	-
Toxaphene*	0.64	0.60	0.63	-
Semi-volatiles				
1,2,4-trichlorobenzene	2000.00	2000.00	800	-
1,2-dichlorobenzene	-	-	7200	-
1,3-dichlorobenzene	-	-	-	-
2,2'-oxybis(1-chloropropane)	-	-	-	-
2,4,5-trichlorophenol	8000.00	8000.00	8000	-
2,4,6-trichlorophenol*	35.00	40.00	63.6	-
2,4-dimethylphenol	-	-	1600	-
2,4-dinitrophenol	200.00	200.00	160	-
2,4-dinitrotoluene	-	-	160	-
2,6-dinitrotoluene*	-	1.00 (2)	1.02***	-
2-chloronaphthalene	-	-	-	-
2-chlorophenol	-	-	400	-

TABLE 4-3

POTENTIAL SCREENING CONCENTRATIONS FOR ORGANIC COMPOUNDS IN SOIL
(To Be Considered)
CANNON AFB

	RFI Guidance(a) TBCs (mg/kg)	Proposed RCRA Action Level(b) TBCs (mg/kg)	Proposed RCRA Action Level(c) TBCs (mg/kg)	Other TBCs (mg/kg)
2-dichlorophenol	-	-	-	-
2-methylnaphthalene	-	-	-	0.3-220(f)
2-methylphenol	-	-	-	-
2-nitroaniline	-	-	-	-
2-nitrophenol	-	-	-	-
3-3'-dichlorobenzidine*	-	-	1.56	-
3-nitroaniline	-	-	-	-
4,6-dinitro-2-methylphenol	-	-	-	-
4-bromophenylphenyl ether	-	-	-	-
4-chloro-3-methylphenol	-	-	-	-
4-chloroaniline	-	-	320	-
4-chlorophenylphenyl ether	-	-	-	-
4-methylphenol	-	-	-	-
4-nitroaniline	-	-	-	-
4-nitrophenol	-	-	-	-
acenaphthene	-	-	4800	-
acenaphthylene	-	-	-	-
anthracene	-	-	24,000	-
benzo(a)anthracene*	0.22	-	1.2	0.3-220(f)
benzo(a)pyrene*	0.06	-	0.12	0.3-220(f)
benzo(b)fluoranthene*	-	-	1.2	0.3-220(f)
benzo(g,h,i)perylene	-	-	-	0.3-220(f)
benzo(k)fluoranthene	-	-	1.2	0.3-220(f)
benzoic acid	-	-	32,000	-
benzyl alcohol	-	-	24,000	-
bis(2-chloroethyl)ether*	0.64	0.60	0.64	-

TABLE 4-3

**POTENTIAL SCREENING CONCENTRATIONS FOR ORGANIC COMPOUNDS IN SOIL
(To Be Considered)
CANNON AFB**

	RFI Guidance(a) TBCs (mg/kg)	Proposed RCRA Action Level(b) TBCs (mg/kg)	Proposed RCRA Action Level(c) TBCs (mg/kg)	Other TBCs (mg/kg)
bis(2-ethylhexyl)phthalate*	83.00	50.00	0.01	0.3-220(f)
butyl benzyl phthalate	-	20000.00	16,000	0.3-220(f)
carbazole*	-	-	35	-
chrysene*	-	-	12.1	0.3-220(f)
di-n-butylphthalate	8000.00	8000.00	800,000	-
di-n-octylphthalate	-	-	1,600	-
dibenz(a,h)anthracene	-	-	-	0.3-220(f)
dibenzofuran	-	-	-	0.3-220(f)
diethylphthalate	60000.00	60000.00	64,000	-
dimethylphthalate	-	-	800,000	-
fluoranthene	-	-	3,200	0.3-220(f)
fluorene	-	-	3,200	0.3-220(f)
hexachlorbenzene*	0.41	-	0.44	-
hexachlorobutadiene	90.00	90.00	9.0	-
hexachlorocyclopentadiene	600.00	-	560	-
hexachloroethane*	500.00	80.00	50	-
indeno(1,2,3-cd)pyrene*	-	-	1.2	0.3-220(f)
isophorone*	-	2000.00	737	-
n-nitroso-di-n-dipropylamine*	0.10	0.10	0.1	-
n-nitrosodiphenylamine*	-	100.00	0.003	-
naphthalene	-	-	3,200	0.3-220(f)
nitrobenzene	40.00	40.00	40	-
pentachlorophenol*	2000.00	2000.00	0.084	-
phenanthrene	-	-	-	-
phenol	3000.00	50000.00	48,000	-
pyrene	-	-	2,400	0.3-220(f)

TABLE 4-3

**POTENTIAL SCREENING CONCENTRATIONS FOR ORGANIC COMPOUNDS IN SOIL
(To Be Considered)
CANNON AFB**

	RFI Guidance(a) TBCs (mg/kg)	Proposed RCRA Action Level(b) TBCs (mg/kg)	Proposed RCRA Action Level(c) TBCs (mg/kg)	Other TBCs (mg/kg)
Volatiles				
1,1,1-trichloroethane	7000.00	7000.00	7,200	-
1,1,2,2-tetrachloroethane*	35.00	40.00	3.5	-
1,1,2-trichloroethane	120.00	100.00	0.039	-
1,1-dichlorethane*	-	-	8,000	-
1,1-dichloroethene	12.00	10.00	1.17	-
1,2-dichloroethene (total)	-	-	720	-
2-butanone (MEK)	4000.00	4000.00	48,000	-
2-hexanone (MnBK)	-	-	-	-
4-methyl-2-pentanone (MIBK)	4000.00	4000.00	4,000	-
acetone	8000.00	8000.00	8,000	-
benzene*	24.00	-	24.14	<100(g)
bromodichloromethane*	2000.00	0.50	11.3	-
bromoform*	2000.00	2000.00	88.6	-
bromomethane	30.00	100.00	112	-
carbon tetrachloride*	5.4	5	0.09	-
carbon disulfide	8000.00	8000.00	8,000	-
chlorobenzene	2000.00	2000.00	1,600	-
chloroethane	-	-	-	-
chloroform*	110.00	100.00	115	-
chloromethane	-	-	54	-
cis-1,3-dichloropropene	20.00	20.00	24	-
dibromochloromethane*	-	-	8.3	-
ethylbenzene	8000.00	8000.00	8,000	<500 (g)
methylene chloride*	0.93	90	93.3	-

TABLE 4-3

POTENTIAL SCREENING CONCENTRATIONS FOR ORGANIC COMPOUNDS IN SOIL
(To Be Considered)
CANNON AFB

	RFI Guidance(a) TBCs (mg/kg)	Proposed RCRA Action Level(b) TBCs (mg/kg)	Proposed RCRA Action Level(c) TBCs (mg/kg)	Other TBCs (mg/kg)
styrene	20000.00	20000.00	16,000	-
tetrachloroethene*	-	10.00	13.7	-
toluene	20000.00	20000.00	16,000	<500 (g)
trans-1,3-dichloropropene	20.00	20.00	24	-
trichloroethene*	64.00	60.00	63.6	-
vinyl chloride*	-	-	0.37	-
xylenes (total)	200000.00	200000.00	160,000	<500 (g)
Polynuclear Aromatic Hydrocarbons (PAHs)	-	-	-	<50 ppm(e)
Total Petroleum Hydrocarbons (TPH)	-	-	-	<1000 ppm(d)

(a) RCRA Facility Investigation Guidance (EPA 1989a); human health-based criteria for systemic toxicants representing an estimate of the daily exposure an individual can experience without appreciable risk of health effects during a lifetime.

(b) Source: Corrective Action for SWMUs at Hazardous Waste Management Facilities (55 FR 30798, 27 July 1990): these risk based levels trigger the need for a corrective measure study.

(c) Human health proposed action levels calculated using guidance in 55 FR 30798

(d) New Mexico Environmental Improvement Board, New Mexico Special Waste Requirement Regulations, Adopted effective January 30, 1992

(e) New Mexico Department of Environmental Improvement New Mexico UST Regulations, amended through July 18, 1991.

(f) Range of anthropogenic and naturally occurring PAH concentrations (Blumer 1977, Mallet 1961)

(g) The sum of benzene, toluene, ethylbenzene, and xylene isomer concentrations is less than 500 mg/kg, with benzene individually less than 100 mg/kg. New Mexico Environmental Improvement Board, New Mexico Special Waste Requirement Regulations. Adopted effective January 30, 1992.

* Carcinogens

** Value for Endosulfan

*** 2,4 and 2,6-Dinitrotoluene (mixture)

TABLE 4-4

**POTENTIAL SCREENING CONCENTRATIONS
FOR INORGANIC COMPOUNDS IN SOIL
(TO BE CONSIDERED)
CANNON AFB - LANDFILL 5**

Compound	RFI Guidance TBCs ^a (mg/kg)	Proposed RCRA Action Level Level TBCs ^b (mg/kg)	Proposed RCRA Action Level TBCs ^c (mg/kg)	Other TBCs ^d (mg/kg)	Average Background Concentration ^e (mg/kg)	Range of Background Concentrations ^{e,f} (mg/kg)
aluminum	-	-	-	-	5700	860 - 10,540
antimony	30	30	32	-	6.75	1.33 - 12.2
arsenic*	-	80	0.39	-	3.5	0 - 15.5
barium	4000	4000	5600	-	166	0 - 642
beryllium*	0.14	0.2	0.16	-	0.41	0.09 - 0.73
cadmium	-	40	80	-	1.1	0 - 2.9
calcium	-	-	-	-	69,200	0 - 186,400
chromium III	80000	(for CrVI) 400	80000	-	6.98	1.42 - 12.5
cobalt	-	-	-	-	2.5	0.5 - 4.5
copper	-	-	-	-	5.4	0 - 13.0
iron	-	-	-	-	4,780	840 - 8,720
lead	-	-	-	500 - 1000	7.12	0 - 25.8
magnesium	-	-	-	-	4,650	0 - 11,790
manganese	-	-	8000	-	72	0 - 164
mercury	-	20	24	-	0.11	0.9 - 0.13
nickel	2000	2000	1600	-	5.0	1.0 - 9.0
potassium	-	-	-	-	1360	148 - 2,572
selenium	-	-	400	-	8.23	0 - 56.6
silver	200	200	400	-	1.2	0.2 - 2.2
sodium	-	-	-	-	514	0 - 1,042
thallium**	30	6	5.6	-	0.50	0 - 1.2

**TABLE 4-4
POTENTIAL SCREENING CONCENTRATIONS
FOR INORGANIC COMPOUNDS IN SOIL
(TO BE CONSIDERED)
CANNON AFB - LANDFILL 5**

Compound	RFI Guidance TBCs ^a (mg/kg)	Proposed RCRA Action Level Level TBCs ^b (mg/kg)	Proposed RCRA Action Level TBCs ^c (mg/kg)	Other TBCs ^d (mg/kg)	Average Background Concentration ^e (mg/kg)	Range of Background Concentrations ^{e,f} (mg/kg)
vanadium	-	-	560	-	14.9	4.50 - 25.3
zinc	-	-	16000	-	11.3	0.72 - 21.9

- ^a RCRA Facility Investigation Guidance (EPA 1989a); human health-based criteria for systemic toxicants representing an estimate of the daily exposure an individual can experience without appreciable risk of health effects during a lifetime.
- ^b Source: Corrective Action for SWMUs at Hazardous Waste Management Facilities (55 FR 30798, 27 July 1990). These risk-based levels trigger the need for a corrective action measure study.
- ^c Human Health proposed action levels using calculations in 55 FR 30798. Sources of toxicity factors used in calculations include: (1) Integrated Risk Information System (IRIS) and (2) Health Effects Assessment Summary Tables (HEAST) FY1992.
- ^d Source: OSWER Directive 9355.4-02.
- ^e Source: Woodward-Clyde Consultants, 1993.
- ^f Average + 2 standard deviations
- * Carcinogen
- ** Values reported are for thallic oxide.

TABLE 4-5

**SUMMARY OF POTENTIAL LOCATION-SPECIFIC ARARS
CANNON AFB - LANDFILL 5**

Requirement	Potentially Applicable?	Potentially Relevant and Appropriate?	Comments
<u>Resource Conservation and Recovery Act (RCRA)</u>			
1. New facilities where treatment, storage or disposal of hazardous waste will be conducted is prohibited within 61 meters (200 feet) of a fault displaced in Holocene time [40 CFR 264.18(a)]*	No	No	Treatment, storage and disposal of waste will not be conducted within 61 meters of a fault displaced in Holocene time.
2. New facilities where treatment, storage or disposal of hazardous waste will be conducted is prohibited within the 100-year floodplain. [40 CFR 264.18(b)]*	No	No	Treatment, storage and disposal of waste will not be conducted within the 100-year floodplain of adjacent rivers.
3. Prohibits noncontainerized or bulk liquid hazardous waste placement in salt domes, salt bed formations, and underground mines or caves. [40 CFR 264.18(c)]*	No	No	No action which would place waste in a salt dome or salt bed formation, underground mine or cave is anticipated at this site.
<u>E.O. 11988 Protection of Floodplains</u>			
4. Limits activities in floodplain. Floodplain is defined as "the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of off-shore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year." [40 CFR 6, Appendix A and 40 CRF 6.302]	No	No	Remedial activities will not be conducted within any floodplains.

*Adopted by the State of New Mexico and incorporated within Part V of the New Mexico Hazardous Waste Management Regulations.

**TABLE 4-5
SUMMARY OF POTENTIAL LOCATION-SPECIFIC ARARS
CANNON AFB - LANDFILL 5**

Requirement	Potentially Applicable?	Potentially Relevant and Appropriate?	Comments
<u>E.O. 11990 Protection of Wetlands</u>			
5. Minimizes impacts on areas designated as wetlands. [40 CRF 6, Appendix A]	No	No	Although playas are considered wetlands by the U.S. Fish and Wildlife Service, regulations are applicable only if the remedial activities impact the wetland areas. No impacts to the wetland areas are anticipated at this time.
<u>Clean Water Act Section 404</u>			
6. Action to prohibit discharge of dredged or fill material into waters of U.S. without permit. [33 USC 1251; 40 CFR 230; 33 CFR 320-330]	No	No	Dredge and fill permit requirements will not apply as no waters of the U.S. will be impacted by remedial activities on the site.
7. Requires Federal agencies to avoid, to the extent possible, adverse impacts associated with destruction or loss of wetlands	No	No	As described above, although wetlands are considered by the U.S. Fish and Wildlife Service to occur on the base in the form of playas, regulations are applicable only if the remedial activities impact the wetland area.

TABLE 4-5
SUMMARY OF POTENTIAL LOCATION-SPECIFIC ARARS
CANNON AFB - LANDFILL 5

Requirement	Potentially Applicable?	Potentially Relevant and Appropriate?	Comments
<u>Endangered Species Act</u>			
8. Protects endangered species and threatened species and preserves their habitat. [16 USC 1531 <u>et sequence</u> ; 50 CFR 200, 50 CFR 402]	Yes	---	Although Walk, Haydel & Associates report in their Remedial Investigation that there are no critical habitats in the immediate vicinity of the site (according to the Wildlife Management Plan for the base), two federally listed endangered species are known to inhabit the area within a 50-mile radius of the site (Lee Wan & Associates, Inc., 6/90).
<u>Bald Eagle Protection Act</u>			
9. Protects all eagle species and restricts activities that may threaten or adversely affect their habitat (16 USC Section 688 <u>et. seq</u>)	Yes	---	If eagle species are found to occur on the base, special protection provisions will need to be coordinated with US Fish and Wildlife Service. Bald eagles are known to inhabit the area within a 50-mile radius of the site (Lee Wan & Associates, Inc., 6/90).
<u>Migratory Bird Treaty Act</u>			
10. Protects migratory, resident, or range habitat of migratory birds including raptors and waterfowl. (16 USC Section 703 <u>et. seq</u>).	Yes	--	Remedial actions cannot threaten or adversely affect the habitats of migratory waterfowl or raptors.

TABLE 4-5
SUMMARY OF POTENTIAL LOCATION-SPECIFIC ARARS
CANNON AFB - LANDFILL 5

Requirement	Potentially Applicable?	Potentially Relevant and Appropriate?	Comments
<u>Wilderness Act</u>			
11. Limits activities within an area designed as a wilderness area. [16 USC 1311 <u>et seq.</u> ; 50CFR 53.1 <u>et seq.</u>]	No	No	The site is not within a federally-owned area designated as a wilderness area.
12. Limits the type of activities permitted in an area designated as a National Wildlife Refuge system [16 USC 668 <u>et seq.</u> ; 50 CFR Part 27]	No	No	The site is not in an area designated as part of the National Wildlife Refuge System (the closest NWRS are over 25 miles from the site).
<u>Fish and Wildlife Coordination Act</u>			
13. Prohibits activities affecting/modifying streams or bodies of water if the activity has a negative impact on fish or wildlife. [16 USC 661 <u>et seq.</u> ; 33 CFR Parts 320-330; 40 CFR 6.302]	No	No	As described above, no streams, rivers, or playas will be impacted by remedial activities.
<u>Wild and Scenic Rivers Act</u>			
14. Protects rivers that are designated as wild, scenic or recreational. [16 USC 1271; 40 CFR 6.302(e)]	No	No	No rivers designated as wild, scenic or recreational will be affected by remedial activities.

**TABLE 4-5
SUMMARY OF POTENTIAL LOCATION-SPECIFIC ARARS
CANNON AFB - LANDFILL 5**

Requirement	Potentially Applicable?	Potentially Relevant and Appropriate?	Comments
<u>National Historic Preservation Act (NHPA)</u>			
15. Requires the preservation of historic properties included in or eligible for the National Register of Historic Places and to minimize harm to National Historic Landmarks. [16 USC 470 <u>et seq.</u> ; 7 CFR 650; 36 CFR Part 65, Part 800]	Yes	---	Pursuant to Section 106 of NHPA, proposed federal undertaking in any state shall take into consideration the effect of the undertaking on any site, building, structure, or object that is included or eligible for inclusion in the National Register; nothing has been placed on the register to date, but surveys are ongoing. Also applicable if historical sites are discovered during a remedial action or if known historical sites exist near a remedial action site.
<u>The Historic and Archaeological Data Preservation Act of 1974</u>			
16. Establishes procedures to provide for preservation of historical and archaeological data which might be destroyed through alteration of terrain as a result of a federal construction project or a federally licensed activity program (16 USC 469, 40 CFR 6.301(c))	Yes	---	May be available if remedial activities affect historical and/or undiscovered archaeological data of the site.
<u>The Archaeological Resource Protection Act of 1979</u>			
17. Requires a permit for any excavation or removal of archaeological resources from public or Indian lands (16 USC 470aa-47011)	Yes	---	May be applicable if any remedial activity involves removal of archaeological resources; substantive requirements need to be met.
<u>Coastal Zone Management Act</u>			

TABLE 4-5
SUMMARY OF POTENTIAL LOCATION-SPECIFIC ARARS
CANNON AFB - LANDFILL 5

Requirement	Potentially Applicable?	Potentially Relevant and Appropriate?	Comments
18. Limits activities affecting the coastal zone, including lands thereunder and adjacent shorelands. [16 USC Section 1451 <u>et sequence</u>]	No	No	The site is not located in the coastal zone management area.
<u>State Regulations</u>			
<u>Endangered Species Act (New Mexico Regulation 682)</u>			
19. Requires coordination with the Department of Game and Fish if activities impact on endangered/ threatened species or their habitat.	Yes	---	As stated above, although Walk, Haydel & Associates report in their Remedial Investigation that there are no significant habitats in the immediate vicinity of the site, state listed threatened/ endangered species have been identified at or near the base.
<u>1978 New Mexico State Cultural Properties Act (Sections 18-6-1 through 18-6-17 NMSA 1978)</u>			
20. Provides for the preservation, protection, and enhancement of structures, sites, and objects of historical significance within the State.	Yes	--	Although the Cannon AFB site, including its properties/buildings are not listed on the State Register of Historic Places, coordination with the State Historic Preservation Office is ongoing with respect to the historical and archaeological surveys that have been conducted at the base; State laws closely follow the federal laws.