

#59174

**SUMMARY OF REGULATORY  
WATER STANDARDS**

Prepared by the  
Los Alamos National Laboratory  
Environmental Restoration Project

March 8, 1997



## SUMMARY OF REGULATORY WATER STANDARDS

### 1.0 INTRODUCTION

The purpose of this summary is to provide the Los Alamos National Laboratory (LANL, the Laboratory) Environmental Restoration (ER) Project with a comprehensive listing of regulatory standards for water quality, including standards for human health, livestock, and wildlife protection. This document also provides *preliminary* guidance to field units for using standards in addressing water quality at potential release sites (PRSs). A knowledge of existing regulatory water standards, combined with preliminary guidance for using these standards, should provide field units with the foundation for a consistent approach for evaluating water quality issues.

This document cannot provide specific guidance on the applicability of regulatory water standards at particular types of ER Project sites because the State has not provided the ER Project with detailed information at this time. It is the ultimate goal of the ER Project to provide specific guidance on the use of these standards based on the outcome of on-going discussions with regulators and this summary will be updated as issues are resolved. Technical personnel are encouraged to consult the full text of the regulations cited in this summary and/or to consult the technical experts cited throughout this paper.

It is important to distinguish between *appropriate* standards and *applicable* standards. For the purposes of this paper, a standard is appropriate when it is relevant to the site conceptual model, but may not have direct regulatory applicability at the site. In other words, compliance with an appropriate standard is not a regulatory requirement. A standard is applicable when a site meets all the stated applicability requirements set forth by the regulations; i.e., compliance must be demonstrated. In order to determine the applicability of the regulatory water standards at a particular site, it is important to consider *all* standards described in this paper because more than one may be applicable at your site and the State requires the determination of compliance status with all applicable standards (see Section 2.0). Any applicable or appropriate standards used in the decision-making process should be clearly and concisely presented in NFA Reports, or other reports to the regulators.

The water quality standards discussed in this paper are summarized in Table 1. It should be noted that the ER Project has no screening values for water that would be equivalent to LANL soil screening action levels. The Decision Support Council stays current with water regulations, and it is advisable to regularly check the ER Web Site (<http://www-emp.lanl.gov/er/projectoffice/dsc/dscouncil.html>) until April 3, 1997. After April 3, 1997 <http://erproject.lanl.gov/erint/SuppOrgs/dsc/dscouncil.htm>) for a current version of Table 1.

## 2.0 ISSUES AND CAVEATS

Although no ER standard operating procedure (SOP) or administrative procedure (AP) currently exists to assist field units in evaluating water quality issues at their sites, the ER Project must still comply with all applicable standards. Therefore, applicability of standards to a particular ER Project site must be determined through a consensus of field unit members, Decision Support Council members, the Project Office (Dave McInroy, 667-0819), and ESH-18 personnel. If a site is found not to be in compliance with an applicable State standard, ESH-18 must be informed. ESH-18 will determine if a Notice of Intent or Release Reporting Notification must be submitted to the State and will take the necessary actions. Until an SOP or AP can be put into place, contact ESH-18 (Steve Veenis, 665-9735) regarding any compliance procedures.

To remain consistent with standardized units used in FIMAD, the standards in Table 1 are reported in units of picocuries per liter (pCi/L) for radionuclides and in micrograms per liter ( $\mu\text{g/L}$ ) for all other chemicals. The unit used in NMED regulations for chemical standards is milligram per liter (mg/L); with the exception of the NMED Drinking Water Regulations which are given in both milligrams per liter and micrograms per liter. Thus, the State may prefer that data be reported in milligrams per liter. The Decision Support Council is pursuing the issue of reporting units with the ER Project, various NMED bureaus, and FIMAD and will issue guidance as soon as it is available.

The ER Project has not yet developed a framework for presentation of water data in reports to the regulator, e.g., No Further Action Reports, Status Reports, etc. The current RCRA Facility Investigation Report Framework Policy is not relevant to reporting water data. Until a new Framework is developed, decision criteria, sampling methods, sample preparation (e.g., filtered vs. nonfiltered), and sample analysis methods used should be clearly described in all reports and sampling and analysis plans. In addition, all standards used in the decision-making process should be clearly and concisely presented.

The Decision Support Council is aware of other water standards being used by other groups at the Laboratory that are not included in this summary. Examples of other existing standards include Pueblo water standards, Department of Energy (DOE) derived concentration guides for radioactivity, and Resource Conservation and Recovery Act (RCRA) 40 CFR 264.94 ground water protection standards. At this time, the Decision Support Council and the Regulatory Compliance Group are examining the relevance of these standards within the ER Project.

ER Project protocols need to be developed to establish decision criteria for sample collection and to ensure consistency across the Project in collecting representative samples. In preparing sampling and analysis plans, and in assessing water data, it is crucial to consider the source and fate of the water, the source of any potential contaminants, the standards that may apply (or be

appropriate), the suitable protocol for representative sampling, and the sample collection method that is suitable for the application of these standards.

Approaches need to be developed to ensure that sampling locations demonstrate compliance and to ensure that the sampling method used is suitable for the particular standard being applied. For the present, suitable sampling methods can be discussed with ESH-18 (Steve Veenis, 865-9335). Guidance about suitable analytical methods can be obtained from the Chemistry Team (Joan Fisk, 667-0118). An approach for collecting a sufficient number of samples for a statistically meaningful data set also needs to be developed. In the interim, questions can be directed to the Statistics Team (Kelly Black, 662-0707, ext. 27).

The ER Project Earth Sciences Council is undertaking a Laboratory-wide study of background concentrations (filtered and nonfiltered) in surface and ground waters. Initial results will be available next year. If you require assistance in obtaining site-specific background information, contact the Earth Science Council (Dave Broxton, 667-2492).

### 3.0 REGULATORY WATER STANDARDS

Table 1 is a summary of the following regulatory water standards: US Environmental Protection Agency (EPA) maximum contaminant levels (MCLs) (EPA 1996, 1380), NMED MCLs (State of New Mexico 1995, 1268), New Mexico Water Quality Control Commission (WQCC) surface water standards (State of New Mexico 1995, 1267), and New Mexico WQCC ground water protection standards (State of New Mexico 1995, 1318). All footnotes contained in Table 1 should be carefully read because important information is contained within them.

The water standards reproduced in Table 1 are the most likely to apply (or be appropriate) to ER Project investigations; however, certain specific issues may arise that necessitate consideration of standards not listed in Table 1. Standards reproduced in Table 1 are for data assessment purposes and are not intended to be interpreted as cleanup levels. The standards in Table 1 are consistent with the draft LANL ER-AP-4.5, R0, Evaluation and Notification of Potential Surface and Ground Water Concerns at Environmental Sites (LANL in preparation, 0951). If there is any uncertainty about the applicability of any of these standards, contact Dave McInroy (667-0619).

It should be noted that certain standards cited in Table 1 apply to the *dissolved* portion of the contaminants in the water sample, whereas other standards apply to the *total, nonfiltered* portion. When the dissolved concentration is to be determined, the sample must be filtered through a 0.45-micron membrane filter and the filtrate analyzed for the contaminant of interest. The sample should be filtered as soon as possible after it is collected, preferably in the field. When an analysis of the total concentration is desired, a nonfiltered sample will be collected and must not be filtered

by the analytical laboratory prior to analysis. If there is any doubt as to whether a standard for dissolved concentrations or whether a standard for total concentrations is applicable at your site, collection of both filtered and nonfiltered samples should be considered.

### 3.1 US EPA Maximum Contaminant Levels for Drinking Water

The US EPA defines an MCL as the maximum permissible level of a contaminant in drinking water that is delivered to any user of a public water system. The US EPA MCLs listed in Table 1 are taken from *Drinking Water Regulations and Advisories* (EPA 1996, 1380) and are based on EPA regulations contained in the Safe Drinking Water Act (SDWA), 40 CFR, Parts 141 and 143 (EPA 1991, 0887; EPA 1995, 1314). Table 1 contains both primary (enforceable levels under the SDWA) and secondary (unenforceable guidelines) US EPA MCLs, as well as EPA action levels for copper and lead. The SDWA does not explicitly state whether drinking water standards apply to dissolved or total concentrations of chemicals.

The intent of the SDWA is to test the quality of treated drinking water for public consumption. Thus, the SDWA has no direct applicability to the ER Project because the ER Project does not manage public drinking water systems. State and federal drinking water MCLs are appropriate standards for a human health exposure model that includes ingestion of either treated or untreated water. If the exposure model assumes that water undergoes treatment prior to ingestion, filtration of samples should be considered. MCLs are also appropriate for evaluating ground water aquifer quality. The EPA strongly recommends not filtering ground water samples in its *RCRA Ground-water Monitoring: Draft Technical Guidance* (EPA 1992, 1384).

An unresolved issue for the ER Project is the applicability under RCRA of state and federal drinking water MCLs to ground water bodies that are not current sources of drinking water. This issue will be resolved in future discussions between the ER Project, ESH-18, the DOE, and the NMED. Further, the ER Project is not responsible for SDWA compliance testing of drinking water aquifers. The Water Quality and Hydrology Group, ESH-18, performs this function for the Laboratory. All wells are tested on a mandated schedule, and information is available for comparative evaluations or reference. Information on compliance testing can be obtained from Neil Williams (665-0454).

The US EPA updates *Drinking Water Regulations and Health Advisories* in May and October of each year; however, updates may be several months behind. For example, the October 1996 update was not released until January of 1997. Although the regulations and health advisories are updated biannually, changes to the US EPA MCLs are rare, and proposed changes take years to be enacted. *Drinking Water Regulations and Health Advisories* is published by the US EPA Office of Science and Technology and can be ordered by calling the SDWA hot line (1-800-426-4791).

### 3.2 NMED Maximum Contaminant Levels for Drinking Water

The NMED has been authorized by the US EPA to administer and enforce the SDWA for the State. Sections 202 and 203 of the NMED *Drinking Water Regulations* (State of New Mexico 1995, 1268) contain the NMED MCLs reproduced in Table 1. NMED MCLs are based on the US EPA MCLs discussed in Section 3.1 and, in most cases, are identical to US EPA MCLs. The SDWA mandates that state standards be equivalent to or more stringent than US EPA drinking water standards. NMED MCLs should be used in the same manner as the US EPA MCLs (see Section 3.1). Because NMED drinking water regulations are based on US EPA MCLs, changes are not anticipated for the near future.

In addition to the numeric standards cited in Sections 202 and 203, *Drinking Water Regulations* provides a narrative standard for beta particle and photon radioactivity. Section 207(A) specifies that the concentration of beta particle and photon radioactivity in drinking water must not exceed an annual dose equivalent greater than 4 millirem. The Human Health Risk Assessment Team of the Decision Support Council has calculated concentrations equivalent to the 4 millirem/year dose for certain beta- and gamma-emitting radionuclides. For further information contact Len Flowers (672-2104).

### 3.3 New Mexico Water Quality Control Commission Surface Water Standards

Surface water standards issued by the New Mexico WQCC are contained in *Standards for Interstate and Intrastate Streams* (State of New Mexico 1995, 1267) and *New Mexico Water Quality Control Commission Regulations* (State of New Mexico 1995, 1318). These WQCC regulations are directly enforceable under the New Mexico Water Quality Act (Chapter 74, Article 6, New Mexico Statutes, Annotated, 1978).

*Standards for Interstate and Intrastate Streams* is based on water uses designated by the state and on water quality standards that have been established to protect such uses. Subpart II of *Standards for Interstate and Intrastate Streams* classifies certain bodies of water according to their designated uses, including but not limited to: coldwater and warmwater fisheries, domestic water supply, irrigation, primary and secondary contact, livestock watering, and wildlife habitat. The Rio Grande is the nearest classified water to the Laboratory. The only designated uses for non-classified surface water bodies are livestock watering and wildlife habitat. Section 1105(A) of *Standards for Interstate and Intrastate Streams* describes the applicability of these standards in greater detail.

The numeric standards for livestock watering and wild life habitat that are reproduced in Table 1 are directly applicable to ER Project sites. These standards may also apply to ground water if there is return flow to surface water and springs used by livestock and wildlife. Surface water standards

for the domestic water supply have been included in Table 1 and are described below. Domestic water supply standards are not directly applicable at ER Project sites, but may be appropriate for human health risk assessment models.

The general standards put forth in Section 1102 of *Standards for Interstate and Intrastate Streams* also apply at ER Project sites. General standards exist for stream bottom deposits; floating solids, oils and grease; color; odor and taste of fish; plant nutrients; toxic substances; radioactivity; pathogens; temperature; turbidity; salinity; and dissolved gases. Surface water protection regulations contained in Section 2201 of *New Mexico Water Quality Control Commission Regulations* specify that "No person shall dispose of any refuse in a natural watercourse or in a location and manner where there is a reasonable probability that the refuse will be moved into a natural watercourse by leaching or otherwise." These general standards apply at all times and should be consulted, especially in cases where contamination or visible debris may pose a threat to surface water quality at an ER Project site.

The federal Clean Water Act mandates that the State review its surface water regulations every three years. The WQCC surface water standards are scheduled to be updated in the fall of 1997. Questions concerning WQCC surface water standards should be directed to ESH-18 (Steve Veenis, 665-9735).

### 3.3.1 Domestic Water Supply Standards

Section 3101(B) of the New Mexico WQCC *Standards for Interstate and Intrastate Streams* (State of New Mexico 1995, 1267) contains numeric standards for the protection of the domestic water supply. These standards apply only to surface waters designated by the State for use as a domestic water supply. Although domestic water supply standards are not directly applicable to PRSs, they may be appropriate for human health risk assessment and are reproduced in Table 1. In addition to the numeric standards, Section 3101(B) states that "waters designated for use as domestic water supplies shall not contain substances in concentrations that create a lifetime cancer risk of more than one cancer per 100,000 exposed persons."

The domestic water supply standards for inorganic chemicals apply to the dissolved (i.e., filtered) portion of contaminants in water samples, with the exception of mercury. Standards for mercury and radionuclides apply to the total (i.e., nonfiltered) portion of the water sample.

### 3.3.2 Livestock Watering Standards

Section 3101(K) of the New Mexico WQCC *Standards for Interstate and Intrastate Streams* (State of New Mexico 1995, 1267) contains standards for livestock watering. Section 3100(AA) defines livestock watering to be "a water of the State used as a supply of water for consumption by

livestock and other animals." Section 1105(A), *Applicability of Water Quality Standards*, states that "when a point or nonpoint source discharge creates a source of water that could be used by livestock and wildlife in . . . non-classified, otherwise ephemeral waters of the State, such waters . . . shall be protected for the uses of livestock watering and wildlife habitat . . ." (See Section 3.3.3 of this paper for wildlife habitat standards.)

The numeric standards cited in Section 3101(K) of *Standards for Interstate and Intrastate Streams* are reproduced in Table 1. The surface water standards for livestock watering apply to the dissolved (i.e., filtered) portion of inorganic chemicals in water samples, with the exception of mercury. Standards for mercury and radionuclides apply to the total (i.e., nonfiltered) portion of the water sample.

### 3.3.3 Wildlife Habitat Standards

Section 3101(L) of the New Mexico WQCC *Standards for Interstate and Intrastate Streams* (State of New Mexico 1995, 1267) contains standards for the protection of wildlife habitat. Section 3100(AAA) defines wildlife habitat to be "a water of the State used by plants and animals, not considered pathogenic to humans or domesticated livestock and plants." The numeric standards reproduced in Table 1 exist for mercury and selenium only. These numeric standards are cited in Section 3101(L)(1) and are applicable "in the absence of site-specific information." The wildlife habitat standards apply to the total (i.e., nonfiltered) portion of mercury and the total recoverable portion of selenium in water samples. Narrative standards also apply and are paraphrased below. For exact language, refer to Section 3101(L) of the regulations.

Narrative standards for wildlife habitat are contained in Section 3101(L)(1) through (4) of *Standards for Interstate and Intrastate Streams* and state that no discharge ". . . shall contain any substance, including, but not limited to selenium, DDT, PCBs and dioxin, at a level which, when added to background concentrations, can lead to bioaccumulation to toxic levels in any animal species." It is also stated that discharges to waters that are designated for wildlife habitat uses, but not for fisheries uses, shall not contain levels of ammonia and chlorine (not to be confused with chloride) that reduce biological productivity and/or species diversity to levels below those which occur naturally, and in no case shall contain chlorine in excess of 1 ppm. Sections 1102(F)(1) and 1102(F)(3) of *Standards for Interstate and Intrastate Streams* provide instructions for calculating chronic standards for toxic substances. Note that the wildlife habitat narrative standards specifically apply to discharges; however, no definition of discharge appears in *Standards for Interstate and Intrastate Streams*.

The State has requested the application of site-specific numeric standards for toxic pollutants that bioaccumulate (especially PCBs) at certain ER Project sites. Until agreed upon by the State, the ER Project, and the DOE, such standards are not applicable project-wide.

### 3.4 New Mexico Ground Water Standards

Section 1101(V) of the *New Mexico Water Quality Control Commission Regulations* (State of New Mexico 1995, 1318) defines ground water to be "... interstitial water which occurs in saturated earth material and which is capable of entering a well in sufficient amounts to be utilized as a water supply." Section 3103 of the *New Mexico Water Quality Control Commission Regulations* specifies ground water standards for human health, domestic water supply, and irrigation use, all of which are reproduced in Table 1 and directly applicable to Laboratory PRSs.

The purpose of the ground water protection standards as stated in Section 3101(A) of the *New Mexico Water Quality Control Commission Regulations* is "controlling discharges onto or below the surface of the ground ... to protect all ground water of the state of New Mexico which has an existing concentration of 10,000 mg/l or less TDS [total dissolved solids], for present and potential future use as domestic and agricultural water supply, and to protect those segments of surface waters that are gaining because of ground water inflow. ..."

The ground water protection standards are not limited to ground water *per se*, but may apply to leachate or effluent. Section 3104 of the *New Mexico Water Quality Control Commission Regulations* specifies that "... no person shall cause or allow effluent or leachate to discharge so that it may move directly [of] indirectly into ground water unless he is discharging pursuant to a discharge plan approved by the secretary." Exemptions from the discharge plan requirement are contained in Section 3105 and include "Effluent or leachate which conforms to all the listed numerical standards of Section 3103 and has a total nitrogen concentration of 10 mg/l or less, and does not contain any toxic pollutant." No definition of discharge is provided. Therefore, ESH-18 (Steve Veenis, 665-9735) must be contacted to assist in determining if a discharge exists at a PRS and whether that discharge is subject to these regulations.

The New Mexico Water Quality Control Commission regulations are updated whenever the New Mexico WQCC feels it is necessary.

#### 3.4.1 Human Health Standards

Human health standards are cited in Section 3103(A) of the *New Mexico Water Quality Control Commission Regulations*. These standards are both narrative and numeric. The narrative section stipulates that "non-aqueous phase liquid shall not be present floating atop of or immersed within ground water, as can be reasonably measured." In addition, "If more than one water contaminant

affecting human health is present, the toxic pollutant criteria as set forth in the definition of toxic pollutant in Section 1101 for the combination of contaminants, or the Human Health Standard of Section 3103(A) for each contaminant shall apply, whichever is more stringent."

Section 1101(TT) of *New Mexico Water Quality Control Commission Regulations* provides a lengthy definition for toxic pollutant and an extensive list of organic chemicals that fall under the State definition. Section 1101(TT) is encapsulated as "Any water contaminant or combination of the water contaminants in the list . . . creating a lifetime risk of more than one cancer per 100,000 exposed persons is a toxic pollutant." The definition of toxic pollutant also encompasses water contaminants that "unreasonably threaten . . . the health of animals or plants which are commonly hatched, bred, cultivated or protected for use by man for food or economic benefit."

The numeric standards cited in Section 3103(A) of *New Mexico Water Quality Control Commission Regulations* are reproduced in Table 1. The standards for mercury and organic chemicals apply to the total (i.e., nonfiltered) portion of water samples. The numeric standards for the inorganic chemicals and radionuclides apply to the dissolved (i.e., filtered) portion of water samples.

#### **3.4.2 Domestic Water Supply Standards**

Domestic water supply standards, cited in Section 3103(B) of the *New Mexico Water Quality Control Commission Regulations*, are numeric only and reproduced in Table 1. The standard for phenols applies to the total (i.e., nonfiltered) portion of water samples. The standards for inorganics chemicals apply to the dissolved (i.e., filtered) portion of water samples.

#### **3.4.3 Irrigation Use Standards**

Irrigation use standards, cited in Section 3103(C) of the *New Mexico Water Quality Control Commission Regulations*, are numeric only and reproduced in Table 1. All irrigation use standards apply to the dissolved (i.e., filtered) portion of water samples.

TABLE 1  
SUMMARY OF REGULATORY WATER STANDARDS

ANALYTE CODE <sup>3</sup>	CHEMICAL <sup>4</sup>	DRINKING WATER STANDARDS		NMWQCC <sup>5</sup> SURFACE WATER STANDARDS			NMWQCC <sup>5</sup> GROUND WATER STANDARDS		
		US EPA MCL <sup>1</sup> (µg/L)	NMED <sup>6</sup> MCL <sup>2</sup> (µg/L)	DOMESTIC WATER SUPPLY <sup>8</sup> (µg/L)	LIVESTOCK WATERING <sup>9</sup> (µg/L)	WILDLIFE HABITAT <sup>8</sup> (µg/L)	HUMAN HEALTH <sup>8</sup> (µg/L)	DOMESTIC WATER SUPPLY <sup>8</sup> (µg/L)	IRRIGATION USE <sup>8</sup> (µg/L)
KEY: n/a = Not applicable. — = No standard									
15972-80-8	Alachlor								
Al	Aluminum	2.0E+00	2.0E+00	—	—	—	—	—	—
SB	Antimony	5.0E+01 <sup>7</sup>	—	—	5.0E+03	—	—	—	5.0E+03
AS	Arsenic (cancer endpoint)	5.0E+00	5.0E+00	—	—	—	—	—	—
1012-34-9	Atrazine	5.0E+01	5.0E+01	5.0E+01	2.0E+02	—	1.0E+02	—	—
BA	Barium	3.0E+00	3.0E+00	—	—	—	—	—	—
71-43-2	Benzene	2.0E+03	2.0E+03	1.0E+03	—	—	1.0E+03	—	—
50-32-8	Benzo[a]pyrene	5.0E+00	5.0E+00	—	—	—	1.0E+01	—	—
BE	Beryllium	2.0E-01	2.0E-01	—	—	—	7.0E-01	—	—
117-81-7	Bis(2-ethylhexyl)phthalate (DEHP) (Diethylhexylphthalate)	4.0E+00	4.0E+00	—	—	—	—	—	—
B	Boron	5.0E+00	5.0E+00	—	—	—	—	—	—
CD	Cadmium	—	—	—	5.0E+03	—	—	—	—
1563-66-2	Carbofuran	5.0E+00	5.0E+00	1.0E+01	5.0E+01	—	1.0E+01	—	7.0E+02
66-23-9	Carbon tetrachloride	4.0E+01	4.0E+01	—	—	—	—	—	—
57-74-8	Chlordane	5.0E+00	5.0E+00	—	—	—	1.0E+01	—	—
CL(-1)	Chloride	2.0E+00	2.0E+00	—	—	—	—	—	—
108-90-7	Chlorobenzene (Monochlorobenzene)	2.5E+05 <sup>7</sup>	—	—	—	—	—	2.5E+05	—
67-66-3	Chloroform (Trichloromethane)	1.0E+02 <sup>9</sup>	1.0E+02 <sup>9</sup>	—	—	—	—	—	—
CH	Chromium (must include both trivalent and hexavalent forms)	1.0E+02	1.0E+02	5.0E+01	1.0E+03	—	1.0E+02	—	—
CC	Cobalt	—	—	—	—	—	5.0E+01	—	—
CU	Copper	—	—	—	—	—	—	—	5.0E+01
CN(-1)	Cyanide	1.3E+03 <sup>9</sup>	1.3E+03 <sup>9</sup>	—	5.0E+02	—	—	—	—
75-89-0	Dalepon	2.0E+02	2.0E+02	2.0E+02	—	—	2.0E+02	—	—
96-12-8	1,2-Dibromo-3-chloropropane	2.0E+02	2.0E+02	—	—	—	—	—	—
106-93-4	1,2-Dibromoethane (Ethylene dibromide)	2.0E-01	2.0E-01	—	—	—	—	—	—
95-50-1	1,2-Dichlorobenzene (o)	5.0E+02	5.0E+02	—	—	—	1.0E-01	—	—
641-73-1	1,3-Dichlorobenzene (m)	5.0E+02	5.0E+02	—	—	—	—	—	—
106-46-7	1,4-Dichlorobenzene (p)	5.0E+02	—	—	—	—	—	—	—
75-34-3	1,1-Dichloroethane	7.0E+01	7.0E+01	—	—	—	—	—	—
107-06-2	1,2-Dichloroethane (EDC)	—	—	—	—	—	—	—	—
76-36-4	1,1-Dichloroethylene (1,1-DCE)	5.0E+00	5.0E+00	—	—	—	2.5E+01	—	—
168-59-2	1,2-Dichloroethylene (cis)	7.0E+00	7.0E+00	—	—	—	1.0E+01	—	—
168-60-3	1,2-Dichloroethylene (trans)	7.0E+01	7.0E+01	—	—	—	5.0E+00	—	—
94-75-7	2,4-Dichlorophenoxyacetic Acid (2,4-D)	1.0E+02	1.0E+02	—	—	—	—	—	—
78-87-5	1,2-Dichloropropane	7.0E+01	7.0E+01	—	—	—	—	—	—
108-23-1	D(2-ethylhexyl)adipate	5.0E+00	5.0E+00	—	—	—	—	—	—
88-85-7	Dimoseb	4.0E+02	4.0E+02	—	—	—	—	—	—
85-00-7	Diquat	7.0E+00	7.0E+00	—	—	—	—	—	—
145-73-3	Endosulf	2.0E+01	2.0E+01	—	—	—	—	—	—
145-73-3	Endosulf	1.0E+02	1.0E+02	—	—	—	—	—	—
72-20-8	Endrin	2.0E+00	2.0E+00	—	—	—	—	—	—
100-41-4	Ethylbenzene	7.0E+02	7.0E+02	—	—	—	—	—	—
F(-1)	Fluoride	—	—	—	—	—	7.5E+02	—	—
1071-83-8	Glyphosate	4.0E+03 <sup>7</sup>	4.0E+03	—	—	—	1.6E+03	—	—
		7.0E+02	7.0E+02	—	—	—	—	—	—

1 ppm

Compiled 1/6/97 by Linda Norro (866-0725, lnorro@nrl.gov). NOTE: VALUES IN THIS TABLE ARE SUBJECT TO CHANGE. VERIFY THAT YOU ARE USING CURRENT VALUES BY CHECKING THE ER WEB SITE BEFORE USE (<http://www-emp.nrl.gov/er/project/office/dac/dacouncil.html> until April 3, 1997. After April 3, 1997 <http://erproject.nrl.gov/er/SuppOrgs/dac/dacouncil.htm>).

10-1-96 10:15AM LOS ALAMOS 4-112

TABLE 1 (cont.)  
SUMMARY OF REGULATORY WATER STANDARDS

ANALYTE CODE <sup>a</sup>	CHEMICAL <sup>c</sup>	DRINKING WATER STANDARDS		NMWQCC <sup>b</sup> SURFACE WATER STANDARDS			NMWQCC <sup>b</sup> GROUND WATER STANDARDS		
		US EPA MCL <sup>1</sup> (µg/L)	NMED <sup>d</sup> MCL <sup>2</sup> (µg/L)	DOMESTIC WATER SUPPLY <sup>3</sup> (µg/L)	LIVESTOCK WATERING <sup>4</sup> (µg/L)	WILDLIFE HABITAT <sup>5</sup> (µg/L)	HUMAN HEALTH <sup>6</sup> (µg/L)	DOMESTIC WATER SUPPLY <sup>6</sup> (µg/L)	IRRIGATION USE <sup>6</sup> (µg/L)
76-44-8	Heptachlor	4.0E-01	4.0E-01	—	—	—	—	—	—
1024-57-3	Heptachlor epoxide	2.0E-01	2.0E-01	—	—	—	—	—	—
118-74-1	Hexachlorobenzene	1.0E+00	1.0E+00	—	—	—	—	—	—
58-88-9	HCH (gamma) Lindane	2.0E-01	2.0E-01	—	—	—	—	—	—
77-47-4	Hexachlorocyclopentadiene	5.0E+01	5.0E+01	—	—	—	—	—	—
FE	Iron	3.0E+02 <sup>7</sup>	—	—	—	—	—	—	—
PB	Lead	1.5E+01 <sup>8</sup>	1.5E+01 <sup>8</sup>	5.0E+01	1.0E+02	—	1.0E+03	—	—
MN	Manganese	5.0E+01 <sup>7</sup>	—	—	—	—	5.0E+01	—	—
HG	Mercury (inorganic)	2.0E+00	—	—	—	—	—	2.0E+02	—
72-43-8	Methoxychlor	4.0E+01	4.0E+01	2.0E+00	1.0E+01	1.2E+02	2.0E+00	—	—
75-08-2	Methylene chloride (Dichloromethane)	5.0E+00	5.0E+00	—	—	—	—	—	—
MO	Molybdenum	—	—	—	—	—	1.0E+02	—	—
nA	Naphthalene + monomethylnaphthalenes	—	—	—	—	—	—	—	1.0E+03
N	Nickel (soluble salts)	—	1.0E+02	—	—	—	3.0E+01	—	—
NO3(-)	Nitrate (as N)	1.0E+04	1.0E+04	1.0E+04	—	—	—	—	2.0E+02
NO2/NO3	Total Nitrate + Nitrite (as N)	1.0E+04	1.0E+04	—	—	—	1.0E+04	—	—
NO2(-)	Nitrite (as N)	1.0E+03	1.0E+03	—	—	—	—	—	—
23135-22-0	Oxamyl	2.0E+02	2.0E+02	—	—	—	—	—	—
87-86-8	Perchlorophenol	1.0E+00	1.0E+00	—	—	—	—	—	—
PH	pH	6.5 - 8.5 pH <sup>7</sup>	—	—	—	—	—	—	—
nA	Phenols (Total of all phenol compounds)	—	—	—	—	—	—	—	—
1918-02-1	Picloram	5.0E+02	5.0E+02	—	—	—	—	5.0E+00	—
1336-36-3	Polychlorinated biphenyls (PCBs)	5.0E-01	5.0E-01	—	—	—	—	—	—
SE	Selenium	5.0E+01	5.0E+01	5.0E+01	5.0E+01	2.0E+00	1.0E+00	—	—
AG	Silver	1.0E+02 <sup>7</sup>	—	5.0E+01	—	—	5.0E+01	—	—
122-34-4	Simeazna	4.0E+00	4.0E+00	—	—	—	—	—	—
SO4	Sulfate	2.5E+05 <sup>7</sup>	—	—	—	—	—	—	5.0E+06
100-42-8	Styrene	1.0E+02	1.0E+02	—	—	—	—	—	—
1746-01-8	2,3,7,8-TCDF (Dioxin)	3.0E-06	3.0E-06	—	—	—	—	—	—
78-34-8	1,1,2,2-Tetrachloroethane	—	—	—	—	—	—	—	—
127-18-4	1,1,1-Trichloroethylene (PCE)	5.0E+00	5.0E+00	—	—	—	1.0E+01	—	—
Tl	Thallium	2.0E+00	2.0E+00	—	—	—	2.0E+01	—	—
108-88-3	Toluene	1.0E+03	1.0E+03	—	—	—	—	—	—
TDS	Total Dissolved Solids (TDS)	5.0E+05 <sup>7</sup>	—	—	—	—	—	—	1.0E+06
8001-35-2	Toxaphene	3.0E+00	3.0E+00	—	—	—	—	—	—
120-82-1	1,2,4-Trichlorobenzene	7.0E+01	7.0E+01	—	—	—	—	—	—
71-55-8	1,1,1-Trichloroethane	2.0E+02	2.0E+02	—	—	—	—	—	—
79-00-3	1,1,2-Trichloroethane	5.0E+00	5.0E+00	—	—	—	5.0E+01	—	—
79-01-8	Trichloroethylene (TCE)	5.0E+00	5.0E+00	—	—	—	1.0E+01	—	—
93-72-1	2-(2,4,6-Trichlorophenoxy) propanoic acid (2,4,5-TP)	5.0E+01	5.0E+01	—	—	—	1.0E+02	—	—
USOLUBLE	Uranium (soluble salts)	—	—	5.0E+03	—	—	—	—	—
V	Vanadium	—	—	—	—	—	5.0E+03	—	—
75-01-4	Vinyl chloride	2.0E+00	2.0E+00	—	1.0E+02	—	—	—	—
1330-20-7	Xylene (mixed)	1.0E+04	1.0E+04	—	—	—	1.0E+03	—	—
ZN	Zinc	5.0E+03 <sup>7</sup>	—	—	2.5E+04	—	5.2E+02	—	1.0E+04

Compiled 1/8/97 by Linda Norro (665-0726, lnorro@lari.gov). NOTE: VALUES IN THIS TABLE ARE SUBJECT TO CHANGE. VERIFY THAT YOU ARE USING CURRENT VALUES BY CHECKING THE ER WEB SITE BEFORE USE (<http://www-emp.larl.gov/er/projectoffice/dec/decouncil.html> until April 3, 1997. After April 3, 1997 <http://project.larl.gov/er/SuppOrgs/dec/decouncil.htm>).

5,000 mg/l

KAY BY: 6-1-98 10:15AM LOS ALAMOS-#13

TABLE 1 (con't)  
SUMMARY OF REGULATORY WATER STANDARDS

NOTE CHANGE OF UNITS TO  $\mu\text{Ci/L}$  FOR RADIONUCLIDES (EXCEPT URANIUM).

ANALYTE CODE <sup>b</sup>	RADIONUCLIDE	DRINKING WATER STANDARDS		NMWQCC <sup>c</sup> SURFACE WATER STANDARDS			NMWQCC <sup>c</sup> GROUND WATER STANDARDS		
		US EPA MCL <sup>1</sup> ( $\mu\text{Ci/L}$ )	NMED <sup>d</sup> MCL <sup>2</sup> ( $\mu\text{Ci/L}$ )	DOMESTIC WATER SUPPLY <sup>e</sup> ( $\mu\text{Ci/L}$ )	LIVESTOCK WATERING <sup>f</sup> ( $\mu\text{Ci/L}$ )	WILDLIFE HABITAT <sup>g</sup> ( $\mu\text{Ci/L}$ )	HUMAN HEALTH <sup>h</sup> ( $\mu\text{Ci/L}$ )	DOMESTIC WATER SUPPLY <sup>i</sup> ( $\mu\text{Ci/L}$ )	IRRIGATION USE <sup>j</sup> ( $\mu\text{Ci/L}$ )
ALPHA	Gross Alpha (does not include radon or uranium)	1.5E+01	1.5E+01	1.5E+01	1.5E+01	—	—	—	—
HA-228/228	Radium-226 + Radium-228	5.0E+00	5.0E+00	3.0E+01	3.0E+01	—	3.0E+01	—	—
SR-90	Strontium-90	—	3.0E+00	—	—	—	—	—	—
U	Uranium (radionuclide)	2.0E+01 and 10 <sup>10</sup>	1.0E+01 <sup>10</sup>	—	—	—	—	—	—
H-3	Tritium	—	2.0E+04	2.0E+04	2.0E+04	—	—	—	—

Compiled 1/6/97 by Linda Norrno (865-0725, lnorrno@lanl.gov). NOTE: VALUES IN THIS TABLE ARE SUBJECT TO CHANGE. VERIFY THAT YOU ARE USING CURRENT VALUES BY CHECKING THE ER WEB SITE BEFORE USE (<http://www-emp.lanl.gov/er/projects/cad/cadofcouncil.html> until April 3, 1997. After April 3, 1997 <http://wwwproject.lanl.gov/print/SuppOrg/cadofcouncil.htm>).

FOOTNOTES:

- a. New Mexico Water Quality Control Commission.
- b. In order to enable joining in the FIMAD database, analyte codes replace CAS numbers for metals, radionuclides, and ions.
- c. Chemicals include inorganics, high explosives, and organic compounds (volatile and semivolatile organic compounds, pesticides, and polychlorinated biphenyls).
- d. New Mexico Environment Department.
1. Maximum Contaminant Level (MCL) concentration from *Drinking Water Regulations and Health Advisories*, October 1996, US Environmental Protection Agency (EPA) Office of Water, Washington, DC. (EPA 1996, 1380).
2. Maximum Contaminant Level (MCL) concentration from *Drinking Water Regulations*, Title 20, Chapter 7, Part 1, New Mexico Environment Department (NMED) Drinking Water Bureau, January 1995, Santa Fe, NM. (State of New Mexico 1995, 1268).
3. Domestic Water Supply Standard from *Standards for Interstate and Intrastate Streams* (i.e., NM surface water standards for domestic water supply), Title 20, Chapter 6, Part 1, New Mexico Environment Department (NMED) Water Quality Control Commission, January 1995, Santa Fe, NM. (State of New Mexico 1995, 1267). Based on the dissolved (i.e., filtered) portion with the exception of mercury. For radium-226 + radium-228, thium, and gross alpha, the standard is based on the total (i.e., nonfiltered) portion.
4. Livestock Watering Standard from *Standards for Interstate and Intrastate Streams*, Title 20, Chapter 6, Part 1, New Mexico Environment Department (NMED) Water Quality Control Commission, January 1995, Santa Fe, NM. (State of New Mexico 1995, 1267). Based on the dissolved (i.e., filtered) portion of water samples for inorganic chemicals with the exception of mercury.
5. Wildlife Habitat Standard from *Standards for Interstate and Intrastate Streams*, Title 20, Chapter 6, Part 1, New Mexico Environment Department (NMED) Water Quality Control Commission, January 1995, Santa Fe, NM. (State of New Mexico 1995, 1267). Based on total (i.e., nonfiltered) recoverable selenium and total mercury.
6. Ground water standard from *New Mexico Water Quality Control Commission Regulations*, Title 20, Chapter 6, Part 2, New Mexico Environment Department (NMED) Water Quality Control Commission, December 1995, Santa Fe, NM. (State of New Mexico 1995, 1318). Based on dissolved (i.e., filtered) portion with the exception of mercury, organic chemicals, and nonaqueous phase liquids (such as oil).
7. US EPA Secondary Maximum Contaminant Level (SMCL) concentration from *Drinking Water Regulations and Health Advisories*, May 1965, US EPA Office of Water Washington, DC (EPA 1996, 1380).
8. The State (State of New Mexico 1995, 1268) and EPA (EPA 1996, 1380) MCL for chloroform is the MCL for total trihalomethanes. Total trihalomethanes is defined as the sum of the concentration of the following trihalomethane compounds: chloroform, dichlorochloromethane, bromochloromethane, and tribromomethane (bromoform).
9. US EPA MCL is under review (EPA 1996, 1390). Number presented is the EPA action level. Although the EPA MCL is under review, the NMED Drinking Water Bureau has adopted the action level.
10. Proposed US EPA MCL (EPA 1996, 1390). Number presented is the EPA action level.

20,000  $\mu\text{Ci/L}$

KRY BY: 6-1-98 10:16AM LOS ALAMOS #14

**REFERENCES**

- EPA (US Environmental Protection Agency), July 18, 1991. "National Primary Drinking Water Regulations; Radionuclides; Proposed Rule," 40 CFR Parts 141 and 142, Federal Register, p. 33050. (EPA 1991, 0887)
- EPA (US Environmental Protection Agency), November, 1992. "RCRA Ground-water Monitoring: Draft Technical Guidance," Office of Solid Waste, Washington, DC. (EPA 1992, 1384)
- EPA (US Environmental Protection Agency), July 1, 1995. "National Secondary Drinking Water Regulations," Code of Federal Regulations, Protection of Environment, Title 40, Part 143, Washington, DC. (EPA 1995, 1314)
- EPA (US Environmental Protection Agency), October 1996. "Drinking Water Regulations and Health Advisories," Office of Water, Washington, DC. (EPA 1996, 1380)
- LANL (Los Alamos National Laboratory). "Administrative and Quality Procedures for Environmental Restoration," Los Alamos National Laboratory report, Los Alamos, New Mexico. (LANL, 0951)
- State of New Mexico, January 1, 1995. "Drinking Water Regulations," Title 20, Chapter 7, Part 1, Drinking Water Bureau, Santa Fe, New Mexico. (State of New Mexico 1995, 1268)
- State of New Mexico, January 23, 1995. "Standards for Interstate and Intrastate Streams, Title 20, Chapter 6, Part 1, Water Quality Control Commission, Santa Fe, New Mexico. (State of New Mexico 1995, 1267)
- State of New Mexico, December 1, 1995. "New Mexico Water Quality Control Commission Regulations," Title 20, Chapter 6, Part 2, New Mexico Water Quality Control Commission, Santa Fe, New Mexico. (State of New Mexico 1995, 1318)
- State of New Mexico, 1978. "New Mexico Statutes, 1978, Annotated," The Michie Company, Law Publishers, Charlottesville, Virginia.