FINAL

PHASE I RFI/RI WORK PLAN

ROCKY FLATS PLANT
100 AREA
(OPERABLE UNIT NO. 13)

U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant
Golden, Colorado

ENVIRONMENTAL RESTORATION PROGRAM

OCTOBER, 1992
(Revised March 10, 1993)

Volume I of III
Text

U NU
REVIEWED FOR CLASSIFICATION/UCNI
BY G. T Ostdiek
DATE 3-31-93

ADMIN RECORD

A 0012 000124

TABLE OF CONTENTS

Section		Page
1.0	INTRODUCTION	1-1
1 1	ENVIRONMENTAL RESTORATION PROGRAM	1-1
1 2	WORK PLAN SCOPE	1-2
1.3	REGIONAL AND PLANT-SITE BACKGROUND INFORMATION	1-4
1.3.1	Facility Background	1-4
1.3 2	Plant Operations	1-5
1 3 3	Previous Investigations	1-5
1 3 4	Physical Setting	1-7
1.3 4 1	Location	1-7
1 3.4.2	Topography	1-9
1.3 4.3	Meteorology and Climate	1-11
1.3 4 4	Surface Water Hydrology	1-15
1.3 4.5	Precipitation	1-19
1.3 4 6	Ecology	1-19
1 3 4 7	Surrounding Land Use and Population Density	1-21
1.3 4 8	Future Population and Land Use Projections	1-23
1 3 4 9	Regional Geology and Hydrogeology	1-26
2.0	SITE CHARACTERIZATION	2-1
2 1	BACKGROUND AND PHYSICAL SETTING OF OU13	2-1
2 1 1	Locations and Operational Histories of IHSSs	2-2
2.1 1.1	North Chemical Storage Site (IHSS 117.1)	2-2
2 1.1.2	Middle Chemical Storage Site (IHSS 117.2)	2-7
2.1.1 3	South Chemical Storage Site (IHSS 117.3)	2-9
2.1.1 4	Oil Burn Pit No. 1 Waste Leak (IHSS 128)	2-12
2 1 1 5	Lithium Metal Destruction Site (IHSS 134)	2-12
2 1.1.6	Waste Spills (IHSS 148)	2-17
2 1.1 7	Fuel Oil Tank (IHSS 152)	2-20
2.1 1 8	North Area Radioactive Site (IHSS 157 1)	2-21
2.1.1.9	Building 551 Radioactive Site (IHSS 158)	2-24
2.1.1.10	Waste Peroxide Drum Burial (IHSS 169)	2-26
2 1.1.11	Solvent Burning Ground (IHSS 171)	2-27
2.1.1.12	Valve Vault (IHSS 186)	2-29
2.1.1.13	Caustic Leak (IHSS 190)	2-33
2 1.1 14	Hydrogen Peroxide Spill (IHSS 191)	2-36
2.1.2	Topography	2-38
2.1 3	Geology	2-38
2 1.3.1	Rocky Flats Alluvium	2-38
2 1.3 2	Colluvium	2-38
2.1 3.3	Soils	2-41
2 1.3 4	Artificial Fill	2-41
2 1.3.5	Buried Bedrock Surface	2-42
2 1 4	Hydrogeology	2-58
2 1 4.1	Recharge and Discharge	2-58
2.1.4.2	Piezometers and Monitoring Wells	2-60
2 1.4 3	Hydrostratigraphic Units	2-60
2.1.4 4	Water Level Map	2-66

TABLE OF CONTENTS - Continued

Section **Page**

2 1 4.5 Hydraulic Conductivities ... 2-68
2.1 5 Surface Water Hydrology ... 2-68
2.1.5.1 North Walnut Creek ... 2-72
2.1.5.2 South Walnut Creek ... 2-74
2.1 6 Air ... 2-77
2 2 NATURE AND EXTENT OF CONTAMINATION ... 2-78
2.2.1 North Chemical Storage Site (IHSS 117.1) ... 2-84
2 2.2 Middle Chemical Storage Site (IHSS 117.2) ... 2-89
2.2 3 South Chemical Storage Site (IHSS 117.3) ... 2-95
2.2.4 Oil Burn Pit No 1 (IHSS 128) ... 2-103
2.2.5 Lithium Metal Destruction Site (IHSS 134) ... 2-107
2.2.6 Waste Spills (IHSS 148) ... 2-110
2 2 7 Fuel Oil Tank (IHSS 152) ... 2-112
2 2 8 North Area Radioactive Site (IHSS 157 1) ... 2-113
2 2 9 Building 551 Radioactive Site (IHSS 158) ... 2-118
2.2.10 Waste Peroxide Drum Burial (IHSS 169) ... 2-121
2 2.11 Solvent Burning Ground (IHSS 171) ... 2-121
2 2 12 Valve Vault (IHSS 186) ... 2-123
2.2 13 Caustic Leak (IHSS 190) ... 2-126
2.2 14 Hydrogen Peroxide Spill (IHSS 191) ... 2-128
2 2.15 Summary of Surficial Material, Bedrock, and Groundwater Contamination and Additional Data Requirements ... 2-128
2 2 16 Summary of Surface-Water and Sediment Contamination and Additional Data Requirements ... 2-129
2.2 16.1 Introduction ... 2-129
2.2.16.2 Approaches ... 2-129
2 2.16 3 Results ... 2-139
2 2.16.4 Conclusions ... 2-148
2 2 17 Summary of Air Impacts and Data Requirements ... 2-149
2.2.17 1 Air Quality Data Analysis ... 2-151
2 2 17.2 Use of Existing Data ... 2-154
2.2.17.3 Description of Additional Data Required ... 2-156
2 2 18 Previous Investigations in the OU13 Area ... 2-158
2 3 SUMMARY OF IHSS CONCEPTUAL MODELS ... 2-159
2.3.1 OU13 GENERALIZED CONCEPTUAL MODEL ... 2-162
2.3.1.1 Contaminant Sources ... 2-162
2 3.1.2 Potential Transport Mechanisms and Receptors ... 2-165
2.3 2 GROUP-SPECIFIC CONCEPTUAL MODELS ... 2-169
2 3 2.1 Group I: Releases Originating Above Ground and Affecting Surficial Materials ... 2-169
2 3 2.2 Group II Releases Originating and Affecting Transport Media Below Ground Surface ... 2-179

3.0 ROCKY FLATS PLANT CHEMICAL SPECIFIC BENCHMARKS ... 3-1

4.0 RCRA FACILITY INVESTIGATION/REMEDIAL INVESTIGATION TASKS ... 4-1

TABLE OF CONTENTS - Continued

Section		Page
4.1	PROJECT PLANNING	4-1
4 2	COMMUNITY RELATIONS	4-2
4 3	FIELD INVESTIGATION	4-3
4 4	SAMPLE ANALYSIS AND DATA VALIDATION	4-4
4 5	DATA EVALUATION	4-4
	4 5.1 Site Characterization	4-4
	4.5.2 Source Characterization	4-5
	4.5.3 Nature and Extent of Contamination	4-6
4 6	PHASE I BASELINE RISK ASSESSMENT	4-6
4.7	PRELIMINARY REMEDIAL ACTION ALTERNATIVES	4-7
	4.7 1 Surficial Materials, Bedrock, Surface Water and Sediments, and Groundwater	4-7
	4 7.1 1 Development and Screening of Remedial Alternatives	4-7
	4 7.2 Air	4-15
4 8	TREATABILITY STUDIES	4-15
4 9	REMEDIAL INVESTIGATION REPORT	4-21
5.0	**DATA QUALITY OBJECTIVES AND DATA NEEDS**	5-1
5 1	DATA QUALITY OBJECTIVES	5-1
	5 1 1 Stage 1 Identification of Decision Types	5-2
	5 1.1.1 Identification of Data Users	5-3
	5.1 1.2 Evaluation of Available Data	5-3
	5.1 1.3 Site Conceptual Model	5-6
	5.1 1.4 Data Objectives and Decisions	5-7
	5.1 2 Stage 2 - Identify Data Uses and Needs	5-7
	5 1.2.1 Identify Data Uses	5-7
	5.1 2 2 Identify Data Types	5-8
	5 1.2.3 Identify Data Quality Needs	5-8
	5 1.2 4 Identify Data Quantity Needs	5-16
	5 1 2.5 Evaluate Sampling/Analysis Options	5-24
	5.1.2 6 Review of PARCC Parameter Information	5-31
	5.1 3 Stage 3 - Design Data Collection Program	5-33
6.0	**FIELD SAMPLING AND ANALYSIS PLAN**	6-1
6.1	OU13 RFI/RI OBJECTIVES	6-1
6 2	BACKGROUND AND SAMPLING RATIONALE	6-2
	6.2.1 Background	6-2
	6.2.2 Sampling Rationale	6-2
	6.2.3 Analytical Rationale	6-29
	6.2 4 Relevant Studies of Other OUs	6-29
6 3	SAMPLING	6-32
	6.3 1 Stage 1 Investigation	6-32
	6 3 1.1 North Chemical Storage Site (IHSS 117 1)	6-39
	6.3 1.2 Middle Chemical Storage Site (IHSS 117 2)	6-40
	6 3.1.3 South Chemical Storage Site (IHSS 117.3)	6-44
	6.3 1 4 Oil Burn Pit No. 1 (IHSS 128)	6-45
	6.3.1.5 Lithium Metal Destruction Site (IHSS 134)	6-47

TABLE OF CONTENTS - Continued

Section		Page
	6 3 1 6 Waste Spills (IHSS 148)	6-51
	6.3.1.7 Fuel Oil Tank (IHSS 152)	6-53
	6 3 1 8 North Area Radioactive Site (IHSS 157.1)	6-54
	6.3 1.9 Building 551 Radioactive Site (IHSS 158)	6-57
	6 3.1.10 Waste Drum Peroxide Burial (IHSS 169)	6-58
	6.3.1 11 Solvent Burning Ground (IHSS 171)	6-59
	6 3.1 12 Valve Vault (IHSS 186)	6-60
	6 3 1.13 Caustic Leak (IHSS 190)	6-63
	6 3 1.14 Hydrogren Peroxide Spill	6-63
	6.3.1.15 HRR PACs and PICs	6-63
	6.3.2 Stage 2 Investigation	6-66
	6.3.3 Stage 3 Investigation	6-70
6 4	SAMPLING EQUIPMENT AND PROCEDURES	6-72
	6 4 1 Radiological Survey Procedure	6-72
	6 4 2 Soil Gas Survey	6-74
	6 4 3 Surficial Soil Sampling Procedure	6-74
	6 3.4 1 Surficial Soils Sampling—Vertical Profiles	6-74
	6 4 4 Borehole Drilling and Soil Sampling Procedures	6-75
	6.4.5 Asphalt/Concrete Sampling Procedure	6-77
	6 4.6 Installing and Sampling of Ground Water Monitoring Wells	6-77
	6 4.7 Sump Sampling Procedure	6-79
	6.4.8 Surveying of Sample Locations	6-79
6 5	SAMPLE ANALYSIS	6-79
	6.5 1 Soil Gas Analysis	6-79
	6 5 2 Borehole Samples	6-80
	6.5.2 1 Chemical Analysis	6-80
	6.5.2.2 Physical Analysis	6-80
	6.5.3 Groundwater Samples	6-80
	6.5 4 Sample Containers and Preservation	6-81
	6.5 5 Sample Handling and Documentation	6-81
	6 5.6 Sample Designation	6-83
6.6	FIELD QC PROCEDURES	6-83
7.0	**TASKS AND SCHEDULING**	7-1
8.0	**HUMAN HEALTH RISK ASSESSMENT PLAN**	8-1
8.1	OVERVIEW	8-1
	8 1.1 Regulatory Basis	8-1
	8 1.2 Background of Site Contamination	8-4
8.2	CONTAMINANTS OF CONCERN	8-6
	8 2 1 Data Collection	8-6
	8.2.2 Data Evaluation	8-7
	8.2.3 Hazard Identification	8-8
	8 2 4 Selection of Contaminants of Concern	8-9
8 3	EXPOSURE ASSESSMENT	8-9
	8.3.1 Conceptual Site Model	8-10

TABLE OF CONTENTS - Continued

Section **Page**

8 3.2 Contaminant Fate and Transport 8-10
8.3.3 Exposure Pathways 8-11
8.3.4 Exposure Point Concentrations 8-12
8.3.5 Contaminant Intake Estimation 8-13
8.3.6 Uncertainty in the Exposure Assessment 8-14
8 4 TOXICITY ASSESSMENT 8-14
8 5 RISK CHARACTERIZATION 8-17
8 6 UNCERTAINTIES, LIMITATIONS, AND ASSUMPTIONS 8-19

9.0 ENVIRONMENTAL EVALUATION 9-1
9 1 INTRODUCTION 9-1
9 2 BIOLOGICAL AND HABITAT SITE CHARACTERIZATION 9-2
9 3 ECOTOXICOLOGICAL INVESTIGATIONS 9-3

10.0 QUALITY ASSURANCE ADDENDUM 10-1
10 1 ORGANIZATION AND RESPONSIBILITIES 10-1
10.2 QUALITY ASSURANCE PROGRAM 10-2
10 2 1 Training 10-4
10 2 2 Quality Assurance Reports to Management 10-4
10.3 DESIGN CONTROL AND CONTROL OF SCIENTIFIC INVESTIGATIONS 10-4
10.3.1 Design Control 10-4
10 3 2 Data Quality Objectives 10-7
10.3.3 Sampling Locations and Sampling Procedures 10-8
11.3 4 Analytical Procedures 10-8
10 3 5 Equipment Decontamination 10-17
10 3 6 Air Quality 10-17
10.3.7 Quality Control 10-17
10.3.7.1 Objectives for Field QC Samples 10-18
10.3.7.2 Laboratory QC 10-18
10 3 8 Quality Assurance Monitoring 10-20
10.3 9 Data Reduction, Validation, and Reporting 10-20
10 3.9 1 Analytical Reporting Turnaround Times 10-20
10.3.9 2 Data Reduction 10-20
10 3.9.3 Data Validation 10-21
10.3.9 4 Data Reporting 10-21
10 4 PROCUREMENT DOCUMENT CONTROL 10-22
10.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS 10-22
10 6 DOCUMENT CONTROL 10-23
10 7 CONTROL OF PURCHASED ITEMS AND SERVICES 10-23
10 8 IDENTIFICATION AND CONTROL OF ITEMS, SAMPLES, AND DATA 10-24
10 8.1 Sample Containers/Preservation 10-24
10.8.2 Sample Identification 10-24
10 8 3 Chain-of-Custody 10-24
10.9 CONTROL OF PROCESSES 10-24
10.10 INSPECTION 10-25

TABLE OF CONTENTS - Continued

Section **Page**

10 11 TEST CONTROL 10-25
10.12 CONTROL OF MEASURING AND TEST EQUIPMENT (M&TE) . . 10-25
10.12 1 Field Equipment 10-25

OPERABLE UNIT 13 FIGURES 6-4 THROUGH 6-10

In order to minimize multiple reiterations of expensive color copies, only black and white copies were included in this submittal. If the changed figures are acceptable to CDH and EPA, final color copies will be transmitted within seven working days.

TITLE Benchmarks

Approved By·

04/01/93
Effective Date

Manager

/ /
Date

3.0 ROCKY FLATS PLANT CHEMICAL SPECIFIC BENCHMARKS

Tables 3.1 through 3.4 provide a preliminary identification of potential chemical-specific Benchmarks for groundwater, surface water, air, and soil at RFP. EPA analytical methods and detection limits have been specified for soil analyses to obtain data of the highest quality with the lowest possible detection limits. The Benchmarks included in this section were developed for the entire Rocky Flats Plant site and are not specific to OU 13 Site specific ARARs will be developed as the initial step of the Feasibility Study/Corrective Measures Study for OU 13. As validated data become available from RFI/RI investigations obtained pursuant to this Work Plan, the Benchmarks will be reevaluated in accordance with Chapter Three, Part 15 of the IAG (DOE, 1991a) The site-wide Benchmarks included in this work plan are not intended for use in establishing cleanup goals; however, they will be used to establish RFI/RI analytical detection limits. Cleanup criteria for OU 13 will be site specific and shall be based on results of an environmental and human-based Risk Assessment.

The tables are a master list of possible contaminants which may be present across the entire Rocky Flats Plant site. This list provides identification of the compound, a listing of federal and state regulations that may apply to that compound, the Practical Quantitation Limit (PQL), which is the level at which the amount of analyte can be reliably measured, and the method of analysis which the PQL is based upon.

In some cases the Minimum Detection Limit (MDL) is listed instead of the PQL. The MDL is the lowest concentration at which the analyte can be detected but not necessarily measured.

Rocky Flats has been following the historical CERCLA/RCRA procedure of utilizing transitional EPA Contract Analytical Program (CLP) Routine Analytical Service protocol for Phase 1 study. This methodology is described as a managed approach whereby:

1. The benchmark table will be used in the Phase I investigations in conjunction with the CLP-RAS analytical methods to scope the initial RFI/RI investigation[1].

2. Following receipt and analysis of all field investigation data, a weight-of-evidence evaluation will be used to assess the adequacy of the analytical program relative to study objectives[2].

3. If the weight-of-evidence evaluation suggests that a particular compound or group of compounds warrant further assessment at lower quantitation limits, then follow up sampling and analysis with Special Analytical Services (SAS) will be performed as necessary

Site wide Benchmarks represented in Table 3 1 through 3 4 were developed from the following

---

1 CLP-RAS methods are the workhorses of the hazardous waste industry Collectively, a full CLP-RAS suite includes 126 organic (and a specified number of Tentatively Identified Compounds (TICs), and 25 inorganic compounds Standard radiochemistry analysis includes 12 radioisotopes. These broad-brush methods provide a reasonable trade-off between specificity (the number of compounds detectable) and sensitivity (detection limit) It is standard practice to utilize CLP-RAS methods in the first phase of a study where contaminant identification is emphasized more than quantitation Following identification of contaminants of concern, follow up sampling and analysis with a more sensitive method can be performed if quantitation is still an issue This step-wise methodology was used in the OU 1 881 Hillside Phase III study and the OU 2 903 Pad and East Trenches, Phase II study.

2 The weight-of-evidence evaluation will consider factors such as the number of detections of specific chemicals, observed concentration range, fate and transport characteristics, their occurrence-distribution and concentration relative to overall site risk, as well as likely ARAR determination

sources:

- Colorado Department of Health (CDH), Water Quality Control Commission (WQCC), groundwater standards;
- Safe Drinking Water Act (SWADA), Maximum Contaminant Levels (MCLs), surface water and groundwater;
- Clean Water Act (CWA), Ambient Water Quality Criteria (AWQC), potentially applicable to surface water and groundwater;
- RCRA, Subpart F, Groundwater Concentration Limits (40 CFR 264.94), groundwater standards; and
- CDH, WQCC proposed statewide and classified groundwater area standards.

In instances where Benchmarks have not been proposed for a particular chemical or for a particular type of investigative method, EG&G's General Radiochemistry and Routine Analytical Services Protocol (GRRASP) or other appropriate laboratory procedures will be considered as the practical quantitation limits and will be applied.

TABLE 3.1
BENCHMARKS

TABLE A - POTENTIAL CHEMICAL SPECIFIC BENCHMARKS (December 16, 1992)
GROUNDWATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			FEDERAL STANDARDS					STATE STANDARDS							
									CDH WQCC Groundwater Quality Standards (g)						
								Statewide	Site-Specific (g)						
Parameter	Type (d)	Method (c)	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level Goals	SDWA Maximum Contaminant Level Goal	RCRA Subpart F Limit (c)	Table A (d) (h)	Table 1 Human Health	Table 2 Secondary Drinking	Table 3 Agriculture	Table 4 TDS	Table 5 Chloride	Table 6 Radionuclides Human Check	Table 6 Radionuclides Wildlife Check
Chloride	A	E325	250 000 (a)							250 000					
Cyanide (Free)	A	E335	200 (h)		200 (h)				200						
Fluoride	A	E340	4,000 2 000 (a)		4,000 (a)				4 000		2 000				
N as Nitrate	A	E353 1		10 000 (b)		10 000 (b)			10 000						
N as Nitrate Nitrite	A	E353 1		10 000 (b)		10 000 (b)					100 000				
N as Nitrite	A	E354 1		1 000 (b)		1 000 (b)			1 000		10 000				
Sulfate	A	E375 4	250 000* (a)							250 000					
Sulfide, H2S Undissociated	A	E376 1													
Coliform (Fecal)	B	SM9221C	1/100 ml (a)***						1/100 ml						
Ammonia as N	C	E350													
Dioxin	D	(3)	3 0E 5 (b)		0 (h)			0 00000022					1.3E 08		
Boron	E	SW6010(SB)									750				
Chlorine Total Residual	E	SM4500													
Sulfur	E														
Dissolved Oxygen	FP	SM4500													
pH (Standard Units)	FP	E150 1	6.5-8.5 (a)							6.5 8.5	4 5 8.5				
Specific Conductance	FP	E120 1													
Temperature (Degrees Celsius)	FP														
Alkalinity	IN	E310 1													
Asbestos	IN			7MFA (h)		7MFA (h)									
Total Dissolved Solids (TDS)	IN	E160 1	500 000* (a)									400 000 (1)			
Total Organic Carbon (TOC)	IN	E415 1													
Aluminum	M	(3)		50 to 200* (h)							5 000				
Antimony	M	(3)	6 (h)		6 (h)										
Arsenic	M	(3)	50 (a)				50		50		100				
Arsenic III	M														
Arsenic V	M														
Barium	M	(3)	2 000 (a)			2 000 (a)	1 000		1 000						
Beryllium	M	(3)	4 (h)		4 (h)						100				
Cadmium	M	(3)	10 (a)	5 (b)		5 (b)	10		10		10				
Calcium	M	(3)													
Cesium	M	(3)													
Chromium	M	(3)	50 (a)	100 (b)		100 (b)	50		50		100				
Chromium III	M														
Chromium VI	M	E218.5													
Cobalt	M	(3)									50				
Copper	M	(3)	1 000 (a)	1,300 (f)		1,300 (f)				1 000	200				
Iron	M	(3)	300 (a)							300	5 000				
Lead	M	(3)	50 (a)	15 (f)		0 (f)	50		50		100				
Lithium	M	(3)									2,500				
Magnesium	M	(3)													
Manganese	M	(3)	50 (a)							50	200				
Mercury	M	(3)	2 (a)	2 (b)		2 (b)	2		2		10				
Molybdenum	M	(3)													
Nickel	M	(3)	100 (h)		100 (h)						200				
Potassium	M	(3)													
Selenium	M	(3)	10 (a)	50 (b)		50 (b)	10		10		20				
Silver	M	(3)	50 (a)	100 (b)			50		50						
Sodium	M	(3)													
Strontium	M	(3)													
Thallium	M	(3)	2 (h)		0 5 (h)										
Tin	M	(3)													
Titanium	M	SW6010(SB)													
Tungsten	M	SW6010(SB)													
Vanadium	M	(3)									100				
Zinc	M	(3)	5 000 (a)							5 000	2 000				
Aldicarb	P		3 (f)		1 (f)			10							
Aldicarb Sulfone	P		2 (f)		1 (f)										

TABLE A POTENTIAL CHEMICAL SPECIFIC BENCHMARKS (December 16 1992)
GROUNDWATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			FEDERAL STANDARDS					STATE STANDARDS							
								CDH WQCC Groundwater Quality Standards (d)							
								Statewide	Site-Specific (g)						
Pollutant	Type (c)	Method (d)	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level Goals	SDWA Maximum Contaminant Level Goal	RCRA Subpart F Limit (e)	Table A (d) (f)	Table 1 Human Health	Table 2 Secondary Drinking	Table 3 Agriculture	Table 4 TDS	Table 5 Chloride	Table 6 Radionuclides Warren Creek	Table 6 Radionuclides Walnut Creek
Aldicarb Sulfoxide	P		4 (i)		1 (i)										
Aldrin	P	(S)						0 002					0 0000764		
Carbofuran	P	(SC)		40 (b)		40 (b)		30							
Chloranil	P														
Chlordane	P	(S)		2 (b)		0 (b)		0 03					0 00040		
Chlorpyrifos	P	(S)													
DDT	P	(S)						0 1					0 000024		
DDT Metabolite (DDD)	P	(S)													
DDT Metabolite (DDE)	P	(S)						0 1							
Demeton	P	(S)													
Diazinon	P	(S)													
Dieldrin	P	(S)						0 002					0 000071		
Endosulfan I	P	(S)													
Endosulfan II	P	(S)													
Endosulfan sulfate	P	(S)													
Endrin	P	(S)	2 (h)		2 (h)		0.2	0 2							
Endrin Aldehyde	P	(SB)						0 2							
Endrin Ketone	P	(SB)													
Guthion (Azinphos methyl)	P	(S)													
Heptachlor	P	(S)		0 4 (b)		0 (b)		0 008					0 00028		
Heptachlor Epoxide	P	(S)		0.2 (b)		0 (b)		0 09							
Hexachlorocyclohexane Alpha	P	(S)						0 006					0 0092		
Hexachlorocyclohexane Beta	P	(S)											0 0163		
Hexachlorocyclohexane (HCH or BHC)	P														
Hexachlorocyclohexane Delta	P	(S)													
Hexachlorocyclohexane Technical (Total)	P	(SE)											0 0123		
Hexachlorocyclohexane Gamma (Lindane)	P	(S)	4 (a)	0.2 (b)		0.2 (b)	4 0	0 2					0 0186		
Malathion	P	(SB)													
Methoxychlor	P	(S)	100 (a)	40 (b)		40 (b)	100	40							
Mirex	P														
Oxamyl (Vydate)	P		200 (h)		200 (h)										
Parathion	P	(SB)													
Toxaphene	P	(S)		3 (b)		0 (b)	5 0	0 03							
Vapona 2	P														
Aroclor 1016	PP	(S)													
Aroclor 1221	PP	(S)													
Aroclor 1232	PP	(S)													
Aroclor 1242	PP	(S)													
Aroclor 1248	PP	(S)													
Aroclor 1254	PP	(S)													
Aroclor 1260	PP	(S)													
PCBs (Total)	PP	(S)		0.5 (b)		0 (b)		0 005					0 000079		
2 4,5-TP Silvex	H	(SC)	10 (a)	50 (b)		50 (b)	10	50							
2 4-Dichlorophenoxyacetic Acid (2 4-D)	H	(SC)	100 (a)	70 (b)		70 (b)	100	70							
Acrolein	H														
Atrazine	H	(SD)		3 (b)		3 (b)							3		
Bromacil	H														
Dalapon	H	(S)	200 (h)		200 (h)										
Dinoseb	H	(S)	7 (h)		7 (h)										
Diquat	H		20 (h)		20 (h)										
Endothall	H		100 (h)		100 (h)										
Glyphosate	H		700 (h)		700 (h)										
Picloram	H		500 (h)		500 (h)										
Simazine	H	(SD)	4 (h)		4 (h)								4		
Americium (total)(pCi/l)	R													0 05	0 05
Americium 241 (pCi/l)	R														
Cesium 134 (pCi/l)	R		(6)					80						80	80
Cesium 137 (pCi/l)	R		(6)												
Gross Alpha (pCi/l)	R		15 (a)(7)						15(7)					7	11
Gross Beta (pCi/l)	R		50 (a)(2)(6)						(6)					5	19
Plutonium (total)(pCi/l)	R													0 05	0 05
Plutonium 238+239+240 (pCi/l)	R							15						15	15

TABLE A POTENTIAL CHEMICAL SPECIFIC BENCHMARKS (December 16 1992)
GROUNDWATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			FEDERAL STANDARDS					STATE STANDARDS							
								CDH WQCC Groundwater Quality Standards (b)							
								Statewide	Site-Specific (c)						
Pollutant	Type (a)	Method (b)	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level Goals	SDWA Maximum Contaminant Level Goal	RCRA Subpart F Limit (c)	Table A (d) (b)	Table 1 Human Health	Table 2 Secondary Drinking	Table 3 Agriculture	Table 4 TDS	Table 5 Chronic	Table 6 Radionuclides Women Creek	Table 6 Radionuclides Walnut Creek
Radium 226+228 (pCi/l)	R	(3)	20 (a)(6)					5						5	5
Strontium 89+90 (pCi/l)	R		(a)(2)(6)												
Strontium 90 (pCi/l)	R		8 (a)(2)(6)					8						8	8
Thorium 230+232 (pCi/l)	R		(a)(6)					60						60	60
Tritium (pCi/l)	R		20 000 (a)(2)(6)					20 000						500	500
Uranium 233+234 (pCi/l)	R														
Uranium 235 (pCi/l)	R														
Uranium 236 (pCi/l)	R														
Uranium (Total) (pCi/l)	R													5	10
1,2 4,5-Tetrachlorobenzene	SV	(5B)						2							
1,2 4-Trichlorobenzene	SV	(5)	70 (h)		70 (h)										
1,2-Dichlorobenzene (Ortho)	SV	(5)		600 (h)		600 (h)		620							
1,2-Diphenylhydrazine	SV	(5B)						0 05							
1,3-Dichlorobenzene (Meta)	SV	(5)						620							
1,4-Dichlorobenzene (Para)	SV	(5)	75 (a)		75 (a)			75							
2 4,5-Trichlorophenol	SV	(5)													
2 4 6-Trichlorophenol	SV	(5)						2					1 2		
2 4-Dichlorophenol	SV	(5)						21							
2 4-Dimethylphenol	SV	(5)													
2 4-Dinitrophenol	SV	(5)						14							
2 4-Dinitrotoluene	SV	(5)													
2 6-Dinitrotoluene	SV	(5)													
2 Chloronaphthalene	SV	(5)													
2-Chlorophenol	SV	(5)													
2 Methylnaphthalene	SV	(5)													
2-Methylphenol	SV	(5)													
2 Nitroaniline	SV	(5)													
2 Nitrophenol	SV	(5)													
3,3 -Dichlorobenzidine	SV	(5)													
3 Nitroaniline	SV	(5)													
4 6 Dinitro 2-methylphenol	SV	(5)													
4-Bromophenyl-phenyl-ether	SV	(5)													
4-Chloroaniline	SV	(5)													
4-Chlorophenyl-phenyl-ether	SV	(5)													
4-Chloro-3-methylphenol	SV	(5)													
4-Methylphenol	SV	(5)													
4 Nitroaniline	SV	(5)													
4-Nitrophenol	SV	(5)													
Acenaphthene	SV	(5)													
Anthracene	SV	(5)													
Benzidine	SV	(5bc)						0 0002					0 00012		
Benzoic Acid	SV	(5)													
Benzo(a)anthracene	SV	(5)													
Benzo(a)pyrene	SV	(5)	0.2 (h)		0 (h)										
Benzo(b)fluoranthene	SV	(5)													
Benzo(g,h,i)perylene	SV	(5)													
Benzo(k)fluoranthene	SV	(5)													
Benzyl Alcohol	SV	(5)													
bis(2-Chloroethoxy)methane	SV	(5)													
bis(Chloroethyl)ether	SV	(5)						0 03					0 0000037		
bis(2-Chloroisopropyl)ether	SV	(5)													
bis(2-Ethylhexyl)phthalate (Di(2-ethylhexyl)phthalate)	SV	(5)	0 (h)		0 (h)										
Butadiene	SV														
Butylbenzylphthalate	SV	(5)													
Chlorinated Ethers	SV	(5)													
Chlorinated Napthalenes	SV	(5)													
Chloroalkylethers	SV	(5)													
Chlorophenol (Total)	SV	(5)							1						
Chrysene	SV	(5)													
Dibenzofuran	SV	(5)													
Dibenz(a,h)anthracene	SV	(5)													
Dichlorobenzenes	SV	(5)													
Dichlorobenzidine (Total)	SV	(5)											0 01		

TABLE A - POTENTIAL CHEMICAL SPECIFIC BENCHMARKS (December 16 1992)
GROUNDWATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			FEDERAL STANDARDS					STATE STANDARDS							
								CDH WQCC Groundwater Quality Standards (d)							
								Statewide	Site-Specific (g)						
Parameter	Type (a)	Method (b)	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level Goals	SDWA Maximum Contaminant Level Goal	RCRA Subpart F Limits (c)	Table A (e) (f)	Table 1 Human Health	Table 2 Secondary Drinking	Table 3 Agriculture	Table 4 TDS	Table 5 Creeds	Table 6 Stormwater Waters Creek	Table 6 Stormwater Walnut Creek
Diethylphthalate	SV	(5)													
Di(2 ethylhexyl)adipate	SV	(5)	400 (h)		400 (h)										
Dimethylphthalate	SV	(5)													
Di-n-butylphthalate	SV	(5)													
Di-n-octylphthalate	SV	(5)													
Ethylene Glycol	SV	(5C)													
Fluoranthene	SV	(5)													
Fluorene	SV	(5)													
Formaldehyde	SV														
Haloethers	SV	(5)													
Hexachlorobenzene	SV	(5)	1 (h)		0 (h)			6					0 00072		
Hexachlorobutadiene	SV	(5)						1					0 45		
Hexachlorocyclopentadiene	SV	(5)	50 (h)		50 (h)										
Hexachloroethane	SV	(5)											1 9		
Hydrazine	SV														
Indeno(1,2,3-cd)pyrene	SV	(5)													
Isophorone	SV	(5)						1 050							
Naphthalene	SV	(5)													
Nitrobenzene	SV	(5)						3.5							
Nitrophenols	SV	(5)													
Nitrosamines	SV	(5)													
N-Nitrosodibutylamine	SV	(5B)											0 0004		
N-Nitrosodiethylamine	SV	(5B)											0 0008		
N Nitrosodimethylamine	SV	(5B)											0 0014		
N-Nitrosopyrrolidine	SV	(5B)											0 016		
N Nitrosodiphenylamine	SV	(5B)											4 9		
N-Nitroso-di n-propylamine	SV	(5B)													
Pentachlorinated Ethanes	SV	(5B)													
Pentachlorobenzene	SV	(5B)						6 (g)							
Pentachlorophenol	SV	(5)		1 (e)		0 (e)		200							
Phenanthrene	SV	(5)													
Phenol	SV	(5)							1						
Phthalate Esters	SV	(5)													
Polynuclear Aromatic Hydrocarbons	SV	(5)											0 0028		
Pyrene	SV	(5)													
Vinyl Chloride	V	(5)	2 (a)		0 (a)			2							
1 1 1 Trichloroethane	V	(5)	200 (a)		200 (a)			200							
1 1,2,2 Tetrachloroethane	V	(5)											0 17		
1 1 2 Trichloroethane	V	(5)	3 (h)		3 (h)			3					0 6		
1 1-Dichloroethane	V	(5)													
1 1-Dichloroethene	V	(5)	7 (a)		7 (a)			7							
1 2-Dichloroethane	V	(5)	5 (a)		0 (a)			0 4							
1,2 Dichloroethene (cis)	V	(5)		70 (b)		70 (b)		70							
1,2-Dichloroethene (total)	V	(5)													
1 2-Dichloroethene (trans)	V	(5)		100 (b)		100 (b)		100							
1,2 Dichloropropane	V	(5)		5 (b)		0 (b)		0 50							
1,3-Dichloropropene (cis)	V	(5)													
1,3-Dichloropropene (trans)	V	(5)													
2-Butanone	V	(5)													
2-Hexanone	V	(5)													
4-Methyl-2 pentanone	V	(5)													
Acetone	V	(5)													
Acrylonitrile	V	(5)											0 056		
Benzene	V	(5)	5 (a)		0 (a)			1							
Bromodichloromethane	V	(5)	<100** (a)					0.3							
Bromoform	V	(5)	<100** (a)					4							
Bromomethane	V	(5)													
Carbon Disulfide	V	(5)													
Carbon Tetrachloride	V	(5)	5 (a)		0 (a)			0.3							
Chlorinated Benzenes	V/SV	(5)													
Chlorobenzene	V	(5)		100 (b)		100 (b)		100							
Chloroethane	V	(5)													
Chloroform	V	(5)	<100 (a)					6					0 19		

TABLE A - POTENTIAL CHEMICAL SPECIFIC BENCHMARKS (December 16 1992)
GROUNDWATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			FEDERAL STANDARDS					STATE STANDARDS							
								CDH WQCC Groundwater Quality Standards (g)							
								Statewide	Site-Specific (h)						
Parameter	Type (4)	Alias(s) (5)	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level Goals	SDWA Maximum Contaminant Level Goal	RCRA Subpart F Limit (c)	Table A (d) (f)	Table 1 Human Health	Table 2 Secondary Drinking	Table 3 Agriculture	Table 4 TDS	Table 5 Chronic	Table 6 Radionuclides Walnut Creek	Walnut Creek
Chloromethane	V	(5)													
Dibromochloromethane	V	(5)	<100 (a)					14							
Dichloroethenes	V	(5)													
Ethyl Benzene	P	(5)		700 (b)		700 (b)		680							
Ethylene Dibromide	P	(5C)		0.05 (b)		0 (b)									
Ethylene Oxide	V												0.19		
Halomethanes	V	(5)	100 (a)												
Methylene Chloride	V	(5)	5 (b)		0 (b)										
Styrene	V	(5)		100 (b)		100 (b)									
Tetrachloroethanes	V	(5)						5					0.5		
Tetrachloroethene	V	(5)		5 (b)		0 (b)									
Toluene	V	(5)		1 000 (b)		1 000 (b)		1 000							
Trichloroethanes	V	(5)						5							
Trichloroethene	V	(5)	5 (a)		0 (a)										
Vinyl Acetate	V	(5)													
Xylenes (total)	V	(5)		10,000 (b)		10,000 (b)									

EXPLANATION OF TABLE AND ENDNOTES

- = secondary maximum contaminant level; TBCs
- " = total trihalomethanes chloroform, bromoform, bromodichloromethane dibromochloromethane
- " = Positive sample no more than once/month (<40 samples/month)

ARAR = Applicable or Relevant and Appropriate Requirement
CDH = Colorado Department of Health
CERCLA = Comprehensive Environmental Response Compensation and Liability Act
CFR = Code of Federal Regulations
EPA = Environmental Protection Agency
NCP = National Contingency Plan
pCi/l = picocuries per liter
PCB = polychlorinated biphenyl
RFP = Rocky Flats Plant
SDWA = Safe Drinking Water Act
SW = Solid Waste
TIC = Tentatively Identified Compound
ug/l = micrograms per liter
WQCC = Water Quality Control Commission
MFA = million fibers/liter

(1) TDS standard see Table 4 in (d) standard is 400 mg/l or 1 25 times the background level whichever is least restrictive
(2) If both strontium-90 and tritium are present the sum of their annual dose equivalents to bone marrow shall not exceed 4 mrem/yr
(3) MDL for Radium 226 is 0.5 MDL for radium 228 is 1
(4) Type abbreviations are A=anion; B=bacteria; C=cation D=dioxin, E=element; FP=field parameter H=herbicide IN=inorganic; M=metal P=pesticide PP=pesticide/PCB;
R=radionuclide SV=semi-volatile V=volatile
(5) See Attachment 1 for analytical methods with corresponding analytes and detection limits
abbreviations are E=EPA, SW=SW846 A=detected as total B=detected as TICs or with method modifications, C=not routinely monitored D=monitored in discharge ponds E=mixture-individual isomers detected
(6) Where the standard is below (more stringent than) the PQL the PQL is interpreted to be compliance level
(7) Value for gross alpha excludes uranium
(8) Average annual concentration of beta particles and photon radioactivity cannot exceed 4 millirem/year dose equivalent

(a) EPA National Primary and Secondary Drinking Water Regulations 40 CFR 141 and 40 CFR 143 (as of 5/19/90)
(b) EPA National Primary and Secondary Drinking Water Regulations 40 CFR Parts 141 142, 143, Final Rule Effective July 30 1992 (56 Federal Register 3526; 1/30/1991)
(c) NCP 40 CFR 300 NCP Preamble 55 FR 8704 CERCLA Compliance with Other Laws Manual, EPA/540/G-89/006, August 1988 40 CFR 264 94
(d) CDH/Water Quality Control Commission The Basic Standards for Ground Water 3.11.0 (5 CCR 1002-8) 1/5/1987 effective 11/30/1991 statewide radioactive standards listed in 3 11.5(c)(2)
(e) EPA National Primary and Secondary Drinking Water Regulations, 40 CFR Parts 141 142 143, Final Rule Effective January 1 1993 (56 FR 30266; 7/1/1991)
(f) EPA Maximum Contaminant Level Goals and National Primary Drinking Water Regulations for Lead and Copper 40 CFR 141 and 142 (56 FR 26460 6/7/91) and 57 FR 28785 6/29/92 effective 12/7/92 and 11/6/91 Action levels effective 12/7/92
MCLGs effective 11/6/91 Action level in 10% or less of tap samples for small and medium-sized systems.
(g) CDH/Water Quality Control Commission, Classifications and Water Quality Standards for Ground Water 3 12 0 (9/19/1991)
(h) EPA National Primary Drinking Water Regulations, 40 CFR 141 and 142 Final Rule Effective January 17 1994
(i) EPA National Primary Drinking Water Regulations, 40 CFR 141 Postponement of Final Rule and Reconsideration (57 FR 22178) no effective date established

TABLE B - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
FEDERAL SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

Parameter	Type (7)	Method (8)	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level Goals	SDWA Maximum Contaminant Level Goals	CWA AWQC for Protection of Aquatic Life (c) Acute Value	CWA AWQC for Protection of Aquatic Life (c) Chronic Value	CWA AWQC for Protection of Human Health (c) Water and Fish Ingestion	CWA AWQC for Protection of Human Health (c) Fish Consumption Only
Chloride	A	E325	250,000 * (a)				860,000(g)	230,000(g)		
Cyanide (Free)	A	E335	200 (h)		200 (h)		22	5.2	200	
Flouride	A	E340	4,000; 2,000* (a		4,000 (a)					
N as Nitrate	A	E353 1		10,000 (b)		10,000 (b)			10,000	
N as Nitrate+Nitrite	A	E353 1		10,000 (b)		10,000 (b)				
N as Nitrite	A	E354 1		1,000 (b)		1,000 (b)				
Sulfate	A	E375 4	250,000* (a)							
Sulfide, H2S Undissociated	A	E376 1						2		
Coliform (Fecal)	B	SM9221C	1/100 ml (a)							
Ammonia as N	C	E350					***			
Dioxin	D	(8)	3 0E-5 (h)		0 (h)		0 01	0 00001	0 000000013	0 000000014
Boron	E	SW6010(8								
Chlorine, Total Residual	E	SM4500					19	11		
Sulfur	E									
Dissolved Oxygen	FP	SM4500					5,000			
pH (Standard Units)	FP	E150 1	6 5-8.5 * (a)					6.5-9		
Specific Conductance	FP	E120 1								
Temperature (Degrees Celsius)	FP						SS	SS		
Alkalinity	IN	E310 1						20,000		
Asbestos	IN			7MF/l (b)		7MF/l (b)				300,000 F/L*
Total Dissolved Solids	IN	E160 1	500,000* (a)				SS	SS	250,000	
Total Organic Carbon	IN	E415 1								
Aluminum	M	(8)		50 to 200* (b)			750	87		
Antimony	M	(8)	6 (h)		6 (h)		9 000	1,600	146	45,000
Arsenic	M	(8)	50 (a)						0 0022	0 0175
Arsenic III	M						360	190		
Arsenic V	M						850	48		
Barium	M	(8)	2,000 (e)		2,000 (e)				1,000	
Beryllium	M	(8)	4 (h)		4 (h)		130	5.3	.0068**	117**
Cadmium	M	(8)	10 (a)	5 (b)		5 (b)	3.9 (3)	1 1 (3)	10	
Calcium	M	(8)								
Cesium	M	(8)								
Chromium	M	(8)	50 (a)	100 (b)		100 (b)				
Chromium III	M						1,700 (3)	210 (3)	170,000	3,433,000
Chromium VI	M	E218.5					16	11	50	
Cobalt	M	(8)								
Copper	M	(8)	1,000 * (a)	1,300 (f)		1,300 (f)	18 (3)	12 (3)		
Iron	M	(8)	300 * (a)					1 000	300	
Lead	M	(8)	50 (a)	15 (f)		0 (f)	82 (3)	3.2 (3)	50	

TABLE B - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
FEDERAL SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

Parameter	Type (f)	Method (8)	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level Goals	SDWA Maximum Contaminant Level Goals	CWA AWQC for Protection of Aquatic Life (c) Acute Value	CWA AWQC for Protection of Aquatic Life (c) Chronic Value	CWA AWQC for Protection of Human Health (c) Water and Fish Ingestion	CWA AWQC for Protection of Human Health (c) Fish Consumption Only
Lithium	M	(8)								
Magnesium	M	(8)								
Manganese	M	(8)	50 * (a)						50	100
Mercury	M	(8)	2 (a)	2 (b)		2 (b)	2 4	0 012	0 144	0 146
Molybdenum	M	(8)								
Nickel	M	(8)	100 (h)		100 (h)		1,400 (3)	160 (3)	13 4	100
Potassium	M	(8)								
Selenium	M	(8)	10 (a)	50 (b)		50 (b)	20 (d)	5 (d)	10	
Silver	M	(8)	50 (a)	100* (b)			4 1 (3)	0 12	50	
Sodium	M	(8)								
Strontium	M	(8)								
Thallium	M	(8)	2 (h)		0 5 (h)		1,400 (1)	40 (1)	13	48
Tin	M	(8)								
Titanium	M	SW6010(8								
Tungsten	M	SW6010(8								
Vanadium	M	(8)								
Zinc	M	(8)	5,000 * (a)				120 (3)	110 (3)		
Aldicarb	P		3 (i)		1 (i)					
Aldicarb Sulfone	P		2 (i)		1 (i)				10	
Aldicarb Sulfoxide	P		4 (i)		1 (i)				100	
Aldrin	P	(8)					3 0		0 000074	0 000079
Carbofuran	P	(8C)		40 (b)		40 (b)				
Chloranil	P									
Chlordane	P	(8)		2 (b)		0 (b)	2 4	0 0043	0 00046	0 00048
Chlorpyrifos	P	(8)					0 063	0 041		
DDT	P	(8)					1 1	0 001	0 000024	0 000024
DDT metabolite (DDD)	P	(8)					0 06			
DDT metabolite (DDE)	P	(8)					1,050			
Demeton	P	(8)						0 1		
Diazinon	P	(8)								
Dieldrin	P	(8)					2.5	0 0019	0 000071	0 000076
Endosulfan I	P	(8)					0.22	0 056	74	159
Endosulfan II	P	(8)								
Endosulfan Sulfate	P	(8)								
Endrin	P	(8)	2 (h)		2 (h)		0 18	0 0023	1	
Endrin Aldehyde	P	(8B)								
Endrin Ketone	P	(8B)								
Guthion (Azinphos methyl)	P	(8)						0 01		
Heptachlor	P	(8)		0 4 (b)		0 (b)	0.52	0 0038	0 00028	0 00029
Heptachlor Epoxide	P	(8)		0.2 (b)		0 (b)				
Hexachlorocyclohexane, Alpha	P	(8)							0 0092	0 031
Hexachlorocyclohexane, Beta	P	(8)							0 0163	0 0547
Hexachlorocyclohexane (HCH or BHC)	P						100			

TABLE B - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
FEDERAL SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

Parameter	Type (7)	Method (8)	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level Goals	SDWA Maximum Contaminant Level Goals	CWA AWQC for Protection of Aquatic Life (c)		CWA AWQC for Protection of Human Health (c)	
							Acute Value	Chronic Value	Water and Fish Ingestion	Fish Consumption Only
Hexachlorocyclohexane, Delta	P	(8)								
Hexachlorocyclohexane, Technical (Total)	P	(8E)							0 0123	0 0414
Hexachlorocyclohexane, Gamma (Lindane)	P	(8)	4 (a)	0 2 (b)		0 2 (b)	2	0 08	0 0186	0 0625
Malathion	P	(8B)						0 01		
Methoxychlor	P	(8)	100 (a)	40 (b)		40 (b)		0 03	100	
Mirex	P							0 001		
Oxamyl (Vydate)	P		200 (h)		200 (h)			0 001		
Parathion	P	(8B)					0 065	0 013		
Toxaphene	P	(8)		3 (b)		0 (b)	0 73	0 0002	0 00071**	0 00073**
Vaponite 2	P									
Aroclor 1016	PP	(8)								
Aroclor 1221	PP	(8)								
Aroclor 1232	PP	(8)								
Aroclor 1242	PP	(8)								
Aroclor 1248	PP	(8)								
Aroclor 1254	PP	(8)								
Aroclor 1260	PP	(8)								
PCBs (Total)	PP	(8)		0.5 (b)		0 (b)	2	0 014	0 000079**	0 000079**
2,4,5-TP Silvex	H	(8C)	10 (a)	50 (b)		50 (b)			10	
2,4-Dichlorophenoxyacetic Acid (2,4-D)	H	(8C)	100 (a)	70 (b)		70 (b)			100	
Acrolein	H						68(1)	21(1)	320	780
Atrazine	H	(8D)		3 (b)		3 (b)				
Bromacil	H									
Dalapon	H	(8)	200 (h)		200 (h)					
Dinoseb	H	(8)	7 (h)		7 (h)					
Diquat	H		20 (h)		20 (h)					
Endothall	H		100 (h)		100 (h)					
Glyphosate	H		700 (h)		700 (h)					
Picloram	H		500 (h)		500 (h)					
Simazine	H	(8D)	4 (h)		4 (h)					
Americium (total)(pCi/l)	R									
Americium 241 (pCi/l)	R									
Cesium 134 (pCi/l)	R		(4)							
Cesium 137 (pCi/l)	R		(4)							
Gross Alpha (pCi/l)	R		15 (a)(9)							
Gross Beta (pCi/l)	R		50 (a)(4)(6)							
Plutonium (total)(pCi/l)	R									
Plutonium 238+239+240 (pCi/l)	R									
Radium 226+228 (pCi/l)	R	(10)	5 (a)(4)							
Strontium 89+90 (pCi/l)	R		(a)(4)(6)							
Strontium 90 (pCi/l)	R		8 (a)(6)							

TABLE B - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
FEDERAL SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

Parameter	Type (7)	Method (8)	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level Goals	SDWA Maximum Contaminant Level Goals	CWA AWQC for Protection of Aquatic Life (c) Acute Value	CWA AWQC for Protection of Aquatic Life (c) Chronic Value	CWA AWQC for Protection of Human Health (c) Water and Fish Ingesting	CWA AWQC for Protection of Human Health (c) Fish Consumption Only
Thorium 230+232 (pCi/l)	R		(a)(4)							
Tritium (pCi/l)	R		20,000 (a)(4)(6)							
Uranium 233+234 (pCi/l)	R									
Uranium 235 (pCi/l)	R									
Uranium 238 (pCi/l)	R									
Uranium (total) (pCi/l)	R									
1,2,4,5-Tetrachlorobenzene	SV	(8B)							38	48
1,2,4-Trichlorobenzene	SV	(8)	70 (h)		70 (h)					
1,2-Dichlorobenzene (Ortho)	SV	(8)		600 (b)		600 (b)				
1,2-Diphenylhydrazine	SV	(8B)					270 (1)		0 042	0.56
1,3-Dichlorobenzene (Meta)	SV	(8)								
1,4-Dichlorobenzene (Para)	SV	(8)	75 (a)		75 (a)					
2,4,5-Trichlorophenol	SV	(8)							2,600	
2,4,6-Trichlorophenol	SV	(8)						970 (1)	1.2 **	3 6 **
2,4-Dichlorophenol	SV	(8)					2,020 (1)	365 (1)	3,090	
2,4-Dimethylphenol	SV	(8)					2,120 (1)			
2,4-Dinitrophenol	SV	(8)								
2,4-Dinitrotoluene	SV	(8)					330(1)	230(1)	0 11 **	9 1 **
2,6-Dinitrotoluene	SV	(8)					330 (1)	230 (1)	70	14,300
2-Chloronaphthalene	SV	(8)								
2-Chlorophenol	SV	(8)					4,380 (1)	2,000 (1)		
2-Methylnaphthalene	SV	(8)								
2-Methylphenol	SV	(8)								
2-Nitroaniline	SV	(8)								
2-Nitrophenol	SV	(8)					230(1)	150(1)		
3,3'-Dichlorobenzidine	SV	(8)							0 01	0 02
3-Nitroaniline	SV	(8)								
4,6-Dinitro-2-methylphenol	SV	(8)							13 4	765
4-Bromophenyl-phenyl-ether	SV	(8)								
4-Chloroaniline	SV	(8)								
4-Chlorophenyl-phenyl-ether	SV	(8)								
4-Chloro-3-methylphenol	SV	(8)					30 (1)			
4-Methylphenol	SV	(8)								
4-Nitroaniline	SV	(8)								
4-Nitrophenol	SV	(8)					230 (1)	150 (1)		
Acenaphthene	SV	(8)					1,700 (1)	520 (1)		
Anthracene	SV	(8)								
Benzidine	SV	(8B,C)					2,500		0.00012	0 00053
Benzoic Acid	SV	(8)								
Benzo(a)anthracene	SV	(8)								
Benzo(a)pyrene	SV	(8)	0.2 (h)		0 (h)					
Benzo(b)fluoranthene	SV	(8)								
Benzo(g,h,i)perylene	SV	(8)								

TABLE B - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
FEDERAL SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

Parameter	Type (7)	Method (8)	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level Goals	SDWA Maximum Contaminant Level Goals	CWA AWQC for Protection of Aquatic Life (c) Acute Value	CWA AWQC for Protection of Aquatic Life (c) Chronic Value	CWA AWQC for Protection of Human Health (c) Water and Fish Ingestion	CWA AWQC for Protection of Human Health (c) Fish Consumption Only
Benzo(k)fluoranthene	SV	(8)								
Benzyl Alcohol	SV	(8)								
bis(2-Chloroethoxy)methane	SV	(8)								
bis(2-Chloroethyl)ether	SV	(8)							0 03**	1 36 **
bis(Chloromethyl)ether	SV								0 00376	0 00184
bis(2-Chloroisopropyl)ether	SV	(8)							34 7	4,360
bis(2-Ethylhexyl)phthalate (Di(2-ethylhexyl)pht	SV	(8)	6 (h)		0 (h)					
Butadiene	SV									
Butylbenzylphthalate	SV	(8)								
Chlorinated Ethers	SV	(8)								
Chlorinated Napthalenes	SV	(8)					1,600 (1)			
Chloroalkylethers	SV	(8)					238,000 (1)			
Chlorophenol (Total)	SV	(8)								
Chrysene	SV	(8)								
Dibenzofuran	SV	(8)								
Dibenz(a,h)anthracene	SV	(8)								
Dichlorobenzenes	SV	(8)					1,120 (1)	763 (1)	400	2,600
Dichlorobenzidine (Total)	SV	(8)							0 01	0 02
Diethylphthalate	SV	(8)							350,000	1,800,000
Di(2-ethylhexyl)adipate	SV	(8)	400 (h)		400 (h)					
Dimethylphthalate	SV	(8)							313 000	2,900,000
Di-n-butylphthalate	SV	(8)							35,000	154,000
Di-n-octylphthalate	SV	(8)								
Ethylene Glycol	SV	(8C)								
Fluoranthene	SV	(8)					3,980 (1)		42	54
Fluorene	SV	(8)								
Formaldehyde	SV									
Haloethers	SV	(8)					360 (1)	122 (1)		
Hexachlorobenzene	SV	(8)	1 (h)		0 (h)				0 00072**	0 00074**
Hexachlorobutadiene	SV	(8)					90 (1)	9 3 (1)	0 45**	50 **
Hexachlorocyclopentadiene	SV	(8)	50 (h)		50 (h)		7 (1)	5.2 (1)	206	
Hexachloroethane	SV	(8)					980 (1)	540 (1)	1 9	8 74
Hydrazine	SV									
Indeno(1,2,3-cd)pyrene	SV	(8)								
Isophorone	SV	(8)					117,000 (1)		5,200	520,000
Naphthalene	SV	(8)					2,300 (1)	620 (1)		
Nitrobenzene	SV	(8)					27,000 (1)		19,800	
Nitrophenols	SV	(8)					230 (1)	150 (1)		
Nitrosamines	SV	(8)					5,850 (1)			
N-Nitrosodibutylamine	SV	(8B)							0 0064	0.587
N-Nitrosodiethylamine	SV	(8B)							0 0008	1.24
N-Nitrosodimethylamine	SV	(8B)							0 0014	16
N-Nitrosopyrrolidine	SV	(8B)							0 016	91.9
N-Nitrosodiphenylamine	SV	(8B)							4.9 **	16 1 **

TABLE B - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
FEDERAL SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

Parameter	Type (7)	Method (8)	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level Goals	SDWA Maximum Contaminant Level Goals	CWA AWQC for Protection of Aquatic Life (c)		CWA AWQC for Protection of Human Health (c)	
							Acute Value	Chronic Value	Water and Fish Ingestion	Fish Consumption Only
N-Nitroso-di-n-propylamine	SV	(8B)								
Pentachlorinated Ethanes	SV	(8B)					7,240 (1)	1,100 (1)		
Pentachlorobenzene	SV	(8B)							74	85
Pentachlorophenol	SV	(8)		1 (e)		0 (e)	20 ***	13 ***	1,010	
Phenanthrene	SV	(8)								
Phenol	SV	(8)					10,200 (1)	2,560 (1)	3,500	
Phthalate Esters	SV	(8)					940 (1)	3 (1)		
Polynuclear Aromatic Hydrocarbons	SV	(8)							0 0028**	0 0311**
Pyrene	SV	(8)								
Vinyl Chloride	V	(8)	2 (a)		0 (a)				2 **	525 **
1,1,1-Trichloroethane	V	(8)	200 (a)		200 (a)				18,400	1,030,000
1,1,2,2-Tetrachloroethane	V	(8)						2,400	0 17**	10 7 **
1,1,2-Trichloroethane	V	(8)	5 (h)		3 (h)			9,400	0 6**	41 8 **
1,1-Dichloroethane	V	(8)								
1,1-Dichloroethene	V	(8)	7 (a)		7 (a)					
1,2-Dichloroethane	V	(8)	5 (a)		0 (a)		118,000	20,000	0.94**	243 **
1,2-Dichloroethene (cis)	V	(8)		70 (b)		70 (b)				
1,2-Dichloroethene (total)	V	(8)								
1,2-Dichloroethene (trans)	V	(8)		100 (b)		100 (b)				
1,2-Dichloropropane	V	(8)		5 (b)		0 (b)	23,000	5,700		
1,3-Dichloropropene (cis)	V	(8)					6,060	244 (1)	87	14,100
1,3-Dichloropropene (trans)	V	(8)					6,060	244 (1)	87	14,100
2-Butanone	V	(8)								
2-Hexanone	V	(8)								
4-Methyl-2-pentanone	V	(8)								
Acetone	V	(8)								
Acrylonitrile	V	(8)					7,550	2,600	0 058	0.65
Benzene	V	(8)	5 (a)		0 (a)		5,300		0.66**	40 **
Bromodichloromethane	V	(8)	<100 (2)(a)							
Bromoform	V	(8)	<100 (2)(a)							
Bromomethane	V	(8)								
Carbon Disulfide	V	(8)								
Carbon Tetrachloride	V	(8)	5 (a)		0 (a)		35,200 (1)		0 4**	6.94 **
Chlorinated Benzenes	V/SV	(8)					250 (1)	50 (1)		
Chlorobenzene	V	(8)		100 (b)		100 (b)			488	
Chloroethane	V	(8)								
Chloroform	V	(8)	<100 (2)(a)				28,900 (1)	1,240 (1)	0 19 **	15 7 **
Chloromethane	V	(8)								
Dibromochloromethane	V	(8)	<100 (2)(a)							
Dichloroethenes	V	(8)					11,600 (1)		0.033**	1.85 **
Ethylbenzene	V	(8)		700 (b)		700 (b)	32,000 (1)		1,400	3,280
Ethylene Dibromide	V	(8C)		0.05 (b)		0 (b)				
Ethylene Oxide	V									

TABLE B - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
FEDERAL SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

Parameter	Type (7)	Method (8)	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level Goals	SDWA Maximum Contaminant Level Goals	CWA AWQC for Protection of Aquatic Life (c)		CWA AWQC for Protection of Human Health (e)	
							Acute Value	Chronic Value	Water and Fish Ingestion	Fish Consumption Only
Halomethanes	V	(8)	100 (a)				11,000 (1)		0 19**	15 7 **
Methylene Chloride	V	(8)	5 (h)		0 (h)					
Styrene	V	(8)		100 (b)		100 (b)				
Tetrachloroethanes	V	(8)					9 320 (1)			
Tetrachloroethene	V	(8)		5 (b)		0 (b)	5,280 (1)	840 (1)	0 80**	8 85 **
Toluene	V	(8)		1,000 (b)		1,000 (b)	17,500 (1)		14,300	424,000
Trichloroethanes	V	(8)					18,000 (1)			
Trichloroethene	V	(8)	5 (a)		0 (a)		45,000 (1)	21,900 (1)	2 7 **	80 7 **
Vinyl Acetate	V	(8)								
Xylenes (total)	V	(8)		10,000 (b)		10,000 (b)				

EXPLANATION OF TABLE AND END NOTES

* = secondary maximum contaminant level, TBCs
** = Human health criteria for carcinogens reported for three risk levels. Value presented is the 10-5 risk level
*** = Concentration is pH dependent

ARAR = Applicable or Relavent and Appropriate Requirement
AWQC = Ambient Water Quality Criteria
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = Code of Federal Regulations
CWA = Clean Water Act
EPA = Environmental Protection Agency
pCi/l = picocuries per liter
PCB = polychlorinated biphenyl
SDWA = Safe Drinking Water Act
SS = Species Specific
SW = Solid Waste
TIC = Tentatively Identified Compound
ug/l = micrograms per liter
MF/L = million fibers/liter

(1) Criteria not developed; value presented is lowest observed effects level (LOEL)
(2) Total trihalomethanes. chloroform, bromoform, bromodichloromethane, dibromochloromethane
(3) Hardness dependent criteria, calculated assuming 50mg/l calcium carbonate
(4) Average annual concentration of beta particles and photon radioactivity cannot exceed 4 millirem/year dose equivalent.
(5) Standard is not adequately protective when chloride is associated with potassium, calcium, or magnesium, rather than sodium.
(6) If both strontium-90 and tritium are present, the sum of their annual dose equivalents to bone marrow shall not exceed 4 mrem/yr
(7) Type abbreviations are A=anion; B=bacteria, C=cation; D=dioxin; E=element; H=herbicide; IN=inorganic; FP=field parameter; M=metal; P=pesticide; PP=pesticide/PCB; R=radionuclide; SV=semi-volatile; V=volatile
(8) See Attachment 1 for analytical methods with corresponding detection limits
abbreviations are: E=EPA, SW=SW846; A = detected as total; B = detected as TICs or with method modifications, C = not routinely monitored; D = monitored in discharge ponds; E = mixture-individual isomers detected
(9) Value for gross alpha excludes uranium
(10) MDL for radium 226 is 0.5, MDL for radium 228 is 1 0

TABLE B - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
FEDERAL SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

Parameter	Type (7)	Method (8)	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level	SDWA Maximum Contaminant Level Goals	SDWA Maximum Contaminant Level Goals	CWA AWQC for Protection of Aquatic Life (c) Acute Value	CWA AWQC for Protection of Aquatic Life (c) Chronic Value	CWA AWQC for Protection of Human Health (c) Water and Fish Ingestion	CWA AWQC for Protection of Human Health (c) Fish Consumption Only
(11) Where the standard is below (more stringent than) the PQL, the PQL is interpreted to be the compliance level.										

(a) EPA National Primary and Secondary Drinking Water Regulations, 40 CFR 141 and 40 CFR 143 (as of May 1990) Segment 4 MCLs are ARAR, Segment 5 MCLs are TBC all MCLGs are TBC

(b) EPA National Primary and Secondary Drinking Water Regulations, 40 CFR Parts 141 142 and 143 Final Rule, effective July 30, 1992 (56 Federal Register 3526; 1/30/1991)

(c) EPA, Quality Criteria for Protection of Aquatic Life, 1986

(d) EPA, National Ambient Water Quality Criteria for Selenium - 1987

(e) EPA National Primary and Secondary Drinking Water Regulations, 40 CFR Parts 141, 142, and 143, Final Rule (56 FR 30266, 7/1/1991) effective 1/1/1993

(f) EPA Maximum Contaminant Level Goals and National Primary Drinking Water Regulations for Lead and Copper, 40 CFR 141 and 142 (56 FR 26460 6/7/1991) effective 12/7/92 and 11/6/91 Action levels effective 12/7/92; MCLGs effective 11/6/91 Action level in 10% or less of tap samples for small and medium-sized systems.

(g) EPA, National Ambient Water Quality Criteria for Chloride - 1988

(h) EPA National Primary Drinking Water Regulations, 40 CFR 141 and 142, Final Rule, Effective January 17, 1994

(i) EPA National Primary Drinking Water Regulations, 40 CFR 141, Postponement of Final Rule and Reconsideration (57 FR 22178) - no effective date established

TABLE C - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
STATEWIDE AND BASIN (CDH/WQCC) SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			Statewide Standards (a)								Basin Standards (b)	
			Human Health Carcinogens/ Noncarcinogens (2), (3)		Aquatic Life (8)		Tables I,II,III (1) Aquatic Life (1)				Organics (7)	
Parameter	Type (5)	Method (6)	Water Supply	Water and Fish	Acute Value	Chronic Value	Acute Value (2)	Chronic Value (2)	Agricultural Standard (3,12)	Domestic Water Supply (4,12)	Aquatic Life	Water Supply
Chloride	A	E325								250 000		
Cyanide (Free)	A	E335					5		200	200		
Fluoride	A	E340								2 000		
N as Nitrate	A	E353 1							100 000	10 000		
N as Nitrate+Nitrite	A	E353.1							100 000	10 000		
N as Nitrite	A	E354 1					SS	SS	10 000	1 000		
Sulfate	A	E375 4								250 000		
Sulfide H2S Undissociated	A	E376.1						2		50		
Coliform (Fecal)	B	SM9221C								2000/100 ml		
Ammonia, Total	C	E350					TVS	60		500		
Dioxin	D	(6)	0 00000022	0 000000013	0 01	0 00001						
Boron	E	SW6010(6B)							750			
Chlorine Total Residual	E	SM4500					19	11				
Sulfur	E											
Dissolved Oxygen	FP	SM4500					>5 000	>5 000	>3 000	>3 000		
pH (Standard Units)	FP	E150 1					6 5-9 0	6 5-9 0		5 0 9 0		
Specific Conductance	FP	E120 1										
Temperature (Degrees Celsius)	FP						30 degrees	30 degrees				
Alkalinity	IN	E310.1										
Asbestos	IN											
Total Dissolved Solids	IN	E160 1										
Total Organic Carbon	IN	E415 1										
Aluminum	M	(6)					750	87				
Antimony	M	(6)								14		
Arsenic	M	(6)					360	150	100	50		
Arsenic III	M											
Arsenic V	M											
Barium	M	(6)								1 000		
Beryllium	M	(6)							100	0 0076		
Cadmium	M	(6)					TVS	TVS	10	10		
Calcium	M	(6)										
Cesium	M	(6)										
Chromium	M	(6)										
Chromium III	M						TVS	TVS	100	50		
Chromium VI	M	E218.5					16	11	100	50		
Cobalt	M	(6)										
Copper	M	(6)					TVS	TVS	200	1 000		
Iron	M	(6)						1 000 (Trec)		300 (dis)		
Lead	M	(6)					TVS	TVS	100	50		
Lithium	M	(6)										
Magnesium	M	(6)										
Manganese	M	(6)						1 000	200	50 (dis)		
Mercury	M	(6)					2.4	0.1		2 0		
Molybdenum	M	(6)										
Nickel	M	(6)					TVS	TVS	200			
Potassium	M	(6)										
Selenium	M	(6)					135	17	20	10		
Silver	M	(6)					TVS	TVS		50		

TABLE C - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16 1992)
STATEWIDE AND BASIN (CDH/WQCC) SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			Statewide Standards (a)								Basin Standards (b)	
			Human Health Carcinogens/ Noncarcinogens (2) (3)		Aquatic Life (8)		Tables I,II,III (1) Aquatic Life (11)				Organics (7)	
Parameter	Type (5)	Method (6)	Water Supply	Water and Fish	Acute Value	Chronic Value	Acute Value (2)	Chronic Value (2)	Agricultural Standard (3,12)	Domestic Water Supply (4,12)	Aquatic Life	Water Supply
Sodium	M	(6)										
Strontium	M	(6)										
Thallium	M	(6)						15		0 012		
Tin	M	(6)										
Titanium	M	SW6010 (6B)										
Tungsten	M	SW6010 (6B)										
Vanadium	M	(6)										
Zinc	M	(6)					TVS	TVS	2 000	5 000		
Aldicarb	P		10									
Aldicarb Sulfone	P											
Aldicarb Sulfoxide	P											
Aldrin	P	(6)	0 002 (8)	0 00013	1 5						<0 003	
Aldrin & Dieldrin combined	P	(6)									<0 003	
Carbofuran	P	(6C)	36									
Chloranil	P											
Chlordane	P	(6)	0 03 (8)		1 2	0 0043						
Chlorpyrifos	P	(6)			0 083	0 041						
DDT	P	(6)	0 1	0 00059	0 55	0 001					0 001	
DDT Metabolite (DDD)	P	(6)		0 00083	0 6						0 001	
DDT Metabolite (DDE)	P	(6)	0 1	0 00059	1 050						0 001	
Demeton	P	(6)				0 1					0 1	
Diazinon	P	(6)										
Dieldrin	P	(6)	0 002	0 00014	1 3	0 0019					<0 003	
Endosulfan I	P	(6)		0 93	0 11	0 056					0 003	
Endosulfan II	P	(6)										
Endosulfan Sulfate	P	(6)		0 93								
Endrin	P	(6)	0 2		0 09	0 0023					0 004	
Endrin Aldehyde	P	(6B)	0 2	0 2								
Endrin Ketone	P	(6B)										
Guthion (Azinphos methyl)	P	(6)				0 01					0 01	
Heptachlor	P	(6)	0 008	0 00021	0 26	0 0038					0 001	0 2
Heptachlor Epoxide	P	(6)	0 09	0 0001	0 26	0 0038						
Hexachlorocyclohexane Alpha	P	(6)	0 006		0 0039							
Hexachlorocyclohexane Beta	P	(6)		0 014								
Hexachlorocyclohexane (HCH or BHC)	P				100							
Hexachlorocyclohexane Delta	P	(6)										
Hexachlorocyclohexane Technical (Total)	P	(6E)		0 012								
Hexachlorocyclohexane Gamma (Lindane)	P	(6)	0 2	0 019	1 0	0 08					0 01	4
Malathion	P	(6B)				0 1					0 1	
Methoxychlor	P	(6)	40			0 03					0 03	100
Mirex	P					0 001					0 001	
Oxamyl (Vydate)	P											
Parathion	P	(6B)									0 04	100
Toxaphene	P	(6)	0 03	0 00073	0 73	0 0002					0 005	5
Vapona 2	P											
Aroclor 1016	PP	(6)										
Aroclor 1221	PP	(6)										
Aroclor 1232	PP	(6)										
Aroclor 1242	PP	(6)										
Aroclor 1248	PP	(6)										
Aroclor 1254	PP	(6)										

TABLE C - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
STATEWIDE AND BASIN (CDH/WQCC) SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			Statewide Standards (a)								Basin Standards (b)	
			Human Health Carcinogens/ Noncarcinogens (2) (8)		Aquatic Life (8)		Tables I,II,III (1) Aquatic Life (11)				Organics (7)	
Parameter	Type (5)	Method (6)	Water Supply	Water and Fish	Acute Value	Chronic Value	Acute Value (2)	Chronic Value (2)	Agricultural Standard (3,12)	Domestic Water Supply (4,12)	Aquatic Life	Water Supply
Aroclor 1260	PP	(6)										
PCBs (Total)	PP	(6)	0 005	0 000044	2 0	0 014					0 001	
2 4 5-TP Silvex	H	(6C)	50									
2 4 D	H	(6C)	70									100
Acrolein	H			320	68	21						
Atrazine	H	(6D)										
Bromacil	H											
Dalapon	H	(6)										
Dinoseb	H	(6)										
Diquat	H											
Endothall	H											
Glyphosate	H											
Picloram	H											
Simazine	H	(6D)										
Americium (Total)(pCi/l)	R											
Americium 241 (pCi/l)	R											
Cesium 134 (pCi/l)	R		80 (10)									
Cesium 137 (pCi/l)	R											
Gross Alpha (pCi/l)	R											
Gross Beta (pCi/l)	R											
Plutonium (Total)(pCi/l)	R											
Plutonium 238+239+240 (pCi/l)	R		15 (10)									
Radium 226+228 (pCi/l)	R	(6)	5 (10)									
Strontium 89+90 (pCi/l)	R											
Strontium 90 (pCi/l)	R		8 (10)									
Thorium 230+232 (pCi/l)	R		60 (10)									
Tritium (pCi/l)	R		20 000 (10)									
Uranium 233+234 (pCi/l)	R											
Uranium 235 (pCi/l)	R											
Uranium 238 (pCi/l)	R											
Uranium (Total) (pCi/l)	R						TVS	TVS				
1 2 4 5 Tetrachlorobenzene	SV	(6B)	2 (6)									
1 2 4 Trichlorobenzene	SV	(6)										
1,2-Dichlorobenzene (Ortho)	SV	(6)	620	620								
1 2-Diphenylhydrazine	SV	(6B)	0 05	0 04	270							
1,3-Dichlorobenzene (Meta)	SV	(6)	620	400								
1 4-Dichlorobenzene (Para)	SV	(6)	75	75								
2 4 5-Trichlorophenol	SV	(6)										
2 4 6 Trichlorophenol	SV	(6)	2	2		970						
2 4-Dichlorophenol	SV	(6)	21	21	2 020	365						
2 4-Dimethylphenol	SV	(6)			2 120							
2 4 Dinitrophenol	SV	(6)	14	14								
2 4 Dinitrotoluene	SV	(6)		0 11								
2 6-Dinitrotoluene	SV	(6)			330	230						
2-Chloronaphthalene	SV	(6)										
2-Chlorophenol	SV	(6)			4 380	2 000						
2-Methylnaphthalene	SV	(6)										
2 Methylphenol	SV	(6)										
2 Nitroaniline	SV	(6)										
2 Nitrophenol	SV	(6)										

TABLE C - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16 1992)
STATEWIDE AND BASIN (CDH/WQCC) SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			Statewide Standards (a)								Basin Standards (b)	
			Human Health Carcinogens/ Noncarcinogens (2), (8)		Aquatic Life (9)		Tables I,II,III (1) Aquatic Life (11)				Organics (7)	
Parameter	Type (5)	Method (6)	Water Supply	Water and Fish	Acute Value	Chronic Value	Acute Value (2)	Chronic Value (2)	Agricultural Standard (3,12)	Domestic Water Supply (4,12)	Aquatic Life	Water Supply
Dichlorobenzidine (Total)	SV	(6)		0 039								
3 Nitroaniline	SV	(6)										
4 6 Dinitro-2 methylphenol	SV	(6)		13								
4 Bromophenyl-phenyl ether	SV	(6)										
4-Chloroaniline	SV	(6)										
4 Chlorophenyl-phenyl ether	SV	(6)										
4-Chloro-3-methylphenol	SV	(6)			30							
4 Methylphenol	SV	(6)										
4 Nitroaniline	SV	(6)										
4 Nitrophenol	SV	(6)										
Acenaphthene	SV	(6)			1 700	520						
Anthracene	SV	(6)		0 0028								
Benzidine	SV	(6B C)	0 0002	0 00012(8)	2 500						0 1	0 01
Benzoic Acid	SV	(6)										
Benzo(a)anthracene	SV	(6)		0 0028								
Benzo(a)pyrene	SV	(6)		0 0028								
Benzo(b)fluoranthene	SV	(6)		0 0028								
Benzo(g h,i)perylene	SV	(6)		0 0028								
Benzo(k)fluoranthene	SV	(6)		0 0028								
Benzyl Alcohol	SV	(6)										
bis(2-Chloroethoxy)methane	SV	(6)										
bis(2-Chloroethyl)ether	SV	(6)	0 03 (8)	0 03 (8)								
bis(2 Chloroisopropyl)ether	SV	(6)		1 400								
bis(2 Ethylhexyl)phthalate (Di(2 ethylhexyl)phthalate)	SV	(6)		1 8 (8)								
Butadiene	SV											
Butylbenzylphthalate	SV	(6)		3 000								
Chlorinated Ethers	SV	(6)										
Chlorinated Napthalenes	SV	(6)										
Chloroalkylethers	SV	(6)										
Chlorophenol (Total)	SV	(6)									1	1
Chrysene	SV	(6)		0 0028								
Dibenzofuran	SV	(6)										
Dibenz(a h)anthracene	SV	(6)		0 0028								
Dichlorobenzenes	SV	(6)										
Diethylphthalate	SV	(6)		23 000								
Di(2-ethylhexyl)adipate	SV	(6)										
Dimethylphthalate	SV	(6)		313 000								
Di n butylphthalate	SV	(6)		2 700								
Di-n-octylphthalate	SV	(6)										
Ethylene Glycol	SV	(6C)										
Fluoranthene	SV	(6)		42	3 980							
Fluorene	SV	(6)		0 0028								
Formaldehyde	SV											
Haloethers	SV	(6)										
Hexachlorobenzene	SV	(6)	6	0 00072								
Hexachlorobutadiene	SV	(6)	1	0 45	90	9.3						
Hexachlorocyclopentadiene	SV	(6)		240	7	5						
Hexachloroethane	SV	(6)		1 9	980	540						
Hydrazine	SV											
Indeno(1 2 3-cd)pyrene	SV	(6)		0 0028								
Isophorone	SV	(6)	1 050	8 4	117 000							
Naphthalene	SV	(6)		0 0028	2 300	620						
Nitrobenzene	SV	(6)	3.5	3 5	27 000							

TABLE C - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
STATEWIDE AND BASIN (CDH/WQCC) SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			Statewide Standards (a)								Basin Standards (b)	
			Human Health Carcinogens/ Noncarcinogens (2) (8)		Aquatic Life (9)		Tables I,II,III (1) Aquatic Life (11)				Organics (7)	
Parameter	Type (5)	Method (6)	Water Supply	Water and Fish	Acute Value	Chronic Value	Acute Value (2)	Chronic Value (2)	Agricultural Standard (3,12)	Domestic Water Supply (4,12)	Aquatic Life	Water Supply
Nitrophenols	SV	(6)										
Nitrosamines	SV	(6)										
N Nitrosodibutylamine	SV	(6B)		0 0064								
N Nitrosodiethylamine	SV	(6B)		0 0008								
N Nitrosodimethylamine	SV	(6B)		0 00069								
N Nitrosopyrrolidine	SV	(6B)		0 016								
N Nitrosodiphenylamine	SV	(6B)		4 9								
N Nitroso-di n-propylamine	SV	(6B)		0 005								
Pentachlorinated Ethanes	SV	(6B)										
Pentachlorobenzene	SV	(6B)	6 (8)									
Pentachlorophenol	SV	(6)	200		9	5.7						
Phenanthrene	SV	(6)		0 0028								
Phenol	SV	(6)		21 000	10 200	2 560					500	1
Phthalate Esters	SV	(6)										
Polynuclear Aromatic Hydrocarbons	SV	(6)		0 0028								
Pyrene	SV	(6)		0 0028								
Vinyl Chloride	V	(6)	2	2								
1 1 1 Trichloroethane	V	(6)	200	200								
1 1 2 2 Tetrachloroethane	V	(6)		0 17		2 400						
1 1 2 Trichloroethane	V	(6)	3	0 6	9 400							
1 1 Dichloroethane	V	(6)										
1 1 Dichloroethene	V	(6)	7	0 057								
1 2 Dichloroethane	V	(6)	0 4	0 4	118 000	20 000						
1 2-Dichloroethene (cis)	V	(6)	70									
1 2 Dichloroethene (total)	V	(6)										
1,2-Dichloroethene (trans)	V	(6)	100									
1 2 Dichloropropane	V	(6)	0.56 (8)	0 56	23 000	5 700						
1 3-Dichloropropene (cis)	V	(6)		10	6 060	244						
1 3-Dichloropropene (trans)	V	(6)		10	6 060	244						
2 Butanone	V	(6)										
2-Hexanone	V	(6)										
4 Methyl 2 pentanone	V	(6)										
Acetone	V	(6)										
Acrylonitrile	V	(6)		0 058	7 500	2 600						
Benzene	V	(6)	1	1	5 300							
Bromodichloromethane	V	(6)	0 3	0 3								
Bromoform	V	(6)	4	4								
Bromomethane	V	(6)		48								
Carbon Disulfide	V	(6)										
Carbon Tetrachloride	V	(6)	0 3	0 25	35 200							
Chlorinated Benzenes	V/SV	(6)										
Chlorobenzene	V	(6)	100	100								
Chloroethane	V	(6)										
Chloroform	V	(6)	6	6	28 900	1 240						
Chloromethane	V	(6)		5 7								
Dibromochloromethane	V	(6)	14	6								
Dichloroethenes	V	(6)										
Ethylbenzene	V	(6)	680	3 100	32 000							
Ethylene Dibromide	V	(6C)										
Ethylene Oxide	V											
Halomethanes	V	(6)										
Methylene Chloride	V	(6)		4 7								

TABLE C - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
STATEWIDE AND BASIN (CDH/WQCC) SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			Statewide Standards (a)								Basin Standards (b)	
			Human Health Carcinogens/ Noncarcinogens (2) (10)		Aquatic Life (8)		Tables I,II,III (1) Aquatic Life (11)				Organics (7)	
Parameter	Type (5)	Method (6)	Water Supply	Water and Fish	Acute Value	Chronic Value	Acute Value (2)	Chronic Value (2)	Agricultural Standard (3,12)	Domestic Water Supply (4,12)	Aquatic Life	Water Supply
Styrene	V	(6)										
Tetrachloroethanes	V	(6)										
Tetrachloroethene	V	(6)	5	0 8	5 280	840						
Toluene	V	(6)	1 000	1 000	17 500							
Trichloroethanes	V	(6)										
Trichloroethene	V	(6)	5	2 7	45 000	21 900						
Vinyl Acetate	V	(6)										
Xylenes (Total)	V	(6)										

EXPLANATION OF TABLE

ARAR	= Applicable or Relevant and Appropriate Requirements
CDH	= Colorado Department of Health
dis	= dissolved
EPA	= Environmental Protection Agency
pCi/l	= picocuries per liter
PCB	= polychlorinated biphenyl
SS	= species specific
SW	= Solid Waste
TIC	= Tentatively Identified Compound
Trec	= Total recoverable
TVS	= Table Value Standard (hardness dependent) see Table III in (a)
ug/l	= micrograms per liter
WQCC	= Water Quality Control Commission

(1) Table I = physical and biological parameters
Table II = inorganic parameters
Table III = metal parameters
Values in Tables I II and III for recreational uses and cold water biota are not included
(2) N/A Endnote deleted

(3) All are 30-day values except for nitrate nitrite and cyanide
(4) Ammonia, sulfide chloride sulfate copper iron manganese antimony beryllium selenium thallium and zinc are 30-day standards all others are 1-day standards
(5) type abbreviations are A=anion B=bacteria C=cation IN=inorganic; FP=field parameter H=herbicide M=metal; P= pesticide PP=pesticide/PCB R=radionuclide SV=semi-volatile V=volatile
(6) See Attachment 1 for analytical methods and corresponding detection limits
abbreviations are E=EPA, SW=SW846 a=detected as total b=detected as TICs or with method modifications, c=not routinely monitored d=monitored in discharge ponds e=mixture-individual isomers detected
(7) Basic Standards for Organic Chemicals (reference a) apply as stream standards where none are listed in Table 1A (reference b) See section 3 8 5(2)(f)
In the absence of specific numeric standards for non-naturally occurring organics, the narrative standard "free from toxics (section 3 1 11(1)(d)) shall be interpreted and applied in accordance with the provisions of section 3 12.7(1)(c)(iv) so that

(8) Where the standard is below (more stringent than) the PQL, the PQL is interpreted to be the compliance level
(9) MDL for Radium 226 is 0 5; MDL for Radium 228 is 1 0
(10) These parameters are to be maintained at the lowest practical level; See section 3 1 11(2) in (a)
(11) Metals for aquatic life use are stated as dissolved unless otherwise specified
(12) Metals for agricultural and domestic use are stated as total recoverable unless otherwise specified

(a) CDH/WQCC Colorado Water Quality Standards 3 1 0 (5 CCR 1002-8) 1/15/1974 amended 10/8/1991
(b) CDH/WQCC Classifications and Numeric Standards for S. Platte River Basin, Laramie River Basin, Republican River Basin
Smoky Hill River Basin 3.8.0 (5 CCR 1002-8) 4/8/1981 amended 2/1/93.

TABLE D - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
STREAM SEGMENT (CDH/WQCC) SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			Segment 4 & 5 Stream Classification and Water Quality Standards (5) (2)			
			Stream Segment Table (7)		Table 2 Radionuclides (6)	
Parameter	Type (4)	Method (3)	Acute Value	Chronic Value	Woman Creek	Walnut Creek
Chloride	A	E325		250,000		
Cyanide (Free)	A	E335		5		
Fluoride	A	E340				
N as Nitrate	A	E353 1		10,000		
N as Nitrate+Nitrite	A	E353 1				
N as Nitrite	A	E354 1		500		
Sulfate	A	E375 4		250,000		
Sulfide, H2S Undissociated	A	E376 1		2		
Coliform (Fecal)	B	SM9221C		2,000/100ml		
Ammonia as N	C	E350	TVS	100		
Dioxin	D	(3)		0 00000001		
Boron	E	SW6010(3B)		750		
Chlorine, Total Residual	E	SM4500	19	11		
Sulfur	E			2		
Dissolved Oxygen	FP	SM4500	>5,000	>5,000		
pH (Standard Units)	FP	E150 1	6 5-9	6 5-9		
Specific Conductance	FP	E120 1				
Temperature (Degrees Celsius)	FP					
Alkalinity	IN	E310 1				
Asbestos	IN					
Total Dissolved Solids	IN	E160 1				
Total Organic Carbon	IN	E415 1				
Aluminum	M	(3)				
Antimony	M	(3)				
Arsenic (Total Recoverable)	M	(3)	50			
Arsenic III	M					
Arsenic V	M					
Barium	M	(3)				
Beryllium	M	(3)	4			
Cadmium	M	(3)	TVS	TVS		
Calcium	M	(3)				
Cesium	M	(3)				
Chromium	M	(3)				
Chromium III (Total Recoverable)	M		50			

TABLE D - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
STREAM SEGMENT (CDH/WQCC) SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			Segment 4 & 5 Stream Classification and Water Quality Standards (6) (2)			
			Stream Segment Table (7)		Table 2 Radionuclides (8)	
Parameter	Type (4)	Method (3)	Acute Value	Chronic Value	Woman Creek	Walnut Creek
Chromium VI	M	E218 5	16	11		
Cobalt	M	(3)				
Copper	M	(3)	TVS	TVS		
Iron (Dissolved)	M	(3)	300	50		
Iron (Trec)	M	(3)	1,000	1,000		
Lead	M	(3)	TVS	TVS		
Lithium	M	(3)				
Magnesium	M	(3)				
Manganese (Dissolved)	M	(3)	300	50		
Manganese (Trec)	M	(3)	1,000	1,000		
Mercury	M	(3)		0 01 (Total)		
Molybdenum	M	(3)				
Nickel	M	(3)	TVS	TVS		
Potassium	M	(3)				
Selenium (Total Recoverable)	M	(3)	10			
Silver	M	(3)	TVS	TVS		
Sodium	M	(3)				
Strontium	M	(3)				
Thallium	M	(3)				
Tin	M	(3)				
Titanium	M	SW6010(3B)				
Tungsten	M	SW6010(3B)				
Vanadium	M	(3)				
Zinc	M	(3)	TVS	TVS		
Aldicarb	P					
Aldicarb Sulfone	P					
Aldicarb Sulfoxide	P					
Aldrin	P	(3)		0 000074		
Carbofuran	P	(3C)				
Chloranil	P					
Chlordane	P	(3)		0 00046		
Chlorpyifos	P	(3)				
DDT	P	(3)		0 000024		
DDT Metabolite (DDD)	P	(3)				
DDT Metabolite (DDE)	P	(3)				
Demeton	P	(3)				
Diazinon	P	(3)				
Dieldrin	P	(3)		0 000071		
Endosulfan I	P	(3)				

TABLE D - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
STREAM SEGMENT (CDH/WQCC) SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			Segment 4 & 5 Stream Classification and Water Quality Standards (b) (2)			
			Stream Segment Table (7)		Table 2 Radionuclides (6)	
Parameter	Type (4)	Method (3)	Acute Value	Chronic Value	Women Creek	Walnut Creek
Endosulfan II	P	(3)				
Endosulfan Sulfate	P	(3)				
Endrin	P	(3)				
Endrin Aldehyde	P	(3B)				
Endrin Ketone	P	(3B)				
Guthion (Azinphos methyl)	P	(3)				
Heptachlor	P	(3)		0 00028		
Heptachlor Epoxide	P	(3)				
Hexachlorocyclohexane, Alpha	P	(3)		0 0092		
Hexachlorocyclohexane, Beta	P	(3)		0 0163		
Hexachlorocyclohexane (HCH or BH	P					
Hexachlorocyclohexane, Delta	P	(3)				
Hexachlorocyclohexane, Technical (T	P	(3E)		0 0123		
Hexachlorocyclohexane, Gamma (Lin	P	(3)		0 0186		
Malathion	P	(3B)				
Methoxychlor	P	(3)				
Mirex	P					
Oxamyl (Vydate)	P					
Parathion	P	(3B)				
Toxaphene	P	(3)				
Vaponite 2	P					
Aroclor 1016	PP	(3)				
Aroclor 1221	PP	(3)				
Aroclor 1232	PP	(3)				
Aroclor 1242	PP	(3)				
Aroclor 1248	PP	(3)				
Aroclor 1254	PP	(3)				
Aroclor 1260	PP	(3)				
PCBs (Total)	PP	(3)		0 000079		
2,4,5-TP Silvex	H	(3C)				
2,4-Dichlorophenoxyacetic Acid (2,4-	H	(3C)				
Acrolein	H					
Atrazine	H	(3D)		3		
Bromacil	H					
Dalapon	H	(3)				
Dinoseb	H	(3)				
Diquat	H					
Endothall	H					

TABLE D - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
STREAM SEGMENT (CDH/WQCC) SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			Segment 4 & 5 Stream Classification and Water Quality Standards (b) (2)			
			Stream Segment Table (7)		Table 2 Radionuclides (6)	
Parameter	Type (4)	Method (3)	Acute Value	Chronic Value	Women Creek	Walnut Creek
Glyphosate	H					
Picloram	H					
Simazine	H	(3D)		4		
Americium (Total) (pCi/l)	R					
Americium 241 (pCi/l)	R				0 05	0 05
Cesium 134 (pCi/l)	R					
Cesium 137 (pCi/l)	R				80	80
Gross Alpha (pCi/l)	R					
Gross Beta (pCi/l)	R				7	11
Plutonium (Total) (pCi/l)	R				5	19
Plutonium 238+239+240 (pCi/l)	R				0 05	0 05
Radium 226+228 (pCi/l)	R	(5)			15(a)	15(a)
Strontium 89+90 (pCi/l)	R				5(a)	5(a)
Strontium 90 (pCi/l)	R					
Thorium 230+232 (pCi/l)	R				8	8
Tritium (pCi/l)	R				60(a)	60(a)
Uranium 233+234 (pCi/l)	R				500	500
Uranium 235 (pCi/l)	R					
Uranium 238 (pCi/l)	R					
Uranium (Total) (pCi/l)	R				5	10
1,2,4,5-Tetrachlorobenzene	SV	(3B)				
1,2,4-Trichlorobenzene	SV	(3)				
1,2-Dichlorobenzene (Ortho)	SV	(3)				
1,2-Diphenylhydrazine	SV	(3B)				
1,3-Dichlorobenzene (Meta)	SV	(3)				
1,4-Dichlorobenzene (Para)	SV	(3)				
2,4,5-Trichlorophenol	SV	(3)				
2,4,6-Trichlorophenol	SV	(3)		1 2		
2,4-Dichlorophenol	SV	(3)				
2,4-Dimethylphenol	SV	(3)				
2,4-Dinitrophenol	SV	(3)				
2,4-Dinitrotoluene	SV	(3)				
2,6-Dinitrotoluene	SV	(3)				
2-Chloronaphthalene	SV	(3)				
2-Chlorophenol	SV	(3)				
2-Methylnaphthalene	SV	(3)				
2-Methylphenol	SV	(3)				
2-Nitroaniline	SV	(3)				

TABLE D - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
STREAM SEGMENT (CDH/WQCC) SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			Segment 4 & 5 Stream Classification and Water Quality Standards (b) (2)			
			Stream Segment Table (7)		Table 2 Radionuclides (6)	
Parameter	Type (4)	Method (3)	Acute Value	Chronic Value	Women Creek	Walnut Creek
2-Nitrophenol	SV	(3)				
3-Nitroaniline	SV	(3)				
4,6-Dinitro-2-methylphenol	SV	(3)				
4-Bromophenyl-phenyl-ether	SV	(3)				
4-Chloroaniline	SV	(3)				
4-Chlorophenyl-phenyl-ether	SV	(3)				
4-Chloro-3-methylphenol	SV	(3)				
4-Methylphenol	SV	(3)				
4-Nitroaniline	SV	(3)				
4-Nitrophenol	SV	(3)				
Acenaphthene	SV	(3)				
Anthracene	SV	(3)				
Benzidine	SV	(3B,C)		0 00012		
Benzoic Acid	SV	(3)				
Benzo(a)anthracene	SV	(3)				
Benzo(a)pyrene	SV	(3)				
Benzo(b)fluoranthene	SV	(3)				
Benzo(g,h,i)perylene	SV	(3)				
Benzo(k)fluoranthene	SV	(3)				
Benzyl Alcohol	SV	(3)				
bis(2-Chloroethoxy)methane	SV	(3)				
bis(2-Chloroethyl)ether	SV	(3)		0 0000037		
bis(Chloromethyl)ether	SV					
bis(2-Chloroisopropyl)ether	SV	(3)				
bis(2-Ethylhexyl)phthalate (Di(2-ethyl	SV	(3)				
Butadiene	SV					
Butyl Benzylphthalate	SV	(3)				
Chlorinated Ethers	SV	(3)				
Chlorinated Napthalenes	SV	(3)				
Chloroalkylethers	SV	(3)				
Chlorophenol (total)	SV	(3)				
Chrysene	SV	(3)				
Dibenzofuran	SV	(3)				
Dibenz(a,h)anthracene	SV	(3)				
Dichlorobenzenes	SV	(3)				
Dichlorobenzidine (Total)	SV	(3)		0 01		
Diethylphthalate	SV	(3)				
Di(2-ethylhexyl)adipate	SV	(3)				
Dimethylphthalate	SV	(3)				
Di-n-butylphthalate	SV	(3)				

TABLE D - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
STREAM SEGMENT (CDH/WQCC) SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			Segment 4 & 5 Stream Classification and Water Quality Standards (6) (2)			
			Stream Segment Table (7)		Table 2 Radionuclides (8)	
Parameter	Type (4)	Method (3)	Acute Value	Chronic Value	Women Creek	Walnut Creek
Di-n-octylphthalate	SV	(3)				
Ethylene Glycol	SV	(3C)				
Fluoranthene	SV	(3)				
Fluorene	SV	(3)				
Formaldehyde	SV					
Haloethers	SV	(3)				
Hexachlorobenzene	SV	(3)		0 00072		
Hexachlorobutadiene	SV	(3)		0 45		
Hexachlorocyclopentadiene	SV	(3)				
Hexachloroethane	SV	(3)		1 9		
Hydrazine	SV					
Indeno(1,2,3-cd)pyrene	SV	(3)				
Isophorone	SV	(3)				
Naphthalene	SV	(3)				
Nitrobenzene	SV	(3)				
Nitrophenols	SV	(3)				
Nitrosamines	SV	(3)				
N-Nitrosodibutylamine	SV	(3B)		0 0064		
N-Nitrosodiethylamine	SV	(3B)		0 0008		
N-Nitrosodimethylamine	SV	(3B)		0 0014		
N-Nitrosopyrrolidine	SV	(3B)		0 016		
N-Nitrosodiphenylamine	SV	(3B)		4 9		
N-Nitroso-di-n-propylamine	SV	(3B)				
Pentachlorinated Ethanes	SV	(3B)				
Pentachlorobenzene	SV	(3B)				
Pentachlorophenol	SV	(3)				
Phenanthrene	SV	(3)				
Phenol	SV	(3)				
Phthalate Esters	SV	(3)				
Polynuclear Aromatic Hydrocarbons	SV	(3)				
Pyrene	SV	(3)				
Vinyl Chloride	V	(3)				
1,1,1-Trichloroethane	V	(3)				
1,1,2,2-Tetrachloroethane	V	(3)		0 17		
1,1,2-Trichloroethane	V	(3)		0 60		
1,1-Dichloroethane	V	(3)				
1,1-Dichloroethene	V	(3)				
1,2-Dichloroethane	V	(3)				
1,2-Dichloroethene (cis)	V	(3)				

TABLE D - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
STREAM SEGMENT (CDH/WQCC) SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			Segment 4 & 5 Stream Classification and Water Quality Standards (9) (2)			
			Stream Segment Table (7)		Table 2 Radionuclides (8)	
Parameter	Type (4)	Method (3)	Acute Value	Chronic Value	Woman Creek	Walnut Creek
1,2-Dichloroethene (total)	V	(3)				
1,2-Dichloroethene (trans)	V	(3)				
1,2-Dichloropropane	V	(3)				
1,3-Dichloropropene (cis)	V	(3)				
1,3-Dichloropropene (trans)	V	(3)				
2-Butanone	V	(3)				
2-Hexanone	V	(3)				
4-Methyl-2-pentanone	V	(3)				
Acetone	V	(3)				
Acrylonitrile	V	(3)		0 058		
Benzene	V	(3)				
Bromodichloromethane	V	(3)				
Bromoform	V	(3)				
Bromomethane	V	(3)				
Carbon Disulfide	V	(3)				
Carbon Tetrachloride	V	(3)				
Chlorinated Benzenes	V/SV	(3)				
Chlorobenzene	V	(3)				
Chloroethane	V	(3)				
Chloroform	V	(3)		0 19		
Chloromethane	V	(3)				
Dibromochloromethane	V	(3)				
Dichloroethenes	V	(3)				
Ethylbenzene	V	(3)				
Ethylene Dibromide	V	(3C)				
Ethylene Oxide	V					
Halomethanes	V	(3)		0 19		
Methylene Chloride	V	(3)				
Styrene	V	(3)				
Tetrachloroethanes	V	(3)		0 8		
1,1,2,2-Tetrachloroethene	V	(3)				
Toluene	V	(3)				
Trichloroethanes	V	(3)				
1,1,1-Trichloroethene	V	(3)				
Vinyl Acetate	V	(3)				
Xylenes (Total)	V	(3)				

EXPLANATION OF TABLE AND ENDNOTES

CDH = Colorado Department of Health

TABLE D - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
STREAM SEGMENT (CDH/WQCC) SURFACE WATER QUALITY STANDARDS
ALL VALUES ARE REPORTED IN ug/l UNLESS OTHERWISE NOTED

			Segment 4 & 5 Stream Classification and Water Quality Standards (b) (2)			
			Stream Segment Table (7)		Table 2 Radionuclides (6)	
Parameter	Type (4)	Method (3)	Acute Value	Chronic Value	Women Creek	Walnut Creek

EPA = Environmental Protection Agency
pCi/l = picocuries per liter
PCB = polychlorinated biphenyl
RFP = Rocky Flats Plant
SS = specific species
THM = Total Trihalomethanes bromoform, chloroform, bromodichloromethane, dibromochloromethane
TIC = Tentatively Identified Compound
TVS = Table Value Standard (hardness dependent), see Table III in (a)
ug/l = micrograms per liter
WQCC = Water Quality Control Commission

(1) In the absence of specific, numeric standards for non-naturally occurring organics, the narrative standard is interprete practical quantification levels (PQLs) as defined by CDH/WQCC or EPA
(2) Segment 5 has a goal qualifier for all use classifications
(3) See Attachment 1 for analytical methods with corresponding detection limits
abbreviations are E=EPA, SW=SW846, a=detected as total, b=detected as TICs or with method modifications, c=not discharge ponds, e=mixture-individual isomers detected
(4) Type abbreviations are A=anion, B=bacteria, C=cation, D=dioxin, E=element, FP=field parameter; H=herbicide, IN=in PP=pesticide/PCB, R=radionuclide, SV=semi-volatile, V=volatile
(5) MDL for Radium 226 is 0 5, MDL for Radium 228 is 1 0
(6) These parameters are to be maintained at the lowest practical level See section 3 1 11 (f) (2) in (a)
(7) Where the standard is below (more stringent than) the PQL, the PQL is interpreted to be the compliance level

(a) CDH/WQCC, Colorado Water Quality Standards 3 1 0 (5 CCR 1002-8) 1/15/1974, amended 10/8/1991
(b) CDH/WQCC, Classifications and Numeric Standards for S Platte River Basin, Laramie River Basin, Republican Rive Smoky Hill River Basin 3 8 0 (5 CCR 1002-8) 4/6/1981, amended 7/16/1992 - Site-specific standards may become basin-wide in 1993 with modifications

TABLE E - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
SOIL CONTAMINANT CRITERIA
ALL VALUES ARE IN mg/Kg UNLESS OTHERWISE NOTED

			FEDERAL BENCHMARKS (a)		STATE BENCHMARKS (b)	
			Maximum allowed Concentration		Maximum allowed Concentration	
Parameter	Type (1)	Method (2)	SOLIDS (PPM)	LIQUIDS (mg/l)	SOLIDS (PPM)	LIQUIDS (mg/l)
Chloride	A	E325				
Cyanide (Free)	A	E335	4 416 E+0	4 416 E+0		
Fluoride	A	E340				
N as Nitrate	A	E353 1				
N as Nitrate+Nitrite	A	E353 1				
N as Nitrite	A	E354 1				
Sulfate	A	E375 4				
Sulfide, H2S Undissociated	A	E376 1				
Coliform (Fecal)	B	SM9221C				
Ammonia as N	C	E350				
Dioxin	D	(2)				
Boron	E	SW6010(2				
Chlorine, Total Residual	E	SM4500				
Sulfur	E					
Dissolved Oxygen	FP	SM4500				
pH (Standard Units)	FP	E150 1				
Specific Conductance	FP	E120 1				
Temperature (Degrees Celsius)	FP					
Alkalinity	IN	E310 1				
Asbestos	IN					
Total Dissolved Solids	IN	E160 1				
Total Organic Carbon	IN	E415 1				
Aluminum	M	(2)				
Antimony	M	(2)	6.309 E-02	6.309 E-02		
Arsenic	M	(2)	3 155 E-01	3 155 E-01		

TABLE E - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
SOIL CONTAMINANT CRITERIA
ALL VALUES ARE IN mg/Kg UNLESS OTHERWISE NOTED

			FEDERAL BENCHMARKS (a) Maximum allowed Concentration		STATE BENCHMARKS (b) Maximum allowed Concentration	
Parameter	Type (1)	Method (2)	SOLIDS (PPM)	LIQUIDS (mg/l)	SOLIDS (PPM)	LIQUIDS (mg/l)
Arsenic III	M					
Arsenic V	M					
Barium	M	(2)	6.309 E+0	6.309 E+0		
Beryllium	M	(2)				
Cadmium	M	(2)	6.309 E-02	6.309 E-02		
Calcium	M	(2)				
Cesium	M	(2)				
Chromium	M	(2)	3 155 E-01	3 155 E-01		
Chromium III	M					
Chromium VI	M	E218 5				
Cobalt	M	(2)				
Copper	M	(2)				
Iron	M	(2)				
Lead	M	(2)	J	J		
Lithium	M	(2)				
Magnesium	M	(2)				
Manganese	M	(2)				
Mercury	M	(2)	1.262 E-02	1.262 E-02		
Molybdenum	M	(2)				
Nickel	M	(2)	J	J		
Potassium	M	(2)				
Selenium	M	(2)	6 309 E-02	6 309 E-02		
Silver	M	(2)	3 155 E-01	3 155 E-01		
Sodium	M	(2)				
Strontium	M	(2)				
Thallium	M	(2)	1 893 E-02	1 893 E-02		
Tin	M	(2)				
Titanium	M	SW6010(2				
Tungsten	M	SW6010(2				
Vanadium	M	(2)				
Zinc	M	(2)				

TABLE E - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
SOIL CONTAMINANT CRITERIA
ALL VALUES ARE IN mg/Kg UNLESS OTHERWISE NOTED

			FEDERAL BENCHMARKS (a) Maximum allowed Concentration		STATE BENCHMARKS (b) Maximum allowed Concentration	
Parameter	Type (1)	Method (2)	SOLIDS (PPM)	LIQUIDS (mg/l)	SOLIDS (PPM)	LIQUIDS (mg/l)
Aldicarb	P		1 253 E+0	6 309 E-02		
Aldicarb Sulfone	P					
Aldicarb Sulfoxide	P					
Aldrin	P	(2)	1 351 E-03	1.262 E-05		
Carbofuran	P	(2C)				
Chloranil	P					
Chlordane	P	(2)	1 944 E+01	1 262 E-02		
Chlorpyrifos	P	(2)				
DDT	P	(2)	3 109 E+0	6 309 E-04		
DDT Metabolite (DDD)	P	(2)	5 982 E-02	6 309 E-04		
DDT Metabolite (DDE)	P	(2)	9 902 E-01	6 309 E-04		
Demeton	P	(2)				
Diazinon	P	(2)				
Dieldrin	P	(2)	1.292 E-03	1.262 E-05		
Endosulfan I	P	(2)				
Endosulfan II	P	(2)				
Endosulfan sulfate	P	(2)				
Endrin	P	(2)	1 004 E+0	1 262 E-03		
Endrin Aldehyde	P	(2B)				
Endrin Ketone	P	(2B)				
Guthion (Azinphos methyl)	P	(2)				
Heptachlor	P	(2)	3 345 E+0	2 524 E-03		
Heptachlor Epoxide	P	(2)	8.346 E-01	1 262 E-03		
Hexachlorocyclohexane, Alpha	P	(2)				
Hexachlorocyclohexane, Beta	P	(2)				
Hexachlorocyclohexane (HCH or BHC)	P					
Hexachlorocyclohexane, Delta	P	(2)				
Hexachlorocyclohexane, Technical (Total)	P	(2E)				
Hexachlorocyclohexane, Gamma (Lindane	P	(2)				
Malathion	P	(2B)				

TABLE E - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
SOIL CONTAMINANT CRITERIA
ALL VALUES ARE IN mg/Kg UNLESS OTHERWISE NOTED

			FEDERAL BENCHMARKS (a) Maximum allowed Concentration		STATE BENCHMARKS (b) Maximum allowed Concentration	
Parameter	Type (1)	Method (2)	SOLIDS (PPM)	LIQUIDS (mg/l)	SOLIDS (PPM)	LIQUIDS (mg/l)
Methoxychlor	P	(2)	2 633 E+04	6 309 E-01		
Mirex	P					
Oxamyl (Vydate)	P					
Parathion	P	(2B)				
Toxaphene	P	(2)	7 909 E+01	3 155 E-02		
Vaponite 2	P					
Aroclor 1016	PP	(2)				
Aroclor 1221	PP	(2)				
Aroclor 1232	PP	(2)				
Aroclor 1242	PP	(2)				
Aroclor 1248	PP	(2)				
Aroclor 1254	PP	(2)				
Aroclor 1260	PP	(2)				
PCBs (Total)	PP	(2)	1 223 E+01	3 155 E-03		
2,4,5-TP Silvex	H	(2C)	9 905 E+0	6 309 E-02		
2,4-Dichlorophenoxyacetic Acid(2,4-D)	H	(2C)	1 069 E+02	6 309 E-04		
Acrolein	H		1 181 E+0	3 15 E+0		
Atrazine	H	(2D)				
Bromacil	H					
Dalapon	H	(2)				
Dinoseb	H	(2)				
Diquat	H					
Endothall	H					
Glyphosate	H					
Picloram	H					
Simazine	H	(2D)				
Americium (Total) (pCi/l)	R					
Americium 241 (pCi/l)	R					

TABLE E - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
SOIL CONTAMINANT CRITERIA
ALL VALUES ARE IN mg/Kg UNLESS OTHERWISE NOTED

			FEDERAL BENCHMARKS (a)		STATE BENCHMARKS (b)	
			Maximum allowed Concentration		Maximum allowed Concentration	
Parameter	Type (1)	Method (2)	SOLIDS (PPM)	LIQUIDS (mg/l)	SOLIDS (PPM)	LIQUIDS (mg/l)
Cesium 134 (pCi/l)	R					
Cesium 137 (pCi/l)	R					
Gross Alpha (pCi/l)	R				5 0 pCi/g	
Gross Beta (pCi/l)	R				50 0 pCi/g	
Plutonium (Total) (pCi/l)	R					
Plutonium 238+239+240 (pCi/l)	R				0 9 pCi/g	
Radium 226+228 (pCi/l)	R					
Strontium 89+90 (pCi/l)	R					
Strontium 90 (pCi/l)	R					
Thorium 230+232 (pCi/l)	R					
Tritium (pCi/l)	R					
Uranium 233+234 (pCi/l)	R					
Uranium 235 (pCi/l)	R					
Uranium 238 (pCi/l)	R					
Uranium (Total)(pCi/l)	R					
1,2,4,5-Tetrachlorobenzene	SV	(2B)	5 603 E+01	6 309 E-02		
1,2,4-Trichlorobenzene	SV	(2)	1 217 E+04	4 4165 E+0		
1,2-Dichlorobenzene (Ortho)	SV	(2)	4 999 E+03	3 785 E+0		
1,2-Diphenylhydrazine	SV	(2B)	6 976 E-04	2 524 E-04		
1,3-Dichlorobenzene (Meta)	SV	(2)	4 790 E+04	1 893 E+0		
1,4-Dichlorobenzene (Para)	SV	(2)	2 650 E+02	4 732 E-01		
2,4,5-Trichlorophenol	SV	(2)	2 101 E+04	2 524 E+01		
2,4,6-Trichlorophenol	SV	(2)	3 536 E-01	1 262 E-02		
2,4-Dichlorophenol	SV	(2)	4 329 E+04	6 309 E-01		
2,4-Dimethylphenol	SV	(2)	1.248 E+01	1 262 E-01		
2,4-Dinitrophenol	SV	(2)	2.296 E+01	4 416 E-04		
2,4-Dinitrotoluene	SV	(2)				
2,6-Dinitrotoluene	SV	(2)				
2-Chloronaphthalene	SV	(2)				
2-Chlorophenol	SV	(2)	4 412 E+04	1.262 E+0		

TABLE E - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
SOIL CONTAMINANT CRITERIA
ALL VALUES ARE IN mg/Kg UNLESS OTHERWISE NOTED

			FEDERAL BENCHMARKS (a) Maximum allowed Concentration		STATE BENCHMARKS (b) Maximum allowed Concentration	
Parameter	Type (1)	Method (2)	SOLIDS (PPM)	LIQUIDS (mg/l)	SOLIDS (PPM)	LIQUIDS (mg/l)
2-Methylnaphthalene	SV	(2)				
2-Methylphenol	SV	(2)				
2-Nitroaniline	SV	(2)				
2-Nitrophenol	SV	(2)				
3,3'-Dichlorobenzidine	SV	(2)	5 656 E-02	5 047 E-04		
3-Nitroaniline	SV	(2)				
4,6-Dinitro-2-methylphenol	SV	(2)				
4-Bromophenyl-phenyl-ether	SV	(2)				
4-Chloroaniline	SV	(2)				
4-Chlorophenyl-phenyl-ether	SV	(2)				
4-Chloro-3-methylphenol	SV	(2)				
4-Methylphenol	SV	(2)				
4-Nitroaniline	SV	(2)				
4-Nitrophenol	SV	(2)				
Acenaphthene	SV	(2)				
Anthracene	SV	(2)	7 701 E+01	1 262 E-02		
Benzidine	SV	(2BC)	1.262 E-06	1.262 E-06		
Benzoic Acid	SV	(2)				
Benzo(a)anthracene	SV	(2)	9 690 E-02	6 309 E-05		
Benzo(a)pyrene	SV	(2)	3 8675 E-0	1 893 E-05		
Benzo(b)fluoranthene	SV	(2)	1 643 E-04	1.262 E-04		
Benzo(g,h,i)perylene	SV	(2)				
Benzo(k)fluoranthene	SV	(2)	7 790 E+02	2 524 E-02		
Benzyl Alcohol	SV	(2)				
bis(2-Chloroethoxy)methane	SV	(2)				
bis(2-Chloroethyl)ether	SV	(2)	1 893 E-04	1 893 E-04		
bis(Chloromethyl)ether	SV					
bis(2-Chloroisopropyl)ether	SV	(2)	2.234 E+03	6.309 E+0		
bis(2-Ethylhexyl)phthalate (Di(2-ethylhex	SV	(2)	4.210 E+01	1 893 E-02		
Butadiene	SV					
Butylbenzylphthalate	SV	(2)	6.375 E+04	5 678 E+0		

TABLE E - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
SOIL CONTAMINANT CRITERIA
ALL VALUES ARE IN mg/Kg UNLESS OTHERWISE NOTED

			FEDERAL BENCHMARKS (a) Maximum allowed Concentration		STATE BENCHMARKS (b) Maximum allowed Concentration	
Parameter	Type (1)	Method (2)	SOLIDS (PPM)	LIQUIDS (mg/l)	SOLIDS (PPM)	LIQUIDS (mg/l)
Chlorinated Ethers	SV	(2)				
Chlorinated Napthalenes	SV	(2)				
Chloroalkylethers	SV	(2)				
Chrysene	SV	(2)	1 516 E+01	1 262 E-03		
Dibenzofuran	SV	(2)				
Dibenz(a,h)anthracene	SV	(2)	7.318 E-03	4 416 E-06		
Dichlorobenzenes	SV	(2)				
Diethylphthalate	SV	(2)	4 795 E+05	1 893 E+02		
Di(2-ethylhexyl)adipate	SV					
Dimethylphthalate	SV	(2)	9.232 E+06	2 524 E+03		
Di-n-butylphthalate	SV	(2)				
Di-n-octylphthalate	SV	(2)	3 441 E+04	3 785 E+0		
Ethylene Glycol	SV	(2C)				
Fluoranthene	SV	(2)	2 971 E+04	1 262 E+0		
Fluorene	SV	(2)	1 048 E+01	1 262 E-02		
Formaldehyde	SV					
Haloethers	SV	(2)				
Hexachlorobenzene	SV	(2)	2 619 E-01	1 262 E-04		
Hexachlorobutadiene	SV	(2)	5 139 E+0	3 155 E-03		
Hexachlorocyclopentadiene	SV	(2)	8.283 E+03	1 262 E+0		
Hexachloroethane	SV	(2)	2 956 E+0	1 893 E-02		
Hydrazine	SV		6 309 E-05	6 309 E-05		
Indeno(1,2,3-cd)pyrene	SV	(2)	2 970 E+04	1 262 E-03		
Isophorone	SV	(2)	1 345 E+04	4 416 E+01		
Naphthalene	SV	(2)	5 738 E+05	6 309 E+01		
Nitrobenzene	SV	(2)	6 557 E+0	1.262 E-01		
Nitrophenols	SV	(2)				
Nitrosamines	SV	(2)				
N-Nitrosodibutylamine	SV	(2B)				
N-Nitrosodiethylamine	SV	(2B)				
N-Nitrosodimethylamine	SV	(2B)				

TABLE E - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
SOIL CONTAMINANT CRITERIA
ALL VALUES ARE IN mg/Kg UNLESS OTHERWISE NOTED

			FEDERAL BENCHMARKS (a) Maximum allowed Concentration		STATE BENCHMARKS (b) Maximum allowed Concentration	
Parameter	Type (1)	Method (2)	SOLIDS (PPM)	LIQUIDS (mg/l)	SOLIDS (PPM)	LIQUIDS (mg/l)
N-Nitrosopyrrolidine	SV	(2B)	1.262 E-04	1 262 E-04		
N-Nitrosodiphenylamine	SV	(2B)	6.309 E-05	6 309 E-05		
N-Nitroso-di-n-dipropylamine	SV	(2B)				
Pentachlorinated Ethanes	SV	(2B)				
Pentachlorobenzene	SV	(2B)	2 284 E+03	1 893 E-04		
Pentachlorophenol	SV	(2)	2 917 E+03	1 262 E+0		
Phenanthrene	SV	(2)	1.398 E+01	1 262 E-02		
Phenol	SV	(2)	2 051 E+04	1.262 E-02		
Phthalate Esters	SV	(2)				
Polynuclear Aromatic Hydrocarbons	SV	(2)				
Pyrene	SV	(2)	4 076 E+05	6 309 E+0		
Vinyl Chloride	V	(2)	1 822 E-01	1.262 E-02		
1,1,1-Trichloroethane	V	(2)	2.229 E+02	1.262 E+0		
1,1,2,2-Tetrachloroethane	V	(2)	5 832 E-03	1.262 E-03		
1,1,2-Trichloroethane	V	(2)	2 315 E-02	3 785 E-03		
1,1-Dichloroethane	V	(2)	1 140 E-02	2.254 E-03		
1,1-Dichloroethene	V	(2)	1 270 E+0	4 416 E-02		
1,2-Dichloroethane	V	(2)	3 717 E-01	3 155 E-02		
1,2-Dichloroethene (cis)	V	(2A)	2 973 E+01	4 416 E-7		
1,2-Dichloroethene (total)	V	(2)				
1,2-Dichloroethene (trans)	V	(2A)	3 641 E+01	6 309 E-01		
1,2-Dichloropropane	V	(2)	6 995 E-01	3 155 E-02		
1,3-Dichloropropene (cis)	V	(2)				
1,3-Dichloropropene (trans)	V	(2)				
2-Butanone	V	(2)				
2-Hexanone	V	(2)				
4-Methyl-2-pentanone	V	(2)				
Acetone	V	(2)	5 170 E+02	2 524 E+01		
Acrylonitrile	V	(2B)	3 785 E-04	3 785 E-04		
Benzene	V	(2)	8 879 E-01	3 156 E-02		

TABLE E - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
SOIL CONTAMINANT CRITERIA
ALL VALUES ARE IN mg/Kg UNLESS OTHERWISE NOTED

			FEDERAL BENCHMARKS (a) Maximum allowed Concentration		STATE BENCHMARKS (b) Maximum allowed Concentration	
Parameter	Type (1)	Method (2)	SOLIDS (PPM)	LIQUIDS (mg/l)	SOLIDS (PPM)	LIQUIDS (mg/l)
Bromodichloromethane	V	(2)	7 546 E+02	4 4165 E+0		
Bromoform	V	(2)				
Bromomethane	V	(2)	3 606 E+01	3 155 E-01		
Carbon Disulfide	V	(2)	1 277 E+04	2 524 E+01		
Carbon Tetrachloride	V	(2)	1 408 E+0	3 155 E-02		
Chlorinated Benzenes	V/SV	(2)				
Chlorobenzene	V	(2)	1 526 E+02	6.309 E-01		
Chloroethane	V	(2)				
Chloroform	V	(2)	4 968 E-01	3 785 E-02		
Chloromethane	V	(2)				
Dibromochloromethane	V	(2)				
Dichloroethenes	V	(2)				
Ethylbenzene	V	(2)	4 984 E+03	4 416 E+0		
Ethylene Dibromide	V	(2C)	6 078 E-04	3 155 E-04		
Ethylene Oxide	V		6 309 E-04	6.309 E-04		
Halomethanes	V	(2)				
Methylene Chloride	V	(2)				
Styrene	V	(2)	2 343 E+0	3 155 E-02		
Tetrachloroethanes	V	(2)				
Tetrachloroethene	V	(2)	3 480 E+0	3 155 E-02		
Toluene	V	(2)	1 173 E+04	1.262 E+01		
Trichloroethanes	V	(2)				
Trichloroethene	V	(2)	1 146 E+0	3 155 E-02		
Vinyl Acetate	V	(2)				
Xylenes (total)	V	(2)				

EXPLANATION OF TABLE AND ENDNOTES

CDH = Colorado Department of Health
EPA = Environmental Protection Agency

TABLE E - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (December 16, 1992)
SOIL CONTAMINANT CRITERIA
ALL VALUES ARE IN mg/Kg UNLESS OTHERWISE NOTED

			FEDERAL BENCHMARKS (a) Maximum allowed Concentration		STATE BENCHMARKS (b) Maximum allowed Concentration	
Parameter	Type (1)	Method (2)	SOLIDS (PPM)	LIQUIDS (mg/l)	SOLIDS (PPM)	LIQUIDS (mg/l)

pCi/g = picocuries per gram
PCB = polychlorinated biphenyl
RCRA = Resource Conservation Recovery Act
RFP = Rocky Flats Plant
SDWA = Safe Drinking Water Act
TIC = Tentatively Identified Compound
mg/Kg = milligrams per kilogram

(1) Type abbreviations are· A=anion; B=bacteria, C=cation, D=dioxin, E=element, FP=field parameter; H=herbicide· IN=inorganic; M=metal, P=pes PP= pesticide/PCB, R=radionuclide; SV=semi-volatile; V=volatile
(2) See Attachment 1 for analytical methods with corresponding analytes and detection limits
abbreviations are E=EPA, SW=SW846 A=detected as total; B=detected as TICs, C=not routinely monitored; D=monitored in discharge ponds; E=mixture-individual isomers detected

(a) EPA Guidance 9347 3-09FS, A Guide to Delisting of RCRA Wastes for Superfund Remedial Responses. Based on Health-based 10-6 risk, develo delisting hazardous wastes and waste residuals
(b) Value derived from Colorado Radiation Control Rules and Regulations, 1985 as amended 1990

TABLE F - POTENTIAL CHEMICAL-SPECIFIC BENCHMARKS (DECEMBER 1
AIR QUALITY STANDARDS
ALL VALUES ARE IN ug/m3 UNLESS OTHERWISE NOTED

Parameter	Type (1)	Method	FEDERAL STANDA (3)	STATE STANDA (3)
Lead	M	12	1 5 ug/m3 (a)	1 5 ug/m3 (a)
Beryllium	M	See Attachment 1		0 01ug/l
Ozone	I	40CFR50 App D	235 ug/m3 (b)	235 ug/m3 (b)
Americium	R		(2)(c)	(d)
Americium 241	R		(2)(c)	(d)
Cesium 134	R		(2)(c)	(d)
Cesium 137	R		(2)(c)	(d)
Gross Alpha	R		(2)(c)	(d)
Gross Beta	R		(2)(c)	(d)
Plutonium	R		(2)(c)	(d)
Plutonium 238+239+240	R		(2)(c)	(d)
Radium 226+228	R		(2)(c)	(d)
Strontium 89+90	R		(2)(c)	(d)
Strontium 90	R		(2)(c)	(d)
Thorium 230+232	R		(2)(c)	(d)
Tritium	R		(2)(c)	(d)
Uranium 233+234	R		(2)(c)	(d)
Uranium 235	R		(2)(c)	(d)
Uranium 238	R		(2)(c)	(d)
Uranium (Total)	R		(2)(c)	(d)

EXPLANATION OF TABLE AND ENDNOTES

CCR = Code of Colorado Regulations
CDH = Colorado Department of Health
CFR = Code of Federal Regulations
RFP = Rocky Flats Plant
ug/m3 = micrograms per cubic meter

(1) Type abbreviations are IN=inorganic, M=metal, R=radionuclides
(2) 10 mrem/yr to the general public
(3) Where the standard is below (more stringent than) the PQL, the PQL is interpreted to be compliance level

(a) National Ambient Air Quality Standard (Calender Quarter) primary and secondary
(b) National Ambient Air Quality Standard, (1 hour) primary and secondary
(c) National Emission Standard Hazardous Air Pollutants 40 CFR 61 Subpart H
(d) Requirements of State Implementation Plan (SIP) under Section 110 of the Clean Air Act as implemented by State SIP of October 5, 1979, as amended and 5 CCR 1001-3