

# Contents

1		
2		
3		
4	Cover Sheet	
5	Acronyms/Abbreviations .....	xxiii
6	Glossary of Terms.....	xxx
7	Glossary of Terms Related to Radioactivity, Radiation Dose, and Exposure.....	xliii
8	Units of Measure.....	xlvii
9	Reference Citations.....	1
10		
11	1.0 Introduction .....	1.1
12	1.1 Organization of the HSW EIS .....	1.1
13	1.2 Purpose and Need and Proposed Action .....	1.2
14	1.3 Overview of Hanford Site Operations and DOE Waste Management Activities.....	1.3
15	1.3.1 DOE National Waste Management .....	1.5
16	1.3.2 DOE Waste Management Activities at Hanford .....	1.8
17	1.4 Related Department of Energy Initiatives at the Hanford Site.....	1.13
18	1.4.1 EM Top-to-Bottom Review.....	1.13
19	1.4.2 DOE Cost Report .....	1.13
20	1.4.3 Cleanup, Constraints, and Challenges Team (C3T) .....	1.14
21	1.4.4 Hanford Performance Management Plan (HPMP).....	1.14
22	1.5 Relationship of the HSW EIS to Other Hanford and DOE NEPA Documents.....	1.14
23	1.5.1 Interim Actions During Preparation of the Draft HSW EIS.....	1.14
24	1.5.2 Related NEPA Documents .....	1.16
25	1.5.3 Related State Environmental Policy Act (SEPA) Documents.....	1.26
26	1.5.4 Related CERCLA Documents.....	1.26
27	1.6 NEPA Process for the HSW EIS.....	1.27
28	1.6.1 Scoping for the Draft HSW EIS .....	1.27
29	1.6.2 Publication of the First Draft HSW EIS .....	1.28
30	1.6.3 Public Comments on the First Draft HSW EIS .....	1.28
31	1.6.4 Scoping for the ILAW Disposal SEIS.....	1.29
32	1.6.5 Revised Draft HSW EIS.....	1.31
33	1.6.6 Preparation of the Final HSW EIS and Record(s) of Decision .....	1.31
34	1.7 Scope of the Revised Draft HSW EIS.....	1.32
35	1.7.1 Waste Types Evaluated in the Revised Draft HSW EIS .....	1.32
36	1.7.2 Waste Volumes Evaluated in the Revised Draft HSW EIS.....	1.34
37	1.7.3 Hanford Waste Management Alternatives Evaluated in the	
38	Revised Draft HSW EIS .....	1.34
39	1.7.4 Environmental Impact Analyses in the Revised Draft HSW EIS .....	1.40
40	1.8 References .....	1.41
41		
42	2.0 HSW EIS Waste Streams and Waste Management Facilities.....	2.1
43	2.1 Solid Waste Types and Waste Streams Related to the Proposed Action .....	2.1
44	2.1.1 LLW Streams .....	2.2

1	2.1.2	Mixed Low-Level Waste Streams.....	2.4
2	2.1.3	TRU Waste Streams.....	2.8
3	2.1.4	Waste Treatment Plant Wastes.....	2.11
4	2.2	Hanford Waste Storage, Treatment, and Disposal Facilities, and Transportation	
5		Capabilities Related to the Proposed Action.....	2.12
6	2.2.1	Storage Facilities.....	2.12
7	2.2.2	Treatment and Processing Facilities.....	2.16
8	2.2.3	Disposal Facilities.....	2.23
9	2.2.4	Transportation.....	2.36
10	2.2.5	Pollution Prevention/Waste Minimization.....	2.39
11	2.2.6	Decontamination and Decommissioning of Hanford Facilities.....	2.40
12	2.2.7	Long-Term Stewardship.....	2.40
13	2.3	References.....	2.41
14			
15	3.0	Description and Comparison of Alternatives.....	3.1
16	3.1	Alternatives Considered in Detail and Their Development.....	3.1
17	3.1.1	No Action Alternative.....	3.5
18	3.1.2	Alternative Group A.....	3.7
19	3.1.3	Alternative Group B.....	3.9
20	3.1.4	Alternative Group C.....	3.10
21	3.1.5	Alternative Group D.....	3.11
22	3.1.6	Alternative Group E.....	3.11
23	3.1.7	Summary Tables of Alternative Groups.....	3.12
24	3.2	Alternatives Considered but Not Evaluated in Detail.....	3.12
25	3.2.1	Storage Options.....	3.12
26	3.2.2	Treatment Options.....	3.15
27	3.2.3	Disposal Options.....	3.16
28	3.2.4	Stop Work Scenario.....	3.17
29	3.3	Volumes of Waste Considered in Each Alternative.....	3.18
30	3.3.1	LLW Volumes.....	3.19
31	3.3.2	MLLW Volumes.....	3.19
32	3.3.3	TRU Waste Volumes.....	3.19
33	3.3.4	Waste Treatment Plant Waste Volumes.....	3.20
34	3.4	Summary of Environmental Impacts Among the Alternatives.....	3.21
35	3.4.1	Land Use.....	3.24
36	3.4.2	Air Quality.....	3.24
37	3.4.3	Water Quality.....	3.25
38	3.4.4	Geologic Resources.....	3.34
39	3.4.5	Ecological Resources.....	3.34
40	3.4.6	Socioeconomics.....	3.35
41	3.4.7	Cultural, Aesthetic, and Scenic Resources.....	3.35
42	3.4.8	Transportation.....	3.35
43	3.4.9	Noise.....	3.37
44	3.4.10	Resource Commitments.....	3.37

1	3.4.11	Human Health and Safety.....	3.37
2	3.4.12	Cumulative Impacts.....	3.52
3	3.5	Areas of Uncertainty, Incomplete, or Unavailable Information.....	3.53
4	3.5.1	Waste Volumes.....	3.53
5	3.5.2	Waste Inventories of Radioactive and Hazardous Materials.....	3.54
6	3.5.3	Fate and Transport of Radioactive and Hazardous Materials.....	3.55
7	3.5.4	Human and Ecological Risk Associated with Exposure to Radioactive and	
8		Hazardous Materials.....	3.57
9	3.5.5	Technical Maturity of Alternative Treatment Processes.....	3.57
10	3.5.6	Timing of Activities Evaluated in the Alternative Groups.....	3.58
11	3.6	Costs of Alternatives.....	3.58
12	3.7	DOE Preferred Alternative.....	3.59
13	3.8	References.....	3.59
14			
15	4.0	Affected Environment.....	4.1
16	4.1	Introduction.....	4.1
17	4.2	Land Use.....	4.3
18	4.2.1	Hanford Reach National Monument.....	4.7
19	4.2.2	200 Areas.....	4.7
20	4.3	Meteorology and Air Quality.....	4.12
21	4.3.1	Climate and Meteorology.....	4.12
22	4.3.2	Atmospheric Dispersion.....	4.20
23	4.3.3	Air Quality.....	4.21
24	4.3.4	Background Radiation.....	4.24
25	4.4	Geologic Resources.....	4.25
26	4.4.1	Topography and Geomorphology.....	4.26
27	4.4.2	Stratigraphy.....	4.26
28	4.4.3	Soils.....	4.30
29	4.4.4	Seismicity.....	4.30
30	4.5	Hydrology.....	4.36
31	4.5.1	Surface Water.....	4.36
32	4.5.2	Hanford Site Vadose Zone.....	4.40
33	4.5.3	Groundwater.....	4.44
34	4.6	Biological and Ecological Resources.....	4.55
35	4.6.1	Vegetation.....	4.56
36	4.6.2	Wildlife.....	4.57
37	4.6.3	Aquatic Ecology.....	4.67
38	4.6.4	Threatened and Endangered Species.....	4.68
39	4.6.5	Microbiotic Crusts.....	4.74
40	4.6.6	Biodiversity.....	4.75
41	4.7	Cultural, Archaeological, and Historical Resources.....	4.75
42	4.7.1	Native American Cultural Resources and Archaeological Resources.....	4.76
43	4.7.2	Historic Archaeological Resources.....	4.77

1	4.7.3	Historic Built Environment .....	4.78
2	4.7.4	200 Areas.....	4.79
3	4.8	Socioeconomic Activity .....	4.81
4	4.8.1	Local Economy .....	4.81
5	4.8.2	Environmental Justice .....	4.83
6	4.8.3	Demography .....	4.88
7	4.8.4	Housing .....	4.89
8	4.8.5	Local and Regional Transportation .....	4.89
9	4.8.6	Educational Services .....	4.93
10	4.8.7	Health Care and Human Services.....	4.93
11	4.8.8	Police and Fire Protection .....	4.94
12	4.8.9	Utilities .....	4.94
13	4.8.10	Aesthetic and Scenic Resources .....	4.95
14	4.9	Noise .....	4.95
15	4.10	Occupational Safety .....	4.97
16	4.11	Occupational Radiation Exposure at the Hanford Site.....	4.98
17	4.12	References .....	4.102
18			
19	5.0	Environmental Consequences.....	5.1
20	5.1	Land Use .....	5.7
21	5.2	Air Quality.....	5.15
22	5.2.1	Alternative Group A.....	5.18
23	5.2.2	Alternative Group B .....	5.20
24	5.2.3	Alternative Group C .....	5.20
25	5.2.4	Alternative Groups D <sub>1</sub> , D <sub>2</sub> , and D <sub>3</sub> .....	5.22
26	5.2.5	Alternative Groups E <sub>1</sub> , E <sub>2</sub> , and E <sub>3</sub> .....	5.23
27	5.2.6	No Action Alternative .....	5.24
28	5.2.7	Comparison of Alternative Groups .....	5.25
29	5.3	Water Quality .....	5.28
30	5.3.1	Short-Term Impacts of Operations and Construction Activities .....	5.28
31	5.3.2	Methods for Assessment of Long-Term Impacts .....	5.29
32	5.3.3	Use of ILAW Performance Assessment Calculations to Support the HSW EIS ....	5.37
33	5.3.4	Long-Term Impacts on Water Quality .....	5.38
34	5.4	Geologic Resources .....	5.72
35	5.5	Ecological Resources .....	5.73
36	5.5.1	Alternative Group A.....	5.73
37	5.5.2	Alternative Group B .....	5.77
38	5.5.3	Alternative Group C .....	5.79
39	5.5.4	Alternative Group D <sub>1</sub> .....	5.79
40	5.5.5	Alternative Group D <sub>2</sub> .....	5.80
41	5.5.6	Alternative Group D <sub>3</sub> .....	5.81
42	5.5.7	Alternative Group E <sub>1</sub> .....	5.82
43	5.5.8	Alternative Group E <sub>2</sub> .....	5.83
44	5.5.9	Alternative Group E <sub>3</sub> .....	5.84

1	5.5.10	No Action Alternative .....	5.85
2	5.5.11	Microbiotic Crusts .....	5.86
3	5.5.12	Threatened or Endangered Species .....	5.86
4	5.5.13	Impacts on Columbia River Aquatic and Riparian Biota in the Long-term .....	5.87
5	5.6	Socioeconomics.....	5.89
6	5.6.1	Alternative Group A.....	5.92
7	5.6.2	Alternative Group B.....	5.94
8	5.6.3	Alternative Group C.....	5.94
9	5.6.4	Alternative Group D.....	5.97
10	5.6.5	Alternative Group E.....	5.97
11	5.6.6	No Action Alternative .....	5.99
12	5.7	Cultural Resources Impacts.....	5.101
13	5.7.1	Alternative Group A.....	5.102
14	5.7.2	Alternative Group B.....	5.103
15	5.7.3	Alternative Group C.....	5.103
16	5.7.4	Alternative Group D.....	5.104
17	5.7.5	Alternative Group E.....	5.104
18	5.7.6	No Action Alternative .....	5.104
19	5.8	Traffic and Transportation.....	5.106
20	5.9	Noise.....	5.113
21	5.9.1	Alternative Group A.....	5.113
22	5.9.2	Alternative Group B.....	5.115
23	5.9.3	Alternative Group C.....	5.116
24	5.9.4	Alternative Groups D and E.....	5.116
25	5.9.5	No Action Alternative .....	5.116
26	5.10	Resource Commitments .....	5.117
27	5.11	Human Health and Safety Impacts .....	5.120
28	5.11.1	Operational Human Health and Safety Impacts .....	5.124
29	5.11.2	Long-Term Human Health and Safety Impacts.....	5.184
30	5.12	Aesthetic and Scenic Resources .....	5.230
31	5.12.1	Alternative Group A.....	5.231
32	5.12.2	Alternative Group B.....	5.231
33	5.12.3	Alternative Group C.....	5.232
34	5.12.4	Alternative Group D.....	5.232
35	5.12.5	Alternative Group E.....	5.232
36	5.12.6	No Action Alternative .....	5.233
37	5.13	Environmental Justice .....	5.234
38	5.14	Cumulative Impacts.....	5.236
39	5.14.1	Land Use .....	5.236
40	5.14.2	Air Quality.....	5.237
41	5.14.3	Ecological, Cultural, Aesthetic, and Scenic Resources.....	5.238
42	5.14.4	Geologic Resources.....	5.239
43	5.14.5	Socioeconomics.....	5.239

1	5.14.6 Public Health .....	5.240
2	5.14.7 Worker Health and Safety .....	5.251
3	5.15 Irreversible and Irrecoverable Commitments of Resources .....	5.252
4	5.16 Relationship Between Short-Term Uses of the Environment and the Maintenance or	
5	Enhancement of Long-Term Productivity .....	5.254
6	5.17 Unavoidable Adverse Impacts .....	5.255
7	5.17.1 Alternative Group A .....	5.255
8	5.17.2 Alternative Group B .....	5.256
9	5.17.3 Alternative Group C .....	5.256
10	5.17.4 Alternative Groups D and E (all Sub-Alternative) .....	5.256
11	5.17.5 No Action Alternative .....	5.257
12	5.18 Potential Mitigation Measures .....	5.258
13	5.18.1 Pollution Prevention/Waste Minimization .....	5.258
14	5.18.2 Cultural Resources .....	5.258
15	5.18.3 Ecological Resources .....	5.259
16	5.18.4 Water Quality .....	5.259
17	5.18.5 Health and Safety – Routine Operations .....	5.260
18	5.18.6 Health and Safety – Accidents .....	5.261
19	5.18.7 Traffic and Transportation .....	5.261
20	5.18.8 Area and Resource Management and Mitigation Plans .....	5.262
21	5.18.9 Long-Term Stewardship and Post Closure .....	5.264
22	5.19 References .....	5.265
23		
24	6.0 Regulatory Framework .....	6.1
25	6.1 Potentially Applicable Statutes .....	6.1
26	6.2 Land-Use Management .....	6.6
27	6.3 Hanford Federal Facility Agreement and Consent Order .....	6.7
28	6.4 Hazardous Waste Management .....	6.8
29	6.5 Radioactive Waste Management .....	6.8
30	6.6 Radiological Safety Oversight .....	6.9
31	6.7 Radiation Protection of the Public and the Environment .....	6.11
32	6.8 Occupational Safety and Occupational Radiation Exposure .....	6.12
33	6.9 Non-Radioactive Air Emissions .....	6.13
34	6.10 State Waste Discharge Requirements .....	6.13
35	6.11 Transportation Requirements .....	6.14
36	6.12 Cultural Resources .....	6.14
37	6.13 Treaties, Statutes, and Policies Relating to Native Americans .....	6.15
38	6.14 Environmental Justice and Protection of Children .....	6.17
39	6.15 Chemical Management .....	6.18
40	6.16 Emergency Planning and Community Right-to-Know .....	6.18
41	6.17 Pollution Prevention .....	6.18
42	6.18 Endangered Species .....	6.18
43	6.19 Permit Requirements .....	6.19
44	6.20 References .....	6.20

1 7.0 List of Preparers and Contributors..... 7.1  
2  
3 Index ..... Index.1  
4  
5 Distribution .....Dist.1  
6  
7

# Figures

1			
2			
3			
4	1.1	Hanford Site Location Map .....	1.4
5	1.2	States with Radioactive Waste Disposal Activities .....	1.6
6	1.3	Relationship of the HSW EIS to Other Hanford Cleanup Operations, 7	
7		Material Management Activities, and Key Environmental Reviews .....	1.11
8	1.4	Radioactive Material Disposition at Hanford in Terms of Waste Activity (MCi).....	1.12
9	1.5	Treatment Action Alternatives.....	1.36
10	1.6	Disposal Action Alternatives .....	1.37
11	1.7	Development of Alternative Groups.....	1.39
12	2.1	Waste Types and Waste Streams Considered in the HSW EIS .....	2.2
13	2.2	Long-Length Equipment Being Removed from a Tank .....	2.6
14	2.3	Aerial View of the Central Waste Complex .....	2.13
15	2.4	Storage of Waste Drums in CWC .....	2.14
16	2.5	Schematic Drawing of RH TRU Caisson in the LLBGs .....	2.15
17	2.6	Waste Receiving and Processing Facility .....	2.17
18	2.7	X-Ray Image of Transuranic Waste Drum Contents .....	2.17
19	2.8	Layout for the Waste Receiving and Processing Facility .....	2.18
20	2.9	Transuranic Package Transporter-II Being Loaded in the Waste Receiving and 21	
21		Processing Facility .....	2.19
22	2.10	Macroencapsulation of Mixed Low-Level Waste Debris at a Local Commercial 23	
23		Treatment Facility .....	2.20
24	2.11	View of the T Plant Complex with 2706-T Facility and the T Plant Canyon Noted .....	2.22
25	2.12	Aerial View of a Low Level Burial Ground .....	2.24
26	2.13	High-Integrity Containers in a Low-Level Waste Disposal Trench .....	2.25
27	2.14	Trench Grouted Wastes.....	2.26
28	2.15	Mixed Low-Level Waste Disposal Trench .....	2.28
29	2.16	Environmental Restoration Disposal Facility (ERDF) .....	2.31
30	2.17	Typical Liner System.....	2.33
31	2.18	Modified RCRA Subtitle C Barrier for Mixed Low-Level Waste Trenches 32	
32		and the Low Level Burial Grounds.....	2.35
33	3.1	Options for HSW EIS Alternatives.....	3.2
34	3.2	Locations of Existing and Potential Processing and Disposal Facilities on the Hanford Site .....	3.4
35	3.3	Range of Waste Volumes Considered in the HSW EIS.....	3.5
36	3.4	Annual Dose from Drinking Water Containing Maximum Concentrations of 37	
37		Radionuclides in Groundwater at 1 km Downgradient from the 200 West Area Disposal 38	
38		Facilities as a Function of Calendar Year, Hanford Only and Upper Bound Waste Volumes ..	3.29
39	3.5	Annual Dose from Drinking Water Containing Maximum Concentrations of 40	
40		Radionuclides in Groundwater at 1 km Downgradient from ERDF as a Function of 41	
41		Calendar Year, Hanford Only and Upper Bound Waste Volumes .....	3.30

1	3.6	Annual Dose from Drinking Water Containing Maximum Concentrations of	
2		Radionuclides in Groundwater at 1 km Northwest Downgradient from the 200 East Area	
3		as Disposal Facilities as Function of Calendar Year, Hanford Only and Upper	
4		Bound Waste Volumes .....	3.31
5	3.7	Annual Dose from Drinking Water Containing Maximum Concentrations	
6		of Radionuclides in Groundwater at 1 km Downgradient Southeast from the 200 East	
7		Area Disposal Facilities as a Function of Calendar Year, Hanford Only and Upper	
8		Bound Waste Volumes .....	3.32
9	3.8	Annual Dose from Drinking Water Containing Maximum Concentrations	
10		of Radionuclides in Groundwater Near the Columbia River as a Function of Calendar	
11		Year, Hanford Only and Upper Bound Waste Volumes .....	3.33
12	3.9	Annual Dose to a Hypothetical Resident Gardener at Various Times over 10,000 Years	
13		Using Water from a Well 1 km Downgradient from 200 West Area .....	3.42
14	3.10	Annual Dose to a Hypothetical Resident Gardener at Various Times over 10,000 Years	
15		Using Water from a Well 1 km Downgradient from ERDF .....	3.43
16	3.11	Annual Dose to a Hypothetical Resident Gardener at Various Times over 10,000 Years	
17		Using Water from a Well 1 km Downgradient Northwest from 200 East Area .....	3.44
18	3.12	Annual Dose to a Hypothetical Resident Gardener at Various Times over 10,000 Years	
19		Using Water from a Well 1 km Downgradient Southeast of 200 East Area .....	3.45
20	3.13	Annual Dose to a Hypothetical Resident Gardener at Various Times over 10,000 Years	
21		Using Water from a Well Adjacent to the Columbia River .....	3.46
22	3.14	Annual Dose to a Hypothetical Resident Gardener with Sauna/Sweat Lodge at Various	
23		Times over 10,000 Years Using Water from a Well 1 km Downgradient from	
24		200 West Area .....	3.47
25	3.15	Annual Dose to a Hypothetical Resident Gardener with Sauna/Sweat Lodge at Various	
26		Times over 10,000 Years Using Water from a Well 1 km downgradient from ERDF .....	3.48
27	3.16	Annual Dose to a Hypothetical Resident Gardener with Sauna/Sweat Lodge at Various	
28		Times over 10,000 Years Using Water from a Well 1 km Downgradient Northwest	
29		from 200 East Area .....	3.49
30	3.17	Annual Dose to a Hypothetical Resident Gardener with Sauna/Sweat Lodge at Various	
31		Times over 10,000 Years Using Water from a Well 1 km Downgradient Southeast from	
32		200 East Area .....	3.50
33	3.18	Annual Dose to a Hypothetical Resident Gardener with Sauna/Sweat Lodge at Various	
34		Times over 10,000 Years Using Water from a Well Adjacent to the Columbia River .....	3.51
35	3.19	Annual Drinking Water Dose from Technetium-99 in Groundwater Southeast of	
36		the 200 East Area from All Hanford Sources Including ILAW .....	3.53
37	4.1	Department of Energy – Hanford Site .....	4.2
38	4.2	DOE Preferred Alternative for Land Use on the Hanford Site from the Final	
39		Hanford Comprehensive Land-Use Plan EIS Record of Decision .....	4.4
40	4.3	Hanford Reach National Monument .....	4.8
41	4.4	200 West Area .....	4.9
42	4.5	200 East Area .....	4.10
43	4.6	Hanford Meteorological Monitoring Network .....	4.13

1	4.7	Wind Roses at the 9.1-m (30-ft) Level of the Hanford Meteorological Monitoring	
2		Network, 1982 to 2001 .....	4.15
3	4.8	Wind Roses at the 60-m (197-ft) Level of the Hanford Meteorological Monitoring	
4		Network, 1986 to 2001 .....	4.17
5	4.9	Geographic Setting and General Structural Geology of the Pasco Basin and	
6		Hanford Site .....	4.27
7	4.10	Stratigraphic Column for the Hanford Site .....	4.28
8	4.11	Generalized West to East Cross-Section of the Hanford Site Structure and	
9		Topography .....	4.29
10	4.12	Soil Map of the Hanford Site .....	4.31
11	4.13	Historical Seismicity of the Columbia Plateau and Surrounding Areas. ....	4.34
12	4.14	Seismicity of the Columbia Plateau and Surrounding Areas as Measured by	
13		Seismographs. ....	4.35
14	4.15	Surface Water Features Including Rivers, Ponds, Major Springs, Ephemeral Streams,	
15		and Artificial Ponds on the Hanford Site .....	4.37
16	4.16	Extent of Probable Maximum Flood in Cold Creek Area.....	4.41
17	4.17	Groundwater Elevations for the Unconfined Aquifer at Hanford, March 2001 .....	4.46
18	4.18	Groundwater Elevations for the Unconfined Aquifer at the 200 Areas .....	4.47
19	4.19	Distribution of Major Radionuclides in Groundwater at Concentrations Above the	
20		Drinking Water Standards During FY 2001. ....	4.49
21	4.20	Distribution of Major Hazardous Chemicals in Groundwater at Concentrations Above the	
22		Drinking Water Standards During FY 2001. ....	4.50
23	4.21	Distribution of Vegetation Types and Land Use Areas on the Hanford Site Prior to	
24		the 24 Command Fire of 2000. ....	4.58
25	4.22	Distribution of Vegetation Types and Land Use Areas in the 200 West Area Prior to	
26		the 24 Command Fire.....	4.64
27	4.23	Distribution of Vegetation Types and Land Use Areas in the 200 East Area Prior to	
28		the 24 Command Fire.....	4.65
29	4.24	Species of Concern on the Hanford Site and the 24 Command Fire Area.....	4.73
30	4.25	Location of Asian, Black, Hispanic, Native American, Pacific Islander, and Overall Minority	
31		Populations Near the Hanford Site.....	4.85
32	4.26	Location of Low-Income Populations Near the Hanford Site .....	4.88
33	4.27	Transportation Routes on the Hanford Site.....	4.92
34	4.28	Occupational Injury and Illness Total Recordable Case Rates at the Hanford Site	
35		Compared to the DOE Complex and Private Industry .....	4.98
36	4.29	Average Occupational Dose (mrem/yr) to Hanford Site Individuals with	
37		Measurable Dose, 1997-2001. ....	4.100
38	4.30	Collective Operational Dose (person-rem/yr) at the Hanford Site, 1997-2001 .....	4.101
39	5.1	Schematic Representation of Computational Framework and Codes Used in the	
40		HSW EIS.....	5.30
41	5.2	LOAs Used in Assessing Long-Term Water Quality Impacts.....	5.32
42	5.3	Technetium-99 Concentration Profiles at Various Lines of Analysis – Alternative	
43		Group A .....	5.53

1	5.4	Iodine-129 Concentration Profiles at Various Lines of Analysis – Alternative	
2		Group A .....	5.54
3	5.5	Technetium-99 Concentration Profiles at Various Lines of Analysis – Alternative	
4		Group B.....	5.55
5	5.6	Iodine-129 Concentration Profiles at Various Lines of Analysis – Alternative	
6		Group B.....	5.56
7	5.7	Technetium-99 Concentration Profiles at Various Lines of Analysis – Alternative	
8		Group C.....	5.57
9	5.8	Iodine-129 Concentration Profiles at Various Lines of Analysis – Alternative	
10		Group C.....	5.58
11	5.9	Technetium-99 Concentration Profiles at Various Lines of Analysis – Alternative	
12		Group D <sub>1</sub> .....	5.59
13	5.10	Iodine-129 Concentration Profiles at Various Lines of Analysis – Alternative	
14		Group D <sub>1</sub> .....	5.60
15	5.11	Technetium-99 Concentration Profiles at Various Lines of Analysis – Alternative	
16		Group D <sub>2</sub> .....	5.61
17	5.12	Iodine-129 Concentration Profiles at Various Lines of Analysis – Alternative	
18		Group D <sub>2</sub> .....	5.62
19	5.13	Technetium-99 Concentration Profiles at Various Lines of Analysis – Alternative	
20		Group D <sub>3</sub> .....	5.63
21	5.14	Iodine-129 Concentration Profiles at Various Lines of Analysis – Alternative	
22		Group D <sub>3</sub> .....	5.64
23	5.15	Technetium-99 Concentration Profiles at Various Lines of Analysis – Alternative	
24		Group E <sub>1</sub> .....	5.65
25	5.16	Iodine-129 Concentration Profiles at Various Lines of Analysis – Alternative	
26		Group E <sub>1</sub> .....	5.66
27	5.17	Technetium-99 Concentration Profiles at Various Lines of Analysis – Alternative	
28		Group E <sub>2</sub> .....	5.67
29	5.18	Iodine-129 Concentration Profiles at Various Lines of Analysis – Alternative	
30		Group E <sub>2</sub> .....	5.68
31	5.19	Technetium-99 Concentration Profiles at Various Lines of Analysis – Alternative	
32		Group E <sub>3</sub> .....	5.69
33	5.20	Iodine-129 Concentration Profiles at Various Lines of Analysis – Alternative	
34		Group E <sub>3</sub> .....	5.70
35	5.21	Technetium-99, and Iodine-129 Concentration Profiles at Various Lines of	
36		Analysis – No Action Alternative .....	5.71
37	5.22	Impact of HSW EIS Alternatives on Total Hanford Employment .....	5.90
38	5.23	Impact of HSW EIS Alternatives on Solid Waste Program Employment .....	5.91
39	5.24	Impact of HSW EIS Alternatives on Solid Waste Program Total Cost .....	5.91
40	5.25	Shipping Routes in Washington and Oregon .....	5.108
41	5.26	Association of Noise Levels with Common Sources or Activities .....	5.114
42	5.27	Location of the Resident Gardener for Routine Airborne Releases.....	5.122

1	5.28	Annual Dose to a Maximally Exposed Individual at Various Times over 10,000	
2		Years Using Water from Various Water Supplies – Alternative Group A – Hanford	
3		and Upper Bound Volumes.....	5.186
4	5.29	Annual Dose to a Maximally Exposed Individual at Various Times over 10,000	
5		Years Using Water from Various Points of Analysis - Alternative Group B - Hanford	
6		and Upper Bound Volumes.....	5.190
7	5.30	Annual Dose to a Maximally Exposed Individual at Various Times over 10,000	
8		Years Using Water from Various Water Supplies – Alternative Group C – Hanford	
9		and Upper Bound Volumes.....	5.194
10	5.31	Annual Dose to a Maximally Exposed Individual at Various Times over 10,000	
11		Years Using Water from Various Water Supplies – Alternative Group D <sub>1</sub> – Hanford	
12		and Upper Bound Volumes.....	5.198
13	5.32	Annual Dose to a Maximally Exposed Individual at Various Times over 10,000	
14		Years Using Water from Various Water Supplies – Alternative Group D <sub>2</sub> – Hanford	
15		and Upper Bound Volumes.....	5.202
16	5.33	Annual Dose to a Maximally Exposed Individual at Various Times over 10,000	
17		Years Using Water from Various Water Supplies – Alternative Group D <sub>3</sub> – Hanford	
18		and Upper Bound Volumes.....	5.207
19	5.34	Annual Dose to a Maximally Exposed Individual at Various Times over 10,000	
20		Years Using Water from Various Water Supplies – Alternative Group E <sub>1</sub> – Hanford	
21		and Upper Bound Volumes.....	5.210
22	5.35	Annual Dose to a Maximally Exposed Individual at Various Times over 10,000	
23		Years Using Water from Various Water Supplies – Alternative Group E <sub>2</sub> – Hanford	
24		and Upper Bound Volumes.....	5.214
25	5.36	Annual Dose to a Maximally Exposed Individual at Various Times over 10,000	
26		Years Using Water from Various Water Supplies – Alternative Group E <sub>3</sub> – Hanford	
27		and Upper Bound Volumes.....	5.219
28	5.37	Annual Dose to a Maximally Exposed Individual at Various Times over 10,000	
29		Years Using Water from Various Water Supplies – No Action Alternative – Hanford	
30		and Upper Bound Volumes.....	5.224
31	5.38	Annual Drinking Water Dose from Technetium-99 in Groundwater Southeast	
32		of the 200 East Area from All Hanford Sources .....	5.246
33	5.39	Annual Drinking Water Dose from Technetium 99 in the Columbia River at the	
34		City of Richland Pumping Station from All Hanford Sources .....	5.247
35	5.40	Annual Drinking Water Dose from Uranium in the Columbia River at the	
36		City of Richland Pumping Station from All Hanford Sources .....	5.247
37			

# Tables

1			
2			
3			
4	3.1	Treatment Alternatives Summary .....	3.13
5	3.2	Disposal Alternatives Summary .....	3.14
6	3.3	Estimated Volumes of LLW Waste Streams .....	3.19
7	3.4	Estimated Volumes of MLLW Waste Streams.....	3.20
8	3.5	Estimated Volumes of TRU Waste Streams .....	3.20
9	3.6	Estimated Volumes of WTP Waste Streams Through 2046.....	3.21
10	3.7	Summary Comparison of Impacts Among the Alternatives During Operational Period	
11		(Present to 2046).....	3.22
12	3.8	Summary Comparison of Long-Term (10,000 years) Impacts Among the Alternatives.....	3.23
13	3.9	Comparison of Land Area Permanently Committed in the Various Alternatives as of	
14		2046, ha.....	3.24
15	3.10	Comparison Among the Alternative Groups of Estimated Criteria-Pollutant Impact	
16		Maximums for Solid Waste Operations in the 200 Areas, Percent of Air Quality	
17		Standards.....	3.25
18	3.11	Highest Percentage of Maximum Concentration Levels (MCLs) to the Year 10,200 AD .....	3.27
19	3.12	Highest Percentage of Maximum Concentration Levels (MCLs) from 10,200 to	
20		12,050 AD - All Due to Uranium .....	3.28
21	3.13	Comparison of Commitments of Geologic Resources, Millions of m <sup>3</sup> .....	3.34
22	3.14	Summary Comparison of Radiological and Non-radiological Transportation Impacts	
23		Hanford Only Waste Volumes.....	3.36
24	3.15	Impacts in Oregon and Washington from Offsite Shipments of Solid Wastes to	
25		and from Hanford.....	3.36
26	3.16	Comparison of Fossil Fuel Commitments Among the Alternatives .....	3.38
27	3.17	Comparison of Worker Health Impacts .....	3.39
28	3.18	Comparison of Public Health Impacts from Emissions of Radioactive Material to the	
29		Atmosphere During Routine Operations.....	3.39
30	3.19	Comparison of Consequences of Industrial Accidents on Workers Among the Alternatives ....	3.40
31	3.20	Comparison of Health Impacts on the Public from Routine Atmospheric Releases	
32		of Chemicals .....	3.40
33	3.21	(Sheet 1). Consolidated Cost Estimates for Alternative Groups A, B, and C.....	3.59
34	3.21	(Sheet 2). Consolidated Cost Estimates for Alternative Groups D, E, and No Action.....	3.59
35	4.1.	Station Numbers, Names, and Meteorological Parameters for Each Hanford	
36		Meteorological Monitoring Network Site.....	4.14
37	4.2	Number of Days with Peak Gusts Above Specific Thresholds at 15-m (50-ft) Level,	
38		1945 through 2001 .....	4.18
39	4.3	Monthly and Annual Prevailing Wind Directions, Average Speeds, and	
40		Peak Gusts at 15-m (50-ft) Level, 1945 through 2001.....	4.19
41	4.4	Estimate of the Probability of Extreme Winds Associated with Tornadoes	
42		Striking a Point at Hanford .....	4.20
43	4.5	Percent Probabilities for Extended Periods of Surface-Based Inversions .....	4.21
44	4.6	Federal and Washington State Ambient Air Quality Standards.....	4.23

1	4.7	Non-Radioactive Constituents Emitted to the Atmosphere for the Year 2001 .....	4.24
2	4.8	Radionuclides Emitted to the Atmosphere at the Hanford Site, 2001 .....	4.25
3	4.9	Soil Types on the Hanford Site .....	4.32
4	4.10	Maximum Concentrations of Groundwater Contaminants at Hanford in FY 2001 .....	4.52
5	4.11	Common Vascular Plants on the Hanford Site .....	4.60
6	4.12	Federally Listed Threatened, Endangered, Candidate Species, and Species of Concern	
7		and Washington State-Listed Threatened and Endangered Species Occurring on the	
8		Hanford Site .....	4.69
9	4.13	Washington State Candidate Animal Species Found on the Hanford Site .....	4.70
10	4.14	Washington State Plant Species of Concern Occurring on the Hanford Site, as	
11		Determined by the Washington Natural Heritage Program 2002 .....	4.72
12	4.15	Birds of Conservation Concern Observed on the Hanford Site. ....	4.74
13	4.16	Population Estimates and Percentages by Race and Hispanic Origin within each	
14		County in Washington State and the 80-km (50 mi) Radius of Hanford as	
15		Determined by the 2000 Census .....	4.86
16	4.17	Number and Percentages of Persons Defined as Low-Income Living in Counties	
17		Near the Hanford Site, in 1999, as Determined by the 2000 Census. ....	4.87
18	4.18	Occupational Injury, Illness, and Fatality Incidence Rates for U.S. Department of	
19		Energy Facilities and Private Industry .....	4.99
20	4.19	Radiation Exposure Data for the Hanford Site, 1997-2001 .....	4.102
21	5.1	Land Use - Areas Used for Disposal, ha .....	5.10
22	5.2	Land Use - Areas of HSW Treatment and Storage Facilities, ha .....	5.14
23	5.3	200 East and 200 West Area Emissions: Location and Dispersion Factors	
24		Used to Determine Maximum Air Quality Impacts to the Public .....	5.17
25	5.4	Area C (Borrow Pit) Emissions: Location and Dispersion Factors	
26		Used to Determine Maximum Air Quality Impacts to the Public .....	5.18
27	5.5	Alternative Group A: Maximum Air Quality Impacts to the Public from	
28		Activities in the 200 Areas .....	5.19
29	5.6	All Alternatives: Maximum Air Quality Impacts to the Public from Area C	
30		(Borrow Pit) Activities .....	5.19
31	5.7	Alternative Group B: Maximum Air Quality Impacts to the Public from	
32		Activities in the 200 Areas .....	5.21
33	5.8	Alternative Group C: Maximum Air Quality Impacts to the Public from	
34		Activities in the 200 Areas .....	5.22
35	5.9	Alternative Group D: Maximum Air Quality Impacts to the Public from	
36		Activities in the 200 Areas .....	5.23
37	5.10	Alternative Group E: Maximum Air Quality Impacts to the Public from	
38		Activities in the 200 Areas .....	5.24
39	5.11	No Action Alternative: Maximum Air Quality Impacts to the Public from	
40		Activities in the 200 Areas .....	5.25
41	5.12	Comparison Across all Alternative Groups of Maximum Air Quality Impacts	
42		to the Public from Activities in the 200 Areas .....	5.27
43	5.13	Comparison of Commitments of Geologic Resources Without ILAW	
44		Resources, Millions of m3 .....	5.72

1	5.14	Hanford Budget and Direct Employment Associated with Baseline Conditions .....	5.90
2	5.15	Socioeconomic Impacts Associated with Alternative Group A,	
3		Relative to Baseline Conditions .....	5.93
4	5.16	Socioeconomic Impacts Associated with Alternative Group B,	
5		Relative to Baseline Conditions .....	5.94
6	5.17	Socioeconomic Impacts Associated with Alternative Group C,	
7		Relative to Baseline Conditions .....	5.96
8	5.18	Socioeconomic Impacts Associated with Alternative Group D,	
9		Relative to Baseline Conditions .....	5.98
10	5.19	Socioeconomic Impacts Associated with the No Action Alternative,	
11		Relative to Baseline Conditions .....	5.100
12	5.20	Summary of Radiological and Non-Radiological Transportation	
13		Impacts – Hanford Only Waste Volumes, All Alternatives .....	5.109
14	5.21	Impacts in Washington and Oregon by State from Offsite Shipments of	
15		Solid Wastes to and from Hanford .....	5.110
16	5.22	Impacts of Transporting Construction and Capping Materials .....	5.111
17	5.23	Hazardous Chemical Concentrations (mg/m <sup>3</sup> ) 100 m (109 yd) Downwind	
18		from Severe Transportation Accidents .....	5.112
19	5.24	Typical Noise Levels Associated with Construction Equipment and Blasting.....	5.115
20	5.25	Resource Commitment Summary by Alternative Group and for ILAW .....	5.118
21	5.26	Resource Commitment Summary by Alternative Group with ILAW Resources Included .....	5.119
22	5.27	Non-Involved Worker and Public Health Impacts from Routine Atmospheric	
23		Releases of Radionuclides – Alternative Group A, Hanford Only Waste Volume .....	5.126
24	5.28	Non-Involved Worker and Public Health Impacts from Routine Atmospheric	
25		Releases of Radionuclides – Alternative Group A, Lower Bound Waste Volume .....	5.127
26	5.29	Non-Involved Worker and Public Health Impacts from Routine Atmospheric	
27		Releases of Radionuclides – Alternative Group A, Upper Bound Waste Volume .....	5.128
28	5.30	Non-Involved Worker and Public Health Impacts from Routine Atmospheric	
29		Releases of Chemicals – Alternative Group A, All Waste Volumes .....	5.129
30	5.31	Occupational Radiation Exposure – Alternative Group A, Hanford Only Waste Volume.....	5.130
31	5.32	Occupational Radiation Exposure – Alternative Group A, Lower Bound Waste Volume.....	5.131
32	5.33	Occupational Radiation Exposure – Alternative Group A, Upper Bound Waste Volume .....	5.132
33	5.34	Radiological Consequences of Accidents at the CWC .....	5.134
34	5.35	Non-Radiological Air Concentrations for Accidents at the CWC .....	5.136
35	5.36	Radiological Consequences of Accidents at WRAP.....	5.137
36	5.37	Non-Radiological Air Concentrations for a Process Enclosure Fire Accident at WRAP.....	5.139
37	5.38	Radiological Consequences of Accidents at the Modified T Plant Complex for	
38		Continuing T Plant Activities .....	5.140
39	5.39	Radiological Consequences of Accidents for the Modified T Plant Complex with	
40		the New Waste Processing Facility.....	5.141
41	5.40	Radiological Consequences of Accidents at the Low-Level Waste Trenches .....	5.143
42	5.41	Radiological Consequences of Accidents at the MLLW Trenches .....	5.144
43	5.42	Non-Radiological Air Concentrations for a Heavy Equipment Accident with	
44		Fire at the LLBGs .....	5.145

1	5.43	Non-Radiological Air Concentrations for a Heavy Equipment Accident Without	
2		Fire at the LLBGs .....	5.146
3	5.44	Non-Radiological Air Concentrations for a Drum Explosion at the LLBGs.....	5.147
4	5.45	Non-Radiological Air Concentrations for a Seismic Event Without Fire at the LLBGs .....	5.148
5	5.46	Radiological Consequences of Accidents Involving ILAW Disposal .....	5.149
6	5.47	Non-Involved Worker and Public Health Impacts from Routine Atmospheric	
7		Releases of Radionuclides – Alternative Group B, Hanford Only Waste Volume .....	5.152
8	5.48	Non-Involved Worker and Public Health Impacts from Routine Atmospheric	
9		Releases of Radionuclides – Alternative Group B, Lower Bound Waste Volume .....	5.153
10	5.49	Non-Involved Worker and Public Health Impacts from Routine Atmospheric	
11		Releases of Radionuclides – Alternative Group B, Upper Bound Waste Volume .....	5.154
12	5.50	Non-Involved Worker and Public Health Impacts from Routine Atmospheric	
13		Releases of Chemicals – Alternative Group B, All Waste Volumes .....	5.155
14	5.51	Occupational Radiation Exposure – Alternative Group B, Hanford Only Waste Volume.....	5.157
15	5.52	Occupational Radiation Exposure – Alternative Group B, Lower Bound Waste Volume .....	5.158
16	5.53	Occupational Radiation Exposure – Alternative Group B, Upper Bound Waste Volume .....	5.159
17	5.54	Non-Involved Worker and Public Health Impacts from Routine Atmospheric	
18		Releases of Radionuclides – Alternative Group C, Hanford Only Waste Volume .....	5.162
19	5.55	Non-Involved Worker and Public Health Impacts from Routine Atmospheric	
20		Releases of Radionuclides – Alternative Group C, Lower Bound Waste Volume .....	5.163
21	5.56	Non-Involved Worker and Public Health Impacts from Routine Atmospheric	
22		Releases of Radionuclides – Alternative Group C, Upper Bound Waste Volume .....	5.164
23	5.57	Occupational Radiation Exposure – Alternative Group C, Hanford Only Waste Volume.....	5.166
24	5.58	Occupational Radiation Exposure – Alternative Group C, Lower Bound Waste Volume .....	5.167
25	5.59	Occupational Radiation Exposure – Alternative Group C, Upper Bound Waste Volume .....	5.168
26	5.60	Non-Involved Worker and Public Health Impacts from Routine Atmospheric	
27		Releases of Radionuclides – Alternative Group D, Hanford Only Waste Volume .....	5.170
28	5.61	Non-Involved Worker and Public Health Impacts from Routine Atmospheric	
29		Releases of Radionuclides – Alternative Group D, Lower Bound Waste Volume .....	5.171
30	5.62	Non-Involved Worker and Public Health Impacts from Routine Atmospheric	
31		Releases of Radionuclides – Alternative Group D, Upper Bound Waste Volume .....	5.172
32	5.63	Occupational Radiation Exposure – Alternative Group D, Hanford Only Waste Volume.....	5.173
33	5.64	Occupational Radiation Exposure – Alternative Group D, Lower Bound Waste Volume.....	5.174
34	5.65	Occupational Radiation Exposure – Alternative Group D, Upper Bound Waste Volume .....	5.175
35	5.66	Non-Involved Worker and Public Health Impacts from Routine Atmospheric	
36		Releases of Radionuclides – No Action Alternative, Hanford Only Waste Volume .....	5.179
37	5.67	Non-Involved Worker and Public Health Impacts from Routine Atmospheric	
38		Releases of Radionuclides – No Action Alternative, Lower Bound Waste Volume .....	5.180
39	5.68	Non-Involved Worker and Public Health Impacts from Routine Atmospheric	
40		Releases of Chemicals – No Action Alternative.....	5.181
41	5.69	Occupational Radiation Exposure – No Action Alternative, Hanford Only Waste Volume....	5.182
42	5.70	Radiological Consequences of Melter Storage Accidents at the CWC .....	5.183
43	5.71	Population Health Impacts from Drinking Water Downstream of Hanford over	
44		10,000 Years – Alternative Group A, Hanford Only Waste Volume .....	5.187

1	5.72	Population Health Impacts from Drinking Water Downstream of Hanford over 10,000 Years –	
2		Alternative Group A, Lower Bound Waste Volume .....	5.187
3	5.73	Population Health Impacts from Drinking Water Downstream of Hanford over	
4		10,000 Years – Alternative Group A, Upper Bound Waste Volume .....	5.187
5	5.74	Maximum Annual Drinking Water Dose for the Well 1 km North of the	
6		200 West Area, Alternative Group A .....	5.188
7	5.75	Maximum Annual Drinking Water Dose for the Well 1 km Northwest of the	
8		200 East Area, Alternative Group A .....	5.188
9	5.76	Maximum Annual Drinking Water Dose for the Well 1 km Southeast of the	
10		200 East Area, Alternative Group A .....	5.189
11	5.77	Maximum Annual Drinking Water Dose for the Well Near the Columbia River,	
12		Alternative Group A .....	5.189
13	5.78	Population Health Impacts from Drinking Water Downstream of Hanford over	
14		10,000 Years – Alternative Group B, Hanford Only Waste Volume .....	5.191
15	5.79	Population Health Impacts from Drinking Water Downstream of Hanford over	
16		10,000 Years – Alternative Group B, Lower Bound Waste Volume .....	5.191
17	5.80	Population Doses and Health Impacts from Drinking Water Downstream of	
18		Hanford over 10,000 Years – Alternative Group B, Upper Bound Waste Volume.....	5.191
19	5.81	Maximum Annual Drinking Water Dose for the Well 1 km North of the	
20		200 West Area, Alternative Group B.....	5.192
21	5.82	Maximum Annual Drinking Water Dose for the Well 1 km Northwest of the	
22		200 East Area, Alternative Group B.....	5.192
23	5.83	Maximum Annual Drinking Water Dose for the Well Near the Columbia River,	
24		Alternative Group B.....	5.193
25	5.84	Population Health Impacts from Drinking Water Downstream of Hanford over	
26		10,000 Years – Alternative Group C, Hanford Only Waste Volume .....	5.193
27	5.85	Population Health Impacts from Drinking Water Downstream of Hanford over	
28		10,000 Years – Alternative Group C, Lower Bound Waste Volume .....	5.195
29	5.86	Population Doses and Health Impacts from Drinking Water Downstream of	
30		Hanford over 10,000 Years – Alternative Group C, Upper Bound Waste Volume .....	5.195
31	5.87	Maximum Annual Drinking Water Dose for the Well 1 km North of the	
32		200 West Area, Alternative Group C.....	5.195
33	5.88	Maximum Annual Drinking Water Dose for the Well 1 km Northwest of the	
34		200 East Area, Alternative Group C.....	5.196
35	5.89	Maximum Annual Drinking Water Dose for the Well 1 km Southeast of the	
36		200 East Area, Alternative Group A .....	5.196
37	5.90	Maximum Annual Drinking Water Dose for the Well Near the Columbia River,	
38		Alternative Group C.....	5.197
39	5.91	Population Health Impacts from Drinking Water Downstream of Hanford over	
40		10,000 Years – Alternative Group D1, Hanford Only Waste Volume .....	5.199
41	5.92	Population Health Impacts from Drinking Water Downstream of Hanford over	
42		10,000– Alternative Group D1, Lower Bound Waste Volume .....	5.199
43	5.93	Population Doses and Health Impacts from Drinking Water Downstream of	
44		Hanford over 10,000 Years – Alternative Group D <sub>1</sub> , Upper Bound Waste Volume .....	5.199

1	5.94	Maximum Annual Drinking Water Dose for the Well 1 km North of the	
2		200 West Area, Alternative Group D <sub>1</sub> .....	5.200
3	5.95	Maximum Annual Drinking Water Dose for the Well 1 km Northwest of the	
4		200 East Area, Alternative Group D <sub>1</sub> .....	5.200
5	5.96	Maximum Annual Drinking Water Dose for the Well 1 km Southeast of the	
6		200 East Area, Alternative Group D <sub>1</sub> .....	5.201
7	5.97	Maximum Annual Drinking Water Dose for the Well Near the Columbia River,	
8		Alternative Group D <sub>1</sub> .....	5.201
9	5.98	Population Health Impacts from Drinking Water Downstream of Hanford over	
10		10,000 Years – Alternative Group D <sub>2</sub> , Hanford Only Waste Volume .....	5.203
11	5.99	Population Health Impacts from Drinking Water Downstream of Hanford over	
12		10,000 Years – Alternative Group D <sub>2</sub> , Lower Bound Waste Volume .....	5.203
13	5.100	Population Doses and Health Impacts from Drinking Water Downstream of	
14		Hanford over 10,000 Years – Alternative Group D <sub>2</sub> , Upper Bound Waste Volume .....	5.203
15	5.101	Maximum Annual Drinking Water Dose for the Well 1 km North of the	
16		200 West Area, Alternative Group D <sub>2</sub> .....	5.204
17	5.102	Maximum Annual Drinking Water Dose for the Well 1 km Northwest of the	
18		200 East Area, Alternative Group D <sub>2</sub> .....	5.204
19	5.103	Maximum Annual Drinking Water Dose for the Well Near the Columbia River,	
20		Alternative Group D <sub>2</sub> .....	5.205
21	5.104	Population Health Impacts from Drinking Water Downstream of Hanford over	
22		10,000 Years – Alternative Group D <sub>3</sub> , Hanford Only Waste Volume .....	5.207
23	5.105	Population Health Impacts from Drinking Water Downstream of Hanford over	
24		10,000 Years – Alternative Group D <sub>3</sub> , Lower Bound Waste Volume .....	5.207
25	5.106	Population Doses and Health Impacts from Drinking Water Downstream of	
26		Hanford over 10,000 Years – Alternative Group D <sub>3</sub> , Upper Bound Waste Volume .....	5.207
27	5.107	Maximum Annual Drinking Water Dose for the Well 1 km North of the	
28		200 West Area, Alternative Group D <sub>3</sub> .....	5.208
29	5.108	Maximum Annual Drinking Water Dose for the Well 1 km from the ERDF Site,	
30		Alternative Group D <sub>3</sub> .....	5.208
31	5.109	Maximum Annual Drinking Water Dose for the Well 1 km Northwest of the	
32		200 East Area, Alternative Group D <sub>3</sub> .....	5.209
33	5.110	Maximum Annual Drinking Water Dose for the Well Near the Columbia River,	
34		Alternative Group D <sub>3</sub> .....	5.209
35	5.111	Population Health Impacts from Drinking Water Downstream of Hanford over	
36		10,000 Years – Alternative Group E <sub>1</sub> , Hanford Only Waste Volume .....	5.211
37	5.112	Population Health Impacts from Drinking Water Downstream of Hanford over	
38		10,000 Years – Alternative Group E <sub>1</sub> , Lower Bound Waste Volume .....	5.211
39	5.113	Population Doses and Health Impacts from Drinking Water Downstream of	
40		Hanford over 10,000 Years – Alternative Group E <sub>1</sub> , Upper Bound Waste Volume.....	5.211
41	5.114	Maximum Annual Drinking Water Dose for the Well 1 km North of the	
42		200 West Area, Alternative Group E <sub>1</sub> .....	5.212
43	5.115	Maximum Annual Drinking Water Dose for the Well 1 km from the ERDF Site,	
44		Alternative Group E <sub>1</sub> .....	5.212

1	5.116	Maximum Annual Drinking Water Dose for the Well 1 km Northwest of the	
2		200 East Area, Alternative Group E <sub>1</sub> .....	5.213
3	5.117	Maximum Annual Drinking Water Dose for the Well Near the Columbia River,	
4		Alternative Group E <sub>1</sub> .....	5.213
5	5.118	Population Health Impacts from Drinking Water Downstream of Hanford over	
6		10,000 Years – Alternative Group E <sub>2</sub> , Hanford Only Waste Volume .....	5.215
7	5.119	Population Health Impacts from Drinking Water Downstream of Hanford over	
8		10,000 Years – Alternative Group E <sub>2</sub> , Lower Bound Waste Volume .....	5.215
9	5.120	Population Doses and Health Impacts from Drinking Water Downstream of	
10		Hanford over 10,000 Years – Alternative Group E <sub>2</sub> , Upper Bound Waste Volume.....	5.215
11	5.121	Maximum Annual Drinking Water Dose for the Well 1 km North of the	
12		200 West Area, Alternative Group E <sub>2</sub> .....	5.216
13	5.122	Maximum Annual Drinking Water Dose for the Well 1 km from the ERDF Site,	
14		Alternative Group E <sub>2</sub> .....	5.216
15	5.123	Maximum Annual Drinking Water Dose for the Well 1 km Northwest of the	
16		200 East Area, Alternative Group E <sub>2</sub> .....	5.217
17	5.124	Maximum Annual Drinking Water Dose for the Well 1 km Southeast of the	
18		200 East Area, Alternative Group E <sub>2</sub> .....	5.217
19	5.125	Maximum Annual Drinking Water Dose for the Well Near the Columbia River,	
20		Alternative Group E <sub>2</sub> .....	5.218
21	5.126	Population Health Impacts from Drinking Water Downstream of Hanford over	
22		10,000 Years – Alternative Group E <sub>3</sub> , Hanford Only Waste Volume .....	5.220
23	5.127	Population Health Impacts from Drinking Water Downstream of Hanford over	
24		10,000 Years – Alternative Group E <sub>3</sub> , Lower Bound Waste Volume .....	5.220
25	5.128	Population Doses and Health Impacts from Drinking Water Downstream of	
26		Hanford over 10,000 Years – Alternative Group E <sub>3</sub> , Upper Bound Waste Volume.....	5.220
27	5.129	Maximum Annual Drinking Water Dose for the Well 1 km North of the	
28		200 West Area, Alternative Group E <sub>3</sub> .....	5.221
29	5.130	Maximum Annual Drinking Water Dose for the Well 1 km from the ERDF Site,	
30		Alternative Group E <sub>3</sub> .....	5.221
31	5.131	Maximum Annual Drinking Water Dose for the Well 1 km Northwest of the	
32		200 East Area, Alternative Group E <sub>3</sub> .....	5.222
33	5.132	Maximum Annual Drinking Water Dose for the Well 1 km Southeast of the	
34		200 East Area, Alternative Group E <sub>3</sub> .....	5.222
35	5.133	Maximum Annual Drinking Water Dose for the Well Near the Columbia River,	
36		Alternative Group E <sub>3</sub> .....	5.223
37	5.134	Population Doses and Health Impacts from Drinking Water Downstream of	
38		Hanford over 10,000 Years – No Action Alternative, Hanford Only Waste Volume .....	5.225
39	5.135	Population Doses and Health Impacts from Drinking Water Downstream of	
40		Hanford over 10,000 Years – No Action Alternative, Lower Bound Waste Volume .....	5.225
41	5.136	Maximum Annual Drinking Water Dose for the Well 1 km North of the	
42		200 West Area, No Action Alternative .....	5.225
43	5.137	Maximum Annual Drinking Water Dose for the Well 1 km Northwest of the	
44		200 East Area, No Action Alternative .....	5.226

1	5.138	Maximum Annual Drinking Water Dose for the Well 1 km Southeast of the	
2		200 East Area, No Action Alternative .....	5.226
3	5.139	Maximum Annual Drinking Water Dose for the Well Near the Columbia River,	
4		No Action Alternative.....	5.227
5	5.140	Impacts to an Individual from Worst-Case Drilling into Low Level Burial Grounds .....	5.228
6	5.141	Impacts to an Individual from Worst-Case Excavation into Low Level Burial Grounds.....	5.228
7	5.142	Cumulative Air Quality Impacts for Criteria Pollutants. ....	5.237
8	5.143	Largest Criteria-Pollutant Impacts for HSW Operations Among the	
9		Alternative Groups and the No Action Alternative .....	5.238
10	5.144	Cumulative Population Health Effects in the Hanford Environs from	
11		Atmospheric Pathways due to Hanford Activities .....	5.241
12	5.145	Cumulative Transportation Impacts .....	5.251
13	5.146	Irreversible or Irrecoverable Resource Commitments by Alternative Group with ILAW .....	5.253
14	6.1.	Coverage of Hanford Solid Waste Management Units in Existing Permits .....	6.19
15	6.2.	Potential Permits and Approvals Needed for ILAW Storage and Disposal.....	6.20
16			
17			