

# Table of Contents

<b>EXECUTIVE SUMMARY</b>	xxv
<i>The West Valley Demonstration Project was established to show that technologies could be developed to safely clean up and solidify radioactive wastes.</i>	
<b>INTRODUCTION</b>	xxxi
<i>An environmental surveillance and monitoring program was instituted to ensure that operations at the WVDP would not affect the public's health and safety or the environment.</i>	
<b>ENVIRONMENTAL COMPLIANCE SUMMARY: CALENDAR YEAR 1993</b>	xli
<i>Project activities are governed by federal and state regulations, Department of Energy Orders, and regulatory compliance agreements.</i>	
<b>ENVIRONMENTAL COMPLIANCE SUMMARY: FIRST QUARTER 1994</b>	li
<i>All federal and state regulations and standards are integrated into the Project's compliance program.</i>	
<b>CHAPTER 1. ENVIRONMENTAL MONITORING PROGRAM INFORMATION</b>	
<i>The radionuclides monitored at the Project are those that might produce relatively higher doses or that are most abundant in air and water effluents discharged from the site.</i>	
Introduction	1-1
High-level Waste Treatment	1-1
Radiation and Radioactivity	1-2
Measurement of Radioactivity	1-3
Measurement of Dose	1-3
Environmental Monitoring Program Overview	1-5
1993 Activities at the West Valley Demonstration Project	1-6
High-level Waste Pretreatment	1-6
Vitrification	1-6
Low-level Waste Processing	1-7
1993 National Environmental Policy Act (NEPA) Activities	1-8
1993 Changes in the Environmental Monitoring Program	1-9
Resource Conservation and Recovery Act (RCRA) Reports	1-9
Hazardous Chemical Inventory	1-10
On-site Environmental Training	1-10
Self-Assessment	1-11

# Table of Contents

## CHAPTER 2. ENVIRONMENTAL MONITORING

*The West Valley Demonstration Project's environmental monitoring program includes monitoring and sampling of liquids and air effluents both on- and off-site. Deer, fish, milk, hay, and various fruits and vegetables are also sampled.*

Pathway Monitoring	2-1
Sampling Codes	2-1
Air Sampler Location and Operation	2-2
Water Sampler Location and Operation	2-2
Radiological Monitoring	2-2
Air Monitoring	2-2
Surface Water and Sediment Monitoring	2-11
Radioactivity in the Food Chain	2-19
Direct Environmental Radiation Monitoring	2-22
Meteorological Monitoring	2-26
Special Monitoring	2-27
Nonradiological Monitoring	2-29
Air Monitoring	2-29
Surface Water Monitoring	2-30
Drinking Water Monitoring	2-30

## CHAPTER 3. GROUNDWATER MONITORING

*Groundwater is routinely sampled for radiological and chemical parameters both inside the WVDP site security fence and around the site to determine and document any effect of site activities on groundwater quality.*

Geology of the West Valley Site	3-1
Surface Water Hydrology	3-2
Hydrogeology of the West Valley Site	3-3
Groundwater Monitoring Program Overview	3-6
Routine Groundwater Sampling	3-13
Expanded Characterization Sampling	3-14
Sampling Methodology	3-17
Groundwater Monitoring Results	3-19
Results of Contamination Indicator Monitoring of the Sand and Gravel Unit	3-22
Results of Contamination Indicator Monitoring of the Lavery Till-Sand Unit	3-25
Results of Contamination Indicator Monitoring of the Unweathered Lavery Till Unit	3-26

# Table of Contents

Results of Contamination Indicator Monitoring of the Kent Recessional Sequence	3-27
Results of Contamination Indicator Monitoring of the Weathered Lavery Till Unit	3-29
Results of Sampling for Groundwater Quality Parameters	3-29
Results of Sampling for Appendix IX and Target Compound List Metals	3-30
Results of Routine and Expanded RFI Sampling for Organic Compounds	3-31
Long-term Trends of Gross Beta and Tritium at Selected Groundwater Monitoring Locations	3-33
Results of Expanded Characterization for Radiological Parameters	3-35
Discussion of Site Groundwater Monitoring	3-41
Off-site Groundwater Monitoring Program	3-42

## CHAPTER 4. RADIOLOGICAL DOSE ASSESSMENT

*Because of the difficulty of measuring the small amounts of radionuclides emitted from the site, computer models are used to calculate dose estimates. Estimates are based on concentrations of radionuclides measured in air and water collected from on-site effluent points.*

Introduction	4-1
Radioactivity	4-1
Radiation Dose	4-2
Units of Measurement	4-2
Sources of Radiation	4-2
Health Effects of Low-level Radiation	4-3
Exposure Pathways	4-3
Dose Assessment Methodology	4-4
Predictive Computer Modeling	4-4
Environmental Media Concentrations	4-4
Airborne Releases	4-6
Waterborne Releases	4-7
Biological Compartment Concentrations	4-7
Predicted Dose from Airborne Emissions	4-9
Predicted Dose from Waterborne Releases	4-9
Predicted Dose from all Pathways	4-11
Risk Assessment	4-13
Summary	4-13

# Table of Contents

## CHAPTER 5. QUALITY ASSURANCE

*The West Valley Demonstration Project's quality assurance program certifies that sample collection and analyses are consistent, precise, and accurate.*

Organizational Responsibilities	5-1
Program Design	5-1
Procedures	5-2
Quality Control in the Field	5-2
Quality Control in the Laboratory	5-3
Personnel Training	5-5
Record Keeping	5-5
Chain-of-Custody Procedures	5-6
Audits and Appraisals	5-6
Self-Assessments	5-6
Data Management and Data Validation	5-6
Data Reporting	5-7

# *Table of Contents*

## **APPENDIX A**

*1993 Environmental Monitoring Program*

## **APPENDIX B**

*Regulations and Standards*

## **APPENDIX C-1**

*Summary of Water and Sediment Monitoring Data*

## **APPENDIX C-2**

*Summary of Air Monitoring Data*

## **APPENDIX C-3**

*Summary of Biological Data*

## **APPENDIX C-4**

*Summary of Direct Radiation Monitoring Data*

## **APPENDIX C-5**

*Summary of Nonradiological Monitoring Data*

## **APPENDIX C-6**

*Summary of Meteorological Data*

## **APPENDIX D**

*Summary of Quality Assurance Crosscheck Analyses*

## **APPENDIX E**

*Summary of Groundwater Monitoring Data*

## **REFERENCES**

## **GLOSSARY**

## **ACRONYMS**

## **UNITS OF MEASURE**

## **DISTRIBUTION**

## **ACKNOWLEDGMENTS**

# *Table of Contents*

## *List of Figures*

1-1.	Location of the Western New York Nuclear Service Center	xxxiii
2-1.	Location of On-site Air Effluent Monitoring Points	2-3
2-2.	Location of Perimeter Air Samplers	2-4
2-3.	Sampling Locations for On-site Surface Water	2-5
2-4.	Location of Off-site Surface Water Samplers and Sediment Collection	2-6
2-5.	Seven-Year Trends of Gross Alpha and Gross Beta Concentrations at the Main Stack Sampling Location (ANSTACK)	2-7
2-6.	Seven-Year Trends of Gross Alpha and Gross Beta Concentrations at the Rock Springs Road Sampling Location (AFRSPRD)	2-9
2-7.	Seven-Year Trends of Gross Alpha, Gross Beta, and Tritium Concentrations at Sampling Location WNNDADR	2-14
2-8.	Six-Year Trends of Gross Alpha, Gross Beta, and Tritium Concentrations at Sampling Location WNSP006	2-15
2-9.	Seven-Year Trends of Gross Alpha, Gross Beta, and Tritium Concentrations at Sampling Location WFFELBR	2-16
2-10.	Eight-Year Trends of Cesium-137 in Stream Sediment for Two Locations Upstream and Three Locations Downstream of the WVDP	2-18
2-11.	Comparison of Cesium-137 with Naturally Occurring Potassium-40 Concentrations at Downstream Sampling Location SFTCSED	2-18
2-12.	Near-site Biological Sampling Points	2-20
2-13.	Location of On-site Thermoluminescent Dosimetry (TLD)	2-23
2-14.	Location of Off-site Thermoluminescent Dosimetry (TLD)	2-24
2-15.	Trend of Environmental Radiation Levels	2-25
2-16.	SPDES Monitoring Points	2-31
3-1.	Geologic Cross Section through the North Plateau	3-2
3-2.	Geologic Cross Section through the South Plateau	3-3
3-3.	Location of On-site Groundwater Monitoring Network Wells	3-4
3-4.	Off-site Groundwater Monitoring Points	3-20
3-5.	Sample Box-and-Whisker Plot	3-21

# *Table of Contents*

## *List of Figures*

### *Groundwater Samples from the Sand and Gravel Unit*

3-6.	pH	3-43
3-7.	Conductivity	3-43
3-8.	Total Organic Carbon	3-44
3-9.	Total Organic Halogens	3-44
3-10.	Gross Alpha	3-45
3-11.	Gross Beta	3-45
3-11a.	Gross Beta (magnified scale)	3-46
3-11b.	Gross Beta (magnified scale of Fig. 3-11a)	3-46
3-12.	Tritium Activity	3-47
3-12a.	Tritium Activity (magnified scale)	3-47

### *Groundwater Samples from the Till-sand Unit*

3-13.	pH	3-48
3-14.	Conductivity	3-48
3-15.	Total Organic Carbon	3-48
3-16.	Total Organic Halogens	3-48
3-17.	Gross Alpha	3-49
3-18.	Gross Beta	3-49
3-19.	Tritium Activity	3-49

### *Groundwater Samples from the Unweathered Lavery Till Unit*

3-20.	pH	3-50
3-21.	Conductivity	3-50
3-22.	Total Organic Carbon	3-50
3-23.	Total Organic Halogens	3-50
3-24.	Gross Alpha	3-51
3-25.	Gross Beta	3-51
3-26.	Tritium Activity	3-51
3-26a.	Tritium Activity (magnified scale)	3-51

### *Groundwater Samples from the Kent Recessional Sequence*

3-27.	pH	3-52
3-28.	Conductivity	3-52
3-29.	Total Organic Carbon	3-52
3-30.	Total Organic Halogens	3-52
3-31.	Gross Alpha	3-53

# *Table of Contents*

## *List of Figures*

3-32.	Gross Beta	3-53
3-33.	Tritium Activity	3-53
<i>Groundwater Samples from the Weathered Lavery Till Unit</i>		
3-34.	pH	3-54
3-35.	Conductivity	3-54
3-36.	Total Organic Carbon	3-54
3-37.	Total Organic Halogens	3-54
3-38.	Gross Alpha	3-55
3-39.	Gross Beta	3-55
3-40.	Tritium Activity	3-55
3-40a.	Tritium Activity (magnified scale)	3-55
<i>Groundwater Trends</i>		
3-41.	Four-Year Trends of 1,1-DCA and 1,1,1-TCA at Selected Groundwater Locations	3-56
3-41a.	Three-Year Trends of Dichlorodifluoromethane (DCDFMeth) at Selected Groundwater Locations	3-56
3-42.	Eight-Year Trends of Averaged Gross Beta Activity at Selected Locations in the Sand and Gravel Unit	3-57
3-42a.	Three-Year Trends of Gross Beta Activity at Five Selected Wells	3-57
3-42b.	Three-Year Trends of Gross Beta Activity at Three Selected Wells	3-58
3-43.	Eight-Year Trends of Averaged Tritium Activity at Selected Locations in the Sand and Gravel Unit	3-58
3-43a.	Three-Year Trends of Tritium Activity at Selected Wells	3-59
3-44.	Gross Beta and Strontium-90 Relationships along Groundwater Flow Path	3-59
4-1.	Comparison of Annual Background Radiation Dose to the Dose from 1993 WVDP Effluents	4-3
4-2.	Effective Dose Equivalent from Liquid and Airborne Effluents to a Maximally Exposed Individual Residing near the WVDP	4-10
4-3.	Collective Effective Dose Equivalent from Liquid and Airborne Effluents to the Population Residing within 80 kilometers of the WVDP	4-11



# *Table of Contents*

## *List of Figures*

A-1.	On-site Air Effluent Monitoring Points	A-47
A-2.	Sampling Locations for On-site Surface Water and Soil	A-48
A-3.	On-site Groundwater Monitoring Network	A-49
A-4.	Location of Off-site Surface Water Samplers and Sediment Collection	A-50
A-5.	Near-site Drinking Water and Biological Sample Points	A-51
A-6.	Location of Perimeter Air Samplers	A-52
A-7.	Location of Off-site Thermoluminescent Dosimetry (TLD)	A-53
A-8.	Location of On-site Thermoluminescent Dosimetry (TLD)	A-54
A-9.	Environmental Sample Points more than 5 kilometers from the WVDP Site	A-55
C-4.1.	1993 Average Quarterly Gamma Exposure Rates around the West Valley Demonstration Project Site	C4-4
C-4.2.	1993 Average Quarterly Gamma Exposure Rates on the West Valley Demonstration Project Site	C4-4
C-5.1.	SPDES Monitoring Points	C5-5
<i>Parameters Measured at SPDES Outfalls — 1993</i>		
C-5.2.	Biochemical Oxygen Demand-5: Outfall 001	C5-6
C-5.3.	Biochemical Oxygen Demand-5: Outfalls 007 and 008	C5-6
C-5.4.	Suspended Solids: Outfall 001	C5-6
C-5.5.	Suspended Solids: Outfall 007	C5-7
C-5.6.	Settleable Solids: Outfall 001	C5-7
C-5.7.	Settleable Solids: Outfall 007	C5-7
C-5.8.	Ammonia: Outfall 001	C5-8
C-5.9.	Ammonia: Outfall 007	C5-8
C-5.10.	Metals (Aluminum): Outfall 001	C5-8
C-5.11.	Metals (Zinc): Outfall 001	C5-9
C-5.12.	Metals (Arsenic): Outfall 001	C5-9
C-5.13.	Cyanide: Outfall 001	C5-9
C-5.14.	Metals (Iron): Outfall 001	C5-10
C-5.15.	Metals (Iron): Outfalls 007 and 008	C5-10
C-5.16.	Metals (Copper): Outfall 001	C5-10

# *Table of Contents*

## *List of Figures*

C-5.17.	Metals (Cadmium): Outfall 001	C5-11
C-5.18.	Metals (Chromium, VI): Outfall 001	C5-11
C-5.19.	Metals (Lead): Outfall 001	C5-11
C-5.20.	Nitrate (NO <sub>3</sub> -N): Outfall 001	C5-12
C-5.21.	Nitrite (NO <sub>2</sub> -N): Outfall 001	C5-12
C-5.22.	Sulfate-S: Outfall 001	C5-12
C-5.23.	Oil and Grease: Outfall 001	C5-13
C-5.24.	pH: Outfall 001	C5-13
C-5.25.	pH: Outfalls 007 and 008	C5-13
C-5.26.	Discharge Rate: Outfall 001	C5-14
C-5.27.	Discharge Rate: Outfall 007	C5-14
C-5.28.	Discharge Rate: Outfall 008	C5-14
C-5.29.	Flow-weighted Averages: Ammonia	C5-15
C-5.30.	Flow-weighted Averages: Biochemical Oxygen Demand-5	C5-15
C-5.31.	Flow-weighted Averages: Iron	C5-15
C-5.32.	Nickel: Outfall 001	C5-16
C-5.33.	Trichlorofluoromethane: Outfall 001	C5-16
C-5.34.	3,3-Dichlorobenzidine: Outfall 001	C5-16
C-5.35.	Tributyl Phosphate: Outfall 001	C5-17
C-5.36.	Vanadium: Outfall 001	C5-17
C-5.37.	Dichlorodifluoromethane: Outfall 001	C5-17
C-6.1.	Wind Frequency Rose: 10-meter at the Primary Monitoring Station	C6-3
C-6.2.	Wind Frequency Rose: 60-meter at the Primary Monitoring Station	C6-4
C-6.3.	Wind Frequency Rose: 10-meter at the Regional Monitoring Station	C6-5
C-6.4.	1993 Weekly Rainfall	C6-6
C-6.5.	1993 Cumulative Rainfall	C6-6

# *Table of Contents*

## *List of Tables*

2-1.	Gross Alpha Activity at Off-site and Perimeter Ambient Air Sampling Locations	2-10
2-2.	Gross Beta Activity at Off-site and Perimeter Ambient Air Sampling Locations	2-10
2-3.	Gross Alpha Activity at Surface Water Sampling Locations	2-17
2-4.	Gross Beta Activity at Surface Water Sampling Locations	2-17
3-1.	Groundwater Monitoring Network: Super Solid Waste Management Units	3-7
3-2.	Groundwater Monitoring Schedule	3-15
3-3.	Schedule of Groundwater Sampling and Analysis	3-16
3-4.	Radioisotopic Parameter List	3-18
3-5.	Expanded Groundwater Characterization: Number of Wells and Discharge Points Exceeding Background Values	3-36
4-1.	Potential Exposure Pathways under Existing WVDP Conditions	4-5
4-2.	Summary of Annual Effective Dose Equivalents to an Individual and Population from WVDP Effluents	4-12
B-1.	Department of Energy Radiation Protection Standards and Concentration Guides	B-3
B-2.	Environmental Standards and Regulations	B-4
B-3.	West Valley Demonstration Project Environmental Permits	B-5
C-1.1.	Total Radioactivity of Liquid Effluents Released from Lagoon 3 in 1993	C1-3
C-1.2.	Comparison of 1993 Lagoon 3 Liquid Effluent Radioactivity Concentrations with Department of Energy Guidelines	C1-4
C-1.3.	Radioactivity Concentrations in Surface Water Upstream of the WVDP at Fox Valley	C1-5
C-1.4.	Radioactivity Concentrations in Surface Water Downstream of the WVDP at Thomas Corners	C1-5
C-1.5.	Monthly Radioactivity Concentrations in Surface Water Downstream of the WVDP at Frank's Creek	C1-6
C-1.6.	Quarterly Radioactivity Concentrations in Surface Water Downstream of the WVDP at Frank's Creek	C1-6

# *Table of Contents*

## *List of Tables*

C-1.7.	Monthly Radioactivity Concentrations in Surface Water Downstream of Buttermilk Creek at Felton Bridge	<i>CI-7</i>
C-1.8.	Radioactivity Concentrations in Potable Well Water around the WVDP	<i>CI-7</i>
C-1.9.	Radioactivity Concentrations in Stream Sediments around the WVDP	<i>CI-8</i>
C-1.10	Radioactivity Concentrations in Surface Soil Collected at Air Sampling Stations around the WVDP	<i>CI-8</i>
C-1.11.	Surface Water Quality at Locations WFBCBKG, WNSP006, WNSWAMP, and WNWSW74A	<i>CI-9</i>
C-1.12	Monthly Radioactivity Concentrations in Surface Water at the Northeast Swamp Location	<i>CI-10</i>
C-1.13	Quarterly Radioactivity Concentrations in Surface Water at the Northeast Swamp Location	<i>CI-10</i>
C-1.14.	Monthly Radioactivity Concentrations in Surface Water at the North Swamp Location	<i>CI-11</i>
C-1.15.	Quarterly Radioactivity Concentrations in Surface Water at the North Swamp Location	<i>CI-11</i>
C-1.16.	Monthly Radioactivity Concentrations and pH in Surface Water at Location WNFRC67	<i>CI-12</i>
C-1.17.	Monthly Radioactivity Concentrations and pH in Surface Water at Location WNERB53	<i>CI-12</i>
C-1.18.	Monthly Radioactivity Concentrations and pH in Surface Water at Location WNCOOLW	<i>CI-13</i>
C-1.19.	Monthly Radioactivity Concentrations and pH in Surface Water at Location WNSP005	<i>CI-13</i>
C-1.20.	Monthly Radioactivity Concentrations, pH, and Conductivity at Site Potable Water Location WNDNKEL	<i>CI-14</i>
C-1.21.	Monthly Radioactivity Concentrations in Surface Water at Location WNSP007	<i>CI-14</i>
C-1.22.	Radioactivity Concentrations in Surface Water at Locations WNNDADR and WNNDATR	<i>CI-15</i>
C-1.23.	TOC, NPOC, TOX, and pH for Locations WNNDADR and WNNDATR	<i>CI-16</i>
C-1.24.	Radioactivity Concentrations in On-site Soil Sediments	<i>CI-17</i>
C-1.25.	Metals Concentrations in On-site Soils	<i>CI-18</i>
C-1.26.	Monthly Radioactivity Concentrations in Surface Water at French Drain Location WNSP008	<i>CI-19</i>
C-1.27.	Quarterly Radioactivity Concentrations in Surface Water at Location WFBCBKG	<i>CI-19</i>

# *Table of Contents*

## *List of Tables*

C-2.1.	Airborne Radioactive Effluent Monthly Totals from the Main Ventilation Stack	C2-3
C-2.2.	Airborne Radioactive Effluent Quarterly Totals from the Main Ventilation Stack	C2-3
C-2.3.	Comparison of 1993 Main Stack Exhaust Radioactivity Concentrations with Department of Energy Guidelines	C2-4
C-2.4.	Airborne Radioactive Effluent Monthly Totals from the Cement Solidification System Ventilation Stack	C2-5
C-2.5.	Airborne Radioactive Effluent Quarterly Totals from the Cement Solidification System Ventilation Stack	C2-5
C-2.6.	Airborne Radioactive Effluent Monthly Totals from the Contact Size-reduction Facility Ventilation Stack	C2-6
C-2.7.	Airborne Radioactive Effluent Quarterly Totals from the Contact Size-reduction Facility Ventilation Stack	C2-6
C-2.8.	Airborne Radioactive Effluent Monthly Totals from the Supernatant Treatment Ventilation System Stack	C2-7
C-2.9.	Airborne Radioactive Effluent Quarterly Totals from the Supernatant Treatment System Ventilation Stack	C2-7
C-2.10.	Airborne Radioactive Effluent Monthly Totals from the Supercompactor Ventilation Stack	C2-8
C-2.11.	Airborne Radioactive Effluent Quarterly Totals from the Supercompactor Ventilation Stack	C2-8
C-2.12.	Radioactivity Concentrations in Airborne Particulates at the Fox Valley Air Sampler	C2-9
C-2.13.	Radioactivity Concentrations in Airborne Particulates at the Rock Springs Road Air Sampler	C2-9
C-2.14.	Radioactivity Concentrations in Airborne Particulates at the Route 240 Air Sampler	C2-10
C-2.15.	Radioactivity Concentrations in Airborne Particulates at the Springville Air Sampler	C2-10
C-2.16.	Radioactivity Concentrations in Airborne Particulates at the Thomas Corners Road Air Sampler	C2-11
C-2.17.	Radioactivity Concentrations in Airborne Particulates at the West Valley Air Sampler	C2-11
C-2.18.	Radioactivity Concentrations in Airborne Particulates at the Great Valley Air Sampler	C2-12
C-2.19.	Radioactivity Concentrations in Airborne Particulates at the Dunkirk Air Sampler	C2-12
C-2.20.	Radioactivity Concentrations in Airborne Particulates at the Dutch Hill Air Sampler	C2-13
C-2.21.	Radioactivity in Fallout During 1993	C2-14
C-2.22.	pH of Precipitation Collected in Fallout Pots in 1993	C2-15
C-2.23.	Radioactivity Concentrations in Airborne Particulates at Location AFBLKST	C2-15

# *Table of Contents*

## *List of Tables*

C-3.1.	Radioactivity Concentrations in Milk	C3-3
C-3.2.	Radioactivity Concentrations in Meat	C3-4
C-3.3.	Radioactivity Concentrations in Food Crops	C3-5
C-3.4.	Radioactivity Concentrations in Fish Flesh from Cattaraugus Creek	C3-6
C-4.1.	Summary of 1993 Quarterly Averages of TLD Measurements	C4-3
C-5.1.	West Valley Demonstration Project State Pollutant Discharge Elimination System (SPDES) Sampling Program	C5-3
C-5.2.	West Valley Demonstration Project 1993 SPDES Noncompliance Episodes	C5-4
C-6.1.	Site Rainfall Collection Data	C6-7
C-6.2.	Annual Temperature Summary at the 10-meter Primary Meteorological Tower	C6-8
Comparison of Radiological Concentrations in Crosscheck Samples between the West Valley Demonstration Project and the:		
D-1.	Environmental Measurements Laboratory Quality Assessment Program 38	D-3
D-2.	Environmental Measurements Laboratory Quality Assessment Program 39	D-4
D-3.	U.S. EPA's Environmental Monitoring Systems Laboratory	D-5
Comparison of Water Quality Parameters in Crosscheck Samples between the West Valley Demonstration Project and the:		
D-4.	U.S. EPA 1993 Discharge Monitoring Report Quality Assurance Program #13 for the NPDES	D-7
D-5.	New York State Department of Health	D-8
D-6.	Comparison of the West Valley Demonstration Project's Thermoluminescent Dosimeters to the Co-located Nuclear Regulatory Commission TLDs	D-9

# *Table of Contents*

## *List of Tables*

E-1.	Contamination Indicator Parameters for the Sand and Gravel Unit	<i>E-3</i>
E-2.	Contamination Indicator Parameters for the Till-Sand Unit	<i>E-9</i>
E-3.	Contamination Indicator Parameters for the Unweathered Lavery Till Unit	<i>E-10</i>
E-4.	Contamination Indicator Parameters for the Kent Recessional Sequence	<i>E-13</i>
E-5.	Contamination Indicator Parameters for the Weathered Lavery Till Unit	<i>E-15</i>
E-6.	Groundwater Quality Parameters for the Sand and Gravel Unit	<i>E-18</i>
E-7.	Groundwater Quality Parameters for the Till-Sand Unit	<i>E-22</i>
E-8.	Groundwater Quality Parameters for the Unweathered Lavery Till Unit	<i>E-24</i>
E-9.	Groundwater Quality Parameters for the Kent Recessional Sequence	<i>E-26</i>
E-10.	Groundwater Quality Parameters for the Weathered Lavery Till Unit	<i>E-28</i>
E-11.	Typical Practical Quantitation Limits for Appendix IX and Target Compound List Compounds	<i>E-30</i>
E-12.	1,1,1-Trichloroethane, 1,1-Dichloroethane, and Dichlorodifluoromethane Sampling Results at Selected Groundwater Monitoring Locations	<i>E-34</i>
E-13.	Expanded Characterization: N-Dodecane and Tributyl Phosphate Sampling Results	<i>E-35</i>
E-14.	Target Compound List and Appendix IX Metals Sampling Results	<i>E-36</i>
E-15.	Expanded Characterization: Alpha- and Beta-emitting Radioisotopic Results	<i>E-38</i>
E-16.	Expanded Characterization: Beta-emitting Radioisotopic Results	<i>E-39</i>
E-17.	Radiological Concentrations at Well Points	<i>E-40</i>