CHAPTER 11—RADIOACTIVE WASTE MANAGEMENT
TABLE OF CONTENTS

11.0 RADIOACTIVE WASTE MANAGEMENT 11.1-1

11.1 Source Terms 11.1-1

11.1.1 Sources of Radioactivity: Fission, Activation, and Corrosion Products 11.1-1

11.1.2 Design Basis 11.1-2

11.1.2.1 Design Basis for Radwaste System and Normal Effluents 11.1-2

11.1.2.2 Design Basis for Shielding 11.1-3

11.1.2.3 Reactor Coolant System Design Basis Source Term 11.1-3

11.1.2.4 Secondary Coolant Design Basis Source Term 11.1-4

11.1.3 Reactor Coolant System and Secondary Coolant Realistic Source Terms 11.1-4

11.1.4 References 11.1-4

11.2 Liquid Waste Management System 11.2-1

11.2.1 Design Basis 11.2-1

11.2.1.1 Design Objectives 11.2-2

11.2.1.2 Design Criteria 11.2-2

11.2.2 System Description 11.2-5

11.2.2.1 Liquid Waste Storage System Operation 11.2-7

11.2.2.2 Liquid Waste Processing System Operation 11.2-12

11.2.2.3 Sampling 11.2-15

11.2.2.4 Component Description 11.2-16

11.2.2.5 Inspection and Testing Requirements 11.2-26

11.2.2.6 Instrumentation Design 11.2-27

11.2.3 Radioactive Effluent Releases 11.2-27

11.2.3.1 Discharge Requirements 11.2-27

11.2.3.2 Estimated Annual Releases 11.2-28

11.2.3.3 Release Points and Dilution Factors 11.2-28

11.2.3.4 Estimated Doses 11.2-29
11.2.3.5 Maximum Release Concentrations 11.2-29
11.2.3.6 Radioactive Liquid Waste System Leak or Failure 11.2-30
11.2.3.7 Postulated Radioactive Releases due to Liquid-Containing Tank Failures..... 11.2-30
11.2.3.8 Quality Assurance 11.2-31
11.2.4 Liquid Waste Management System Cost-Benefit Analysis.... 11.2-31
11.2.4.1 Calculation of Population Doses 11.2-32
11.2.4.2 Dose Benefit and Augment Costs 11.2-32
11.2.4.3 Alternative Analysis 11.2-33
11.2.5 References 11.2-34
11.3 Gaseous Waste Management Systems 11.3-1
11.3.1 Design Basis..... 11.3-1
11.3.1.1 Design Objectives 11.3-2
11.3.1.2 Design Criteria..... 11.3-2
11.3.2 System Description..... 11.3-4
11.3.2.1 Normal Operation 11.3-5
11.3.2.2 Surge Gas Operation 11.3-7
11.3.2.3 Component Description..... 11.3-7
11.3.2.4 Failure Tolerance 11.3-12
11.3.2.5 Inspection and Testing Requirements..... 11.3-15
11.3.3 Radioactive Effluent Releases..... 11.3-16
11.3.3.1 Discharge Requirements..... 11.3-17
11.3.3.2 Estimated Annual Releases 11.3-17
11.3.3.3 Release Points 11.3-17
11.3.3.4 Estimated Doses 11.3-18
11.3.3.5 Maximum Release Concentrations 11.3-19
11.3.3.6 Radioactive Gaseous Waste System Leak or Failure 11.3-19
11.3.3.7 Quality Assurance 11.3-20
11.3.4 Gaseous Waste Management System Cost-Benefit Analysis 11.3-20
11.3.4.1 Calculation of Population Doses 11.3-20

11.3.4.2 Dose Benefits and Augment Cost 11.3-21
11.3.5 References 11.3-22
11.4 Solid Waste Management Systems 11.4-1
11.4.1 Design Basis..... 11.4-1
11.4.1.1 Design Objectives 11.4-1
11.4.1.2 Design Criteria..... 11.4-2
11.4.2 System Description..... 11.4-4
11.4.2.1 Solid Waste Processing and Storage System (Dry Solid Waste) 11.4-4
11.4.2.2 Radioactive Concentrates Processing System (Wet Solid Wastes)..... 11.4-5
11.4.2.3 Component Description..... 11.4-7
11.4.2.4 Packaging, Storage, and Shipping 11.4-13
11.4.2.5 Effluent Controls..... 11.4-14
11.4.2.6 Operation and Personnel Exposure 11.4-14
11.4.2.7 Inspection and Testing Requirements..... 11.4-15
11.4.2.8 Instrumentation Requirements 11.4-15
11.4.3 Radioactive Effluent Releases..... 11.4-15
11.4.4 Solid Waste Management System Cost-Benefit Analysis 11.4-16
11.4.5 Failure Tolerance..... 11.4-16
11.4.6 References 11.4-17
11.5 Process and Effluent Radiological Monitoring and Sampling Systems..... 11.5-1
11.5.1 Design Basis..... 11.5-1
11.5.1.1 Design Objectives 11.5-2
11.5.1.2 Design Criteria..... 11.5-2
11.5.2 System Description..... 11.5-3
11.5.3 Effluent Monitoring and Sampling..... 11.5-4
11.5.3.1 Gaseous Effluents 11.5-4
11.5.3.2 Liquid Effluents..... 11.5-5
11.5.4 Process Monitoring and Sampling..... 11.5-6
11.5.4.1 Main Steam Radiation Monitoring System 11.5-6
11.5.4.2 Condenser Air Removal Radiation Monitoring System 11.5-7

11.5.4.3 Steam Generator Blowdown Radiation Monitoring System 11.5-7
11.5.4.4 Component Cooling Water Radiation Monitoring System 11.5-8
11.5.4.5 Gaseous Waste Disposal Radiation Monitoring System 11.5-8
11.5.4.6 Reactor Coolant Radiation Monitoring and Sampling System 11.5-9
11.5.4.7 Chilled Water Supply for the Gaseous Waste Disposal Sampling System..... 11.5-9
11.5.5 References 11.5-10

Next File