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TABLE OF CONTNETS		iii vii	14 13	iii vii	20 20
Chapter 1		1-5 1-7	13 15	1-5 1-7	20 20
Chapter 10 ·		10-47 10-48 10-49 10-50	13 13 13 13	10-47 10-48 10-49 10-50 10-50a	20 20 20 20 20
Distribution			19		20

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APPLICATION FOR RENEWAL OF SPECIAL NUCLEAR MATERIAL LICENSE NO. SNM-1227 (NRC DOCKET NO. 70-1257)

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TABLE OF CONTENTS REV. 20 Page FORWARD 0-1 PART I - LICENSE CONDITIONS CHAPTER 1 - STANDARD CONDITIONS AND SPECIAL AUTHORIZATIONS Corporate Information 1.1 1-1 1.2 Site Location 1-1 1.3 License Number and Period of License 1-1 1.3.1 Special Nuclear Materials License 1-1 1.4 Possession Limits 1-2 1.4.1 Uranium-235 (20,000 Kilograms) 1-2 1.4.2 Plutonium (Less Than 500 Grams) 1-2 1.5 Authorized Activities 1-2 Exemptions and Special Authorizations 1.6 1-2 Criticality Accident Alarm System Exemption 1.6.1 1-2 1.6.2 Special Processing of Uranium Enriched From 5 to 19.99 wt% U-235 1-4 1.6.3 Plutonium Storage 1-5 1.6.4 Posting Exemption 1-6 1.6.5 Waste Disposal 1-6 1.6.6 Special Nuclear Material Safeguards 1-6 1.6.7 Authorization at Reactor Sites 1-7 Authorization Release Guidelines 1.6.8 1-7 1.6.9 Authorized Criticality Alarm System Outage 1-7 CHAPTER 2 - ORGANIZATION AND ADMINISTRATION 2-1 2.1 Organizational Responsibilities and Authority 2-1 President and Chief Executive Officer 2.1.1 2-1 2.1.2 Vice President, Engineering and Production 2-1 2.1.3 Manager, Operations-Richland 2-1 Manager, Plant Operations 2.1.4 2-2 Manager, Process and Equipment Engineering 2.1.5 2-2 2.1.6 Manager, Facilities and Equipment Engineering 2-3 2.1.7 Manager, Chemical and Ceramic Development . 2-3 Manager, Process Support Engineering 2.1.8 2-4 Manager, Equipment and Maintenance Engineering 2.1.9 2-4 Manager, Materials Research 2.1.10 2-5 2.1.11 Manager, Plant Maintenance 2-5 2.1.12 Manager, Safety and Security Operations 2-6 Supervisor, Radiological and Industrial Safety 2.1.13 2-6 Health Physics Technicians 2.1.14 2-7 AMENDMENT APPLICATION DATE PAGE NO. June 1, 1989 iii

SPECIAL NUCLEAR MATERIAL LICENSE NO. SNM-1227, NRC DOCKET NO. 70-1257

Page CHAPTER 2 - ORGANIZATION AND ADMINISTRATION (Cont.d) 21.15 Plant Criticality Safety Engineer 2.8 21.16 Manager, Corporate Licensing 2.9 21.17 Manager, Corporate Licensing 2.9 21.19 Health Physics Component 2.10 21.20 Criticality Sofety Component 2.10 22.3 Plant Criticality Sofety Component 2.12 22.4 Manager, Corporate Licensing 2.12 22.5 Health Physics Technician 2.12 22.6 Criticality Sofety Songineer 2.12 22.6 Criticality Sofety Specialist 2.12 23.6 Criticality Sofety Component 2.13 23.1 Health Physics Specialist 2.12 24.6 Criticality Sofety Specialist 2.12 23.6 Criticality Sofety Council 2.13 23.1 Health Physics Technician Training 2.15 24.2 Followup Training 2.15 24.3 Health Physics Technician Training 2.15 24.4 Training Evaluations 2.16 25.5 Operating Procedure		TABLE OF CONTENTS		REV 13
2.1.15Plant Criticality Safety Engineer2-82.1.16Manager, Operation's Planning and Scheduling2-92.1.17Manager, Operation's Planning and Scheduling2-92.1.18Manager, Corporate Licensing2-92.1.19Health Physics Component2-102.1.20Criticality Safety Component2-102.2Personnel Education and Experience Requirements2-112.2.1Radiological and Industrial Safety Supervisor2-122.2.2Health Physics Technician2-122.2.3Plant Criticality Safety Engineer2-122.2.4Manager, Corporate Licensing2-122.2.5Health Physics Specialist2-122.2.6Criticality Safety Specialist2-122.3Safety Review Committees2-132.3.1Health and Safety Council2-132.3.2ALRA Committee2-142.4.1Initial Training2-152.4.2Followup Training2-152.4.3Health Physics Technician Training2-152.4.4Training Evoluctions2-162.5Operating Procedures, Standards and Guides2-162.6.1Radiation Protection2-162.6.2Criticality Safety2-172.6.3Hazardous Chemical Safety2-172.6.4Fire Protection2-182.6Environmental Protection Inspections2-182.6Environmental Protection Inspections2-182.6Records3-1 <td< th=""><th></th><th></th><th>Page</th><th></th></td<>			Page	
2.1.16Manager, Fuel Development and Testing2-92.1.17Manager, Operations Planning and Scheduling2-92.1.18Manager, Corporate Licensing2-92.1.19Health Physics Component2-102.1.20Criticality Safety Component2-102.2Personnel Education and Experience Requirements2-112.2.1Radiological and Industrial Safety Supervisor2-122.2.2Health Physics Technician2-122.2.3Plant Criticality Safety Engineer2-122.2.4Manager, Corporate Licensing2-122.2.5Health Physics Specialist2-122.2.6Criticality Safety Specialist2-122.3Safety Review Committees2-132.3.1Health and Safety Council2-132.3.2ALARA Committee2-142.4Training2-152.4.2Followp Training2-152.4.3Health Physics Technician Training2-152.4.4Training Evaluations2-162.5Operating Procedures, Standards and Guides2-162.6Internal Audits and Inspections2-162.6.1Radiation Protection2-162.6.2Criticality Safety2-172.6.3Hazardous Chemical Safety2-172.6.4Fire Protection2-182.6Environmental Protection Inspections2-182.6Environmental Protection Inspections2-182.6Records2-20CHAPTER 3 - RADIATIO	CHAPTER 2 -	ORGANIZATION AND ADMINISTRATION (Con	t.d)	
3.2.1Controlled Areas3-23.2.2Ventilation3-3	2.1.15 2.1.16 2.1.17 2.1.18 2.1.19 2.1.20 2.2 2.2.1 2.2.2 2.2.1 2.2.2 2.2.3 2.2.4 2.2.5 2.2.6 2.3 2.3.1 2.3.2 2.4 2.4.1 2.4.2 2.4.3 2.4.4 2.5 2.6 2.6 1 2.6.2 2.6.3 2.6.4 2.6.5 2.7 2.8 CHAPTER 3 - 3.1 3.1.1 3.1.2	Plant Criticality Safety Engineer Manager, Fuel Development and Testing Manager, Operation's Planning and Scheduling Manager, Corporate Licensing Health Physics Component Criticality Safety Component Personnel Education and Experience Requireme Radiological and Industrial Safety Supervisor Health Physics Technician Plant Criticality Safety Engineer Manager, Corporate Licensing Health Physics Specialist Criticality Safety Specialist Safety Review Committees Health and Safety Council ALARA Committee Training Initial Training Followup Training Health Physics Technician Training Training Evaluations Operating Procedures, Standards and Guides Internal Audits and Inspections Radiation Protection Criticality Safety Hazardous Chemical Safety Fire Protection Environmental Protection Inspections Investigations and Reporting of Reportable Inc Records RADIATION PROTECTION Special Administrative Requirements ALARA Policy Radiation Work Procedures	2-8 2-9 2-9 2-9 2-10 2-10 2-10 2-10 2-12 2-12 2-12 2-12	
같이 많은 것이 같아요. 것은 것이 같은 것이 있는 것이 있	3.2.2	Ventilation	3-3	
AMENDMENT APPLICATION DATE: PAGE NO.:	AMENDMENT APPL	ICATION DATE:	PAGE NO.:	<u> </u>

ANF-2

CHAPTER 9 - GENERAL INFORMATION (Cont.d)9.4Site Description9.5Location of Buildings On-Site9.6Maps and Plot Plans9.7License History9.7License History9.7License History9.7PapeENDIX ACHAPTER 10 - FACILITY DESCRIPTION1010.1Plant Layout10.1.1SF Building Description10.1.2UOg Building Description10.1.3ELD Building Description10.1.4Contaminated Clothing Laundry10.1.5Fuels Storage Warehouse10.1.6Radioactive Material Warehouse10.1.7Fuel Cooling Test Facility (FCTF)10.1.8UFG Receiving and Storage Facility10.2.1Electrical Power10.2.2Compressed A'r System10.2.3Water10.3Heating, Ventilation and Air Conditioning (HVAC)10.3.1Criteria10.3.2SF Building HVAC Systems10.3.3UOg Building (South Addition) HVAC Systems10.3.4UOg Building (South Addition) HVAC Systems10.3.5UOg Building (North) HVAC Systems10.3.6U3G Facility HVAC Systems10.3.7ELO Building HVAC Systems10.3.8ELO Addition HVAC Systems10.3.9Contaminated Clothing Laundry HVAC System10.3.1Griteria10.3.2SF Building HVAC Systems10.3.3UOg Building Korth HVAC Systems10.3.4UOg Building Korth HVAC Systems10.3.5UOg Contaminated Clothing Laun	REV 20	
9.4Site Description9-49.5Location of Buildings On-Site9-59.6Maps and Plot Plans9-59.7License History9-5APPENDIX A9-1CHAPTER 10 - FACILITY DESCRIPTION10.1Plant Layout10-110.1.1SF Building Description10-110.1.2UO2 Building Description10-110.1.3ELO Building Description10-110.1.4Contaminated Clothing Laundry10-110.1.5Fuel Sotrage Warehouse10-110.1.6Radioactive Material Warehouse10-110.1.7Fuel Cooling Test Facility (FCTF)10-110.1.8UF6 Receiving and Storage Facility10-110.2.1Electrical Power10-110.2.2Compressed A'r System10-110.2.3Water10-110.2.4Sewer System10-110.2.5Gas and Chemical Storage10-110.3Heating, Ventilation and Air Conditioning (HVAC)10-110.3.1Criteria10-110.3.2SF Building (North) HVAC Systems10-110.3.4UO2 Building (South Addition) HVAC Systems10-110.3.5UO2 Building (North) HVAC Systems10-110.3.6Lugd Facility HVAC Systems10-110.3.7ELO Building HVAC Systems10-110.3.8ELO Addition HVAC Systems10-110.3.4Lugd Facility HVAC Systems10-110.3.5UO2 Building Line 2 Conversion HVAC S		Page
9.6Maps and Plot Plans9.79.7License History9.5APPENDIX A9.110.1CHAPTER 10 - FACILITY DESCRIPTION10.110.1Plant Layout10.110.1.1SF Building Description10.110.1.2UO2 Building Description10.110.1.3ELD Building Description10.110.1.4Contaminated Clothing Laundry10.110.1.5Fuels Storage Warehouse10.110.1.6Radioactive Material Warehouse10.110.1.7Fuel Cooling Test Facility (FCTF)10.110.1.8UFG Receiving and Storage Facility10.110.2.1Electrical Power10.110.2.2Compressed Air System10.110.2.3Water10.110.2.4Sewer System10.110.2.5Gas and Chemical Storage10.110.2.6Communications and Annunciations10.110.2.7Breathing Air10.110.3.1Criteria10.110.3.2SF Building (North) HVAC Systems10.110.3.4UO2 Building (South Addition) HVAC Systems10.110.3.5UO2 Building Line 2 Conversion HVAC Systems10.110.3.8ELO Building HVAC Systems10.110.3.9Contaminated Clothing Laundry HVAC System10.310.3.4UO2 Building HVAC Systems10.310.3.5UO2 Building HVAC Systems10.310.3.6U30g Facility HVAC Systems10.310.3.7ELO Buildi		
9.6Maps and Plot Plans9.79.7License History9.5APPENDIX A9.1CHAPTER 10 - FACILITY DESCRIPTION10.110.1Plant Layout10.110.1.1SF Building Description10.110.1.2UO2 Building Description10.110.1.3ELD Building Description10.110.1.4Contaminated Clothing Laundry10.110.1.5Fuels Storage Warehouse10.110.1.6Radioactive Material Warehouse10.110.1.7Fuel Cooling Test Facility (FCTF)10.110.2Utilities and Support Systems10.110.2.1Electrical Power10.110.2.2Compressed Air System10.110.2.3Water10.110.2.4Sewer System10.110.2.5Gas and Chemical Storage10.110.2.6Communications and Annunciations10.110.2.7Breathing Air10.110.3.1Criteria10.210.3.2SF Building (North) HVAC Systems10.110.3.4UO2 Building (South Addition) HVAC Systems10.110.3.5UO2 Building Line 2 Conversion HVAC Systems10.110.3.8ELO Addition HVAC Systems10.110.3.9Cortaminated Clothing Laundry HVAC System10.310.3.1Gig Facility HVAC Systems10.110.3.4UO2 Building HVAC Systems10.110.3.5UO2 Building HVAC Systems10.310.3.6U30 Facility HVAC Systems<		9-4
9.6Maps and Plot Plans9.79.7License History9.6APPENDIX A9.110.1Plant Layout10.110.1Plant Layout10.110.1.1SF Building Description10.110.1.2UO2 Building Description10.110.1.3ELD Building Description10.110.1.4Contaminated Clothing Laundry10.110.1.5Fuels Storage Warehouse10.110.1.6Radioactive Material Warehouse10.110.1.7Fuel Cooling Test Facility (FCTF)10.110.2Utilities and Support Systems10.110.2.1Electrical Power10.110.2.2Compressed Air System10.110.2.3Water10.110.2.4Sewer System10.110.2.5Gas and Chemical Storage10.110.2.6Communications and Annunciations10.110.2.7Breathing Air10.310.3.1Criteria10.210.3.2SF Building (North) HVAC Systems10.110.3.4UO2 Building (South Addition) HVAC Systems10.310.3.5UO2 Building Line 2 Conversion HVAC Systems10.310.3.8ELO Building HVAC Systems10.310.3.8ELO Building HVAC Systems10.310.3.4UO2 Building Conth Addition HVAC System10.310.3.5UO2 Building Lundry HVAC Systems10.310.3.4UO2 Building HVAC Systems10.310.3.5UO2 Building HVAC Systems		9-5
APPENDIX A9.1CHAPTER 10 - FACILITY DESCRIPTION10.10.1Plant Layout10.10.1.1SF Building Description10.10.1.2UO2 Building Description10.10.1.3ELO Building Description10.10.1.4Contaminated Clothing Laundry10.10.1.5Fuels Storage Warehouse10.10.1.6Radioactive Material Warehouse10.10.1.7Fuel Cooling Test Facility (FCTF)10.10.1.8UF6 Receiving and Storage Facility10.10.2.1Electrical Power10.10.2.2Compressed Air System10.10.2.3Water10.10.2.4Sewer System10.10.2.5Gas and Chemical Storage10.10.2.6Communications and Annunciations10.10.3.1Criteria10.10.3.2SF Building HVAC Systems10.10.3.3UO2 Building (North) HVAC Systems10.10.3.4UO2 Building Line 2 Conversion HVAC Systems10.10.3.5UO2 Building HVAC Systems10.10.3.6UJ20 Facility HVAC Systems10.10.3.7ELO Building HVAC Systems10.10.3.8ELO Addition HVAC Systems10.10.3.4Lu20 Suilding HVAC Systems10.10.3.5UO2 Building HVAC Systems10.10.3.4Lu20 Suilding HVAC Systems10.10.3.5LU20 Suilding HVAC Systems10.10.3.6UJ20 Facility HVAC Systems10. </td <td>States of</td> <td>9-5</td>	States of	9-5
CHAPTER 10 - FACILITY DESCRIPTION10-10.1Plant Layout10-10.1.1SF Building Description10-10.1.2UO2 Building Description10-10.1.3ELO Building Description10-10.1.4Contaminated Clothing Laundry10-10.1.5Fuels Storage Warehouse10-10.1.6Radioactive Material Warehouse10-10.1.7Fuel Cooling Test Facility (FCTF)10-10.1.8UF6 Receiving and Storage Facility10-10.2Utilities and Support Systems10-10.2.1Electrical Power10-10.2.2Compressed Air System10-10.2.3Water10-10.2.4Sewer System10-10.2.5Gas and Chemical Storage10-10.3Heating, Ventilation and Annuciations10-10.3.1Criteria10-10.3.2SF Building HVAC Systems10-10.3.3UO2 Building (North) HVAC Systems10-10.3.4UO2 Building Line 2 Conversion HVAC Systems10-10.3.5UO2 Building HVAC Systems10-10.3.6UJ20 Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.3.9Contaminated Clothing Laundry HVAC System10-10.3.8ELO Addition HVAC Systems10-10.3.4UO2 Building HVAC Systems10-10.3.5UO2 Building HVAC Systems10-10.3.6<		9-5
10.1Plant Layout10.110.1.1SF Building Description10.110.1.2UO2 Building Description10.110.1.3ELO Building Description10.110.1.4Contaminated Clothing Laundry10.110.1.5Fuels Storage Warehouse10.110.1.6Radioactive Material Warehouse10.110.1.7Fuel Cooling Test Facility (FCTF)10.110.1.8UFg Receiving and Storage Facility10.110.2Utilities and Support Systems10.110.2.1Electrical Power10.110.2.2Compressed A'r System10.110.2.3Water10.110.2.4Sewer System10.110.2.5Gas and Chemical Storage10.110.2.6Communications and Annunciations10.210.2.7Breathing Air10.110.3Heating, Ventilation and Air Conditioning (HVAC)10.310.3.1Criteria10.310.3.2SF Building (North) HVAC Systems10.310.3.3UO2 Building (North) HVAC Systems10.310.3.4UO2 Building (South Addition) HVAC Systems10.310.3.5UO2 Building HVAC Systems10.310.3.6U30g Facility HVAC Systems10.310.3.8ELO Addition HVAC Systems10.310.3.4UO2 Building HVAC Systems10.310.3.5UO2 Building HVAC Systems10.310.3.6U30g Facility HVAC Systems10.310.3.7ELO Building HVAC Systems		9-12
10.1.1SF Building Description1010.1.2UO2 Building Description1010.1.3ELO Building Description1010.1.4Contaminated Clothing Laundry1010.1.5Fuels Storage Warehouse1010.1.6Radioactive Material Warehouse1010.1.7Fuel Cooling Test Facility (FCTF)1010.1.8UF6 Receiving and Storage Facility1010.2Utilities and Support Systems1010.2.1Electrical Power1010.2.2Compressed Air System1010.2.3Water1010.2.4Sewer System1010.2.5Gas and Chemical Storage1010.2.6Communications and Annunciations1010.3.1Criteria1010.3.2SF Building (North) HVAC Systems1010.3.3UO2 Building (North) HVAC Systems1010.3.4UO2 Building (South Addition) HVAC Systems1010.3.5UO2 Building Line 2 Conversion HVAC Systems1010.3.6U_30g Facility HVAC Systems1010.3.7ELO Building HVAC Systems1010.3.8ELO Addition HVAC Systems1010.3.9Contaminated Clothing Laundry HVAC System1010.4.4Radioactive Waste Handling1010.4.4Solids Uranium Recovery facility1010.4.4Solids Uranium Recovery facility10		10-1
10.1.1SF Building Description1010.1.2UO2 Building Description1010.1.3ELO Building Description1010.1.4Contaminated Clothing Laundry1010.1.5Fuels Storage Warehouse1010.1.6Radioactive Material Warehouse1010.1.7Fuel Cooling Test Facility (FCTF)1010.1.8UF6 Receiving and Storage Facility1010.2Utilities and Support Systems1010.2.1Electrical Power1010.2.2Compressed Air System1010.2.3Water1010.2.4Sewer System1010.2.5Gas and Chemical Storage1010.2.6Communications and Annunciations1010.3.1Criteria1010.3.2SF Building HVAC Systems1010.3.3UO2 Building (North) HVAC Systems1010.3.4UO2 Building (South Addition) HVAC Systems1010.3.5UO2 Building Line 2 Conversion HVAC Systems1010.3.6U_30g Facility HVAC Systems1010.3.7ELO Building HVAC Systems1010.3.8ELO Addition HVAC Systems1010.3.9contaminated Clothing Laundry HVAC System1010.4.4Radioactive Waste Handling1010.4.4Solids Uranium Recovery Description1010.4.4Solids Uranium Recovery Facility10		10-1
10.1.2UO2 Building Description1010.1.3ELO Building Description1010.1.4Contaminated Clothing Laundry1010.1.5Fuels Storage Warehouse1010.1.6Radioactive Material Warehouse1010.1.7Fuel Cooling Test Facility (FCTF)1010.1.8UF6 Receiving and Storage Facility1010.2Utilities and Support Systems1010.2.1Electrical Power1010.2.2Compressed Air System1010.2.3Water1010.2.4Sewer System1010.2.5Gas and Chemical Storage1010.2.6Communications and Annunciations1010.3.1Criteria1010.3.2SF Building HVAC Systems1010.3.3UO2 Building (North) HVAC Systems1010.3.4UO2 Building Line 2 Conversion HVAC Systems1010.3.5UO2 Building Line 2 Conversion HVAC Systems1010.3.6U20g Facility HVAC Systems1010.3.7ELO Building HVAC Systems1010.3.8ELO Addition HVAC Systems1010.3.9Contaminated Clothing Laundry HVAC System1010.4.4Radioactive Waste Handling1010.4.4Solids Uranium Recovery Description1010.4.4Solids Uranium Recovery Facility10	The state	10-1
10.1.3ELÖ Building Description10-10.1.4Contaminated Clothing Laundry10-10.1.5Fuels Storage Warehouse10-10.1.6Radioactive Material Warehouse10-10.1.7Fuel Cooling Test Facility (FCTF)10-10.1.8UF6 Receiving and Storage Facility10-10.2Utilities and Support Systems10-10.2.1Electrical Power10-10.2.2Compressed Air System10-10.2.3Water10-10.2.4Sewer System10-10.2.5Gas and Chemical Storage10-10.2.6Communications and Annunciations10-10.2.7Breathing Air10-10.3Heating, Ventilation and Air Conditioning (HVAC)10-10.3.1Criteria10-10.3.2SF Building HVAC Systems10-10.3.3UO2 Building (North) HVAC Systems10-10.3.4UO2 Building Line 2 Conversion HVAC Systems10-10.3.5UO2 Building HVAC Systems10-10.3.6U308 Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.3.9Contaminated Clothing Laundry HVAC System10-10.4Radioactive Waste Handling10-10.4.1Lagoon Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery (LUR) Facility Description10-		10-3
10.1.4Contaminated Clothing Laundry10-10.1.5Fuels Storage Warehouse10-10.1.6Radioactive Material Warehouse10-10.1.7Fuel Cooling Test Facility (FCTF)10-10.1.8UF6 Receiving and Storage Facility10-10.2Utilities and Support Systems10-10.2.1Electrical Power10-10.2.2Compressed Air System10-10.2.3Water10-10.2.4Sewer System10-10.2.5Gas and Chemical Storage10-10.2.6Communications and Annunciations10-10.3Heating, Ventilation and Air Conditioning (HVAC)10-10.3.1Criteria10-10.3.2SF Building HVAC Systems10-10.3.3UO2 Building (North) HVAC Systems10-10.3.4UO2 Building Line 2 Conversion HVAC Systems10-10.3.5UO2 Building HVAC Systems10-10.3.6U30g Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.3.9Contaminated Clothing Laundry HVAC System10-10.4.1Lagoon System Description10-10.4.2Ammonia Recovery Description10-10.4.4Solids Uranium Recovery Facility10-		10-5
10.1.5Fuels Storage Warehouse10-10.1.6Radioactive Material Warehouse10-10.1.7Fuel Cooling Test Facility (FCTF)10-10.1.8UFG Receiving and Storage Facility10-10.2Utilities and Support Systems10-10.2.1Electrical Power10-10.2.2Compressed Air System10-10.2.3Water10-10.2.4Sewer System10-10.2.5Gas and Chemical Storage10-10.2.6Communications and Annunciations10-10.2.7Breathing Air10-10.3Heating, Ventilation and Air Conditioning (HVAC)10-10.3.1Criteria10-10.3.2SF Building HVAC Systems10-10.3.3UO2 Building (North) HVAC Systems10-10.3.4UO2 Building Line 2 Conversion HVAC Systems10-10.3.5UO2 Building HVAC Systems10-10.3.7ELO Addition HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.3.9Contaminated Clothing Laundry HVAC System10-10.4.1Lagoon System Description10-10.4.2Ammonia Recovery Description10-10.4.4Solids Uranium Recovery facility10-10.4.4Solids Uranium Recovery facility10-	6 10 10	10-6
10.1.6Radioactive Material Warehouse10-10.1.7Fuel Cooling Test Facility (FCTF)10-10.1.8UF6 Receiving and Storage Facility10-10.2Utilities and Support Systems10-10.2.1Electrical Power10-10.2.2Compressed Air System10-10.2.3Water10-10.2.4Sewer System10-10.2.5Gas and Chemical Storage10-10.2.6Communications and Annunciations10-10.2.7Breathing Air10-10.3Heating, Ventilation and Air Conditioning (HVAC)10-10.3.1Criteria10-10.3.2SF Building HVAC Systems10-10.3.3UO2 Building (South Addition) HVAC Systems10-10.3.4UO2 Building Line 2 Conversion HVAC Systems10-10.3.5UO2 Building HVAC Systems10-10.3.6U30g Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.4Radioactive Waste Handling10-10.4.1Lagoon System Description10-10.4.2Ammonia Recovery Description10-10.4.4Solids Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery facility10-		10-7
10.1.7Fuel Cooling Test Facility (FCTF)10-10.1.8UF6 Receiving and Storage Facility10-10.2Utilities and Support Systems10-10.2.1Electrical Power10-10.2.2Compressed Air System10-10.2.3Water10-10.2.4Sewer System10-10.2.5Gas and Chemical Storage10-10.2.6Communications and Annunciations10-10.2.7Breathing Air10-10.3.1Criteria10-10.3.2SF Building HVAC Systems10-10.3.3UO2 Building (North) HVAC Systems10-10.3.4UO2 Building Line 2 Conversion HVAC Systems10-10.3.5UO2 Building HVAC Systems10-10.3.6U308 Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.4Radioactive Waste Handling10-10.4.1Lagoon System Description10-10.4.3Lagoon Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-		10-7
10.1.8UF6 Receiving and Storage Facility10-10.2Utilities and Support Systems10-10.2.1Electrical Power10-10.2.2Compressed Air System10-10.2.3Water10-10.2.4Sewer System10-10.2.5Gas and Chemical Storage10-10.2.6Communications and Annunciations10-10.2.7Breathing Air10-10.3Heating, Ventilation and Air Conditioning (HVAC)10-10.3.1Criteria10-10.3.2SF Building HVAC Systems10-10.3.3UO2 Building (North) HVAC Systems10-10.3.4UO2 Building Line 2 Conversion HVAC Systems10-10.3.5UO2 Building HVAC Systems10-10.3.6U30g Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.4.1Lagoon System Description10-10.4.2Ammonia Recovery Description10-10.4.4Solids Uranium Recovery Facility10-		10-7
10.2Utilities and Support Systems10-10.2.1Electrical Power10-10.2.2Compressed Air System10-10.2.3Water10-10.2.4Sewer System10-10.2.5Gas and Chemical Storage10-10.2.6Communications and Annunciations10-10.2.7Breathing Air10-10.3Heating, Ventilation and Air Conditioning (HVAC)10-10.3.1Criteria10-10.3.2SF Building HVAC Systems10-10.3.3UO2 Building (North) HVAC Systems10-10.3.4UO2 Building (South Addition) HVAC Systems10-10.3.5UO2 Building Line 2 Conversion HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.3.9Contaminated Clothing Laundry HVAC System10-10.4.1Lagoon System Description10-10.4.2Ammonia Recovery Description10-10.4.4Solids Uranium Recovery Facility10-	Se la se	10-8
10.2.1Electrical Power10-10.2.2Compressed Air System10-10.2.3Water10-10.2.4Sewer System10-10.2.5Gas and Chemical Storage10-10.2.6Communications and Annunciations10-10.2.7Breathing Air10-10.3Heating, Ventilation and Air Conditioning (HVAC)10-10.3.1Criteria10-10.3.2SF Building HVAC Systems10-10.3.3UO2 Building (North) HVAC Systems10-10.3.4UO2 Building Line 2 Conversion HVAC Systems10-10.3.5UO2 Building HVAC Systems10-10.3.6U30g Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.4.1Lagoon System Description10-10.4.2Ammonia Recovery Description10-10.4.4Solids Uranium Recovery Facility10-10.4.4Solids Uranium Recovery Facility10-		10-8
10.2.2Compressed Air System10-10.2.3Water10-10.2.4Sewer System10-10.2.5Gas and Chemical Storage10-10.2.6Communications and Annunciations10-10.2.7Breathing Air10-10.3Heating, Ventilation and Air Conditioning (HVAC)10-10.3.1Criteria10-10.3.2SF Building HVAC Systems10-10.3.3UO2 Building (North) HVAC Systems10-10.3.4UO2 Building (South Addition) HVAC Systems10-10.3.5UO2 Building Line 2 Conversion HVAC Systems10-10.3.6U30g Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.4Radioactive Waste Handling10-10.4.1Lagoon System Description10-10.4.4Solids Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-		10-9
10.2.3Water10-10.2.4Sewer System10-10.2.5Gas and Chemical Storage10-10.2.6Communications and Annunciations10-10.2.7Breathing Air10-10.3Heating, Ventilation and Air Conditioning (HVAC)10-10.3.1Criteria10-10.3.2SF Building HVAC Systems10-10.3.3UO2 Building (North) HVAC Systems10-10.3.4UO2 Building (South Addition) HVAC Systems10-10.3.5UO2 Building Line 2 Conversion HVAC Systems10-10.3.6U308 Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.4Radioactive Waste Handling10-10.4.1Lagoon System Description10-10.4.4Solids Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-		10-12
10.2.4Sewer System10-10.2.5Gas and Chemical Storage10-10.2.6Communications and Annunciations10-10.2.7Breathing Air10-10.3Heating, Ventilation and Air Conditioning (HVAC)10-10.3.1Criteria10-10.3.2SF Building HVAC Systems10-10.3.3UO2 Building (North) HVAC Systems10-10.3.4UO2 Building (South Addition) HVAC Systems10-10.3.5UO2 Building Line 2 Conversion HVAC Systems10-10.3.6U30g Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.4Radioactive Waste Handling10-10.4.1Lagoon System Description10-10.4.3Lagoon Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-		10-13
10.2.5Gas and Chemical Storage10-10.2.6Communications and Annunciations10-10.2.7Breathing Air10-10.3Heating, Ventilation and Air Conditioning (HVAC)10-10.3.1Criteria10-10.3.2SF Building HVAC Systems10-10.3.3UO2 Building (North) HVAC Systems10-10.3.4UO2 Building (South Addition) HVAC Systems10-10.3.5UO2 Building Line 2 Conversion HVAC Systems10-10.3.6U30g Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.4Radioactive Waste Handling10-10.4.1Lagoon System Description10-10.4.3Lagoon Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-		10-14
10.2.6Communications and Annunciations10-10.2.7Breathing Air10-10.3Heating, Ventilation and Air Conditioning (HVAC)10-10.3.1Criteria10-10.3.2SF Building HVAC Systems10-10.3.3UO2 Building (North) HVAC Systems10-10.3.4UO2 Building (South Addition) HVAC Systems10-10.3.5UO2 Building Line 2 Conversion HVAC Systems10-10.3.6U30g Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.4Radioactive Waste Handling10-10.4.1Lagoon System Description10-10.4.3Lagoon Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-		10-14
10.2.7Breathing Air10-10.3Heating, Ventilation and Air Conditioning (HVAC)10-10.3.1Criteria10-10.3.2SF Building HVAC Systems10-10.3.3UO2 Building (North) HVAC Systems10-10.3.4UO2 Building (South Addition) HVAC Systems10-10.3.5UO2 Building Line 2 Conversion HVAC Systems10-10.3.6U308 Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.3.9Contaminated Clothing Laundry HVAC System10-10.4Radioactive Waste Handling10-10.4.1Lagoon System Description10-10.4.3Lagoon Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-		10-15
10.3Heating, Ventilation and Air Conditioning (HVAC)10-10.3.1Criteria10-10.3.2SF Building HVAC Systems10-10.3.3UO2 Building (North) HVAC Systems10-10.3.4UO2 Building (South Addition) HVAC Systems10-10.3.5UO2 Building Line 2 Conversion HVAC Systems10-10.3.6U308 Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.3.9Contaminated Clothing Laundry HVAC System10-10.4.1Lagoon System Description10-10.4.2Ammonia Recovery Description10-10.4.4Solids Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-		10-16
10.3.1Criteria10-10.3.2SF Building HVAC Systems10-10.3.3UO2 Building (North) HVAC Systems10-10.3.4UO2 Building (South Addition) HVAC Systems10-10.3.5UO2 Building Line 2 Conversion HVAC Systems10-10.3.6U308 Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.3.9Contaminated Clothing Laundry HVAC System10-10.4Radioactive Waste Handling10-10.4.1Lagoon System Description10-10.4.3Lagoon Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-		10-16
10.3.2SF Building HVAC Systems10-10.3.3UO2 Building (North) HVAC Systems10-10.3.4UO2 Building (South Addition) HVAC Systems10-10.3.5UO2 Building Line 2 Conversion HVAC Systems10-10.3.6U30g Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.3.9Contaminated Clothing Laundry HVAC System10-10.4Radioactive Waste Handling10-10.4.1Lagoon System Description10-10.4.3Lagoon Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-	State of the second	10-16
10.3.3UO2 Building (North) HVAC Systems10-10.3.4UO2 Building (South Addition) HVAC Systems10-10.3.5UO2 Building Line 2 Conversion HVAC Systems10-10.3.6U308 Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.3.9Contaminated Clothing Laundry HVAC System10-10.4Radioactive Waste Handling10-10.4.1Lagoon System Description10-10.4.2Ammonia Recovery Description10-10.4.3Lagoon Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-		10-18
10.3.4UO2 Building (South Addition) HVAC Systems10-10.3.5UO2 Building Line 2 Conversion HVAC Systems10-10.3.6U308 Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.3.9Contaminated Clothing Laundry HVAC System10-10.4Radioactive Waste Handling10-10.4.1Lagoon System Description10-10.4.2Ammonia Recovery Description10-10.4.3Lagoon Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-		10-22
10.3.5UO2 Building Line 2 Conversion HVAC Systems10-10.3.6U308 Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.3.9Contaminated Clothing Laundry HVAC System10-10.4Radioactive Waste Handling10-10.4.1Lagoon System Description10-10.4.2Ammonia Recovery Description10-10.4.3Lagoon Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-		10-26
10.3.6U30g Facility HVAC Systems10-10.3.7ELO Building HVAC Systems10-10.3.8ELO Addition HVAC Systems10-10.3.9Contaminated Clothing Laundry HVAC System10-10.4Radioactive Waste Handling10-10.4.1Lagoon System Description10-10.4.2Ammonia Recovery Description10-10.4.3Lagoon Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-		10-29
10.3.8ELO Addition HVAC Systems10.10.3.9Contaminated Clothing Laundry HVAC System10-10.4Radioactive Waste Handling10-10.4.1Lagoon System Description10-10.4.2Ammonia Recovery Description10-10.4.3Lagoon Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-	12 2 3 3 3	10-31
10.3.9Contaminated Clothing Laundry HVAC System10-10.4Radioactive Waste Handling10-10.4.1Lagoon System Description10-10.4.2Ammonia Recovery Description10-10.4.3Lagoon Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-		10-33
10.4Radioactive Waste Handling10-10.4.1Lagoon System Description10-10.4.2Ammonia Recovery Description10-10.4.3Lagoon Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-	5	10.35
10.4.1Lagoon System Description10-10.4.2Ammonia Recovery Description10-10.4.3Lagoon Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-		10-37
10.4.2Ammonia Recovery Description10-10.4.3Lagoon Uranium Recovery (LUR) Facility Description10-10.4.4Solids Uranium Recovery Facility10-		10-38
10.4.3 Lagoon Uranium Recovery (LUR) Facility Description 10- 10.4.4 Solids Uranium Recovery Facility 10-		10-38
10.4.4 Solids Uranium Recovery Facility 10-		10-40
		10-42
		10-43
10.4.5 Solid Waste Uranium Recovery Facility Description 10-		10-44
10.4.6 Plutonium-Contaminated Waste Storage 10-		10-47
ENDMENT APPLICATION DATE: JUNE 1, 1989 PAGE NO. VII		vii





SPECIAL NUCLEAR MATERIAL LICENSE NO. SNM-1227, NRC DOCKET NO. 70-1257

	TABLE OF CONTENTS		37
		Page	
HAPTER 10 -	FACILITY DESCRIPTION (Cont.d)		
10.5	Fire Protection	10-47	
	Building Codes and Standards	10-47	
10.5.2	Fire Protection Liability Inspections	10-48	
10.5.3	Fire Protection Program	10-48	
APPENDIX	A	10-85	
HAPTER 11 -	DRGANIZATION AND PERSONNEL	11-1	
n.1	Organizational Responsibilities	11-1	
11.2	Functions of Key Personnel	11-1	
11.3	Education and Experience of Key Personnel	11-1	
11.3.1	President and Chief Executive Officer -		
	R. B. Stephenson	11-2	
11.3.2	Vice President, Engineering and Production -		
	R. W. McCullugh	11-4	
11.3.3	Manager, Operations-Richland - R. G. Frain	11-6	
11.3.4 11.3.5	Manager, Plant Operations - T. W. Patten	11-7	
11.3.5	Manager, Safety and Security Operations - R. H. Purcell	11-9	
11.3.6	Manager, Plant Maintenance - J. L. Glesener	11-10	
11.3.7	Supervisor, Radiological and Industrial Safety -	11-10	
	T. C. Probasco	11-12	
11.3.8	Industrial Hygienist and Plant Criticality		
	Engineer - S. R. Lockhaven	11-13	
11.3.9	Health Physics Technician - D. L. Belt	11-14	
11.3.10	Health Physics Technician - J. D. Cudmore	11-16	
11.3.11	Radiological Safety Specialist - E. L. Foster	11-18	
11.3.12	Health Physics Technician - D. A. Marlin	11-20	
11.3.13	Health Physics Technician - J. Rosscup	11-22	101
11.3.13a	Health Physics Technician - L. G. Bradley	11-22a	1
11.3.14 11.3.15	Health Physics Technician - W. W. Smith Health Physics Technician - G. A. York	11-23	
11.3.15	Manager, Materials and Scheduling -	11-24	
11.5.10	I. J. Samaritano	11-25	
11.3.17	Manager, Operations Planning and Scheduling -	11 20	
	D. C. Lehfeldt	11-27	
11.3.18	Manager, Process and Equipment Engineering -		
	H. L. Caudill	11-28	
11.3.19	Manager, Process Support Engineering - R. B. McLees	11-30	
11.3.20	Manager, Equipment and Maintenance Engineering -	11 21	
	J. H. Fastabend	11-31	
DMENT APPLICATION DA	TE: PAGE NO: October 18, 1988	viii	

ANF-2

ADVANCED NUCLEAR FUELS CORPORATION ANF-2 SPECIAL NUCLEAR MATERIAL LICENSE NO. SNM-1227, NRC DOCKET NO. 70-1257

PART I - LICENSE CONDITIONS	REV 20
1.6.2.3 Enrichment Blending	
Some of these materials may be used to adjust a uranium less than or equal to 5 wt% U-235. The rules materials by enrichment obviously cannot apply to the b however, the blending operation will be subject to a analysis and a Criticality Safety Specification.	n segregation of
Isotopic analysis shall be performed on each material to assure that it is less than or equal to blended material shall be handled as for the highest e the blend until an isotopic analysis is obtained.	wt% 11-235 Tho
1.6.3 <u>Plutonium Storage</u>	
Advanced Nuclear Fuels is presently in possession PuO_2 and PuO_2-UO_2 . This material is in the form of waste stored in drums.	of plutonium, as ntaminated solid
These containers shall be stored in the SF Bu autoclave pit in accordance with the following controls	ding, Room 162
1. These stored containers shall be sealed with	skets.
 The SF Building storage pit shall be exhausted HVAC system. Two stages of HEPA filtration to exiting the exhaust stack. 	by the building e provided prior
 The air exiting the SF Building storage continuously monitored and sampled, and the weekly for radioactive material content. 	pit shall be samples analyzed
Assurance of containment shall be verified at six months by visual inspection and smear sur waste drums. The inspection and surveys wi All indications of drum leakage will be appropriate action taken.	be documented
 In order to provide continued containment, Fuels may find it necessary to repackage the activities shall be performed using a special 	ntainers. These
 All alpha discovered by smear surveys or ai the pit area shall be considered as pluto proven otherwise. 	sampling within um alpha unless
1916년 2017년 1917년 1917년 2017년 201	

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SPECIAL NUCLEAR MATERIAL LICENSE NO. SNM-1227, NRC DOCKET NO. 70-1257

PART I - LICENSE CONDITIONS

1.6.4 Posting Exemption

All areas in which radioactive materials are stored, handled or used shall be posted with signs meeting the requirements of Title 10, CFR Part 20.203, except that of 20.203(f). In lieu of 20.203(f) requirements, a sign bearing the legend, "Every container or vessel in this area, unless otherwise identified, may contain radioactive material," may be posted at entrances to each building in which radioactive materials are used, stored or handled.

1.6.5 Waste Disposal

Pursuant to 10 CFR 20.302, disposal of solid waste material containing 30 pCi/gram or less to other than a licensed waste disposal facility is authorized. The low enriched uranium shall not exceed 30 pCi/gram of dry solid waste material. The uranium shall be essentially uniformly distributed throughout the waste material.

1.6.6 Special Nuclear Material Safeguards

Specific safeguards requirements for special nuclear material are given in Safeguards Amendment SG-2 issued pursuant to 10 CFR Parts 70, 73, 74 and 75. Those conditions are not affected by this licensing action.

1.6.6.1 Physical Security

Advanced Nuclear Fuels shall follow the special safeguards conditions given in the Safeguards Amendment SG-2 and the NRC approved security plan submitted in accordance with the provisions of 10 CFR Part 73.67(c)(1). The NRC approved security plan is:

 XN-NF-538, "Physical Protection Plan for Material of Low Strategic Significance." This document shall be maintained in a current and approved status and shall be properly implemented.

1.6.6.2 Material Control and Accounting

Advanced Nuclear Fuels shall follow the special safeguards conditions given in the Safeguards Amendment SG-2 and the NRC approved Fundamental Nuclear Material Control Plan (FNMC) submitted in accordance with 10 CFR Part 74.31(b). The NRC approved FNMC Plan is:

AMENDMENT APPLICATION DATE: February 22, 1988

PAGE NO .: 1-6

REV.

PART I - LICENSE CONDITIONS	REV 20
 ANF-12, "Nuclear Material Safeguards Procedures Description for the Fuels Fabrication Plant," (Revision 18). This document shall be maintained in a current and approved status and shall be properly implemented. 	
1.6.7 Authorization at Reactor Sites	
Advanced Nuclear Fuels is authorized to possess fuel assemblies or fuel rods at reactor sites for the purpose of loading them into shipping containers and delivering them to a carrier for transport.	
1.6.8 Authorized Release Guidelines	
Advanced Nuclear Fuels is authorized to release equipment, scrap or facilities for unrestricted use, or for termination of license according to the "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material" as published by the U.S. Nuclear Regulatory Commission dated August 1987. A copy of these guidelines is contained in Appendix A to Chapter 3.	
1.6.9 Authorized Criticality Alarm System Outage	1
Advanced Nuclear Fuels is granted an exemption from 10 CFR 70.24(a) for the purpose of performing maintenance on the criticality alarm system. Sections of the criticality alarm system may be taken out-of-service provided that all movement or processing of fissile material in affected areas is halted for the duration of the outage. Health Physics Technicians will conduct periodic surveys of the areas during the criticality alarm system outage.	
	1
INDMENT APPLICATION DATE: JUNE 1, 1989 PAGE NO. 1-7	

SPECIAL NUCLEAR MATERIAL LICENSE NO. SNM-1227, NRC DOCKET NO. 70-1257

Table	PART I - LICENS I-1.1 Specific Location	SE CONDITIONS ons of Authorized Activities	REV 13
Location	SNM	Authorized Activity	
SF Bldg.	Pu & PuO2-UO2 contaminated waste	Storage and repackaging.	
	UO2 (up to 19.99 wt% U-235)	Storage, blending, pressing, sintering, fuel rod loading and downloading, fuel rod welding, fuel element assembly; process tests; associated quality control activi- ties.	
	Uranium Compounds (up to 5 wt% U-235)	Waste storage, sorting, incinera- tion, packaging and associated quality control activities.	
UO ₂ Bldg. (including Powder Storage)	Uranium Compounds (up to 5 wt% U-235)	All operational steps of fuel manufacturing from UF ₆ -UO ₂ conversion to packaging finished fuel elements, scrap recycling and reprocessing; process tests; associ- ated quality control activities.	1
	UO2 (5 to 19.99 wt% U-235)	All operational steps of fuel manufacturing involving UO23 including associated quality control activities.	
ELO Bidg.	Uranium Compound (up to 19.99 wt% U-235)	All operational steps of fuel manufacturing involving uranium compounds; including process tests.	
FCTF Bldg.	UO2 (up to 5 wt% U-235)	Hydraulic flow tests involving single fuel elements.	
Packaged Radio- active Materials Storage Bldg.	Uranium Compounds (up to 5 wt% U-235)	Storage of closed, and externally free of significant contamintion containers of product, scrap and waste materials.	1
AMENDMENT APPLICAT	ION DATE: July 198	PAGE NO.:	-8

XN-NF-FO1-822 (6/87)

ANF 2

PART II - SAFETY DEMONSTRATION	881 20
10.4.5.4 Ash Handling	
Ash formed from the combustion of wastes is pushed along the hearth by incoming feed and by an internal ash plow. The ash is pushed through an ash gate into an ash pit located at the end of the hearth. The ash is cooled in an isolation chamber that discharges periodically into a drum.	
The drummed ash is transported to an ash screening and milling area where oversize and/or metallic klinkers are separated. The oversize naterial is milled and combined with the ash in the drum. The drum is assayed for uranium content and stored and/or transported to the UO_2 Building ash dissolution-packaging area. Drums of ash, low in uranium content, are not leached.	
10.4.5.5 Incinerator Ash Leaching	
Combustion ash is leached with a sodium carbonate-sodium, bicarbonate-sodium hypochlorite solution at elevated temperature in an agitated vessel that is operated on a batch basis for criticality control.	
The leaching solution and solids are separated by a rotary drum filter. Following separation, the solids are mixed with drying and solidifying agents and loaded into containers for disposal. The leaching solution is treated with an acid at an elevated temperature and air- sparged to destroy carbonates. After destruction of the carbonates, the solution is routed to the miscellaneous uranium recovery system for precipitation and recovery of the uranium.	
0.4.6 <u>Plutonium-Contaminated Waste Storage</u>	1
A waste storage facility is provided for storing plutonium- contaminated waste which remains from a previous mixed oxide fuel fabrications facility. The plutonium concentration in the contaminated waste is greater than allowed for Class C waste and therefore, no disposal site exists which is licensed to receive this waste. The facility is described below and depicted in Figure II-10.33.	
The storage facility is located in Room 162 of the SF Building. The facility is a below-grade room (approximately $12'x20'x20'$ deep) constructed of reinforced concrete and covered by steel floor grating overlaid with steel plate. The room contains a sump for liquid collection which is monitored by a liquid level alarm. A sump pump is installed which can be manually activated and which discharges to a waste retention tank south of the UO ₂ Building.	
비행 전 방법 전 방법 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전	

SPECIAL NUCLEAR MATERIAL LICENSE NO. SNM-1227, NRC DOCKET NO. 70-1257

PART II - SAFETY DEMONSTRATION

Drum storage will be on steel grating to support the drums off the concrete floor and on a mezzanine also Fabricated of steel grating. Ingress and egress for personnel and equipment is from the top of the room.

The room is ventilated. Air is drawn down from the roof and exhausted near floor level through one stage of HEPA filtration into the SF Building exhaust system. The exhaust air is continuously sampled and monitored prior to the installed HEPA filter. The air sample is also analyzed weekly.

10.5 Fire Protection

10.5.1 Building Codes and Standards

All permanent buildings at the fuel fabrication plant were constructed in accordance with the applicable sections of the following building codes and standards.

- Uniform Building Code (Seismic Zone II)
- Uniform Plumbing Code
- Uniform Mechanical Code
- Uniform Fire Code
- National Fire Codes (NFPA)
- National Electrical Code ANSI-C1
- ASHRAE Standards
- Washington Administrative Code, Chapter 296-24
- Washington Administrative Code, Chapter 296-44
- Richland Municipal Code and Zoning Regulations
- Richland Municipal Ordinances Number:

3777 (adopt. Building Code)
3877 (adopt. Plumbing.Code)
3977 (adopt. Mechanical Code)

10.5.2 Fire Protection Liability Inspections

Advanced Nuclear Fuels has elected to self-insure with regard to property damage. Exxon Corporate Headquarters scheduled a fire protection audit of its' affiliate subsidiaries approximately every three years by an acknowledged fire protection consultant. The City of Richland's Department of Fire and Emergency Services conducts annual fire protection inspections of Advanced Nuclear Fuels' fuel fabrication plant facilities.

AMENDMENT APPLICATION DATE:

ANF-2

REV.

PART II - SAFETY DEMONSTRATION	RE 20
The most recent copies of these audits and inspections, along with Advanced Nuclear Fuels' reply, are appended (see Appendix A).	
10.5.3 Fire Protection Program	
10.5.3.1 Combustible Solid Waste Handling and Storage	
Outside metal waste containers are provided by the City of Richland for clean wastes. Contaminated combustible wastes are properly sorted into metal boxes or drums, sealed and stored on an outside pad for future uranium recovery or disposal per approved procedures. Additional contaminated combustible wastes are stored in a fire-resistant metal building near the waste barrel/box storage pad. Combustible wastes generated inside the process and other buildings (either clean or contaminated) are collected in metal waste containers and emptied daily into the appropriate waste storage containers.	
10.5.3.2 Flammable Liquid Storage	
Flammable liquids are stored in approved safety containers or cabinets near the final use location. Additional storage for flammable liquids is provided for in a fire-resistant metal warehouse located away from any radioactive material storage area.	
10.5.3.3 <u>Combustible Liquid Storage</u>	
Combustible liquids are stored in approved metal containers near the final use location. Additional storage for combustible liquids is provided for on an outside storage pad.	
10.5.3.4 Fire Prevention	
The manifolds for supplying combustible gases to the facility, including backup hydrogen for the sintering furnaces, are locaced outside the main building structure. All combustible gas distribution piping meets applicable NFPA codes.	
Combustible gas burn-off devices and combustible gas detection equipment are used where necessary to prevent explosion and fires around sintering furnaces and ovens.	
INDMENT APPLICATION DATE JUNE 1, 1989 PAGE NO. 10-49	

SPECIAL NUCLEAR MATERIAL LICENSE NO. SNM-1227, NRC DOCKET NO. 70-1257

PART II - SAFETY DEMONSTRATION

The HEPA exhaust filters in the UO_2 and SF Buildings are protected from high temperatures and burning debris in the event of fire by automatic deluge systems in the exhaust plenums immediately upstream of the final filter bank.

10.5.3.5 Fire Detection and Alarm

Rate-of-rise/fixed temperature heat detectors are used in the facility to detect fires. This fire alarm equipment is installed to provide automatic, as well as manual, alarm signals in event of a fire. The system includes an annunciator in the Central Guard Station which indicates which zone in the system has actuated (see Figure II-10.32). A signal is also automatically transmitted to the Richland Fire Department. The fire alarm is a multiple-strike gong (two strokes per second). The fire alarm system is inspected and tested in accordance with the applicable preventive maintenance procedures.

10.5.3.6 Fire Defenses

The Advanced Nuclear Fuels' Facility is located within the city limits of Richland, and thus is served by the Richland Fire Department. The Washington Surveying and Rating Bureau has graded the City as Class 3 in its last survey. The closest Richland fire station is located at the intersection of McMurray and Jadwin, about five road miles from the plant.

The Fire Department estimates running time to the plant to be about six minutes. The City has Mutual Assistance Agreements with surrounding communities, counties, and the DOE (which has a fire station at the Hanford 300 Area located two miles northeast of the plant site). The DOE fire-fighting staff is well trained in nuclear fire safety precautions and has available equipment for radioactive fire fighting. The Richland Fire Department receives annual training in radiological safety precautions from Advanced Nuclear Fuels personnel.

The plant site is fed water from the North Richland water grid through 10-inch diameter water pipes which enter the plant site from the north and south. The plant loop to the hydrants is an 8-inch diameter pipe. There are 11 fire hydrants on plant site (see Figure II-10.18). There are Multipurpose ABC, Halon, Met-L-x, CO₂, BC Dry Chemical, Purple-K Dry Chemical, and AFFF fire extinguishers provided throughout the facility at selected locations. These fire extinguishers are inspected and tested in accordance with the applicable preventive maintenance procedure.

AMENDMENT APPLICATION DATE

June 1, 1989

PAGE NO.

REV. 20

ANF-2

SPECIAL NUCLEAR MATERIAL LICENSE NO. SNM-1227, NRC DOCKET NO. 70-1257

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PART II - SAFETY DEMONSTRATI	ON	REV 20
The Advanced Nuclear Fuels Plant Emergency Res annual training in first aid (or incipient) fire-f The Richland Fire Department has the main responsil fires on the plant site.	ponse Teams receive ighting techniques. bility for fighting	
10.5.3.7 <u>Responsibilities</u>		
The Manager, Safety, Security, and Licensing, has for inspecting and testing the plant fire extinguisher	s the responsibility	
The Manager, Plant Maintenance, has the inspecting and testing the plant fire alarm system.	responsibility for	
ENDMENT APPLICATION DATE June 1, 1989	PAGE NO. 10-50a	

POCKET NO. 70-1257 CONTROL NO. 26072 DATE OF DOC. November 6, 1989 DATE ROVD NOVember 14, 1989 FOUF PDR FCAF LPDR 1 & E REF. SAFEGUARDS FCTC DATE 11/14/89 OTHER _____ INITIAL SAC



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