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EFFECTIVE DATE	PCN NO.	REV. NO.	DESCRIPTION
03-23-05	2	1	Changes to: (1) Section 1.4.3, <i>Silo 3 Material Retrieval and Packaging Activities</i> , to describe the in-line automatic samplers installed above Packaging Stations A and B; (2) Section 10.4, <i>Derivation of Safety Basis Requirements</i> , to make text consistent with PR-3; (3) Appendix B, under <i>Executive Summary</i> , and Sections B-3.2.3 and B-3.3, to change facility designation from Radiological to Less Than Nuclear; (4) Section, B-4.0, <i>Final Hazard Category</i> , to clarify purpose of Appendix G, and to change facility designation from Radiological to Less Than Nuclear; (5) Appendix F (FHA), on Pages 8, 16, 18, and 21, to remove the word "DELETION" left over from a previous PCN; (6) Appendix G, <i>Accident Analysis</i> , under Section G-2.3, <i>Common Assumptions</i> , to explain the calculated bulk density of 73 lb/ft ³ used in EBA-4; (7) Section G-3.4, <i>EBA-4: Breach of Full Package</i> , to discuss the calculated bulk density of 73 lb/ft ³ ; (8) Table G.3-4, <i>Breach of a Full Package Scenario Results</i> , to provide new dose values; (9) Section G-3.7, <i>EBA-7: ISO Penetrated</i> , to clarify ISO staging; (10) Table G.4-1, <i>Dose for Comparison to Emergency Guideline</i> , to provide new dose values for EBA-4; (11) Table G.4-2, <i>Dose for Comparison to Emergency Guideline Using Conservative Assumptions</i> , to provide new dose values for EBA-4; (12) App. G, Att. 4, <i>EBA-4 Spreadsheet, EBA-4 Solids Release</i> , to provide new dose values based on calculated bulk density of 73 lb/ft ³ .
04-15-05	3	1	Changes to: (1) Section 1.4.3, <i>Silo 3 Material Retrieval and Packaging Activities</i> , under <i>Preliminary Pneumatic Retrieval and Equipment Installation</i> , to make past tense and to delete references to vacuum wand boots; and under <i>Routine Pneumatic Retrieval</i> , to delete discussions of vacuum wand boots; (2) Table 10-1, <i>Silo 3 System Safety Requirements</i> , to delete PR-4 regarding the flexible boots on the vacuum wands per DCN 40430-JEG-277 and DCN 40430-JEG-278; (3) Section 10.4, <i>Derivation of Safety Basis Requirements and Process Requirements</i> , to explain deletion of PR-4.

EFFECTIVE DATE	PCN NO.	REV. NO.	DESCRIPTION
05-24-05	4	1	Change to: (1) Section 16.0, <i>Emergency Response Plan</i> , to reflect replacement of landline phones with cell phones, elimination of the Communications Center, and clarification of Silos Project rally points; (2) Appendix F, <i>Fire Hazards Analysis</i> , to reflect replacement of land line phones with cell phones, and the replacement of the Savannah Communications Center monitoring system with local Protected Premises alarms.
7-7-05	5	1	Change to: (1) Section 10.3, <i>Silos Project Technical Safety Requirement (TSR)</i> , to specify new maximum values for area live loads and concentrated live loads; (2) Section 16.0 <i>Emergency Response Plan</i> , to change location of Rally Point 10; (3) Section 20, <i>References</i> , to update reference information for the OU4 TSR document.

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10.3 Silos Project Technical Safety Requirement (TSR)

Technical Safety Requirements (TSRs) are the limits, controls, and related requirements necessary for the safe operation of a nuclear facility and, as appropriate for the work and the hazards identified in the documented safety analysis for the facility, includes management controls, use and application provisions, and design features, as well as a basis appendix. TSRs are subject to 10 CFR 830, Subpart B [Ref. 6].

The Silos Project has one TSR that applies only to Silo 3 (see **TABLE 10-2**). (Note: Silos 1 and 2 have been emptied, grouted, downgraded, and demolished.) There are no additional TSRs specific to the Silo 3 Retrieval and Disposition Project. Planned Silo 3 operations and activities will be conducted within the umbrella of the Silos safety basis (i.e., the Silos TSR).

When a proposed activity could violate the Silos TSR (or potentially affect some other aspect of the Silos safety basis), the activity will be evaluated using the Safety Analysis Evaluation Process in Addendum 2 of PL-3049, *Implementation Plan for SARs and TSRs at the FEMP* [Ref. 62]. SBR/PR violations that affect the Silos are subject to the Unreviewed Safety Question (USQ) process per NS-0002, *Unreviewed Safety Question (USQ) Determination and Safety Evaluation System (USQD/SE System)* [Ref. 45].

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TABLE 10-2: SILOS PROJECT TECHNICAL SAFETY REQUIREMENT (TSR)

TSR	Requirement	Basis/Source	Implementation
TSR-1	<p><u>AREA LIVE LOADS:</u> Maximum of 45,000 pounds.</p> <p><u>CONCENTRATED LIVE LOADS:</u> Maximum of 2,700 lbs.</p> <p>For further details on limiting conditions on loads and equipment operation, see the OU4 TSR document [Ref. 68].</p>	<p>Worker and co-located worker protection - <i>Technical Safety Requirements Document for the Operable Unit 4 (OU4) Silos</i> [Ref. 68]</p>	<ul style="list-style-type: none"> • Silo Dome Access Permit • Critical Lift Plans • Silos Design Change Notice procedure

PCNS

NOTE: DELETION OF OBSOLETE TSR SPECIFICATIONS PER PCN5. THIS SPACE INTENTIONALLY BLANK. PAGINATION BEING MAINTAINED TO SUPPORT PCN PROCESS.

PCN5

10.4 Derivation of Safety Basis Requirements and Process Requirements

Safety Basis Requirements (SBRs) and Process Requirements (PRs) establish a two-tiered system of requirements or controls on the activities at the FCP. The higher-tier requirements are the SBRs, which are derived from specific parameters used for Hazard Categorization or to protect TSRs. The lower tier (PRs) are requirements that either are vital to decrease the likelihood of a potential accident scenario or act as critical accident mitigators to decrease the severity of the consequences of that event. PRs can also act as defense-in-depth for any safety or environmental issue.

The safety requirements derived in this section are applicable to the Silo 3 Facility and result from assessment of the integrated hazard analysis (IHA) discussed in Appendix A. Pre-existing safety basis requirements for the Silo 3 Project were reviewed and then integrated with the IHA, which provided in-depth analysis of the operational tasks identified for the project. This integration of the IHA with previous documentation resulted in a comprehensive list of Evaluation Basis Accidents (EBAs) most likely to be encountered during construction, operation, and maintenance of the Silo 3 project was postulated. These EBAs were then evaluated for consequences, and the results, as well as any associated assumptions were used to identify SBRs and PRs.

Site Notification Procedures

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- Whenever personnel are working, a means to report emergencies shall be available at all work locations. Emergencies shall be reported as shown in **TABLE 16-1**.

Any injury, no matter how minor, shall be reported to FCP Medical Department for evaluation or treatment. The injured party shall be accompanied by the supervisor in charge or his designee. The Silos S&H Representative shall be notified as soon as possible after the injury/accident has occurred.

Silos personnel will be notified of emergency or abnormal conditions by the plant-wide alarm system and radio announcements. Emergencies may also be announced by fire-alarm pull stations, which are programmed to alarm locally.

What to Report

The following are examples of emergencies that justify calling and reporting:

Call 911, then the AEDO at 648-6511:

- Any Fire
- Severe Injury
- Chemical Splash with Serious Injury

Call the AEDO at 648-6511:

- Non-Emergency Injury
- Non-Emergency Injury Complicated by Contamination
- Hazardous Waste or Hazardous Substance Emergency with No or Minor Injuries
- Radiation/Contamination Release
- Chemical Spill
- Property Damage
- Adverse Weather Conditions
- Atypical Events
- Loss of Containment
- Loss of Utilities

DELETION

PCN1 & 4

PCN4

PCN1 & 4

Evacuation Routes

Should a situation require an emergency evacuation of the work areas, all equipment should be shut off (if possible) and left in place. Silo 3 personnel should immediately proceed to Rally Point 10 at pole WP 48 located north of T-582. Rally Point 10 also serves as an alternate for AWR and WT&P personnel.

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Fire Emergencies

All work sites shall maintain effective communication to summon fire-fighting assistance. Access to work areas shall be maintained at all times to permit fire trucks and fire-fighting crews to safely approach the fire emergency.

Only trained personnel shall attempt to operate any fire-fighting equipment and only when the fire is clearly within the capability of the fire-fighting equipment.

The Subcontracted Response Forces will respond to all on-site fire emergencies. For any fire at the FCP, call 911 and then the AEDO at 648-6511.

Explosion Emergencies

If an explosion has occurred, the following actions are to be taken:

1. Activate the closest fire alarm, if possible. If a fire alarm is not available, notify other employees by an alternate method.
2. Evacuate the work area.

PCN1, 4 & 5

PCN 4

3. Proceed to Rally Point 10 at pole WP 48 located north of T-582.
4. If qualified, render first-aid to any injured personnel.
5. Instruct all persons in transit to avoid the work area and surrounding area.
6. Call 911 and then the AEDO at 648-6511.
7. Call for medical assistance, if necessary.
8. Report to your supervisor for accountability.

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PCN1, 4 & 5

Chemical Emergencies

Splashes

Flush the affected area for 15 minutes and report to Medical Services. Remember to always follow the MSDS guideline.

Personal Contamination (Chemical)

When contaminated with a corrosive or caustic material, flush the affected area with clean water for 15 minutes. Report to Medical Services. The injured party shall be accompanied by the supervisor in charge or his designee. The Silos S&H Representative shall be notified as soon as possible after the injury/accident has occurred.

All instances of personal chemical contamination shall be reported to Silos S&H Representative, the AEDO, Silos Project management, and the RCS Control Room.

Any situation which could have resulted in the inhalation, ingestion, or absorption of a hazardous material shall immediately be reported to supervision and the Silos S&H Representative and the AEDO, who will report the circumstances to Medical Services. The involved personnel shall be directed by the AEDO or Supervision as to when and where to report for medical evaluation, completion of an Incident Investigation Report, and submission of bioassay samples (e.g., blood, urine).

Radiological Emergencies

Radiological Releases

For all radiological releases, the release area shall be evacuated. The Supervisor in charge, AEDO, RCTs, Silos Project management, a Silos S&H Representative, and the RCS Control Room shall be notified of the release.

If there is a major release, all work shall be stopped in the Silos area, and the actions of EM-0030, *Silos Area Emergency Procedure* [Ref. 83], shall be followed.

Hazardous Waste/Substance Emergencies

Uncontrolled Hazardous Waste or Hazardous Substance Release

Under 29 CFR 1910.120, *Hazardous Waste Operations and Emergency Response*, an emergency exists when a site experiences an occurrence that results in, or is likely to result in, an uncontrolled hazardous waste or hazardous substance release, causing a potential health or safety hazard that cannot be mitigated by personnel in the immediate work area where the release occurs. In the case of an emergency, trained responders will be relied upon for response.

Silos Project personnel will assist trained responders by providing detailed information regarding the emergency and any technical input needed to ensure the safety of the responders, the public, and the environment.

Incidental Release of Hazardous Substances

Under 29 CFR 1910.120 (a) (3), responses to incidental releases of hazardous substances where the substance can be absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate release area, or by maintenance personnel, are not considered to be emergency responses within the scope of HAZWOPER. Responses to releases of hazardous substances where a potential health or safety hazard (i.e., fire, explosion, or chemical exposure) does not exist are considered to be non-emergency responses.

Management will ensure that only qualified personnel, trained in incidental release clean-up under the Hazard Communication Standard, will respond to incidental releases. These personnel are not considered emergency responders.

Spill Response

In order to prevent the spread of contamination from spills of hazardous chemicals, Fluor Fernald has provided the following controls for the Silos. In most instances, spills should be cleaned up quickly before they become larger or contaminate larger areas. Large spills should only be handled with the assistance of Subcontracted Emergency Response Services.

- **Engineering Spill Controls:** Secondary containment will be provided for any acid and caustic storage tanks determined to be necessary. Fuel cells are double-walled for containment of leaks. Floor areas are sloped to allow spilled materials to be collected in containment sumps.
- **Administrative Spill Controls:** Spill control kits will be placed in strategic areas. Specific spill-response steps are provided in the appropriate Fluor Fernald procedures. Only personnel trained in performing spill response should attempt to implement these procedures.

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67. Doc. No. 0202615-013, Rev. 2, *Engineer Evaluation for Fernald Environmental Project; Silo 3 IP-2 Containers*, MHF Logistical Solutions; February 4, 2004
68. 40000-H&S-0001, Rev. 5, *Technical Safety Requirements Document for the Operable Unit 4 (OU4) Silos*, Fluor Fernald; June, 2005
69. TQP-067, *Silos Project Training and Qualification Program Description*, Fluor Fernald
70. DOE Order 5480.20A, *Life-Cycle Training Requirements for DOE Nuclear Facilities*, DOE, February, 1997
71. RM-0043, *FEMP Training Implementation Matrix*, Fluor Fernald
72. 29 CFR 1910.120, *Hazardous Waste Operations and Emergency Response (HAZWOPER)*, Title 29 Code of Federal Regulations, Part 1910, Subpart 120, OSHA; July, 2001
73. RM-0055, *FEMP (Fernald Environmental Management Project) Access*; Fluor Fernald
74. OSHA 29 CFR 1910.1200, *Hazard Communication (Chemicals)* Title 29 Code of Federal Regulations, Part 1910, Subpart 1200, OSHA; July 1, 2001
75. RPR 1-1, *Respiratory Protection Program*, Fluor Fernald
76. SPR 12-14, *Hazardous Noise Exposure*, Fluor Fernald
77. SPR 3-1, *Fall Protection and Prevention*, Fluor Fernald
78. *Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices*, American Conference of Governmental Industrial Hygienists (ACGIH) (most recent annual edition)
79. 29 CFR 1910, *Occupational Safety and Health Standards*, Title 29 Code of Federal Regulations, Part 1910, OSHA; current edition
80. *The IESNA Lighting Handbook*, Ninth Edition, Illuminating Engineering Society of North America, 2000
81. 602-5024, *Industrial Hygiene Air Sampling Program*, Fluor Fernald
82. EM-0020, *Building Emergency Procedure*, Fluor Fernald
83. EM-0030, *Silos Area Emergency Procedure*, Fluor Fernald

84. DOE Order 231.1A, *Environment, Safety and Health Reporting*, U.S. Department of Energy; August 19, 2003
85. DOE M 231.1-2, *Occurrence Reporting and Processing of Operations Information*, U.S. Department of Energy; August 19, 2003
86. 10 CFR 707, *Workplace Substance Abuse Programs at DOE Sites*, Title 10, Code of Federal Regulations, Part 707; U.S. Department of Energy; January 1, 2004
87. 10 CFR 708, *DOE Contractor Employee Protection Program*, Title 10, Code of Federal Regulations, Part 708; U.S. Department of Energy; January 1, 2004
88. 10 CFR 820.11, *Information Requirements*, Title 10, Code of Federal Regulations, Part 820, Section 11; U.S. Department of Energy; January 1, 2004
89. 10 CFR 280, *Fastener Quality Act*, Title 15, Code of Federal Regulations, Part 280; U.S. Department of Commerce; January 1, 2004
90. 10 CFR 820, *Procedural Rules for DOE Nuclear Activities*, Title 10, Code of Federal Regulations, Part 820; U.S. Department of Energy; January 1, 2004
91. MS-1008, *Identifying, Reporting, and Tracking Price-Anderson Amendments Act Noncompliances*, Fluor Fernald
92. DOE Order 4330.4B, *Maintenance Management Program*, DOE; February 10, 1994
93. ED-12-4015, *Performance Grading*, Fluor Fernald
94. MT-0003, *FEMP Work Request/Order Procedure*, Fluor Fernald
95. RM-0012, *Quality Assurance Program (QAP)*, Fluor Fernald
96. 10 CFR 830, *Nuclear Safety Management; Subpart A, Quality Assurance Requirements*; Title 10 Code of Federal Regulations, Part 830; DOE; January 10, 2001
97. DOE Letter DOE-0359-03, *FEMP Quality Assurance Program*, DOE; May 5, 2003
98. 40000-QA-0001, Rev. 1, *Quality Assurance Job Specific Plan for the Silos Project*; Fluor Fernald; October 9, 2002
99. DOE Order 414.1A, *Quality Assurance*, U.S. Department of Energy; July 12, 2001