BSC

Criteria/Basis Change Notice

Complete only applicable items.

1. QA: N/A
2. Page 1 of 3

3. Document Identifier:	4. Rev.:	5. CBCN:
000-3DR-MGR0-00100-000	007	003

6a. Title:	6b. Safety Classification of SSC:
Project Design Criteria Document	Non-ITS & Non-ITWI

7. Reason for Change:

During review of requirements implementation, it was determined that additional detail should be provided to some criterion to provide better clarification of potential required design features. Two primary subject areas are addressed:

1. Septic system criteria are affected by permit information with the State of Nevada. The current criteria are written in part around a septic tank and leach field system that may not be used at the repository.
2. Compressed air system criteria change results from disbursing air from Plant Services to individual facilities on an as-needed basis.

References do not require DIRS numbers for changes because a DIRS report is not required, but DIRS numbers will be provided before incorporation into the next PDC revision.

There are NO technical impacts to the change. BOP already uses the septic manuals properly. The design of facility air systems may not be required at this time. The criteria address potential future design. The LA is not affected.

8. Supersedes Change Notice: ☐ Yes If, Yes, Change Notice: _____ ☒ No

9. Disciplines/Organizations Affected by this Change:

Mechanical Discipline Engineering Manager 12/27	Balance of Plant Project Engineer	Civil/Structural/Architectural Discipline Engineering Manager 12/27/07
Nuclear Facilities Project Engineer 02JAN08		
L&NS Document Review 12/27/07	ES&H Review Coordinator 12/27/07	
		If 6b is ITS/ITWI: Quality Assurance: N/A

10. Description of Change:

Revise the following criteria:

4.2.6.1 Operations and Maintenance

~~The~~ **If a septic tank and leach field system are to be provided, the** sanitary sewer system shall be designed in accordance with *ESF Sanitary Sewer System Operation and Maintenance Manual* (CRWMS M&O 2000 [DIRS 167332]).

[Previous engineering work was identified as suitable criteria for operation of the repository systems in a fashion similar to how the Exploratory Studies Facility system is operated. ***The ESF system was written around the septic tank and leach field system and may not be appropriate if a package treatment system is utilized.****]*

4.2.6.2 Nevada Regulations

The wastewater, treatment and disposal system shall be designed in accordance with NAC 444, *Sanitation* [DIRS 104039], as applicable. **The system shall also meet expected Nevada Department of Environmental Protection (NDEP), Bureau of Water Pollution Control permit conditions. If a septic tank and leach field system are utilized, then the following apply:**

- **Influent to the septic tank(s) shall be limited to domestic wastewater or other wastewater as approved by the Division (hazardous waste and other toxic chemicals shall be excluded)**
- **Vehicular traffic and/or heavy equipment shall be kept off of the septic tank(s) and leach field(s), unless system components are engineered for traffic weight.**
- **Posting signs, fencing, and/or permanent barriers shall be used to clearly identify septic tank(s) and leach field(s) areas.**
- **The septic system(s) shall not cause objectionable odors.**
- **Permittees may be required to install inspection pipes, monitor flow, install and maintain monitoring wells, or analyze the septic tank contents and/or effluent for the presence of priority pollutants or other parameters.**
- **The location of the septic system shall not be affected by stormwater runoff.**

4.2.6.2 (continued)

[NAC 444 is allocated to Engineering through the requirements management system and provides primary appropriate criteria for the system. ***Although not specific to the repository design, existing NDEP Permit No. GU9201, Large Capacity Septic System General Permit to Operate and Discharge, GU9201-40037 [DIRS xxxxxx], Part A, Items 5, 6, 12, and 14 provides criteria that apply if septic and leach fields are utilized.]***

Revise the following Compressed Gas criterion in the Plant Services subsection:

4.9.5.9 Additional Plant Services Codes and Standards

The Plant Services subsystems shall be designed in accordance with the following additional codes, standards, industry guides, regulatory guides, CFRs, and DOE orders and standards:

- ~~ANSI Z88.2-1992, *American National Standard for Respiratory Protection* [DIRS 114614],~~
- ANSI/AWWA C652-02,*AWWA Standard for Disinfection of Water-Storage Facilities* [DIRS 164242],
- ANSI/AWWA D100-05 [DIRS 177866],
- AWWA D102-03, *Coating Steel Water-Storage Tanks* [DIRS 176339],
- ANSI/ISA-S7.0.01-1996 [DIRS 164287],
- ANSI/API Std 610, *Centrifugal Pumps for Petroleum, Petrochemical and Natural Gas Industries* [DIRS 176349],
- API Std 619, *Rotary-Type Positive-Displacement Compressors for Petroleum, Petrochemical, and Natural Gas Industries* [DIRS 176350],
- API Std 620 [DIRS 176388],
- *2005 ASHRAE Handbook, Fundamentals* (ASHRAE 2005 [DIRS 174692]),
- ASME B73.1-2001, *Specification for Horizontal End Suction Centrifugal Pumps for Chemical Process* [DIRS 165719],
- CGA G-10.1-2004, *Commodity Specification for Nitrogen* [DIRS 176430],
- CGA G-11.1-2004, *Commodity Specification for Argon* [DIRS 176431],
- ~~CGA G-7.1-2004, *Commodity Specification for Air* [DIRS 176434],~~
- CGA G-9.1-2004, *Commodity Specification for Helium* [DIRS 176435],
- CGA P-18-2006, *Standard for Bulk Inert Gas Systems* [DIRS 176437],
- CGA V-1-2005, *Standard for Compressed Gas Cylinder Valve Outlet and Inlet Connections, with Amendment 1* [DIRS 176436],
- *2006 International Plumbing Code* (ICC 2006 [DIRS 176292]),
- NAC 445A [DIRS 104040],
- NAC 445B [DIRS 104041],
- DOE O 420.1A [DIRS 159450],
- DOE O 450.1 Change 2 [DIRS 176641],
- NSF/ANSI 60-2005 [DIRS 182875],
- NSF/ANSI 61-2007 [DIRS 182876],
- NFPA 20-2006 [DIRS 177971],
- NFPA 30-2003 [DIRS 177974],
- NFPA 70-2005 [DIRS 177982],
- NFPA 780-2004 [DIRS 173517],
- 29 CFR 1910 [DIRS 177507],
- 40 CFR 141 [DIRS 181986],
- 40 CFR 143 [DIRS 181987]

[Applicable sections of these codes and standards and level of conformance will be determined during the design process and in the development of design products. Although a later version of API Std 650 and AWWA D102 is available, the responsible DEM has elected to utilize the referenced version. Although a later version of NFPA 70 *is available, the responsible DEM has elected to utilize the referenced version.* ***CGA 7.1-2004 and* ANSI Z88.2-1992 are *now part of Criterion 4.9.5.10.]***

Add the new criterion for compressed air systems as folllows:

4.9.5.10 Compressed Air Supplies

Although not specifically part of the Plant Services subsystem, compressed gas systems within the repository facilities shall be designed to comply with:

- **Compressed Gas Association (CGA) G-7.1-2004, *Commodity Specification for Air* [DIRS 176434],**
- **ANSI Z88.2-1992, *American National Standard for Respiratory Protection* [DIRS 114614], ~~and~~**
- **CGA V-1-2005, *Standard for Compressed Gas Cylinder Valve Outlet and Inlet Connections, with Amendment 1* [DIRS 176436], and**
- **29 CFR 1910.134(i)(5)-(9) [DIRS 177507] for breathing air systems, if provided.**

4.9.5.10 (continued)

If atmosphere-supplying respirators are required from plant air compressors, a dedicated breathing air system shall be supplied respirable air of grade D quality or better as defined by CGA G-7.1 and 29 CFR 1910.134(i)(1)(ii)(A) through (E).

[10 CFR 20.1703(g) [DIRS 181962] provides the text of the criteria for supplying air in radiologically contaminated areas to the specified grade level. For information, Grade D quality air criteria include (1) oxygen content (v/v) of 19.5-23.5%; (2) hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less; (3) carbon monoxide (CO) content of 10 ppm or less; (4) carbon dioxide content of 1,000 ppm or less; and (5) Lack of noticeable odor. Although 10 CFR 20.1703(g) specifies the 1997 version of the CGA, the 2004 version will be utilized.]

11. REVIEWS AND APPROVAL			
Printed Name	**Title**	**Signature**	**Date**
11a. Preparer: David S. Rhodes	Discipline Engineering Manager		1-2-08
11b. Concurrence: Richard Foster (Acting)	Manager of Discipline Engineering		1-2-08
11c. Concurrence: N/A	Project Engineering Manager	N/A	N/A
11d. Approved: Barbara Rusinko	Engineering Manager		1/3/08