RAS 10264

3.2 FACILITY CONSTRUCTION

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The facility will require the removal of vegetation and soil excavation and backfill for construction of the site and access road. Approximately 140 acres of desert shrub/saltbush vegetation will be cleared. This includes the site, which is made up of the cask storage area and buildings within the RA, the storm water detention basin located north of the RA, and the earthen berm located on the west and south sides of the RA. The area for the access road that must be cleared of vegetation is 2.5 miles long and 80 feet wide (approximately 22 acres).

An additional 24 acres (approximately) will be temporarily disturbed during construction, which includes 5 acres for a construction laydown area located south of the site, 2 acres for the installation of the facility septic system, and 17 acres for construction of the access road.

3.2.1 Construction Plan

It is anticipated that the PFSF will be issued a specific license to receive, transfer and possess spent fuel in accordance with the requirements of 10 CFR 72 prior to June 2002 in order to commence operation of the PFSF. Construction of the PFSF is scheduled to start in September 2000, with completion by December 31, 2001. The construction and preoperational testing will be completed in time to support operation of the facility in 2002.

The following describes the conceptual plan and schedule for construction of the PFSF and includes the following components:

- Access Road
- Restricted Area (Storage Area)

- Balance of Facility
- Intermodal Transfer Point
- Rail Line

PFSF construction will start in September 2000. The access road, Restricted Area (initially a quarter of the total number of storage pads), intermodal transfer point, and the new rail line will be completed by December 31, 2001 (Phase 1). Testing and start-up will commence January 1, 2002, and facility operation will begin about June 1, 2002.

The project will be constructed in three phases. This approach will optimize the resources and schedule required to expedite facility operation and will provide continuous local employment for construction of concrete pads and casks. Phase 1 construction will include all the buildings (Administration Building, Operations and Maintenance (O&M) Building, Security and Health Physics Building, and Canister Transfer Building), the access road, the intermodal transfer point, the new rail line, and the complete southeast quadrant of the Restricted Area.

The remainder of the Restricted Area will be constructed in Phases 2 and 3. Phase 2 will include construction of the pads in the SW quadrant, and Phase 3 will include construction of the pads in the northern half of the Restricted Area. Completion of Phase 2 and 3 will be scheduled to meet the spent fuel storage needs of the nuclear power plants.

A portable, concrete batch plant will be located at the PFSF through the completion of Phase 3 to provide concrete for construction of the storage pads and casks.

3.2.1.1 Access Road

The access road is approximately 2.5 miles long and connects the PFSF with the existing Skull Valley Road located 1.5 miles from the OCA boundary. The access road will be constructed early in the first year of construction to facilitate access to the site for construction equipment, materials, and personnel. Road grading will be performed, large concrete box culverts will be installed, and the PMF diversion berm will be constructed. To minimize damage from the heavy construction equipment required to perform the major site excavation and grading, the roadway will initially be constructed with a gravel surface. After completion of the major site earthwork, the access road will be paved with asphalt.

3.2.1.2 Restricted Area

The RA includes the Canister Transfer Building, the Security and Health Physics Building, and the cask storage pads. The Canister Transfer Building is a large, concrete structure and the Security and Health Physics Building is a one-story, concrete-block building. The RA occupies approximately 99 acres and provides for a total of 500 concrete cask storage pads which are capable of supporting a total of 4000 storage casks.

As described previously, construction of the RA will be performed in 3 phases. The phases are further described below:

The objective of Phase 1 is to provide an operational facility with a portion (25%) of the storage pads completed. Phase 1 construction will include completion of the Canister Transfer Building, the Security and Health Physics Building, one quarter of the storage pads (130 total) located in the southeast quadrant of the RA. Phase 1 construction also includes the Administration Building and the Operations and Maintenance (O&M)

Building. The southwest quadrant will be rough graded. The storm water detention basin and PMF diversion berm on the south and west sides of the RA will also be constructed. The site drainage from the southeast and southwest quadrants will be channeled to the detention basin by means of a rockfill ditch. Yard lighting, duct banks, grounding, security fences, perimeter intrusion detection system and perimeter road will be completed for the southeast quadrant. Phase 1 construction will be completed by December 31, 2001 with the exception of the Administration Building, and the O&M Building, which will be completed by March 1, 2002. (These buildings are not required to support the initial testing and startup of the storage facility).

The objective of Phase 2 is to provide additional storage capacity to the operating facility by adding the second 25 percent of the storage pads. Construction in the southwest quadrant (Phase 2) will be performed while the storage pads in the southeast quadrant are being loaded with casks, and will be completed before all of the Phase 1 casks are in-place. When all of the pads are constructed in the southwest quadrant, the Phase 1 security fence, perimeter road, and perimeter intrusion detection systems will be extended to include the Phase 2 area. Phase 2 construction is tentatively planned for completion by November 30, 2006.

The objective of Phase 3 is to provide additional storage capacity to the operating facility by completing the remaining 50 percent of the storage pads. Construction of the northern half of the RA (Phase 3) will be performed while the Phase 2 (southwest quadrant) pads are being loaded with casks, and will be completed before all of the Phase 2 casks are in-place. When all of the pads are constructed in the northern half of the RA, the security fence, perimeter road, and perimeter intrusion detection systems will be extended to include this area. Phase 3 construction is tentatively planned for completion by November 30, 2011.

3.2.1.3 Balance of Facility

The Balance of Facility is made up of the O&M Building and the Administration Building, both of which are single story steel frame buildings with pre-fabricated (insulated) metal siding and roofing panels. Construction of these two buildings will start on June 1, 2001 and will be completed by March 1, 2002 as part of Phase 1. Parking areas around the O&M Building and the Administration Building are surfaced with asphalt or concrete pavement.

3.2.1.4 Intermodal Transfer Point/Skull Valley Road

The intermodal transfer point will be located 1.8 miles west of the intersection of Interstate highway 80 and Skull Valley Road at the mainline Union Pacific Railroad approximately 24 miles north of the PFSF (Figure 3.2-1). At the intermodal transfer point there will be a short rail siding and a pre-engineered metal building, which will house a gantry crane for cask transfer. An access road will be provided to connect the intermodal transfer point to the frontage road which runs along the north side of Interstate highway 80.

Although the site is nearly level, rough grading will be required to level the site. Excavation will be required for installation of the mat foundation for the gantry crane and enclosure. The enclosure will be a pre-engineered metal building approximately 80-ft. wide by 100-ft. long and 54-ft. high. The access road will be an asphalt-paved private road approximately 30-ft wide and 400-ft. long.

The equipment at the intermodal transfer point will be constructed between January 1 and December 31, 2001 to support testing and startup of the PFSF.

3.2.1.5 Low Corridor Rail Line

A new rail line, the preferred transportation method, will be constructed by the PFSLLC to connect the PFSF directly to the Union Pacific mainline railroad at Low. The rail line will be approximately 32 miles long and will originate from the mainline on the south side of Interstate highway 80 at Low (Figure 3.2-2). From the mainline at Low, the rail line will proceed southeast parallel to Interstate highway 80 for approximately 3 miles, then turn south along the western side of Skull Valley for approximately 26 miles, and then turn east for approximately 3 miles to the PFSF. The rail line will consist of a single track installed on undeveloped public rangeland administered by the BLM.

Construction activities will begin at Low Junction where excavation will be required to connect the new line to the existing mainline railroad and to provide the required sidings. The existing grades are elevated where the railroad and interstate highway cross the north end of the Cedar Mountains. The mainline is depressed beneath the two Interstate highway 80 overpasses at Low Junction. The excavated soils will be stockpiled for use as fill for rail line construction in Skull Valley.

Construction of the rail line beyond the Low Junction will be on the relatively flat terrain of Skull Valley. Approximately 56 dry arroyos cross the transportation corridor. Thirty-two culverts have been provided in the design to facilitate drainage from these arroyos. Construction will begin with clearing and grubbing activities as necessary to accommodate a 40 ft wide rail bed. The upper 6-in. of soil (topsoil) will then be excavated for a width of approximately 10-ft. (5-ft. on both sides of rail line centerline) and stockpiled for later use. The roadbed will be proof-rolled and backfilled with 1-ft. of compacted fill material (excavated or imported). A minimum of eight inches of sub-ballast will be placed on the prepared surface. The ties and rail will be laid on top of the sub-ballast and a rail construction machine will travel along the previously laid track and install the remaining crushed gravel or rock ballast (approximately 8 inches) beneath

and around the wooden ties. The construction machine will also attach the rails to the ties using spikes and tie plates. The rail will be spliced with bolts for ease of assembly.

Construction of the new rail line will begin in September 2000 and will be completed by December 31, 2001 to support testing and startup of the PFSF.

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APPENDIX 7A

BASIS FOR THE USE OF A 3.8% DISCOUNT RATE

PFS has used a discount rate of 3.8 percent for the discounted cash flow analysis. The avoided costs are also calculated using a 7 percent discount rate, the current discount rate required by the Office of Management and Budget Circular A-94, and the summary results are shown in Appendix 7C for comparison purposes. The justification for using the 3.8 percent rate is as follows:

1) The OMB Circular A-94 which suggests the use of 7 percent for the discount rate is dated October 29, 1992 – over seven years ago. Section 8.b.1 which suggests the 7 percent rate, also has a statement at the end of the paragraph which states "Significant changes in this rate will be reflected in future updates of this circular". No updates to this section of the circular have been made available, however the appendices (e.g. Appendix C) to the Circular have been updated as recently as January, 1999. Appendix C outlines real interest rates for discounting federal project cash flows and suggests real interest rates in the range of 2.8 percent (assuming treasury bills are the source of funding). Private sector projects such as PFS would have somewhat higher real interest rates due to higher borrowing rates than the federal government, however not high enough to result in 7 percent overall. Because of the lack of current updates to the Circular, and given the changes in the cost of borrowing money and rates of inflation which have occurred since 1992, it is appropriate to consider more appropriate real interest rates for discounted cash flows.

2) A review of recent activity in the bonding market (a common source of funding for utility projects) indicates that municipal or utility bonds are being sold at 7 percent or less. For example, a recent bond issue by Northern States Power was at 6-7/8 percent. Published numbers in the Wall Street Journal indicate that municipal bonds

are currently (Bond Buyer - October 1999) being offered at approximately 6-5/8 percent. Since municipal bonds are the likely source of funding for PFS, these indicate that it is appropriate to use a nominal interest rate of around 6-5/8 percent.

3) Recent published data on rates of inflation show rates at approximately 2-3/4 percent. (Standard and Poors McGraw Hill DRI inflation index for October, 1999).

Combining a nominal interest rate of 6-5/8 percent and an inflation rate of 2-3/4 percent, the calculated real interest rate to be used for discounted cash flow analysis equals:

1.0663/1.0275 = 1.038 or a 3.8% real interest (discount) rate for NPV

Note: While 3.8 percent was used as the discount rate for the NPV calculations, we have included in the reference materials calculations at a 7 percent real interest rate for comparison purposes.