TROJAN NUCLEAR PLANT

PGE-1063, "Supplement to Applicant's Environmental Report, Revision 2"

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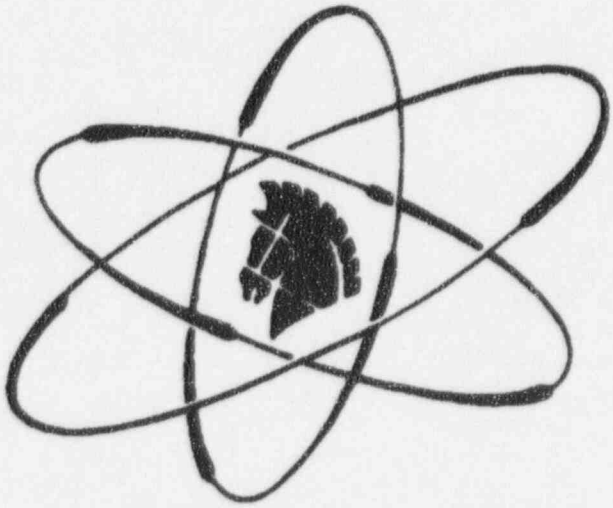
PGE-1063

Portland General Electric

Supplement to Applicant's Environmental Report



Post Operating License Stage

Trojan Nuclear Power Station

Revision 2

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3 Decommissioning Plans

3.1 Selection of Decommissioning Alternative

The various alternatives for decommissioning a nuclear power plant are generally described as falling into one of three broad classifications. These classes of decommissioning methods are known as "SAFSTOR", "DECON" and "ENTOMB." The definitions of these methods presented in the NRC's "Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities"[5] are repeated below.

> DECON is the alternative in which the equipment, structures, and portions of the facility and site containing radioactive contaminants are removed or decontaminated to a level that permits the property to be released for unrestricted use shortly after cessation of operations.
>
> SAFSTOR is the alternative in which the nuclear facility is placed and maintained in a condition that allows the nuclear facility to be safely stored and subsequently decontaminated (deferred decontamination) to levels that permit release for unrestricted use.
>
> ENTOMB is the alternative in which radioactive contaminates are encased in a structurally long-lived material, such as concrete; the entombed structure is appropriately maintained and continued surveillance is carries out until the radioactivity decays to a level permitting release of the property for unrestricted use.

PGE has selected the DECON alternative for decommissioning of the Trojan facility. The Trojan Decommissioning Plan provides a detailed description of the proposed implementation of this alternative. In summary, there are three major activities associated with the planned radiological decommissioning of the Trojan facility. These are 1) the early removal and disposal of the four steam generators and the pressurizer, 2) licensing, constructing, and eventual decommissioning an independent spent fuel storage installation (ISFSI) u the regulations of 10 CFR Part 72, and 3) the decontamination/disposal of contaminated plant structures and systems. Consideration is also being given to early removal and disposal of additional components, such as the selected reactor vessel internals, the reactor vessel, or removal of the reactor vessel with the internals intact.

3.2 Decommissioning Schedule

The schedule for decommissioning/site restoration activities is shown in Figure 3.2-1.

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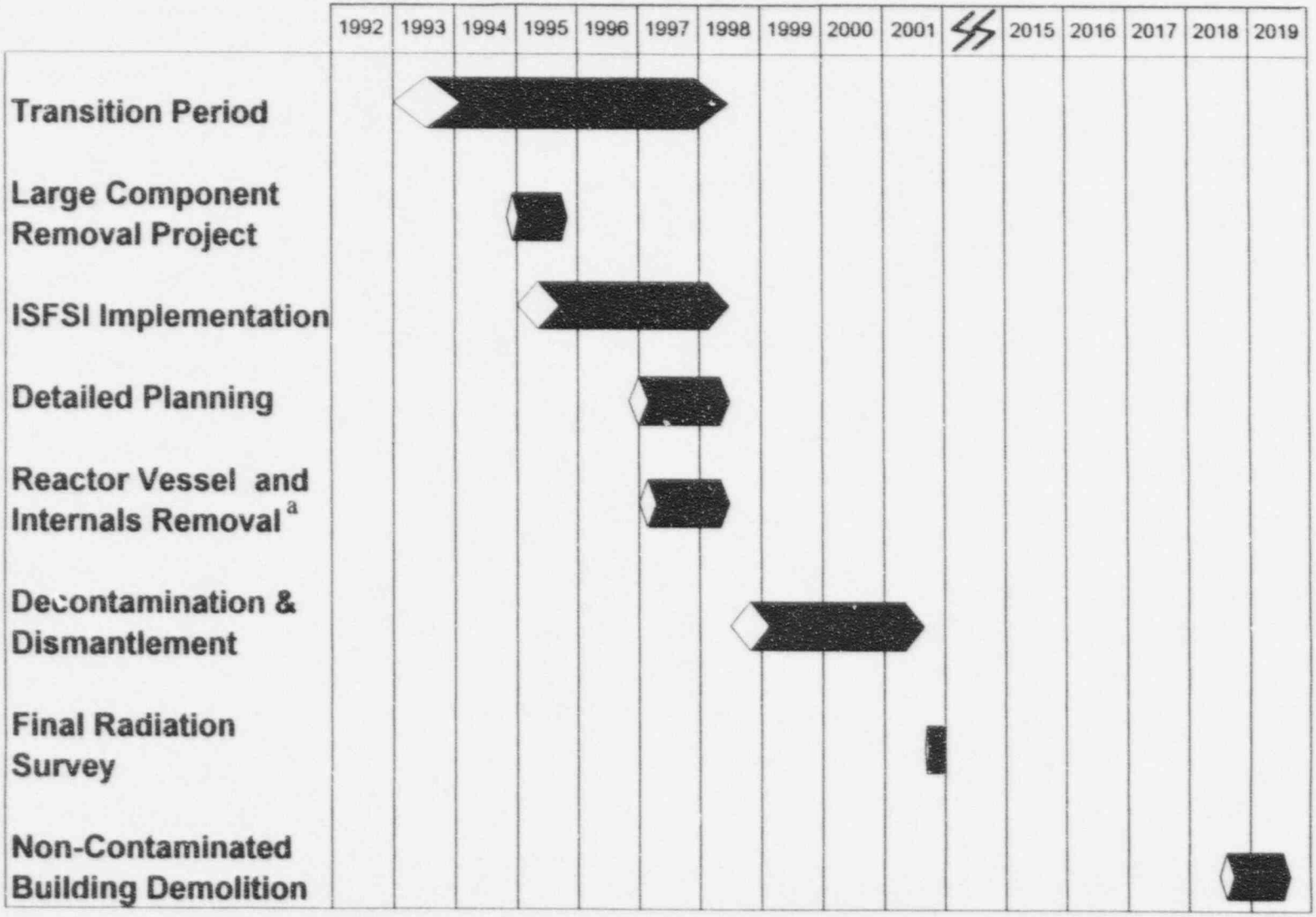
[5] NUREG-0586, "Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities", August 1988

Figure 3.2-1 Decommissioning / Site Restoration Schedule



a This schedule reflects the option of intact removal of the reactor vessel and internals. If this project is canceled and the option of separate removal and segmentation of the reactor vessel internals is selected, then completion of the project is scheduled for late 1998 to early 2000.

The plant's once through cooling system remains in service to provide cooling water for the spent fuel storage pool (via the component cooling water heat exchangers), and selected room coolers. The shutdown of the plant has greatly reduced the demand for cooling water from this system. Only one of the two trains is normally operated and this provides more than adequate cooling capabilities for the remaining heat loads. Chlorination of this system (and the neutralization of the residual chlorine) continues at this time. The impact of this chlorination on the water discharged to the Columbia River is reduced from previous levels, however, due to the reduced flow requirements.

Discharges originating from blowdown of the reactor coolant system and miscellaneous steam leaks and drains from the plant secondary system have also been eliminated as a result of the permanent shutdown of the plant.

With the plant permanently defueled, the water use is less than when the plant was operating. Water is drawn from two wells on site and the Columbia River. The estimated maximum usage from the wells is 26,925 gpd for potable water and for the demineralized water system, with plans to use an additional 43,200 gpd for potable water, backup fire protection, and air compressor bearing cooling water. The estimated maximum plant usage from the Columbia River is 42,600 gpm (40,000 gpm for the service water system, 2,000 gpm for the fire system, and 6 gpm for the screen wash system).

The daily average minimum flow of the Columbia River at Trojan is approximately 120,000 cubic feet per second. The discharge is at the bottom of the river in a manner providing an average 120-fold dilution by the time the effluent reaches the river surface. Further dilution of the discharge occurs rapidly in the river. Within 12,000 feet of the discharge, complete mixing is expected.

The original Trojan environmental report noted that chemicals from the plant, after dilution by river water, would cause only a slight increase in the concentration of elements and compounds which already existed in the river. The report concluded that the waste discharge from the Trojan plant would have a negligible effect on the chemical composition of the Rainier drinking water and cause no adverse effects on human health from this source. The report also concluded that chemical wastes from Trojan would have a negligible biological impact on the environment of the Columbia River or on the area surrounding the plant. These conclusions have subsequently been supported by the continuing monitoring of the environment in the vicinity of Trojan. The permanent shutdown of Trojan has further reduced any chemical discharges from the levels that resulted from plant operation. Any chemical discharges resulting from decommissioning activities will be made in accordance with the limitations and conditions of the NPDES Waste Discharge Permit issued to the plant.

During plant operation various chemicals were also present in the cooling tower drift. These consisted basically of insoluble salts. Chlorine was also present in the cooling tower drift within the cooling tower structure. An asbestos cement material was used for construction of portions of the cooling tower internals. As stated in the original Trojan environmental report, there were no measurable environmental effects expected due to operation of the cooling tower. However, since the cessation of plant operations, the cooling tower is no longer in use and release of any chemicals contained in the cooling tower drift has also ceased.