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Division of Freedom of Information and Publications Services  
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U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

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Docket No. 50-267

**SUBJECT: Comments on Draft Report, "Revised Analyses of Decommissioning for the Reference Pressurized Water Reactor Power Station," NUREG/CR-5884**

Gentlemen:

This letter submits Public Service Company of Colorado's (PSC) comments on the NRC's draft report, "Revised Analyses of Decommissioning for the Reference Pressurized Water Reactor Power Station," NUREG/CR-5884. The NRC requested public comments on this draft report in 58 FR 54385, dated October 21, 1993, and subsequently extended the comment period to February 15, 1994.

PSC is in the process of actively decommissioning the Fort St. Vrain Nuclear Station using the early dismantlement (DECON) decommissioning alternative. Our comments reflect recent experience in planning, staffing, and performing DECON activities within the current regulatory environment. The Fort St. Vrain reactor was a High Temperature Gas-Cooled Reactor which included some systems and specific components that were different from those in a Pressurized Water Reactor. However, our experience in decontaminating and dismantling equipment and piping systems, in staffing a decommissioning project, and in disposing of radioactive waste should be directly applicable to any nuclear reactor decommissioning project.

As a general public policy comment, PSC considers that the NRC's decommissioning funding regulations should meet the objective of assuring that funds are available to cover necessary end of plant life costs. PSC considers that nuclear utility licensees and their financial regulators are fiscally responsible and are generally concerned about ensuring that adequate funds are available to cover decommissioning costs and other necessary end of plant life costs. Nevertheless, financial conditions can and do change, and competitive pressures and cost cutting measures can put fiscal constraints on licensees and their financial regulators. Therefore, the NRC's decommissioning funding regulation must ensure that funds are collected in amounts and on a schedule sufficient to preclude major shortfalls in nuclear plant shutdown and decommissioning funds.

Undercollections in the 5 to 10 percent range may be acceptable on an individual plant basis, but it is difficult for a single utility to make up shortfalls approaching or exceeding \$100 million. Based on the difference between the actual costs of current decommissioning projects and the estimated decommissioning costs presented in the Draft Report, PSC's perception is that the NRC's current decommissioning cost estimating and funding process could result in shortfalls approaching \$100 million per plant. PSC considers it essential that the NRC avoid having inadequate decommissioning funding regulations, which could lead licensees to a false sense of financial security and result in financial failures such as those which occurred during the recent savings and loan crisis. Shutdown and decommissioning of a nuclear power plant is an expensive undertaking that can and must be adequately funded.

PSC's decommissioning funding experience was affected by the premature shutdown of the Fort St. Vrain Nuclear Station. At the time of shutdown, sufficient decommissioning funds had not been collected and we were forced to take a major writedown on undepreciated capital investments and fuel costs. This writedown of well over \$100 million represented a major challenge to our entire corporation, which has assets of over \$3.7 billion. Similar writedowns would adversely affect the financial health of virtually any nuclear utility.

From an overall cost estimate viewpoint, it is difficult for PSC to rationalize decommissioning costs for Pressurized Water Reactors (PWR) in the \$100 million range as estimated in the Draft Report, when the Fort St. Vrain decommissioning cost estimate was \$157.4 million, for a project with only 153,000 cubic feet of low level radioactive waste (compared to 240,000 cubic feet of PWR waste assumed in the Draft Report), with 99 percent of our radioactivity contained within the prestressed concrete reactor vessel, and with very little balance of plant contamination. The actual decommissioning costs for the Shoreham decommissioning project are also much higher than those estimated in the Draft Report, and Shoreham only operated 2 Effective Full Power Days. This actual experience with decommissioning very clean facilities indicates that the Draft Report estimates are systematically low by almost a factor of 2.

Our specific comments on NUREG/CR-5884 are as follows:

1. PSC takes issue with the assumptions regarding fuel costs. The draft report correctly recognizes that licensees will have to store spent fuel and may have to continue operating a dry storage facility beyond the time when the nuclear license is terminated. However, the assumption in Section 2.1 that 90 percent of total plant costs should be allocated to fuel storage operations and only 10 percent to plant decommissioning activities does not agree with our experience during any phase of decommissioning activities.

PSC constructed and loaded an on-site Independent Spent Fuel Storage Installation. After a six-month loading period, this stand-alone, passive facility has required minimal security, surveillance, and upkeep. The staff required to maintain the ISFSI is insignificant compared to the staff levels required for decommissioning planning and oversight activities.

Our experience is with early dismantlement activities, but many of the same plant activities would be required to prepare plant systems and equipment for an extended safe storage period, and this effort should not be underestimated. During active dismantlement and SAFSTOR preparatory activities, it would be more consistent with our experience to allocate 75 percent of the staffing levels to decommissioning activities and 25 percent to fuel storage. If only general plant maintenance and fuel storage activities are in progress, an even division of costs would seem appropriate.

2. PSC considers that scenario assumptions of radioactivity levels that are based only on cobalt-60, as in the SAFSTOR1, ENTOMB1, and ENTOMB2 alternatives, are hypothetical and misleading. Our experience at Fort St. Vrain is that there are other activated impurities in concrete and other structural materials that will still be around after cobalt-60 levels have substantially decayed. There are enough of these long-lived nuclides that dismantlement activities will still require remote tooling and access controls, and the radioactive waste volumes will not be significantly reduced, even after many half-lives of cobalt-60 have taken place.

3. The presentation of staff levels in summary charts like Figures 3.2, 3.5 and 3.6 is difficult to evaluate, considering the assumed 90/10 allocation of staff between fuel and decommissioning activities discussed above. Even if it is assumed that the positions shown in these staffing charts are devoted full-time to decommissioning activities, the assumed staffing seems light, especially for the utility. During active dismantlement (Period 4), as shown in Figure 3.6, most of the activities are being conducted by the decommissioning contractor. However, it is PSC's experience that the utility must play an active oversight role. This role is greater than we had originally envisioned and is greater than that assumed in the PNL draft report. PSC has retained approximately 50 percent more staff than PNL assumed, particularly in the HP and Engineering positions.
4. The presentation of contractor staff levels based on crew hours per task, as shown on the summary schedules and staffing charts in Figures 3.7, 3.8, and 3.9, is confusing and misleading. For example, project staffing illustrated in Figure 3.9 reflects an assumption that crew sizes will vary widely over the project, to a degree which is not realistic. This figure shows staffing levels that fluctuate up and down every month by up to 900 crew hours. In reality, staffing levels would be more stable and prudent planning would levelize work activities. However, even with the best planning, there will be times when work crews are not fully utilized and the associated costs will be higher than those assumed for the rapidly variable crew sizes shown in Figure 3.9.
5. The staffing shown in Table 3.2 includes fractional utility staff levels that vary from Periods 2 (Deactivation) to 3 (Safe Storage) to 4 (Dismantlement) in a manner that is confusing and misleading. It is difficult to relate the fractional person-years to staffing levels to evaluate their reasonableness. This is especially true for periods that extend over multiple years. It would be useful to identify the staff levels and time periods assumed. Also, in several operations and engineering positions, personnel are assumed to disappear for a period and then reappear. Depending on the length of the SAFSTOR period, this may not be realistic. Utilities may elect to retain qualified individuals through active dismantlement, thus increasing costs for Period 3.
6. The component removal and dismantlement periods appear to be short by a factor of 2 or 3. Dismantlement is assumed to be completed within 1.7 years, where at Fort St. Vrain, these activities are expected to take 3.25 years.

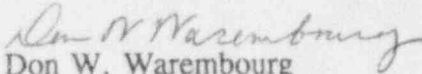
7. The presentation of costs in the executive summary table, Table ES.1, is misleading, in that costs are based on an unrealistically low disposal cost. The basis for the summary table is \$50 per cubic foot. This figure does not reflect taxes, curie and exposure surcharges, or the impact of escalation over the SAFSTOR period; low level radioactive waste disposal costs have historically increased by over 11 percent per year, considerably outpacing the rate of inflation. PSC based the Fort St. Vrain waste disposal cost estimate on \$140 per cubic foot.
8. The final site survey cost estimate of \$1.2 million, in Section 3.4.12, is significantly low. PSC's latest estimate for this survey is in the range of \$5 million to \$6 million, and Shoreham's latest estimate is reportedly in the range of \$10 million to \$12 million. There are still a lot of unknowns about the extent of this process, including the treatment of hard to detect nuclides which isn't mentioned in the draft report. However, it appears impossible to perform this task for \$1.2 million.
9. The draft report does not account for mixed wastes because it assumes that these would likely have been generated during operations and their disposal would therefore be an operational cost. This potentially costly task is one that in some instances could end up being a decommissioning expense. For example, PSC is investigating the possibility that some originally minor impurities in lead shielding at Fort St. Vrain could have become activated, thus creating a potential mixed waste. Since this material is part of a plant component, its storage/disposal could clearly be considered a decommissioning cost. There could be other such conditions where mixed waste disposal would not be considered an operational cost.
10. The draft report does not include costs of initial site characterization studies, activation analyses, and any other studies to determine the extent of decommissioning activities. The initial site characterization of Fort St. Vrain involved over 20,000 measurements on more than 5000 survey locations and required a substantial documentation effort.
11. PSC considers that the report should assume that piping would be cut into 5-foot lengths instead of 15-foot lengths. The Fort St. Vrain design included many crowded areas, and it has not been possible to remove much piping in lengths longer than 5-feet.

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PSC appreciates the opportunity to comment on this draft report. Nuclear power plant decommissioning is a sizable undertaking with many alternatives to be evaluated. We consider that the PNL study provided a fairly thorough review of these tasks. However, the costs determined in this draft report are systematically lower than those experienced by PSC and the other utilities that are actually engaged in decommissioning activities at the present time. We hope that our comments can be helpful in revising the estimated costs to be more reflective of our experience.

If you have any questions regarding these comments, please contact Mr. M. H. Holmes at (303) 620-1701.

Sincerely,

  
Don W. Warembourg  
Decommissioning Program Director

DWW/SWC

cc: Document Control Desk

Regional Administrator, Region IV