20 April 1987

Nuclear Regulatory Commission
Office of Inspection
USNRC
631 Park Ave
King of Prussia, PA 19406

Ladies and Gentlemen:

I am writing to get your response to the findings of an independent consultant hired by Public Services of New Hampshire which claims that:

(1) the NRC was responsible for construction permit delays and permit suspensions which caused a 28.5 month delay in the Seabrook Power station construction and an additional cost of 518 million dollars. (See atachment 1)

(2) the NRC changed seismic design requirements during Seabrook construction which added 4.25 months to the plant's construction schedule and increased the station's cost by 161 million dollars. (See attachment 2)

(3) the NRC changed piping and support requirements many times between 1973 and 1979 which lead to a 7 month increase in the Seabrook construction schedule and increased the station's cost by 405 million dollars. (See attachment 3)

(4) the NRC's changing interpretation of Quality Assurance requirements caused a 6.25 month schedule slip and added 445 milion dollars to the station's cost. ( See attachment 3)

As an investor in Public Services of New Hampshire stock. I feel I have been raped by overzealous Federal regulators and changing requirements, while state and local authorities haved used the "letter" of the law, i.e. Governor Dukakis refusal to participate in evacuation planning, to prevent Seabrook from ever producing power no matter how safe it is to operate the station. PSNH estimates each months delay in operating the station costs the company (its shareholders) 30-50 milion dollars. Did the author of the evacuation planning rule intend to give state and local authorities veto power over the licensing of nuclear power plants? Of course not.
Don't you think government agencies/officials should be liable for the deliberate or outrageously imprudent use of authority which damages or, may in the case of PSNH, bankrupt a company?

I anxiously await your response.

EDO --- 002909

Sincerely

William [illegible]
4951 Santiago Way
[illegible]

c: Attachments:
1. Construction Permit Delay
2. Seismic Design Changes
3. Piping & Support Changes

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I addressed this letter to you because I did not have the Washington D. C. address. If you cannot respond to my questions, please forward it to someone in the Commission who can.

Sincerely
Walter D Stale

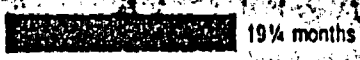
# SUPERVENING EVENTS

SUPERVENING EVENT: An unexpected occurrence subsequent to project start that was beyond the control of project management.

## CONSTRUCTION PERMIT DELAYS

The initial project schedule was based upon receipt of the construction permit for Unit 1 by December 30, 1974. The permit was received on July 7, 1976, over 39 months after the application was filed with the NRC and 18¼ months beyond the expected start of construction. The uncertainty of the licensing process caused an additional month of mobilization time after the permit was issued. Examination of the record indicates a major contributing factor of the delay was the protracted NRC review and hearing process which was extended by intervenor activity during the licensing proceedings. PSNH aggressively expedited the licensing process and resolution of contested issues during the entire period. There is no indication that PSNH, Yankee or UE&C contributed to any portion of the licensing delay.

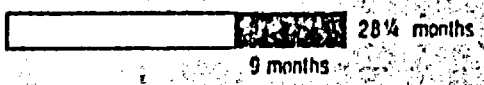
The effect of the unforeseen delay in issuing the construction permit was a project extension of 19¼ months and a cost increase of $315 million.




## CONSTRUCTION PERMIT SUSPENSIONS

Two separate suspensions of the construction permit delayed the project. On November 9, 1976 the EPA Regional Administrator, without warning, reversed his prior approval of the once-through cooling system. The construction permit was suspended by the NRC until the EPA again approved the once-through design. In 1978 delay recurred when the U.S. Court of Appeals, in response to intervenor activity, found that the EPA Administrator had violated proper procedures in reversing the Regional Administrator's decision. The NRC suspended construction for three weeks while re-examination of the issue took place. On these occasions PSNH actively pursued every avenue to expedite the resolution of the inter-agency disagreement and responded prudently in managing the effects of the suspensions.

The two construction permit suspensions contributed 9 months to the project schedule and cost $198 million.



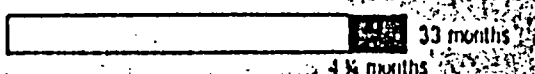
## LABOR-RELATED IMPACTS

Strikes occured in 1978, 1979 and 1980. They grew out of statewide contract negotiations.

- 1978 Teamster/Ironworker/Carpenter Strike — The teamsters went on strike June 3 to June 15. The ironworkers went on strike between June 26 and June 30. The carpenters struck from June 27 to June 30. The construction activities affected at this time were primarily reinforcing bar placement and concrete formwork erection.
- 1979 Carpenter Strike — The carpenters went on strike from May 11 to June 24 at a time when Federal wage guidelines were being stressed. This strike primarily affected concrete formwork installation.
- 1980 Ironworker Strike — The ironworkers went on strike from July 11 to September 11 over wages. This strike seriously affected the installation of reinforcing steel.

The total impact of these events on the project was a cost of $122 million and 4¾ months of schedule.

Throughout these labor disputes, management was represented by the Associated General Contractors of New Hampshire. Representatives of UE&C and Perini Power Constructors, Inc., were present at all negotiations. In all three labor disputes, these management teams were active in negotiating workable solutions. The Seabrook Stabilization Agreement, signed by labor and management at the start of construction, did much to reduce labor-related delays.

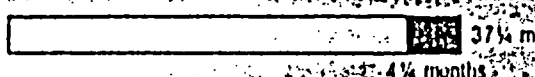



## SEISMIC DESIGN CHANGES

The earthquake-induced ground acceleration used as the design basis for structures and equipment was increased 25 percent by the NRC in 1974. Observations and scientific analysis had determined that a design based on a peak ground acceleration of 0.2g (two tenths the acceleration of gravity) would be conservatively safe. When one intervenor took the position that 0.2g was too low, the NRC staff advised PSNH that the design basis should be 0.25g.

PSNH took exception to the NRC staff position, but prudently acceded to it to avoid the high cost of further delay in the issuance of the construction permit. Because the change took place in the early stages of the design process, the Unit was designed initially to the higher g value. However, the change substantially increased the complexity of safety-related structures and the size and complexity of equipment and piping supports.

PLG determined that the changes in the seismic design criteria and other seismic design changes impacted the project schedule 4¼ months and the cost $161 million. PSNH's submitting to the NRC demands was proper to avoid extension in the licensing proceedings.



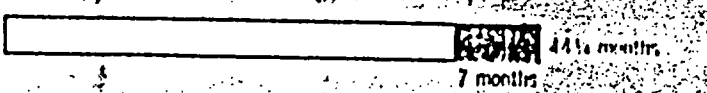

Attch 2

## PIPING AND SUPPORT CHANGES

Between 1973 and 1979 the NRC imposed many regulatory changes which affected the design and installation of piping and other equipment supports. Requirements for pipe supports at the beginning of the project were covered under the power piping code and took only five pages to list. By 1974 regulatory requirements for supports were so numerous that they filled an entire volume of the Boiler and Pressure Vessel Code. The impact of these voluminous changes could not be realized until installation of the supports began in the early 1980s.

Other NRC changes affecting supports included extensive documentation and reanalysis requirements, many more quality assurance procedures, revised earthquake vibratory frequencies, and requirements for seismic design of non-safety components. As a result, larger and more complex supports had to be made to fit within the structures at much higher costs in engineering and erection.

PLG found that the additional work on piping and supports from these several events is an impact on the project schedule of 7 months and a cost of $405 million. PLG found that PSNH took prudent steps to minimize change and applied resources to overcome the schedule extensions resulting from the new requirements.

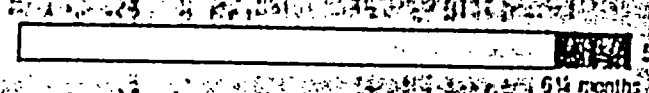



## QUALITY ASSURANCE EFFECTS

Quality assurance is a fundamental aspect of nuclear power plant design and construction, ensuring that the plant's structures, systems and components will perform satisfactorily in service. A strong quality assurance program is essential to the success of a nuclear power plant project. Several nuclear power plant projects were cancelled largely because of quality assurance-related problems. Others have been substantially delayed. PLG evaluated the Seabrook Station quality assurance program in detail and found that this program was managed prudently. However, the Seabrook project incurred significantly increased costs in implementing its stringent quality assurance program. These costs may be considered as an "insurance premium" for the entire Seabrook project because they were incurred to protect the likelihood that Seabrook Station would ultimately provide service to customers.

Quality assurance costs for nuclear power plants that were completed in the early 1970s represented about four percent of the direct craft hours. Thus, it was reasonable for PSNH to assume in 1972 that quality assurance costs would remain low. However, a large increase in quality assurance requirements occurred after 1972 and greatly increased costs and adversely affected construction worker productivity. Quality assurance programs are very extensive, encompassing many volumes of procedures. The programs are audited on an ongoing basis by outside organizations such as the NRC as well by the utility constructing the plant.

PLG has determined that the evolution of more stringent interpretations of NRC regulations and the issuance of hundreds of associated new standards since 1971 accounted for 6½ months in the project schedule and $445 million of the project cost.



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