

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD 83 JAN 13 AIO:43

In the Matter of)
WASHINGTON PUBLIC POWER SUPPLY SYSTEM,)
et. al.)
(WPPSS Nuclear Project No. 1))

SECRETARY OF ENERGY
DOCKETING & SERVICE
Docket No. 50-460-OL

COALITION FOR SAFE POWER SUPPLEMENT TO
REQUEST FOR HEARING AND PETITION FOR LEAVE TO INTERVENE

Pursuant to an Order dated December 15, 1982 of the Atomic Safety and Licensing Board in the above-captioned proceeding, the Coalition for Safe Power hereby submits its Supplement to Request for Hearing and Petition for Leave to Intervene. The contentions the Coalition for Safe Power seeks to have admitted in this proceeding are as follows:

CFSP 1

Petitioner contends that there is no reasonable assurance that WNP-1 will be substantially completed, in a timely fashion as required by 10 CFR Part 2, Appendix A, Section VIII(b)(1) and 10 CFR 50.55(b)&(d) which provide that an application for an Operating License will be filed "at or about the time of completion of the construction ... of the facility" and that a license may be issued when there is "reasonable assurance that the construction of the facility will be substantially completed, on a timely basis."

Construction of WNP-1 has been halted since April, 1982 following a decision of the WPPSS Board of Directors, due to a lack of need for the power and an inability to finance completion of the project. This construction "deferral" is intended to last "up to five years." Letter from Mr. Eisenhut, NRC to R. Ferguson, WPPSS, July 16, 1982 at 1. Construction of the project is approximately 60% complete. The NRC Staff is proceeding on a "'manpower available' basis with review of those portions of the application which parallel other current applications" and will establish a staff safety and environmental review schedule when "the Supply System intends to resume substantial construction activities at WNP-1."

Ibid.

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According to "Miscellaneous Data", an Enclosure to Memorandum to Files, TRIP to WPPSS 1,2 and 4 from E. Abbott, Technical Assistant to Commissioner Gilinsky, December 17, 1982, the Supply System has suffered major setbacks in the last 18 months including:

-Cancellation of projects WNP-4 and WNP-5
-Project participants' lawsuits do not pay termination costs
-Judicial actions upholding participants non-liability for debts.
-Deferral of WNP-1 for up to 5 years.
-Legislative actions to require public approval of further bond issuances for projects.
-Impacts of the above on bond ratings and freedom to enter bond market.

The Supply System will have to default on its debts on WNP-4 and WNP-5 (terminated in 1982), according to R. Ferguson, Managing Director of WPPSS. Press conference, December 2, 1982. According to an article in the Pasco Tri-City Herald, "Ferguson Predicts WPPSS Default By Spring", December 2, 1982, Mr. Ferguson said that default would make financing continued construction of the WNP-2 and WNP-3 "impossible", even if Washington voters approved a bond sale under Initiative 394 which requires further WPPSS bond sales to be voter approved. Furthermore, according to another article, State Representative Ray Issacson, Richland, said, "If the system [WPPSS] goes into default on 4 and 5, then I'm sure that the people who are holding those bonds are going to take a class action suit against the Supply System, which would throw 2 and 3 into receivership along with the rest." "Spellman: Everybody Will Suffer", Pasco Tri-City Herald, December 2, 1982. The events that affect WNP-2 and WNP-3 are applicable to WNP-1. Thus, there exists no reasonable assurance that the plant will be completed, and that the completion will occur within anytime in the near future.

CFSP 2

Petitioner contends that Applicant has neither adequately nor correctly assessed the somatic, teratogenic and genetic effects of ionizing radiation which will be released by WNP-1 during normal, transient and accident conditions and thus underestimates the human cost of the project

in the cost-benefit analysis required by 10 CFR 51.21, 51.20(b)&(c) and 51.23(c).

Applicant is required to quantify, to the fullest extent practicable, the factors considered in calculating the environmental effects of the project. It is well known that the effect of low-level radiation on living organisms is cumulative. Radiation and Human Health, John Gofman, M.D., San Francisco: Sierra Club Books, 1981 at 47. The Applicant should be required to provide a complete and accurate analysis of the existing radiological burden but does not. Environmental Report 5.2. This section fails to discuss the results of innumerable studies done since the 1950s on aquatic life of the Columbia River and Pacific Ocean which show that radiation from artificial sources (ie. Hanford) exists in fish, oysters, birds, river sediment etc. See eg. Federal Water and Pollution Control Agency, May 1964, C00-1514-3; "Distribution of Mallards from the Columbia Basin Region as Indicated by the Presense of 65Zn in Birds Shot By Hunters in the Pacific and Central Flyways," June 1967, Fred A. Glover, et. al. Colorado State University; "Radionucleides in Transport in the Columbia River from Pasco to Vancouver, Washington", TID-25895, W.I. Hauschild, Battelle Northwest, 1971. Additionally, news articles refer to numerous occurrence reports made to the Department of Energy regarding radioactive mice, tumbleweed, snakes, wasp nests, coyote and rabbit feces, and migratory birds. See eg. "Rolling Across the Desert....Radioactive Tumbleweed", Seattle P.I., May 3, 1979. The Environmental Report does not discuss the entire scope of artificial radiation in the Columbia River sediment, for example, nor the existing health burden to the population from several decades of radiation pollution. Thus, there is reason to conclude that Applicant has underestimated the effect of past and present operations at Hanford on the environment and population and underestimates, additionally, the effect of operation of WNP-1.

Existing radiological and health burdens of people residing within the radius of WNP-1 should be taken into account in the assessment of the effect of operation of the project on human health. Dr. Rosolie Bertell states that radiation has an enhancing effect on existing health burdens and that such information is necessary to correctly determine the impact of the project's operation. "Radioactive Effluents: Pebble Springs Nuclear Plants", testimony before the Oregon Energy Facility Siting Council, April 3, 1978. See also "X-ray Exposure and Premature Aging", Journal of Surgical Oncology, 1977, at 379. Radiation levels at the Hanford Reservation continue to be above background. Environmental Status of the Hanford Site for CY 1980, MJ. Sula et. al. August 1981, Contract DE-AC06-76RLO 1830, Pacific Northwest Laboratory, Battelle. Operations at the Hanford Reservation continue to deposit abnormal releases of radioactive materials into the land, air and water. Ibid. The Environmental Report does not take into consideration the start-up of numerous other federal nuclear projects including the restart of the PUREX facility and the use of Hanford as a depository for High Level Waste which will dramatically increase the level of artificial radionuclides in the surrounding area. DEIS "Operation of PUREX and Uranium Oxide Plant Facilities, May 1982.

The findings of the "Heidleberg Study" should be incorporated into the models used to estimate the dose for radiation released from WNP-1:

Comparisons of official regulatory guides of the USA and the Federal Republic of Germany (F.R.G.) for calculating annual human doses with the results reported in the international literature shows that the recommended factors for essential radionuclides (Cobalt 60, Strontium 90, Iodine 131, Cesium 137, Plutonium 239, etc.) for the transfer from soil into plants, from fodder into animal products, and from the gastro-intestinal tract into the blood are determined in some cases in a scientifically questionable way and the factors are often located at the lower end of the range of realistic values. Thus the potential radiation dose is substantially underestimated...

"Radioecological Assessment of the Wyl Nuclear Power Plant", 1978, Department of Environmental Protection of the University of Heidelber, Uni-

versity of Heidleberg, NRC Translation 520, U.S.N.R.C.

The effect of radiation releases to children in utero has not been assessed. The age of irradiation is all-important and in utero doses have the most lethal consequences. Gofman, supra at 26,48 and 729. Populations of in utero children are not provided by the Applicant, nor are doses and effects projected.

The effect of projected doses of low-level ionizing radiation are underestimated by Applicant in Environmental Report Section 5.3. Gofman, supra at 532. Additionally, new research has surfaced indicating that the Japanese bomb data upon which Applicant relies requires reevaluation. Science, May 22, 1981 at 900. See also Science News, June 19, 1982 at 405.

Applicant has underestimated the doses of radiation to workers at WNP-1 over the life of the project. FSAR Table 12.4-1 "Average Annual Exposure at Large Pressurized Water Reactors." Applicant does not justify projected subaverage annual doses for workers at WNP-1. Applicant may also have underestimated the effect of low-level neutron radiation. See Science News, July 17, 1980 at 39. Occupational exposures from WNP-1 will impact on the ~~over 11~~ genetic pool and should be considered in the cost-benefit analysis of the project. Gofman, supra at 584. Applicant's projected total annual dose of 376 man-REM/year would result in approximately 1.6 cancer deaths annually. FSAR 12.4.1.3 and Gofman, supra at 534. Applicant does not adequately delineate between permanent and temporary workers at the plant thus making impossible an accurate calculation of potential lifetime doses to permanent workers and true lifetime doses to temporary workers. FSAR 12.4.

Applicant further underestimates the effects of low-level radiation emissions on the health of the population near facilities related to the nuclear fuel cycle. Applicant does not include the chemical and

radiation hazards of the zirconium cladding production in Albany which includes, for example, 6,000 lbs of ammonia, 1-2 tons sulferoxides and 1 ton MIBK per day. Zirconium Hazards and Nuclear Profits: A Report on Teledyne Wah Chang, Albany, Pacific Northwest Research Center, 1979.

Applicant has similarly underestimated the doses and effects from the operation of WNP-2 and WNP-4 thus misstating the total and cumulative impact required for multi-reactor sites under 10 CFR 100.11(b)(3).

CFSP 3

Petitioner contends that Applicant should be required to conduct an evaluation of and provide protection from the potential problems posed by Electro-magnetic Pulse (EMP) to meet the requirements of 10 CFR 50.40(c). Licensing WNP-1 without protection from EMP unreasonably jeopardizes the common defense and safety by 1) impairing defense responses which might release EMP over the State of Washington and thereby cause a major release of radiation from WNP-1 and 2) acting as a potentially large source of lethal radioactivity which might be released by means of an EMP trigger which could be activated by any power, friend or foe, able to deliver a nuclear device over the U.S. 3) placing the U.S. population hostage to threats of EMP attack against WNP-1 and 4) placing the people of Washington State at risk of major peacetime loss for which no compensation can be expected.

Title 10, Code of Federal Regulations, 50.40(c) establishes that "the issuance of a license to an Applicant must not be inimicable to the common defense and security or to the health and safety of the public." There is, however, an exception contained in 10 CFR 50.13:

An applicant for a license to construct and operate a production of utilization facility, or for amendment to such license, is not required to provide for design features or other measures for the specific purpose of protection against the effects of (a) attacks and destructive acts, including sabotage, directed against the facility by an enemy of the United States, whether a foreign government or other person, or (b) use or deployment of weapons incident to U.S. defense activities. (emphasis added)

Interpretation of 10 CFR 50.13 has been subject to administrative and judicial reviews. These reviews do not appear to address possibilities of 1) threats of EMP, rather than actual EMP occurrence, 2) some classes of accidental EMP release by foreign parties, 3) release of EMP by foreign parties engaged in hostilities not directly involving the U.S. and 4) constraints placed on U.S. defense forces by the existence of nuclear

plants which are not protected from EMP.

EMP is a line-of-sight surge in atmospheric voltage and magnetic field caused by interactions of gamma radiation from a nuclear explosion with molecules in the air and in solids. A voltage of some tens of thousands of volts per meter is produced within a few nanoseconds. Samuel Glasstone and Philip Dolan provide a description of possible event types in The Effects of Nuclear Weapons (Chapter 11, 3rd. Edition, July 1976, DOD-DOE). The effects have been described by William Broad and others.

See "The Chaos Factor", Science 83, Jan/Feb 1983 at 41-49. With a high altitude EMP origin there would be no direct harm to humans or other everyday objects. However, the high voltage and the associated current can damage modern solid state devices including transistors, integrated circuits and sensors. Such devices are used in WNP-1 safety systems.

"The extent to which these EMP transients may cause critical plant electrical and electronic systems to fail or malfunction and ultimately result in damage to the reactor is not known." William Dircks, SECY-81-641, November 5, 1981. Thus, at the present time, the actual effects of a hypothetical EMP on WNP-1 are unknown.

Safety-related systems and functions which might be rendered inoperative by EMP include: pressure, level and temperature sensors, AC and DC emergency power, communications networks, reactor protection systems, ECCS high pressure injection system and engineered safeguards acutation system.

The combination of a very fast pulse rise and high voltages, magnetic fields and currents makes protection of electrical and electronic circuits difficult. Protection approaches include limiting the length of continuous conductors, signal filtering and shielding. G.D. Bouchey, Deputy Director for Safety and Security of WPPSS contends that, "The replacement of all cables with new shielded/hardened circuitry would

be exorbitant and can in no way be justified by a cost-benefit analysis." Letter to Secretary of NRC, August 3, 1982. "Nothing in particular" has been done to protect WNP-1 from any electromagnetic interference from outside the plant. Personal communication with Allen Hosler, Licensing Engineer and Project Manager for WNP-1, January 3, 1983. That is, no effort has been made to make WNP-1 safety systems secure to EMP. The same situation exists with other U.S. nuclear plants. See "Plan for Investigation of the Interaction Between Electromagnetic Pulse and Commercial Nuclear Plant Systems".

Consideration of and protection from EMP should be required for a finding under 10 CFR 50.40(c). The following five scenarios represent reasonably likely occurrences during the life of the WNP-1, for which the exceptions provided by 10 CFR 50.13 do not apply:

(1) A foreign power accidentally launches a nuclear missile toward Bremerton, Washington. That power believes the nuclear warhead is unarmed but is unsure. That foreign power advises the U.S. of the facts, suggesting that the U.S. launch an ABM to destroy the missile as it enters the atmosphere over Washington State. However, the ABM detonation would cause an EMP which might result in failure of the WNP-1 safety systems, causing a major release of radiation towards Tri-Cities, due to northerly winds. Based on these cost-benefit considerations, the President must decide whether to launch an ABM from North Dakota within four minutes.

(2) A terrorist group pays OTRAG to launch five "commercial", low altitude satellites which pass over the U.S. OTRAG launches according to its policy of not asking questions. The terrorists then demand \$10 billion not to detonate the plutonium bombs in the satellites. They argue that detonation will cause meltdown of many nuclear plants in the U.S. including WNP-1. Further, they note that U.S. attack on the satellites might produce the desired EMP by itself. Finally, the terrorists

threaten to detonate the satellites if any nuclear power plant shutdown order is given. See "EMP a Sleeping Electronic Dragon," by Janet Raloff, Science News, 130, May 8, 1981 at 301.

(3) Libya's Col. Qadhafi nationalizes the Libyan OTRAG station and threatens to launch a single nuclear device to detonate over Nebraska. The objective would be to meltdown all U.S. nuclear power plants due to failure of safety systems, thus releasing huge quantities of radiation. However, Qadhafi offers the U.S. several alternatives....

(4) Two nations, both allies of the U.S., engage in a nuclear war involving detonations as low as 150 miles over the U.S. The only personal injuries in the U.S. are burns resulting from persons touching electrical conductors at the time of EMP. The warring parties agree to reparations for these burns. The major damage from EMPs is to electronics and consequent damages, including the meltdown of seven nuclear plants. The previously warring parties refuse to pay for these damages, arguing that reasonable and prudent designers should have provided EMP protection in the nuclear age of which the U.S. is the founder.

(5) A French satellite, designed to produce EMP in time of possible war, accidentally detonates over the U.S. There are no direct casualties. However, much of the country is uninhabitable due to radioactivity released from damaged nuclear power plants. France officially apologizes

CFSP 4

Petitioner contends that Applicant has not provided sufficient information to show that WNP-1 can operate without hazard to the public health and safety in the event of an ash eruption of the Mount St. Helens, or other active, volcano as required by Appendix A of Part 50, 10 CFR.

The Applicant states:

A design basis ashfall will be established. Determination will be made as to which safe shutdown systems and structures will be effected by the ashfall and assess the impact.

Changes will be established to adapt existing HVAC systems to enable the plant to be safely shutdown during a volcanic ash fallout

event and will be incorporated into an amendment of the FSAR.
(emphasis added)

FSAR 9.4.18. Applicant has not provided reasonable assurance that volcanic ash will not disable safety systems and equipment at WNP-1 nor has it provided a schedule for submittal of the information it identifies as necessary for a conclusive analysis. The lack of such evidence leads to the conclusion that existing protection is inadequate.

CFSP 5

Petitioner contends that Applicant will not, and, in fact, does not have the ability to, implement a QA/QC program which will function as required by 10 CFR Part 50 Appendix A, GDC 1, 10 CFR 50.40 and Section VIII(2)&(3) of Appendix A to Part 2 to assure public health and safety. Moreover, Applicant has repeatedly violated 10 CFR 50.55(e)(2)(i) in not reporting the numerous breakdowns in its QA/QC program.

In Dusquene Light Company (Beaver Valley Power Station, Unit 2) ALAB-240, AEC 829, 1974 the Appeal Board held that a licensing board needs "more than hope" when deciding if a licensee would implement an adequate QA/QC program for plant operation. The Appeal Board also held that it was not enough for a licensee to comply with Appendix B, 10 CFR Part 50, by merely alleging that it had an adequate QA/QC program particularly when its history in this area cast doubt on its ability to perform. Applicant for WNP-1 is in such a position.

An IE Inspection conducted in October 1981 cited Applicant for violating Criterion V, Appendix B of 10 CFR Part 50:

Welding and weld inspection procedure JAJ-WI-010.1 did not include appropriate acceptance criteria for welding of skewed joints of piping support structural steel.

This situation has existed since at least October 9, 1979
(emphasis added)

This is not an isolated instance but rather just one example of the type of QA/QC that has been a part of the WPPSS projects since their inception.

An NRC inspection during the period of November 16-20, 1981 focused on quality assurance, design controls, procurement controls, con-

struction controls and project management of construction at the WNP-1/4 site:

The inspector interviewed the J.A. Jones QA engineering manager involved in CAR-20 and CAR-21 and determined that he had no information regarding the WNP-2 project (where a similar extensive effort has been underway for the past several months, under the direction of Bechtel and WPPSS). No information nor personal contacts had been established to convey the WNP-2 lessons learned, regarding procedures, checklists, generic types of problems, or solutions identified for such problems... Current work appears to be proceeding without fully developed instruction and procedures.

IE Inspection Report 50-460/81-10 at 30.

It is clear that Applicant lacks the ability to recognize and correct QA/QC problems. Further evidence exists in the same report:

...the report also stated that no internal UE&C program existed for checking/auditing drawings internally distributed to UE&C Engineering and Construction groups. Previous licensee commitments to the NRC (response to NRC Report No. 78-02) included a commitment to audit regularly all drawings issued to the field including the contractor's and UE&C's. On November 17, 1981 the surveillance report was returned to the licensee by UE&C indicating what corrective action had been taken and the date of full compliance.

However, Attachment No. 1, item 7 to the report and conversations with licensee personnel indicate that a program for auditing of AWSH code documents was not, in fact, in place or working. At the time of this inspection, licensee personnel had not formally verified the UE&C stated actions or closed the surveillance report. The failure of the licensee's personnel to recognize that a serious problem existed and still exists with the A/E's quality assurance program is considered an example of a perceived weakness in the implementation of the licensee's quality assurance program.

(emphasis added)

The quality assurance problems Applicant experienced on WNP-2 caused the NRC to issue a stop work order in June 1980. In spite of this regulatory action, new evidence has appeared which once again questions the ability of Applicant to implement a quality assurance program in compliance with NRC regulations:

The inspection findings indicate that regulatory requirements were violated.. Additionally, it appears that several of your activities were not conducted in full compliance with your commitments to the NRC or fail to conform to the provisions of accepted industry practices which you have been encouraged to follow.

....
The NRC is particularly concerned with the two violations...because of the very essential role they play in the execution of

an effective Quality Assurance Program for construction.

Letter from J.L.Crews, Director, Division of Resident, Reactor Projects and Engineering Programs to Dr. R.G. Matlock, Program Director, WPPSS, October 25, 1982.

Petitioner has reviewed all WNP-1 Inspection Reports and concluded that Applicant's repeated QA/QC failures do not generate one ray of hope for compliance with quality assurance requirements in the future. Applicant's management has not only failed to ensure proper QA/QC during construction but has also failed entirely to detect and report violations, two major management failures. House Report No. 96-1452 "Evaluating Nuclear Utilities' Performance: Nuclear Regulatory Commission Oversight" October 2, 1980 says it well:

As Region V enforcement documents disclose, the construction of that unit [2] has been plagued with severe quality assurance problems.

...

Once again, the absence of an acceptable quality assurance program has significantly contributed to the emergence of these problems. In several cases the faulty work was discovered so late that there is some question about how or even whether adequate corrective work can be done.

...

Moreover, the quality assurance program at the site has been so deficient over the past four years that records that would have disclosed the results of tests on some other construction work have been lost outright, requiring 100 percent reinspection of some work and "re-qualification" of procedures. This apparent massive confusion at the WPPSS site has been partly attributed by an NRC inspector to WPPSS' difficulties in managing a large array of contractors doing construction work, including safety-related work...The inspector observed that the licensee management had not been effective in requiring contractor compliance with specification requirements.

CFSP 6

Petitioner contends that Applicant has not demonstrated the ability to remove decay heat from WNP-1 using natural circulation in the event of an accident and thus violates GDC 34 & 35 of 10 CFR 50 Appendix A

Natural circulation is considered to be the normal means of providing core cooling when all reactor coolant pumps are inoperative, and thus will be relied upon by Applicant to meet the requirement of decay heat removal. Main feedwater is assumed to be inoperative. Natural circulation whether liquid or so-called "boiler-condenser" (two-phase: decay heat in the core generates steam which rises through the hot legs to the steam generator where upon it condenses then returns back through the cold legs to the core) depends upon the operability of the emergency feedwater system. To meet applicable criteria Applicant must show that reliance on the emergency feedwater systems is acceptable.

Such reliance must take two factors into account: whether or not the emergency feedwater system is safety-grade and what the consequences of steam voiding would be. Applicant cannot place reliance on emergency feedwater until it is shown that this system is safety-grade. Applicant has not done so. See FSAR 1.10.1 (II.E.1.1, II.E.1.2).

Steam voiding is the interruption of liquid natural circulation by steam bubbles collecting at the primary system high points. Reactor coolant pumps can be used to remove the steam as occurred at TMI-2. However, this system is not safety-grade and thus fails to satisfy the requirements of GDC 34 & 35. The remaining option is the use of hot leg vents. Applicant has not demonstrated that these vents, when installed as a result of the TMI Lessons Learned, will have the capability to reduce steam voiding sufficiently to allow natural circulation. In fact, there are significant doubts cast on the use and capability of these vents. See ALAB-708 pg. 17, 18. Letter to Mattimoe, B&W Owners Group, April 1, 1982 from D. Eisenhut, Director, Division of Licensing, Office HRR, NRC, part 3A.

The two remaining theoretical methods of cooling are: the "boiler

The two remaining theoretical methods of cooling are: the "boiler condenser" mode of natural circulation and the feed and bleed mode of cooling. Petitioner advances that the "boiler-condenser" mode is entirely without basis and does not in anyway meet the criteria of GDC 34 & 35. The feed and bleed is also without basis; while it has been referred to as an option when reactor coolant pumps and feedwater are unavailable (See e.g. NUREG-0667, Transient Response of B&W Designed Reactors, pg. 5-32.) it is patently unfeasible. See Board Notification BN-82-93, TMI-1 Restart Hearing, Sept. 14, 1982, enclosure to Enclosure 1 (Letter from EG&G August 6, 1982.) The Semiscale tests S-SR-1 and S-SR-2 indicated reliance cannot be placed on the feed-and-bleed mode.

CFSP 7

Petitioner contends that the improvements proposed by the Applicant to the Power Operated Relief Valve and Safety & Relief Valves will not meet the requirements of NUREG-0737 and 10 CFR Part 50 Appendix A, GDC 14 and the defense-in-depth principle of the Commission.

FSAR Section 1.10.1 at 1.10-56 - 1.10-59 describes Applicant's proposed measures to implement NUREG-0737 and NUREG-0660. Applicant apparently intends to upgrade the PORV system but does not intend to make it fully safety-grade. The PORV and safety & relief valves should be made fully safety-grade because many functions can only be performed by the PORV (eg. it is the sole method of providing against overpressurization when the plant is cold) and reactor coolant safety and relief valves are a part of the reactor coolant pressure boundary. Applicant has not shown that the PORV system is reliable. See FSAR 1.10.1 (II K.3.2). Applicant has not shown that the PORV system is fully redundant and qualified.

The testing of safety and relief valves used in WNP-1 is insufficient to ensure compliance with GDC 1,14,15 and 30 because the full range

of conditions under which operation of them is required has not been used. These valves "whose failure to open or close under certain conditions may affect the integrity of the reactor coolant pressure boundary." NUREG 0578 "TMI Lessons Learned Task Force Status Report and Short-Term Recommendations" July 1979 at A-4. These conditions include, but are not limited to, two-phase slug flow and subcooled liquid flow calculated for transients and accidents. Ibid at 7.

CFSP 8

Petitioner contends that methods proposed by Applicant to meet instrumentation for detection of inadequate core cooling, NUREG-0737, are inadequate.

Applicant should be required to provide a reactor coolant meter capable of measuring coolant inventory from zero to 100%. Metropolitan Edison Co., Docket 50-289-SP, Atomic Safety and Licensing Board, Partial Initial Decision, December 14, 1981 at 665. Level indication would provide a faster and more reliable diagnosis of conditions in the case of an accident. Applicant has not shown that the Inadequate Core Cooling (ICC) instrumentation proposed (ie. core exit thermocouples, saturation meters, hot leg narrow range temperature compensated level instrumentation, hot leg wide range instrumentation monitors) will be adequate or will meet the criteria of Regulatory Guide 1.89. FSAR 1.10.1 (II.F.2) Applicant also has not demonstrated that operating procedures will be sufficient to ensure operator actions will enhance, not degrade, core cooling.

CFSP 9

Petitioner contends that there are systems, equipment and components classified as non-safety that were shown in the accident at TMI-2 to have a safety function or an adverse effect on safety and that such systems should be required to meet safety-grade criteria. Moreover, Applicant should be required to perform an analysis to identify all such systems, equipment and components.

The accident at TMI demonstrated that there are non-safety systems, equipment and components that can directly or indirectly affect temperature,

pressure, flow and/or reactivity of the core:

Several nonsafety systems were used at various times in the mitigation of the accident [TMI] in ways not considered in the safety analysis; for example, long-term maintenance of core flow and cooling with the steam generators and the reactor coolant pumps.

NUREG-0578, section 3.2, pg. 18.

S.H. Hanauer, Assistant Director for Plant Systems, Division of Systems Safety, in a note, April 6, 1979 said:

4. We are relying heavily on things not defined as 'safety-related' (Brown's Ferry was like that, also)

I believe that we will be required, justifiably, to hasten the pace of review and backfitting decisions. (emphasis added)

Beyond the brief, and highly inadequate, description of "All Other Instrumentation Systems Required for Safety" (FSAR 7.6) Applicant has not prepared an analysis to identify where failures of non-safety systems at WNP-1 can impact on systems important to safety, which non-safety systems will be relied upon to mitigate an accident and other adverse systems interactions. Until such an analysis is performed and necessary upgrading completed Appendix A 10 CFR 50 will not be met.

CFSP 10

Petitioner contends that the B&W Once through Steam Generator (OTSG) design used for WNP-1 is overly sensitive to secondary side perturbations and has not been adequately analyzed as required by 10 CFR 50 Appendix A.

The primary desirable feature of the OTSG employed at WNP-1 is an economic benefit measured, at least in theory, through longer turbine life and a slight increase in plant efficiency. See NUREG-0667 section 5.2.2.3. However, the B&W Reactor Transient Response Task Force concluded that its main disadvantage is the sensitivity of the primary system to perturbations in the secondary system caused by the relatively small volume in the secondary coolant and the "rapid change in heat transfer area

with variations in coolant level in the OTSG." Ibid, sec. 5.2.2.4. B&W plants have an excess of reactor trips caused in part to minor secondary side transients. Ibid at 7.2. Undercooling transients are more likely in plants with the sensitive OTSG. Ibid Overcooling transients are also more likely in the B&W design following a reactor trip. Ibid. Applicant has not addressed the significance of this data upon the overall increased risk that the WNP-1 will experience (non-severe) accidents.

Applicant has also failed to discuss the long and short term safety significance of the entry point of the Auxiliary Feedwater System to the steam generators. The Task Force made a preliminary finding that the top entry AFWS enhanced natural circulation in the event of an accident but may overcool the RCS; bottom entry reduces the potential for overcooling but lowers the thermal center and may pose thermal shock problems. Ibid at 7-50,51.

CFSP 11

Petitioner contends that the Applicant has not shown that safety-related (electrical and mechanical) equipment and components are environmentally qualified to a degree that would provide adequate assurance that the requirements of GDC 2 and 4 of 10 CFR 50 Appendix A are satisfied

Applicant has not demonstrated that the present testing methods used to meet applicable criteria are adequate. Dr. A. Clough, Sandia National Laboratories, has stated that "The present testing methods, underestimates the long-term effects of radiation exposure on polymers by not taking into account dose rate effects and synergisms that display themselves only in longer test." Industrial Research & Development,

June 1982, pg. 55-56. The polymers are found in cable insulation and jackets, seals, rings, and gaskets. Current methods of testing have used high levels of radiation over short periods of time which is now shown to underestimate the effects of the same total dose when applied in low level over long periods of time. NUREG/CR-2157, "Occurance and Implications of Radiation Dose-Rate Effects for Material Aging Studies", June 1981. The effects of synergisms referred to by Dr. Clough involve the exposure of equipment to radiation and heat. The greatest degradation was found when exposure to heat was followed by exposure to radiation the most likely accident scenario. NUREG/CR-2156, "Radiation-Thermal Degradation of PE & PVC: Mechanism of Synergism and Dose-Rate Effects", June 1981. The results of these reports have not been applied to the environmental qualification testing, performed and referenced by Applicant to demonstrate compliance of safety-related equipment and components with applicable standards.

Applicant has not met the criteria of Reg. Guide 1.70 and 1.89 and IE Bulletin 79-01B in failing to provide the required information for each item of safety-related equipment. For example, the exact location of each item is necessary to determine the environmental conditions that may impact upon it e.g. containment flooding. FSAR Table 3.11.1 does not provide complete information. See Letter from D. Eisenhut, Division of Licensing, NRC to R. Ferguson, WPPSS, July 16, 1982, Acceptance Review of Application for Operating License for Washington Nuclear Project, Unit No. 1 (ARAOL-WNP-1), Enclosure 3, Question/Comment 30. Furthermore, Appendix 3.11B, "Qualification Summary Reports-Safety-Related Equipment", is incomplete. See ARAOL-WNP-1 Enclosure 3 Question/Comment 31. See also e.g. Westinghouse Pump Drive Motors, Model CCW-3A-4B; IPC-3,-4.

Applicant has not accurately defined the parameters of an accident which would affect the operability of safety-related equipment. Furthermore, Applicant has underestimated the period of time safety-related equipment will be required to operate. S.H. Hanauer, NRC perceived the problem shortly following the TMI accident:

I believe that as a result of the TMI accident we have to rethink:

1. Environmental Qualification envelope
2. Things which have to be qualified

Changes in my thinking include;

1. Core damage is credible
2. Long-term plant operation is essential, initiation isn't enough
3. LOCA and SLB may not give an envelope that includes the TMI experience.

Note from S.H. Hanauer, NRC Assistant Director for Plant Systems, Division of Systems Safety, April 6, 1979. Such thinking was reiterated by Robert Pollard, Nuclear Safety Engineer of the Union of Concerned Scientists:

I think it is clear that what is needed is essentially a reassessment of the environmental qualification of safety-related equipment in light of the Lessons Learned from the accident.

Special Prehearing Conference, Three Mile Island-1 Restart Hearing, Docket No. 50-289, November 8, 1979, TR 236.

Applicant also has stated that it has not complied with the "DOR Guidelines" (NRC Division of Operating Reactors "Guidelines for Evaluating Environmental Qualification of Class 1E Electrical Equipment in Operating Reactors"), NUREG-0588, adopted as the criteria documents for establishing environmental qualification. See FSAR 1.10.3.

CFSP 12

Petitioner contends that Applicant has not provided reasonable assurance that the Asiatic clam (Corbicula fluminea) and other aquatic debris will not befoul the intake/discharge structure of WNP-1 in both normal and emergency operating conditions, thus endangering the public health and safety.

Corbicula and other aquatic organisms have caused problems at the Arkansas and Brunswick plants and have been cited as potential problems

at other plants. See Abnormal Occurance: Blockage of Coolant Flow to Safety Related Systems and Components, May 19, 1982 - 47 FR 21653 and NUREG 0090, Vol. 4 No. 4 at 8. Corbicula has been found in the Columbia River. See IE Inspection Report 50-460/82-03 paragraph 7(b). Applicant's Environmental Report fails to quantify the existence and density of Corbicula in the vicinity of the intake structure at the WNP-1, a matter of concern to the Staff. ARAOL-WNP-1, Enclosure 2 at 1. The design of the WNP-1 intake structure, surveillance procedures and control methods are an inadequate response to this potential problem, which poses the most severe consequences in abnormal operating conditions. One method of control of Corbicula is the installation of a radial well intake structure which should be considered for WNP-1. See NUREG 0777, Grand Gulf FES.

At the low river flow established by the Federal Power Commission (14 F.P.C. 1067, 1074) (36,000 cfs) "about one foot" of water will be provided over the top of the intake pipes. FSAR 2.2.3.1.6. Applicant has not shown how this might impact on the collection of aquatic organisms in the intake structure.

CFSP 13

Petitioner contends that the Babcox and Wilcox Emergency Core Cooling System (B&W ECCS) Model relied upon by Applicant does not meet the requirements of 10 CFR 50.46, Appendix K of Part 50 or GDC 35.

Title Ten of the Code of Federal Regulations, 50.46 requires an analysis of ECCS performance "for a number of postulated loss-of-coolant accidents of different sizes, locations and other properties sufficient to provide assurance that the entire spectrum of postulated loss-of-coolant accidents is covered." For the spectrum of LOCAs specific parameters are not to be exceeded which, at the TMI-2 accident were, in fact (eg. violation of 50.46(b)(1) peak cladding temperature exceeded 2200 F.; 50.46(b)(3) more than 1% of cladding reacted to form hydrogen). The

B&W ECCS Model is clearly inadequate as it did not predict the TMI accident.

The "break" size LOCA was smaller than considered by the B&W ECCS Model. NRC Staff Review of SBLOCA (Small-Break LOCA) contained in NUREG-0565 "did no review the adequacy of the Appendix K model." ASLAB Memorandum and Order, Metropolitan Edison Co. (TMI-1 Restart), Docket 50-289, ALAB-708, December 29, 1982. Other questions regarding the adequacy of the Model and the Staff evaluation of the Model are under consideration by this Appeals Board. Ibid. at 43.

Additionally, the sufficiency of the verification plan (testing and data analysis) proposed by the B&W Owners Group has been questioned by the NRC Staff. Letter from E. Eisenhut, NRC to Mr. Mattimoe, B&W Owners Group, April 1, 1982. This letter identifies a basic problem:

...the verification plan program elements involved did not obtain applicable thermal hydraulic data from a facility geometrically similar to the B&W NSSS; and did not compare the computer model against such data. Moreover, the proposed program did not appear to address how the individual verification elements could and would be extrapolated to the B&W geometry under the conditions of interest. As you know, the need for model verification against experimental data from a facility geometrically similar to the B&W NSSS has been the major point of contention between the B&W Owners Group and the Staff.

Applicant has not responded fully to the positions of NUREG-0660 and NUREG-0737 with respect to the conformance of the SBLOCA Model with 10 CFR Part 50 Appendix K as stated in FSAR 1.10.1 (II.E.2.3 and II.K.3.30).

CFSP 14

Petitioner contends that the fire protection measures at WNP-1 do not meet the requirements of 10 CFR 50.48, Appendix R to Part 50, and GDC 3 in that Applicant has not demonstrated that redundant systems, equipment and components necessary for safety will not be damaged in the event of a fire.

The fire protection systems and separation criteria established in Appendix R to Part 50 have not been met by Applicant. See FSAR 1.10.5.

See also ARAOL-WNP-1, Enclosure 6. Perhaps the most important aspect of these requirements is that which requires the separation of cables

used to power redundant safety systems. In the event of a fire, redundant systems not adequately separated could be destroyed concurrently. GDC 3 and Appendix R establish that fire protection is safety-related. Certain components at WNP-1 (eg. fire pumps) are not qualified to seismic category I or "Supply System Quality Class" I. See FSAR Table 3.2-2. Applicant should be required to provide a safety-grade fire protection system.

CFSP 15

Petitioner contends that Applicant has not met the requirements of NUREG-0737 II.K.2.9, II.E.5.2(f) and I&E Bulletin 79-27 by not completing a plant-specific Failure Mode and Effects Analysis (FMEA) of the Integrated Control System for WNP-1.

The B&W Reactor Transient Response Task Force issued NUREG-0667 in May 1980 which addresses the issue of the Integrated Control System (ICS) in B&W Plants:

Prior to the TMI accident...there were 310 reactor trips, about one-third of which are attributed to ICS or ICS related equipment... [TMI-2 did] involve a loss of main feedwater which could have been initiated by an ICS failure...

...
After the TMI-2 accident, a series of events occurred at B&W plants. Most notable were the increase in reactor trips and the Oconee 3 and Crystal River 3 loss of NNI/ICS power supply...

NUREG-0667, 5.3.5.

Such incidents are a significant safety concern:

Occasional challenges to the safety systems are to be expected --frequent challenges do have adverse safety significance since safety systems have a statistical probability of failure, even if small.

ASLB Partial Initial Decision, Docket No. 50-289-SP (TMI-1 Restart), December 14, 1981 at 110.

The Applicant's response to NUREG-0737 is:

The Supply System has not performed a detailed review of its (BAW-1564) applicability to WNP-1/4.

FSAR 1.10.1 (II.K.2.9). BAW-1564 makes recommendations that the evaluation be made on a plant-specific basis. See NUREG-0667 at 5-59.

The NRC Staff review of the ICS and CRDCS design concludes:

The WNP-1/4 design of the ICS and CRDCS provides for both these systems to perform safety related functions... The Staff is not yet completely certain that a malfunction of either of these systems will not adversely affect the performance of reactor protection systems functions.

Safety Evaluation Report, WNP-1/4, U.S.N.R.C., May 1975 at 7-4.

Until Applicant has completed the plant-specific analysis FMEA of the ICS and performed the required changes identified by the analysis operation of WNP-1 will pose a threat the public health and safety.

CFSP 16

Petitioner contends that the Emergency Diesel Generators as designed and installed are unreliable as a source of on-site emergency power necessary for safety. Failure of the diesel generators should be considered a design basis accident.

Loss of off-site power at WNP-1, an Anticipated Abnormal Occurance, would present an undue risk to the health and safety of the public due to emergency diesel generator unreliability and questionable as-built equipment at WNP-1. Therefore failure of the generators should be considered a design basis event. Diesel generators have not proved to be uniformly reliable. Because many safety-related systems need AC power to operate, and because offsite power is lost occasionally, poor diesel generator reliability is an important safety concern. Memo., D. Eisenhower to F. Schroeder, December 12, 1980. In Florida Power and Light Co. (St. Lucie, Unit 2), ALAB-603, 12 NRC 30 (1980) the Appeal Board found that diesel generators are relatively unreliable pieces of equipment, compared to other equipment to which the single failure criterion is commonly applied.

During the past year WPPSS has reported at least three defects know to exist with the emergency diesel generators at WNP-1: "In all three cases the required corrective action will not be implemented until sometime after restart [of construction]." Letter G01-82-0436. See

also G01-82-0565 and G01-0569.

Additionally the diesel generator medium and large motors, and small motors lack necessary environmental and seismic qualification. FSAR Appendix 3.11B, Table 3.11B-1 (Sheet 3 of 6). Also lacking qualification are the diesel generator engine control panel and diesel generator control panel. Supra. Given the above there is no reasonable assurance that the emergency diesel generators will operate as planned.

CFSP 17

Petitioner contends that WNP-1 Seismic Category I systems, components, and equipment, during a seismic event at the site, at or below the SSE, would fail in such a manner as to prevent safe shutdown of the plant. Such a failure violates GDC 2 and presents an undue risk to the public health and safety. Furthermore the Architect/Engineer's response spectra is wholly defective and can not be relied upon for a seismic analysis.

The as-built seismic capability of numerous safety systems, components, and equipment is substandard. The cable tray supports are subject of NRC I&E Followup Items 460/82-01-06:

There is some data which indicates that cable tray support fillet welds may contain uncorrected unacceptable defects...

Applicant has used Quality Class II equipment in place of Quality Class I as required for Seismic Category I systems, components, and equipment. This occurred in the following cases:

- 1) pipe rupture restraints. I&E Insp. Rept. 50-460/82-08, p.10;
- 2) assembling cable trays. FSAR Table 1.3-2 (Sheet 9 of 11);
- and
- 3) containment purge system. Supra, (Sheet 10 of 11).

Applicant has not completed a program to assure snubber operability. ARAOL-WNP-1, Enclosure 3, Question 26.

Applicant has not provided critical damping values as required by Reg. Guide 1.70. Supra. Applicant has also failed to identify the applicable seismic analysis methods for testing the supports for all Seismic Category I systems, components, and equipment. Supra, Question

24.

IE Bulletin 79-02, Revision 1, Revision 2, Supplement requires the Applicant to verify that pipe support base plate flexibility. This issue still remains unresolved for WNP-1. Applicant has yet to provide :

- 1) complete design revision of those supports having design deficiencies;
 - 2) complete modification of those supports;
 - 3) complete retorquing of anchor bolts torqued;
- and
- 4) complete 100% verification of bolt embedment.

I&E Insp. Rept. 50-460/82-03, p.10.

Applicant has not provided the design and analysis procedures utilized for the containment with respect to the following:

- 1) the treatment of the effects of seismically induced tangential shears;
 - 2) ultimate capacity of the concrete containment;
- and
- 3) structural audit.

See ARAOL-WNP-1, Enclosure 3, Question 21.

Further Applicant's NSSS supplier, B&W, has not included soil damping values for structures, systems, and components which are part of the NSSS. FSAR p.1.8-21.

Applicant by its own admission does not conform to Rdg. Guide 1.61, "Damping Values for Seismic Design of Nuclear Power Plants," (10/73).

The design of WNP-1/4 conforms to the requirements of this Regulatory Guide with the expectation that regulatory position 3 relating damping values with the maximum combined stresses due to static, seismic and other dynamic loading was not considered because these stresses can not be appropriately related to damping values and therefore the position is not clear." See FSAR p. 1.8-20.

Applicant continues on FSAR page 1.8-21:

Table 3.7-1 is identical to the table in Regulator Guide 1.61 with the exception that it includes a damping value for soil. Soil damping values are not used in B&W analysis.

Numerous electrical equipment remains seismicly unqualified.

FSAR Appendix 3.11B.

Architect/Engineer's, UE&C, amplified response spectra is unreliable.

UE&C on August 8, 1980 reported in a letter to NRC I&E that:

a discrepancy was found in the response spectra which had been released to a manufacturer for use in design of certain HVAC equipment.

The use of incorrect amplified response spectra is a defect similar to ones previously reported.

The telecopy attached to that letter states:

Due to the nature of the verification program, the program cannot be concluded without the final as-built plant data.

On January 14, 1982 the Applicant informed the NRC of a potential deficiency in performing dynamic analysis on ASME class piping. According to IE Inspection Report 50-460/82-03:

The deficiency relates to the performance of seismic (response spectra) calculations by United Engineers & Contractors (UE&C) using a lumped mass technique.

Applicant reported to NRC Region V on September 20, 1982 that:

At this time, it is not possible to provide a final completion date for the subject design analysis verification.

Letter G01-82-0568.

UE&C reported another deficiency on January 29, 1982 regarding the design of structural steel framing for platforms within the containment.

The platforms support safety-related systems. According to UE&C report:

The original design of the platforms did not consider the effect of accident temperatures.

UE&C submitted its final report on October 29, 1982:

Verification of seismic design of safety related systems, utilizing the new Amplified Response Spectra (ARS) generated for the modified structural framing will be performed in accordance with our ongoing program.

CFSP 18

Petitioner contends that Applicant has failed to conduct an adequate assessment of the interactivity of WNP-1 and surrounding nuclear/chemical facilities including the ability (of WNP-1 or the other facilities) to continue safe operation in the event of an accident (at WNP-1 or the other facilities) and the consequences of loss of operability as required by 10 CFR 51.20 and 10 CFR 100.10.

Factors to be considered in the evaluation of sites include "those relating both to the proposed reactor design and the characteristics peculiar to the site." 10 CFR 100.10. This requirement continues:

It is expected that reactors will reflect through their design, construction and operation an extremely low probability for accidents that could result in the release of significant quantities of radioactive fission products. In addition, the site location and the engineered features included as safeguards against the hazardous consequences of an accident, should one occur, should insure a low risk of public exposure.

While the site for WNP-1 has been irreversibly chosen, Applicant should be required to show that the reactor design, its construction, its operating procedures and emergency plans are adequate when the nuclear and chemical facilities in the plants vicinity are taken into account.

The Applicant has not provided all the necessary information upon which to make such a determination. Regulatory Guide 1.70 requires a certain level of detail and organization for the information provided in FSAR 2.2.2.1 which the Applicant has not met. ARAOL-WNP-1, Enclosure 3, Question/Comment 13 and 14. Such information is vital. The Government Accounting Office has concluded that:

In many cases radiological emergencies within a DOE facility could affect other activities at the facility and require facility-wide responses.

GAO Report to Congress, "Areas Around Nuclear Facilities Should be Better Prepared for Radiological Emergencies," EMS 78 110, March 30, 1979 at 9.

The Department of Energy's Fast Flux Test Facility (FFTF) located approximately three miles of WNP-1 is a sodium cooled fast breeder test

reactor which has the potential for a greater than 1,160 pound TNT explosive nuclear accident and a containment only capable of withstanding up to 150-300 pounds TNT. The Accident Hazards of Nuclear Power Plants, Dr. Richard Webb, Amherst: The University of Massachusetts Press, 1976, Chapter 10. Applicant's description and evaluation of the FFTF does not address the potential hazard created by the proximity of the FFTF nor demonstrates that the project conforms to 10 CFR 100.10(d) with "appropriate and adequate compensating engineering safeguards." See FSAR 2.2.2.1 and 2.2.3.

Applicant fails to provide the necessary level of detailed information required to analyze the potential hazard of military overflights on WNP-1. Applicant states that there are overflights (FSAR 2.2.1) and that:

Other types of live ordnance usage at the Center [approximately 40 miles away] include aerial delivery by high performance aircraft of ordnance up to and including 500 lb. bombs, helicopter weapons which include automatic weapons, 2.75 Folding Fin rockets, and anti-aircraft missiles. These latter activities are significant as to occurrence.

FSAR 2.2.1. The FSAR does not say if this live ordnance usage is in the military aircraft which pass over the site. Additionally, the safety significance of the "Visual Flight Rules" allegedly used by the overflights is not explained. FSAR 2.2.1.

The FSAR continues further:

All activities are confined to the geographical limits of the Center and/or its restricted air space unless special arrangements are made with affected agencies.

FSAR 2.2.2.1. The Applicant does not state with what frequency such arrangements have been made in the past, with what "affected agencies", special arrangements" and what rules will govern WPPSS in making such arrangements if the utility is considered an affected agency. Furthermore, Applicant does not provide justification for considering an air traffic

accident with a power line tower an event that will not jeopardize the safety of WNP-1, although it would result in a loss of off-site power.

FSAR 2.2.3.1.5.

Applicant's analysis of the potential impact of the N-Reactor is wholly insufficient:

The 18-mile distance to the N-Reactor makes the probability of significant interaction quite small.

FSAR 2.2.3.1.4. A description of the operation of the N-Reactor including certain aspects of its design (eg. it has no containment) necessary for analysis are not given. Applicant does not define "significant interaction" or state the probability. In a general discussion of radiation accidents Applicant relies solely upon the findings of the ASLB on WNP-2 without showing why they are applicable to WNP-1. FSAR 2.2.3.1.4.

Applicant does not provide a description of the PUREX facility or a discussion of the potential interaction with WNP-1 in its FSAR Section "Nearby Industrial, Transportation and Military Facilities" FSAR 2.2. The PUREX facility is scheduled to resume operations in 1984 to extract plutonium and uranium for the nuclear weapons program. PUREX will result in the releases of significant quantities of radioactive materials. Draft Environmental Impact Statement "Operation of PUREX and Uranium Oxide Plant Facilities", May 1982. DOE/EIS-0089D.

Applicant's description of potentially dangerous materials transported within the exclusion area of WNP-1 on the mainline railroad track operated by the DOE is not sufficient to allow an adequate analysis of the potential hazards. FSAR 2.2.2.2. This description is restricted to a list of shipments in 1978 which is insufficient to establish with what frequency dangerous materials and explosives will be transported near the facility on an average annual basis. Furthermore, Applicant has not evaluated a potential accident with regard to these shipments with the exception of explosives. FSAR 2.2.3. Although the FSAR states

that Applicant will be notified of rail shipments both over and under 1,800 lbs. of explosives, it does not indicate what precautionary measures the Applicant will take.

CFSP 19

Petitioner contends that the emergency plans proposed by Applicant are insufficient to assure that adequate protective measures can and will be taken in the event of a radiological emergency as required by 10 CFR 50.33, 50.47, 50.54 and Appendix E to Part 50.

The population and projected population information provided by Applicant is inadequate and does not meet the guidelines of Regulatory Guide 1.70. ARAOL-WNP-1, Enclosure 3, Question/Comments 6,7 and 9. Transient population data is provided for only a ten mile radius of the site for an unknown year. FSAR Figure 2.1.8. No projections for the transient population over the plant life are given. FSAR 2.1.3.3 and ARAOL-WNP-1, Enclosure 3, Question/ Comment 7. No detailed information is given for transient populations which could be significant and require special notification. FSAR Table 2.1-2. Neither Figure 2.1.8 nor Table 2.1-2 include the projected workforce for the PUREX facility, the High Level Waste disposal project or the Skagit/Hanford Nuclear Project.

Applicant's Emergency Plan is inadequate to ensure orderly evacuation or protection of employees at nearby facilities. Emergency Plan 12.4.2. This plan provides for workers at: WPPSS sites, the Plant Support Facility, the FFTF, Ashe Substation and Wye Barricade. It does identify the over 8,000 workers at other facilities within a ten-mile radius of the WNP-1. FSAR Table 2.1-2. The plan does not identify what skeleton crews are necessary for operation, maintenance and security at these facilities and how many workers will be considered emergency staff at the various facilities required for emergency support in the event of an accident. The plan does not identify evacuation routes, methods of protection, decontamination and shelter locations or travel time estimates

for the over 8,000 employees within the current ten-mile plume exposure pathway EPZ. The plant establishes that traffic "will be routed away from the plume" and that "parking areas surrounding the plant will be monitored, if practical, to determine if vehicles have been contaminated." It is not stated who will route traffic or monitor contamination and how the "practicality" will be determined and by whom.

Applicant has not met the requirements of 10 CFR 50 App. E, IV B and D, 50.47(a)(2), 50.47(b)(1)(3)(6) and does not intend to meet them in a timely manner in that it has not cooperated with the State of Oregon in the development of an emergency plan. The Oregon border is located 35 form the WNP-1 and thus falls within the ingestion pathway EPZ established by 10 CFR 50.47(c)(2) and produces significant quantities of vegetables and other foods. S/HNP ER Tables 2.1-5 and 2.1-6. The Oregon Department of Energy is the lead agency for nuclear power plant emergency planning for Oregon and has stated that WPPSS will not work to develop a plan with Oregon until one of the WPPSS units has begun operation due to a desire to avoid the financial burden. Thus participation of the State of Oregon has been limited to an exchange of letters. Conservation of Don Godard, ODOE, with E. Rosolie, CFSP, January 3, 1983. The State of Oregon is conspicuously absent in Applicants discussion of support organizations coordination. EP 5.2.

10 CFR 50.47 (c)(2) states "The plans for in the ingestion pathway shall focus on such actions as are appropriate to protect the food injection pathway." Local/county planning is essential to performing evacuation and protection measures. TMI p.132. Applicant's Emergency Plan lacks complete discussion of county plans, local officials etc. who would be responsible in the event of an accident, opting instead to focus on state agencies

Applicant has not met the requirements of 10 CFR 50.47(c)(2):

Generally, the plume exposure pathway EPZ for nuclear power plants shall consist of an area about ten miles in radius... The exact size and configuration of the EPZs surrounding a particular nuclear power reactor shall be determined in relation to local emergency response needs and capabilities as they are affected by such conditions as demography, topography, land characteristics, access routes and jurisdictional boundaries

Applicant has not demonstrated why it is appropriate to establish a plume exposure EPZ of an exact ten-mile radius and why, for example, it is not appropriate to include the City of Richland, located 12 miles away, within the EPZ. Richland is sufficiently close as to cause significant concern for exposure, if not to the entire population, to pregnant women, children and the infirm. The intent of Section 50.47(c)(2) is to add a factor of flexibility in the determination of the exact size and configuration of the EPZ.

Based on the sensitivity of children (in utero through preschool, particularly) the plume exposure pathway EPZ should be larger for pregnant women and children. The TMI accident caused a statistically significant rise in the rate of infant mortality within ten miles of the plant. "Management of Radiologic Emergencies," Gordon McCleod, M.D., Text of Lecture, May 2, 1980. Dr. McCleod, formerly Secretary of Health for the State of Pennsylvania has said:

Any radiological emergency plan and response in Pennsylvania must not overlook population density for at least 20 miles around existing or proposed nuclear reactors.

Additionally, the Applicant should be able to plan for the displacement of a significant percentage of the population outside the EPZ due to predicted public response to a five or ten mile evacuation.

At TMI, due to a "precautionary warning" (not an evacuation) related to pregnant women and children for a five mile radius, over 30% of people living within a fifteen mile radius of the plant evacuated.

Applicant has not made a showing that it "can and will" utilize an emergency plan successfully in case of an accident at the WNP-1 because such a plan has not been tested. 10 CFR 50.47(b)(14) states that exercises are required to evaluate "major portions of emergency response capabilities" and to identify deficiencies "as a result of exercise or drills." The NRC Staff has concluded that a successful fullscale exercise is "at the core" of the finding of adequate protection.

SECY-82-185, "Final Amendment to 10 CFR Part 50 and the Appendix E: Modifications to Emergency Preparedness Regulations Relating to Low Power Operations," May 3, 1982. The Government Accounting Office concluded, after visiting facilities including the Hanford Reservation:

Testing emergency procedures with offsite participation would improve State and local emergency preparedness....The types of deficiencies identified during these [NRC-licensed facilities] drills included:

- inadequate communication between the various agencies participating in the drill,
- confusion regarding responsibility and authority for coordinating and implementing emergency measures, and
- inadequate offsite radiological monitoring procedures.

We believe it is better to identify problems in an emergency drill rather than wait until the actual event occurs. Also, by holding nuclear emergency drills, NRC-licensed power plants and local emergency service agencies have been able to resolve some of the problems that were identified.

GAO Report to Congress, "Areas Around Nuclear Facilities Should Be Better Prepared for Radiological Emergencies," EMS 78 110, March 30, 1979. See also "GAO Critical of Public Protection," Oregonian, March 31, 1979.

Applicant's plan relies heavily upon the support of various public and private agencies located on or connected with the DOE's Hanford Reservation. While these organizations have had experience with relatively minor radiological emergencies it cannot be assumed that they have the combined manpower or experience to provide the required support. Detailed information should be provided. The

GAO has criticized the Department of Energy's "piecemeal" testing of emergency plans and recommended "comprehensive (site-wide) drills" on a minimum of an annual basis. GAO Report, supra at 37. Thus, the expressed desire of WPPSS to postpone development of an emergency plan with the State of Oregon will also lead to a postponement of exercises reducing the effectiveness of the plan.

Applicant has not shown, pursuant to 10 CFR Part 50 Appendix E, IV D.2 and 50.47(b)(6)&(7) that adequate education and notification procedures will be followed during normal plant operation and in the event of an accident at WNP-1. These requirements include "basic emergency planning information", "general information as to the nature and effects of radiation", "signs or other measures...helpful if an accident occurs." 10 CFR Appendix E, IV, D.2. Applicant should be required to utilize such methods as billing or home distribution of public information brochures as suggested by the GAO. GAO Report, supra at 28. Applicant has not shown compliance with Appendix E, IV, D.3 which states that a licensee shall demonstrate the means to alert and instruct the public within the plume exposure pathway EPZ "within about fifteen minutes."

Furthermore, the plan does not describe a radiological orientation training program for personnel including the media, as required by Appendix E, IV, F.

The Applicant's Emergency Plan fails to meet the requirements of 10 CFR Part 50 Appendix E, IV which establishes the need for an "analysis of the time required to evacuate and for taking other protective actions for various sectors and distances within the plume exposure pathway EPZ for transient and permanent populations." Applicant's estimate of six hours for the evacuation of the ten-mile radius EPZ does not satisfy the full spectrum of this requirement. Furthermore, Applicant does not provide a "range of protective actions for this

zone" as required by 10 CFR 50.47(b)(10). Neither does Applicant make a showing that each principle response organization will have the staff "to respond and to augment...on a continuous basis." 10 CFR 50.47(b)(1). Applicant does not demonstrate in its emergency plan the difference in response (time, organization, method etc.) for different times of day, which can be reasonably assumed to exist. The Emergency Plan also does not discuss the effect of regional meteorological conditions on evacuation and protective actions.

NUREG 0814, "Methodology for Evaluation of Emergency Response Facilities", drawn in large part from NUREG-0696, "Functional Criteria for Emergency Response Facilities," February 1981, and the requirements of 10 CFR 50.33, 50.47, 50.54 and Part 50 Appendix E provides a basis for evaluation of Applicant's Emergency Plan. This plan, titled "Washington Public Power Supply System Emergency Preparedness Plan, Washington Nuclear Projects 1,2,and 4," was available with a last revision date of December 1981. This plan is wholly inadequate in scope and detail upon which to judge its qualifications under the criteria of NUREG-0814. Large parts of the emergency response plan are yet missing and meteorological modeling and backup facilities do not yet meet the long-term goals of NUREG-0737. FSAR 1.10.1 (III.A.2). See also FSAR 2.2.1.

CFSP 20

Petitioner contends that there is no reasonable assurance that WNP-1 will be completed on a timely basis and that the project has not been constructed "in conformity with the construction permit and the application as amended, the provisions of the Act, and the rules and regulations of the Commission" as required by 10 CFR Part 2, Appendix A, VIII(b)(1). Numerous deficiencies, both known and unknown, exist in the construction of WNP-1 such that its operation would cause an undue risk to the public health and safety. The halt in construction, in addition to the previously existing delays, will prevent completion of the project on a timely basis. Continued conformance with the construction permit by Applicant is unlikely due to inadequate measures at the present and into the future, taken to protect the portions of the plant that are already built and the systems that are already installed.

Petitioner has reviewed all NRC Inspection Reports and Reportable Conditions filed in accordance with 10 CFR 50.55(e). Regarding the matter of unknown deficiencies:

NRC inspection determined that a random sample by UNSI indicated that 30% of the welds at WNP-1 were installed with no craft documentation and no in-process or final QC inspection which represents an ongoing failures to follow procedures.

Comments on WPPSS Response letter GO-82-0415, July 2, 1982 to Items of Noncompliance identified in IE Inspection Report 50-460/82-07, undated, at 1.

IE Inspection Report 50-460/82-09 notes an area of noncompliance:

Failure to provide procedures for handling of electrical cables during the installation of penetrations, Paragraph 4.

...
Neither the electrical contractor...nor the mechanical contractor... implemented quality control inspections for the handling, pulling and installation of the electrical cable portion of this work. Neither contractor could produce inspection records relating to in-process observations of the cable handling aspects of this work.

...
With above absence of controls, there occurred cases where the cables exited the penetration sleeves (e.g. HH4 and HJ4) over the unprotected sharp edges of the pipe ends. Cables outside containment were draped over handrails, with the 10-foot length hanging free, and exerting tension at the bend point...Also, cable support trays had been inserted under heavy cable groups within the penetration sleeves, without wheels or other measures normally applied by the electrical contractor during cable pulling operations...The consequent damage to the cable jackets, if any, is unknown.

...
Nondestructive testing of the welds was nor performed in accordance with the specific requirements of the contract specifications...

Inspection Report 50-460/82-10 Licensee Actions on Previous NRC Enforcement Matters, at 5, contains a report on a noncompliance from Inspection Report 50-460/79-13:

Failure of the mechanical contractor to control stainless steel welding heat input...This matter continues to be unresolved pending receipt, evaluation, acknowledgement and verification of the WPPSS revised corrective action document.

...
An NRC inspector examined the implementation of the Licensee's response to the notice of violation (Report 50-460/81-06) and found evidence that the corrective action had not been fully

effective...This matter continues to be unresolved pending review of further progress in the walkdown and evaluation.

The above is but a fraction of the deficiencies and noncompliances to be found in the NRC Inspection Reports and other documents.

Other allegations regarding conformance to NRC requirements in construction of the WPPSS plants have been documented by journalists.

These allegations include the use of unqualified personnel and the wide use of drugs among construction workers. See eg. Nuclear Culture: Living and Working in the Worlds Largest Atomic Complex, Paul Loeb, Coward, McCann & Geoghegan: New York, 1982 at 117, 124 and 131.

Appendix A, VIII(b)(1) of 10 CFR Part 2 requires for issuance of an operating license a finding that the plant under construction "will be completed on a timely basis." By January, 1981, Applicant had already gone overschedule by 65 months, a length of time greater than the original expected construction time. Applicant has requested an extension to its construction permit. However, this request does not take into account the up to five year "deferral" of WNP-1 construction, taken by the WPPSS Board of Directors. Petitioner would argue that the existing delays plus an additional five years do not constitute reasonable assurance that the plant will be completed on a timely basis.

Applicant has not demonstrated that it has taken and will take in the future, adequate steps to ensure that existing structures and installations at WNP-1 will be protected from the elements, sabotage, etc. during the (up to five year) "deferral" period. Applicant should be required to submit a detailed proposal on plant protection. Applicant has already identified areas of degradation to installed systems.

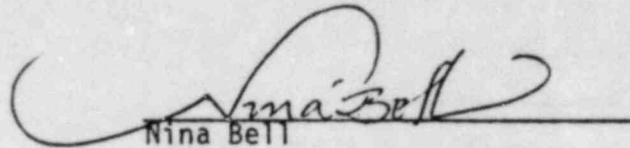
Memorandum to Files, TRIP to WPPSS 1,2, and 4, from E. Abbott, Assistant to Commissioner Gilinsky, December 17, 1982 at 2. Given Applicant's limited financial resources for WNP-1 and a history of defects in the

QA/QC program there is reason to believe that the plant and systems will not be maintained in the intervening time.

CONCLUSION

The above contentions of the Coalition for Safe Power meets the requirements of 10 CFR 2.714(b) and should be admitted as issues in the above-captioned proceeding.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Nina Bell", written over a horizontal line.

Nina Bell
Coalition for Safe Power
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408 S.W. Second
Portland, Oregon 97204

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
WASHINGTON PUBLIC POWER SUPPLY SYSTEM)
(WNP-1))

83 JAN 13 AIO:43

Docket No. 50-460 DL

SECRETARY
Docketing & Service
BRANCH

CERTIFICATE OF SERVICE

I hereby certify that copies of "COALITION FOR SAFE POWER SUPPLEMENT TO REQUEST FOR HEARING AND PETITION FOR LEAVE TO INTERVENE" in the above-captioned proceeding have been served on the following by deposit in the U.S. Mail, first class, or as indicated by asterisk by Express Mail or Federal Express, this 10th day of January, 1983:

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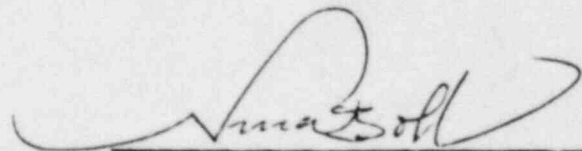
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