UNITED STATES OF AMERICA

BEFORE THE NUCLEAR REGULATORY COMMISSION

PETITION OF THE POTOMAC ALLIANCE, ET AL.,

FOR EMERGENCY AND REMEDIAL ACTION

569086

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I. Introduction

This petition, which is presented on behalf of the Potomac Alliance, Citizens Energy Forum, Inc., the Virginia Sunshine Alliance, and Truth in Power, Inc., documents a host of statutory and regulatory violations by the Nuclear Regulatory Commission (NRC) staff in connection with its approval of an application by the Virginia Electric and Power Co. (VEPCO) for amendments to its operating license nos. DPR-32 and DPR-37 for the Surry Power Station, Units 1 and 2. These amendments permit, inter alia, the partial replacement, refurbishing, and redesign of the six steam generators at the Surry Station. The amendments also permit the construction of a large on-site facility in which much of the radioactive waste materials generated by the project will be stored indefinitely, for a period of at least 30-50 years.

This project is an undertaking of extensive dimensions. The estimated cost exceeds $150 million. It involves hundreds of workers in round-the-clock shifts for a period of at least twelve months. During this period these workers will receive aggregate radiation doses equivalent to the doses received by workers at a normally operating plant over a period of four to eleven years. The action also involves sizeable discharges of radioactivity and other pollutants to the environment in the form of airborne emissions, discharges into neighboring bodies of water, and secondary impacts associated with the construction activities.

Moreover, the Surry steam generator replacement project is only the first in what promises to be an extensive series of similar operations at nuclear plants around the country. At least two other operators of nuclear plants are currently in advanced stages of planning steam generator replacement projects. Such projects are necessitated by design defects which appear to be endemic to pressurized water reactors manufactured by Westinghouse. At least twenty plants of this design have sustained damage of the same nature.

Despite the proportions of the operations, the magnitude of the health risks and injury to workers, the significance of the other environmental impacts, and the implication for perhaps dozens of future licensing decisions, the staff approved the application summarily and in disregard of required procedures. No public hearing was held. No environmental impact statement was prepared. Evidently no attempt was made to secure the certification of the State of Virginia, as required by the Federal Water Pollution Control Act. Though the licensee's application contained patent irregularities, it was essentially rubber-stamped by the staff without meaningful scrutiny.

This project has aroused considerable public controversy. Correspondence requesting further explanation of its actions have been sent to the Commission by representatives of the United States Senate, the Commonwealth of Virginia, the District of Columbia City Council, environmental organizations, and the public at large. Petitions filed pursuant to 10 CFR §2.206 requesting fuller consideration of this matter were recently denied by the

Director of Nuclear Reactor Regulation. For these and other reasons, this petition is addressed directly to the Commission. It requests that immediate action be taken both to prevent the needless exposure of construction workers to radiation, and to ensure that this and all future proposals to renovate nuclear reactors are treated by the Staff in conformity with the National Environmental Policy Act (NEPA), the Federal Water Pollution Control Act (FWPCA), and the Commission's regulations.

II. Description of the Petitioners

This petition is filed on behalf of four organizations with members residing in the vicinity of the Surry Power Station and throughout the licensee's service area and environs. Although the petitioners' activities are for the most part diversified and distinct, their objectives share a common theme: to promote the development of benign and renewable sources of energy, and to support the generation and distribution of energy from existing sources in a manner which is safe, environmentally acceptable, and consistent with the public interest.

The Potomac Alliance is a non-profit organization of 400 members residing principally in the northern Virginia and Washington, D.C. area. Since its formation in 1977 the Alliance has sponsored a wide range of public activities, including the publication and public distribution of a monthly newsletter. Spokespersons for the Alliance have appeared in high schools, at public meetings, and on radio and television, and have presented testimony at hearings held by agencies of federal, state and local governments. The Alliance is currently an intervenor in a proceeding before the NRC concerning the proposed modification of the spent fuel storage pool at VEPCO's North Anna Nuclear Power Station.

Citizens Energy Forum, Inc. (CEF) is an incorporated, non-profit membership organization concerned with energy issues in the State of Virginia. CEF is extensively involved in public outreach activities, including frequent presentation of testimony to state and local governments and media appearances. CEF has been awarded a grant by the U.S. Department of Energy to consider the application of solar energy technologies in the state and has intervened independently

in a pending NRC proceeding concerning VEPCO's North Anna station.

Truth in Power, Inc. is a non-profit organization which for years has taken an active role in the energy debate in Virginia through the publication of a state-wide newsletter. Several of its members live within 30 miles of the Surry Station.

The Virginia Sunshine Alliance is a coalition of organizational and individual safe energy advocates whose activities center on the region stretching from the Chesapeake Bay to the Blue Ridge Mountains. The Virginia Sunshine Alliance supports the efforts of its members and conducts an independent research and educational program.

III. Jurisdiction

This petition requests the Commission to exercise its authority under the Atomic Energy Act, 42 U.S.C. §§2233(d), 2236(a), and 2237, as well as its own regulations, 10 CFR §2.204, 2.206(c)(1), 50.54, 50.100, and 50.109 (1978), to review independently the activities of the NRC staff. Although 10 CFR §2.206(a) provides expressly for the filing of petitions to show cause with the Director of Nuclear Reactor Regulation (DNRR),[1] this avenue of relief has been foreclosed in this case. First, petitions raising similar issues and seeking similar relief were denied by the DNRR in memoranda dated January 24 and April 4, 1979. Secondly, at several important points this petition alleges violations by the

1. Or, under circumstances inappropriate to this matter, with the Director of Nuclear Materials Safety and Safeguards.

DNRR and/or other members of the NRC staff of duties imposed by statute and regulation. In that 10 CFR §2.206 envisions principally requests for objective evaluation by the staff of violations by licensees, the filing of a petition with the Staff is therefore inappropriate.

Petitioners acknowledge that an opportunity for a hearing on this matter was made available in 1977. It is submitted, however, that petitioners' failure to respond to that notice does influence the vitality of this petition in any way; at that early date most of the documents on which this petition relies were not in existence, and most of the violations alleged herein had yet to occur. Indeed, virtually none of the issues raised in this petition were cognizable prior to January 1979.

This petition calls upon the Commission to fulfill its "overriding responsibility for assuring public health and safety in the operation of nuclear power facilities."[1/] The Commission's authority to entertain petitions seeking remedial action is set forth in 10 CFR §2.206(c)(1) and has been exercised previously.[2/]

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1. In the Matter of Consolidated Edison Co. of New York, Inc. (Indian Point, Units 1, 2, and 3) CLI-75-8 (1975). See also Power Reactor Development Co., 1 AEC 128, 136 (1959).

2. See, e.g. Union of Concerned Scientists Petition for Emergency and Remedial Action, CLI-78-6, 7 NRC 400 (1978).

IV. Statement of the Facts

A. Background

Pressurized water reactors (PWR's), such as those installed at the Surry Power Station, differ from reactors of other design principally because of their reliance on steam generators. The principal function of the steam generator is to transfer heat from the primary cooling system, which removes heat from the reactor core via highly radioactive fluid circulated at high pressure and volume, to the secondary cooling system. The latter system delivers steam at high temperature and pressure, though with relatively low radioactivity, to turbines which generate electricity. The steam generator thus serves as "a major barrier against fission product release to the environment."[1/] Of the 42 PWR's now in domestic operation, at least 20 are known to have experienced unanticipated corrosion of steam generator tubing.[2/] The Surry Station's experience with this problem is representative of problems which have been or are likely to be experienced by the remainder of these 20 reactors.

In 1975, VEPCO observed that many of the steam generator tubes and tube support plates in Units 1 and 2 were experiencing severe corrosion and deformation. This problem is attributed to

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1. Regulatory Guide 1.121 at 2.

2. Minutes of meeting of the Advisory Committee on Reactor Safeguards Subcommittee on Surry Nuclear Power Station, October 28, 1978 (hereafter ACRS meeting), Tr. at 4 (remarks of Dr. Liaw).

a buildup of corrosion products in the crevices between the tubes and tube support plates. As these corrosion products accumulate, the tubes become pinched, or "dented," and are subjected to greatly increased stress and corrosion. From these effects flow a variety of ills, including splitting and cracking of the tubes, consequent leakage of primary coolant into the secondary system, and substantially increased emissions of airborne radioactivity.

The degeneration of the steam generators at Surry prompted the Commission in September of 1975 to require increased inspection and servicing by the utility of the reactors. Servicing consists of plugging an increasing number of the defective tubes on an ad hoc basis, with the result that more than 21 percent of the steam generator tubes in each unit are now inoperative. Not surprisingly, inspection and tube plugging entails the accumulation of worker exposures to radiation in amounts greatly in excess of those expected at normally functioning reactors. Further, the economic costs of obtaining replacement power during periods of "downtime" have been considerable.

B. The Proposed Replacement Program

On January 19, 1978, the NRC issued amendment nos. 46 and 47 to VEPCO's operating licenses for the Surry units. These amendments approved without modification the licensee's proposed repair program.[1/] The following is a summary of the procedures to be followed for each unit.[2/]

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1. Steam Generator Repair Program, Surry Power Station Units 1 and 2, June 1978, as amended (hereafter "Repair Program").

2. The Repair Program provides for Unit 1 to remain in operation while Unit 2 is under repair (approximately six months) and vice versa.

(1) The reactor will be defueled completely and the partially spent fuel transferred to the spent fuel storage pool. Portions of the pressurizer cubicle and polar crane walls will be cut and removed, and temporary systems (scaffolding, ventilation, lighting, etc.) will be installed.

(2) Primary and secondary cooling system piping to each steam generator will be cut. The exterior layer of each steam generator will then be cut in its midsection; the upper assemblies will be stored within the containment while the lower assemblies will be hauled out of the containment through the equipment hatch.

(3) Replacement lower assemblies of slightly different design, after transport to the site by barge, will be moved into the containment and lowered into position. Many components of the upper assemblies will be replaced and modified, after which they will be lowered into position above the lower assemblies and rewelded. Other piping systems will be reconnected and the crane and pressurizer cubicle walls repaired.

(4) After the temporary systems have been removed, the partially spent fuel will be returned to the reactor; various tests will then be performed and the reactor will be reactivated.

In addition, the licensee will spend approximately $27 million to equip each unit with "full-flow condensate polishing demineralizer systems."[1/] To house these systems a separate building will be constructed on the site. The repair program also calls

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1. A brief description of these systems can be found at §5.3.2.3.2 of the Repair Program.

for the construction of a "long-term storage" facility on the site. The contaminated steam generator lower assemblies will be placed within this structure and are to remain there for an indefinite period of perhaps as long as 50 years.

V. The NRC Staff Violated the National Environmental Policy Act in Issuing Amendment Nos. 46 and 47 to VEPCO's Operating Licenses for the Surry Station.

A. The Issuance of the Operating License Amendments Constituted a Major Federal Action Significantly Affecting the Environment and Thus Required Preparation of an Environmental Impact Statement.

The approval of VEPCO's proposal to renovate the Surry reactor is a "major Federal action" within the meaning of NEPA.[1/]

In the present context a closer question is whether the action in dispute is one which will significantly affect the environment. A mere recital of the adverse environmental impacts of this project demonstrates that it is one for which an environmental impact statement (EIS) is required.

First, the project will expose construction personnel to a minimum of 4140 "man-rem."[2/] As will be discussed further below, this estimate is only a fraction of the dosage estimated by an independent research laboratory which conducted a generic study of such projects on contract to the Commission. But even assuming for the moment the validity of the 4140 man-rem figure, it represents a radioactive dose exposure for the hundreds of persons working on the project equivalent to that which would be sustained by the employees at a normally functioning plant over a

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1. See, e.g., Hanly v. Mitchell, 460 F.2d 640, 644, 2 ELR 20216, 20218 (2d Cir.), cert. denied, 409 U.S. 990 (1972); Southwest Neighborhood Assembly v. Eckerd, 445 F. Supp. 1195, 8 ELR 20466, 20468 (D.D.C. 1978).

2. See Office of Nuclear Reactor Regulation, Safety Evaluation Report (hereafter SER) at 16; Environmental Impact Appraisal by the Office of Nuclear Reactor Regulation, License Nos. DPR-32 and DPR-37, Virginia Electric and Power Company, Surry Power Station, Units 1 and 2 (hereafter EIA) at 6; Repair Program at 5.3.2.1.

period of four years.[1]

It is not alleged that this dosage will be administered in violation of 20 CFR §101; with sufficiently wide distribution among a work force and over time, the dosage can be maintained within the 3 man-rem per quarter limit. Nevertheless, recent studies[2] indicate that radiation exposure levels once thought acceptable may in fact be quite dangerous. Such studies certainly add weight to the argument that when a federal agency is contemplating a major federal action involving human impacts of from 4,000-10,000 man-rems, such a step should be taken only after the kind of thorough analysis and public comment that an environmental impact statement is designed to provide.

The renovation of the Surry units will also generate large quantities of radioactive solid waste. In the EIA the staff estimated that the waste produced will total 4,600[3] cubic meters in volume and will contain 74 curies of radioactivity.[4] A notable omission from this estimate is the radioactive waste generated in the form of the discarded steam generators. Six

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1. In the EIA the Staff cited an average figure of 500 man-rems of exposure for workers at all nuclear units (of which there are two at Surry). EIA at 7. Their figure includes those units, such as Surry 1 and 2, which have required "major maintenance" involving doses of up to 4000 man-rems annually.

2. Draft Report, Interagency Task Force on Ionizing Radiation, February 27, 1979.

3. Compare with VEPCO's estimate of 1,480 cubic meters. Repair Program at 9.A.14-1.

4. EIA at 12-13. The staff then compared the 74 curies figure to the amounts of waste which have been generated at Surry over the last two years, during which the solid waste (620 curies) generated at the plant was inevitably greater than that generated at a normally functioning plant because of the extensive maintenance required during those years. Noting that the former figure is roughly 10 percent of the latter, the Staff concluded that the former quantity is not environmentally significant. In terms of volume, the repair action will generate over seven times the recently observed annual quantities.

of these structures, each of which measures roughly 43 by 14 feet, will be disposed of. In the aggregate they will weigh 1,300 tons, and will contain approximately 16,000 curies[1/] of radioactivity. This represents roughly 50 times the radioactivity contained annually in Surry solid waste during 1973, 1974, 1976 and 1977.[2/] Compare this figure with the following statement by the Staff:

> Since the solid wastes [generated by the repair program] represent an impact which is a small part of the impact of solid wastes from normal operation, we conclude that the radiological impact is not environmentally significant. 3/

There is no justification for the staff and the licensee's attempts to distinguish between "solid waste" and discarded steam generators. Each qualify as "byproduct material" as defined in 10 CFR §30.4 and present analogous environmental hazards. The alternative of disposing of the steam generators, including their replacement with new generators which will be irradiated and converted into more wastes, was chosen among other alternatives under which they would not have been removed.[4/] Therefore, the creation

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1. EIA at 13. Compare with VEPCO's estimate of 8,400. Repair Program at 5.3.1.

2. See SER at 23.

3. EIA at 13 (emphasis added).

4. As will be discussed more fully below, "retubing" of the steam generators and plant closure were alternatives which would not require disposal of the steam generators; these alternatives were considered and rejected.

of these 1,300 tons of nuclear waste, in addition to a 6,000 ton storage facility which will presumably become radioactive and have to be decommissioned, was an avoidable option which was deliberately selected. The environmental costs of making this choice must be addressed for purposes of making the threshold determination under NEPA; the staff's failure to do so violates the Act's command.

Another major source of environmental pollution resulting from the staff's approval of VEPCO's program consists of effluent discharges to the James River. These discharges fall into two categories: first, the replacement program itself will generate liquid waste byproducts, in the form of used decontamination solutions and laundry waste water. Although the EIA makes no attempt to estimate the quantity or environmental significance of these discharges, the SER recites the licensee's estimate of 12,240 gallons[1] per day. These fluids will apparently be dumped directly into the James River without treatment other than that necessary to control radioactivity.

Secondly, staff-approved construction of two "full-flow condensate polishing demineralizer systems" will result directly in the discharge of more than 25,000 gallons of waste fluids per day. These discharges, as described by the licensee,[2] will contain a long list of dissolved metals, acids, and other chemicals. Furthermore, unlike the laundry waste water from the repair operation, these pollutants will apparently be released directly to

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1. Compare with the Battelle generic estimate of over 22,000 gallons per day. Battelle Pacific Northwest Laboratories, Radiological Assessment of Steam Generator Removal and Replacement (Sept. 1978) (hereafter Battelle).

2. See Repair Program at 5.3-4.

the environment over the remaining life of the Station.

Another significant and direct impact of the Surry project is the burden that will have to be shouldered by VEPCO's ratepayers in order to finance it.[1] The applicant has estimated that the total project cost will be $167 million.[2] Based on recent testimony by a VEPCO official before a congressional subcommittee,[3] the replacement program will cost the company's customers an average of $128.00,[4] while typical residential ratepayers may have to pay $38.00[5] to finance such an undertaking. Petitioners assert that this is a significant depletion of the average household's disposable income. Moreover, recent trends in the price of oil

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1. There is a critical distinction between the economic impacts of this replacement program and an initial licensing. In the latter case, the economic costs to the ratepayers will be offset, to a greater or lesser extent, by the receipt of electrical power. There is thus a quid pro quo and arguably no adverse economic impact. But in the case of a steam generator replacement program, the ratepayers are paying solely to assure the normal operations of the plant, which is something they have paid for previously (by its inclusion in the rate base). There is thus no quid pro quo and no tangible benefit to offset their pecuniary injury. It should therefore be considered an adverse economic effect.

2. Repair Program at 5.2-1, 5.3-6.

3. Hearings before the Nuclear Regulation Subcommittee of the Senate Committee on Environment and Public Works, March 16, 1979 (testimony of E. Ashby Baum).

4. Assuming that VEPCO's 1.3 million ratepayers will bear the cost of the project, and that the project will meet its estimated cost of $1167 million.

5. VEPCO's representative indicated that for every $12 million lost by the company because of the recent emergency closure of Surry Unit #1, the typical residential ratepayer would be assessed $2.75. Washington Post, March 17, 1979 at A2, col. 1.

suggest the steam generator replacement project will in fact cost a minimum of $227 million, or approximately $175 per customer and $52 per average residence.[1/]

Whereas the Commission's organic statutory authority may impose upon it a very limited, if any, obligation to factor economic issues into licensing decisions, when assessing the environmental effects of a proposed action under NEPA the Commission must "utilize a systematic, interdisciplinary approach"[2/] which gives roughly equivalent considerations to environmental, economic, and technical issues. NEPA requires that social and economic effects of major federal actions be fully considered when an agency is assessing the environmental significance of a project for purposes of the threshold EIS determination. In McDowell v. Schlesinger,[3/] for example, the court found that the proposed federal action at issue would have virtually no significant adverse environmental impacts other than those affecting the economic and employment status of the region's residents. Finding such effects independently cognizable under NEPA and significant within the meaning of §102(2)(C), the court declared the EIA before it invalid and enjoined all progress

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1. The congressional testimony of VEPCO's spokesman shows that the cost of replacement power during repairs has risen to $144 million ($12 million per month), not the $66 million estimated by the company and reflected in the EIA.

2. NEPA, §102(2)(A), 42 U.S.C. §4332(2)(A) (1978).

3. 404 F. Supp. 221, 6 ELR 20224 (W.D. Mo. 1975) (proposed relocation of military base constitutes major federal action significantly affecting the environment.) Accord, Tierrasanta Community Council v. Richardson, ___ F. Supp. ___, 4 ELR 20307 (S.D. Cal. 1973).

on the project pending completion of an EIS.[1/]

The economic impacts of federal actions are typically considered "secondary" effects because the affected community does not pay for the cost of the project (funding comes from governmental revenues) but suffers less direct effects, such as increased congestion or decreased local tax revenues. However, the bill for the Surry project will be presented to the local residents. Regardless of how such effects are labeled, they are significant, and their omission from the staff's threshold determination stands in violation of NEPA.

VEPCO's steam generator replacement program also entails sizeable secondary impacts. Foremost among these is the utility's purchase of $66 million of replacement electricity, and the environmental effects associated with its generation. Such impacts, even though offset by a reduction in the impacts of the Surry Station's operations, are no less cognizable under NEPA than any other impacts.[2/] Simply the combustion of the fuel for this power will entail "significant" environmental costs, and represents an "irreversible and irretrievable commitment of resources" under §102(2)(C)(v) of NEPA. Yet no mention

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1. Some courts have declined to order preparation of an EIS where the impacts of the challenged action are strictly socio-economic. See, e.g., Image of Greater San Antonio v. Brown, ___ F.2d ____, 8 ELR 20324, 20325 (5th Cir. 1978); Metlakatla Indian Community v. Adams, 427 F. Supp. 871, 7 ELR 20406, 20407-08 (D.D.C. 1977); Township of Dover v. U.S. Postal Service, 429 F. Supp. 295, 7 ELR 20508 (D.N.J. 1977). Each of these decisions recognizes, however, that the likelihood of direct impacts on the natural environment acts to trigger the duty to fully consider concurrent socio-economic effects. See also City of Davis v. Coleman, 521 F.2d 661, 5 ELR 20633, 20638 (9th Cir. 1975) (consideration of socio-economic impacts is frequently more essential than consideration of direct ecological effects).

2. 40 CFR §1508.8(b) (1979) (NEPA regulations of Council on Environmental Quality); 40 CFR §1500.6(b) (1978) (EIS guidelines of Council on Environmental Quality).

is found in any of the documents prepared by the staff.

Other secondary impacts of the action include the consumption of gasoline, the generation of air pollution, and the creation of traffic congestion by the 400 workers that will be employed on site 24 hours a day for at least a year.

Further description of the long list of significant environmental impacts of this major federal action should not be necessary. Briefly, such additional impacts include:

-- emissions of radioactive gaseous air pollutants;[1/]

-- the environmental effects of constructing the long-term waste storage facility and additional buildings to house other newly-added components to the plant,[2/] including the irreversible commitment of thousands of tons of steel and concrete;

-- the noise and dust created as a result of the above operations, as well as the use of heavy equipment to transport new and discarded steam generators around the site;

-- the risks of non-radiological injury to workers, such as the recent hospitalization of 26 men for inhalation of vaporized metal in connection with the action in question, while preparing for the steam generator replacement.

Several aspects of the environmental impact of the VEPCO proposal are of sufficient magnitude to independently trigger NEPA's EIS requirement.[3/] When the action is examined in its

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1. See EIA at 10.

2. See Repair Program at 5.3-3 to 5.3-4.

3. With respect to primary impacts, see Natural Resources Defense Council, Inc. v. Energy Research and Development Administration, 451 F. Supp. 1245, 8 ELR 20415 (D.D.C. 1978) (modification of nuclear waste storage facility required preparation of EIS as well as programmatic EIS). With respect to secondary impacts, see Southwest Neighborhood Assembly v. Eckerd, 445 F. Supp. 1195, 8 ELR 20466 (D.D.C. 1978) (federal leasing, as distinguished from construction or purchase, of office building for five years, ruled major federal action significantly affecting the environment).

entirety, that conclusion is even more imperative.

The staff's obligation to prepare an EIS for this action is demonstrated conclusively by reference to the regulations of the Commission[1/] and the Council on Environmental Quality (CEQ).[2/] 10 CFR §51.5(b) lists several types of actions by the NRC for which an EIS, while not required under all circumstances, is clearly suggested. Among these are the "[i]ssuance of an amendment to a. . . design capacity operating license for a nuclear power reactor. . . that would authorize a significant change in the types or a significant increase in the amount of effluents"[3/] from any such reactor. The action at hand fits this description perfectly. Not only does the steam generator replacement program entail a large increase in the laundry waste discharges from the site over a period estimated at one year, but the installation of a new demineralizing system will result in chemical-laden liquid effluents in the approximate amount of 25,000 gallons per day.

Under 10 CFR 51.5(b)(7) the preparation of an EIS is similarly suggested for "[l]icense amendments or orders authorizing the dismantling or decommissioning of nuclear power reactors. . . " Elsewhere in this petition it will be shown that the Surry repair program constitutes a partial dismantling and decommissioning of a reactor within the meaning of the Commission's regulations. 10 CFR 51.5(b)(7) shows that it is this type of action with respect to which the preparation of an EIS must be considered thoroughly. The regulations and guidelines of the Council on Environmental

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1. 10 CFR pt. 51 (1978).

2. 40 CFR pt. 1500 et seq. (1979).

3. 10 CFR §51.5(b)(2) (1978).

Quality also support the need for an EIS under these circumstances.[1]

When assessing the significance of the environmental impacts of the Surry project for purposes of the threshold determination, the staff suffered from tunnel vision. Though it was well aware that the Surry renovation is merely the first in a long line of similar actions for which Commission approval has been or will be sought, the staff showed no recognition of this fact. Apparently, the staff intended to play down the significance of the current project and then to observe subsequently the results of the action in terms of personnel radiation exposure, other environmental effects, and the relative merits of the alternative repair method selected by the licensee.[2]

NEPA was enacted in large part to bring an end to this sort of ad hoc, post hoc, trial and error decision making. The Act requires every agency to be cognizant of the point at which it embarks on a series of related actions, and to view them not in isolation but in terms of their prospective, cumulative impacts.[3] "'Cumulative impact' is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. . . ."[4] Put differently, actions which might be deemed environmentally insignificant must nevertheless be dealt with in an EIS if related to a group of past or future actions with respect to which "it is reasonable to anticipate a cumulatively significant impact on

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1. See 40 CFR §§1500.6(b), 1500.6(d)(1) (1978) (guidelines); 40 CFR §§1504.4(b)(2), 1508.7, 1508.14, 1508.27(b)(6) (1978) (regulations).

2. See NRC Program for the Resolution of Generic Issues Related to Nuclear Power Plants, NUREG-0410 (1978) (plan for resolving "unresolved safety issue" of steam generator degradation).

3. Jones v. Lynn, 477 F.2d 855, 890-91, 3 ELR 20358, 20360 (1st Cir. 1973

4. 40 CFR §§1508.7 (1979) (emphasis added). See also 40 CFR §1500.5(d)(1) (1978).

the environment."[1] Thus, the staff's failure to recongize the VEPCO proposal as one in a continuum of current and future requests for similar license amendments stands in palpable violation of the Act, the CEQ's regulations and the case law.

NEPA does not confer wide latitude upon the agencies to decide whether or not to prepare EISs.[2] Rather, the courts have held that an EIS must be prepared where a project *may*, *could* or *arguably will* result in significant adverse effects.[3] In the environmental impact appraisal prepared for the Surry project, however, the scales were evidently tripped in the opposite direction.

Throughout the EIA, the benchmark against which the Staff assessed the significance of the project impacts was the impact presented by the Surry Station itself. Where the effects of any aspect of the steam generator replacement program were thought to fall within the ballpark of the plant's historical effects, such

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1. 40 CFR §§1508.27(b)(7) (1979). This language does not excuse the failure to prepare an EIS where it may also be reasonable to anticipate no cumulatively significant effects. *See also* 40 CFR §1500.5(d) (1978).

2. Save Our Ten Acres v. Kreger, 172 F.2d 463, 466, 3 ELR 20041, 20042 (5th Cir. 1973).

3. *See* authorities cited at Rodgers, *Environmental Law* §7.6 at 754 nn. 28-32 (1977) (Other standards include "potential" significance and "substantial evidence" of significance.) The regulations of CEQ establish analogous standards. *See* 40 CFR §§1508.3 1508.27(b)(7) (1979). *See also* Maryland-National Capital Park and Planning Comm'n v. U.S. Postal Service, 159 U.S. App. D.C. 158, 168, 587 F.2d 1029, 1039, 3 ELR 20702, 20706 (1973) (environmental impact appraisal must present "convincing reasons" in support of negative declaration).

effects were labelled environmentally insignificant.[1] At other points the staff found it advisable or necessary to compare the project impacts with the impacts of the Surry Station in recent years, during which malfunctions served to greatly increase the environmental impacts of the plant.[2] Moreover, where even the magnified impacts of Surry in recent years did not compare favorably with the replacement project, the benchmark was moved again. For purposes of showing that the radiation doses received by those working on the project would be insignificant, the reference dose was arbitrarily established as the hypothetical dose which would be received at Surry (assuming the recently observed "dirty" exposure levels) "over a period of years."[3]

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1. "In summary, the offsite doses resulting from the steam generator repair will be less than those from recent plant operations since the expected releases of radioactive material as a result of the repair effort will be less than the releases from normal operations. These doses are comparable to the doses presented in the FES, and small compared to the annual doses from natural background radiation. Therefore, the radiological impact of the repair project to the public will not significantly affect the human environment." EIA at pp. 13-14 (footnote omitted.) See also p. 15 of the EIA: "The non-radiological impacts of the repair project on the environment are small compared to those of building and operating the reactor."

2. See, e.g., p. 13 at which the staff compared the solid waste generated by the project with that generated at Surry in 1976 and 1977. Note that while the EIA compares the radioactive content of the waste from each source, concluding that the replacement project generates only 10 percent of the average annual amount, the SER compares the volume of wastes, and concludes that the "wastes expected to be generated during the steam generator repair effort for one unit will amount to about three times a year's worth of solid waste for both units." SER at 23 (emphasis added). As discussed above, this comparison is also rendered invalid by the absence of any attempt to integrate into the analysis the 1300 tons and 16,000 curies of waste represented by the discarded steam generators.

3. EIA at 8.

Indeed, when contrasted to the "dirty" operational conditions at Surry for a number of years, the replacement program appears quite benign: so much so that the EIA refers repeatedly to the exposure levels as "dose savings of hundreds of man-rems per year."[1/] On this basis the effects of the project were found not significant.[2/]

Reasoning of this ilk stands rationality on its head. To perform such highly transparent statistical sleight-of-hand in lieu of a good faith attempt to come to grips with the grave effects of this action on human health and the environment is not only morally reprehensible, but is arbitrary and capricious within the meaning of the Administrative Procedure Act[3/] and violative of the spirit and letter of NEPA.[4/] The means by

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1. EIA at 8 (emphasis supplied).

2. This conclusion was also supported by reference to a five-year old study which attempted to estimate the number of worker fatalities from such exposures. EIA at 9.

3. 5 U.S.C. §706(2)(A).

4. It is perhaps unfortunate that the drafters of NEPA declined to establish a benchmark against which proposed actions could conveniently be gauged to determine their environmental significance. It seems highly unlikely, however, that if they had chosen to do so they would have chosen a nuclear power plant, especially a badly degenerated plant which is in need of a major overhaul. See also First Nat'l Bank v. Richardson, 484 F.2d 1369, 3 ELR 20771, 20773 (7th Cir. 1973) (agencies must assess significance in light of both relative impact of project on existing area, and the absolute, quantitative effects of the action when viewed in isolation).

which the Staff reached its negative determination are reminiscent of the "crabbed" approach to the Act for which the Atomic Energy Commission was chastized earlier in this decade.[1] It is imperative that the Commission act to reverse and remedy this particular decision, and take steps to ensure that NEPA's requirements are more fully satisfied in the future.

B. The Cumulative Effects of the NRC Program of Approving Steam Generator Replacement Projects Requires Preparation of a Programmatic Environmental Impact Statement

As discussed above, the cumulative environmental effects of steam generator replacement generally, require that an environmental impact statement be prepared for that particular action. But the long-range policy implications of VEPCO's proposal bear on more than the question of whether an impact statement was required for the Surry project. Actions with such effects must be analyzed not only within "site-specific" impact statements, but also within programmatic statements.[2] The purpose of such statements is to "allow a comprehensive consideration, a broader look at alternatives and long-range effects, an analysis of the forest, not the trees."[3] Programmatic statements are

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1. Calvert Cliffs Coordinating Comm., Inc. v. AEC, 449 F.2d 1109, 1 ELR 20346 (D.C. Cir. 1971).

2. People of Enewetak v. Laird, 353 F.Supp. 811, 821, 3 ELR 20190, 29194 (D. Hawaii 1973); Natural Resources Defense Council, Inc. v. Grant, 341 F.Supp. 356, 367, 2 ELR 20185, 20188 (E.D.N.C. 1972).

3. W. Rodgers, Environmental Law §§7.9(a) at 786 (1977).

called for not only for actions with cululatively significant environmental effects, but also when the action in question, when viewed with similar actions that can be reasonably foreseen to arise in the future, are sufficiently alike to provide a basis for unified analysis. 1/ As examples of actions which may require programmatic analysis, CEQ has identified "maintenance or waste handling activities." 2/

The Commission's recognition of its duty to prepare programmatic EIS's for related, albeit arguably independent, licensing decisions, is implicit in the now pending generic EIS regarding the handling and storage of spent fuel from light water reactors. The NRC has responded to the same obligation with regard to the use of mixed oxide fuels. The Staff's failure to prepare a generic impact statement for the recently commenced steam generator replacement program, like its failure to prepare a site-specific statement with respect to the Surry action, flies in the face of its well-established duties under NEPA.

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1. See 40 CFR §1508.25(a)(3) (1979).

2. 40 CFR §1500.6(d) (1978). See also Council on Environmental Quality, Memorandum to Federal Agencies on Procedures for Improving Environmental Impact Statements (May 16, 1972) reprinted in 3 BNA Env. Rep. 82, 87.

C. The Environmental Impact Appraisal Prepared for the Surry Project Is Legally Inadequate

Though court decisions defining the standards of adequacy for EIA's are relatively few, the standards which have evolved have been consistently applied.

> The agency must identify all areas of potential environmental concern flowing from the proposed action, and must take a "hard look" at all potential impacts so identified, including secondary impacts. Sufficient investigation must be done and sufficient data gathered to allow the agency to consider realistically and in an informed manner the full range of potential effects of the proposed action. . . . [i]t must affirmatively appear from the . . . written assessment . . . that the agency has given thoughtful and reasoned consideration to all of the potential effects of the proposed action. . . . 1/

Another line of cases articulates the same standards in a slightly different way:

> The court should be convinced:
>
> 1. That the agency took a "hard look" at the situation; [and]
>
> 2. That the agency identified all the relevant environmental concerns. . . . 2/

In addition, the EIA must describe the impacts of the proposal in terms of its absolute, quantitative effects, as opposed to the impacts relative to existing conditions at the site. 3/

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1. McDowell v. Schlesinger, 404 F. Supp. 221, 6 ELR 20224, 20238 (W.D. Mo. 1975) (emphasis supplied). See also First Nat'l Bank of Chicago v. Richardson, 484 F.2d 1369, 3 ELR 20771 (7th Cir. 1973); Hanly v. Kleindienst, 471 F.2d 823, 2 ELR 20717 (2d Cir. 1972).

2. Hiatt Grain & Feed v. Bergland, 446 F. Supp. 457, 11 ERC 1961, 1984 (D. Kan. 1978). Accord, e.g., Maryland-National Capital Park & Planning Comm'n v. U.S. Postal Serv., 159 U.S. App. D.C. 158, 487 F.2d 1029, 1039-40, 3 ELR 20702 (1973).

3. McDowell v. Schlesinger, supra (citing Hanly and First Nat'l Bank, supra).

The EIA prepared for the Surry replacement program falls short of all these requirements in several respects. First, it makes no mention whatsoever of the following separate aspects of the project's adverse environmental effects:

--No attempt was made to examine the environmental impacts of the 25,000 gallon per day discharges from the new demineralizer systems. Although the environmental significance of these discharges is manifest, nowhere in the documents prepared by the staff is there any evidence that an attempt was made to ascertain the gravity of the resultant impacts on the environment of the James River. Nor is there any indication that a National Pollutant Discharge Elimination System (NPDES) permit was sought or obtained for the project. In fact, the EIA contains no mention whatsoever of this $27 million component of the replacement program.

--No discussion of the economic impacts of the action on the region or the ratepayers was offered.

--The EIA does not disclose that steam generator degradation has been experienced elsewhere, that another application for a similar license amendment was then pending before the agency, or that in fact this type of action is one which without question will be a recurring one. The document does not intimate the existence of, much less describe the similarities of, these other actions or their cumulative environmental impacts (such as the construction of anywhere from 3 to 20 long-term waste repositories).

--No information is provided concerning where the $66 million in alternate electricity will come from, the fuel that will be used to generate it, or the environmental implications

for the locales in which it is to be generated.

--The non-radiological impacts are dismissed in only four sentences.[1/]

--The summary discussion of alternatives considers only the economic aspects of the choices. No comparison between the health and environmental effects of the alternatives is presented.

The EIA therefore paints only a latticework picture of the project. The "advantages" of the action are highlighted while many of the costs are hidden, with the result that outsiders cannot meaningfully evaluate the merits of the action. The EIA provides no record on the basis of which a reviewing court could assess the significance of the project's impacts under NEPA. Even if an EIS were not required for the Surry replacement program, it was incumbent upon the staff, under the authorities cited above, to thoroughly articulate the bases for its negative determination. Its failure to do significantly more than certify the reasonableness of the licensee's obscure quantitative calculations renders the EIA legally inadequate.

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1. EIA at 15.

D. The Staff Approved the Surry Steam Generator Replacement Project Without the Full Consideration of Alternatives Required by NEPA.

Section 102(2)(C)(iii) of NEPA makes a full analysis of alternatives an essential component of every environmental impact statement. Yet even where an EIS is not required for a given action, a separate provision of the Act requires all agencies, "to the fullest extent possible," to:

> study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources. 1/

A noted authority has verified the importance of this provision:

> [Section 102(2)(E)'s] stringency deserves emphasis. It is, first of all, not limited to "major federal actions" as is section 102(2)(C). It is "supplemental to and more extensive in its commands" than is section 102(2)(C)(iii), particularly insofar as it requires not only the study and description of appropriate alternatives but also that they be "developed." This directive imports not mere lipservice to and discussion of alternatives; it presumes a degree of serious consideration. . . .
>
> The important contribution of section 102(2)(E) is that it requires alternatives to be considered in depth. . . . The requirement that agencies "develop" alternatives means they must elaborate upon them, carry them beyond the stage of a mere idea, and present them as mature proposals. The "study" required by section 102(2)(E) goes beyond mere consideration to include feasibility studies, a cost-benefit analysis if appropriate, perhaps modelling, development of management plans, and other research endeavors. 2/

The thrust of the foregoing is that the "significance" of a federal action does not alter the agency's duty to scrutinize

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1. NEPA, §102(2)(E), 42 U.S.C. §4332(2)(E) (1978).

2. W. Rodgers, Environmental Law §713 at 724, §719 at 797 (1977) (footnotes omitted).

alternatives to it.[1]

One alternative to the replacement of the Surry steam generators is to repair them through a process known as "retubing." Briefly, retubing involves removing and replacing some or all of the damaged steam tubes. Unlike the replacement technique, it does not require modification of the reactor containment structure and does not produce large quantities of radioactive waste requiring construction of a special storage facility.

In its brief look at the retubing option within the EIA, the Staff cited VEPCO's estimate that retubing would be more expensive than replacement "in terms of both dollars and occupational exposure."[2] No other aspects of the two techniques, such as the amount of radioactive waste which would result from each, were compared. Moreover, not only were the licensee's "estimates" unsupported and apparently speculative, they were significantly misrepresented by the Staff.[3] This cursory, if not guileful recounting of facially suspect information can hardly be deemed compliance with the obligation to "study, develop, and describe" alternative courses of action.

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1. But cf. Trinity Episcopal School Corp. v. Harris, 445 F. Supp. 204, 8 ELR 20394 (S.D.N.Y. 1978) (the degree of scrutiny required depends on the significance of the environmental impacts).

2. EIA at 18.

3. VEPCO's entire discussion of this matter was as follows:

> It has been estimated that this operation be [sic] at least as costly as the total replacement of steam generators. It will also result in at least as much personnel exposure as the total replacement of steam generators [sic] lower assemblies.

Repair Program at 5.5.1.2 (emphasis added).

The EIA next goes on to relate the results of recent research by the Westinghouse Corporation showing that retubing may indeed be a preferable means of solving the problem of steam generator degradation.[1] Yet, the Staff's view was that "at this time, not enough information is available for us to make a detailed assessment of the retubing alternative."[2]

The Staff's misapprehension of its statutory duty is illuminated in the following paragraph, where it is stated that "a detailed proposal" concerning the retubing technique will be available in the near future. If that proposal were to be favorably assessed, it is stated, the retubing option would then be elevated to the level of an alternative to replacement. "However, in the time frame contemplated for the proposed licensing action, this is not to be considered an

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1. Petitioners are not certain of the identity of the Westinghouse studies in question. We are aware, however, of one investigation, which was based on a full-scale mock-up demonstration, concluding that retubing involves very low personnel exposures and can be completed in less than 10 weeks, thereby greatly reducing the cost of replacement power. Estes, Watjen, & Gulaskey, "Retubing for On-Site Modification of Steam Generators," Nuclear Engineering International, Feb. 1979, at 48.

The viability of the retubing technique was pointed up at a meeting of the Advisory Committee on Reactor Safeguards (ACRS) Subcommittee on the Surry Power Station on October 28, 1978. There the Staff identified retubing as "the principal alternative." ACRS Transcript at 18. See also id. at 19, 24.

Of course, at this juncture, the relative merits of the two techniques are irrelevant beyond the establishment of retubing as a "reasonable" alternative which must be examined meaningfully to assess its merits.

2. EIA at 18.

available alternative."[1] In other words, because the Staff (or the licensee, or both) was in a hurry, an alternative course of action which promised to be far preferable to the main proposal in terms of human health as well as financial impact upon the public was denied serious consideration. While petitioners concede that NEPA's mandate for deliberate analysis must yield in the face of a true and proven emergency,[2] they deny that agencies or their constituents may casually constrict an action's "contemplated time frame" and thereby jettison an environmentally and economically preferable alternative. The summary relegation of the retubing technique to the status of a non-alternative contravenes the plain requirements of §§102(2)(C)(iii) and 102(2)(E) of the Act.

The dubious dismissal of the retubing options suggests another obvious alternative which was never as much as hinted at in the EIA: delay of the Surry project for the few weeks or months needed to evaluate the relative advantages of the retubing alternative. If, after moderate independent study by the Staff, the retubing technique was shown to be less successful than had been expected, the project could quickly proceed as planned. Given that the Staff was to be presented with a detailed study of the technique in the "very near future,"

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1. EIA at 18.

2. American Smelting & Refining Co. v. FPC, 494 F.2d 925, 948-50, 4 ELR 20348 (D.C. Cir.), cert. denied, 95 S. Ct. 148 (1974); Atlanta Gas Light v. FPC, 476 F.2d 142, 150, 4 ELR 20323 (5th Cir. 1973); Gulf Oil v. Simon, 502 F.2d 1154, 1156-57, 5 ELR 20021 (Temp. Emer. Ct. App. 1974).

the key question was whether expeditious action was so urgent that no time could be taken to look at this "promising" alternative. The available evidence shows that there was no reason for haste.

Although the EIA states that the problems with the Surry steam generators will "soon" lead to "serious and expensive operating restrictions such as derating,"[1] this terse statement is contradicted by the considered presentation by VEPCO and the Staff to the Advisory Committee on Reactor Safeguards (ACRS). At a meeting of the ACRS subcommittee on the Surry station, VEPCO informed the ACRS that the plant could continue operating in the current manner perhaps indefinitely, i.e., that there was no need for imminent operating restrictions.[2] This view is corroborated by the facts. Steam generator degradation at Surry is a fact of life with which VEPCO has coped nicely for at least three and a half years. It has required the plugging of approximately 20 percent of the steam tubes, but

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1. EIA at 1.

2. The two units at Surry have operated quite well since the denting was first discovered, and we thought it was going to be a much worse problem, largely because of the solutions worked out with NRC on inspection and preventative plugging. The units produce about 20 percent of our energy requirements, and the units are operating very well between inspection periods.

   So we could continue along that route for some time, but we think it prudent now to replace the steam generators.

ACRS Transcript at 40-41 (Statement of VEPCO Vice President Stallings) (emphasis added).

the NRC has given permission for plugging of up to 25 percent, and a request by VEPCO for authority to plug up to 28 percent is now pending.[1] It therefore appears that VEPCO can operate the plant at full capacity, and within acceptable safety margins, probably for years and certainly for the period of time required by the Staff to evaluate the retubing option.

Nevertheless, the possibility of a short-term delay in issuing the requested amendments was never raised in the documents prepared by the Staff, much less seriously weighed and then rejected. Ironically, this option was suggested to the Staff by a member of the ACRS several months before the EIA was issued. The response was curt and evidently final: "We would not delay this decision substantially just to obtain a great deal more [information] on alternatives."[2] This statement exemplifies the Staff's ignorance and disregard of the inflexible mandate imposed by NEPA.

Another violation of the Staff's duty to consider alternatives is admittedly somewhat puzzling to petitioners. In Table 5.2 of the EIA the Staff set forth the relative economic costs of three alternative means of disposing of the discarded steam generator carcasses. The Staff determined that on-site disposal (in the "engineered storage facility") was the preferable alternative, in

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1. 44 Fed. Reg. 4057 (Jan. 19, 1979). There has been no indication that either level will require derating.

2. ACRS Transcript at 20 (remarks of Mr. Grimes).

part because of its slightly lower price tag of $1 million. Yet, VEPCO stated flatly and repeatedly that the cost of this disposal method would be not one but $10 million.[1] Finding no plausible explanation for this mistake, petitioners can only note that had the correct $10 million figure been used, it would have made the "on-site disposal" alternative six times more expensive than the next expensive alternative.[2]

While the alternatives to a proposed action which must be considered under NEPA are not unlimited in scope,[3] they include those which take time to implement[4] or require a delay in the original proposal.[5] In the present matter,

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1. Repair Program at 5.2, 5.6.2.

2. Another factor which may have influenced the selection of the disposal alternative was the difficulty in meeting Department of Transportation regulations. See Repair Program at 5.5.2.2.

3. Natural Resources Defense Council v. Morton, 148 U.S. App. D.C. 5, 458 F.2d 827, 2 ELR 20029 (1972).

4. W. Rodgers, Environmental Law §719 at 793 n.61 and accompanying text (1977).

5. Despite the sense of urgency which commonly accompanies energy development projects, the courts have enjoined the construction of a power plant for failure of the sponsoring agency to consider the alternative of delay pending further environmental study, National Wildlife Fed'n v. Andrus, 404 F. Supp. 1245, 7 ELR 20426, 20530 (D.D.C. 1972), and have stopped an impending sale of leases for oil production rights on the outer continental shelf, in part for failure to address the alternatives of waiting for Congress to enact environmentally protective legislation. Massachusetts v. Andrus, ___ F. Supp. ___, 8 ELR 20187 (D. Mass.), affirmed, ___ F.2d ___, 8 ELR 20192 (1st Cir. 1978), injunction vacated for mootness, ___ F.2d ___, 9 ELR 20162 (1st Cir. 1979). See also 40 C.F.R. §1500.8(a)(4) (1978).

the Staff failed to consider the retubing alternative seriously and failed to consider short-term deferral of the action altogether, in both cases because of limitations of the "contemplated time frame."[1/] The likely consequences will be the possibly needless exposure of hundreds of individuals to substantial doses of radiation, the unnecessary creation of thousands of tons of radioactive waste, and the other avoidable adverse environmental impacts of the replacement project. In the interest of forestalling these consequences as well as setting right the review processes of the Staff, the Commission must act to require that this licensing decision be voided and reassessed in compliance with NEPA.

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1. Significantly, this time frame was that contemplated and desired by the licensee, not the Staff. See ACRS Subcommittee transcript at 18 (remarks of Mr. Grimes).

VI. The Staff Violated the Federal Water Pollution Control Act in Issuing Amendment Nos. 46 and 47 to VEPCO's Operating Licenses for the Surry Station.

As described in the licensee's Repair Program,[1] a key aspect of the steam generator replacement project is the construction of two "full-flow condensate polisher demineralizer systems." The function of these systems, to the extent that it can be deduced from the brief description provided by the licensee, is to remove waste products, including dissolved chemicals and suspended solids, from the secondary cooling system. Although the licensee's analyses of this liquid and solid waste show that it will contain significant concentrations of pollutants,[2] treatment will be provided only at the discretion of the licensee.[3]

The Federal Water Pollution Control Act (hereafter FWPCA) prohibits "the discharge of any pollutant by any person" except under the terms of a valid permit.[4] Petitioners assert, on information and belief, that the licensee has failed to obtain a National Pollutant Discharge Elimination System (hereafter NPDES) permit, or

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1. Repair Program at 5.3.2.3.2, 5.3.3.3.

2. The estimates presented in the Repair Program show that the waste generated by these systems each day will contain approximately 2540 ppm of Na_2SO_4 and 1800 ppm of $(NH_4)_2SO_4$.

3. Repair Program at 5.3.2.3.2.

4. 33 U.S.C. §1311(a) (1978).

an amendment to its existing NPDES permit for the Surry Station authorizing discharges from the demineralizer systems now under construction.[1] However, petitioners acknowledge that the appropriate forum in which to seek redress for this apparent statutory violation is the courts and not the Commission.

Of more direct relevance here is §401 of the FWPCA,[2] which provides that:

> [a]ny applicant for a federal license or permit to conduct any activity, including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the State in which the discharge originates. . . . No license or permit shall be granted until the certification required by this subsection has been obtained. . . .

The prohibition erected by this provision is unambiguous: there shall be no federal approval of any private activity which results in the release of any water pollutants unless the appropriate state has been duly notified and given an opportunity to hold hearings or conduct other proceedings incident to the issuance or denial of certification. Section 401 imposes "a kind of reverse preemption on"[3] and state veto power over[4] federally-approved actions

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1. Telephone conversation between James B. Dougherty and Vincent Carpano, Virginia State Water Control Board, April 13, 1979.

2. 33 U.S.C. §1341 (1978).

3. F. Grad, Treatise on Environmental Law, §3.03[5] at 3-137 (1978). See also DeRham v. Diamond, 343 N.Y.S.2d 84, 3 ELR 20237 (N.Y. Ct. App. 1973).

4. W. Rodgers, Environmental Law §4.2 at 367 (1977); R. Zener, "The Federal Law of Water Pollution Control," in Environmental Law Institute, Federal Environmental Law at 734 (Dolgin & Guilbert, eds.) (1974).

which result in discharges of water pollutants. It applies with full force to permitting activities of the Nuclear Regulatory Commission.[1/]

Petitioners assert, on information and belief, that the licensee has violated this provision in that it has neither requested nor obtained certification from the State of Virginia that effluent discharges from the new demineralizer systems will not exceed applicable state limitations. While this may be another instance in which technically there is no right of redress within the Commission, the licensee's violation of the law points up a clear violation of §401 by the NRC itself. Amendment Nos. 46 and 47 to the Surry operating license explicitly grant permission to perform the entire steam generator replacement program as described by the licensee, including the construction and operation of the demineralizer systems. Yet, under §401 a substantive environmental determination by the state stood as a congressionally-mandated precondition to final federal action on the requested operating license amendments. Thus, the Staff was legally powerless to grant the license amendments until the state's certification was in hand. The lack of state certification for the project renders the amendments legally void.

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1. See Calvert Cliffs Coordinating Committee v. Atomic Energy Commission, 449 F.2d 1109, 1 ELR 20346, 20354-55 (D.C. Cir. 1971); Rodgers, Environmental Law §4.2 at 367 (1977); Zener, supra, at 734.

VII. The Issuance of the Operating License Amendments Was Arbitrary and Capricious and Violated the Atomic Energy Act and the Administrative Procedure Act.

A. The Statutory Standards

The NRC operates under a singularly potent congressional directive to ensure that its activities are protective of the public health and safety.[1/] The Commission has recognized the strength of this commitment through decision[2/] and regulation.[3/] The recent decision to suspend the operating licenses of five reactors because of a possible threat to the public health and safety confirms that onerous financial burdens must be sustained if necessary to investigate possible health and safety risks.[4/] This mandate places severe constraints upon any attempt to "balance" adverse health effects against economic or other benefits of the agency's actions. The Commission does not enjoy wide discretion, when considering proposals such as the Surry steam generator replacement project, to reject or fail to investigate alternative courses of action which may hold promise for significant reductions in human exposure to radiation.

The Administrative Procedure Act sets substantive standards governing the quality of administrative decisions. It authorizes the

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1. 42 U.S.C. §§2012(d) and (e) (1978). See Crowther v. Seaborg, 312 F. Supp. 1205, 1216-17 (D. Colo. 1970).

2. Power Reactor Development Co., 1 AEC 128, 136 (1959) ("safety is first, last, and a permanent consideration").

3. See, e.g., 20 CFR §20.1 (radiation exposures and releases of radioactive effluents must be kept as low as is reasonably achievable).

4. See also Union of Concerned Scientists Petition for Emergency and Remedial Action, CLI-78-6, 7 NRC 400 (1978).

federal courts to set aside decisions found to be: "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law"[1] or "in excess of statutory jurisdiction, authority, or limitations, or short of statutory right"[2] or "without observance of procedure required by law."[3] The courts have served notice that they will take a searching and "hard look" at the reasoning and asserted bases of agency decisions.[4] Licensing agencies may not sit back and listen passively to representations of the applicant; where the information in an application is lacking or fails to fully analyze a reasonable alternative, the agency must act affirmatively to flesh out deficiencies in the information, including additional research within its competence if necessary, in order to improve its decision as well as to provide a record against which to better assess the soundness of that decision.[5] Failure to collect the necessary facts constitutes an abuse of discretion.[6]

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1. 5 U.S.C. §706(2)(A) (1978).

2. 5 U.S.C. §706(2)(C) (1978).

3. 5 U.S.C. §706(2)(D) (1978).

4. Citizens to Preserve Overton Park, Inc. v. Volpe, 432 F.2d 1307, 1 ELR 20053 (6th Cir. 1970).

5. Scenic Hudson Preservation Conference v. Federal Power Commission, 354 F.2d 608, 1 ELR 20292 (1965).

6. Xytex Corp. v. Schliemann, 382 F. Supp. 50 (D. Colo. 1974).

B. The Decision to Approve the Surry Project and the Choice of the Replacement Alternative Over the Retubing Alternative Were Based on Invalid Analyses of Occupational Radiation Exposures

A key element of the Staff's justification for its decision to approve the steam generator replacement project, as well as the decision to reject the retubing alternative, was its reliance on the licensee's prediction that the total occupational exposure resulting from the action would be 4140 man-rems. It will be shown below that this estimate is extremely unconservative and fallacious. Moreover, it is far, far below the estimate which was provided the Staff by Battelle Labs.

The Battelle study, which examined steam generator replacement "generically" by examining the facilities at Surry and three other plants, concluded that the dose exposures would fall within the range of 6600 to 11,600 man-rems.[1/] In the EIA and the SER, the Staff explicitly but without explanation stated that both of these figures represented upper-bound estimates.[2/] The disparity between the VEPCO figure and the Battelle lower figure was then discounted because of plans to use "extra" dose-saving

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1. Battelle at iii, 21.

2. EIA at 6, SER at 10.

techniques at Surry.[1] The figures of the experts at Battelle were thus rejected.

However, the Battelle study, to the extent that such extra techniques were in reality to be implemented at Surry, was premised on the adoption of such techniques and fully weighed their benefits.[2] There are no remaining grounds on which to rationalize the difference between the two sets of figures.[3] The Staff's endorsement of the VEPCO numbers was therefore arbitrary, unsupportable, and clearly erroneous.

The Battelle exposure estimates of 6600 to 1160 man-rems, when compared to the VEPCO estimate of 4140 man-rems, represents an

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1. Such techniques are described as (1) temporary shielding (EIA at 6, SER at 10); (2) local decontamination (EIA at 6, SER at 10); (3) raising steam-generator water level (SER at 10); and (4) remote tooling (EIA at 6, SER at 10).

Significantly, these techniques offer only marginal protection beyond that provided by the construction of local control structures and ventilation systems, the use of protective clothing, sound planning, and common sense.

2. (1) Temporary shielding was clearly factored into Battelle's estimates (Battelle at 3).
(2) Local decontamination, while not considered by Battelle, will apparently not be used at Surry (Repair Program at 5.5.2.1). This decision was evidently known to and approved of by the Staff (SER at 17).
(3) Increased steam generator water level was not factored into Battelle's upper-bound estimate, but was factored into the lower-bound estimate (Battelle at 27).
(4) Remote tooling was similarly required to achieve Battelle's lower-bound estimate (Battelle at 27).

3. There is little, if any merit to the Staff's claim that VEPCO's lower estimates are attributable in part to the "use of lower dose rates measured at Surry." EIA at 7. Battelle, after making direct radiation measurements at Surry, noted the uniformity of the observed dose rates. Battelle at 4. The study also noted the differences between its total man-rem estimates and VEPCO's (discussed below), yet stood by its figures. Battelle at 28.

increase by a factor of 1.6 to 2.8. On the surface this comparison may tend to support the Staff's decision to find the lower figure reasonable and rely on it. At any rate, on the basis of this superficial comparison, the Staff's decision might survive scrutiny under the judicially-constructed "arbitrary and capricious" test. A closer examination, however, shows the two sets of figures to be based on markedly disparate sub-estimates, and eliminates any rational basis on which to adopt the licensee's figures.

The Battelle and VEPCO radiation exposure estimates are aggregate figures composed of estimates of the doses involved in each of the roughly 50 sub-activities which comprise a steam generator replacement project.[1/] Not surprisingly, the Battelle and VEPCO exposure estimates for each sub-activity vary, due to differences in man-hour and radiation level estimates.[2/] In the case of most of the sub-activities, VEPCO anticipates the need for a greater number of man-hours of effort, but due to lower estimated radiation

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1. The Repair Program identifies 59 such sub-activities, each of which involves different amounts of labor and radiation exposure. As an example, if sub-activity A must be conducted in an area in which the radiation level has been measured at one man-rem per hour, and requires one man-hour to accomplish, the contribution of that sub-activity to the overall project exposure would be one man-rem. If sub-activity B can be conducted in an area in which the radiation level is only one millirem per hour, but requires 1,000 man-hours to accomplish, the contribution to the aggregate exposure estimate would also be one man-rem.

2. The respective step-by-step estimates are found in Battelle at 22-26 and Repair Program at Table 5.3-1. Comparison of these estimates is made difficult by fact that VEPCO's tabulations are expressed in terms of man-rems per unit, while Battelle refers to man-rems per generator, of which there are three in a unit.

levels, the total exposure rate for the sub-activity falls within the general range of the Battelle estimate. In four notable cases, however, the respective estimates are so wildly divergent that the conclusion that one of the figures is wrong is inescapable. In each case the VEPCO estimate is the smaller. The difference in estimated exposure attributable solely to these four sub-activities is 8,712 man-rems. This is more than double the licensee's estimate for the entire project, and is equivalent to the occupational dosage that would be sustained at a normally operating reactor over half of its useful life.

The four sub-activities and the respective estimates of radiation levels and total exposures are shown below.[1/] It is evident that the discrepancies in estimated exposure are due to VEPCO's lower estimates of radiation levels: for the fourth sub-activity (installation of reactor coolant piping) VEPCO's estimate is only four percent of Battelle's. Surely neither the licensee nor the NRC Staff can justify this difference on the basis of marginal dose reduction techniques such as extra

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SUB-ACTIVITY	ESTIMATED RADIATION LEVEL (man-rems/hr.)		TOTAL OCCUPATIONAL EXPOSURE (man-rems	
	Battelle	VEPCO	Battelle	VEPCO
Cut and remove reactor coolant piping	0.5	0.05	1140	298
Cut steam generator wrapper	2.0	no estimate	1140	no estimate
Disassemble steam generator supports	0.2	0.02	432	32
Install reactor coolant piping	0.25	0.01	6000 *	135

* The Battelle study states that this figure can be reduced by up to one-half through the use of remote welding techniques. (p. 27). VEPCO has expressed an intent to do so.

temporary shielding.[1]

A man-rem is not a jellybean; it represents a sizeable quantum of human health damage which is equivalent in a crude sense to the receipt of 40 medical x-rays. It is therefore unconscionable and violative of statutory mandate for the Staff to casually dismiss Battelle's considered warning that the proposed action involves unprecedented thousands of man-rems, and to adopt the licensee's disquietingly flimsy estimate as "reasonable." It was incumbent on the Staff under the Atomic Energy Act and NEPA not to accept the licensee's reassurances at face value,[2] but to probe beneath the surface of the licensee's submittals in order to reach an independent judgment. It was arbitrary, capricious, and a clear error of judgment to give more weight to the licensee's data than that of an expert, independent contractor. To the limited extent that decisions affecting the public health and safety fall within the Staff's discretionary authority, it abused that discretion in authorizing the proposed replacement project instead of the retubing alternative, which promised to result in far less radiation injury to the public. The Staff's decision was indefensible and should be reversed.

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1. See p. 43, note 2, above.

2. The Staff might be on somewhat firmer ground if the disparity in estimates were due to lower estimates by VEPCO of the amount of labor needed to accomplish the job. Deference might plausibly be given to the licensee's considerable experience in attempting to repair nuclear power plants. But the disparity is actually due to different estimated levels of radiation. In such matters the opinion of Battelle, an acknowledged authority in the field, should be accorded greater deference.

C. The Staff's Calculation of the Economic Cost of the Project Was Misleading and Invalid.

The Staff's estimate of the economic cost of the project[1] purports to concur with and is based directly on the figures submitted by the licensee. According to VEPCO, the total project cost of $142 million is broken down as follows: $66 million for purchasing and installing the new steam generators, $66 million for purchasing replacement power during reconstruction, and $10 million for disposal of the wasted steam generators in the on-site long-term waste disposal facility.

Although the Staff agreed that replacing the steam generators and purchasing replacement power would each cost $66 million, it represented that the cost of disposing of the wasted steam generators would be only $1 million, not the $10 million estimated by the licensee. No explanation for this radical difference in estimates was provided, despite the fact that $1 million is on its face too conservative an estimate for construction of this large concrete and steel facility, including the ultimate costs of "sectioning and shipment to a licensed burial facility" some 30 years hence. Even more puzzling is the Staff's explicit assertion that the VEPCO estimate was $1 million[3] when in reality the VEPCO estimate was quite plainly $10 million.[4]

Thus, the licensee's estimate of the total economic cost of the project was $142 million, while the Staff's was $133 million.

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1. See EIA at 14.
2. See Repair Program at 5.2.
3. EIA at 14.
4. Repair Program at 5.2, 5.6.2.

Neither of these estimates includes the estimated cost of construction of the two new demineralizer systems, which were projected by the licensee to cost $27 million, or 20 percent of the total project cost.[1/] These figures are important because they formed the basis for the cost-benefit justifications for the project. The licensee reported that the cost-benefit analysis for the project resulted in a net benefit of $125 million, based on the economic cost of not replacing the steam generators over the 30 remaining years of expected plant life. Although the Staff found this estimate reasonable, its calculations were clearly based on only a 10 year period of cost savings. How is it that the licensee projected its cost-benefit analysis over a 30 year period, the Staff projected its cost-benefit analysis over a 10 year period, yet both reached the same result? If there is a valid answer to this question, it is hidden in the confusing summary of the Staff's findings. If the licensee can properly utilize a 30 year projection and the Staff can properly utilize a 10 year projection, is there any less basis for using a five year or even a 50 year projection? There is no way of telling from the relevant documents.

This is the third instance in which the Staff evidently juggled dollar estimates to order to obtain support for the desired conclusion. The brief and vague summary of the economic justification for the project within the EIA contains no evidence tending to rebut these strong suggestions of bad faith. The Staff's

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1. Repair Program at 5.3.3.3. While the licensee's assertion that such costs need not be factored into the cost-benefit analysis is subject to serious question, there is no justification for the Staff's failure to reveal within the EIA the full magnitude of the proposed action.

economic calculations are strewn with illogic and obvious misinformation, and thus tend to cloud rather than illuminate the issues for the public and reviewing courts. These defects, particularly when viewed together with the Staff's clearly deficient consideration of the radiological impacts of the project, constitute arbitrary and capricious behavior under the Administrative Procedure Act.

Under the Atomic Energy Act, the authority to license nuclear facilities carries with it the duty to perform independent, painstaking, and highly expert analyses of the lying the pr posed issuance of licenses or license amendments. The paramount objective is the prevention of human exposure to radiation hazards. The amendments to the operating licenses for Surry Units 1 and 2 were issued in flagrant violation of these substantive mandates and limitations, and the Commission must act to assure that they are reconsidered anew.

VIII. The License Amendments Were Issued Contrary to NRC Regulations

A. The License Amendments Authorize a Material Alteration of the Surry Station; Therefore the Issuance of a Construction Permit Was Required Under NRC Regulations

10 CFR §50.91, governing the issuance of amendments to construction permits and operating licenses, provides that whenever application is made for an amendment to an operating license, if the application involves a "material" alteration of the licensed facility a construction permit must be issued prior to the issuance of the operating license amendment.[1/] 10 CFR §50.54(n) prohibits any alteration constituting a change in a plant's technical specifications without obtaining a construction permit. Petitioners assert that the proposed modification of the Surry plant involves several changes which are both independently and

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1. Petitioners note at the outset that the Surry project constitutes an "alteration" of the facility. The intent of this provision is that significant plant reconstruction be authorized only through construction permits, not amendments to operating licenses. It follows that the term "alteration" as used in §50.91 is equatable with the term "reconstruction;" i.e., it is not limited strictly to plant reconstruction activities which result in a plant configuration different from that prior to the construction, but includes any material rebuilding. If, for example, due to unforeseen circumstances it became necessary to reconstruct an entire containment building, a construction permit would be required even if the new plant were built to the exact specifications of the old. The function of §50.91 would thus be simply to remove the requirement of a construction permit for reconstruction activities which are "immaterial."

Given this interpretation of §50.91, the question of whether a construction permit must be obtained for the Surry project turns on whether the replacement and redesign of all of a PWR's steam generators, when added to the other planned modifications of the Surry Station, should be deemed "material" reconstruction. Merely asking the question seems to provide the answer.

cumulatively far more than material for purposes of §50.91.

First, the project includes construction of two new buildings on the site which were not contemplated within the original construction plan. The "engineered storage facility" for long-term waste storage will be built on a separate corner of the site. It will be a massive structure requiring 6000 tons of concrete, will constitute a new source of radiological emissions, and will require the adoption of new operating procedures for radiological monitoring, security, etc. An entirely new building will also be constructed to house the new demineralizer systems. No details as to the characteristics of this building have been made available by the licensee or the Staff, but it is clear that it will house an extensive array of tanks and associated piping.[1/] If the cost of newly-added eatures is any determinant of the materiality of the proposed alteration under §50.91 (and petitioners contend that it should be), then the demineralizer facility is indeed material: the estimated cost is $27 million. The systems housed therein will also constitute a new and material source of effluent discharges from the plant.

In addition, the licensee plans to effect "major"[2/] modifications in the structural design of the steam generators. These changes are far from cosmetic; they will upgrade the design of the steam generator to "state-of-the-art" technology.[3/] The "evolutionary

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1. See Repair Program at 5.3.2.3.2., 5.3.3.3.

2. SER at 3.

3. Repair Program Abstract.

features"[1] of the new design have been categorized by the licensee into (1) design improvements to prevent and inhibit corrosion,[2] (2) design refinements to improve performance,[3] and (3) design changes to improve maintenance and reliability.[4] The new steam generators will feature longer tubing and will have 46 fewer tubes.[5] In addition, at least 2,900 cubic feet of concrete will be removed from walls and "other structures" within the containments.[6]

However, too close an analysis of the details of the licensee's plans may tend to obscure the materiality of the proposed reconstruction of the Surry Station. From a more distant perspective the magnitude of the operation emerges. It will cost

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1. Repair Program at 2.2.1.

2. See Repair Program at 2.4. The eight major changes in this category include the use of different types of metals as well as structural modifications designed to increase the circulation flows within the steam generators.

3. See Repair Program at 2.5. Among the changes in this category is the replacement of the three moisture separators now found in the upper assembly of each steam generator with 16 moisture separators.

4. See Repair Program at 2.6. These design improvements include the installation of 48 tons of stainless steel insulation.

5. SER at 46.

6. SER at 22.

$168 million at a minimum. For more than a year the site will be swarming with hundreds of construction workers on a 24-hour basis. Barges will be making 220-ton deliveries, and huge transporters will be toting new and used steam generators around the site. Various permanent and temporary buildings will be under construction, roads will be built, and inside the containment the activity will be even more intense.

Construction activities of this scale and complexity require construction permits, in part simply to assure worker safety through compliance with NRC standards.[1] Secondly, activities of this scale raise important issues such as the structural integrity of the plant components and the environmental impacts of the construction process itself. Section 50.91 requires that a construction permit be obtained for such activities. One effect of the requirement is to make mandatory the holding of a public hearing at which the licensee has the burden of proving that it will satisfy applicable regulatory requirements.

B. The Steam Generator Replacement Project Provides for Long-Term Disposal of Nuclear Waste Without Receipt of Commission Approval as Required Under NRC Regulations

10 CFR §20.301 prohibits disposal of "licensed material"[2] except as authorized in parts 30, 40, or 70 of 10 CFR, or as

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1. See 10 CFR §50.40(a) (1978).

2. The term "licensed material" is defined in 10 CFR §20.3(a)(8) to include "byproduct material," which is defined in 10 CFR §20.3(a)(3) to include all material made radioactive incident to the commercial use of nuclear fission to generate electricity. Therefore, the radioactive steam generators from Surry constitute "licensed material."

authorized pursuant to 10 CFR §§20.106, 20.302, 20.303, or 20.304. None of these provisions is applicable to VEPCO's construction of a long-term waste storage facility and the disposal of the six steam generators.[1/] Neither the licensee nor the Staff has presented any explanation as to why a license under part 20 was not sought or required. Even if the Staff were in the future to treat the Repair Program as the basis for an application for a part 20 license, it would be inadequate under §20.302 because it fails to provide information concerning meteorological conditions, the local usage of ground and surface water, and other local conditions. Therefore, any attempt by the licensee to dispose of the discarded steam generators in a fashion not authorized by the terms of its operating license prior to the issuance of amendment Nos. 46 and 47 would constitute a clear violation of the Commission's regulations.

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1. 10 CFR pt. 30 is the only portion of NRC's regulations which is even arguably applicable to the disposal of the Surry steam generators, but it appears to apply to the possession and use of byproduct material, and not its disposal.

C. The Steam Generator Replacement Project Violates NRC Regulations Requiring Occupational Radiation Exposures To Be Kept as Low as is Reasonably Achievable.

10 CFR §20.1 requires that licensees maintain occupational exposure to radiation "as low as is reasonably achievable" (ALARA). As explained within Regulatory Guide 8.8,[1] the duty to keep exposure ALARA does not impose quantitative dosage limitations. Rather, ALARA is a philosophy reflecting a duty to prevent all unnecessary human exposure to radiation. This duty falls on the NRC and its licensees through the Atomic Energy Act's strict mandate to protect the public health and safety.

VEPCO has openly repudiated the concept of ALARA: "[a] lot of Regulatory Guide 8.8 is quite frankly not applicable to the work we have now."[2] The Staff's enforcement of the ALARA requirement is no less heartening: when asked by an ACRS member whether the Staff was satisfied with VEPCO's commitment to ALARA, Mr. Barrett of the staff replied that although VEPCO's statements regarding the issue were "weasel-worded," the Staff decided not to "push the issue" because of confidence in the utility.[3] These statements, as corroborated by the Staff's summary dismissal of the Battelle radiation exposure calculations, reveal a flagrant disregard of statutory obligations which demands swift rebuke and rectification by the Commission.

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1. Rev. 2 (Mar. 1977).
2. ACRS Transcript at 145 (remarks of VEPCO spokesperson Benton).
3. Id. at 164.

Of more immediate concern is the actual human impact flowing from the position of the Staff and the licensee. The workers at Surry are now in the preliminary stages of an operation which, according to Battelle Laboratories, involves radiation exposures that are quite likely unprecedented in the history of the commercial nuclear power program. The licensee has declined to adopt several program options which would reduce these exposures,[1/] and has denied any obligation to comply with Regulatory Guide 8.8. The Staff has acquiesced in the judgment of the licensee and has declined to independently analyze the issue within a formal proceeding or through preparation of an environmental impact statement.

Petitioners contend that 10 CFR §20.1 is a mandatory limitation on which the public, particularly employees at nuclear power plants, relies. The Commission must act promptly to enforce it.

D. The Steam Generator Replacement Project Constitutes a Partial Dismantling of Units 1 and 2 Without Receipt of Commission Approval as Required Under Its Regulations.

10 CFR §50.82 provides in relevant part:

> Any licensee may apply to the Commission for authority to surrender a license voluntarily and to dismantle the facility and dispose of its component parts.

Although this provision is ostensibly cast in nonmandatory terms, petitioners assert that, on the contrary, it may be properly construed only to impose a mandatory duty upon licensees. Although

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1. The rejection of the retubing alternative is discussed at p. 30 above. See also, e.g., Repair Program at 5.5.2.1.

the dismantling of a nuclear power station has for obvious reasons not been a common occurrence, it is indeed a critical event from many standpoints. The magnitude of the environmental impacts and occupational exposures resulting from such an action necessitate the exercise of the Commission's licensing powers under the Atomic Energy Act. The reasons are obvious. Dismantling involving construction activities and occupational exposure rates on which virtually no information is currently available. Experience gained in the construction of nuclear facilities is essentially irrelevant to the matter of taking them apart. Dismantling also requires that some thought be given, probably for the first time, to the question of what to do with the radioactive scrap which remains. Such an action would also constitute a change in the facility under 10 CFR §50.54(n), thus requiring NRC review. Therefore, the dismantling of a plant requires the issuance of an appropriate order under 10 CFR §50.82.

Given that the dismantling of a plant requires NRC approval under §50.82, it follows that the partial dismantling of a plant, such as the Surry action, requires the same treatment The Surry action involves the same unknowns as a full dismantling. For example, it involves the use of more than 100,000 man-hours of labor within the containment itself.[1/] This is worlds apart from anyone's experience with typical license amendments. The Surry action also required consideration of another issue which is unique to the dismantling problem: what to do with the massive

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1. Battelle at 22-26.

quantities of [illegible]ess and radioactive components? In this ins[illegible] Staff accepted the licensee's proposal for on-site disposal within a specially constructed long-term storage facility of untested design. But there are certainly many alternative ways of disposing of wasted plant internals, all of which merit thorough, and probably generic review by the NRC.

The Commission has failed to recognize that the time when the dismantling problem must be addressed is not 20 years ahead of us, but is in fact behind us. The recent accident at Three Mile Island underscores the current reality of partial dismantling, and highlights the need for §50.82 review of the operating procedures and waste disposal techniques involved. VEPCO's failure to obtain §50.82 approval of the Surry steam generator replacement program violates NRC regulations.

IX. Relief Requested

This petition has documented numerous violations by VEPCO and the NRC staff of duties imposed by statute and regulation. Substantial injury has already begun to flow from these violations. The construction workers performing the steam generator replacement are now in the early stages of receiving radiation doses which may run as high as 10,000 man-rems. Surry Unit 2 has been shut-down, thereby requiring the purchase of replacement power which will adversely affect the environment and the economic well-being of VEPCO ratepayers. The petitioners have been denied their right to obtain the product of a full environmental review under NEPA. The public has been denied its right to full and fair decisionmaking by the NRC, including the sober analysis of the replacement action in its proper light: as the first in a series of material renovations of nuclear reactors.

The Atomic Energy Act and the regulations of the Commission confer upon it full authority[1/] to issue the relief necessary to remedy these injuries:

(1) The Commission shall suspend VEPCO's operating license No. DPR-37 and order that the Surry steam generator replacement project be brought to an immediate halt. Another day's progress in the action will result in needless human exposure to radiation and irrevocably tilt the cost-benefit balance against alternatives

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1. See, e.g., 42 U.S.C. §§2236, 2237; 10 CFR §55.40(b) (1978).

which may be determined subsequently to be preferable.[1/]

(2) The Commission shall direct the Director of Nuclear Reactor Regulation to serve upon VEPCO an order to show cause at a public hearing why operating license no. DPR-37 should not be suspended pending performance of the environmental studies and other relief described below.

(3) The Commission shall direct the NRC staff to prepare an environmental impact statement addressing the Surry project.

(4) The Commission shall direct the NRC staff to prepare a programmatic environmental impact statement addressing the cumulative environmental impacts and the long-range policy implications of current and future steam generator replacement and repair projects.

(5) The Commission shall prohibit the NRC staff from reinstating operating license no. DPR-37 or permitting further progress on the Surry steam generator replacement program until it has fully reviewed and satisfied its obligations under the following sections of the regulations, including the making available an opportunity for a public hearing:

(a) 10 CFR §20.302, requiring NRC approval of proposals to dispose of nuclear waste;

(b) 10 CFR §50.82, requiring NRC approval of proposals to dismantle nuclear powerplants; and

(c) 10 CFR §20.1(c), requiring occupational radiation exposures to be maintained as long as is reasonably achievable.

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1. See Coalition for Safe Nuclear Power and Living in a Finer Environment v. Atomic Energy Commission, 463 F.2d 954, 2 ELR 20150 (D.C. Cir. 1972); In the Matter of Public Service Company of New Hampshire (Seabrook Station, Units 1 and 2), CLI-78-1, 7 NRC 1, 30 (1978).

(6) The Commission shall prohibit VEPCO from making any modification to the Surry facility resulting in discharges into navigable waters until it has obtained from the State of Virginia an NPDES permit or an amendment to its current NPDES permit for the Surry plant, as required under, e.g., §§301 and 402 of the Federal Water Pollution Control Act, 42 U.S.C. §§1311 and 1342.

(7) The Commission shall prohibit the staff from approving any modification of the Surry facility resulting in discharges into navigable waters until it has received from the State of Virginia the certification required under §401 of the Federal Water Pollution Conrol Act, 42 U.S.C. §1341.

(8) The Commission shall notify all Atomic Safety and Licensing Boards, as appropriate, of the above actions and shall prohibit the issuance of any permit, license, or amendment thereto allowing the replacement or repair of steam generators pending the completion of the environmental impact statements and other studies described above.

Petitioners urge the Commission to respond to this petition without delay. The imminence and gravity of the harms sought to be remedied demand immediate remedial action. A less than expeditious response will necessitate resort to alternative avenues of relief.

Respectfully submitted,

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I hereby affirm that the facts alleged herein are correct to the best of my information and belief.

James B. Dougherty

Dated this 18th day of April, 1979, at Washington, D.C.