

hurriedly raze structures, sweep the radioactive mess under a porous and permeable carpet (or disperse the remains and cleanup materials in many unregulated forms far from the reactor site), cut corners and add risks and contamination to an already precarious clean-up operation. The public must be protected.

Our specific concerns are as follows:

Relegation of More Decommissioning Processes to Generic Status

- CL-47/10 In establishing 80% (24 of 30) of the environmental impacts of decommissioning as being "generic" the NRC is doing the industry's bidding to restrict or eliminate the affected public's opportunities to comment on, guide, monitor and review the decommissioning of nuclear power reactors in their communities. Regardless of any uniformity that may or may not exist as issues to consider at decommissioning reactors - and our position is that any concerns of the relevant communities are site-specific - the NRC's move to make most considerations within the decommissioning process "generic" is a thinly veiled project to eliminate public review and full disclosure through public hearings. Further, this move runs counter to NRC's "Openness" Principle of Good Regulation, wherein "Nuclear regulation is the public's business, and it must be transacted publicly and candidly. The public must be informed about and have the opportunity to participate in the regulatory processes..." and to NRC's Organizational Value of "Service to the public, and others who are affected by our work." (both found at <http://www.nrc.gov/who-we-are/values.html>)
- CL-47/11
- CL-47/12

Arbitrary and Capricious Determination of "Levels of Significance" for Decommissioning Environmental Impacts

- CL-47/13 NRC's "Levels of Significance and Accountability of Environmental Impacts" assign values of risk to affected communities as "small," "moderate" and "large" as determinants for the denial or approval of a public site-specific review and, potentially, a public adjudication for environmental mitigation. Public Citizen maintains that these categories are excessively arbitrary and broad, and largely groundless for the following reasons:
1. The biological effects of ionizing radiation are destructive. No safe "threshold level" for exposure to ionizing radiation exists for the general population (including the fetus).
 2. There is a long history of unresolved regulatory conflict over radiation protection standards that are utilized to determine NRC risk assessments. Federal regulators, including the NRC and the Environmental Protection Agency, have not reached a consensus on residual radiation criteria for decommissioning, with EPA standards being significantly lower (more protective) than NRC criteria. To our knowledge, this conflict has not been resolved and, therefore, it appears that the NRC has unilaterally and arbitrarily concluded what standards would apply in determining whether a risk is "small," "moderate" or "large."

3. The NRC risk assessment inappropriately ignores the population of children in its "critical group" evaluation as the population most vulnerable to residual radioactivity exposure from decommissioning operations. This runs counter to NRC's Organizational Value to a "Commitment ... to protecting the public health and safety."
4. The NRC has a documented history of significant lapses in effective oversight of decommissioning operations as reported by the General Accounting Office in a May 1989 report, "NRC's Decommissioning Procedures and Criteria Need to be Strengthened" (GAO/RCED-89-119). The GAO not only found that complete information does not exist for all licensed activities or buried wastes, but that NRC was found to have terminated a license with radioactive contamination in excess of its own guidelines. Further, the report noted that NRC regulations lacked a time requirement for document retention. NRC's questionable past performance does not support the agency's move toward generic treatment of decommissioning nuclear facilities where affected communities are denied public review and full disclosure of contamination, the decommissioning plan and license termination plan.

Rubblization

- CL-47/14 NRC's proposal to allow "rubblization" (defined as: "the demolition of onsite concrete structures. Rubblizing these structures could result in material ranging from gravels to large concrete blocks, or a mixture of both.") of concrete structures at the reactor site to take place without opportunity for public intervention until after the action is completed is outrageous. Rubblization poses some specific risks to the surrounding communities and the site workers, as the rubblized material could contaminate via air, soil, and water pathways. Thus, Public Citizen insists that it is only appropriate that the affected communities surrounding the reactor site be given opportunities to review rubblizing plans and procedures, and that this issue be addressed on a site-specific basis.
- CL-47/15

Partial Site Release before License Termination

- CL-47/16 The Supplement indicates that portions of a nuclear reactor site could be released from regulatory control prior to the site operator's license termination. This would relieve the nuclear utility of responsibility and liability for portions of sites (be they materials or real property) while still being licensed for the control of the entire site. Public Citizen is completely opposed to any such practice, which would allow radiation/radioactively-contaminated materials and wastes to be released, reused, or recycled, without restriction, into the unregulated industrial, commercial, and public environment.

Externalizing Costs to Ratepayers/Taxpayers

- CL-47/17 Public Citizen is opposed to any policy that would shift the financial burden of decommissioning to ratepayers. The cost of properly decommissioning (including thorough decontamination) a reactor site can vary widely, depending on the size of the facility, the amount of time in which it was operational, and the degree of contamination.

Letter 47, page 5

Doris Mendiola - 1-30-02 - PC Comments on NRC's Decomm GEIS Supplement - NUREG-0586 doc

Page 4

As the NRC itself stated in the Supplement, the lack of adequate decommissioning funds can potentially result in delays and/or unsafe and improper decommissioning. Further, with utility deregulation and the attendant shuffling of corporate ownership, much uncertainty has developed regarding the ability of the owning and operating utilities to pay for proper decommissioning of their facilities. Public Citizen insists that site-specific reviews are necessary so that the public has an opportunity to ensure that the utility will be able to pay for the entire, thorough decommissioning process.

Relevance of "Out-of-Scope" Activities

CL-47/18

There are several issues in the Supplement which are briefly addressed and dismissed as "out-of-scope" which we insist need to be dealt with as site-specific issues for any thorough EIS on decommissioning, with full public rights to hearings, review, oversight, and disclosure maintained. These include:

1. Spent fuel storage and maintenance - The public at each reactor site community should determine how irradiated/"spent" fuel is stored/dispositioned. If a centralized high-level waste repository is opened at some future date to accommodate the irradiated fuel and high-level waste from a community's decommissioned reactor, the communities that exist along the possible transportation paths should also be involved in site-specific environmental impact reviews/assessments. To exclude spent fuel storage, maintenance, transport, and disposal away from the reactor location from the scope of this GEIS/Supplement, and the opportunity for site-specific EIS reviews, is arbitrary and capricious.
2. Low-level waste disposal at a LLW site - The concept of rubblizing and capping a reactor site and allowing it to function as a low-level waste disposal facility without having the appropriate permitting and licensing hearing process is a serious departure from past NRC licensing practices, and any such "rubblizing" proposal should not be approved without a site-specific EIS review. To exclude this or any similar proposal from a site-specific EIS review, and the scope of this GEIS/Supplement, is arbitrary and capricious.

Please enter these comments into the public record.

Sincerely,

David Ritter
Policy Analyst
Public Citizen/Critical Mass Energy and Environment Program

November 2002

Letter 48, page 1

Letter 48, page 2

Doris Mendola - NIRS, WMEAC, DWM, CNFGL Comments on DGEIS Supp 1

Page 1

From: dianed@igc.org
To: <dgeis@nrc.gov>
Date: 1/30/02 4:55PM
Subject: NIRS, WMEAC, DWM, CNFGL Comments on DGEIS Supp 1

TO: NRC
FROM: NIRS, WMEAC, DWM, CNFGL
RE: Comments on NRC Draft GEIS Supplement
Decommissioning of Nuclear Facilities
NUREG 0586 draft supp 1

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48

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Doris Mendola - NRC Decommissioning GEIS Supp 1 Comment multipg final doc

Page 1

January 30, 2002

Chief, Rules and Directives Branch
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Washington, DC 20555-0001

Nuclear Information and Resource Service (NIRS)
Coalition for a Nuclear Free Great Lakes (CNFGL)
Don't Waste Michigan (DWM)
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Comments on Decommissioning GEIS Supplement 1

To Whom It May Concern:

Pursuant to the Federal Register Notice of November 9, 2001 on the availability of the draft supplement to the Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities (NUREG-0586) for public comment, Nuclear Information and Resource Service, Coalition for a Nuclear Free Great Lakes and Don't Waste Michigan provide the following comments.

CL-48/1

NIRS reiterates and incorporates our previous comments and fundamental disputes with regard to the decommissioning GEIS as submitted in formal comments to NRC on July 11, 13 and 14, 2000. Our organizations request that NRC include with this submission all of our organizations' previous comments on this and related rulemakings (including but not limited to the environmental procedures on BRC and those that led to the development of 10 CFR 20 section E, the License Termination Rule). Our organizations continue to assert that NRC is deferring its regulatory responsibility of radiological decommissioning to facilitate a cost driven utility self assessment through an expedited decommissioning licensing process and by restricting a duly promulgated public hearing process for affected communities as embodied under the 1988 law. We contend that decommissioning practices on nuclear facilities and its environmental impacts as major federal actions must be conducted under public review with full disclosure and documentation of the amount of radioactivity, the location of residual contamination and the types of radioactive contamination that remain on-site and off-site and are subject to site specific public hearings.

CL-48/2

CL-48/3

CL-48/4

CL-48/5

The NRC claims the agency and the industry have accumulated substantial decommissioning experience and that this is justification for hastening the generic treatment of Environmental Impact Statements. In effect, this eliminates meaningful public involvement in site-specific reviews and prevents the necessary full disclosure of nuclear facility contamination and decommissioning practices. The fact is that decommissioning has a long and significantly checkered regulatory history. The draft supplement to NUREG-0586 does not address or acknowledge these repeated oversight failures including numerous decommissioning experiences where licensees did not adequately decontaminate their facilities. These failures include but are not limited to:

- the NRC does not know the types, amount and location of buried radioactive waste at some of its decommissioned facilities;
- many licensee decommissioning records are nonexistent or incomplete;
- ground water contamination is higher than federal drinking water standards allow and
- the long standing failure of the responsible federal regulatory agencies to prevent and prohibit radiation contamination that can remain after the NRC terminates a nuclear facility license. (The Environmental Protection Agency is on record requiring more protective cleanup levels than NRC, evidence that NRC's requirements are inadequate.)

CL-48/6

These events do not warrant nor should they instill public confidence in staff conclusions that the agency and the industry can reasonably make the leap to the generic treatment of environmental impact statements for decommissioning nuclear facilities and effectively take away a community's review and the

P-195

NUREG-0586, Supplement 1

Letter 48, page 3

Dona Mendiola - NRC Decommissioning GEIS Supp 1 Comment multipl final doc

Page 2

full disclosure of the extent and location of radioactive contamination both on and off site.

CL-48/7

Our organizations are fully supportive of the permanent closure of nuclear power reactors. Our decommissioning comments are not intended to deter or delay the soonest possible shut down of nuclear reactors. Our goal is to require that nuclear facility owners and operators, to the best of their ability, function as the good neighbors and responsible corporate citizens they claim to be. That would include fully encapsulating and isolating all of the wastes and radioactively and chemically contaminated materials resulting from their operations and decommissioning. It includes doing everything possible to:

- 1) Prevent public exposures in the current and future generations to radiation and chemicals from nuclear power production, waste management, transportation, "clean up" and decommissioning.
- 2) Prevent additional environmental contamination both on-site and off-site and to remediate and minimize that which has already occurred;
- 3) Paying the full costs for long-term monitoring and isolation of radioactive wastes. Decommissioning should not end up as a new set of public subsidies for nuclear power by allowing the long term costs (economic, health, resource, etc.) to be denied, ignored or defined away by NRC with no recourse for the local community or state and federal taxpayers that will end up with the costs by default.

CL-48/9

CL-48/10

Inherent in the decision to operate the reactors is an acceptance on the part of the generator and the regulator of the production of long-lasting radioactive waste and radioactive and chemical contamination of large volumes of resources. Decommissioning should include responsibly managing that material, not denying its existence.

The Commission's Definition of Decommissioning is Fundamentally Flawed and Limited in Scope

CL-48/11

Our organizations have a fundamental dispute with the Commission's definition of decommissioning. The NRC currently defines decommissioning as "to remove a facility or site safely from service and reduce residual radioactivity to a level that permits (1) Release of the property for unrestricted use and termination of the license; or (2) Release of the property under restricted conditions and termination of the license."

Decommissioning should not permit the release of radioactive contamination from regulatory control and the control of some identified responsible party. At public meetings (in 1993 and in 2001) across the country on the issue of "clean-up," the public consistently called for continued regulatory control over any and all wastes, materials, properties and sites with contamination from nuclear power and weapons fuel chain activities. Rather than requiring the identification, capture and isolation of the remains of nuclear power operations, NRC is legalizing the release of contaminated sites, properties, materials and natural resources. By segmenting the portions of the decommissioning process into separate Environmental Impact Statements and supplements, the public is prevented from addressing the amount and method of identifying residual contamination of the environment, natural resources, the community and downstream and downwind ecosystems. The public is prevented from addressing and preventing the concept of allowable doses to the public from nuclear power operation, wastes and decommissioning activities. We protest the designation of issues related to allowable contamination levels and doses being deemed "out of the scope" of this document.

NRC ignores "offsite" radiation exposure.

CL-48/12

This agency's definition of "decommissioning" is fundamentally flawed in limiting its scope of "property" to the site boundaries. The NRC scope needs to be broadened to encompass the decontamination or mitigation of "property" in addition to structures, systems and components of the nuclear power station that exist beyond the fence line that have been contaminated none the less as a direct result of station operation.

Letter 48, page 4

Dona Mendiola - NRC Decommissioning GEIS Supp 1 Comment multipl final doc

Page 3

1) Radiological effluent pathways from nuclear facilities (water and air) must be included in the decommissioning analysis and mitigation plan.

CL-48/13

Nuclear facility operation results in significant offsite radiological contamination that is ignored under the current definition. For example, one known pathway occurs over the course of reactor operation as the direct result of fuel rod degradation giving way to pin-hole leaks, cracks and loss of rod integrity with radioactive contamination to the reactor coolant system. Primary and secondary coolant piping leakage results in radioactive contamination releases being deposited and accumulated as sediment on river and lakebeds and coastal receiving waters from deteriorated reactor coolant discharge systems. This is of particular more concern for utilities that operated once-through cooling systems and/or boiling water reactor technology though not exclusively so. Some of our organizations are aware that reactor operators, as in one case of the Big Rock Point nuclear generating station, have argued that offsite radioactive sediment areas should not be disturbed by removal/decontamination efforts and are better left alone than decontaminated. The decommissioning definition does not require the utility to analyze the scope of this offsite contamination, consider its cleanup nor effectively regulate the enforcement of decontamination of residual radioactivity that has migrated from the reactor site and accumulated off site in affected communities resources such as fresh water supplies. These adventitious releases of radioactivity as the result of station operation need be covered within the scope and disclosure as environmental impacts within the decommissioning process.

NRC in its evaluation of the environmental impacts acknowledges "Levels of radionuclide emissions from facilities undergoing decommissioning decreased, because the major sources generating emissions in gaseous and liquid effluents are absent in facilities that have been shut down." Consequently, the NRC currently only considers radiological effluent impacts as a result of decommissioning operations while ignoring the potential need for mitigation of cumulative and persistent toxic radioactive materials deposited downstream over the decades of operation of a reactor.

CL-48/14

2) The contamination of soil, land and property beyond the station boundary line must be included in the decommissioning analysis and plan.

Offsite migration of radioactive materials has occurred through both deliberate and inadvertent removal of materials originally contaminated onsite (tools, concrete construction blocks, etc.) For example, concrete cinderblocks used to construct a shield wall at the Connecticut Yankee's Haddam Neck nuclear power station were inappropriately distributed to affected communities as construction materials for buildings including a children's daycare facility. We believe the Connecticut Yankee incident is not an isolated case. The scope of the current definition does not provide for the investigation, analysis and mitigation of radioactive materials, equipment and components originating from a nuclear facility that have been deliberately or inadvertently released to affected communities.

CL-48/15

3) The historic undocumented burial of nuclear waste onsite at nuclear power stations must be investigated, surveyed and mitigated by station owners under the decommissioning plan

As the United States General Accounting Office (GAO) May 1989 "NRC's Decommissioning Procedures and Criteria Need to Be Strengthened" (GAO/RCE-89-119) reports in its Executive Summary.

"For almost 25 years, NRC allowed licensees to bury radioactive waste on-site without prior NRC approval. NRC required the licensees to retain records on the amounts and substance buried rather than provide them to NRC. In five of the eight cases GAO reviewed, licensees buried waste onsite, but four licensees either did not keep disposal data or the data are incomplete. In one case, NRC terminated a license and 10 years later learned that radioactive material had been buried on the site. Also, NRC generally does not require licensees to monitor for groundwater or soil contamination from buried waste. All five licensees have found ground water contaminated with radioactive substances. At four sites, some of the contamination appears to have resulted from the buried waste—the contamination at one site was 400 times higher than EPA's drinking water standards allow. At another site, the contamination was 730 times higher, but the source was not known."

CL-48/16 4) An inventory of all the radioactivity, radioactive wastes and materials from reactor operation and decommissioning, and independently verified reporting of its disposition (whether onsite or offsite, whether in licensed or unlicensed facilities and specifics of its storage condition) should be a required part of the environmental review and reports. This information must be part of the site-specific Environmental Impact Statement process and fully disclosed at each reactor as site-specific issues, with the opportunity for formal local hearings and legally-binding input. The corporations responsible for the radioactive wastes from nuclear power reactor operations should be required, by NRC, to keep balance sheets of the radioactivity generated by their reactors and the decommissioning process, and track the disposition of that radioactivity whether it is kept onsite, allowed to leak out into the air and water, or shipped to licensed or unlicensed facilities for disposal or processing, and for possible release into household items.

CL-48/17 We oppose any unlicensed disposition of long-lasting radioactivity from the nuclear fuel chain activities. As long as radioactive materials remain, someone should retain a license for those materials, and responsibility for them. That burden should not be shifted to the states and local communities without clear acknowledgement of the stewardship responsibility for that material.

CL-48/18 NRC AND INDUSTRY FAILURE TO RELIABLY ESTIMATE THE REAL COST OF DECOMMISSIONING AND REASONABLY ASSURE THE AVAILABILITY OF ADEQUATE DECOMMISSIONING FUNDS DOES NOT JUSTIFY OR SUPPORT GENERIC TREATMENT OF ENVIRONMENTAL IMPACT STATEMENTS

The NRC GEIS does not adequately address the historic inability by the NRC and industry to accurately assess the final and actual costs associated with decommissioning and the associated underestimation of the rate of accrual for funds set-aside by electrical utilities. The final cost for decommissioning remains highly speculative and therefore likely to continue to be significantly underestimated. As NRC has stated in the DGEIS Supplement the unavailability of adequate decommissioning funds potentially can result in delays and/or unsafe and improper decommissioning. Therefore, our organizations contend that site specific reviews are necessary for public review and disclosure of the availability of adequate decommissioning funds assigned to an adopted decommissioning plan

CL-48/19 While the Executive Summary of NUREG-0586 Supplement 1 claims that the NRC and the industry have over 300 years of decommissioning experience with 22 nuclear reactor facilities permanently shut down, the fact remains that the process is still relatively new and NRC has yet to complete a single radiological decommissioning operation to a license termination plan for a typical large U.S. commercial reactor that operated for any significant length of time. As stated by Mr. Michael Masnick with the NRC at the Public Scoping Meeting on Intent to Prepare Draft Supplement To Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities in Boston, Massachusetts, May 17, 2000 with regard to a question on how many license termination plans have been accepted by NRC, he responded, "none have resulted in a license termination." It therefore appears that 300 years of decommissioning experience without a single license termination plan approval does not suggest that NRC is prepared to treat the issue of cost to adequately decommission generically.

CL-48/21 The cost of decommissioning nuclear facilities can vary according to the size of the facility and the degree of contamination. As a result of electric utility deregulation where a competitive market has replaced regulated rates, traditional methods of amassing decommissioning funds through imbedded utility rates have been replaced with by competitive electricity rates. Additionally, ownership of nuclear facilities has changed for more than half of the nuclear power plants in the United States through mergers and transfers. This shuffling of ownership has raised much uncertainty about the availability of adequate funds for the eventual decommissioning of the nuclear facilities.

As reported by GAO December 2001 "NRC's Assurances of Decommissioning Funding During Utility Restructuring Could Be Improved" NRC reviews of financial arrangements exchanged in these

transfers and mergers "were not always rigorous enough to ensure that decommissioning funds would be adequate. Moreover, NRC did not always adequately verify the new owners' financial qualifications to safely own and operate the plants."

CL-48/24 The Yankee Rowe nuclear power station is a clear example of the inability to accurately assess the final cost of decommissioning. Originally decommissioning estimates ran under \$100 million dollars while the current expenditures are estimated to be just under \$500 million for the small 170 megawatt pressurized water reactor. The Shoreham nuclear power station can not be relied upon as an accurate gauge for decommissioning costs as it never reached full power operation.

NRC SEEKS TO LIMIT PUBLIC REVIEW AND HEARINGS BY ESTABLISHING ARBITRARY "LEVELS OF SIGNIFICANCE" ON DECOMMISSIONING ENVIRONMENTAL IMPACTS

CL-48/25 We have a fundamental dispute with the NRC effort to eliminate public review and full disclosure through public hearings on decommissioning practices and mitigating environmental impacts based on arbitrary and capricious categories for determining "generic" and "site specific" proceedings for nuclear power station decommissioning.

CL-48/26 NRC's "Levels of Significance and Accountability of Environmental Impacts" assign values of risk to affected communities as "small," "moderate" and "large" as thresholds for denying or conducting a public site-specific review and potentially a public adjudication for environmental mitigation. Our organizations argue that these broad categories established by NRC are largely baseless for the following reasons:

1. The biological effects of radiation are deleterious. No safe threshold for radiation exposure for the general population (including the developing fetus) has been established.

2. There is a long history of unresolved regulatory conflict over radiation protection standards assumed to determine NRC risk assessments. Both federal and state agencies have sought to provide greater protection than NRC requires. In addition, NRC

3. The NRC risk assessment inappropriately ignores the population of children in its "critical group" evaluation as the population most vulnerable to residual radioactivity exposure from decommissioning operations.

4. There is a documented history of significant lapses in effective NRC oversight of decommissioning operations as reported by The General Accounting Office in May 1989 "NRC's Decommissioning Procedures and Criteria Need to Be Strengthened" (GAO/RCED-89-119). The GAO not only found that complete information does not exist for all licensed activities or buried wastes, but additionally that NRC was found to have terminated a license with contamination in excess of its guidelines and NRC regulations lacked a time requirement for document retention. NRC's checkered history does not provide justification for the agency to move forward with generic treatment of decommissioning nuclear facilities where affected communities are denied public review and full disclosure of contamination, the decommissioning plan and

THE DECOMMISSIONING ALTERNATIVES DO NOT WARRANT GENERIC TREATMENT THE ENVIRONMENTAL IMPACT STATEMENT AND ARE THEREFORE SUBJECT TO SITE SPECIFIC PROCEEDINGS

CL-48/27 Alternative methods being considered by the NRC include "entombment" and "rubblization." These involve leaving more nuclear waste on-site in an effort to reduce industry's short-term decommissioning costs but are likely to increase long term costs to affected communities once the sites are abandoned after license termination. The proposed alternative methods

additionally raise significant technical and environmental impact issues and conflicts with the permanent emplacement of so-called "low-level" radioactive waste at nuclear facility sites not originally licensed as regulated nuclear waste management facilities. The proposed alternative methods are tantamount to creating an unlicensed radioactive waste disposal site. These alternative methods must therefore be subject to review by the affected communities with full disclosure and documentation of the amount of radioactivity, the location and condition of all residual contamination and the types of radioactive contamination that remain on-site. On-site and off-site contamination and radioactivity and associated issues involved with extended institutional control must all be subject to site-specific public hearings.

CL-48/28

The NRC effort to approve alternate decommissioning methods constitutes significant uncertainty and an impediment to accurately estimate the real cost of decommissioning nuclear facilities. There is no real assurance that adequate funds will be available to safely and properly decommission the site and provide for remediation of all necessary cleanup. These regulatory and environmental issues do not support generic treatment of environmental impact statements. In fact because of the economic and technical and environmental uncertainties of the Rubblization and Entombment options, they should be subject to much more rigorous review than provided by this Supplement. This Supplement gives only cursory attention and unsubstantiated dismissal of potentially very serious environmental consequences of the Rubblization, Entombment and Partial site release options.

The Entombment alternative

As a decommissioning option, entombment provides for the utility to remove the irradiated fuel from the core for disposition through either on-site dry cask storage or away-from-reactor interim storage. Once the fuel is removed, the facility is allowed to radioactively decay for a specified period of time up to 300 years before demolition and site clean up is achieved.

Rubblization as an alternative to licensed radioactive waste disposal sites

Rubblization is described as the partial decontamination and demolition of radioactively contaminated buildings at nuclear power stations. The interior concrete surfaces are only partially decontaminated and the entire structure (concrete, steel re-enforcement bar and other materials) is then razed to grade level into the foundation hole. The burial site is then covered over with soil cap. NRC and industry are also proposing that rubblized contaminated material can be hauled to landfills unlicensed for radioactive waste.

CL-48/29

However, the rubblization process must account for the permeation of porous concrete structures (containment dome, basemat, and walls) with radioactivity much deeper than surface contamination that would be sand blasted during a decontamination process. Activated concrete would be rubblized and would thus constitute so-called "low level" radioactive waste. Long-lasting radioactive elements such as cesium-135 and strontium-90 are present with many other fission products and radionuclides in the concrete and should not be ignored or defined away. No data are provided in this Supplement to justify Rubblization and on-site or off-site disposition. Thus, local communities have every right to participate legally (in adjudicatory proceedings) and be provided with information- full disclosure of such planning.

CL-48/30

Essentially, the agency and industry are proposing that a so-called "low-level" radioactive waste dump can now be grandfathered on a reactor site without a formal permitting and licensing hearing process. The decommissioning utilities will provide an analysis that can "assure" that no ground water movement will occur through the radioactive burial site providing a potential transport mechanism and potential radioactive exposure to the public and environment. The utilities are to provide a "dose model" to "assure" the affected communities that the radioactive site will pose no health risks to present and future public health and the environment. These "assurances" cannot be bona fide by generic treatment and therefore require the availability of site specific proceedings.

CL-48/31

We concur with the GAO findings as reported in GAO-02-48 "NRC's Assurances of Decommissioning Funding During Utility Restructuring Could be Improved" dated December 2001. GAO reported the following conclusions:

"Rubblization represents a departure from NRC's past licensing practice, which emphasized

shipping low-level radioactive wastes from decommissioning sites to disposal sites. Although NRC has estimated that rubblization could save a licensee from \$10 million to \$16 million in waste disposal costs during decommissioning, its Advisory Committee on Nuclear Waste has concluded that technical factors, such as the depth of radioactive contamination and the volume of rubblized waste, could significantly diminish the potential cost savings. The Advisory Committee also believes that evaluating radioactive material content and doses from rubblization, both at the site and in local groundwater, may prove difficult and expensive."

CL-48/32

"The NRC staff's decision that entombment might reduce decommissioning costs is questionable."

"According to NRC's staff, 'very expensive remedies' could be required if an entombment configuration proved unable to adequately isolate radioactive contaminants over the 100-year or longer (up to 300-years by NRC projections) time period needed for radioactive decay. Given the length of time involved, states are concerned that they will have to pay remediation costs should an entombment fail."

CL-48/33

"Aside from questionable cost benefits, rubblization and entombment raise a number of technical issues. For instance, NRC does not intend to require that sites where rubblized radioactive materials would be buried have protection equivalent to off-site disposal facilities for low-level radioactive waste. Disposal facilities for commercial low-level radioactive waste, which are licensed and regulated by NRC or by state (under agreement with NRC), must be designed, constructed, and operated according to NRC regulations (or compatible regulations issued by the host state). In addition, to obtain a license to build and operate a disposal facility, the prospective licensee must characterize the facility site and analyze how the facility will perform for thousands of years. However, according to NRC, a rubblized site is not comparable to a low-level radioactive waste disposal facility... Nevertheless, 10 CFR Part 61 does not differentiate between what does or does not qualify as a low-level waste disposal action or facility on the basis of the quantity, forms, or range of the low-level radioactive waste to be buried."

CL-48/34

"Water intrusion is also a major concern for rubblized or entombed sites, and the fact that most nuclear power plants are situated in shallow water table or flood plain locations may limit the viability of these options."

CL-48/35

The above reasons illustrate the lack of a sound basis for staff conclusions that the decommissioning alternatives of entombment and rubblization are of "minor" environment impact and can be treated generically to avoid public review and full disclosure in formal public hearings. We therefore adamantly oppose such generic treatment.

Overall concerns:

NIRS and numerous other organizations and local community groups have concerns with the following overall effects of this Supplement:

CL-48/36

NRC allows "rubblization" (crumbling the concrete reactor building) of nuclear reactors, without opportunity for public intervention until the action is completed.

CL-48/37

NRC allows portions of sites to be "released" from regulatory control before the whole site is released.

CL-48/38

NRC opens up two "entombment" options.

CL-48/39

NRC ignores radiation dangers after decommissioning is done and utility is relieved of liability.

CL-48/40

NRC ignores radiation exposures to children and other vulnerable members of the population and creates a fictitious highest exposed "critical group" based on unsubstantiated assumptions.

CL-48/41

NRC ignores radiation offsite and permits utilities to ignore it in decommissioning planning. NIRS calls on the NRC to incorporate offsite contamination into all evaluations of environmental impacts.

- CL-48/42 NRC prevents the National Environmental Policy Act from applying to most of the decommissioning process. (The claim appears to be that this proposed Supplement 1 satisfies the Environmental Policy Act for most of the decommissioning issues)
- CL-48/43 NRC cleverly makes most aspects of decommissioning "generic" rather than site-specific, so they cannot be legally reviewed or challenged at individual sites.
- CL-48/44 NRC redefines terms to avoid local, site specific opportunity to question, challenge and prevent unsafe decommissioning decisions.
- CL-48/45 NRC sets arbitrary and unsubstantiated (low, medium and high) environmental impact categories for each of the steps in decommissioning, to give the appearance that they have minimal effects, to justify not fully addressing them now and to prevent their inclusion in site-specific analysis.
- CL-48/46 NRC is removing the requirement for a license amendment when changing from a nuclear power operating license to a nuclear materials possession-only license. (With no license amendment, there is no opportunity for public challenge or adjudicatory processes)
- CL-48/47 NRC is attempting, with this supplement, to legally justify the removal of the existing opportunities for community involvement and for legal public intervention until after the bulk of the decommissioning has been completed. This includes such activities as flushing, cutting, hauling and possibly rubbleizing of the reactor.
- CL-48/48 NRC states that the portion of the decommissioning regulations (10 CFR 20 section E and its Environmental Impact Statement, NUREG 1496) that set the 25, 100 and 500 millirems per year allowable public dose levels from closed, decommissioned nuclear power sites, are not part of the scope of this Supplement
- CL-48/49 NRC defines decommissioning, in part, to include the "release of property for unrestricted use...." and the "release of property under restricted conditions..."
NIRS stands firmly against the "release" of radioactively contaminated materials into daily consumer use and commerce or unregulated disposal

Respectfully submitted,

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Letter 49, page 1

Dons Mendiola - Comments on Decommissioning Nuclear Power Reactors Environmental Impact Statement	Page 1
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From: Eileen Greene <egreene@ikano.com>
 To: <dgers@nrc.gov>
 Date: 1/31/02 2:23AM
 Subject: Comments on Decommissioning Nuclear Power Reactors Environmental Impact Statement

CL-49/1 I am very concerned that children, who are much more susceptible to the effects of radiation, may not be being looked at in the Environmental Impact Statement. This is a very serious issue, & if left unaddressed, would not only be morally wrong, but could lead to a horrible name in history for the NRC, & possibly legal action.

CL-49/2 I am hopeful that you will act in the interest of the public, & listen to the concerns of all of the communities that will be affected by the by-products of nuclear energy. Offsite radiation is something that must not be ignored.

Thank you for looking into this.

Eileen Greene
 3580 Honeycomb Rd
 Salt Lake City, UT 84121

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E-RIDS = ADM-03
 Call = M. Haysnik (MTM2)

November 2002

Letter 50, page 1

Letter 50, page 2

Doris Mendiola - Comments on Generic Environmental Impact Statement on Decommissioning

Page 1

From: CAN <can@nukbusters.org>
To: <dgeis@nrc.gov>
Date: 1/31/02 1:13PM
Subject: Comments on Generic Environmental Impact Statement on Decommissioning

Deb Katz
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(30)

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Template = ADH-013

F-IDS = ADH-03
add = U. Haskin (MTH 2)

Doris Mendiola - CANs comments GEIS supplement decommissioning reactors 102 doc

Page 1

Citizens Awareness Network
Comments on Draft Supplement 1 of the GEIS on Decommissioning Reactors

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CITIZENS AWARENESS NETWORK

January 30, 2002

Chief, Rules and Directives Branch
Division of Administrative Services
Mail Stop T-6 D59
U.S. Nuclear Regulatory Commission
Washington, DC 20555

RE: Generic Environmental Impact Statement on Decommissioning Nuclear Facilities: Draft Supplement 1 Dealing with Decommissioning of Nuclear Power Reactors

Dear Sir or Madam:

By this letter, the Citizens Awareness Network (CAN) formally submits written comment on the draft supplement 1 Generic Environmental Impact Statement (GEIS) involving the decommissioning of nuclear reactors. CAN provided the Nuclear Regulatory Commission (NRC) with verbal comment at the draft supplemental GEIS scoping meeting held in Boston, MA on May 17, 2000 and written comments in July 15, 2000. CAN is a volunteer, grassroots organization with chapters in reactor communities in MA, CT, VT and NY. We have over 3,300 members and represent the views of many thousands more. We attempted to email these comments on 1/30/02, but were unable due to server problems.

- CL-50/1 The regulations are in violation of the appellate court decision in CAN v NRC. The court ruled that decommissioning remained a "major federal action" requiring National Environmental Policy Act (NEPA) compliance. CAN strongly urges the NRC to enforce NEPA compliance and require decommissioning reactors to undertake site specific Environmental Impact Statements (EIS). In addition CAN requests the Commission withdraw the proposed draft and revise it so that it complies with the ruling of the court decision. Until such a time when site specific EIS's are done, CAN requests that paragraphs below be incorporated into the draft supplement 1 GEIS.
- CL-50/2
- CL-50/3 The Appellate Court justices opined that your agency was in violation of its own regulations and Rulemaking process in approving the experimental decommissioning at the Rowe reactor without a decommissioning plan and an environmental assessment. In addition, the court has ruled that decommissioning is a major federal action and requires NEPA compliance. "An agency can not skirt NEPA or other statutory commands by exempting a licensee from compulsory compliance, and then simply labeling its decision "mere oversight" rather than a major federal action. To do so is manifestly arbitrary and capricious." We believe NEPA

Citizens Awareness Network
Comments on Draft Supplement 1 of the GEIS on Decommissioning Reactors

2

compliance is mandatory for decommissioning. A Generic Environmental Impact Statement can not substitute for an individual EIS, as computer modeling can not substitute for actual testing

- CL-50/4 CAN believes it is essential for NRC to continue to define decommissioning as a major federal action. As the Appellate Court opined "....., it is undisputed that decommissioning is an action which, even under the Commission's new policy, requires NEPA compliance 10C.F.R. S 51.95(b)." CAN believes that streamlining the process for nuclear corporations and setting aside NRC requirements abdicates the responsibility to protect the health and safety of the workers, the public, the environment, and violates citizen due process. Nuclear power generators should not be given broad discretionary powers to regulate themselves, which this Draft proposes. Protecting public and worker health and safety and the environment must remain the NRC' mission.
- CL-50/5
- CL-50/6 Can requests the NRC restore distinct categories between reactor operations and cessation and that the Possession Only License should be reinstated. It affords citizens the possibility for a hearing prior to reactor decommissioning. The opportunity for a hearing must not be withdrawn by the Commission. The hearing is essential for communities to participate in matters that vitally effect them. To offer a hearing at the termination of the license rather than at the cessation of operations sets aside meaningful citizen participation.
- CL-50/7 Major component removal should not be approved with the submission of a Post Shutdown Decommissioning Activities Report (PSDAR). A clear definition must be established to clarify what constitutes major and minor component removal. Approval of decommissioning plan should be required before major decommissioning activities begin. The PSDAR does not afford the community effective input into the decommissioning process since this document is a skeletal outline of generalized activities planned by the licensee. The elimination of sub part M hearings coupled with the instituting of sub part L further inhibits public participation and is a violation of citizens constitutional rights guaranteed under section 189a of the Atomic Energy Act.
- CL-50/8
- CL-50/9 The PSDAR skirts accountability and obstructs required public participation. The PSDAR does not require a clear description of the methodologies so that the public can understand what will be taking place during decommissioning. Only with a sufficiently detailed plan, can the public meaningfully research, investigate, formulate comments and questions, and possible objections to the decommissioning activities. A meeting does not afford citizens the level of institutional accountability necessary given the dangers of enviro-toxic contamination inherent in the reactor cessation. Informational meetings, as experienced at Yankee Rowe, CT Yankee, Maine Yankee, and Millstone Unit 1 obfuscated, confused, and ignored the concerns of local citizens. Both the Federal District Court and the Appellate Court chastised the agency for this approach. If the community has concerns, and there is no regulatory recourse save one "meeting" with NRC, the Commission will, in fact, create polarization between the community and regulator leading to erosion of public confidence in the NRC

Further Comments:

- CL-50/10 1. Health problems in the community must be determined and taken into consideration when decommissioning plans are being established since continued exposure to radiation through routine decommissioning releases and the inadvertent release of hot particles can jeopardize the health and safety of the public.

Citizens Awareness Network
Comments on Draft Supplement 1 of the GEIS on Decommissioning Reactors

3

- CL-50/11 2. New environmental assessment documents must be required, as old assessments are outdated and have been found to be inaccurate both on and offsite.
- CL-50/12 3. Although the NRC claims numerous successful decommissionings of nuclear sites, few large-scale reactors that operated for decades have completed successful decommissioning. Decommissioning remains experimental. Resources and time required for decommissioning a site have been routinely underestimated. More importantly, worker doses have been repeatedly underestimated. Safe decommissioning is about radiological control and the need to limit exposures to the workers. Nuclear corporations have failed to do this because of inexperience and a lack of enforcement by the NRC. With over 100 nuclear reactors yet to be decommissioned in this country, cutting decommissioning exposures by 200-300 person-rem per reactor will reduce the nation's nuclear workforce exposures by 20,000-30,000 person-rem.
- CL-50/13 4. Nuclear reactors, through planned and unplanned radioactive releases, can create plumes of contamination, which migrate offsite. Yankee Rowe currently has a plume, which reached springs, feeding into the Deerfield River where residents recreate. Connecticut Yankee has plumes of tritium and other radionuclides which have migrated into the aquifer and the Connecticut River for decades. Accountability (i.e. remediation and/or long term monitoring) for plumes of contamination that have offsite consequences must be established. Furthermore, accountability must be established for routine NRC-regulated releases, which have accumulated in the discharge pathways. Big Rock Point, Millstone Unit 3 and other reactors have identified contaminated sediment caused by such releases. Remediation must capture such plumes both onsite and off.
- CL-50/14
- CL-50/15 5. Methodology must be established to locate and collect for proper disposal contaminated tools, soils, concrete blocks, plywood and other building materials that may have been taken offsite by workers during reactor operation such as was the case at Connecticut Yankee and Yankee Rowe.
- CL-50/16 6. In addition to onsite worker doses, decommissioning exposure calculations must capture and include doses incurred by workers involved in offsite reactor decommissioning activities i.e. shipping, decontamination, smelting, recycling etc. of all radioactive materials and components.
- CL-50/17 7. Using an adult male as the average member of the critical population for dose calculations in site release criteria does not establish effective clean-up standards. The adult male assumptions address workers during reactor operation, however when reactor sites are released for unrestricted use the "average member" of the critical population requires the inclusion of children since they bear the greatest burden of the effects of ionizing radiation as described in the Biological Effects of Ionizing Radiation (BEIR) V report.
- CL-50/18 8. The License Termination Plan (LTP) should be established, reviewed by the public and approved by the NRC before site remediation begins.
- CL-50/19 9. Partial release of property for unrestricted use should not be allowed until the LTP has been established, reviewed by the public, approved by the NRC and implemented on the given piece of land. Furthermore, methodology should be established for preventing recontamination of the released

Citizens Awareness Network
Comments on Draft Supplement I of the GEIS on Decommissioning Reactors

4

property through environmental migration e.g. rain, wind, etc and future decommissioning activities i.e. excavating, tracking or relocating contaminated materials.

- CL-50/20 11. Clear methodologies should be established for the clean up of transuranics and hot particles. Yankee Rowe failed to include transuranic measurements in its LTP and currently Connecticut Yankee intends to avoid doing direct alpha measurements (and beta measurements) through less expensive surrogate measurements of easier-to-detect radionuclides through less expensive surrogate measurements of easier-to-detect radionuclides. Surrogate measurements must not be allowed at sites where consistent ratios of radionuclides do not exist.
- CL-50/21 12. The burial of radioactively contaminated material as a means of *site remediation* is unacceptable for property that is to be released for unrestricted use. Rubblization (the burial of contaminated rubble) must not be permitted under any circumstances. The permission to build nuclear reactors hinged upon the utilities' commitments to regulators and the community to restore the site to "green fields". Rubblization is a blatant default on cleanup commitments, is a gross injustice to reactor communities and is a regulatory cave-in to utilities' desires and financial needs. In response to rubblization CAN also incorporates by reference Contention's 5.2 and 5.3 submitted by the organizations to the Commission on March 12, 2001 regarding Haddam Neck Reactor's License Termination Plan (Docket No. 50-213-OLA).
- CL-50/22 13. Given the repeated and serious exposure of workers during decommissioning of reactor sites, an onsite NRC inspector should be required throughout decommissioning to protect worker health and safety.
- CL-50/23 14. Nuclear corporations should not be allowed to decommission reactors under an operating license through a series of amendments nor should they be allowed to create an Independent Spent Fuel Storage Installation (ISFSI) under an operating reactor license when they are decommissioning. Decommissioning reactors installing ISFSIs should be required to go into a part 72 license to provide adequate regulatory oversight protect public health and safety. The part 72 general license provision for creating an ISFSI at an operating reactor was never intended to cover a decommissioning reactor when regulatory oversight is minimized.
- CL-50/24 15. Public participation must be instituted for the creation of the ISFSI. At present, the creation of an ISFSI falls into a regulatory no man's land. At the NRC pre-hearing on the Yankee Rowe LTP, the NRC administrative law judges were instructed by the commission not to address any contentions concerning the storage of high-level radioactive waste. The creation of the ISFSI has serious consequences for each reactor community that could last hundreds of years. That the public can not participate in the process - give comments, request hearings, intervene - is unreasonable and undemocratic.
- CL-50/25 16. Given the recent experience with wild fires at the Los Alamos and Hanford Nuclear Reservation and now the potential for flooding and massive soil erosion, the NRC should re-evaluate risk assessments and dose calculations for decommissioning reactors.
- CL-50/26 17. Methodology must be established to determine the extent of underground rad waste contamination and burial. The Multi-Agency Radiological Site Survey and Investigation Manual (MARSSIM) establishes measurement criteria for only 6 inches below the surface of soil. MARSSIM does not

Citizens Awareness Network
Comments on Draft Supplement I of the GEIS on Decommissioning Reactors

5

address the serious problem of locating and remediating underground contamination. Before 1980, the NRC in fact allowed the burial of rad waste onsite. A General Accounting Office (GAO) investigation found that the routine burial of rad waste 4 feet deep at reactor sites before 1980 occurred without adequate documentation.

- CL-50/27 19. Each reactor community should have representatives trained in MARSSIM and other protocols by the NRC so that they can effectively comment and express their concerns about the adequacy of the procedures being used.
- CL-50/28 20. In the aftermath of September 11th, NRC and licensees must address earlier assumptions that decommissioning was less dangerous than operation and that security measures and insurance could be reduced because of it. Nuclear fuels pools as well as on site dry cask storage of high level waste are targets for terrorism. In fact decommissioned sites could be selected as targets because there is less security and oversight during decommissioning and the monitoring of the ISFSI. NRC must require increased security and the reinstatement of insurance provisions. Additionally, emergency preparedness drills and the EPZ should be reestablished. KI should be stockpiled in communities since the potential for off site consequences from a terrorist attack is possible.

Sincerely,

Deb Katz
Executor Director
Citizens Awareness Network

Rosemary Bassilakis
Researcher
Citizens Awareness Network

1-31-2002 11:59PM FROM DREY 314 725 7676

P 1

Key Drey 515 West Point Ave University City, MO 63130

January 30, 2002

Chief, Rules and Directives Branch
Division of Administrative Services (F 6 D 59)
US Nuclear Regulatory Commission
Washington, DC 20555-0001

Attn: Michael Masnik, Ph.D.
Fax: 301-415-3061

Comments on the Draft Supplement to the 1988 "Generic
Environmental Impact Statement on Decommissioning of Nuclear Facilities."

11/9/01
66FR 56721
51

CL-51/1 The primary reason I am submitting the following comments is to urge the Nuclear Regulatory Commission to maintain its commitment to study the operating history and resulting contamination of each reactor on a site-specific, not generic basis — in its effort to design appropriate decontamination and decommissioning requirements for each site. Only in this way can there be any hope of achieving the requisite, long-term isolation of the contaminants from the human environment.

CL-51/2 1. Site specificity: Many questions regarding decommissioning require site-specific and reactor-specific analyses. The Callaway plant, for example, here in Missouri, is located about 5.5 miles away from the Missouri River, the source of the plant's cooling water and the depository for its liquid effluent. It would seem that testing would be needed of the unusually long effluent-discharge pipe in order to determine where leakage may have occurred during the plant's operation and where soil excavation may therefore be required as a part of the decommissioning.

Sediment samples would be needed where the discharge pipe releases the plant's effluent into the Missouri River. Without such site-specific analyses, a determination of the extent of the riverbed's contamination would not be possible. According to a series of reports published in 1970, 1974 and 1976, by the US Environmental Protection Agency's Office of Radiation Programs, radioactive fission and corrosion products traceable to Dresden-One, Haddam Neck, and Oyster Creek had accumulated in those reactors' discharge areas in the Kankakee River, the Connecticut River and Barnegat Bay, respectively. (BRH/DER 70-1; EPA-520/3-74-007; and EPA-520/5-76-003).

CL-51/3 Reactor contaminants in the sediments in the EPA studies included cesium-134 and -137, cobalt-58 and -60, manganese-54, and antimony-125. With evidence that these isotopes were able to bypass the liquid waste filters, it would seem probable that other fission, activation and corrosion products could have, too. And of course some reactor isotopes are extremely long-lived. I am reminded of the following discussion in a 1978 NRC publication on decommissioning:

Based on the guidance put forth in [Atomic Energy Commission] Regulatory Guide 1.86 ["Termination of Operating Licenses for Nuclear Reactors," June 1974], entombment of a reactor facility requires the encasement of the radioactive materials in concrete or other structural material sufficiently strong and structurally long-lived to assure retention of the radioactivity until it has decayed to levels which permit unconditional release of the site. (In previous reactor decommissioning, it was assumed possible to entomb the reactor pressure vessel and its internal structures within the biological shield since the principle source of radiological dose was cobalt-60, which decays with a relatively short half-life (5.27 years). Thus, within about 100 years, the residual

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Add = M. Masnik (LTH2)

2-01-2002 0:00AM FROM DREY 314 725 7676

P. 2

radioactivity will have decayed to levels indistinguishable from normal background, well within the safe structural lifetime of the entombment structure. The presence of any niobium-94 was ignored. The amount of nickel-59 formed in the relatively brief operating life of these early plants was sufficiently small as to present no significant hazard. However, in large power reactors that have operated for 30-40 years, the induced niobium-94 and nickel-59 activities in the reactor vessel and its internal structures are well above unconditional release levels and, since nickel-59 has an 80,000 year half-life and niobium-94 has a 20,000 year half-life, the radioactivity will not decay to unconditional release levels within the foreseeable lifetime of any man-made surface structure. ("Technology, Safety and Costs of Decommissioning a Reference Pressurized Water Reactor Power Station," NUREG/CR-0130; pp. 4-5, 4-6; emphasis added)

Nickel-59, mentioned above, is produced when the nickel-58 in stainless steel captures electrons. Since the EPA found corrosion products in the sediment of several metals for which they tested, is it not possible that other metals subjected to the reactor's hostile environment (repeated cycles of temperature and pressure; high neutron fluxes, harsh chemicals, etc.) may also have degraded or dissolved, and migrated out of the plant? Could they be detected in the sediment if tested? Some of the corrosion products identified in the oxide layer ("crud") of various reactors include isotopes of iron, zinc, molybdenum, tungsten, titanium, and carbon. (I would be happy to send a copy of the comments I submitted to the NRC on July 16, 1980, regarding the Draft Environmental Statement on the proposed use of chelates to decontaminate Dresden One in Illinois. Information on chemical decontamination is cited from AEC, EPRI, GE reports, and more.)

2. Rubblization: This word is relatively new to me. But amazingly, the concept is not. I remember when our family first drove by the Elk River reactor in Minnesota on a brief, educational side trip with our children. This was some time before November 1974, when I first began reading and working fulltime against nuclear power. When we drove by Elk River again, four or five years later, the plant had completely disappeared.

Several years after that I learned from one of the former Elk River workers that they had used explosives to "dismantle" the plant. I was incredulous then; I still am. The list of explosives employed for the rubblization of this one small reactor is impressive, or more precisely, worrisome: PETN (pentaerythritol tetranitrate), 85% high velocity gelatin dynamite, cast TNT (high detonation pressure primers), binary energy system (liquid explosives) and water gel explosives. (From the revised "AEC-Elk River Reactor Final Program Report," November 1974, p 31). To quote further from that report:

For obvious economic reasons, it was desirable to dispose of as much demolition debris as possible in local landfills. Because there were no burial facilities for radioactive materials in the State of Minnesota, and because of existing adverse public reaction to the nuclear industry from certain sectors, great pains were taken to insure that little, if any, radioactivity remained in the structures that were disposed of in Minnesota. For these reasons, the term 'detectable reactor originated radioactivity' or DROR was specified contractually and defined for this project. It should be emphasized that DROR as defined below is unique to the Elk River Reactor project, is a one-time requirement, and there is no intent to suggest a guideline for future decommissioning actions or to supersede guidelines issued by the [AEC] Director of Regulation. The term DROR was applicable only to demolition rubble that was to be left in the State of Minnesota and was defined procedurally by a special sampling and analytical method. (pp. F-4, -5)

2-01-2002 0:00AM FROM DREY 314 725 7676

P. 3

Elk River was indeed a tiny reactor — its net electrical output was only 22.5 megawatts, compared with the Callaway plant which was designed and built to provide 1120 megawatts and was subsequently, somehow, allowed to be uprated to 1171 megawatts. To quote further from NUREG/CR-0130:

[Elk River had operated] for the equivalent of only 2.5 EFPY [effective full power years] when it was dismantled. Thus, the concentrations of the longer-lived radionuclides in the Elk River reactor were quite small compared to the concentrations that will be present in a large PWR [pressurized water reactor] after 30 EFPY of operation. (p. 7-16; emphasis added)

CL-51/5 I understand that Elk River is the only US commercial reactor that has been completely dismantled down to its original greenfield state. It so completely disappeared, in fact, that it is not even mentioned in the "Draft Supplement," in the tables of "permanently shutdown plants" (for example, at pp. 3-27, 4-44, and Table F-1). And speaking of Appendix F, by the way: please note in Table F-2 that the Callaway plant is located in Missouri, not in Montana.

CL-51/6 It is extremely important for the NRC to level with the public about the potential hazards of the concrete debris and related rubble from the dismantled plants. The porous concrete floors get radioactively contaminated during the operation of the plant. "Radioactive corrosion products and fission products from failed fuel, which are transported throughout the station by the reactor coolant streams, are the principal contributors to the more mobile radioactive contamination on piping, floors, and pool surfaces." (NUREG/CR-0130, June 1978, p. 7-15.) Radioactive products can also enter the primary cooling water from pin-hole leaks in the fuel rod cladding; from the fissioning of "tramp uranium" left on the surface of the fuel rod during the fabrication of the fuel; and out of defective welds at the top and bottom of the fuel rod. The cooling water gets contaminated, and it can and does leak onto the plant floors during various routine and accidental activities.

Radioactive fission gases that escape out of the fuel rods can also escape out of the reactor vessel. Some dissolved and entrained noble gases are released to the environment in the plant's liquid wastes. Some are vented or purged into the atmosphere. And some migrate into the porous walls, the base mat (floor) or other sub-grade concrete, or the dome or roof of the buildings. Radon gas, for example, once in the interstices of the concrete, can decay or break down into radioactive solid daughter products, such as lead-210 that remains radioactive for more than 200 years. Xenon isotopes that permeate the concrete break down into cesium, including Cs-135 with a half-life of 2.3 million years. And krypton, also a fission gas, breaks down into rubidium, and then into strontium. As was admitted during the years of nuclear weapons testing and fallout, cesium and strontium are notoriously radiotoxic. As daughter products of the fission gases, they could remain entrapped in the rubbleized concrete, releasing radioactive particles and rays into the air for at least ten half-lives, or they could leach into the groundwater. The rate of dispersal of the radioactive and hazardous contaminants in the rubble cannot be accurately predicted. Natural phenomena, for example, could affect the susceptibility of the radiation to be released. (Regulatory Guide 1.86, p. 2)

CL-51/8 Because of the potential presence of highly radioactive "hot particles" in unexpected areas throughout the plant, particularly in the reactor containment building, the rubbleized materials proposed for on-site disposal could be more than just "slightly" contaminated. Contrary to the Draft Supplement, at page 1-7, for example, I think it is important to note that the rubbleization of concrete could have radiological impacts as well as non-radiological ones. This is of special significance if explosives are to be used for the demolition, which will generate radioactive fugitive dust.

CL-51/9

2-01-2002 0:01AM FROM DREY 314 725 7676

P. 4

CL-51/10

CL-51/11

How could the NRC, with its limited surveillance staff, make certain that each licensee would search conscientiously for contamination on the interior as well as the exterior surfaces of pipes, drain lines and ductwork? To what extent will chemical decontaminants be used? Chelating agents not only dissolve radioactive isotopes (such as corrosion products), but they keep them in solution and thus subject to widespread dispersal in the environment. (I likened this phenomenon to burying radioactive wastes with roller skates on.) If chelates are used during decommissioning, will the discharge water containing the dissolved, chelated radioactive wastes be kept isolated from the environment until the chelates are broken down?

You will perhaps be interested in the following comment by Robert Bernero, who at the time was the NRC's assistant director of material safety studies. He was quoted in a June 18, 1974, Miami Herald article as saying that "the NRC staff currently favors a policy that would require decontamination and dismantling after a unit is retired from active service. 'It doesn't make any sense just to seal up a nuclear power plant and leave it,' he says. 'An orderly society should select burial grounds for its nuclear waste. It should not expect to use power plant sites for that purpose.'" (emphasis added)

CL-51/12

CL-51/13

CL-51/14

CL-51/15

I find it hard to believe that the massive structures of concrete and steel reinforcing bars found in a typical commercial power plant could be rubbleized. The complexity and size of the task seem overwhelming. What technologies could be used to dismantle the base mat of the Callaway reactor building, for example: 13,400 tons of concrete plus 1,470 tons of intertwined #18 reinforcing steel bars? Do most 1,000-megawatt pressurized water reactor containment buildings have similar base mats? How can the radioactive content of this structure be accurately estimated? If rubbleization were technologically achievable, where on a plant site could the wastes be stored in perpetuity? Would that be above grade or below? Would a leachate collection system be required where the rubble is stored in order to monitor for potential impacts on the groundwater?

CL-51/16

CL-51/17

CL-51/18

Since the NRC would no longer have regulatory authority over the site, what governmental institution or corporation would be entrusted with the long-term collection, monitoring and analyses of the groundwater samples? Who would determine if remediation were needed; who would be liable for the costs of off-site contamination or other accidents? Who would be responsible to protect against the inadvertent recycling of radioactively contaminated building rubble and soil into new construction or as fill, a possibility mentioned but basically discounted in SECY-00-0041, a letter about rubbleized concrete dismantlement, from William Travers, NRC Executive Director for Operations, to the Commissioners (February 14, 2000)?

CL-51/19

3. Costs: Because of current efforts to restructure and deregulate the electric power industry, decisions about decommissioning could be driven by economic considerations, not by safety — by efforts to cut costs in order to stay competitive. I believe the electric utilities should not be relieved of liability for their decommissioned reactors

CL-51/20

Because of deregulation, the US public must rely more than ever upon the NRC to maintain its authority and responsibility to identify, assess and regulate the full range of potential, high-risk impacts of every commercial reactor — before, during and following its decommissioning. The NRC is our only option.

Letter 51, page 5

2-01-2002 2:22AM

FROM DREY 314 725 7676

P. 5

CL-51/21 4. The threat of terrorism: With terrorism now a legitimate concern in the United States, the potential of a suicide assault on a nuclear plant — whether the plant is operable or decommissioned — must be assessed plant by plant, not generically.

CL-51/22 No facility exists for the permanent disposal of the nation's high-level waste (irradiated reactor fuel), and only one burial site, in Barnwell, SC, is currently available to most reactors for the rest of their wastes (their so-called "low-level" wastes, which ultimately could include the rubble and dismantled components from decommissioned plants). That one "low-level" waste facility, however, that is serving most of the nation, is expected to be closed in the near future to non-Southeast-US reactors.

Because of the lack of off-site disposal facilities, it is understandable that the NRC staff would be promoting rubbleization, and on-site burial and bunkering of the rubble after decommissioning. According to the Code of Federal Regulations, Title 10, §0.82: "Decommissioning will be completed within 60 years of permanent cessation of operations." That time frame takes in all reactors in operation today. Even if off-site disposal space were available to host all the nation's decommissioning rubble, the cross-country transporting of such large volumes of waste would probably be prohibitively expensive and would no doubt be protested by the residents of the corridor communities.

CL-51/23 The transformation of the nation's abandoned nuclear power plants into de facto waste facilities is worrisome from environmental, safety and national security standpoints. To quote from President George W. Bush's State of the Union address yesterday: "Our discoveries in Afghanistan confirmed our worst fears And the depth of their [our enemies'] hatred is equaled by the madness of the destruction they design. We have found disgraces of American nuclear power plants and public water facilities" (NYT, Jan. 30, p. A22; emphasis added)

Articles published for decades have predicted today's disturbing conundrum: The Wall Street Journal on October 12, 1977 — "Scrapping the atom; U.S. is facing problem of how to dismantle used nuclear reactors; Agency hit for not having long-term burial plan; Tomb and mothballing; Can a big plant be cut up?" The Miami Herald on June 18, 1979 — "Nuclear cleanup: Power plants generate a long-term dilemma." The Progressive in December 1977 — "A Landscape of Nuclear Tombs: What will we do with deactivated reactors, and who will pay for doing it?" The Interdependent, of the United Nations Assn., September 1977 — "How do you get rid of a dead nuclear plant?" Technology Review of MIT, June/July 1979 — "Decommissioning Commercial Nuclear Reactors: Nuclear power plants do not last forever. In the United States some large commercial reactors are scheduled for decommissioning within the next 20 years and many others will follow. But the process and its costs are still subject to uncertainties."

The more I learn about nuclear power's radioactive waste, the more I wonder if and when its proponents will admit that no safe solution may ever be found.

5. Concerns — from the past and into the future:

CL-51/24 Surely the most surprising and disturbing pronouncement in the "Draft Supplement" appears on page 1-7: "The decommissioning process continues until the licensee requests termination of the license and demonstrates that radioactive material has been removed to levels that permit termination of the NRC license. Once the NRC determines that the decommissioning is completed,

Letter 51, page 6

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P. 6

the license is terminated. At that point, the NRC no longer has regulatory authority over the site, and the owner of the site is no longer subject to NRC regulations." (p. 1-7; emphasis added)

CL-51/25 The federal government (the US Atomic Energy Commission and its progeny) initiated and funded the promotion of nuclear power. How, then, can it walk away from the long-term surveillance of the plant sites, even though it will have declared the residual radioactive contamination to be at permissible levels? As happened here in St. Louis at the Mallinckrodt Chemical Works, buildings and land contaminated in the years 1942-1957 were cleaned up to contaminant levels declared to be safe for unrestricted use by the public. Not many years later, however, some of those same buildings and open spaces were found to require major additional remediation because radiation standards had become more stringent, reflecting a greater understanding of the health hazards of radiation. Monitoring equipment also had become somewhat more sophisticated.

CL-50126 Concerns and unknowns about the decommissioning of nuclear power plants started many years ago. In January 1975, for example, Sheldon Meyers, as director of the EPA's Office of Federal Activities, included the following observation about the Callaway plant's draft environmental statement: "The section in the draft statement regarding decommissioning of the plant indicates the plant site may require long term surveillance after being shut down. This section should be expanded to provide an estimate of the length of the surveillance time and the length of time the land must stand unproductive. It should also identify who will be responsible for the surveillance activity and who will incur the cost." (published by the NRC in March 1975; p. A12, emphasis added) Why has no one answered these concerns prior to now? Or are there no credible answers?

6. Some concluding comments:

CL-51/27 I guess one of the reasons I wanted to comment on this "Draft Supplement" is because it so dramatically reflects the backward world of Alice in Wonderland and of commercial nuclear power: "Sentence first — verdict afterwards." Make a permanent mess first — try to figure it out afterwards.

Because I have been studying and opposing nuclear power for 27 years, it should not surprise you that my dream would be for America's nuclear electric utilities to expedite the shutdown of all their reactors. The questions raised above — and I have many more — are not meant to be hostile and are certainly not meant to suggest that decommissioning a reactor should be made more burdensome, dangerous or costly than its continued operation. On the contrary.

The longer the reactor operates, the greater will be (1) the levels of radiation to which the demolition workers will be exposed, (2) the volumes of radioactive waste generated and stockpiled; and (3) the risk of a major radiological emergency. And now I guess we should add, the greater will be the potential for acts of radiological sabotage or terrorism (as per 10 C.F.R. Part 73).

CL-51/28 The reactors must be decommissioned in a prudent manner that will seek to protect the health and safety of the workers and the public. In the United States we must rely on the Nuclear Regulatory Commission for its knowledge, guidance and surveillance. I hope that trust is warranted.

Sincerely,
Kay Drey

ENVIRONMENTAL COALITION ON NUCLEAR POWER

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U S Nuclear Regulatory Commission
Washington, D C. 20555-0001

RE: Draft Supplement 1 to the Final Generic
Environmental Impact Statement on
Decommissioning of Nuclear Facilities,
NUREG-0586

Dear Madam or Sir:

The following comments on Draft Supplement 1 to NUREG-0586 are submitted on behalf of the Pennsylvania-based Environmental Coalition on Nuclear Power (ECNP). We concur with and adopt by reference the comments of the Nuclear Information and Resource Service, submitted by Paul Gunter

In our state, decommissioning of the Shippingport reactor, Saxton and Waltz Mills experimental reactors, and the Quehanna industrial nuclear facility and former reactor have occurred. The old Molyneux thorium processing facility near Washington PA is currently in the early stages of decommissioning. The Peach Bottom Unit 1 and Three Mile Island Unit 2 reactors have been awaiting decommissioning for more than twenty years. The nine other operating commercial reactors will ultimately also require decommissioning upon expiration of their operating licenses, as will numerous other industrial and research nuclear facilities.

This Supplement to the Final GEIS fails to address decommissioning of nuclear facilities other than commercial reactors. It therefore fails to take into account the subject of NUREG-0586: the environmental impacts of decommissioning nuclear facilities -- all nuclear facilities. Moreover, in order to assess the full environmental impacts of each facility's decommissioning, it is necessary to take into account its impacts in concert with the impacts of all other nuclear facilities that contribute additive radiological and other contamination to the biologic system.

Pennsylvania remains the Host State for "disposal" of the "low-level" radioactive wastes generated in the Appalachian States Regional Compact, despite failure of the contractor, Chem-Nuclear Systems, to site a LLRW disposal facility. The Department of Environmental Protection recently adopted expanded permissible disposal of radioactive materials at municipal landfills. Pennsylvania has not yet obtained Agreement State status. Our law provides for regulation by the state of radioactive materials and wastes if NRC releases them from its regulatory control.

Moreover, the Pennsylvania Constitution provides that the people of the Commonwealth have the right to a clean, livable environment for themselves and for their descendants. Thus, for these several reasons, the decommissioning decisions of the NRC are of substantial concern to residents of this Commonwealth, where the nation's worst commercial nuclear power accident has not been forgotten.

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Page 2 (ECNP Comments on Supplement 1 to NUREG-0596)

A fundamental obligation of the NRC is to protect the health and safety of the public and the quality of the environment -- the general welfare -- from radiation-related harm. Failure of NRC regulatory control to require that the radioactively-contaminated materials and wastes remaining at a reactor site post-closure will not be released into the biosystem -- as described in this document and in NRC regulations -- constitutes a serious violation of the provisions of the Atomic Energy Act, as amended, Chapter 1, and of the National Environmental Policy Act. Any such decisions by the NRC are therefore arbitrary and capricious, and contrary to both the AEA and NEPA.

In practice, in the decommissioning of reactors the NRC's Decommissioning Rule has both allowed release into the environment of radioactive materials and wastes and disallowed members of the affected public from an opportunity for adjudicatory hearings in advance of decommissioning activities. These denials of access to the judicial system are currently being extended in the form of NRC's proposed Rule, "Change of Adjudicatory Process," compounding the illegalities inherent in this Supplement. Increasingly, no forum is available to citizens in which to exercise their rights under the Federal Administrative Procedure Act. This is yet another reason that this Supplement is unacceptable and should be withdrawn.

Furthermore, a "generic" EIS cannot provide adequate assurance that the unique situation and condition of each nuclear facility have been fully analyzed and accounted for. Each plant is unique; each plant's impacts must be examined in relationship with all other nuclear facilities that affect the condition of the environment. In the real world environment, radioactive and hazardous materials are not necessarily static, they move; they interact with other materials; they accumulate; they may have their adverse impacts at or near their site of origin or far away from it. The totality of those impacts, upon both human and non-human inhabitants of the biosphere, must be incorporated into an environmental analysis and accounted for fully also for adversely affected individuals in any cost-benefit analysis. All issues should be examined at each plant.

Exclusion of licensee decisions and actions prior to certification that plant operations have permanently ceased means that the Supplement fails to consider factors that may have negative impacts on the quality of the decommissioning activities and on minimization of the quantity and condition of the wastes resultant from the handling and removal of radioactive materials from plant structures, systems, and components. Exclusion from consideration of the fate of contaminants post-license termination also renders this Supplement insufficient and not acceptable to account for the environmental impacts of decommissioning. In effect, the NRC plans to wash its hands of any responsibility for the long term damage that may result from reactor decommissioning (and that of all other nuclear licensees' facilities and activities. It is the state or municipality and community in which a plant is located and the residents that will be required to bear the burdens of injury and costs of further clean-up after the NRC has vanished.

Underlying these failures of the agency's responsibility for the facilities and activities that it had sanctioned by granting an operating license and through its regulatory actions and inactions is the failure of the NRC -- and of EPA -- to set radiation protection standards that recognize the

Letter 52, page 3

Page 3 (ECNP Comments on Supplement 1 to NUREG-0596)

CL-52/13 great varieties of adverse effects of low-level radiation on human beings. Affected populations are composed of many individuals who are not close to being that "standard man" in whom the NRC places so much faith. The trans-solutional problem of complete site decontamination is here evident: the NRC does not require the return of a decommissioned facility and site to its pre-operational radiation level. Because the costs of sequestration ("disposal") of wastes is high, and deemed to be a "burden" for the licensee, the agency continues its endeavor to allow massive deregulation -- release, recycle, and re-use -- of radioactively-contaminated materials and wastes and their entry into the "free market" for resale and reuse in a host of consumer products

CL-52/16 Subsequent uses of these "slightly contaminated" materials and wastes -- in roadbeds, or construction, consumer products, or other objects individuals may contact -- will each add to the radiation doses received without knowledge or consent of the recipient. These exposures from multiple unmonitored, unlabeled, uncontrolled sources are in no way accounted for, but they are additive and cumulative for that individual. They violate the fundamental tenet of radiation protection, viz., that the recipient of a radiation dose that is in addition to naturally-occurring background exposures should receive a benefit equal to or greater than the risk incurred. The NRC should not permit radioactive materials or wastes to be released into the environment. That is the basic message, the rightful demand of all those who will be affected negatively by releases.

CL-52/19 As techniques of research and analysis in complex biological systems improves, it is becoming more apparent to thoughtful, careful scientists and regulators that it is imperative to include the impacts of low-level radiation exposures on all forms of living beings, not merely on humans. But it is also increasingly important to incorporate into radiation protection standards low-dose effects. An EIS must also consider the effects of the synergies between and among ionizing radiation and the multitude of hazardous materials also released into the environment.

CL-52/22 * Instead, the NRC has chosen to abandon its former regulatory philosophy (defense in depth and redundancy of safeguards) in favor of the far less restrictive and less protective approach (performance-based and risk-informed). The relaxation of regulatory control is also evident throughout this draft volume. Decommissioning is the final chapter for the agency in its relationship to a given site and license. For people, the community, municipality, and state, it is the beginning of an essentially endless association with a nuclear site that may continue to endanger their lives and environment. The NRC has a statutory obligation to do a better job

CL-52/25 These admonitions have been presented to the NRC repeatedly in many Commission and staff meetings, agency panels and workshops, public hearings, legal proceedings. Until they are heard, adopted, and adhered to, this Supplement, the Final GEIS on Decommissioning of Nuclear Facilities and the Decommissioning Rule and NRC's radiation protection standards will continue to be inadequate and in violation of the applicable laws, including but not limited to the AEA, NEPA, and APA cited above. All four should be withdrawn and entirely rewritten to provide true protection from radiological contaminations.

Sincerely,

Judith R. Pleisner

November 2002

Letter 53, page 1

Letter 53, page 2

San Luis Obispo Mothers for Peace
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11/9/01
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Comments of the San Luis Obispo Mothers for Peace
On the NRC Draft GEIS on Decommissioning
Nuclear Power Plants

The San Luis Obispo Mothers for Peace (SLOMFP) is aware that the comment period ended on January 30, 2002. Regardless, it is compelled to submit the following comments on the draft GEIS and observations from transcripts of NRC meetings.

Comments:

1. The SLOMFP echos the statement of Sara Barczak representing Georgians for Clean Energy at the Georgia meeting regarding the following:

- P-209
- CL-53/1 a. SLOMFP is troubled by the inability of the public to have adequate access to the NRC website. Prior to the censorship, the existence of the website had been viewed as a giant step forward in communication between the public and the Commission.
- CL-53/2 b. A reduced security force at a decommissioned nuclear plant increases the threat of terrorism. A thorough amended review of necessary security measures during decommissioning of nuclear facilities [due to 9/11] must be compiled by the NRC and added to the supplement.
- CL-53/3 c. Existing nuclear power plants are not generically designed and, therefore, a generic program for decommissioning is completely inadequate to protect public health and safety. New and site specific Environmental Impact Statements must be required to address how different power plants should be decommissioned (from the standpoint of historical operations, age-related degradation, salt water intrusion, etc.) in the safest manner possible for each location. In the case of Diablo Canyon, new seismic information should be sought to assure the public that the process would not increase the dangers of an already dangerously sited nuclear plant.
- CL-53/4 d. When California's nuclear plants received licenses for construction and operation, promises were made that high-level radioactive waste would be removed within a few years. Every deadline to open a safe and permanent repository for high-level radioactive waste has been missed. Therefore, the issue has grown; we are not accessing only the decommissioning of a power

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plant but dealing also with storage and transportation of lethal substances unforeseen when licenses were granted.

Observations:

SLOMFP reviewed the four transcripts from the four meetings held by the NRC on the draft GEIS and was appalled by the waste of taxpayer dollars. The NRC gave 10 individuals representing 10 different environmental groups only 5 minutes each to express their concerns. Furthermore, it is outrageous that the NRC located these proceedings hundreds of miles from the affected communities - and those who are most concerned about the decommissioning of nuclear plants. There is no doubt that the lack of public participation was due to the location of the meetings, not to lack of public concern. Mr. Cameron has heard this concern expressed in the past.

CL-53/5

CL-53/6

Both the NRC and taxpayers would have been better served by sending the draft GEIS to all individuals and groups that have demonstrated interest in safety issues at nuclear plants over the last two decades, with a questionnaire, a comment section, and a self-addressed, stamped envelope.

Sincerely,

Rochelle Becker February 2, 2002
San Luis Obispo Mothers for Peace

Cc: Senator Dianne Feinstein
Senator Barbara Boxer

NUREG-0586, Supplement 1

BIBLIOGRAPHIC DATA SHEET

(See instructions on the reverse)

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(Assigned by NRC, Add Vol., Supp., Rev.,
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Volume 2

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Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities
Supplement 1
Supplement Regarding the Decommissioning of Nuclear Power Reactors
Final Report

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Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

9 SPONSORING ORGANIZATION - NAME AND ADDRESS (If NRC, type "Same as above"; if contractor, provide NRC Division, Office or Region, U S Nuclear Regulatory Commission, and mailing address)

Same as 8 above

10. SUPPLEMENTARY NOTES

11. ABSTRACT (200 words or less)

This document is a final supplement to the NRC Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities (GEIS), issued in 1988 as NUREG-0586. This supplement was prepared because of the technological advances in decommissioning operations, experience gained by licensees, and changes made to NRC regulations since the 1988 GEIS. It is intended to be used to evaluate environmental impacts during the decommissioning of nuclear power reactors as residual radioactivity at the site is reduced to levels that allow for termination of the NRC license. This supplement addresses only the decommissioning of nuclear power reactors licensed by the NRC. It updates the sections of the 1988 GEIS relating to pressurized water reactors, boiling water reactors, and multiple reactor stations. It goes beyond the 1988 GEIS to consider high-temperature gas-cooled reactors and the fast breeder reactors. This document can be considered a stand-alone document and the environmental impacts described herein supercede those described in the 1988 GEIS.

The scope of this supplement is based on the decommissioning activities performed to remove radioactive materials from structures, systems, and components from the time that the licensee certifies that they have permanently ceased power operations until the license is terminated. An evaluation process was developed to determine environmental impacts from the specific activities that occur during reactor decommissioning, based on data from site visits and from licensees at reactor facilities being decommissioned. The data obtained from the sites were analyzed and then evaluated against a list of variables that defined the parameters for facilities that are currently operating but which one day will be decommissioned. This evaluation resulted in a range of impacts for each environmental issue that may be used for comparison by licensees that are or will be decommissioning their facilities. The staff has considered public comments received during scoping and on the draft in preparation of this final supplement.

12 KEY WORDS/DESCRIPTORS (List words or phrases that will assist researchers in locating the report.)

Supplement to the Generic Environmental Impact Statement
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Site release
License termination
Environmental impacts
Post-shutdown decommissioning activities report

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August 12, 2016

Via U.S. Mail and Email

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Subject: Environmental Review Scoping Comments for the San Onofre Nuclear Generating Station Units 2 & 3 Post-Shutdown Decommissioning Project

Dear Ms. Herzog:

On behalf of the City of Laguna Beach ("City"), this letter provides preliminary scoping comments on the Notice of Preparation ("NOP") of a draft environmental impact report ("DEIR") for the San Onofre Nuclear Generating Station Units 2 & 3 Post-Shutdown Decommissioning Project ("Project").

A portion of the proposed Project is located within the jurisdiction of the California State Lands Commission ("SLC"), on land within the Marine Corps Base Camp Pendleton, three (3) miles south of the community of San Clemente, west of Interstate 5 (I-5) and adjacent to the Pacific Ocean in northern San Diego County. The Project consists of the following four phases:

- Phase 1 – Decontamination and Dismantlement (2017-2025);
- Phase 2 – Partial Site Restoration and Offshore Conduit Disposition (2020-2035);
- Phase 3 – ISFSI Operation and Maintenance (2035-2049); and
- Phase 4 – Phase 4: ISFSI Removal and Final Site Restoration (2049-2051).

According to the NOP, the Project has the potential to cause a number of significant short-term, long-term and cumulative environmental impacts. The SLC, as the lead agency under the California Environmental Quality Act ("CEQA"),¹ has correctly determined that an EIR is required. As a responsible agency under CEQA and a cooperating agency under the National Environmental Policy Act ("NEPA"),² the City respectfully submits the following scoping comments.

¹ Pub. Res. Code §§ 21000 *et seq.*; *see also* Cal. Code Regs., tit. 14, ch. 3, § 15000 *et seq.* ("CEQA Guidelines").

² 42 USC §§ 4341 *et seq.*; *see also* Council on Environmental Quality ("CEQ") NEPA Regulations, contained in 40 C.F.R. Parts 1500-1508.

1. Consultation with the City concerning this Project's traffic, recreation, and open space impacts is required.

On July 12, 2016, the City of Laguna Beach became aware of the Project when City staff received the NOP. Section 15083 of the CEQA Guidelines encourages lead agencies to consult with other interested parties early in the environmental review process. The NOP solicits input from such interested parties, including the City. The City hereby submits these comments within the period requested in the NOP.

Because the Project is one of regional and areawide significance, a scoping meeting is required pursuant to Public Resources Code, section 21083.9(a)(2). Further, because the City exercises authority over resources that may be affected by the Project, including transportation facilities within its jurisdiction that could be affected, the SLC is required to consult with the City concerning potential effects to those resources.³ We hereby request consultation concerning the Project's impacts to all potentially impacted transportation facilities within the City and to the area's beaches, adjacent ocean resources, open space and wildlife habitat resources.

Pursuant to Public Resources Code, section 21092.2, we also request notice of all stages of environmental review for the Project and any and all actions that the SLC proposes to take on this Project. Please send any and all notices via email to the following persons:

- a) Mike Phillips, Environmental Specialist, at mphillips@lagunabeachcity.net;
- b) Christa Johnson, Assistant City Manager, cjohnson@lagunabeachcity.net; and
- c) Jason Holder, outside legal counsel retained for this matter, jason@holderecolaw.com.

Additionally, please send paper copies of notice documents solely to the undersigned.

2. Because the Nuclear Regulatory Commission Must Ultimately Approve the Decommissioning Project, There is a Federal Nexus Triggering the Need for a Joint EIR/EIS.

The Project is subject to oversight and review by the U.S. Nuclear Regulatory Commission ("NRC") under Title 10 of the Code of Federal Regulation, Part 50, Section 50.59 (10 CFR 50.59), applying to design changes, tests and experiments carried out at licensed nuclear facilities. The Project involves design changes to SONGS that will ultimately require NRC approval. For example, the NRC will have to approve SCE's license termination plan. Arguably, the Project also requires a license amendment.⁴ When it fulfills its statutory duties,

³ PRC, § 21092.4; CEQA Guidelines, § 15086(a).

⁴ For example, the NRC has not approved the design of the Holtec UMAX system that SCE has proposed for the ISFSI, and that partially subterranean design may reduce radiation safety. The proposed changes and alterations to the SONGS facility's design associated with decommissioning, including the Spent Fuel Pool Island Project ("SFPI") and the expanded and modified Independent Spent Fuel Storage Installation ("ISFSI"), require a license amendment because these changes were never addressed in the SONGS Final Safety Analysis Report ("FSAR") or any of the updates to the FSAR. See 10 C.F.R. §§ 50.56, 50.59(c). In addition, the Updated FSAR also does not consider the effects of sea level rise caused by

NRC will be the federal lead agency for review of the Project pursuant to NEPA. To adequately address the environmental impacts of the whole of the Project, SLC and NRC should jointly prepare an EIR/EIS for the Project. (See CEQA Guidelines, §§ 15006(j), 15170, 15220, 15222.) The CEQA Guidelines are clear:

If a Lead Agency finds that an [Environmental Impact Statement (“EIS”)] or Finding of No Significant Impact for a project would not be prepared by the federal agency by the time when the Lead Agency will need to consider an EIR or Negative Declaration, the Lead Agency should try to prepare a combined EIR-EIS or Negative Declaration-Finding of No Significant Impact. To avoid the need for the federal agency to prepare a separate document for the same project, the Lead Agency must involve the federal agency in the preparation of the joint document.

This involvement is necessary because federal law generally prohibits a federal agency from using an EIR prepared by a state agency unless the federal agency was involved in the preparation of the document.⁵

Similarly, the CEQA regulations for implementing NEPA encourage cooperation with state and local agencies in an effort to reduce duplication in the NEPA process.⁶

In the required Draft EIR/Environmental Impact Statement (“DEIR/S”), NRC should fully address the radiological safety concerns that are purportedly preempted by federal law.⁷ This is the elephant in the room that can no longer be concealed or brushed aside under a blanket claim of federal preemption. The public’s interests and legal rights to understand the full environmental impacts of the decommissioning process will be circumvented if radiological safety issues are not addressed in the DEIR/S analysis.

When conducting this analysis, NRC will have to analyze site-specific radiological safety concerns.⁸ The NRC’s past “generic” EIS documents do not satisfy the requirement for detailed impact analysis. These boilerplate analyses do not address the specific circumstances that make SONGS decommissioning particularly worrisome to neighboring stakeholders, including the City’s residents, businesses, and visitors. In *Natural Resources Defense Council v. Morton*, the

climate change and associated reductions of radiation safety at SONGS. See SONGS FSAR, Hydrologic Engineering Chapter, available at: <http://www.nrc.gov/docs/ML11114/ML11145A032.pdf>.

⁵ CEQA Guidelines, § 15222; see also *id.* at §§ 15226, 15228.

⁶ 40 CFR § 1506.2.

⁷ As discussed further below, when recently approving the ISFSI, the California Coastal Commission did not analyze the “radiological safety” impacts of spent fuel storage casks based on a claim of federal preemption. (See Addendum to CCC Staff Report, dated Oct. 5, 2015 (CCC ISFSI Addendum), pp. 10-11, available at: <http://documents.coastal.ca.gov/reports/2015/10/Tu14a-10-2015.pdf>.) Comments made to the Coastal Commission and included in the CCC ISFSI Addendum are hereby incorporated herein by reference.

⁸ The 2002 Supplement to NRC’s *Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities* (NUREG-0586 Supplement 1) (the “Supplement”) does not address storing spent fuel in a seismically active marine environment such as that characterizing the Project site. See generally Supplement, available at: <http://www.nrc.gov/docs/ML0234/ML023470304.pdf>.

Bureau of Land Management attempted to grant individual licenses, relying solely on a program EIS for the entire licensing program.⁹ The court found that the program EIS failed to provide the decisionmaker with information regarding the specific and particular consequences of the action.¹⁰ A similar finding was made by the court in *Natural Resources Defense Council v. Administrator*: “As a general rule, the preparation of a [program EIS] does not obviate the necessity of preparing a particularized impact statement for individual major federal actions that are components of a subject program.”¹¹ Several courts have confirmed that site-specific environmental analyses are required before a lead agency can dispense with environmental review.¹²

Here, the NRC’s Supplement generically analyzing the impacts of decommissioning identified two categories of impacts to be site-specific: threatened and endangered species and environmental justice. These issues must be addressed in the DEIR/S for this Project. It also identified four categories of impacts that it termed “conditionally site-specific”:

- Land use involving offsite areas to support decommissioning activities
- Aquatic ecology for activities beyond the operational area
- Terrestrial ecology for activities beyond the operational area
- Cultural and historic resources for activities beyond the operational area with no current cultural and historic resource survey.¹³

The Supplement also concluded that environmental justice impacts must be determined on a site-specific basis.¹⁴ The DEIR/S required for this Project must also address each of these site-specific impact categories and any others implicated by the proposed actions.

The NRC’s Supplement also acknowledged site-specific analysis would be required when circumstances for decommissioning are unusual. Additionally, the NRC’s more recent *Generic EIS for Continued Storage of Spent Nuclear Fuel* acknowledged that prior studies did not consider seismic risks at western nuclear reactors including San Onofre.¹⁵ Here, because the Project site is located in a seismically active area and is immediately adjacent to a sensitive

⁹ *Natural Resources Defense Council v. Morton* (1974) 388 F.Supp. 829.

¹⁰ *Id.* at 838.

¹¹ *Natural Resources Defense Council v. Administrator* (1978) 451 F.Supp. 1245, 1258.

¹² The Ninth Circuit of the U.S. Court of Appeals, which includes California, adopted similar reasoning. (See, *Natural Resources Defense Council v. Hodel* (9th Cir. 1987) 819 F.2d 927, 928 (refers to *NRDC v. Morton*, *supra*, as “the leading case in this area”); *City of Tenakee Springs v. Block* (9th Cir. 1985) 778 F.2d 1402, 1407 (“[w]here there are large-scale plans for regional development, NEPA requires both a programmatic and a site-specific EIS”); *Oregon Environmental Council v. Kunzman* (9th Cir. 1983) 714 F.2d 901 (Oregon Department of Agriculture ordered to prepare site-specific EIS for herbicide spraying program and had erred in relying on earlier program EIS).

¹³ Supplement, p. xvi.

¹⁴ *Id.* at p. 4-65.

¹⁵ See *NRC Generic EIS for Continued Storage of Spent Nuclear Fuel* (NUREG-2157), pp. xlii, F-10 fn. 5, available at: <http://www.nrc.gov/docs/ML1419/ML14196A105.pdf>.

marine ecosystem, the site-specific analysis must consider the associated risks of radiological contamination.

In September 2014, SCE submitted a post-shutdown decommissioning activities report (“PSDAR”), the licensee’s required analysis of the extent to which the Project’s impacts are covered by the analysis in NRC’s Supplement.¹⁶ In its PSDAR, SCE asserted that “[b]ased on current plans, no decommissioning activities unique to the site have been identified and no activities or environmental impacts outside the bounds considered in the GEIS have been identified.”¹⁷ The City strenuously disagrees with this conclusion and requests that the NRC conduct an independent assessment of the extent to which the environmental impacts of the Project require site-specific analysis in the DEIR/S, especially given the Project’s unique environmental setting.

When engaging in further consultation with the City and other concerned stakeholders, please confirm that the SLC and NRC will prepare a joint DEIR/S that will address radiological safety issues and will support the analysis with substantial evidence.

3. The DEIR/S Must Analyze the Impacts of the Whole Project.

Both CEQA and NEPA require lead agencies to analyze the impacts of the “whole of the project.”¹⁸ Here, the whole of the project is the entire decommissioning process. The NRC defines “decommission” in 10 CFR 50.2 as a process “to remove a facility or site safely from service and reduce residual radioactivity to a level that permits (1) Release of the property for unrestricted use and termination of the license; or (2) Release of the property under restricted conditions and termination of the license.” This process necessarily includes each step following the decision to cease operations to the termination of the NRC license. Indeed, in its PSDAR, SCE admits that the decommissioning process necessarily includes Spent Nuclear Fuel Management Periods.¹⁹

Unfortunately, there has already been a pattern of piecemealed review and approval of various smaller “projects” that are in actuality inextricably connected to SONGS decommissioning. For example, the CPUC approved SCE’s decommissioning cost estimate in December 2014. This decision was not preceded by any environmental impact analysis. Then,

¹⁶ See SCE’s PSDAR for SONGS, available at: <http://www.nrc.gov/docs/ML1426/ML14269A033.pdf>.

¹⁷ See *id.* at p. 8. The PSDAR is ostensibly supported by SCE’s Environmental Impact Evaluation (“EIE”). See PSDAR for SONGS, p. 18. Like the PSDAR, the EIE concluded that “SCE’s review confirmed that the anticipated or potential impacts are within the bounds of the generic impacts that the NRC described in the decommissioning GEIS.” See EIE, p. ES-3, available at: <https://www.songscommunity.com/docs/eieaug1.pdf>. The EIE, however, provides only a cursory review of potential environmental impacts from the Project applicant’s undeniable self-interested perspective, and that review relies on multiple unsupported assumptions. An independent review of Project impacts, conducted by state and federal agencies, is required.

¹⁸ See CEQA Guidelines § 15378(a) [a “project” means the whole of an action that may cause either a direct or reasonably foreseeable indirect physical change in the environment]; see also *McQueen v. Board of Directors of the Midpeninsula Regional Open Space District* (1988) 202 Cal.App.3d 1136, 1143; see also *Thomas v. Peterson*, 753 F.2d 754 (9th Cir. 1985); see also *Save Yaak Comm. v. Block*, 840 F.2d 714 (9th Cir. 1988).

¹⁹ See SCE’s PSDAR for SONGS, p. 8.

in 2015, the Coastal Commission approved the SFPI and several months later approved the ISFSI for SONGS. These components of the overall decommissioning project should have been analyzed together in a single EIR/S. Instead, their individual effects have been minimized by chopping up the larger project into smaller pieces.

The DEIR/S must analyze the impacts of all phases of decommissioning, including the SFPI and the ISFSI. Again, the public's interests and legal rights to understand the full environmental impacts of the SONGS decommissioning process will be thwarted if the DEIR/S analysis does not consider all necessary aspects of decommissioning.

4. The SLC Has Broad Authority to Analyze Radiological Safety Issues and to Regulate Non-Radioactive Health and Safety Issues.

As noted above, the City recognizes that some of the issues identified above may be considered radiologic safety issues that could be preempted under federal law. The Coastal Commission did not analyze many safety issues raised by commenters based on a claim of federal preemption. Specifically, it asserted:

Without assessing the validity of these concerns, the Commission staff notes that the consequences of any failure, malfunction, or defects in the proposed cooling system are related to radiological safety, which is under the exclusive jurisdiction of the federal [NRC].²⁰

While a state agency may be prevented from imposing restrictions on nuclear power plants based on federal preemption, nothing prevents the state agency from analyzing radiological safety issues and recommending restrictions (i.e., mitigation measures and alternatives) that the NRC can and should adopt.

Further, while both federal and state regulatory agencies have oversight over nuclear power facilities, it is well-settled that state regulators maintain their traditional authority to regulate non-radioactive health and safety issues, including land-use, environmental, and economic concerns associated with nuclear power generation.²¹ SLC regulatory action for this Project is not preempted when motivated by non-preempted concerns and when it neither conflicts with nor frustrates the Congressional purpose of the Atomic Energy Act ("AEA").²² Thus, even if the NRC does not presently assume its proper role as co-lead agency for this Project, for purposes of performing the analysis of radiological safety impacts, SCE must satisfy its duty to analyze non-radioactive health and safety issues.

²⁰ CCC ISFSI Addendum, pp. 10-11.

²¹ *Pacific Gas & Electric Co. v. State Energy Res. Conservation & Dev. Comm'n*, 461 U.S. 190, 205, 212 (1983) (PG&E).

²² *Id.* at 220-223.

5. The DEIR/S must adequately analyze the Project's potentially significant impacts to marine life, air and water quality, City transportation and recreation facilities, and it must consider secondary impacts and analyze a reasonable range of Project alternatives.

The DEIR/S must include thorough analysis of the following potentially significant environmental impacts that could affect the City and its residents:

- a) Demolition impacts – Impacts to air and ocean water quality during demolition of Units 2 & 3 reactor structures
- b) Damage to roadways and other infrastructure caused by the transportation of structures, systems, and components (“SSCs”), hazardous materials, and any contaminated soils and water²³
- c) Impacts to groundwater supplies caused by potential radiation contamination and contamination that may have already occurred
- d) Impacts associated with disposing of spent fuel pool water – Discussion of how contaminated water from the spent fuel cooling pool is disposed of after rods are removed
- e) Impacts to special status species

The NOP acknowledges that four special-status reptiles have the potential to occur within the offshore Project area and that several other special-status species have the potential to occur within the onshore Project site.²⁴

- f) Impacts to marine life if cooling system intake and discharge conduits, and the fish return system conduit are left partially or completely in place
- g) Seismic-related hazards associated with the storage of spent nuclear fuel storage casks for at least 20 years and quite possibly longer²⁵
- h) Impacts that may occur if the dry storage casks in the ISFSI crack and release radiological contamination

²³ SCE's EIE states that decommissioning will involve the transportation of millions of cubic feet of radioactive and nonradioactive waste. See EIE, p. ES-16. It then explains that “SCE plans to ship the bulk of radiological waste by rail; however, there may be times when truck shipments will be required.” *Ibid.*

²⁴ See NOP, Attachment, p. 19.

²⁵ In a June 2015 staff report, Coastal Commission staff noted that “Though SCE seeks temporary development authorization until 2051, there is no assurance that SCE will be able to transfer the spent fuel to DOE custody and decommission the proposed facility as planned by 2051, complicating the analysis of the project's exposure to geologic hazards and its potential to adversely affect coastal resources. The uncertain duration of the ISFSI's presence at the proposed location also has implications for SCE's alternatives analysis....” (CCC ISFSI Addendum, Staff Report, p. 20.)

- i) Cumulative impacts – Please address the potential impacts to the surrounding environment (earth, land, sea, air) of short-term, long-term, and indefinite storage of spent nuclear fuel on the Project site.
- j) Mitigation Measures – please include measures to reduce or eliminate all potentially significant Project impacts

If the SLC concludes that mitigation measures are within the responsibility and jurisdiction of another agency, such as the NRC, then it must recommend that those measures “can and should” be adopted by that agency.

- k) Weekday and peak traffic impacts on all surrounding roads and intersections caused by transporting SSCs, spent nuclear fuel storage casks, and any contaminated soils and water
- l) Weekend and off-peak traffic impacts on Highway 1 and SR 133 (Laguna Canyon Road)
- m) Impacts on the City’s recreation facilities including its beaches and shoreline caused by the Project²⁶
- n) Public service impacts to the City’s residents, including any reduced police, fire, or ambulance services or increased response times caused by Project activities²⁷
- o) Secondary impacts caused by increased Project traffic, including air quality impacts and increased greenhouse gas (GHG) emissions
- p) Consideration of a reasonable range of Project alternatives, including options for removal of the dry storage casks from the Project site and to either a Consolidated Interim Storage (“CIS”) location or to a permanent spent nuclear fuel storage facility

Please include all technical support for the above analyses in appendices to the DEIR/S.

* * *

We request that the SLC and NRC provide a joint environmental impact analysis that considers the Project in its entirety. The requested DEIR/S must enable fulfillment of duties to protect communities and natural resources by considering and minimizing all potentially

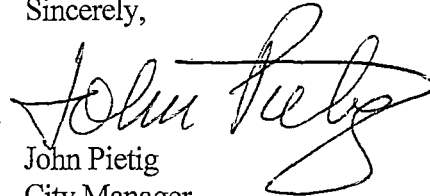
²⁶ The NOP indicates that SLC staff has concluded that the Project would not have any potentially significant impacts to recreation. (NOP, p. 18.) This conclusion is incorrect and is unsupported by substantial evidence. Because the Project is located adjacent to the Pacific Ocean and near several state beaches, it has the potential to impact these recreation facilities. Those impacts must be analyzed in the DEIR/S and mitigated to the extent feasible.

²⁷ Again, the NOP indicates that SLC staff has concluded that the Project would not have any potentially significant impacts to public services. (NOP, p. 18.) This conclusion is similarly incorrect and is also unsupported by substantial evidence.

significant impacts of the Project, including those that have heretofore been disregarded as the exclusive province of the federal government.

If you have any questions concerning these comments, please contact Michael Phillips at (949) 497-0390 and at mphillips@lagunabeachcity.net.

Sincerely,



John Pietig
City Manager

cc: (via email only)
City Council
Christa Johnson, Assistant City Manager
David Shissler, Director of Water Quality
Mike Phillips, Environmental Specialist
Jason Holder, outside legal counsel

EXHIBIT 37



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001

September 5, 2018

Ms. Cynthia Herzog
Senior Environmental Scientist
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825

**SUBJECT: ADDITIONAL INFORMATION REGARDING THE CALIFORNIA STATE LANDS
COMMISSION RESPONSE TO THE CITY OF LAGUNA BEACH
ENVIRONMENTAL REVIEW PUBLIC SCOPING COMMENTS FOR THE
SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 2 AND 3,
DECOMMISSIONING PROJECT**

Dear Ms. Herzog:

Thank you for the opportunity to review the Draft Environmental Impact Report (EIR) prepared by the California State Lands Commission (CSLC) in regard to the San Onofre Nuclear Generating Station, Units 2 and 3 (SONGS), Decommissioning Project, which was released on June 27, 2018. The operator of SONGS, Southern California Edison (SCE), holds facility operating licenses from the U.S. Nuclear Regulatory Commission (NRC). As noted in your correspondence, the CSLC, as the lead agency under the California Environmental Quality Act (CEQA), has determined that an EIR is required for the SONGS decommissioning project, and is currently soliciting feedback on the Draft EIR. While I understand that the public comment period on the Draft EIR closed on August 28, 2018, I hope that this additional information from the NRC staff will be useful to the CSLC as you move forward with the CEQA process.

In Appendix C of the Draft EIR, the CSLC has dispositioned public scoping comments received as a result of the Notice of Preparation issued on June 12, 2016, regarding the scope and content of the EIR for the SONGS decommissioning project. One of the comment letters, dated August 12, 2016, was received from the City of Laguna Beach, California (the City) and addressed to both the CSLC and the NRC. This letter included numerous comments on the ongoing decommissioning activities at SONGS, and made several requests of the CSLC and the NRC with respect to environmental oversight during this process.

In order to facilitate your ongoing review and finalization of the Draft EIR for the SONGS decommissioning project, in the attachment to this letter, the NRC staff has provided some additional information in support of your disposition of the City's comments. The City's letter, as well as other publicly available documents referenced in the attachment, can be found in the NRC's document repository at Agencywide Documents Access and Management System (ADAMS). You may obtain publicly available documents online in the ADAMS Public Documents collection at <http://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "ADAMS Public Documents" and then select "Begin Web-based ADAMS Search."

C. Herzog

- 2 -

If you have any additional questions or clarifications regarding the information provided in the attachment to this letter, please contact the SONGS decommissioning project manager, Marlayna Vaaler, at 301-415-3178, or via email at marlayna.vaaler@nrc.gov.

Sincerely,

/RA/

Bruce A. Watson, CHP, Chief
Reactor Decommissioning Branch
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety and Safeguards

Docket Nos. 50-361 and 50-362

Attachment: Supplemental Information Regarding the CSLC Responses
to the City of Laguna Beach's Comments on the Scope
and Content of the EIR for the SONGS Decommissioning Project

cc: electronic Distribution via Listserv

Additional hard copies to:

Mr. Thomas J. Palmisano
Vice President, Chief Nuclear Officer
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San Onofre Nuclear Generating Station
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San Clemente, CA 92674-0128

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City Manager
City of Laguna Beach
505 Forest Avenue
Laguna Beach, CA 92651

**Supplemental Information Regarding the CSLC Responses
to the City of Laguna Beach's Comments
on the Scope and Content of the EIR for the SONGS Decommissioning Project**

CSLC Responses to Comments from the City of Laguna Beach (City)

In Appendix C of the Draft EIR for the SONGS decommissioning project, the CSLC has identified the City's August 12, 2016, letter as "Comment Set 7" and has identified seven specific comments within the letter. The CSLC has designated these seven comments from the City's letter as #7-1 to #7-7. The NRC staff appreciates the CSLC's specific responses to comments #7-1 to #7-7 and concurs with them. In addition, the NRC staff recommends that the CLSC comment responses be further supplemented as follows:

1. Role of the NRC

The NRC's mission is set forth in its organic statutory authority, the Atomic Energy Act of 1954, as amended (AEA).¹ Under the AEA, the NRC is charged with regulating the civilian use of radioactive material. Thus, the NRC's regulatory program concerns protecting human health and property from the dangers of radioactivity that could potentially arise from such civilian use, and for ensuring the physical security of radioactive material under the ownership or control of its licensees. The NRC accomplishes its mission through a comprehensive radiation protection program for both members of the public and occupational workers (e.g., workers at a nuclear power plant). The NRC regulates its licensees through regulation, license terms and conditions, and through a robust inspection and enforcement program.² The NRC also provides extensive guidance documents to assist its licensees with regulatory compliance. The construction and operation of a nuclear power plant, and the associated use and possession of radioactive material at the plant requires a facility operating license from the NRC.³

Once licensed, the NRC is responsible for ensuring that a nuclear power plant licensee meets the applicable NRC radiation protection requirements, including those set forth in the NRC's 10 CFR Part 20 and 50 regulations, and maintains the required level of physical security and emergency preparedness for the licensed site and the radioactive material under its control. The NRC, however, is not responsible for operating the plant; nor does the NRC own or otherwise control the radioactive material on site. Likewise, the NRC does not hold any real property interest in the licensed site itself; nor does it have any land management authority over the site. In addition, the NRC has no role in the ultimate disposition or use of the site after the facility operating license is terminated.

The regulation of non-radioactive material or non-radioactive pollutants at a nuclear power plant is also outside the scope of the NRC's regulatory authority. Further, the NRC only has regulatory authority over those portions of a nuclear power plant that contain or process radioactive material or have a role in the nuclear fission (electricity generating) process, such as the buildings housing the reactor vessel, the spent fuel pool, and the control room. Other than

¹ 42 [United States Code] U.S.C. §§ 2011 *et seq.*

² The NRC's general radiation protection regulations, applicable to all licensees, are set in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 20, "Standards for Protection Against Radiation." The NRC's regulations concerning the licensing of nuclear power plants like SONGS, including decommissioning, are set forth in 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities."

³ 42 U.S.C. § 2133.

ensuring that the licensee meets the requisite physical security requirements for the facility, or those requirements concerning the transport of radioactive material into and out of the licensed facility, the NRC does not have regulatory authority over the licensee's visitor center, administrative office spaces, cafeteria, roads, parking lots, daycare centers, and other buildings and structures that have no role in either holding, storing, or processing radioactive material.

In this regard, the NRC is not the only regulator of a nuclear power plant facility; several other federal, state, and local agencies typically have regulatory or permitting roles. For example, the licensee must meet the requirements of the Clean Water Act, requiring the licensee to obtain a National Pollutant Discharge Elimination System (NPDES) permit from either the United States Environmental Protection Agency (EPA), or if delegated by the EPA, the appropriate state agency. To the extent there are wetlands on the licensed site, the licensee must obtain the appropriate permit from the United States Army Corps of Engineers. The licensee must satisfy the requirements of all applicable state and local health, safety, and environmental protection laws—those laws are implemented and enforced by the applicable state agencies. Finally, the licensee must satisfy all local or municipal zoning ordinances.

Role of the NRC During Decommissioning and License Termination

In terms of decommissioning, the nuclear power plant licensee must first certify to the NRC that it has permanently stopped operating (i.e., stopped generating electricity by nuclear fission) and that it has removed all nuclear fuel from the reactor vessel.⁴ The decommissioning process usually lasts several years, possibly decades, and under the applicable NRC regulation, can take up to sixty years.⁵ At the end of the decommissioning process, the licensee will seek to terminate its operating license. The NRC will terminate the license if the licensee demonstrates that it has reduced the residual radioactivity at the licensed site to acceptable levels, i.e., those set forth in Subpart E, "Radiological Criteria for License Termination," of 10 CFR Part 20, "Standards for Protection Against Radiation." SCE has informed the NRC that it intends to pursue license termination in accordance with 10 CFR 20.1402, "Radiological criteria for unrestricted use."⁶ Section 20.1402 states, in part,

A site will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a [total effective dose equivalent]⁷ to an average member of the critical group⁸ that does not exceed 25 mrem (0.25 mSv) per year, including that from groundwater

⁴ 10 CFR 50.82(a)(1)(i)-(ii).

⁵ 10 CFR 50.82(a)(3).

⁶ As explained in item 3 below, SCE will continue to operate one small portion of its current licensed site, the independent spent fuel storage installation (ISFSI), indefinitely. Thus, the SCE operating license will, in effect, be reduced to the area of the ISFSI upon successful completion of the decommissioning process for the remainder of the licensed site.

⁷ "Total effective dose equivalent" or TEDE, is defined as "the sum of the effective dose equivalent (for external exposures) and the committed effective dose equivalent (for internal exposures)." 10 CFR 20.1003. The terms "effective dose equivalent" and "committed effective dose equivalent" are also defined in 10 CFR 20.1003, which is the definitions section for 10 CFR Part 20.

⁸ "Critical group" is defined as "group of individuals reasonably expected to receive the greatest exposure to residual radioactivity for any applicable set of circumstances." 10 CFR 20.1003.

sources of drinking water, and the residual radioactivity has been reduced to levels that are as low as reasonably achievable (ALARA).⁹

Thus, whether the licensee has demonstrated to the NRC that it has reduced the site's level of residual radioactivity to the standard specified in 10 CFR 20.1402¹⁰ *is the only factor* that the NRC considers in determining whether the license can be terminated.¹¹

Ensuring that the licensee safely meets the regulatory level of residual radioactivity for license termination is the goal of decommissioning. In this regard, "decommissioning" itself is the process by which the licensee reduces the site's residual radioactivity to the regulatory level by removing or otherwise mitigating on-site radiological contamination.¹² Thus, the presence of non-radioactive contaminants on the site (e.g., PCBs, asbestos, lead-based paint), and the remediation or mitigation of such non-radiological hazards, are beyond the scope of the NRC's regulatory authority. Similarly, whether the licensee dismantles and demolishes the facility's buildings and structures, or chooses to leave them standing as part of the decommissioning process, is not within the NRC's purview. The NRC's regulatory objective is that the licensee meets all applicable NRC public and occupational radiological safety requirements throughout the decommissioning process, and that at the completion of that process the licensee is able to demonstrate the requisite level of residual radioactivity.

2. Environmental Impacts of Decommissioning have been Previously Analyzed and are Not Significant

In its August 12, 2016, letter, the City asserts that the NRC must analyze the site-specific radiological safety concerns associated with the SONGS decommissioning project in a site-specific NEPA document, and that the agency's generic NEPA decommissioning analyses are not sufficient. The analyses conducted by the NRC in support of the decommissioning of nuclear power reactors are set forth in the "Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities," NUREG-0586 (1988), as supplemented and updated by the "Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities," NUREG-0586, Supplement 1 (2002) (collectively, the Decommissioning GEIS).¹³ As explained below, the NRC disagrees with these assertions.

⁹ 10 CFR 20.1402 (alteration added). The term ALARA is defined in 10 CFR 20.1003 and the NRC's ALARA requirements are generally defined in 10 CFR 20.1101, "Radiation protection programs."

¹⁰ The NRC defines "residual radioactivity" as "radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the licensee's control. This includes radioactivity from all licensed and unlicensed sources used by the licensee, but excludes background radiation. It also includes radioactive materials remaining at the site as a result of routine or accidental releases of radioactive material at the site and previous burials at the site, even if those burials were made in accordance with the provisions of 10 CFR part 20." 10 CFR 20.1402.

¹¹ As explained in item 3 below, the SCE operating license will be reduced to the area of the ISFSI and will remain in effect, indefinitely, for the ISFSI only. The NRC will apply the 10 CFR 20.1402 residual radioactivity standard in determining whether the SONGS licensed site, except for the ISFSI, can be released for unrestricted use (i.e., released from the NRC license and hence, from NRC regulatory authority).

¹² The NRC defines the term "decommission" as "to remove a facility or site safely from service and reduce residual radioactivity to a level that permits—(1) Release of the property for unrestricted use and termination of the license; or (2) Release of the property under restricted conditions and termination of the license." 10 CFR 50.2, "Definitions."

¹³ The "GEIS is considered 'generic' in that it evaluates impacts from decommissioning activities common to a number of nuclear power facilities." NUREG-0586, Supp. 1, at xi, n. (a); available at ADAMS Accession No. ML023500395.

1996 Decommissioning Rulemaking

In the preamble to the 1996 rulemaking that promulgated the NRC's current nuclear power plant decommissioning regulation (10 CFR 50.82, "Termination of license"), the NRC described its finding that nuclear power plants undergoing decommissioning present much lower radiological safety risks than operating nuclear power plants, primarily because nuclear fission is no longer occurring in the reactor vessel and all nuclear fuel assemblies have been permanently removed from the reactor vessel and placed into the facility's spent fuel pool.¹⁴ Specifically, the NRC found that "the activities performed by the licensee during decommissioning do not have a significant potential to impact public health and safety and [therefore] require considerably less oversight by the NRC than during power operations."¹⁵

Additionally, the systems and processes required to safely maintain a decommissioning plant are much simpler than those required to run an operating plant.¹⁶ For example, unlike an operating plant, a decommissioning plant will not draw in large quantities of cooling water, which after being run through the plant systems and processed as needed, is then released back into the environment. The gaseous and liquid radioactive effluents of a decommissioning plant, to the extent that there are any, will also be far more limited than those of an operating plant. The NRC determined that any environmental impacts were expected to be "minor" and that "[a]ny site impact should be bounded by the impacts evaluated by previous applicable GEISs as well as any site-specific [environmental impact statement (EIS)]."¹⁷

NRC's NEPA Compliance

The NRC fulfills its NEPA obligations with respect to the decommissioning of nuclear power plants through a combination of generic and site-specific environmental analyses. The NRC prepares a site-specific EIS to support construction and operation of the plant.¹⁸ Subsequent to the issuance of the SONGS operating licenses in 1982, the NRC performed additional environmental reviews to support its decisions regarding the approval or disapproval of specific license amendment or exemption requests. The NRC documented these reviews in accordance with NEPA; specifically, the NRC staff would prepare an environmental assessment (EA) with a finding of no significant impact (FONSI).¹⁹ In addition to the analyses set forth in these site-

¹⁴ 61 FR 39278, "Decommissioning of Nuclear Power Reactors," (July 29, 1996) at 39278-79. After several years in the spent fuel pool, spent fuel assemblies are typically removed from the pool and placed into "dry" storage in an ISFSI located on the site. SCE expects to transfer all spent fuel assemblies currently in the SONGS spent fuel pools to the onsite ISFSI by the end of 2018.

¹⁵ *Id.*, at 39279 (alteration added).

¹⁶ *Id.*

¹⁷ *Id.*, at 39283 (alteration added).

¹⁸ The results of the environmental reviews are typically provided as a "NUREG" document for each facility; NUREG-0490, "Final Environmental Statement related to the operation of San Onofre Nuclear Generating Station, Units 2 and 3", dated April 1981 (ADAMS Accession No. ML18239A414), is the EIS supporting the NRC's decision to issue the operating licenses for the SONGS, Units 2 and 3, facilities.

¹⁹ *E.g.*, 61 FR 50513 (September 26, 1996) (EA/FONSI for amendments of operating licenses to allow an increase in fuel enrichment); 66 FR 32964 (June 19, 2001) (EA/FONSI for amendments of operating licenses to allow SCE to increase its maximum reactor core power level for both Units 2 and 3); 80 FR 21271 (April 17, 2015) (EA/FONSI for issuance of an exemption from emergency planning requirements due to SONGS being in a decommissioning status).

specific NEPA documents, some of which may remain applicable through the decommissioning process,²⁰ the decommissioning of SONGS is covered by the Decommissioning GEIS.

The Decommissioning GEIS is a comprehensive generic EIS that covers the potential environmental impacts likely to arise during decommissioning.²¹ The NRC's prior operational experience served as the basis for the 1988 Decommissioning GEIS, and was supplemented with additional experience in conducting decommissioning during the 2002 update of the Decommissioning GEIS. The NRC has found that most potential environmental impacts resulting from decommissioning are common to all nuclear power plants and therefore, can be analyzed generically. Additionally, for all environmental impacts dispositioned generically, the NRC has found that decommissioning activities will have only "small" impacts (i.e., impacts that are not significant under NEPA). Therefore, decommissioning is not a "major Federal action" under NEPA.²² In short, the NRC considers decommissioning activities to present such low safety and environmental risks that the only licensee decommissioning action triggering a required NRC decision (and as such, triggering a site-specific NEPA review) under 10 CFR 50.82 is the submission of a license termination plan (LTP), which the licensee is required to submit at least two years before the expected license termination date.²³ Thus, if a licensee does not submit any other license amendment or exemption requests during decommissioning, the only site-specific NRC NEPA review will be the one conducted for the LTP.

Since the Decommissioning GEIS was supplemented and updated in 2002, the NRC's operational experience has continued to show that the extensive, detailed analyses set forth in the Decommissioning GEIS will bound or account for most reasonably foreseeable, potential environmental impacts that may arise at any decommissioning plant, including SONGS.²⁴ As long as the licensee's decommissioning activities remain within the scope of the Decommissioning GEIS's analyses, or applicable site-specific NEPA analyses conducted in support of previous licensing actions, those activities will be "bounded" and the potential impacts will be considered to be previously analyzed and not significant for NEPA purposes.

The review of those potential site-specific decommissioning environmental impacts (i.e., those not dispositioned generically in the Decommissioning GEIS) are first addressed in the

²⁰ For example, the June 2001 EA/FONSI analyzed the increase to water temperature resulting from the proposed increase of the maximum reactor core power level. The temperature increase would impact the cooling water discharged into the Pacific Ocean. As the increase in water temperature was within the limit on differential temperature allowed by the California Regional Water Quality Control Board, the increase was not found to be a significant environmental impact. As a decommissioning plant does not need water to cool its reactor, this EA/FONSI bounds any impacts to water temperature (at least with respect to temperature increases) arising from the SONGS decommissioning process, and complements the findings in the Decommissioning GEIS.

²¹ In adjudicating a challenge to the NRC's use of generic NEPA analyses, the United States Supreme Court held that "[t]he generic method chosen by the agency is clearly an appropriate method of conducting the hard look required by NEPA." *Baltimore Gas and Electric Co., v. Natural Resources Defense Council*, 462 U.S. 87, 101 (1983).

²² Council on Environmental Quality (CEQ) regulations define the terms "Major Federal action" and "Significantly." 40 CFR 1508.18 and 1508.27. The NRC has adopted these CEQ definitions. 10 CFR 51.14(b).

²³ 10 CFR 50.82(a)(9) (LTP requirements); 10 CFR 50.82(a)(10) (NRC approval requirements). During its review of the LTP, the NRC will prepare a safety evaluation and an EA, and if approved, the NRC will incorporate the LTP into the operating license via a license amendment.

²⁴ As of August 2018, the NRC has overseen the successful decommissioning of ten nuclear reactor units and is currently overseeing the decommissioning of twenty reactor units (several nuclear power plants, such as SONGS, have more than one reactor unit).

construction and operation EIS (in the case of SONGS, NUREG-0490, referenced above).²⁵ Additionally, such site-specific impacts would have been analyzed in the EA/FONSI for license amendment or exemption requests during the plant's operation, such as those referenced above. Finally, during decommissioning, these site-specific impacts will be analyzed by the NRC staff in the appropriate NEPA document (most likely an EA but if necessary, an EIS) in the event the licensee submits a license amendment or exemption request, or after the licensee submits the license amendment request to approve the LTP.²⁶

10 CFR 50.82

The NRC's NEPA compliance is supported by the requirements of 10 CFR 50.82. Section 50.82 prohibits a licensee from performing any decommissioning activity that would "result in significant environmental impacts not previously reviewed."²⁷ This provision was added by the 1996 rule "[t]o account for site-specific situations that may occur outside these environmental impact considerations;" the intent of this provision was to prohibit decommissioning activities that could result in significant environmental impacts not previously reviewed.²⁸

The licensee is also required to submit to the NRC a post-shutdown decommissioning activities report (PSDAR), which is one of the regulatory prerequisites that must be satisfied before a licensee may begin decommissioning.²⁹ The NRC does not approve or disapprove the PSDAR; the submission of a PSDAR is a licensee reporting requirement. As such, the submission of the PSDAR does not result in an agency action. As there is no agency action, there is no requirement to perform a NEPA analysis on the licensee's PSDAR submission. The licensee, however, must include in the PSDAR "a discussion that provides the reasons for concluding that the environmental impacts associated with site-specific decommissioning activities will be bounded by appropriate previously issued environmental impact statements."³⁰ Although not approved, the NRC staff will still review the PSDAR and to extent that the NRC has concerns with the PSDAR's environmental compliance discussion or other required portions of the PSDAR, the NRC staff may request additional information from the licensee. Further, 10 CFR 50.82 requires a licensee to inform the NRC and affected States, in writing, before "performing any decommissioning activity inconsistent with, or making any significant schedule change from, those actions and schedules described in the PSDAR."³¹

Thus, if the licensee wishes to perform a decommissioning activity that would result in a significant impact not previously reviewed, the licensee would be required to submit a license

²⁵ *E.g.*, NUREG-0490, § 5.2, "Impacts on Land Use," § 5.4.1, "Environmental Impacts/Terrestrial Environment," § 5.4.2, "Environmental Impacts/Impacts on the Aquatic Environment," § 5.5.2, "Radiological impacts on biota other than man," § 9.4, "Decommissioning," and Appendix D, "Cultural Resources."

²⁶ Any site-specific NEPA analysis prepared during decommissioning will rely on the Decommissioning GEIS' analyses for the generically dispositioned issues. In this regard, the site-specific NEPA analysis "tiers" off the Decommissioning GEIS. 40 CFR 1502.20 and 1508.28 (CEQ regulations); 10 CFR Part 51, Appendix A, 1(b) (adopted by NRC).

²⁷ 10 CFR 50.82(a)(6)(ii).

²⁸ 61 FR, at 39283.

²⁹ 10 CFR 50.82(a)(4)(i). Prior to the 1996 rule, licensees were required to submit a decommissioning plan, which was subject to NRC approval. The 1996 rule replaced the decommissioning plan with the PSDAR. 61 FR at 39279 ("A major change from the current rule is that power reactor licensees would no longer be required to have an approved decommissioning plan before being permitted to perform major decommissioning activities").

³⁰ 10 CFR 50.82(a)(4)(i).

³¹ 10 CFR 50.82(a)(7).

amendment request or an exemption request. The NRC would then analyze the proposed action and prepare the necessary site-specific NEPA analysis. If the licensee wishes to perform a decommissioning activity that is otherwise inconsistent with the PSDAR, the licensee would be required to notify the NRC and affected States in writing before taking any action. The NRC and affected States would then have the opportunity to review the proposed action and request additional information from the licensee before the action is taken.

Preparation of a Joint EIR/Environmental Impact Statement (EIS)

In its August 12, 2016, letter, the City asserts that the NRC and the CSLC should prepare a joint EIR. In response, the NRC staff does not agree that it should prepare a joint EIR/EIS with CSLC (nor does the NRC need to prepare a “stand-alone” EIS). According to the draft EIR, the jurisdiction of the CSLC is “seaward of the ordinary high-water mark.”³² The proposed CSLC action concerns the disposition of submerged lands leased to SCE and the City of Riverside, California,³³ and the improvements thereon, namely, the SONGS, Units 2 and 3, offshore intake and discharge conduits and associated appurtenances, navigational and environmental monitoring buoys, and riprap along shore seaward of the ordinary high-water mark.³⁴

Whether these improvements should remain in place indefinitely or be partially or wholly removed is a question that is not within the NRC’s regulatory authority. As with any part of the NRC-licensed SCE site, the NRC’s regulatory objective is that SCE be able to demonstrate that it has met the 10 CFR 20.1402 level of residual radioactivity at the conclusion of the decommissioning process.

SONGS PSDAR

In its August 12, 2016, letter, the City states that it disagrees with the conclusion reached by SCE in its PSDAR, submitted in September 2014 (ADAMS Accession No. ML14269A033). In its PSDAR, SCE stated that “[b]ased on current plans, no decommissioning activities unique to the site have been identified and no activities or environmental impacts outside the bounds considered in the GEIS have been identified.”³⁵

By letter dated August 20, 2015 (ADAMS Accession No. ML15204A383), the NRC acknowledged receipt of SCE’s PSDAR, documented the review, and summarized comments received during the PSDAR public meeting held near the SONGS site in October 2014. In its August 20, 2015, letter, the NRC staff stated:

[SCE] compared the SONGS, Units 2 and 3, facility to the reference facility in NUREG-0586 and found that the SONGS, Units 2 and 3, environmental impacts were bounded by the analysis provided in NUREG-0586. After reviewing [SCE’s] comparison, the NRC staff finds that the potential environmental impacts associated with SONGS, Units 2 and 3, decommissioning activities are bounded by the previously issued GEIS and its [supplement], are described consistent

³² CSLC, “Draft Environmental Impact Report for the San Onofre Nuclear Generating Station (SONGS) Units 2 & 3 Decommissioning Project,” State Clearinghouse No. 2016071025, CSLC EIR No. 784 (June 2018) at ES-3.

³³ The City of Riverside is not an NRC licensee and the NRC has no regulatory authority over the City of Riverside.

³⁴ *Id.*, at ES-1.

³⁵ SCE, PSDAR (September 23, 2014) at 8.

with the guidance in RG 1.185,³⁶ and meet the requirements of 10 CFR 50.82(a)(4)(i).³⁷

The City has provided no information that any of the potential environmental impacts that may result from the planned decommissioning activities, as described in SCE's September 2014 PSDAR, are beyond the scope of the Decommissioning GEIS and other previously prepared NRC site-specific NEPA documents or are, in any other way, significant. In response to the City's assertion that the NRC must analyze the site-specific radiological safety issues, presumably in an EIS, the analyses provided in the Decommissioning GEIS are sufficient and bound any reasonably foreseeable impact.

Major Decommissioning Activities; NRC Oversight During Decommissioning

The NRC makes a distinction between an environmental issue, which is analyzed under NEPA, and a safety issue, for which the NRC is responsible under the AEA. Safety issues are analyzed in NRC safety reports, such as a nuclear power plant's final safety analysis report or FSAR, which is part of the plant's licensing basis, and is updated on a regular basis. Any changes that may impact the safety of the plant are evaluated by the NRC staff as part of the safety evaluation reports that accompany licensee requests for the approval of a license amendment or exemption request, or are otherwise reviewed by the NRC staff as part of the licensee reporting and NRC inspection processes. As a "safety" agency, the NRC handles safety issues as they arise on an ongoing and operational basis.

A licensee is prohibited from engaging in "major decommissioning activities" until ninety days after the submission of the PSDAR, provided that the licensee has submitted its 10 CFR 50.82(a)(1)(i)-(ii) certifications that it has permanently ceased operations and has removed all fuel assemblies from the reactor vessel.³⁸ Once the post-PSDAR ninety day period has run and the requisite certifications have been submitted to the NRC, the licensee may begin major decommissioning activities. The licensee does not need prior NRC approval to conduct such major decommissioning activities, provided that the licensee's activities remain within a certain defined scope, as prescribed by 10 CFR 50.59, "Changes, tests and experiments."³⁹

During the decommissioning process, the NRC maintains comprehensive regulatory oversight over the plant. The licensee remains subject to the terms and conditions of its license, and as such, remains subject to NRC inspection and enforcement. As described in Inspection Manual Chapter (IMC) 2561, "Decommissioning Power Reactor Inspection Program" (ADAMS Accession No. ML17348A400), the NRC staff will engage in regular on-site inspections that

³⁶ Regulatory Guide (RG) 1.185, "Standard Format and Content for Post-Shutdown Decommissioning Activities Report," Revision 1 (June 2013) (ADAMS Accession No. ML13140A038). RG 1.185 is an NRC guidance document developed to assist licensees in complying with the PSDAR requirements.

³⁷ NRC, Letter to T.J. Palmisano, Vice President and Chief Nuclear Officer, SCE (August 20, 2015), at 5.

³⁸ The term "major decommissioning activity" means, "for a nuclear power reactor facility, any activity that results in permanent removal of major radioactive components, permanently modifies the structure of the containment, or results in dismantling components for shipment containing greater than class C waste in accordance with § 61.55 of this chapter." 10 CFR 50.2.

³⁹ Section 50.59 provides parameters by which a licensee may make certain changes to the facility without prior NRC approval. If the licensee's intended action will exceed the 10 CFR 50.59 parameters, the licensee must seek NRC approval before taking the action, typically in the form of a license amendment or exemption request. The NRC will then conduct a site-specific safety and environmental analysis (NEPA) prior to approving or disapproving the licensee's proposed action.

emphasize radiological controls and management, procedure compliance, spent fuel pool operation, and the safety review program. Many activities that occur during decommissioning are routine and occur frequently in operating plants. These include decontamination of surfaces and components, surveys for radioactive contamination, waste packaging and disposal, and other activities. During active decommissioning periods, NRC inspectors may be at the facility 2 or 3 weeks of the month in order to observe ongoing activities. During a long-term storage period, inspectors would be present to conduct inspections at least once a year in accordance with the decommissioning reactor inspection program outlined in IMC 2561.

The NRC has also issued several regulatory guidance documents for nuclear power plant decommissioning, including Regulatory Guide (RG) 1.184, "Decommissioning of Nuclear Power Reactors," Revision 1 (October 2013; ADAMS Accession No. ML13144A840); RG 1.185, "Standard Format and Content for Post-Shutdown Decommissioning Activities Report," Revision 1 (June 2013; ADAMS Accession No. ML13140A038)); and RG 4.21, "Minimization of Contamination and Radioactive Waste Generation: Life-Cycle Planning" (June 2008; ADAMS Accession No. ML080500187). The guidance is directed toward NRC licensees and provides suggested procedures and methodologies to meet the applicable NRC regulatory requirements during decommissioning. Although compliance with guidance is not required, licensees have an incentive to follow the procedures and methodologies set forth in the guidance documents as NRC practice is to presume that compliance with the guidance means that the licensee is in compliance with the applicable NRC regulation upon which the guidance is based (e.g., 10 CFR 50.82 and 10 CFR 20.1402).

Finally, the NRC's regular contact with the licensee during decommissioning, through its on-site inspection program and otherwise, allow the NRC and licensee to address, on a site-specific basis, any radiation related safety concern that may arise during the process. Based upon its operating experience, the NRC has determined that all expected and reasonably foreseeable safety issues for SONGS are bounded by the Decommissioning GEIS, the current SONGS licensing basis (e.g., the FSAR and NRC staff safety evaluations associated with various licensing actions), and can be appropriately controlled through the existing safety programs.

3. SONGS Independent Spent Fuel Storage Installation; Seismic Concerns

The City's August 12, 2016, letter raises concerns about the radiological safety impacts of spent fuel storage casks, specifically in regard to "storing spent fuel in a seismically active marine environment."⁴⁰ As explained below, the NRC staff has determined that the storage of spent fuel, in storage casks, at SONGS meets all applicable NRC safety criteria.

Reduction of SONGS License to the ISFSI

The NRC issued to SCE the SONGS operating licenses in accordance with its regulations in 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." As a Part 50 license holder, SCE holds a general license to install and operate an "independent spent fuel

⁴⁰ City of Laguna Beach, Letter to C. Herzog, Senior Environmental Scientist, CSLC and M. Vaaler, Project Manager, NRC (August 12, 2016), at 3, n. 8.

storage installation” or ISFSI, on the SONGS site.⁴¹ An ISFSI consists of a large concrete structure to safely store the spent fuel. The spent fuel assemblies are contained in the storage casks that are placed on or within the concrete structure of the ISFSI; the casks can consist of one or more cask designs, all of which must have been approved by the NRC.⁴² The storage casks are passive systems; they are designed with one purpose, to safely store spent fuel. In addition to the concrete structure and storage casks, an ISFSI is typically fenced or otherwise secured as it is required to be located in a restricted access area.

The SONGS ISFSI is not included in the scope of the current SONGS decommissioning project and in all likelihood, will not be included in the LTP when submitted to the NRC. Thus, the aim of the current decommissioning process is to satisfy the requirements of 10 CFR 20.1402 for all areas of SONGS except the ISFSI. After the NRC approves the SONGS LTP, and SCE has completed the current decommissioning process and demonstrated its compliance with 10 CFR 20.1402, the NRC will amend SCE’s Part 50 facility operating license such that the license will be reduced to an area that only encompasses the ISFSI facility. At that point, the only remaining licensee activities that are permitted and regulated by the NRC are those related to spent fuel storage and the eventual decommissioning of the ISFSI itself, once the spent fuel has been permanently removed from the ISFSI.⁴³

ISFSI Design and Operation

During the period of ISFSI operation, the SONGS ISFSI will continue to be governed by the NRC’s general license regulations for ISFSIs in Subpart K, “General License for Storage of Spent Fuel at Power Reactor Sites,” of 10 CFR Part 72, “Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater than Class C Waste.” The NRC’s regulations in 10 CFR Part 72 provide requirements for the safe design and operation of ISFSIs. Any operational conditions, required actions, monitoring or surveillance requirements, or other technical specifications that are needed for safe operation of the casks located at a general license ISFSI are included in the certificate of compliance that the NRC issues to the cask manufacturer. Section 72.212 requires licensees to comply with the terms, conditions, and specifications of the cask certificate.⁴⁴ In particular, the licensee must perform written evaluations before use of a given cask system that demonstrate that

[c]ask storage pads and areas have been designed to adequately support the static and dynamic loads of the stored casks, considering potential amplification of earthquakes through soil-structure interaction, and soil liquefaction potential or other soil instability due to vibratory ground motion.⁴⁵

⁴¹ Under the applicable NRC regulations in 10 CFR Part 72, “Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater than Class C Waste,” the general ISFSI license is incident to the Part 50 license. The applicable regulation, 10 CFR 72.210, “General license issued,” states that “[a] general license is hereby issued for the storage of spent fuel in an independent spent fuel storage installation at power reactor sites to persons authorized to possess or operate nuclear power reactors under 10 CFR part 50 or 10 CFR part 52.” The conditions of the general ISFSI license are set forth in 10 CFR 72.212, “Conditions of general license issued under § 72.210.”

⁴² 10 CFR 72.212(b)(2)-(3); 10 CFR 72.214, “List of approved spent fuel storage casks.”

⁴³ As a general license ISFSI, the SONGS ISFSI will be decommissioned in accordance with 10 CFR 50.82.

⁴⁴ 10 CFR 72.212(b)(3).

⁴⁵ 10 CFR 72.212(b)(5)(ii) (alteration added).

Such written evaluations are subject to NRC inspection.

NRC regulations also require general ISFSI licensees to conduct radiation monitoring to ensure compliance with the NRC requirements for radiation dose limits for the public and ISFSI workers.⁴⁶ The NRC maintains oversight of ISFSIs, and the agency staff routinely inspects the site operations to ensure continued compliance with all applicable regulatory requirements, including the conditions and specifications of the applicable cask certificates.

In addition, the NRC requires aging management programs for spent fuel storage casks as storage operations continue into a renewed storage term.⁴⁷ Aging management programs include monitoring and inspections of both the ISFSI support structure and storage casks to detect any degradation, and corrective actions (such as further inspections, repairs or replacement of components, and other mitigation measures) to ensure that the ISFSI continues to meet the NRC's requirements for safe spent fuel storage. Licensees assess the effectiveness of these programs on an ongoing basis to determine if they need to be adjusted to address unexpected degradation, or degradation that may be occurring at a greater rate than was initially assumed. The NRC's oversight of ISFSIs includes inspection of a licensee's aging management activities.

Operating experience from the ISFSIs currently in operation is continually assessed by the licensees and the NRC to determine if new information, knowledge, and experience warrant any changes to licensed spent fuel storage operations. If a potential environmental impact (e.g., increased seismic activity) that could adversely affect the safe operation of the ISFSI is identified, the NRC will determine if the licensee will need to reevaluate its analyses and associated spent fuel storage operations to address the identified change.

Seismic Issues

In its development of the 2002 update to the Decommissioning GEIS, the NRC staff considered various site-specific issues at SONGS, including seismic risks. A draft was made available for public comment and one SONGS-specific comment was received. The comment stated,

SONGS is located in a highly active seismic zone, where seismic activity is speculated by some geological experts to generate quakes up to 7.6 Magnitude on the Richter Scale (by new evidence of local off-shore blind thrust faults, which cause a greater extent of groundshaking and acceleration than the manner in which quakes are traditionally studied). SONGS was only designed and constructed to withstand a maximum quake of 7.0 Magnitude. SONGS is located in an area immediately on the southern California coastline, with most facilities elevated only to a level of 20 ft. above mean sea level. These facilities are highly exposed and vulnerable to effects of rising sea levels, and tsunamis, and are insufficiently protected.⁴⁸

⁴⁶ 10 CFR 72.104, "Criteria for radioactive materials in effluents and direct radiation from an ISFSI or [monitored retrieval storage] MRS;" 10 CFR 72.106, "Controlled area of an ISFSI or MRS." Both sections 72.104 and 72.106 are made applicable to general ISFSI licenses by operation of paragraph (c) of 10 CFR 72.13, "Applicability."

⁴⁷ 10 CFR 72.240, "Conditions for spent fuel storage cask renewal."

⁴⁸ Decommissioning GEIS, NUREG-0586, App. O (2002) at O-124.

In response, the NRC replied,

NRC staff recognizes that there is wide variability among nuclear power plants. However, based on the results of our analysis, the impacts resulting from decommissioning are similar regardless of plant characteristics, including site-specific information from San Onofre. The NRC established an envelope of environmental impacts resulting from decommissioning activities, identified those activities that can be bounded by a generic evaluation, and identified those that require a site-specific analysis. The NRC concentrated the environmental analysis on those activities with the greatest likelihood of having an environmental impact. Even for those impacts that have been determined to be generic, a licensee is required to do a site-specific analysis [in the PSDAR] to determine whether the impacts fall within the generic envelope. If they are outside of the bounds of the generic envelope, the licensee must seek approval from the NRC.⁴⁹

The NRC is aware of no information, and the City has not provided any, that would invalidate the NRC's environmental and safety analyses, as set forth in the Decommissioning GEIS with respect to seismic activity or any other issue.

⁴⁹ *Id.*, at O-124 to O-125.

C. Herzog

- 2 -

SUBJECT: ADDITIONAL INFORMATION REGARDING THE CALIFORNIA STATE LANDS
COMMISSION RESPONSE TO THE CITY OF LAGUNA BEACH
ENVIRONMENTAL REVIEW PUBLIC SCOPING COMMENTS FOR THE
SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 2 AND 3,
DECOMMISSIONING PROJECT dated September 5, 2018

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EXHIBIT 38