NUREG-0586, Supplement 1
Volume 2

Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities

Supplement 1

Regarding the Decommissioning of Nuclear Power Reactors

Appendices N, O and P

Final Report

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

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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

Abstract

This document is a supplement to the U.S. Nuclear Regulatory Commission (NRC) document *Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities* issued in 1988 (NUREG-0586, referred to here as the 1988 Generic Environmental Impact Statement [GEIS]). This Supplement was prepared because of technological advances in decommissioning operations, experience gained by licensees, and changes made to NRC regulations since the 1988 GEIS.

This Supplement updates the information provided in 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 explicitly consider high-temperature gas-cooled reactors and fast breeder reactors. This document can be considered a stand-alone document for power reactor facilities such that readers should not need to refer back to the 1988 GEIS. The environmental impacts described in this Supplement supercede those described for power reactor facilities 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 it has permanently ceased power operations until the license is terminated. The scope of the document was determined through public scoping meetings and meetings with other Federal agencies and the nuclear industry. An evaluation process was then developed to determine environmental impacts from nuclear power reactor facilities that are being decommissioned. The evaluation process involved determining the specific activities that occur during reactor decommissioning and obtaining data from site visits and from licensees at reactor facilities currently 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 will one day 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.

Abstract

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Abbreviations/Acronyms

µGy	microGray(s)
µSv	microSieverts
ac	acre(s)
AEA	Atomic Energy Act of 1954
AEC	U.S. Atomic Energy Commission
ALI	annual limits on intake
ALARA	as low as reasonably achievable
ANPR	advance notice of proposed rulemaking
BLM	Bureau of Land Management
BMP	best management practice
Bq	Bequerel(s)
BWR	boiling water reactor
C	Celsius
CAA	Clean Air Act
CDE	committed dose equivalent
CEDE	committed effective dose equivalent
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
Ci	Curie
CWA	Clean Water Act
DAC	derived air concentration
dB	decibel
dBA	A-weighted sound levels
dBC	C-weighted sound levels
DBA	design basis accident
DDREF	dose or dose rate effectiveness factor
DE	dose equivalent
DNL	day-night average sound level
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
EA	environmental assessment

EDE	effective dose equivalent
EIS	environmental impact statement
EJ	environmental justice
EPA	U.S. Environmental Protection Agency
ER	environmental report
ESA	Endangered Species Act of 1973
ES&H	environment, safety and health
F	Fahrenheit
FAA	Federal Aviation Administration
FBR	fast breeder reactor
FES	final environmental statement
FHA	Federal Housing Administration
FR	Federal Register
FSAR	Final Safety Analysis Report
ft	foot/feet
FWPCA	Federal Water Pollution Control Act (also known as the Clean Water Act of 1977)
FWS	U.S. Fish and Wildlife Service
gal.	gallon(s)
GEIS	Generic Environmental Impact Statement
gpd	gallons per day
gpm	gallons per minute
GTCC	Greater-than-Class-C (waste)
Gy	gray(s)
ha	hectare(s)
HDA	high decommissioning activity
HEPA	high-efficiency particulate air (filter)
HLW	high-level waste
h	hour
HTGR	high-temperature gas-cooled reactor
HUD	U.S. Department of Housing and Urban Development
HVAC	heating, ventilation, and air conditioning
IAEA	International Atomic Energy Agency
in.	inch(es)
I&C	instrumentation and control
ICRP	International Commission on Radiological Protection

ISFSI	independent spent fuel storage installation
kg	kilogram(s)
km	kilometer(s)
kV	kilovolt(s)
kWh	kilowatt hour(s)
L	liter(s)
LDA	low-decommissioning activity
LER	licensee event report
LET	linear energy transfer
LLW	low-level waste
LOS	level of service
LRA	license renewal application
LTP	license termination plan
LWR	light water reactor
m	meter(s)
m^3/d	cubic meters per day
m^3/s	cubic meters per second
MARSSIM	Multi-agency Radiation Survey and Site Investigation Manual, NUREG-1575
MBTA	Migratory Bird Treaty Act of 1918
mi	mile(s)
mGy	milliGray(s)
MPC	maximum permissible concentrations
mrad	millirad(s)
mrem	millirem(s)
MRS	monitored retrievable storage
mSv	milliSievert(s)
MTHM	metric tonnes of heavy metal
MT	metric ton(s) (or tonne[s])
MTU	metric ton(s)-uranium
MW	megawatt(s)
MWd/MTU	megawatt-days per metric ton of uranium
MW(e)	megawatt(s) electric
MW(t)	megawatt(s) thermal
MWh	megawatt hour(s)
NA	not applicable
NAS	National Academy of Sciences
NBS	National Bureau of Standards

NCRP	National Council on Radiation Protection and Measurements
NEI	Nuclear Energy Institute
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act of 1966
NIST	National Institute of Standards and Technology
NMFS	National Marine Fisheries Service
NO_x	nitrogen oxide(s)
NPDES	National Pollutant Discharge Elimination System
NRC	U.S. Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation
NWPA	Nuclear Waste Policy Act of 1982
ODCM	Offsite Dose Calculation Manual
OSHA	Occupational Safety and Health Administration
PAG	protective action guide
PCBs	polychlorobiphenyls
PEL	permissible exposure limit
POL	possession-only license
PPE	personal protective equipment
PSDAR	post-shutdown decommissioning activities report
PV	pressure vessel
PWR	pressurized water reactor
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act of 1976
RCS	reactor coolant system
ROW	right-of-way/rights-of-way
RPV	reactor pressure vessel
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Officer
SI	Systeme Internationale (international system of units)
SO_2	sulfur dioxide
SO_x	sulfur oxide(s)
SSCs	structures, systems, and components
Sv	sievert(s)

TEDE	total effective dose equivalent
THPO	Tribal Historic Preservation Officer
UNSCEAR	United Nations Scientific Committee on The Effects of Atomic Radiation
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound
VRM	Visual Resource Management (system)
wk	week(s)
YNPS	Yankee Nuclear Power Station
yr	year(s)

Appendix N

Summary of Scoping Comments

Appendix N

Summary of Scoping Comments

On Tuesday, March 14, 2000, the U.S. Nuclear Regulatory Commission (NRC) published a Notice of Intent in the Federal Register (65 FR 13797), to notify the public of the staff's intent to prepare a supplement to the *Generic Environmental Impact Statement on Decommissioning Nuclear Facilities* (1988 GEIS), NUREG-0586, to support decommissioning activities at commercial power production facilities and to conduct scoping. This Supplement to the 1988 GEIS was prepared in accordance with the National Environmental Policy Act (NEPA 1969), Council on Environmental Quality guidelines, and 10 CFR Part 51. As outlined by NEPA, the NRC initiated the scoping process with the issuance of the Federal Register Notice. The NRC invited all stakeholders to participate in the scoping process by providing oral comments at the scheduled public meetings and/or submitting written suggestions and comments no later than July 15, 2000. The scoping process included four public scoping meetings, which were held in Lisle, IL, on April 27, 2000; Boston, MA, on May 17, 2000; Atlanta, GA, on June 13, 2000; and San Francisco, CA, on June 21, 2000. Approximately 60 members of the public attended the meetings. All four meetings began with NRC staff members providing a brief overview of the decommissioning and NEPA process. After the NRC's prepared statements, the meetings were open to public comments. Twenty-three attendees provided either oral or written statements that were recorded and transcribed by a certified court recorder. The corrected meeting transcripts were provided in four letters dated June 30, 2000 (NRC 2000a, 2000b, 2000c, 2000d) and are available on the NRC website at http://www.nrc.gov/NRC/REACTOR/DECOMMISSIONING/GEIS/index.html. In addition to the comments provided during the public meetings, 11 comment letters were received by the NRC in response to the Notice of Intent.

While developing this Supplement to the 1988 GEIS, the staff and its contractor considered all of the relevant issues raised during the scoping process. The full scoping summary report is accessible through NRC's Public Electronic Reading Room (ADAMS) website at http://www.nrc.gov/NRC/ADAMS/index.html; the accession number is ML011100625. Each comment that was applicable to this Supplement is summarized in this section. This information was extracted from the Scoping Summary Report, dated April 17, 2001 (65 FR 13797) and is being provided in this report for the convenience of those interested in the scoping comments applicable to this environmental review. The comments that were determined to be general or outside the scope of Supplement are not included in this Appendix.

Meetings

Location	Date
Lisle, IL	April 27, 2000
Boston, MA	May 17, 2000
Atlanta, GA	June 13, 2000
San Francisco, CA	June 21, 2000

Written Comment Letters

Name/Organization	Date
Nuclear Information and Resource Service	July 11, 2000
Pamela Blockey-O'Brien	July 12, 2000
Nuclear Information and Resource Service (submitted a supplement to the letter they originally sent)	July 13, 2000
Lynnette Hendricks (Nuclear Energy Institute)	July 14, 2000
Massachusetts Citizens for Safe Energy	July 14, 2000
Campaign for a Prosperous Georgia	July 14, 2000
Paul Gunter (Nuclear Information and Resource Service)	July 14, 2000
George Crocker (Executive Director of the North American Water Office)	July 14, 2000
Citizens Awareness Network	July 15, 2000
Glenn Carroll (Georgians Against Nuclear Power)	July 15, 2000
George A. Zinke (Director, Nuclear Safety & Regulatory Affairs, Maine Yankee Atomic Power Co.)	July 17, 2000

Generic Environmental Impact Statement - Public Scoping Meeting Comments and Responses in Scope

1. Why is the GEIS being updated?

Three commenters (five comments) inquired about the reason that the NRC decided to update the GEIS. The question was raised whether the update was based on new information such as worker exposure, volume of high- or low-level radioactive waste, differences in disposal methodologies or decommissioning options, such as options in addition to entombment and rubblization. One commenter asked if the NRC had already found new information that would make the GEIS more conservative.

Response: *The basis for this Supplement is discussed in Chapter 1, Introduction. This comment is within the scope of this Supplement.*

One commenter (in two different comments) questioned the creation of the GEIS if decommissioning is not a major Federal action and also indicated that the GEIS and the decommissioning process are the "deregulation of decommissioning."

Response: *The update of the GEIS as related to the National Environmental Policy Act (NEPA) of 1969 is discussed in Chapter 1, Introduction. This comment is within the scope of this Supplement.*

Four commenters expressed concern that the revisions to the GEIS would be used in negative ways such as to serve private corporate nuclear industry interests, to allow a release of unnecessary radioactive material onsite and offsite, or to reduce liability for the nuclear industry and increase environmental damage and public health. One commenter indicated that the GEIS should regulate all forms of radioactive releases.

Response: *The appropriate uses of the Supplement are discussed in Chapter 1, Introduction. This comment is within the scope of this Supplement.*

Three commenters (four comments) agreed with the NRC's efforts to update the 1988 GEIS on decommissioning. One commenter indicated that the Supplement should be updated to incorporate and evaluate new decommissioning technologies developed over the past decade. A second commenter specified that rubblization should be considered.

Response: *One of the purposes of revising the GEIS is to incorporate and evaluate new decommissioning technologies and methods such as rubblization. This comment is within the scope of this Supplement. Technologies and methods are incorporated into the discussion and analysis in Chapter 4, Environmental Impacts.*

2. How will the GEIS be used?

One commenter inquired as to how the GEIS would be used.

Response: *The appropriate uses of this Supplement are discussed in Chapter 1, Introduction. This comment is within the scope of this Supplement.*

One commenter encouraged the NRC to make the Supplemental GEIS user-friendly with plain English and straightforward explanations for the public.

Response: *The NRC has specific criteria that must be met in publications that are related to the usage of plain English. This comment is within the scope of this Supplement and incorporated throughout the document.*

3. Will the GEIS satisfy the NEPA process?

One commenter asked about the actions and reviews involved in determining if the environmental impact concerns considered by the NRC sufficiently satisfy the NEPA requirements.

Response: *The relationship between the GEIS and the NEPA requirements are discussed in Chapter 1, Introduction. This comment is within the scope of this Supplement.*

One commenter asked if the NRC was planning to communicate the results of the scoping meetings and the final scope of the GEIS to the public.

Response: *The NEPA process provides for publishing and presentation of a draft report for comment before the final Supplement is issued. The comments noted in this summary report as being within the scope of the GEIS are addressed in this Supplement. Comments on the Supplement are solicited and considered before the report is finalized. This comment is within the scope of this Supplement.*

One commenter asserted that the NRC made false assumptions in the GEIS and indicated that these assumptions must be addressed and the true risk discovered before any further generic considerations are implemented.

Response: *The assumptions in the 1988 GEIS have been reconsidered in the development of this Supplement. This comment is within the scope of this Supplement and is discussed in Chapter 1, Introduction, and Chapter 4, Environmental Impacts.*

One commenter indicated that decommissioning was a Federal major action and required NEPA compliance and site-specific EISs.

Response: *Chapter 1, the introduction to this Supplement, describes the NEPA requirements for site-specific EISs and the basis for the agency's determination that decommissioning is not a Federal major action. This comment is within the scope of this Supplement.*

One commenter stated that the 1988 GEIS is a robust analysis that has stood the test of time. They supported a Supplement at this time.

Response: *A discussion of the use of the previous GEIS is provided in Chapter 1, Introduction. This comment is within the scope of this Supplement.*

4. Reactors that will be included in the GEIS

One commenter thought the GEIS should be explicit regarding which reactors were covered. The commenter was specifically concerned about Peach Bottom and Fermi.

Response: *The applicability of this Supplement to specific reactor facilities is discussed in Chapter 1, Introduction. This comment is within the scope of this Supplement.*

One commenter indicated that it was prudent at this time to incorporate issues that were identified through actual experience and to include issues relevant to the limited number of commercial non-light-water reactors.

Response: *The use of data from previous reactor decommissioning experience is discussed throughout this Supplement. This comment is within the scope of this Supplement.*

5. Decommissioning Activities

A. General Decommissioning Activities

One commenter inquired how the GEIS would handle two different methodologies for the same activity (such as removing steam generators as a whole or in pieces).

Response: This Supplement considers different methods for an activity to determine an acceptable envelope for that activity. If an activity results in impacts that are outside the envelope, then a site-specific assessment may be required. The process for developing this Supplement is described in Chapter 1, Introduction, further discussed in Chapter 4, Environmental Impacts, and described in more detail in Appendix E. This comment is within the scope of this Supplement.

One commenter indicated that the GEIS should provide more detail about specific decommissioning activities and technologies in order to accurately assess the associated environmental impacts. Another commenter indicated that they did not agree with the statement that decommissioning activities are not significantly different from operating the plant.

Response: *This Supplement considers specific decommissioning activities. The process for developing this Supplement is described in Chapter 1, Introduction, further discussed in Chapter 4, Environmental Impacts, and described in more detail in Appendix E. This comment is within the scope of this Supplement.*

B. Decommissioning Options

One commenter encouraged the NRC to adequately address alternatives. A second commenter inquired whether a preferred alternative would be specified in the GEIS.

Response: *Chapter 5 of this Supplement discusses alternatives to the proposed action, as required by the NEPA process. This comment is within the scope of this Supplement.*

1. DECON

No comments within scope.

2. SAFSTOR

One commenter encouraged the use of the SAFSTOR option because of the advantages in terms of exposure to workers and the public. Another reason for the commenter's support of SAFSTOR as an option was their opposition to shallow land burial of radioactive waste.

Response: *In Chapter 3, Description of Reactors, this Supplement addresses the options for decommissioning activities, including SAFSTOR and variations to SAFSTOR (such as the duration of the storage period or the use of incremental DECON, which includes incremental decontamination and dismantlement activities during the SAFSTOR period). This comment is within the scope of this Supplement.*

3. Entombment

One commenter asked what factors had changed since the 1988 GEIS that would suggest that ENTOMB was a possible option. A second commenter suggested that the lack of dumps for contaminated material made entombment a viable solution. A third commenter asked why entombment was considered not to be viable. And a fourth commenter inquired why the NRC would even be considering entombment if they already knew that the residual levels of radioactivity would be unacceptable.

Response: *This Supplement addresses varying options for decommissioning activities, including ENTOMB in Chapter 3, Description of Reactors. These comments are within the scope of this Supplement.*

One commenter encouraged the NRC to address entombment and to consider a name change to SAFSTOR II or Assured Isolation.

Response: *This Supplement addresses varying options for decommissioning activities, including ENTOMB in Chapter 3, Description of Reactors. This comment is within the scope of this Supplement.*

One commenter indicated that a Supplemental EIS must be required for the entombment option to assess the impact of what they perceive to be near-surface dumping of greater than Class C (GTCC) waste.

Response: *This Supplement addresses varying options for decommissioning activities including ENTOMB in Chapter 3, Description of Reactors. This comment is within the scope of this Supplement.*

4. Rubblization

Five commenters indicated that rubblization was an area that needed to be addressed in the revised GEIS. One commenter also added in a second comment that this included the environmental impact of residual radioactive material deeper than 6 in. below the surface, activated concrete, activated rebar, internal contamination in cracks, and sub-slab contamination. One of the commenters recommended that an additional intruder scenario be addressed.

Response: *This Supplement considers various decommissioning activities including rubblization in Chapter 4, Environmental Impacts. These comments are within the scope of this Supplement.*

Two commenters indicated that rubblization turns the reactor site into a low-level or perhaps high-level radioactive waste site and that deep monitoring wells, liners, etc., should be required and evaluated on a site-specific basis. One commenter also mentioned that salt-water corrosion should be evaluated because of the potential for some leakage from the facility if the waste is left onsite, such as occurs in rubblization.

Response: *This Supplement considers various decommissioning activities including rubblization in Chapter 4, Environmental Impacts. These comments are within the scope of this Supplement.*

5. Partial Site Release

Three commenters stated that partial site release should be addressed in the GEIS. One commenter inquired whether partial site release would be addressed in the Supplement. Another commenter stated that they opposed partial site release.

Response: *This Supplement considers partial site release and whether it can be included as a generic issue. Discussion of partial site release can be found in Chapter 1, Introduction. These comments are within the scope of this Supplement.*

C. Specific Activities to be included in the GEIS

1. Decommissioning Process

No comments within scope.

2. Post-Shutdown Decommissioning Activities Report (PSDAR)

One commenter was concerned that the only time a site-specific analysis would be conducted for a decommissioning plant would be if the facility failed the PSDAR.

Response: *This Supplement discusses the circumstances that will result in a site-specific analysis in Chapter 2, Introduction. This comment is within the scope of the GEIS.*

3. Public Meetings

No comments within scope.

4. Citizen Advisory Panels

No comments within scope.

5. Opportunity for Public Hearings

No comments within scope.

6. Inspections

No comments within scope.

7. Removal of Resident Inspectors

No comments within scope.

8. Intact Vessel Removal

Two commenters indicated that intact removal of the reactor vessel should be considered in the Supplement. One of the commenters actively advocated this alternative because of reduced worker dose, costs, and excellent isolation of the waste packages.

Response: *This Supplement considers specific decommissioning activities including intact removal of the reactor vessel. Decommissioning activities are discussed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

9. Spent Fuel

One commenter indicated that the delay in the schedule for removal of spent fuel should be reflected in the GEIS as far as decommissioning schedule, costs, and doses.

Response: *This Supplement addresses the impacts resulting from the variation in the timing of activities such as the removal of the spent fuel from the pool. This issue is addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

10. Waste Disposal

No comments within scope.

11. Waste Transport

One commenter asked what kind of transportation activities will be covered in the Supplement.

Response: *This Supplement considers impacts associated with the transportation of waste from the facility and transportation of equipment into the facility. The issue of transportation is addressed in Section 4.3.16, Transportation. This comment is within the scope of this Supplement.*

12. Offsite Cleanup

No comments within scope.

13. Site Characterization and Final Site Surveys

No comments within scope.

14. License Termination Plan - Timing of Submittal

No comments within scope.

15. License Termination Plan - Contents

No comments within scope.

16. License Termination Criteria

No comments within scope.

17. Life after License Termination

No comments within scope.

18. Reuse of Material

No comments within scope.

19. Transfer of Ownership

No comments within scope.

20. Financial Assurance

No comments within scope.

21. License Extensions

No comments within scope.

22. Safety of Decommissioning

No comments within scope.

6. Impacts that should be included or considered in the Supplement

A. Ecological Impacts

Three commenters (in four different comments) indicated that decommissioning has environmental impacts and that the GEIS should include an analysis of the environment and not just an analysis of impacts on humans.

Response: *The environmental impacts of decommissioning are addressed in this Supplement. Ecological issues are addressed in Chapter 4, Environmental Impacts. These comments are within the scope of this Supplement.*

One commenter recommended that the GEIS assess the degree to which the environmental parameters of the site may have changed during the operation of the facility.

Response: *This Supplement may include a consideration of the degree to which environmental parameters of the site may have changed during operation. Ecological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter recommended that the GEIS take into account the relevant environmental characteristics of the site and the impacts from the use of the decommissioning techniques.

Response: *Relevant characteristics of the commercial nuclear power facility sites are being considered in the development of this Supplement. The impacts from the use of decommissioning techniques are also considered. Site characteristics and decommissioning techniques are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter recommended that land use, water use, air quality, and animal and human life be included in the GEIS as environmental impacts.

Response: *Ecological impacts such as land use, water use, air quality, and the impact on animals and humans are considered in this Supplement. Ecological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

Two commenters recommended a mesh screen to prevent birds from landing and nesting on the site. Another recommended sterilizing the wildlife and containing them to allow them to die naturally in order to keep them from passing on genetic material.

Response: *The impacts of the decommissioning process on the terrestrial environment are considered in this Supplement. Mitigative actions will be considered if necessary. Ecological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

B. Groundwater

Three commenters expressed concern about contamination in ground or surface water. Commenters indicated that studies should be conducted related to leaking pipes or plumes of contamination in the groundwater. One commenter specified that protocols should be in place that would be adhered to, particularly for underwater drilling. A third commenter thought that appropriate methodologies should be included to determine groundwater contamination before decommissioning occurs.

Response: *The impact of potentially contaminated groundwater is considered in this Supplement. Water quality issues are addressed in Chapter 4, Environmental Impacts. These comments are within the scope of this Supplement.*

One commenter cautioned that impacts to groundwater specifically from rubblization should not be underestimated.

Response: *The radiological impacts of rubblization for the period beyond the license termination must meet the requirements in 10 CFR Part 20, Subpart E, before the license will be terminated. Impacts to groundwater during the decommissioning period and nonradiological impacts following the termination of the license are generically addressed in this Supplement. Water quality issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

Two commenters recommended that wells be monitored within five miles of the facility and that specific actions be taken if contamination is found.

Response: *Monitoring of effluents during decommissioning are addressed in this Supplement. Water quality issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter indicated that all plumes must be traced, blocked, pumped, and filtered. Another commenter recommended pumping groundwater through resin beds, sand filters, and charcoal filters.

Response: *An evaluation of the impact of potentially contaminated water is considered in this Supplement. Mitigative measures are discussed, as appropriate. Water quality issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of the GEIS.*

C. Surface Water

Two commenters indicated that sediment up to a mile downstream from the discharge "valves" should be removed and treated as hazardous waste.

Response: *The staff is uncertain as to the meaning of "discharge valve" but is responding to this question assuming the commenters meant the discharge structure. An evaluation of the impact of potentially contaminated sediment and its removal during the decommissioning process is considered within this Supplement. Mitigative measures are discussed as appropriate. Water quality issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter recommended routing site runoff to covered detention ponds equipped with filters, etc.

Response: *An evaluation of the impacts to surface water is considered in this Supplement. Mitigative measures are discussed as appropriate. Water quality issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

D. Radiological Concerns

One commenter requested that NRC include a definition of background radiation in the GEIS. It should be clear whether the background was measured before or after 1945.

Response: *This Supplement uses the NRC's definition of background radiation as given in 10 CFR 20.1003 as the basis for any discussion of radiological impacts. The background for a particular site would correspond to the background radiation levels determined at the time that the Final Environmental Impact Statement for the facility was issued. Radiological issues are*

addressed in Chapter 4, Environmental Impacts. This comment is within the scope of the GEIS.

E. Occupational Dose Impacts

One commenter indicated that the dose estimates for decommissioning activities should be revised and that an envelope should be used to account for attempts to use certain techniques that may not be the best way to solve the problem.

Response: *This Supplement addresses the occupational dose estimates for decommissioning. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter recommended that a good look be taken at the radiation exposure projections and that the projected exposure should be a good challenge for the industry.

Response: *This Supplement addresses the occupational dose estimates for decommissioning. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of the GEIS.*

One commenter recommended that a comparison be made of the dose estimates if the facility is decommissioned initially or if decommissioning does not start for 2 years.

Response: *The timing of activities and its impact on the anticipated radiological dose for a decommissioning facility are considered in this Supplement. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter encouraged caution in comparing risks among processes. The commenter recommended that all the aspects of different processes be considered and that the comparisons be compatible.

Response: *The comment is noted. The impacts of decommissioning activities are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter thought the scientific studies that have been performed since 1988 that show that radiation is more harmful to human health should also be included.

Response: *This Supplement will include a determination of the impacts on human health from the potential radiological dose. The discussion will be based on current scientific guidelines. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter indicated that the total dose should be a very high priority.

Response: *This Supplement includes an analysis of the dose impacts of decommissioning. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter suggested that exposure levels for workers are monitored every day and tallied every week or so and tracked against the limits given in the GEIS. A second commenter indicated that worker doses during decommissioning have been repeatedly underestimated because decommissioning is an experiment and there is a lack of experience and enforcement by the NRC. A third commenter specifically identified Connecticut Yankee as underestimating worker dose assessments and predictions.

Response: *This Supplement includes an analysis of impacts of radiation dose to workers due to decommissioning. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter recommended that the GEIS include estimates for worker inhalation of materials of high specific activity that have been vaporized and particulated by a particular decommissioning operation.

Response: *This Supplement includes an analysis of the impact of radiation dose to workers during decommissioning. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

F. Public Dose Impacts

One commenter thought the NRC did not deal with incidental contamination that affected a community, but focused instead on contamination from processes. The implication was that an analysis of incident contamination and its effect on the community should be included in the GEIS. Three other commenters specified the inadvertent release of hot particles and the routine decommissioning releases as jeopardizing health and safety of the public. One other commenter (in two comments) thought the health and safety problems needed to be taken more seriously.

Response: *The incidental contamination and inadvertent release of hot particles are unplanned releases and are handled on a site-specific basis and are not within the scope of this Supplement. An analysis of the routine decommissioning releases on the health and safety of the public are within the scope of this Supplement and are considered. Radiological issues are addressed in Chapter 4, Environmental Impacts.*

One commenter thought the dose to the public from shipment of material to other locations should be included in the consideration of dose from decommissioning a facility.

Response: *The dose to the public during transportation of radioactive material to disposal facilities are considered in this Supplement. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter indicated that the priority of the whole process was not the decommissioning of the sites, but rather the protection of public health and the environment.

Response: *The NRC's mission includes the protection of public health and safety, the common defense and security, and the protection of the environment. The NRC's mission influences the entire decommissioning process. Public safety and protection of the environment are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter expressed concern over the issue of hot particles and their impact on the community.

Response: *The inadvertent or accidental release of hot particles is handled on a site-specific basis. Analysis of contamination that is removed from the site into the public realm is considered to be an accident and would be treated as such in this Supplement. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

One commenter stated that NRC should not recalibrate and redefine background radiation levels so that they include regular plant operations, accidents, and weapons testing.

Response: *This Supplement uses the NRC's definition of background radiation as given in 10 CFR 20.1003 as a basis for any discussion of radiological impacts. Radiological issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of the GEIS.*

G. Transportation Dose Impacts

One commenter indicated that transportation doses should be considered and any site-specific issues. One commenter indicated that the changes in the transportation dose since 1988 (in the programs and methodologies that are used) warrant a revision in this area in the GEIS.

Response: *The transportation dose to the public and workers from the transport of wastes are within the scope of this Supplement. Transportation issues are addressed in Chapter 4, Environmental Impacts.*

H. Nonradiological Impacts

One commenter encouraged the incorporation of nonradiological contaminants into the GEIS. Four commenters expressed concern over nonradiological impacts of decommissioning. Two of the commenters specifically mentioned nonradiological impacts such as polychlorobiphenyls, heavy metals, and concrete. Another commenter inquired where the information would be obtained that related to nonradiological issues. Another commenter asked if nonradiological issues would be addressed in the license termination plan. (It was uncertain if this commenter thought this would also apply to the GEIS).

Response: *Nonradiological chemical hazards are regulated by the provisions of the Resource Conservation and Recovery Act (RCRA 1976). Most states have received authority from the U.S. Environmental Protection Agency (EPA) to regulate and enforce RCRA. The EPA controls hazardous waste storage, treatment, and disposal in those states that do not have this authority. Mixed waste (hazardous waste that contains radioactive material) is subject to regulation by the NRC under the Atomic Energy Act, as amended (AEA 1954), and by EPA under RCRA, as amended. Nonradiological chemical hazards are addressed in this Supplement as they relate to the radiological decommissioning of the facility. Nonradiological issues are addressed in Chapter 4, Environmental Impacts. Mixed waste (radiological contamination that is mixed with chemical contamination) are within the scope of this Supplement.*

I. Public Health Impacts (Nonradiological)

Two commenters discussed the spread of contamination into the community. One of the commenters recommended that the GEIS address health problems in the community as a result of contamination in the community.

Response: *This Supplement considers health impacts to the community as a result of radiation dose, noise, and transportation accidents. Public health issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

J. Socioeconomic Impacts

Two commenters indicated that community impacts are not adequately addressed in the GEIS and need to be looked at more carefully.

Response: *This Supplement considers socioeconomic impacts. Socioeconomic issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

K. Cultural Resource Impacts

One commenter inquired if the facilities are required to adhere to the National Park Service's requirement for Historic American Engineering Records and the Historic Architectural Building requirements.

Response: *Cultural resources are considered in this Supplement and are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

L. Cost Impacts

Two commenters recommended that the NRC take a look at the decommissioning projects or sites in detail to see if cost estimates do or do not match the final results. One of the commenters specifically addressed the variation in cost with time.

Response: *The cost of decommissioning is included in this Supplement. The variation in the cost estimates based on different start and end times of decommissioning are also considered. Cost issues are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of the Supplement.*

Two commenters thought that the storage of spent fuel should be considered as part of the decommissioning costs. One commenter also recommended that the removal of nonradioactive structures should be considered as part of the decommissioning costs.

Response: *The dismantlement of nonradioactive structures is not considered as part of the radiological decommissioning of the site unless it is necessary to remove a structure in order to complete the radiological decommissioning of the facility. However, the removal of structures that were necessary for the production of power are included in this Supplement for the sake of completeness even if the structures are not part of the radiological decommissioning of the site. Structure dismantlement issues are within the scope of this Supplement and are addressed in Chapter 4, Environmental Impacts. The management and funding for the storage of spent fuel is required by 10 CFR 50.54 and is regulated separately from the decommissioning costs. This comment is not within the scope of this Supplement.*

One commenter recommended placing the facility in SAFSTOR as a means to allow more time to gather money for decommissioning and to look at the availability of low-level waste sites.

Response: *The regulations for the accrual of funds for decommissioning are given in 10 CFR 50.75 and are not within the scope of this Supplement. However, the cost benefits of various decommissioning options are considered, and are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

M. Environmental Justice

Three commenters suggested that an analysis of the impacts of decommissioning on environmental justice be considered in the Supplement.

Response: *An analysis of environmental justice is included in this Supplement in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

N. Impacts of Fuel Storage

No comments within scope.

O. Cumulative Impacts

One commenter recommended that the whole picture be looked at with regards to the overall purpose and the environmental effects of the combined decommissioning options.

Response: *Cumulative impacts are within the scope of this Supplement and are considered in Chapter 4, Environmental Impacts.*

One commenter recommended that the GEIS include a description and analysis of cumulative impacts for each waste stream in the community, including transportation routes, NRC and DOE facilities, and proposed sites for waste management, storage, and disposition.

Response: *Cumulative impacts related to the decommissioning of the site are considered in this Supplement. Impacts related to transportation of the waste and to irretrievable commitment of land for waste storage are also considered in this Supplement. Cumulative impact, transportation, and retrieval resource impacts are addressed in Chapter 4, Environmental Impacts. Cumulative impacts from waste management, storage, and disposition facilities are not within the scope of this Supplement.*

7. Site-Specific Information versus Generic Information

Two commenters asked how impacts or site conditions will be addressed - if they would be handled generically in the GEIS or on a site-specific basis.

Response: *Ecological and environmental issues have been considered to determine if they are generic issues that should be included in this Supplement. Those issues determined not to be generic and that require a site-specific assessment are identified in this Supplement, in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

Two commenters asked how site-specific conditions such as groundwater pathways would be

considered in the Supplement. If they would be considered generically or on a site-specific basis.

Response: *Ecological and environmental issues have been considered to determine if they are a generic issue that should be included in this Supplement. Those issues determined not to be generic and that require a site-specific assessment are identified in this Supplement, in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

Eight commenters (in 16 different comments) asked about the situations and rules for triggering a site-specific environmental impact assessment. Specific examples of items that might trigger a site-specific analysis include contamination in pools and under reactor sites, coastal and flood plain issues, seismology, background radiation, pollution, reactor types, geology, operating experiences, land use, economy, synergistic effects of other toxins or industries in the area, decommissioning techniques, uniqueness of the site soil contamination, and river sediments.

Response: *This Supplement discusses the issue of site-specific versus generic environmental impacts in Chapter 4, Environmental Impacts. These comments are within the scope of this Supplement.*

Six commenters (nine comments) indicated that, in general, a site-specific impact statement or a set of guidelines that the utilities need to consider during decommissioning might be more appropriate than a GEIS because of the site-specific nature of decommissioning. One of the commenters thought that the question of what does and does not legitimately constitute site-specific factors in need of an EIS are economically driven instead of safety driven.

Response: *This Supplement will discuss the issue of site-specific versus generic environmental impacts in Chapter 4, Environmental Impacts. These comments are within the scope of this Supplement.*

8. Incorporation of Information from Previously Developed EISs

One commenter recommended that the Supplement address whether and how to incorporate findings from the EISs for plant construction and operation, analyses that have accrued during plant operations, and reports on referenced facilities.

Response: *Chapter 1, Introduction, in this Supplement discusses the interface between this Supplement for decommissioning and the EISs for plant construction, operation, and license renewal. This comment is within the scope of this Supplement.*

9. Methodology

A. Methodology - Process

One commenter recommended that decommissioning be treated as an activity separate from operations.

Response: *Environmental impacts from decommissioning activities are specifically addressed (and separately from impacts of operation) in this Supplement. Environmental impacts are considered in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

B. Determination of Boundary Conditions

One commenter asked how the boundary conditions for the GEIS would be determined. The commenter then proceeded to recommend several methods for determining boundary conditions for waste volumes.

Response: *This Supplement has been developed by collecting a reasonable range of information from the sites that are undergoing decommissioning and using that information to set boundaries for environmental impacts. Environmental Impacts are addressed in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

C. Changing the Parameters from the Initial Study

One commenter recommended that the existing GEIS be used as a baseline and that it should be supplemented in those areas where additional information is available. This would allow those licensees currently undergoing decommissioning to remain enveloped and those that are using the GEIS to evaluate a future decommissioning would have more up-to-date information.

Response: *The 1988 GEIS is being supplemented based on additional information and decommissioning experience and history. The analysis in Chapter 4, Environmental Impacts, and the corresponding appendices contain the data used for evaluating the environmental impacts. This comment is within the scope of this Supplement.*

10. Mitigation

One commenter recommended that the NRC adequately address mitigation in the GEIS or a site-specific analysis.

Response: *Mitigation is within the scope of this Supplement and is addressed in Chapter 1, Introduction, and Chapter 4, Environmental Impacts.*

11. Grandfathering

Three commenters asked about the impact of the new Supplement on facilities that have shut down and are in compliance with the 1988 GEIS.

Response: *The use of this Supplement by facilities that have previously shut down is addressed in this Supplement in Chapter 1, Introduction, and Chapter 4, Environmental Impacts.*

12. Regulations

A. Relationship to Other Regulations

One commenter thought the GEIS should address the relationship with other NRC regulations, such as site-release criteria.

Response: *The relationship between this Supplement and other NRC regulations or EISs is discussed in Chapter 1, Introduction. This comment is within the scope of this Supplement.*

One commenter recommended that NRC treat all problems and areas of concern as "site-specific problems" rather than as generic industry problems.

Response: *This Supplement identifies issues that require a site-specific analysis. Site-specific issues are addressed in Chapter 4, Environmental Impacts. This comment was within the scope of this Supplement.*

13. Scoping Meetings - Schedule, Substance, etc.

No comments within scope.

14. Comments Related to Specific Nuclear Power Plants

Three commenters addressed the use of rubblization as an activity for decommissioning at Maine Yankee. One commenter agreed that the NRC needed to fulfill their responsibilities related to NEPA. A second commenter believed that a full environmental assessment should be made to determine if a site-specific EIS is necessary. A third commenter strongly opposed any delay in a specific plant initiative based on the Supplement to the GEIS.

Response: *Rubblization is addressed by this Supplement. Specific areas or activities requiring site-specific analyses are also addressed. Rubblization and site-specific issues are considered in Chapter 4, Environmental Impacts. This comment is within the scope of this Supplement.*

N.1 References

10 CFR 20. Code of Federal Regulations, Title 10, *Energy*, Part 20, "Standards for protection against radiation."

10 CFR 50. Code of Federal Regulations, Title 10, *Energy*, Part 50, "Domestic licensing of production and utilization facilities."

10 CFR 51. Code of Federal Regulations, Title 10, *Energy*, Part 51, "Environmental protection regulations for domestic licensing and related regulatory functions."

65 FR 13797. "Notice of Intent to Prepare a Supplement to the Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities and to Hold Public Meetings for the Purpose of Scoping and to Solicit Public Input into the Process." Nuclear Regulatory Commission. *Federal Register*. March 14, 2000.

Atomic Energy Act of 1954, as amended, 42 USC 2011 et seq.

National Environmental Policy Act (NEPA) of 1969, as amended, 42 USC 4321 et seq.

Resource Conservation and Recovery Act (RCRA) of 1976, as amended by the Hazardous and Solid Waste Amendments Act of 1984, 42 USC 6901 et seq.

U.S. Nuclear Regulatory Commission (NRC). 1988. *Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities*. NUREG-0586, NRC, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC). 2000a. Letter from NRC to "People who Requested a Copy of Meeting Transcript for GEIS Public Scoping Meeting on April 27, 2000 in Lisle, Illinois." Dated June 30, 2000.

U.S. Nuclear Regulatory Commission (NRC). 2000b. Letter from NRC to "People who Requested a Copy of Meeting Transcript for GEIS Public Scoping Meeting on May 17, 2000 in Boston, Massachusetts." Dated June 30, 2000.

U.S. Nuclear Regulatory Commission (NRC). 2000c. Letter from NRC to "People who Requested a Copy of Meeting Transcript for GEIS Public Scoping Meeting on June 13, 2000 in

Atlanta, Georgia." Dated June 30, 2000.

U.S. Nuclear Regulatory Commission (NRC). 2000d. Letter from NRC to "People who Requested a Copy of Meeting Transcript for GEIS Public Scoping Meeting on June 21, 2000 in San Francisco, California." Dated June 30, 2000.

Appendix O

Comments on the Draft Supplement and Staff Responses

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Appendix O

Comments on the Draft Supplement and Staff Responses

Introduction

On November 9, 2001 a notice of availability was published by the U.S. Nuclear Regulatory Commission in the Federal Register (66 FR 56721) announcing the publication of the *Generic Environmental Impact Statement on Decommissioning Nuclear Facilities, Draft Report for Comment* (NUREG-0586, Supplement 1). The draft Supplement was published for comment by Federal, State, and local government agencies as well as interested members of the public. As part of the process to solicit public comments on the draft Supplement, the staff:

- placed a copy of the draft Supplement into the NRC's electronic Public Document Room,
- sent copies of the draft Supplement to certain Federal, State, and local agencies,
- provided a copy of the draft Supplement to any member of the public that requested one free of charge,
- sent copies of the draft Supplement to identified public interest groups and concerned citizens in the vicinity of all 22 power reactors undergoing decommissioning,
- published a notice of availability of the draft Supplement in the Federal Register on November 9, 2001 (66 FR 56721), and
- announced and held public meetings in San Francisco, California on December 4, 2001, Chicago, Illinois on December 6, 2001, in Boston, Massachusetts on December 10, 2001, and in Atlanta, Georgia on December 12, 2001 to describe the results of the environmental review and answer related questions.

During the comment period, the staff received a total of 52 comment letters in addition to the comments received during the transcribed public meetings.

The staff has reviewed the public meeting transcripts and the 52 comment letters that are part of the docket file for the application, all of which are available in the NRC's Electronic Public Document Room (ADAMS) located at http://www.nrc.gov/NRC/ADAMS/index.html. Appendix O contains the excerpted comments and the staff's responses. Related issues are grouped together. The staff chose not to edit comments, and instead reprinted the comments in this appendix without modification. Emphasis added by the authors of the comments, such as capitalization, was retained. Appendix P contains excerpts of the public meeting transcripts, the written statements provided at the public meetings, and comment letters.

Each comment identified by the staff from the transcripts and comment letters was assigned a specific alpha-numeric comment number. The comment number is typed in the margin of the transcript or letter at the beginning of the comment. Table O-1 contains a cross-reference of the comment numbers, the speaker or author of the comment, the page where the comment can be found in Appendix P, and the section of this Appendix where the comment is addressed.

The speakers at the meetings are listed in speaking order in Table O-1. The comments from the transcript are identified by the letters “SF,” "CH," "BO," or "AT," followed by a number that identifies each comment in approximate chronological order in which the comments were made. The letters "SF" indicate that the comments were made at the meeting in San Francisco, California, the letters "CH" indicate that the comments were made at the meeting in Chicago, Illinois, the letters "BO" indicate that the comments were made at the meeting in Boston, Massachusetts, and the letters "AT" indicate the comments were made in Atlanta, Georgia. The written statements (from the public meetings) and written comment letters are identified by the letters "CL," for "comment letter.”

The staff made a determination on each comment that it was one of the following:

(1) a comment that was actually a request for information, or a statement of opinion, which did not introduce new information.

(2) a comment that raised an environmental issue that was not addressed in the supplement, but is within the scope of the environmental review.

(3) a comment outside the scope of this environmental review (based on the determination of scope and purpose of this Supplement, see Section 1.3, Scope of the Supplement).

Comments without a supporting technical basis or without any new information are discussed in this Appendix, and not in other sections of this Supplement. Relevant references that address the issues within the regulatory authority of the NRC are provided where appropriate. Many of these references can be obtained from the NRC Electronic Public Document Room.

Within each section of this Appendix, similar comments are grouped together for ease of

reference, and are followed by the staff's response. Where the comment or question resulted in a change in the text of the draft Supplement, the corresponding response refers the reader to the appropriate section of the final Supplement where the change was made. Revisions to the text in this final Supplement report are designated by vertical lines beside the text.

Some numbers were initially assigned to portions of verbal or written statements that were later determined not to be comments or some comments were combined. These items were removed from the table. As a result, not all numbers in Table O-1 are sequential.

Table O.1. Comment Log

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
SF-A/1	Sokolsky, David	Meeting Transcript - San Francisco	12/4/2001	P-1	O.6.2
SF-A/2	Sokolsky, David	Meeting Transcript - San Francisco	12/4/2001	P-7	O.6.2
SF-B/1	Cabasso, Jackie	Meeting Transcript - San Francisco	12/4/2001	P-2	O.6.2
SF-B/2	Cabasso, Jackie	Meeting Transcript - San Francisco	12/4/2001	P-2	O.6.2
SF-B/4	Cabasso, Jackie	Meeting Transcript - San Francisco	12/4/2001	P-11	O.2.3.1
SF-B/5	Cabasso, Jackie	Meeting Transcript - San Francisco	12/4/2001	P-11	O.4.4
SF-C/1	Nesbitt, Dale	Meeting Transcript - San Francisco	12/4/2001	P-4	O.5.5
SF-C/2	Nesbitt, Dale	Meeting Transcript - San Francisco	12/4/2001	P-6	O.5.5
SF-C/3	Nesbitt, Dale	Meeting Transcript - San Francisco	12/4/2001	P-10	O.2.4.1
SF-C/4	Nesbitt, Dale	Meeting Transcript - San Francisco	12/4/2001	P-10	O.2.4.1
SF-C/5	Nesbitt, Dale	Meeting Transcript - San Francisco	12/4/2001	P-10	O.4.4
SF-C/6	Nesbitt, Dale	Meeting Transcript - San Francisco	12/4/2001	P-10	O.2.4.1
SF-C/7	Nesbitt, Dale	Meeting Transcript - San Francisco	12/4/2001	P-11	O.1.6
SF-D/1	Olson, Patricia	Meeting Transcript - San Francisco	12/4/2001	P-9	O.5.2
SF-D/2	Olson, Patricia	Meeting Transcript - San Francisco	12/4/2001	P-9	O.4.1
SF-D/3	Olson, Patricia	Meeting Transcript - San Francisco	12/4/2001	P-9	O.4.1
CH-A/1	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-14	O.6.2
CH-A/2	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-14	O.6.2
CH-A/3	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-16	O.3.0
CH-A/4	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-21	O.6.4
CH-A/5	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-21	O.2.3.2
CH-A/6	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-21	O.4.10
CH-A/7	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-21	O.2.4.2
CH-A/8	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-21	O.2.4.1
CH-A/9	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-22	O.2.4.1
CH-A/10	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-22	O.1.16
CH-A/11	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-22	O.2.3.4
CH-A/12	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-22	O.2.3.1
CH-A/13	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-22	O.6.1
CH-A/14	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-22	O.2.3.1
CH-A/15	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-25	O.4.10
CH-A/16	Musiker, Debbie	Meeting Transcript - Chicago	12/6/2001	P-29	O.6.2
CH-B/1	Gaynor, Paul	Meeting Transcript - Chicago	12/6/2001	P-15	O.1.4

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CH-B/3	Gaynor, Paul	Meeting Transcript - Chicago	12/6/2001	P-23	O.5.1
CH-B/4	Gaynor, Paul	Meeting Transcript - Chicago	12/6/2001	P-23	O.5.1
CH-C/1	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-17	O.2.3.3
CH-C/2	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-18	O.2.3.3
CH-C/3	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-18	O.5.4
CH-C/4	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-18	O.2.3.3
CH-C/5	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-18	O.2.3.3
CH-C/6	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-19	O.1.6
CH-C/7	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-19	O.2.3.3
CH-C/8	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-19	O.2.3.3
CH-C/9	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-19	O.2.3.3
CH-C/10	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-19	O.2.2
CH-C/11	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-20	O.2.3.3
CH-C/12	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-20	O.2.2
CH-C/14	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-27	O.2.3.3
CH-C/15	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-28	O.2.3
CH-C/16	Klebe, Michael	Meeting Transcript - Chicago	12/6/2001	P-29	O.2.3
CH-D/1	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-23	O.6.5
CH-D/2	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-23	O.1.8
CH-D/5	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-23	O.6.1
CH-D/6	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-23	O.1.9
CH-D/7	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-24	O.1.8
CH-D/8	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-24	O.1.7
CH-D/9	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-24	O.6.5
CH-D/10	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-24	O.6.5
CH-D/11	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-24	O.1.6
CH-D/12	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-24	O.5.1
CH-D/13	Goodman, Lynne	Meeting Transcript - Chicago	12/6/2001	P-30	O.5.3
BO-A/1	Dierker, Carl	Meeting Transcript - Boston	12/10/2001	P-30	O.2.3.2
BO-A/2	Dierker, Carl	Meeting Transcript - Boston	12/10/2001	P-31	O.2.3.2
BO-A/3	Dierker, Carl	Meeting Transcript - Boston	12/10/2001	P-31	O.2.3.2
BO-A/4[(a)]	Dierker, Carl	Meeting Transcript - Boston	12/10/2001	P-31	O.5.7
BO-A/6	Dierker, Carl	Meeting Transcript - Boston	12/10/2001	P-32	O.5.5
BO-B/1	Williams, Carl	Meeting Transcript - Boston	12/10/2001	P-32	O.5.4
BO-B/2	Williams, Carl	Meeting Transcript - Boston	12/10/2001	P-33	O.5.4

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
AT-A/1	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-38	O.6.2
AT-A/2	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-44	O.5.2
AT-A/3	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-44	O.5.2
AT-A/5	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-44	O.5.2
AT-A/6	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-45	O.5.3
AT-A/7	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-45	O.5.2
AT-A/8	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-45	O.6.3
AT-A/9	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-45	O.2.2
AT-A/10	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-45	O.2.4.2
AT-A/11	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-46	O.2.4.2
AT-A/12	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-46	O.2.4.1
AT-A/13	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-46	O.5.3
AT-A/14	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-46	O.2.4.1
AT-A/15	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-46	O.4.4
AT-A/16	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-46	O.4.4
AT-A/17	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-47	O.5.9
AT-A/18	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-47	O.5.5
AT-A/19	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-47	O.5.10
AT-A/20	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-47	O.5.2
AT-A/21	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-47	O.1.16
AT-A/22	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-47	O.2.2
AT-A/23	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-47	O.5.6
AT-A/24	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-48	O.4.6
AT-A/25	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-48	O.4.4
AT-A/26	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-48	O.4.5
AT-A/27	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-48	O.1.6
AT-A/29	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-48	O.1.9
AT-A/30	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-49	O.1.10
AT-A/31	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-49	O.1.9
AT-A/32	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-49	O.5.9
AT-A/33	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-49	O.1.6
AT-A/34	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-49	O.1.16
AT-A/35	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-50	O.1.16
AT-A/36	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-50	O.1.2
AT-A/37	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-50	O.2.3.4
AT-A/38	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-50	O.4.1.1
AT-A/39	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-50	O.4.8

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
AT-A/40	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-51	O.1.10
AT-A/41	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-51	O.5.9
AT-A/42	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-51	O.2.3.2
AT-A/43	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-51	O.4.3
AT-A/44	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-51	O.6.5
AT-A/45	Barczak, Sara	Meeting Transcript - Atlanta	12/12/2001	P-51	O.5.9
AT-B/1	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-38	O.1.6
AT-B/2	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-39	O.4.7
AT-B/3	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-39	O.4.7
AT-B/4	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-40	O.4.8
AT-B/5	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-55	O.5.8
AT-B/6	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-55	O.4.7
AT-B/7	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-55	O.5.2
AT-B/8	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-55	O.4.5
AT-B/9	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-55	O.6.5
AT-B/10	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-55	O.2.1
AT-B/11	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-56	O.2.4.1
AT-B/12	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-56	O.2.4.3
AT-B/13	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-56	O.5.2
AT-B/14	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-56	O.1.10
AT-B/15	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-57	O.4.7
AT-B/16	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-57	O.2.3.2
AT-B/17	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-57	O.2.3.3
AT-B/18	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-57	O.6.4
AT-B/19	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-73	O.5.2
AT-B/20	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-73	O.5.2
AT-B/21	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-73	O.2.2
AT-B/22	Zeller, Janet	Meeting Transcript - Atlanta	12/12/2001	P-73	O.2.1
AT-C/1	Martin, Ed	Meeting Transcript - Atlanta	12/12/2001	P-41	O.5.9
AT-C/2	Martin, Ed	Meeting Transcript - Atlanta	12/12/2001	P-41	O.1.9
AT-C/3	Martin, Ed	Meeting Transcript - Atlanta	12/12/2001	P-42	O.2.3.4
AT-C/4	Martin, Ed	Meeting Transcript - Atlanta	12/12/2001	P-41	O.1.9
AT-C/5	Martin, Ed	Meeting Transcript - Atlanta	12/12/2001	P-41	O.4.7
AT-C/6	Martin, Ed	Meeting Transcript - Atlanta	12/12/2001	P-41	O.1.9
AT-D/1	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-52	O.1.9
AT-D/2	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-52	O.2.4.2
AT-D/3	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-52	O.5.9
AT-D/4	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-52	O.4.4
AT-D/5	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-52	O.3.0

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
AT-D/6	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-52	O.1.15
AT-D/7	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-52	O.4.3
AT-D/8	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-52	O.6.5
AT-D/9	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-52	O.2.3.3
AT-D/10	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-53	O.6.3
AT-D/11	Kushner, Adele	Meeting Transcript - Atlanta	12/12/2001	P-53	O.2.4.2
AT-E/1	Genoa, Paul	Meeting Transcript - Atlanta	12/12/2001	P-53	O.2.3.4
AT-E/2	Genoa, Paul	Meeting Transcript - Atlanta	12/12/2001	P-72	O.2.2
AT-F/1	Zeller, Lou	Meeting Transcript - Atlanta	12/12/2002	P-58	O.2.2
AT-F/2	Zeller, Lou	Meeting Transcript - Atlanta	12/12/2002	P-58	O.2.4.1
AT-F/3	Zeller, Lou	Meeting Transcript - Atlanta	12/12/2002	P-58	O.4.4
AT-F/4	Zeller, Lou	Meeting Transcript - Atlanta	12/12/2002	P-58	O.2.4.1
AT-F/5	Zeller, Lou	Meeting Transcript - Atlanta	12/12/2002	P-58	O.2.2
AT-F/6	Zeller, Lou	Meeting Transcript - Atlanta	12/12/2002	P-59	O.1.6
AT-F/7	Zeller, Lou	Meeting Transcript - Atlanta	12/12/2002	P-60	O.1.15
AT-G/1	Carroll, Glen	Meeting Transcript - Atlanta	12/12/2001	P-60	O.2.3.3
AT-G/2	Carroll, Glen	Meeting Transcript - Atlanta	12/12/2001	P-61	O.4.3
AT-G/3	Carroll, Glen	Meeting Transcript - Atlanta	12/12/2001	P-61	O.4.1
AT-G/4	Carroll, Glen	Meeting Transcript - Atlanta	12/12/2001	P-61	O.3.0
AT-G/5	Carroll, Glen	Meeting Transcript - Atlanta	12/12/2001	P-61	O.2.3.3
AT-G/7	Carroll, Glen	Meeting Transcript - Atlanta	12/12/2001	P-71	O.1.9
AT-H/1	Ferguson, Tom	Meeting Transcript - Atlanta	12/12/2001	P-62	O.5.2
CL-01/1	Scherer, A Edward	Letter	12/27/2001	P-75	O.6.5
CL-01/2	Scherer, A Edward	Letter	12/27/2001	P-75	O.5.6
CL-01/3	Scherer, A Edward	Letter	12/27/2001	P-75	O.6.1
CL-01/4	Scherer, A Edward	Letter	12/27/2001	P-75	O.1.2
CL-01/5	Scherer, A Edward	Letter	12/27/2001	P-75	O.6.1
CL-01/6	Scherer, A Edward	Letter	12/27/2001	P-76	O.1.11
CL-01/7	Scherer, A Edward	Letter	12/27/2001	P-76	O.1.13
CL-01/8	Scherer, A Edward	Letter	12/27/2001	P-76	O.4.1.1
CL-02/1	Epstein, Eric Joseph	Letter	12/28/2001	P-79	O.1.9
CL-02/2	Epstein, Eric Joseph	Letter	12/28/2001	P-79	O.4.10
CL-02/3	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.1.9
CL-02/4	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.6.5
CL-02/5	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.4.4
CL-02/6	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.4.3
CL-02/7	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.1.9
CL-02/8	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.6.5

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-02/9	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.4.9
CL-02/10	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.2.2
CL-02/11	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.2.2
CL-02/12	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.4.10
CL-02/13	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.4.4
CL-02/14	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.6.5
CL-02/15	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.2.2
CL-02/16	Epstein, Eric Joseph	Letter	12/28/2001	P-80	O.6.5
CL-02/17	Epstein, Eric Joseph	Letter	12/28/2001	P-81	O.1.9
CL-02/18	Epstein, Eric Joseph	Letter	12/28/2001	P-84	O.2.1
CL-02/19	Epstein, Eric Joseph	Letter	12/28/2001	P-84	O.1.9
CL-02/20	Epstein, Eric Joseph	Letter	12/28/2001	P-86	O.1.9
CL-02/21	Epstein, Eric Joseph	Letter	12/28/2001	P-86	O.4.4
CL-02/22	Epstein, Eric Joseph	Letter	12/28/2001	P-87	O.1.9
CL-02/23	Epstein, Eric Joseph	Letter	12/28/2001	P-87	O.4.4
CL-02/24	Epstein, Eric Joseph	Letter	12/28/2001	P-87	O.4.4
CL-02/25	Epstein, Eric Joseph	Letter	12/28/2001	P-88	O.4.4
CL-02/26	Epstein, Eric Joseph	Letter	12/28/2001	P-88	O.4.4
CL-02/27	Epstein, Eric Joseph	Letter	12/28/2001	P-88	O.1.9
CL-02/28	Epstein, Eric Joseph	Letter	12/28/2001	P-89	O.1.9
CL-02/29	Epstein, Eric Joseph	Letter	12/28/2001	P-89	O.4.3
CL-02/30	Epstein, Eric Joseph	Letter	12/28/2001	P-90	O.4.3
CL-02/31	Epstein, Eric Joseph	Letter	12/28/2001	P-90	O.4.10
CL-02/32	Epstein, Eric Joseph	Letter	12/28/2001	P-92	O.4.9
CL-02/33	Epstein, Eric Joseph	Letter	12/28/2001	P-92	O.4.10
CL-02/34	Epstein, Eric Joseph	Letter	12/28/2001	P-92	O.1.10
CL-02/35	Epstein, Eric Joseph	Letter	12/28/2001	P-93	O.4.9
CL-02/36	Epstein, Eric Joseph	Letter	12/28/2001	P-94	O.1.9
CL-02/37	Epstein, Eric Joseph	Letter	12/28/2001	P-95	O.2.2
CL-02/38	Epstein, Eric Joseph	Letter	12/28/2001	P-95	O.2.2
CL-02/39	Epstein, Eric Joseph	Letter	12/28/2001	P-95	O.4.10
CL-02/40	Epstein, Eric Joseph	Letter	12/28/2001	P-95	O.6.1
CL-02/41	Epstein, Eric Joseph	Letter	12/28/2001	P-96	O.4.10
CL-02/42	Epstein, Eric Joseph	Letter	12/28/2001	P-96	O.4.10
CL-02/43	Epstein, Eric Joseph	Letter	12/28/2001	P-96	O.5.8
CL-02/44	Epstein, Eric Joseph	Letter	12/28/2001	P-97	O.5.5
CL-02/45	Epstein, Eric Joseph	Letter	12/28/2001	P-97	O.1.4
CL-02/46	Epstein, Eric Joseph	Letter	12/28/2001	P-98	O.1.13
CL-02/47	Epstein, Eric Joseph	Letter	12/28/2001	P-98	O.1.1

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-02/48	Epstein, Eric Joseph	Letter	12/28/2001	P-98	O.1.2
CL-02/49	Epstein, Eric Joseph	Letter	12/28/2001	P-99	O.1.2
CL-02/50	Epstein, Eric Joseph	Letter	12/28/2001	P-99	O.1.3
CL-02/51	Epstein, Eric Joseph	Letter	12/28/2001	P-100	O.1.4
CL-02/52	Epstein, Eric Joseph	Letter	12/28/2001	P-101	O.1.16
CL-02/53	Epstein, Eric Joseph	Letter	12/28/2001	P-101	O.1.4
CL-02/54	Epstein, Eric Joseph	Letter	12/28/2001	P-101	O.1.8
CL-02/55	Epstein, Eric Joseph	Letter	12/28/2001	P-101	O.1.10
CL-02/56	Epstein, Eric Joseph	Letter	12/28/2001	P-102	O.1.16
CL-02/57	Epstein, Eric Joseph	Letter	12/28/2001	P-102	O.1.9
CL-02/58	Epstein, Eric Joseph	Letter	12/28/2001	P-102	O.1.10
CL-02/59	Epstein, Eric Joseph	Letter	12/28/2001	P-103	O.1.10
CL-02/60	Epstein, Eric Joseph	Letter	12/28/2001	P-103	O.1.11
CL-02/61	Epstein, Eric Joseph	Letter	12/28/2001	P-103	O.1.12
CL-02/62	Epstein, Eric Joseph	Letter	12/28/2001	P-103	O.1.12
CL-02/63	Epstein, Eric Joseph	Letter	12/28/2001	P-103	O.1.16
CL-02/64	Epstein, Eric Joseph	Letter	12/28/2001	P-104	O.1.13
CL-02/65	Epstein, Eric Joseph	Letter	12/28/2001	P-104	O.1.15
CL-02/66	Epstein, Eric Joseph	Letter	12/28/2001	P-104	O.1.9
CL-02/67	Epstein, Eric Joseph	Letter	12/28/2001	P-105	O.5.7
CL-02/68	Epstein, Eric Joseph	Letter	12/28/2001	P-105	O.1.10
CL-02/69	Epstein, Eric Joseph	Letter	12/28/2001	P-105	O.1.10
CL-02/70	Epstein, Eric Joseph	Letter	12/28/2001	P-105	O.1.11
CL-02/71	Epstein, Eric Joseph	Letter	12/28/2001	P-106	O.1.15
CL-03/1	Scott, Collier Shannon	Letter	12/31/2001	P-108	O.4.1.1
CL-03/2	Scott, Collier Shannon	Letter	12/31/2001	P-108	O.4.1.1
CL-03/3	Scott, Collier Shannon	Letter	12/31/2001	P-108	O.4.1.1
CL-03/4	Scott, Collier Shannon	Letter	12/31/2001	P-108	O.4.1.1
CL-03/5	Scott, Collier Shannon	Letter	12/31/2001	P-109	O.1.10
CL-03/6	Scott, Collier Shannon	Letter	12/31/2001	P-109	O.4.1.1
CL-03/7	Scott, Collier Shannon	Letter	12/31/2001	P-109	O.1.10
CL-03/8	Scott, Collier Shannon	Letter	12/31/2001	P-109	O.4.1.1
CL-03/9	Scott, Collier Shannon	Letter	12/31/2001	P-110	O.4.1.1
CL-04/1	Williamson, Thomas	Letter	12/27/2001	P-111	O.6.5
CL-04/2	Williamson, Thomas	Letter	12/27/2001	P-111	O.5.4
CL-04/3	Williamson, Thomas	Letter	12/27/2001	P-111	O.1.3
CL-04/4	Williamson, Thomas	Letter	12/27/2001	P-111	O.1.4
CL-04/5	Williamson, Thomas	Letter	12/27/2001	P-111	O.1.4
CL-04/6	Williamson, Thomas	Letter	12/27/2001	P-112	O.1.5

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-04/7	Williamson, Thomas	Letter	12/27/2001	P-112	O.1.6
CL-04/8	Williamson, Thomas	Letter	12/27/2001	P-112	O.1.11
CL-04/9	Williamson, Thomas	Letter	12/27/2001	P-112	O.1.12
CL-04/10	Williamson, Thomas	Letter	12/27/2001	P-112	O.1.15
CL-04/11	Williamson, Thomas	Letter	12/27/2001	P-112	O.6.1
CL-04/12	Williamson, Thomas	Letter	12/27/2001	P-112	O.1.6
CL-04/13	Williamson, Thomas	Letter	12/27/2001	P-112	O.1.6
CL-04/14	Williamson, Thomas	Letter	12/27/2001	P-113	O.1.10
CL-04/15	Williamson, Thomas	Letter	12/27/2001	P-113	O.1.15
CL-04/16	Williamson, Thomas	Letter	12/27/2001	P-113	O.1.6
CL-04/17	Williamson, Thomas	Letter	12/27/2001	P-113	O.6.1
CL-04/18	Williamson, Thomas	Letter	12/27/2001	P-113	O.1.4
CL-04/19	Williamson, Thomas	Letter	12/27/2001	P-113	O.6.1
CL-05/1	Davis, James	Letter	12/28/2001	P-114	O.6.5
CL-05/2	Davis, James	Letter	12/28/2001	P-115	O.1.6
CL-05/3	Davis, James	Letter	12/28/2001	P-115	O.5.5
CL-05/4	Davis, James	Letter	12/28/2001	P-115	O.6.1
CL-05/5	Davis, James	Letter	12/28/2001	P-115	O.6.1
CL-05/6	Davis, James	Letter	12/28/2001	P-115	O.6.1
CL-05/7	Davis, James	Letter	12/28/2001	P-115	O.6.1
CL-05/8	Davis, James	Letter	12/28/2001	P-115	O.1.6
CL-05/9	Davis, James	Letter	12/28/2001	P-115	O.6.1
CL-05/10	Davis, James	Letter	12/28/2001	P-116	O.2.3.3
CL-05/11	Davis, James	Letter	12/28/2001	P-116	O.1.3
CL-05/12	Davis, James	Letter	12/28/2001	P-116	O.6.1
CL-05/13	Davis, James	Letter	12/28/2001	P-116	O.1.15
CL-05/14	Davis, James	Letter	12/28/2001	P-116	O.1.4
CL-05/15	Davis, James	Letter	12/28/2001	P-116	O.1.4
CL-05/16	Davis, James	Letter	12/28/2001	P-116	O.6.1
CL-05/17	Davis, James	Letter	12/28/2001	P-116	O.1.11
CL-05/18	Davis, James	Letter	12/28/2001	P-116	O.6.1
CL-05/19	Davis, James	Letter	12/28/2001	P-116	O.1.15
CL-06/1	Routh, Stephen	Letter	12/21/2001	P-117	O.1.6
CL-06/2	Routh, Stephen	Letter	12/21/2001	P-117	O.5.4
CL-06/3	Routh, Stephen	Letter	12/21/2001	P-117	O.1.7
CL-07[(a)]	Sokolsky, David	Letter	12/21/2001		
CL-08/1	Barczak, Sara	Letter	12/27/2001	P-119	O.5.2
CL-08/2	Barczak, Sara	Letter	12/27/2001	P-119	O.5.2
CL-08/3	Barczak, Sara	Letter	12/27/2001	P-119	O.2.4.1

(a) CL-07 Letter submitted by Mr. David Sokolsky–superceded by CL-15 dated 12/21/2001–duplicate comments.

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-08/4	Barczak, Sara	Letter	12/27/2001	P-119	O.5.9
CL-08/5	Barczak, Sara	Letter	12/27/2001	P-119	O.5.5
CL-08/6	Barczak, Sara	Letter	12/27/2001	P-119	O.5.6
CL-08/7	Barczak, Sara	Letter	12/27/2001	P-119	O.4.4
CL-08/8	Barczak, Sara	Letter	12/27/2001	P-119	O.4.5
CL-08/9	Barczak, Sara	Letter	12/27/2001	P-120	O.2.1
CL-08/10	Barczak, Sara	Letter	12/27/2001	P-120	O.4.10
CL-08/11	Barczak, Sara	Letter	12/27/2001	P-120	O.1.9
CL-08/12	Barczak, Sara	Letter	12/27/2001	P-120	O.4.10
CL-08/13	Barczak, Sara	Letter	12/27/2001	P-120	O.4.10
CL-08/14	Barczak, Sara	Letter	12/27/2001	P-120	O.1.9
CL-08/15	Barczak, Sara	Letter	12/27/2001	P-120	O.1.10
CL-08/16	Barczak, Sara	Letter	12/27/2001	P-120	O.4.10
CL-08/17	Barczak, Sara	Letter	12/27/2001	P-120	O.5.9
CL-08/18	Barczak, Sara	Letter	12/27/2001	P-120	O.1.16
CL-08/19	Barczak, Sara	Letter	12/27/2001	P-121	O.1.2
CL-08/20	Barczak, Sara	Letter	12/27/2001	P-121	O.2.3.4
CL-08/21	Barczak, Sara	Letter	12/27/2001	P-121	O.1.15
CL-08/22	Barczak, Sara	Letter	12/27/2001	P-121	O.2.3.4
CL-08/23	Barczak, Sara	Letter	12/27/2001	P-121	O.4.1.1
CL-08/24	Barczak, Sara	Letter	12/27/2001	P-121	O.4.8
CL-08/25	Barczak, Sara	Letter	12/27/2001	P-121	O.1.6
CL-08/26	Barczak, Sara	Letter	12/27/2001	P-121	O.1.16
CL-08/27	Barczak, Sara	Letter	12/27/2001	P-121	O.4.4
CL-08/28	Barczak, Sara	Letter	12/27/2001	P-121	O.4.9
CL-08/29	Barczak, Sara	Letter	12/27/2001	P-121	O.4.10
CL-08/30	Barczak, Sara	Letter	12/27/2001	P-121	O.2.2
CL-08/31	Barczak, Sara	Letter	12/27/2001	P-121	O.4.8
CL-08/32	Barczak, Sara	Letter	12/27/2001	P-122	O.6.3
CL-08/33	Barczak, Sara	Letter	12/27/2001	P-122	O.1.6
CL-08/35	Barczak, Sara	Letter	12/27/2001	P-122	O.5.9
CL-08/36[(a)]	Barczak, Sara	Letter	12/27/2001	P-122	
CL-09/1	O'Connor, Jr, WT	Letter	12/28/2001	P-123	O.6.5
CL-09/2	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1
CL-09/3	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1
CL-09/4	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1

(a) CL-08/36 is a comment submitted by Ms. Sara Barczak in a written statement that was read into the transcript at the Atlanta public meeting. The written statement was submitted to the NRC on December 27, 2001 along with comment letter CL-08. All the comments were duplicates of those in the transcript, except for comment CL-08/36, which has been added for completeness.

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-09/5	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1
CL-09/6	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1
CL-09/7	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1
CL-09/8	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1
CL-09/9	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1
CL-09/10	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1
CL-09/11	O'Connor, Jr, WT	Letter	12/28/2001	P-124	O.6.1
CL-09/12	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.6.1
CL-09/13	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.6.1
CL-09/14	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.6.1
CL-09/15	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.6.1
CL-09/16	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.6.1
CL-09/17	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.1.2
CL-09/18	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.6.1
CL-09/19	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.1.3
CL-09/20	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.1.3
CL-09/21	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.1.3
CL-09/22	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.1.3
CL-09/23	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.1.7
CL-09/24	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.1.7
CL-09/25	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.1.8
CL-09/26	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.1.8
CL-09/27	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.6.1
CL-09/28	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.6.1
CL-09/29	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.6.1
CL-09/30	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.6.1
CL-09/31	O'Connor, Jr, WT	Letter	12/28/2001	P-125	O.6.1
CL-09/32	O'Connor, Jr, WT	Letter	12/28/2001	P-126	O.6.1
CL-09/33	O'Connor, Jr, WT	Letter	12/28/2001	P-126	O.1.8
CL-09/34	O'Connor, Jr, WT	Letter	12/28/2001	P-126	O.6.1
CL-09/35	O'Connor, Jr, WT	Letter	12/28/2001	P-126	O.6.1
CL-09/36	O'Connor, Jr, WT	Letter	12/28/2001	P-126	O.6.1
CL-09/37	O'Connor, Jr, WT	Letter	12/28/2001	P-126	O.1.6
CL-09/38	O'Connor, Jr, WT	Letter	12/28/2001	P-126	O.1.6
CL-09/39	O'Connor, Jr, WT	Letter	12/28/2001	P-126	O.1.6
CL-09/40	O'Connor, Jr, WT	Letter	12/28/2001	P-126	O.1.6
CL-09/41	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.6
CL-09/42	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.6
CL-09/43	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.6.1
CL-09/44	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.6

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-09/45	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.6
CL-09/46	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.6
CL-09/47	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.6
CL-09/48	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.8
CL-09/49	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.6.1
CL-09/50	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.6.1
CL-09/51	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.7
CL-09/52	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.7
CL-09/53	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.7
CL-09/54	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.7
CL-09/55	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.1.7
CL-09/56	O'Connor, Jr, WT	Letter	12/28/2001	P-127	O.6.1
CL-09/57	O'Connor, Jr, WT	Letter	12/28/2001	P-128	O.6.1
CL-09/58	O'Connor, Jr, WT	Letter	12/28/2001	P-128	O.6.5
CL-10/1	Kushner, Adele	Letter	12/29/2001	P-129	O.2.3.2
CL-10/2	Kushner, Adele	Letter	12/29/2001	P-129	O.2.2
CL-10/3	Kushner, Adele	Letter	12/29/2001	P-129	O.3.0
CL-10/4	Kushner, Adele	Letter	12/29/2001	P-129	O.1.15
CL-10/5	Kushner, Adele	Letter	12/29/2001	P-129	O.1.7
CL-10/6	Kushner, Adele	Letter	12/29/2001	P-129	O.5.9
CL-10/7	Kushner, Adele	Letter	12/29/2001	P-129	O.2.3.2
CL-10/8	Kushner, Adele	Letter	12/29/2001	P-129	O.2.3.3
CL-10/9	Kushner, Adele	Letter	12/29/2001	P-129	O.2.3.2
CL-10/10	Kushner, Adele	Letter	12/29/2001	P-129	O.2.3.2
CL-10/11	Kushner, Adele	Letter	12/29/2001	P-129	O.1.6
CL-10/12	Kushner, Adele	Letter	12/29/2001	P-129	O.5.2
CL-11/1	Musiker, Debbie	Letter	12/31/2001	P-130	O.6.4
CL-11/2	Musiker, Debbie	Letter	12/31/2001	P-130	O.1.16
CL-11/3	Musiker, Debbie	Letter	12/31/2001	P-130	O.1.6
CL-11/4	Musiker, Debbie	Letter	12/31/2001	P-130	O.1.4
CL-11/5	Musiker, Debbie	Letter	12/31/2001	P-131	O.1.4
CL-11/6	Musiker, Debbie	Letter	12/31/2001	P-131	O.3.0
CL-11/7	Musiker, Debbie	Letter	12/31/2001	P-131	O.1.16
CL-11/8	Musiker, Debbie	Letter	12/31/2001	P-131	O.1.4
CL-11/9	Musiker, Debbie	Letter	12/31/2001	P-131	O.2.3.1
CL-11/10	Musiker, Debbie	Letter	12/31/2001	P-131	O.4.10
CL-11/11	Musiker, Debbie	Letter	12/31/2001	P-131	O.1.6
CL-11/12	Musiker, Debbie	Letter	12/31/2001	P-131	O.2.4.1
CL-11/13	Musiker, Debbie	Letter	12/31/2001	P-131	O.2.4.1
CL-11/14	Musiker, Debbie	Letter	12/31/2001	P-131	O.2.2

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-11/15	Musiker, Debbie	Letter	12/31/2001	P-131	O.2.2
CL-12/1	Martin, Ed	Letter	12/31/2001	P-133	O.5.2
CL-12/2	Martin, Ed	Letter	12/31/2001	P-133	O.5.2
CL-12/3	Martin, Ed	Letter	12/31/2001	P-133	O.5.2
CL-13/1	Shadis, Raymond	Letter	12/31/2001	P-134	O.2.4.3
CL-13/2	Shadis, Raymond	Letter	12/31/2001	P-134	O.1.6
CL-13/3	Shadis, Raymond	Letter	12/31/2001	P-134	O.1.7
CL-13/4	Shadis, Raymond	Letter	12/31/2001	P-134	O.1.7
CL-13/5	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.10
CL-13/6	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.10
CL-13/7	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.9
CL-13/8	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.10
CL-13/9	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.10
CL-13/10	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.10
CL-13/11	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.10
CL-13/12	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.10
CL-13/13	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.10
CL-13/14	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.6
CL-13/15	Shadis, Raymond	Letter	12/31/2001	P-135	O.1.9
CL-13/16	Shadis, Raymond	Letter	12/31/2001	P-136	O.1.14
CL-13/17	Shadis, Raymond	Letter	12/31/2001	P-136	O.1.15
CL-13/18	Shadis, Raymond	Letter	12/31/2001	P-136	O.4.4
CL-13/19	Shadis, Raymond	Letter	12/31/2001	P-136	O.4.3
CL-14/1	Oncavage, Mark P.	Letter	12/31/2001	P-137	O.1.16
CL-14/2	Oncavage, Mark P.	Letter	12/31/2001	P-137	O.1.16
CL-14/3	Oncavage, Mark P.	Letter	12/31/2001	P-138	O.1.16
CL-14/4	Oncavage, Mark P.	Letter	12/31/2001	P-138	O.2..3.4
CL-14/5	Oncavage, Mark P.	Letter	12/31/2001	P-138	O.1.9
CL-14/6	Oncavage, Mark P.	Letter	12/31/2001	P-138	O.2.4.1
CL-14/7	Oncavage, Mark P.	Letter	12/31/2001	P-138	O.5.2
CL-15/1	Sokolsky, David	Letter	1/2/2002	P-140	O.6.2
CL-15/2	Sokolsky, David	Letter	1/2/2002	P-140	O.6.1
CL-15/3	Sokolsky, David	Letter	1/2/2002	P-140	O.6.1
CL-15/4	Sokolsky, David	Letter	1/2/2002	P-140	O.6.1
CL-15/6	Sokolsky, David	Letter	1/2/2002	P-140	O.1.6
CL-16/1	Miller, Anne Norton	Letter	12/21/2001	P-141	O.6.5
CL-16/2	Miller, Anne Norton	Letter	12/21/2001	P-141	O.6.1
CL-16/3	Miller, Anne Norton	Letter	12/21/2001	P-141	O.5.5
CL-16/4	Miller, Anne Norton	Letter	12/21/2001	P-141	O.6.1

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-16/5	Miller, Anne Norton	Letter	12/21/2001	P-141	O.1.2
CL-16/6	Miller, Anne Norton	Letter	12/21/2001	P-142	O.6.1
CL-16/7	Miller, Anne Norton	Letter	12/21/2001	P-142	O.4.6
CL-16/8	Miller, Anne Norton	Letter	12/21/2001	P-142	O.6.1
CL-16/9	Miller, Anne Norton	Letter	12/21/2001	P-142	O.2.4.1
CL-16/10	Miller, Anne Norton	Letter	12/21/2001	P-142	O.2.3.3
CL-16/11	Miller, Anne Norton	Letter	12/21/2001	P-143	O.5.6
CL-16/12	Miller, Anne Norton	Letter	12/21/2001	P-143	O.5.4
CL-16/13	Miller, Anne Norton	Letter	12/21/2001	P-143	O.1.2
CL-16/14	Miller, Anne Norton	Letter	12/21/2001	P-143	O.1.7
CL-16/15	Miller, Anne Norton	Letter	12/21/2001	P-143	O.5.5
CL-16/16	Miller, Anne Norton	Letter	12/21/2001	P-143	O.6.1
CL-16/17	Miller, Anne Norton	Letter	12/21/2001	P-143	O.3.0
CL-16/18	Miller, Anne Norton	Letter	12/21/2001	P-143	O.1.6
CL-16/19	Miller, Anne Norton	Letter	12/21/2001	P-143	O.1.2
CL-16/20	Miller, Anne Norton	Letter	12/21/2001	P-143	O.1.6
CL-16/21	Miller, Anne Norton	Letter	12/21/2001	P-143	O.6.1
CL-16/22	Miller, Anne Norton	Letter	12/21/2001	P-143	O.6.1
CL-16/23	Miller, Anne Norton	Letter	12/21/2001	P-143	O.1.1
CL-16/24	Miller, Anne Norton	Letter	12/21/2001	P-143	O.1.1
CL-16/25	Miller, Anne Norton	Letter	12/21/2001	P-143	O.1.1
CL-16/26	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.1
CL-16/27	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.1
CL-16/28	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/29	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/30	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/31	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/32	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/33	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/34	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/35	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/36	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/37	Miller, Anne Norton	Letter	12/21/2001	P-144	O.1.2
CL-16/38	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.2
CL-16/39	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.3
CL-16/40	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.3
CL-16/41	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.3
CL-16/42	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.3
CL-16/43	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.3

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-16/44	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.3
CL-16/45	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.4
CL-16/46	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.4
CL-16/47	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.4
CL-16/48	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.4
CL-16/49	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.4
CL-16/50	Miller, Anne Norton	Letter	12/21/2001	P-145	O.1.4
CL-16/51	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/52	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/53	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/54	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/55	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/56	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/57	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/58	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/59	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/60	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.4
CL-16/61	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.5
CL-16/62	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.5
CL-16/63	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.6
CL-16/64	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.6
CL-16/65	Miller, Anne Norton	Letter	12/21/2001	P-146	O.1.6
CL-16/66	Miller, Anne Norton	Letter	12/21/2001	P-147	O.1.6
CL-16/67	Miller, Anne Norton	Letter	12/21/2001	P-147	O.2.3.4
CL-16/68	Miller, Anne Norton	Letter	12/21/2001	P-147	O.6.1
CL-16/69	Miller, Anne Norton	Letter	12/21/2001	P-147	O.1.12
CL-16/70	Miller, Anne Norton	Letter	12/21/2001	P-147	O.1.15
CL-16/71	Miller, Anne Norton	Letter	12/21/2001	P-147	O.6.1
CL-16/72	Miller, Anne Norton	Letter	12/21/2001	P-147	O.6.1
CL-16/73	Miller, Anne Norton	Letter	12/21/2001	P-147	O.6.1
CL-16/74	Miller, Anne Norton	Letter	12/21/2001	P-147	O.6.1
CL-17/1	Ortciger, Thomas W.	Letter	1/7/2002	P-148	O.2.3.3
CL-17/2	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O.5.4
CL-17/3	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O.4.8
CL-17/4	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O.2.3.3
CL-17/5	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O.2.2
CL-17/6	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O.4.8
CL-17/7	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O.2.3.3
CL-17/8	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O.2.2

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-17/9	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O.4.3
CL-17/10	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O.6.5
CL-17/11	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O.6.5
CL-17/12	Ortciger, Thomas W.	Letter	1/7/2002	P-149	O.2.2
CL-18/1	Delezenski, Jerry	Letter	11/20/2001	P-150	O.6.1
CL-18/2	Delezenski, Jerry	Letter	11/20/2001	P-150	O.1.9
CL-18/3	Delezenski, Jerry	Letter	11/20/2001	P-150	O.6.5
CL-19/1	Byrne, Stephen A.	Letter	12/20/2001	P-151	O.2.3.3
CL-19/2	Byrne, Stephen A.	Letter	12/20/2001	P-151	O.2.3.3
CL-20/1	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-152	O.6.5
CL-20/2	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-152	O.6.3
CL-20/3	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-152	O.6.5
CL-20/4	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-152	O.2.2
CL-20/5	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-152	O.1.16
CL-20/6	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-152	O.5.5
CL-20/7	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-153	O.1.6
CL-20/8	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-153	O.1.6
CL-20/9	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-153	O.1.4
CL-20/10	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-153	O.1.4
CL-20/11	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-154	O.6.5
CL-20/12	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-154	O.4.7
CL-20/13	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-154	O.4.8
CL-20/14	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-154	O.3.0
CL-20/15	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-154	O.1.2
CL-20/17	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-154	O.4.6
CL-20/18	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-154	O.1.2
CL-20/19	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-154	O.1.2
CL-20/20	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.2.3.4
CL-20/21	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.4.3
CL-20/22	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.3.0
CL-20/23	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.3.0
CL-20/24	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.1.8
CL-20/25	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.4.4
CL-20/26	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.4.4
CL-20/27	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.4.4
CL-20/28	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.1.2
CL-20/29	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.1.2
CL-20/30	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.1.16

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-20/31	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.1.3
CL-20/32	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.3.0
CL-20/33	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-155	O.1.6
CL-20/34	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.1.6
CL-20/35	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.4.3
CL-20/36	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.1.4
CL-20/37	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.1.6
CL-20/38	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.1.4
CL-20/40	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.1.4
CL-20/41	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.4.9
CL-20/42	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.4.8
CL-20/43	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.5.4
CL-20/44	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-156	O.2.2
CL-20/45	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.2.2
CL-20/47	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.1.9
CL-20/48	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.1.9
CL-20/49	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.1.9
CL-20/50	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.1.10
CL-20/51	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.1.10
CL-20/52	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.1.6
CL-20/53	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.2.2
CL-20/54	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.1.6
CL-20/55	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.1.6
CL-20/56	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-157	O.1.6
CL-20/57	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.3.0
CL-20/58	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.3.0
CL-20/59	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.3.0
CL-20/60	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.3.0
CL-20/61	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.2.3.2
CL-20/62	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.2.3.2
CL-20/63	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.2.3.2
CL-20/64	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.6.5
CL-20/65	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.2.2
CL-20/66	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.2.2
CL-20/67	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.2.2
CL-20/68	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.1.2
CL-20/69	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.3.0

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-20/70	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.1.6
CL-20/71	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.4.3
CL-20/72	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.3.0
CL-20/73	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-158	O.4.2
CL-20/74	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.2.4.1
CL-20/75	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.3.0
CL-20/76	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.1.2
CL-20/77	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.4.3
CL-20/78	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.4.3
CL-20/79	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.2.4.1
CL-20/80	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.2.4.1
CL-20/81	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.4.4
CL-20/82	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.6.5
CL-20/83	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.5.4
CL-20/84	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-159	O.4.4
CL-20/85	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.15
CL-20/86	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.15
CL-20/87	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.5.4
CL-20/88	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.4.8
CL-20/89	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/90	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/91	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/92	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/93	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/94	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/95	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.2.2
CL-20/96	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/97	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/98	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/99	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.6
CL-20/100	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-160	O.1.7
CL-20/101	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.1.7
CL-20/102	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.1.7
CL-20/103	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.1.6
CL-20/104	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.1.6
CL-20/105	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.1.6
CL-20/106	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.1.6
CL-20/107	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.2.2
CL-20/108	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.6.5

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Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-20/109	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.4.1.1
CL-20/110	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.4.1.1
CL-20/111	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.4.1.1
CL-20/112	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.4.1.1
CL-20/113	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.5.2
CL-20/114	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-161	O.4.3
CL-20/115	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-162	O.6.3
CL-20/116	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-162	O.4.5
CL-20/117	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-162	O.6.5
CL-20/118	Blockey-O'Brien, Pamela	Letter	12/26/2001	P-162	O.6.5
CL-21/1	Guynup, Sharon	Letter	1/19/2002	P-163	O.2.2
CL-22/1	sublimation@webtv.net	Letter	1/19/2002	P-164	O.6.5
CL-23/1	Long, A. J. (Fred)	Letter	1/20/2002	P-165	O.4.1.1
CL-24/1	Griffiths, Rachel	Letter	1/20/2002	P-166	O.2.2
CL-24/2	Griffiths, Rachel	Letter	1/20/2002	P-166	O.5.9
CL-24/3	Griffiths, Rachel	Letter	1/20/2002	P-166	O.1.16
CL-24/4	Griffiths, Rachel	Letter	1/20/2002	P-166	O.2.3.4
CL-24/5	Griffiths, Rachel	Letter	1/20/2002	P-166	O.4.1.1
CL-24/6	Griffiths, Rachel	Letter	1/20/2002	P-166	O.2.2
CL-25/1	Russell, Edward T.	Letter	1/20/2002	P-167	O.2.2
CL-25/2	Russell, Edward T.	Letter	1/20/2002	P-167	O.1.16
CL-25/3	Russell, Edward T.	Letter	1/20/2002	P-167	O.4.9
CL-25/4	Russell, Edward T.	Letter	1/20/2002	P-167	O.4.4
CL-25/5	Russell, Edward T.	Letter	1/20/2002	P-167	O.5.9
CL-25/6	Russell, Edward T.	Letter	1/20/2002	P-167	O.1.16
CL-25/7	Russell, Edward T.	Letter	1/20/2002	P-167	O.4.8
CL-25/8	Russell, Edward T.	Letter	1/20/2002	P-167	O.1.6
CL-25/9	Russell, Edward T.	Letter	1/20/2002	P-167	O.5.8
CL-25/10	Russell, Edward T.	Letter	1/20/2002	P-167	O.2.2
CL-25/11	Russell, Edward T.	Letter	1/20/2002	P-167	O.4.1.1
CL-25/12	Russell, Edward T.	Letter	1/20/2002	P-167	O.6.5
CL-26/1	Matthews, Dave	Letter	1/21/2002	P-168	O.1.16
CL-26/2	Matthews, Dave	Letter	1/21/2002	P-168	O.2.3.4
CL-26/3	Matthews, Dave	Letter	1/21/2002	P-168	O.4.2
CL-26/4	Matthews, Dave	Letter	1/21/2002	P-168	O.2.3.3
CL-26/5	Matthews, Dave	Letter	1/21/2002	P-168	O.4.8
CL-26/6	Matthews, Dave	Letter	1/21/2002	P-168	O.4.7
CL-26/7	Matthews, Dave	Letter	1/21/2002	P-168	O.1.6
CL-26/8	Matthews, Dave	Letter	1/21/2002	P-168	O.1.6

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Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-26/9	Matthews, Dave	Letter	1/21/2002	P-168	O.1.6
CL-26/10	Matthews, Dave	Letter	1/21/2002	P-168	O.5.8
CL-26/11	Matthews, Dave	Letter	1/21/2002	P-168	O.5.2
CL-26/12	Matthews, Dave	Letter	1/21/2002	P-168	O.5.5
CL-26/13	Matthews, Dave	Letter	1/21/2002	P-168	O.2.2
CL-26/14	Matthews, Dave	Letter	1/21/2002	P-168	O.5.2
CL-26/15	Matthews, Dave	Letter	1/21/2002	P-168	O.4.1.1
CL-27/1	Schumann, Klaus	Letter	1/21/2002	P-169	O.5.9
CL-27/2	Schumann, Klaus	Letter	1/21/2002	P-169	O.5.2
CL-27/3	Schumann, Klaus	Letter	1/21/2002	P-169	O.2.4
CL-28/1	Larson, Dennis	Letter	1/21/2002	P-170	O.5.10
CL-29/1	Kellerman, Martin	Letter	1/21/2002	P-171	O.4.8
CL-29/2	Kellerman, Martin	Letter	1/21/2002	P-171	O.2.3.4
CL-29/3	Kellerman, Martin	Letter	1/21/2002	P-171	O.4.1.1
CL-30/1	Heider, Kenneth J.	Letter	12/26/2001	P-172	O.6.5
CL-30/2	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-30/3	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-30/4	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.2.3.4
CL-30/5	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-30/6	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-30/7	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-30/8	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-30/9	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-30/10	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-30/11	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-30/12	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-30/13	Heider, Kenneth J.	Letter	12/26/2001	P-173	O.6.1
CL-31/1	Gallagher, Michael P.	Letter	12/28/2001	P-174	O.6.5
CL-31/2	Gallagher, Michael P.	Letter	12/28/2001	P-174	O.6.5
CL-31/3	Gallagher, Michael P.	Letter	12/28/2001	P-174	O.2.3.3
CL-31/4	Gallagher, Michael P.	Letter	12/28/2001	P-174	O.2.3.4
CL-31/5	Gallagher, Michael P.	Letter	12/28/2001	P-174	O.2.3.2
CL-31/6	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.6.1
CL-31/7	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.1.9
CL-31/8	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.1.2
CL-31/9	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.1.3
CL-31/10	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.1.6
CL-31/11	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.1.6
CL-31/12	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.1.9

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Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-31/13	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.1.9
CL-31/14	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.6.1
CL-31/15	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.1.7
CL-31/16	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.6.1
CL-31/17	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.6.1
CL-31/18	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.2.3.3
CL-31/19	Gallagher, Michael P.	Letter	12/28/2001	P-175	O.6.1
CL-32/1	Clark, Susan	Letter	1/24/2002	P-176	O.2.2
CL-32/2	Clark, Susan	Letter	1/24/2002	P-176	O.2.3.3
CL-32/3	Clark, Susan	Letter	1/24/2002	P-176	O.1.6
CL-33/1	Nagel, Margaret	Letter	1/24/2002	P-177	O.2.2
CL-33/2	Nagel, Margaret	Letter	1/24/2002	P-177	O.6.3
CL-33/3	Nagel, Margaret	Letter	1/24/2002	P-177	O.1.6
CL-33/4	Nagel, Margaret	Letter	1/24/2002	P-177	O.1.6
CL-33/5	Nagel, Margaret	Letter	1/24/2002	P-177	O.2.2
CL-33/6	Nagel, Margaret	Letter	1/24/2002	P-177	O.2.2
CL-33/7	Nagel, Margaret	Letter	1/24/2002	P-177	O.2.3.4
CL-33/8	Nagel, Margaret	Letter	1/24/2002	P-177	O.4.2
CL-33/9	Nagel, Margaret	Letter	1/24/2002	P-177	O.4.8
CL-33/10	Nagel, Margaret	Letter	1/24/2002	P-177	O.1.6
CL-33/11	Nagel, Margaret	Letter	1/24/2002	P-177	O.1.6
CL-33/12	Nagel, Margaret	Letter	1/24/2002	P-177	O.1.6
CL-33/13	Nagel, Margaret	Letter	1/24/2002	P-177	O.5.8
CL-33/14	Nagel, Margaret	Letter	1/24/2002	P-177	O.1.16
CL-33/15	Nagel, Margaret	Letter	1/24/2002	P-177	O.5.2
CL-33/16	Nagel, Margaret	Letter	1/24/2002	P-177	O.5.5
CL-33/17	Nagel, Margaret	Letter	1/24/2002	P-177	O.2.2
CL-33/18	Nagel, Margaret	Letter	1/24/2002	P-177	O.5.2
CL-33/19	Nagel, Margaret	Letter	1/24/2002	P-177	O.5.4
CL-33/20	Nagel, Margaret	Letter	1/24/2002	P-177	O.4.7
CL-34/1	Casten, Liane	Letter	1/24/2002	P-178	O.6.5
CL-34/2	Casten, Liane	Letter	1/24/2002	P-178	O.1.6
CL-34/3	Casten, Liane	Letter	1/24/2002	P-178	O.6.3
CL-34/4	Casten, Liane	Letter	1/24/2002	P-178	O.4.8
CL-34/5	Casten, Liane	Letter	1/24/2002	P-178	O.6.5
CL-35/1	Kim, Mary	Letter	1/25/2002	P-179	O.5.2
CL-36/1	Miller, Suzanne	Letter	1/25/2002	P-180	O.5.2
CL-36/2	Miller, Suzanne	Letter	1/25/2002	P-180	O.2.2
CL-36/3	Miller, Suzanne	Letter	1/25/2002	P-180	O.5.9

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Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-36/4	Miller, Suzanne	Letter	1/25/2002	P-180	O.2.2
CL-36/5	Miller, Suzanne	Letter	1/25/2002	P-180	O.4.8
CL-36/6	Miller, Suzanne	Letter	1/25/2002	P-180	O.2.4.2
CL-36/7	Miller, Suzanne	Letter	1/25/2002	P-180	O.4.1.1
CL-36/8	Miller, Suzanne	Letter	1/25/2002	P-180	O.6.3
CL-37/1	Nordlund, James M.	Letter	1/25/2002	P-181	O.4.1.1
CL-38/1	Woelker, Roger	Letter	1/27/2002	P-182	O.2.3.4
CL-38/2	Woelker, Roger	Letter	1/27/2002	P-182	O.5.9
CL-38/3	Woelker, Roger	Letter	1/27/2002	P-182	O.2.3.4
CL-38/4	Woelker, Roger	Letter	1/27/2002	P-182	O.5.5
CL-38/5	Woelker, Roger	Letter	1/27/2002	P-182	O.1.6
CL-38/6	Woelker, Roger	Letter	1/27/2002	P-182	O.4.3
CL-38/7	Woelker, Roger	Letter	1/27/2002	P-182	O.4.1.1
CL-39/1	Moore, Anne	Letter	1/28/2002	P-183	O.6.5
CL-39/2	Moore, Anne	Letter	1/28/2002	P-183	O.4.2.
CL-39/3	Moore, Anne	Letter	1/28/2002	P-183	O.4.1.1
CL-39/4	Moore, Anne	Letter	1/28/2002	P-183	O.4.8
CL-39/5	Moore, Anne	Letter	1/28/2002	P-183	O.2.2
CL-39/6	Moore, Anne	Letter	1/28/2002	P-183	O.1.6
CL-40/1	Runkle, John	Letter	1/28/2002	P-184	O.1.16
CL-40/2	Runkle, John	Letter	1/28/2002	P-184	O.1.6
CL-40/3	Runkle, John	Letter	1/28/2002	P-184	O.4.8
CL-40/4	Runkle, John	Letter	1/28/2002	P-184	O.4.1.1
CL-41/1	Schlau, Benjamin	Letter	1/29/2002	P-185	O.6.5
CL-41/2	Schlau, Benjamin	Letter	1/29/2002	P-185	O.4.5
CL-42/1	Ferguson, Tom	Letter	1/29/2002	P-186	O.2.3.3
CL-42/2	Ferguson, Tom	Letter	1/29/2002	P-186	O.4.4
CL-42/3	Ferguson, Tom	Letter	1/29/2002	P-186	O.2.4.1
CL-42/4	Ferguson, Tom	Letter	1/29/2002	P-186	O.6.3
CL-42/5	Ferguson, Tom	Letter	1/29/2002	P-186	O.6.3
CL-43/1	Reed, Mary S.	Letter	1/29/2002	P-187	O.2.3.4
CL-43/2	Reed, Mary S.	Letter	1/29/2002	P-187	O.4.2
CL-43/3	Reed, Mary S.	Letter	1/29/2002	P-187	O.2.3.3
CL-43/4	Reed, Mary S.	Letter	1/29/2002	P-187	O.4.8
CL-43/5	Reed, Mary S.	Letter	1/29/2002	P-187	O.1.6
CL-43/6	Reed, Mary S.	Letter	1/29/2002	P-187	O.1.6
CL-43/7	Reed, Mary S.	Letter	1/29/2002	P-187	O.5.8
CL-43/8	Reed, Mary S.	Letter	1/29/2002	P-187	O.1.16
CL-43/9	Reed, Mary S.	Letter	1/29/2002	P-187	O.5.2

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-43/10	Reed, Mary S.	Letter	1/29/2002	P-187	O.5.5
CL-43/11	Reed, Mary S.	Letter	1/29/2002	P-187	O.2.2
CL-43/12	Reed, Mary S.	Letter	1/29/2002	P-187	O.5.2
CL-43/13	Reed, Mary S.	Letter	1/29/2002	P-187	O.4.7
CL-43/14	Reed, Mary S.	Letter	1/29/2002	P-187	O.4.7
CL-43/15	Reed, Mary S.	Letter	1/29/2002	P-187	O.5.9
CL-43/16	Reed, Mary S.	Letter	1/29/2002	P-187	O.5.2
CL-44/1	Borchamann, Patricia	Letter	1/29/2002	P-188	O.1.16
CL-44/2	Borchamann, Patricia	Letter	1/29/2002	P-188	O.1.16
CL-44/3	Borchamann, Patricia	Letter	1/29/2002	P-188	O.1.16
CL-44/5	Borchamann, Patricia	Letter	1/29/2002	P-189	O.2.3.4
CL-44/6	Borchamann, Patricia	Letter	1/29/2002	P-189	O.4.2
CL-44/7	Borchamann, Patricia	Letter	1/29/2002	P-189	O.1.6
CL-44/8	Borchamann, Patricia	Letter	1/29/2002	P-189	O.5.9
CL-44/9	Borchamann, Patricia	Letter	1/29/2002	P-189	O.2.2
CL-44/10	Borchamann, Patricia	Letter	1/29/2002	P-189	O.5.5
CL-44/11	Borchamann, Patricia	Letter	1/29/2002	P-189	O.2.2
CL-44/12	Borchamann, Patricia	Letter	1/29/2002	P-189	O.4.7
CL-44/13	Borchamann, Patricia	Letter	1/29/2002	P-189	O.4.7
CL-44/14	Borchamann, Patricia	Letter	1/29/2002	P-189	O.2.2
CL-44/15	Borchamann, Patricia	Letter	1/29/2002	P-189	O.5.2
CL-44/16	Borchamann, Patricia	Letter	1/29/2002	P-189	O.1.9
CL-45/1	McKeown, Diana S.	Letter	1/30/2002	P-190	O.5.2
CL-45/2	McKeown, Diana S.	Letter	1/30/2002	P-190	O.1.6
CL-45/3	McKeown, Diana S.	Letter	1/30/2002	P-190	O.1.16
CL-46/1	Ferguson, Tom	Letter	1/30/2002	P-191	O.5.2
CL-46/2	Ferguson, Tom	Letter	1/30/2002	P-191	O.5.2
CL-46/3	Ferguson, Tom	Letter	1/30/2002	P-191	O.4.4
CL-46/4	Ferguson, Tom	Letter	1/30/2002	P-191	O.1.7
CL-46/5	Ferguson, Tom	Letter	1/30/2002	P-191	O.6.3
CL-46/6	Ferguson, Tom	Letter	1/30/2002	P-191	O.6.3
CL-47/1	Ritter, David	Letter	1/30/2002	P-192	O.6.5
CL-47/2	Ritter, David	Letter	1/30/2002	P-192	O.6.5
CL-47/3	Ritter, David	Letter	1/30/2002	P-192	O.6.4
CL-47/4	Ritter, David	Letter	1/30/2002	P-192	O.5.2
CL-47/5	Ritter, David	Letter	1/30/2002	P-192	O.6.4
CL-47/6	Ritter, David	Letter	1/30/2002	P-192	O.2.4.2
CL-47/7	Ritter, David	Letter	1/30/2002	P-192	O.4.3

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-47/8	Ritter, David	Letter	1/30/2002	P-192	O.2.2
CL-47/9	Ritter, David	Letter	1/30/2002	P-192	O.2.3.4
CL-47/10	Ritter, David	Letter	1/30/2002	P-193	O.5.9
CL-47/11	Ritter, David	Letter	1/30/2002	P-193	O.5.9
CL-47/12	Ritter, David	Letter	1/30/2002	P-193	O.5.2
CL-47/13	Ritter, David	Letter	1/30/2002	P-193	O.5.5
CL-47/14	Ritter, David	Letter	1/30/2002	P-193	O.2.3.4
CL-47/15	Ritter, David	Letter	1/30/2002	P-193	O.2.3.4
CL-47/16	Ritter, David	Letter	1/30/2002	P-193	O.4.1.1
CL-47/17	Ritter, David	Letter	1/30/2002	P-193	O.1.9
CL-47/18	Ritter, David	Letter	1/30/2002	P-194	O.5.4
CL-48/1	Gunter, Paul	Letter	1/30/2002	P-195	O.5.2
CL-48/2	Gunter, Paul	Letter	1/30/2002	P-195	O.2.2
CL-48/3	Gunter, Paul	Letter	1/30/2002	P-195	O.1.16
CL-48/4	Gunter, Paul	Letter	1/30/2002	P-195	O.5.2
CL-48/5	Gunter, Paul	Letter	1/30/2002	P-195	O.2.1
CL-48/6	Gunter, Paul	Letter	1/30/2002	P-195	O.5.9
CL-48/7	Gunter, Paul	Letter	1/30/2002	P-196	O.6.4
CL-48/8	Gunter, Paul	Letter	1/30/2002	P-196	O.6.4
CL-48/9	Gunter, Paul	Letter	1/30/2002	P-196	O.1.9
CL-48/10	Gunter, Paul	Letter	1/30/2002	P-196	O.4.3
CL-48/11	Gunter, Paul	Letter	1/30/2002	P-196	O.5.4
CL-48/12	Gunter, Paul	Letter	1/30/2002	P-196	O.5.4
CL-48/13	Gunter, Paul	Letter	1/30/2002	P-196	O.5.4
CL-48/14	Gunter, Paul	Letter	1/30/2002	P-196	O.1.6
CL-48/15	Gunter, Paul	Letter	1/30/2002	P-196	O.4.6
CL-48/16	Gunter, Paul	Letter	1/30/2002	P-197	O.4.6
CL-48/17	Gunter, Paul	Letter	1/30/2002	P-197	O.4.1.1
CL-48/18	Gunter, Paul	Letter	1/30/2002	P-197	O.1.9
CL-48/19	Gunter, Paul	Letter	1/30/2002	P-197	O.2.1
CL-48/20	Gunter, Paul	Letter	1/30/2002	P-197	O.1.9
CL-48/21	Gunter, Paul	Letter	1/30/2002	P-197	O.1.9
CL-48/22	Gunter, Paul	Letter	1/30/2002	P-197	O.4.10
CL-48/23	Gunter, Paul	Letter	1/30/2002	P-197	O.4.10
CL-48/24	Gunter, Paul	Letter	1/30/2002	P-197	O.1.9
CL-48/25	Gunter, Paul	Letter	1/30/2002	P-197	O.5.9
CL-48/26	Gunter, Paul	Letter	1/30/2002	P-197	O.5.5
CL-48/27	Gunter, Paul	Letter	1/30/2002	P-197	O.5.2
CL-48/28	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3.2

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-48/29	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3.4
CL-48/30	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3.4
CL-48/31	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3.4
CL-48/32	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3.3
CL-48/33	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3.4
CL-48/34	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3.4
CL-48/35	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3.4
CL-48/36	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3.4
CL-48/37	Gunter, Paul	Letter	1/30/2002	P-198	O.4.2
CL-48/38	Gunter, Paul	Letter	1/30/2002	P-198	O.2.3.3
CL-48/39	Gunter, Paul	Letter	1/30/2002	P-198	O.1.6
CL-48/40	Gunter, Paul	Letter	1/30/2002	P-198	O.1.6
CL-48/41	Gunter, Paul	Letter	1/30/2002	P-198	O.1.6
CL-48/42	Gunter, Paul	Letter	1/30/2002	P-199	O.5.8
CL-48/43	Gunter, Paul	Letter	1/30/2002	P-199	O.5.9
CL-48/44	Gunter, Paul	Letter	1/30/2002	P-199	O.5.2
CL-48/45	Gunter, Paul	Letter	1/30/2002	P-199	O.5.5
CL-48/46	Gunter, Paul	Letter	1/30/2002	P-199	O.2.2
CL-48/47	Gunter, Paul	Letter	1/30/2002	P-199	O.5.2
CL-48/48	Gunter, Paul	Letter	1/30/2002	P-199	O.4.7
CL-48/49	Gunter, Paul	Letter	1/30/2002	P-199	O.4.1.1
CL-49/1	Greene, Eileen	Letter	1/31/2002	P-200	O.1.6
CL-49/2	Greene, Eileen	Letter	1/31/2002	P-200	O.1.6
CL-50/1	Katz, Deb	Letter	1/31/2002	P-201	O.2.2
CL-50/2	Katz, Deb	Letter	1/31/2002	P-201	O.2.2
CL-50/3	Katz, Deb	Letter	1/31/2002	P-201	O.5.8
CL-50/4	Katz, Deb	Letter	1/31/2002	P-202	O.5.4
CL-50/5	Katz, Deb	Letter	1/31/2002	P-202	O.2.2
CL-50/6	Katz, Deb	Letter	1/31/2002	P-202	O.2.2
CL-50/7	Katz, Deb	Letter	1/31/2002	P-202	O.3.0
CL-50/8	Katz, Deb	Letter	1/31/2002	P-202	O.5.2
CL-50/9	Katz, Deb	Letter	1/31/2002	P-202	O.5.2
CL-50/10	Katz, Deb	Letter	1/31/2002	P-202	O.1.6
CL-50/11	Katz, Deb	Letter	1/31/2002	P-202	O.4.6
CL-50/12	Katz, Deb	Letter	1/31/2002	P-202	O.2.1
CL-50/13	Katz, Deb	Letter	1/31/2002	P-202	O.4.6
CL-50/14	Katz, Deb	Letter	1/31/2002	P-202	O.4.6
CL-50/15	Katz, Deb	Letter	1/31/2002	P-202	O.3.0
CL-50/16	Katz, Deb	Letter	1/31/2002	P-202	O.1.6

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-50/17	Katz, Deb	Letter	1/31/2002	P-202	O.1.6
CL-50/18	Katz, Deb	Letter	1/31/2002	P-202	O.3.0
CL-50/19	Katz, Deb	Letter	1/31/2002	P-202	O.4.2
CL-50/20	Katz, Deb	Letter	1/31/2002	P-203	O.1.6
CL-50/21	Katz, Deb	Letter	1/31/2002	P-203	O.2.3.4
CL-50/22	Katz, Deb	Letter	1/31/2002	P-203	O.2.2
CL-50/23	Katz, Deb	Letter	1/31/2002	P-203	O.4.4
CL-50/24	Katz, Deb	Letter	1/31/2002	P-203	O.5.2
CL-50/25	Katz, Deb	Letter	1/31/2002	P-203	O.1.7
CL-50/26	Katz, Deb	Letter	1/31/2002	P-203	O.4.6
CL-50/27	Katz, Deb	Letter	1/31/2002	P-203	O.5.2
CL-50/28	Katz, Deb	Letter	1/31/2002	P-203	O.2.4.1
CL-51/1	Drey, Kay	Letter	1/30/2002	P-204	O.1.16
CL-51/2	Drey, Kay	Letter	1/30/2002	P-204	O.4.6
CL-51/3	Drey, Kay	Letter	1/30/2002	P-204	O.4.6
CL-51/4	Drey, Kay	Letter	1/30/2002	P-204	O.4.6
CL-51/5	Drey, Kay	Letter	1/30/2002	P-205	O.5.1
CL-51/6	Drey, Kay	Letter	1/30/2002	P-205	O.6.1
CL-51/7	Drey, Kay	Letter	1/30/2002	P-205	O.2.3.4
CL-51/8	Drey, Kay	Letter	1/30/2002	P-205	O.2.3.4
CL-51/9	Drey, Kay	Letter	1/30/2002	P-205	O.1.3
CL-51/10	Drey, Kay	Letter	1/30/2002	P-205	O.1.6
CL-51/11	Drey, Kay	Letter	1/30/2002	P-205	O.1.8
CL-51/12	Drey, Kay	Letter	1/30/2002	P-205	O.2.3.4
CL-51/13	Drey, Kay	Letter	1/30/2002	P-205	O.1.6
CL-51/14	Drey, Kay	Letter	1/30/2002	P-205	O.2.3.4
CL-51/15	Drey, Kay	Letter	1/30/2002	P-205	O.1.2
CL-51/16	Drey, Kay	Letter	1/30/2002	P-205	O.4.8
CL-51/17	Drey, Kay	Letter	1/30/2002	P-205	O.4.8
CL-51/18	Drey, Kay	Letter	1/30/2002	P-205	O.4.8
CL-51/19	Drey, Kay	Letter	1/30/2002	P-205	O.4.10
CL-51/20	Drey, Kay	Letter	1/30/2002	P-205	O.2.2
CL-51/21	Drey, Kay	Letter	1/30/2002	P-206	O.2.4.1
CL-51/22	Drey, Kay	Letter	1/30/2002	P-206	O.4.3
CL-51/23	Drey, Kay	Letter	1/30/2002	P-206	O.4.8
CL-51/24	Drey, Kay	Letter	1/30/2002	P-206	O.2.2
CL-51/25	Drey, Kay	Letter	1/30/2002	P-206	O.4.8
CL-51/26	Drey, Kay	Letter	1/30/2002	P-206	O.2.2
CL-51/27	Drey, Kay	Letter	1/30/2002	P-206	O.6.5

Table O.1. (contd)

Comment No.	Speaker or Author	Source	Date	Comment Page in Appendix P	Section of Appendix O where comment is addressed
CL-51/28	Drey, Kay	Letter	1/30/2002	P-206	O.2.2
CL-52/1	Johnsrud, Judith	Letter	2/21/2002	P-207	O.6.5
CL-52/2	Johnsrud, Judith	Letter	2/21/2002	P-207	O.5.4
CL-52/3	Johnsrud, Judith	Letter	2/21/2002	P-207	O.5.4
CL-52/4	Johnsrud, Judith	Letter	2/21/2002	P-207	O.2.2
CL-52/5	Johnsrud, Judith	Letter	2/21/2002	P-207	O.2.2
CL-52/6	Johnsrud, Judith	Letter	2/21/2002	P-207	O.5.2
CL-52/7	Johnsrud, Judith	Letter	2/21/2002	P-207	O.5.2
CL-52/8	Johnsrud, Judith	Letter	2/21/2002	P-207	O.5.9
CL-52/9	Johnsrud, Judith	Letter	2/21/2002	P-207	O.5.4
CL-52/10	Johnsrud, Judith	Letter	2/21/2002	P-207	O.5.4
CL-52/11	Johnsrud, Judith	Letter	2/21/2002	P-207	O.4.8
CL-52/12	Johnsrud, Judith	Letter	2/21/2002	P-207	O.1.6
CL-52/13	Johnsrud, Judith	Letter	2/21/2002	P-208	O.1.6
CL-52/14	Johnsrud, Judith	Letter	2/21/2002	P-208	O.4.7
CL-52/15	Johnsrud, Judith	Letter	2/21/2002	P-208	O.4.1.1
CL-52/16	Johnsrud, Judith	Letter	2/21/2002	P-208	O.4.1.1
CL-52/17	Johnsrud, Judith	Letter	2/21/2002	P-208	O.4.1.1
CL-52/18	Johnsrud, Judith	Letter	2/21/2002	P-208	O.4.1.1
CL-52/19	Johnsrud, Judith	Letter	2/21/2002	P-208	O.1.6
CL-52/20	Johnsrud, Judith	Letter	2/21/2002	P-208	O.1.6
CL-52/21	Johnsrud, Judith	Letter	2/21/2002	P-208	O.1.6
CL-52/22	Johnsrud, Judith	Letter	2/21/2002	P-208	O.2.4.3
CL-52/23	Johnsrud, Judith	Letter	2/21/2002	P-208	O.2.2
CL-52/24	Johnsrud, Judith	Letter	2/21/2002	P-208	O.2.2
CL-52/25	Johnsrud, Judith	Letter	2/21/2002	P-208	O.6.5
CL-53/1	Becker, Rochelle	Letter	2/2/2002	P-209	O.5.2
CL-53/2	Becker, Rochelle	Letter	2/2/2002	P-209	O.2.4.1
CL-53/3	Becker, Rochelle	Letter	2/2/2002	P-209	O.5.9
CL-53/4	Becker, Rochelle	Letter	2/2/2002	P-209	O.4.4
CL-53/5	Becker, Rochelle	Letter	2/2/2002	P-209	O.5.2
CL-53/6	Becker, Rochelle	Letter	2/2/2002	P-209	O.5.2

O.1 Impacts

O.1.1 Onsite/Offsite Land Use

Comment: Page 4-6, Section 4.3.1.2, Lines 15-16. This section defines a previously disturbed area as an area where land disturbance occurred "during construction or operation of the site." This definition may allow licensees to undertake decommissioning activities resulting in adverse environmental impacts without first performing a site-specific analysis of those impacts. For example, it might allow a licensee to disturb an area that was disturbed several decades ago during plant construction even if that area was not used during plant operation and has essentially returned to its original condition, i.e. native species have fully returned. The Supplement should define what constitutes a "previous" disturbance, e.g., by specifying a time frame, so such adverse impacts are not permitted to occur. (**CL-16/23**)

Comment: Page 4-6, Section 4.3.1.2, Lines 25-29. The following terms are too broad or too vague to provide licensees sufficient guidance about when a site-specific analysis is necessary with regard to SMALL impacts, "very little new development" and "minimal changes;" with regard to MODERATE impacts, "considerable new development" and "some changes;" and with regard to LARGE impacts, "large-scale new development" and "major change." Providing specific examples from decommissioning or decommissioned facilities would be very useful. (**CL-16/24**)

Response: *Section 4.3.1 was revised to clarify that offsite changes to land use can not be evaluated generically and would require a site-specific analysis. The concept of "previously disturbed land", "very little new development," "minimal changes," etc. no longer is the criteria for initiating a site-specific analysis.*

Comment: Page 4-6, Section 4.3.1.3, Lines 33-41. Using NUREG-1437's estimate that ~1 to ~4 ha (~2.5 to 10 ac) of land is needed for steam generator replacement activities, the document assumes that the land use impacts of major component removal during decommissioning "should be similar or less," and that the land used during major component removal "[g]enerally ... has been previously disturbed during construction of the facility." Does this mean that a licensee must perform a site-specific analysis of impacts if the land use impacts of major component removal may or will be greater than the estimated impacts of steam generator replacement, or if the land used during major component removal has not been previously disturbed during construction of the facility? (**CL-16/25**)

Response: *Section 4.1.3 was revised. A site-specific analysis of onsite land use is not required because this level of impact has already been examined within the context of the operating license and is within the land use allowed by existing zoning. The estimate of land needed for major component removal is for illustration only and does not constitute a limit.*

Comment: Page 4-7, Section 4.3.1.3, Lines 1-2. The Supplement notes that "almost all of the sites" will use land previously disturbed during construction; should one assume that a facility using land not previously disturbed will need to conduct a site-specific analysis? Similarly, under "Conclusions" on that page, it states that impacts for "offsite land use" are considered small unless "major transportation upgrades are necessary." The examples given are establishing water, rail or road transportation links. Is one to assume that any establishment of offsite transportation would require a site-specific analysis? Would impacts only be to off-site land uses or to on-site as well? Specific examples would help here. (**CL-16/26**)

Response: *Section 4.3.1 was revised. The staff has revised Section 4.3.1 to state that offsite changes in land use cannot be evaluated generically. Onsite, no additional analysis is required because no change in land use is required. A licensee should perform a site-specific analysis for all new offsite land use including major transportation upgrades because of the potential for MODERATE or LARGE impacts.*

Comment: Page 4-7, Section 4.3.1.3, Lines 10-12. Please explain the basis for the assumption that where previously disturbed areas are not large enough to support decommissioning activities, "it is likely" that the impact of disturbing previously undisturbed areas would be "temporary and SMALL." (**CL-16/27**)

Response: *Section 4.3.1 was revised. The largest land disturbances associated with decommissioning appear to be about the same size or smaller than those needed for steam generator replacement, 1 to 4 ha (2.5 to 10 acres). This amount of land, even if previously undisturbed, could be returned to a near-natural state in 1 to 5 years and represents only about 2.5% of even relatively small (400 ha) sites. While it is possible for disturbances even this minor to cause adverse ecological consequences (disturbance of a wetland, for example), it is unlikely that such ecologically valuable land would be disturbed. In addition, this amount of land does not represent an impact on overall land use.*

Comment: The Staff should visit TMI and then travel to Clinton Lake to examine how perceptions and reality affect "off site land use." The GEIS must acknowledge the potential for adverse economic impacts on a community during decommissioning. (**CL-02/47**)

Response: *Land use and socioeconomics are addressed in Section 4.3.1 of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.1.2 Surface and Groundwater Quality and Use

Comment: Page 3-11, Section 3.1.3, Lines 17-18. Please revise the document to clarify that Resource Conservation and Recovery Act hazardous waste disposal permits and Clean Water Act NPDES permits are administered either by EPA or, where EPA has authorized the state RCRA program or the state has assumed the NPDES program, by the state. (See NUREG 1628, Question 4.2.2) Also, the text should briefly discuss the management of PCBs and PCB-containing materials under the Toxic Substances Control Act. (**CL-16/19**)

Response: *Section 3.1.3 was revised to clarify the regulation and administration of the Resource Conservation and Recovery Act (RCRA) and NPDES permits.*

Comment: Page 4-9, Section 4.3.2.2, Lines 12-14. The Supplement should briefly describe the "common engineering practices to limit water use impacts." When describing how water impacts were evaluated (Section 4.3.2.3.), it would be helpful to include the average and maximum water usage pre- and post-operation of those plants that have ceased operation. (**CL-16/28**)

Response: *Section 4.3.2.2 was revised. The phrase "common engineering practice to limit water use impacts" was removed and estimates of the average and maximum water usage were provided.*

Comment: Section 4.3.3.3, p 4-12, line 23 – pH would not necessarily (normally) be measured per the LTP. Also, while considerable attention is placed on minimizing spills during decommissioning, hazardous spills have occurred at decommissioning sites. The same types of activities as performed at operating units, which have resulted in spills at operating units, can lead to spills at decommissioning units. The likelihood is less since less water treatment and so less bulk chemical handling is typically performed at decommissioning sites. (**CL-09/17**)

Response: *Section 4.3.3.3 was revised eliminating the implication that non-radiological groundwater parameters (such as pH) would be measured during LTP groundwater monitoring.*

Comment: Pages 4-10 through 4-12, Section 4.3.3. This section focuses primarily on the water quality impacts of nonradiological discharges from point sources to surface water (and the regulation of such discharges under the NPDES program). It should more fully discuss the water quality impacts of both nonradiological discharges to groundwater (and their possible

regulation under state programs) and non-point source pollution, and if necessary should indicate that one or both of these types of impacts require site-specific analysis. All of these types of discharges have potential water quality impacts that need to be evaluated. (**CL-16/29**)

Comment: Pages 4-10 to 4-11, Section 4.3.3.1. This subsection on water quality regulations should distinguish between "intentional" and "unintentional" nonradiological discharges to both surface water and groundwater. As currently drafted, the section blurs these distinct types of discharges and the regulatory schemes relevant to each. (**CL-16/30**)

Comment: Page 4-10, Section 4.3.3.1, Line 42. The Supplement refers to a "permitting authority" before it identifies what type of permit is at issue. As a result, the reader does not know who the permitting authority is. It would be helpful to note that "intentional releases of non-radiological discharges" to surface waters are regulated under EPA or state wastewater discharge permitting programs, and such discharges to groundwater may be regulated under state programs. (**CL-16/31**)

Comment: Page 4-10, Section 4.3.3.1, Lines 41-44 and Page 4-11, Lines 1-2. This paragraph is confusing in light of the statement on Page 4-12 "that the issue of surface or groundwater quality for all decommissioning activities is generic and that the environmental impacts for these activities will be SMALL." As currently written, it suggests that NRC will obtain a permitting authority's "environmental assessment of aquatic impacts" and "consider the assessment in its determination of the magnitude of the environmental impacts" of decommissioning activities at individual sites. It also suggests that NRC will "establish its own impact determination[s]" on a site-specific basis in the absence of such environmental assessments. Please clarify. (**CL-16/32**)

Comment: Page 4-11, Section 4.3.3.1, Lines 4-5. Please revise the Supplement to indicate that the NPDES program only regulates point source discharges to surface waters, not discharges to groundwater or non-point source pollution. (See also Section 4.3.3.4.) As noted above, the document should note that point source discharges to surface waters also may be regulated under state wastewater discharge permitting programs, and discharges to groundwater may be regulated under state programs. (**CL-16/33**)

Comment: Page 4-11, Section 4.3.3.1, Lines 7-9 and Section 4.3.3.2, Line 16. The document assumes that facilities' NPDES permit limits during decommissioning "are generally the same limits that are enforced for an operating plant," that facilities' permits "may require a monitoring program," and that "these monitoring programs are usually continued through the decommissioning period." Should the reader assume that a licensee must perform a site-specific

analysis of water quality impacts if any one of these conditions is not met? If not, why not? (See also Section 4.3.3.4: is a site-specific analysis required where discharges to surface water may or will exceed the NPDES-permitted levels? Again, if not, why not?) (**CL-16/34**)

Comment: Page 4-11, Section 4.3.3.2, Lines 17-18, 21-23. This language could be interpreted erroneously to indicate that discharges to groundwater are monitored under NPDES permits. The Supplement should address the water quality impacts of decommissioning activities on groundwater separately from the impacts on surface water. In lines 34-35, the Supplement should describe the conditions in which nonradiological impacts to groundwater and from non-point source pollution may be considered SMALL, MODERATE or LARGE. (**CL-16/35**)

Comment: Page 4.12, Section 4.3.3.4. As noted above, the NPDES program only regulates nonradiological discharges to surface waters from point sources, not discharges to groundwater. This subsection should also draw conclusions about the potential water quality impacts of nonradiological discharges to groundwater and non-point source pollution during decommissioning. (**CL-16/38**)

Comment: I cannot stress enough that the groundwater issues are not adequately addressed. (**CL-20/68**)

Response: *Section 4.3.3 was extensively revised and reorganized to address the above comments*.

Comment: The Supplement should provide a more robust discussion of ground water impacts. Further detail on EPA's concerns is found in the enclosed "Detailed comments." (**CL-16/5**)

Response: *Section 4.3.3 was extensively revised and reorganized to respond to the specific comments.*

Comment: Pages 4-11 to 4-12, Section 4.3.3.3. The discussion in this section could support a requirement for licensees to perform site-specific analyses of the potential water quality impacts of their decommissioning activities under certain circumstances; notably, language such as performing these activities in different orders can have a "significantly different impact on water quality," that the SAFSTOR option "may exacerbate water quality issues," and that certain activities "may result in changes in local water chemistry" implies the potential need for site-specific analysis.

In particular, the statement that rubblization may affect groundwater pH and thereby "affect the transport properties of radioactive and nonradioactive chemicals in the subsurface" appears to require a site-specific analysis. The document notes in other places (e.g., Page 1-7, Lines 26-33) that the nonradiological impacts of rubblization, including concrete leaching into groundwater, can be evaluated generically. Section 4.3.3.3 does not support this conclusion. (**CL-16/36**)

Response: *Although the decommissioning activities themselves and the order in which the activities are performed control the impacts to water quality the staff concluded that the impacts on the nonradioactive aspects of water quality are SMALL (neither detectable or destabilizing), easily mitigated and could be evaluated generically. The staff also concluded that if a licensee chose to dispose of slightly contaminated building debris below ground in a manner that is consistent with the radiological site release criteria and solid waste disposal requirements the non-radiological impacts on the groundwater would be easily mitigated, small, and could be evaluated generically. The staff agrees with the commentor with respect to the evaluation of the radiological impacts to groundwater. A site specific analysis would be required, see Section 4.3.3.3. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Page 4-12, Section 4.3.3.3, Lines 16-17. The Supplement states that unintentional releases of hazardous substances historically have been infrequent at decommissioning facilities, and that except for a few substances, hazardous substances spills are "localized, quickly detected, and relatively easy to remediate." Does this mean that a licensee must perform a site-specific analysis of potential water quality impacts if a hazardous substance is spilled or otherwise released to the environment during decommissioning. How is "hazardous substance" defined? Examples or a better definition of "localized," "quickly detected," and "ease of remediation" should also be provided. (**CL-16/37**)

Response: *As the commentor stated, unintentional releases of hazardous substances during decommissioning have been infrequent and when they have occurred the spills are localized, quickly detected, and remediated. The expectation is that the occurrence of such events will continue to be infrequent. A site specific evaluation of the significance and consequences of the event is appropriate at the time of the occurrence of the spill. The results of that evaluation dictate the response to the spill. Even a site specific evaluation in advance of decommissioning would not evaluate the impact of all potential hazardous waste spills under all conditions. Rather than evaluating the impact of all potential onsite hazardous spills, licensees should take specific measures to reduce the likelihood and magnitude of the spill using administrative procedures, best management practices, and training. Should a spill occur, the licensee has emergency procedures in place to rapidly respond to the spill and assess its consequences. Therefore the staff concludes that a detailed site specific assessment of potential spills before*

the commencement of decommissioning activities would be of little value in protecting the groundwater. Accidental spills are infrequent and the focus should continue to be on prevention. If a spill should occur then evaluation and remediation of the consequences of the spill are required. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: Under Water Quality p.4-10, 4-11 the NRC must stop giving the impression that it is sheer chance that nuclear reactors are located on water, when in fact they require millions of gallons of water a day to operate. NRC assumes compliance with NPDES discharge permits for non-radioactive contaminants (NPDES and the Clean Water Act do not cover most radioactive contaminants, this was purposeful, so industry and the armaments crowd could do what they liked,) however, NPDES permits are often violated or bypassed. (**CL-20/28**)

Response: *The Supplement does not intentionally mislead the reader in the requirements for large quantities of water necessary for cooling. See the explanation in Section 3.1.3, "Cooling and Auxiliary Water Systems", for a detailed account of once-through and closed cycle cooling systems and water requirements. Point source discharges to surface waters are regulated by the NPDES permit system. Licensees are required to comply with the requirements of their permit. This Supplement does not evaluate the potential impacts associated with non-compliance of the NPDES permit. Radiological releases to surface waters are regulated by 10 CFR Part 20. Licensees are required to stay within the 10 CFR Part 20 Appendix B guidelines for the release of radioisotopes. Again this Supplement does not evaluate the potential impacts associated with noncompliance with the regulations. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: On Page 4-9 the NUREG concludes (Section 4.3.2.4) that the environmental impact of water usage will be small. In the evaluation they consider the anticipated reduction in water usage for cooling in the condenser. This conclusion appears reasonable, however the analysis should also consider the environmental effects of the loss of heat provided by cooling water discharged to a closed lake or pond system that is a habitat for aquatic animals and vegetation. Many nuclear facilities are on natural or man-made bodies of water making this environmental effect generic in nature. (**CL-31/8**)

Response: *The impacts of loss heat are not within the scope of this Supplement because the impacts are caused by the cessation of operations, not by decommissioning activities. The decision to cease operations is the decision of the licensee, not the NRC. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: (4.3.2.4) ENVIRONMENTAL IMPACTS of DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS; Water Use - Conclusions: (The discussion 4.3.1.4 is also relevant)

The GEIS stated, "The overall water use of a nuclear facility will dramatically decrease once the reactor has stopped operating and the demand for cooling and makeup water ceases." (4.9-4.10) On the surface, this statement appears to be correct. However, at Three Mile Island, a considerable amount of "cleanup water" was created after the plant was shut down:

In 1980, the Susquehanna Valley Alliance, based in Lancaster, successfully prevented Met Ed (GPU) from dumping 700,000 gallons of radioactive water into the Susquehanna River. Ten years later (December, 1990), despite legal objections, GPU began evaporating 2.3 million gallons of accident-generated radioactive water (AGW).

.... Can anyone at the NRC point to an official document that classifies 700,000 gallons of radioactive water (which later grew to 2.3 million gallons) as "SMALL"?

The people who live and work around TMI have found that the risks associated with additional cleanup water are not "SMALL." (**CL-02/48**)

Comment: (4.3.3.4) ENVIRONMENTAL IMPACTS of DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS;

Water Quality - Conclusions:

"The staff concludes that the issue of surface or ground water quality for all decommissioning activities is generic and that the environmental impacts for these activities will be SMALL" (4-12). Persistent "water quality" problems continue to plague TMI, a prematurely shut down reactor:

On November 2, 1993, in a letter to the NRC, GPU Nuclear acknowledged: "During the TMI-2 accident, the cork seam located in the Auxiliary Building Seal Injection Valve Room (SIVR) was contaminated with radioactive water. Attempts to contain the contamination within the room have been unsuccessful. During the past 14 years, radioactive material has spread along the joint in one direction into the Annulus, and in the other direction into the Auxiliary Building, Service Building and Control Building West (R. L. Long, GPU Nuclear, Director, Services Division TMI-2)."

On June 4, 1998, "GPUN found several pipes penetrating the wall between the turbine building basement and the control building in Unit-2 to be open on both sides of the wall. This condition was contrary to the Unit-2 post-defueling monitored storage safety analysis report (PDMS-SAR) which requires entrances to the control building area to be watertight or provided with flood panels and openings that are potential leak baths to be sealed." (NRC Inspection Report, 50-289/98-08.) Less than a month later, on July 2, 1998, an LER was necessary due to the breaching of flood barriers "between the turbine building and the control building area due to inadequate fieldwork documents."

As recently as January 9 and 19, 1999, elevated tritium levels and potential leaks from the waste evaporator condensate storage tank for the months of January, February and March 1999 were reported.

Based on the above documented water quality problems the staff should revisit the rating of "water quality." (**CL-02/49**)

Response: *Table 1-1 of this Supplement lists activities at facilities that have been permanently shutdown by a major accident as out of scope. In addition, the problems discussed by these comments are not relevant to a generic assessment. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: The water quality (Section 4.3.3) discussion does not address the potential impact of dewatering on the quality of ground water. If, for example, the ground water is a source of potable water and the facility is located near an ocean, dewatering could impact the quality (salinity) of the potable water. The NRC should revise the Supplement to clarify that the NRC will rely on the licensee's compliance with the NPDES permit for dewatering to conclude that the impact is SMALL. (**CL-01/4**)

Response: *Groundwater withdrawal, such as dewatering, is regulated by the state and not through the NPDES Permit. Furthermore, any groundwater dewatering required during decommissioning would be temporary and experience to date has revealed that it is minimal in volume and impact. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Discharges should never have been allowed without prior cleanup and should not be now. (**CL-20/29**)

Response: *The staff agrees with the comment. Discharges are only permitted within regulatory limits. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Additionally, a thorough analysis of groundwater impacts seems lacking. Given Georgia's current concern over the Floridian aquifer, it is again hard to believe that something fundamental to life, water, is being analyzed generically. (**AT-A/36**)

Comment: Additionally, a thorough analysis of groundwater impacts seems lacking. Given Georgia's current concern over the Floridan aquifer, we request that a site-specific assessment of groundwater quality be conducted prior to decommissioning. Also, we request that a more thorough analysis of groundwater issues be researched prior to issuing the final EIS. As an example, the NRC should request the most recent data from State agencies, such as the Georgia Environmental Protection Division, that are involved in negotiations regarding "water wars" between states—as in the ongoing dispute facing Georgia, Florida, and Alabama. (**CL-08/19**)

Response: *The use of groundwater is reduced significantly once the plant permanently ceases operation and is not expected to detectably change or destabilize the aquifer at any NRC licensed site. Therefore, the staff concludes that the impact to groundwater for decommissioning is SMALL and no further mitigation is required. NRC uses groundwater data from States and other agencies where NRC licensed facilities are sited to determine if changes in groundwater use at decommissioning sites are detectable or its use might destabilize groundwater sources. Furthermore, during the review of the LTP, the licensee has to demonstrate, on a site-specific basis, that operation and decommissioning of the facility has not revealed groundwater contamination in excess of the regulatory limits. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Page 1-7, Section 1.3, Lines 30-33. The document needs to explain the grounds for the determination that the environmental impacts of concrete leaching into site groundwater as the result of rubblization can be evaluated generically. See also groundwater comments below. (**CL-16/13**)

Comment: THIS GROUNDWATER CONTAMINATION ISSUE IS ANOTHER REASON WHY "RUBBLIZATION" MUST BE FORBIDDEN, THE CONTAMINATION IN WHAT THEY WANT TO RUBBLIZE AND BURY WILL LEACH TO THE GROUNDWATER AND DIRECTLY IRRADIATE SOIL AND MICROORGANISMS. (**CL-20/19**)

Comment: Would a leachate collection system be required where the rubble is stored in order

to monitor for potential impacts on the groundwater? (**CL-51/15**)

Response: *The staff has determined that long term radiological aspects of rubblization, or onsite disposal of slightly contaminated material would require a site-specific analysis and would be addressed at the time the license termination plan is submitted. The nonradiological impacts would be nondetectable (see Section 4.3.3.3). They are considered to be generic for all sites. The NRC has neither considered or approved rubblization for any plant nor provided guidance on rubblization methods or practices including the requirement for a leachate collection system. This Supplement evaluates potential environmental impacts of decommissioning. It does not set requirements for decommissioning activities or methods. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Groundwater is used by countless communities, groundwater is eventually released to surface and other water bodies and, as groundwater onsite is usually radioactively contaminated, it is a SERIOUS issue that MUST be dealt with, groundwater that is contaminated MUST be pumped out etc. (**CL-20/18**)

Response: *Groundwater in the vicinity of the facility is monitored during operation and decommissioning. Any mitigation of groundwater contamination will be evaluated at the time of the license termination plan review. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: As all landfills leak, it will go to the groundwater and migrate offsite. (**CL-20/76**)

Comment: Furthermore, the way the environmental and water issues were looked at during the time of plant licensing were often equally awful. It all needs reconsidering. (**CL-20/15**)

Response: *The comments can not be evaluated because they did not provide specific information. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

O.1.3 Air Quality

Comment: 4.3.4 Air Quality, (4.2.4.2) pg. 4-14, last para., last full sentence: This statement indicates that in most cases the number of shipments of other materials (non-radioactive materials) will be small compared to those for LLW. This is not necessarily the case for a plant which is removing all above grade facilities. However, this fact should not affect the conclusion that the air quality related environmental impacts for these activities will be small. (**CL-04/3**)

Response: *The statement in the Supplement is correct given sizes and contents of reactor building and other structures required for plant operation. The Supplement only addresses the impacts of the removal of radioactive structures and structures that were required for operation of the plant. It does not include removal of other structures, including training facilities and administration buildings. Table 1-1 provides a list of areas that were not considered within the scope of the Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Section 4.3.4.2, p 4-14, 2nd paragraph - not all decommissioning sites have or will have building ventilation systems, especially those that are in SAFSTOR for many years. Temporary systems will be established, as needed, for gaseous effluents during decommissioning if installed systems are no longer functional. Monitoring of air quality is not necessarily performed during the storage period, depending on activities, storage period and source term. (**CL-05/11**)

Comment: Section 4.3.4.2, p 4-14, lines 11-24 – Not all decommissioning sites have or will have building ventilation systems, especially those are in SAFSTOR for many years. Temporary systems will be established, as needed, for gaseous and particulate effluents during decommissioning if installed systems are no longer functional. (**CL-09/19**)

Comment: Monitoring of air quality is not necessarily performed during the storage period, depending on activities, storage period and source term (**CL-09/20**)

Comment: Page 4-14, Section 4.3.4.2, Lines 10-24. The Supplement states that most decommissioning activities are conducted in facility buildings with systems that are "typically maintained and periodically operated" during decommissioning to minimize airborne contamination. As a result, "materials released when systems are dismantled and equipment is removed are not likely to be released to the environment in significant quantities." Again, does the reader assume that a licensee must perform a site-specific analysis of potential air quality impacts if a certain level (definition?) of decommissioning activity may or will not be conducted in facility buildings, or if the systems used to minimize airborne contamination may or will not be maintained and/or operated according to a certain level of effort? How is "significant quantity" defined? (**CL-16/40**)

Response: *Section 4.3.4.2 was revised to address the above comments and to provide a better explanation of the process and terminology. The staff has determined that potential air quality impacts are SMALL and generic and no site-specific analysis is needed.*

Comment: Section 4.3.4.3, p 4-15 – other activities during decommissioning could result in release of particulate matter. This includes temporary suspension of particles during cutting activities and production of particulates from processing of sodium and NaK at an FBR. Such particulate matter is filtered, as necessary, prior to release, to avoid or minimize adverse air quality impacts. While this is recognized on p 4-14, it should also be included in the section on "Results of Evaluation." (**CL-09/21**)

Response: *Section 4.3.4.3 was revised to address this comment.*

Comment: Section 4.3.4.4, p 4-16, line 11 – add the following sentence to the end of the paragraph: "Particulates produced by decommissioning activities within buildings will be filtered as needed so that air quality impacts will be minimal (**CL-09/22**)

Response: *Section 4.3.4.4 was revised to address this comment*

Comment: Page 4-14, Section 4.3.4.2, Lines 6-8. The Supplement states that emissions from workers' vehicles "should be lower" during decommissioning than during plant construction or outages and are "usually lower" than during plant operation. Is there any data from decommissioned plants to support these statements? Also, does one assume that a site-specific analysis of potential air quality impacts is required if such emissions may or will be higher than during plant construction, outages or operation? (**CL-16/39**)

Response: *Assuming that the mix of vehicles driven by the decommissioning work force is the same as the mix of vehicles driven by the onsite work force during plant construction and operation, the staff concludes that total emissions from all workers' vehicles should decrease due to the decrease in the work force following cessation of plant operations, and should not be a problem during decommissioning of any plant. Section 4.3.4 was changed to address this comment.*

Comment: Page 4-14, Section 4.3.4.2, Lines 26-33. The Supplement states that fugitive dust emissions during movement of equipment outside of facility buildings are "likely ... to be confined to the immediate vicinity of the equipment," "in general ... limited to a small number of events" and "of relatively short duration." Again, is the reader to assume that a licensee must perform a site-specific analysis of potential air quality impacts where one of these conditions is not met? Also, how are "immediate", "small number of events" and "relatively short duration" defined? Further, must the facility employ mitigation measures to minimize dust; if so, where are these specified? (**CL-16/41**)

Comment: Page 4-14, Section 4.3.4.2, Lines 40-43 and Page 4-15, Section 4.3.4.2, Lines 1-2.

The Supplement states that there is an average of less than one shipment per day of low-level waste (LLW) from a decommissioning plant; that, "in most cases, the number of shipments of other materials to and from a decommissioning facility will be less than that for LLW;" and that therefore emissions associated with the transportation of materials from such a plant "are not expected to have a significant impact on air quality." Again, is the reader to assume that a licensee must perform a site-specific analysis of potential air quality impacts if the number of shipments of materials to or from its decommissioning facility will exceed the level of less than one shipment per day? (**CL-16/42**)

Response: *Section 4.3.4 was revised to address the above comments and to provide a better explanation of the process and the terminology. The experience to date at plants undergoing decommissioning has not resulted in air quality issues related to fugitive dust. Furthermore, the licensee must evaluate impacts resulting from decommissioning activities against previously issued environment assessments (10 CFR 50.82 (a)(b)(ii). If the evaluation determines that the impacts are greater that previously assessed then the impact is outside the envelope established by this GEIS.*

Comment: Page 4-15, Section 4.3.4.2, Lines 4-7. The definition of what constitutes SMALL, MODERATE and LARGE air quality impacts would be helped by providing specific examples from decommissioning or decommissioned facilities. (**CL-16/43**)

Response: *Section 4.3.4 was revised to address this comment. The criteria for defining destabilization and detectibility was clarified in Section 4.3.4.2.*

Comment: Page 4-15, Section 4.3.4.3, Lines 21-23. This section states that "[n]o anticipated new methods of conducting decommissioning and no peculiarities of operating plant sites are anticipated to affect this pattern" of managing fugitive dust. Is the reader to assume that a licensee who proposes using a new decommissioning method must perform a site-specific analysis of potential impacts? (**CL-16/44**)

Response: *The staff expects licensees to continue to use dust control measures appropriate for the activity being performed and the site. The staff assumes that if a new method of decommissioning is contemplated by a licensee then the licensee would evaluate the impact of the new methodology on all the environmental issues including fugitive dust. If the evaluation concludes that the amount of fugitive dust released by the new activity is significantly greater than what would be expected using the current technology and the impact would not be SMALL, then the licensee would be outside the envelope of impacts given in this Supplement. The comment did not provide new information relevant to the supplement and will not be evaluated further. The comment did not result in a change to the supplement.*

Comment: Air quality issues, Page 4-12, etc., do not address the fact the HEPA filters are

about as good as useless for radioactive particulate holdup and sand filters should be added as well. (**CL-20/31**)

Response: *Well established technology exists for filtering airborne radionuclides. Airborne releases are required to be within regulatory limits given in 10 CFR Part 20. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: On Page 4-16 the NUREG concludes (Section 4.3.4.4) the environmental impact of air emissions will be small. In the evaluation they did not consider that many sites use extraction steam to provide plant heat in the winter months. The shutdown of the reactor means that Aux Boilers will be operated for longer periods to provide heating steam. This needs to be considered in the NUREG or many facilities will need to address this issue in the PSDAR. (**CL-31/9**)

Response: *The staff has concluded that impacts on air quality, including the increased use of auxiliary boilers for heating, could be evaluated generically and is considered to be SMALL and will not require a site-specific analysis. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: This is of special significance if explosives are to be used for demolition, which will generate radioactive fugitive dust. (**CL-51/9**)

Response: *Control measures will be required during demolition to keep releases, including those associated with fugitive dust, within regulatory limits regardless of the methods used during demolition. The NRC license will not be terminated until the residual radioactivity at the site is below regulatory limits. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: (4.3.1.4) ENVIRONMENTAL IMPACTS of DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS;

Air Quality - Conclusions:

"Fugitive dust from those activities performed outside of the building is temporary, can be controlled mitigative measures, and will generally not be noticeable off site." Once again the experience of TMI-2 is instructive:

In June-July, 1980, for 11 days, Met Ed vented 43,000 curies of radioactive Krypton-85

(10-year half-life; beta and gamma) and other radioactive gasses into the environment without having scrubbers in place. Yet in November 1980, the U.S. Court of Appeals for the District of Columbia ruled that the krypton venting was illegal.

From July 24-27, 1984, during the reactor head lift, which was delayed to brake failure on the polar crane, GPU vented radioactive gasses into the environment.

On September 25, 1989, two cleanup workers received radiation exposures while handling a "small piece of reactor core debris'' in the decontamination area.

After ten years of defueling activities, 5,000 TMI workers had received "measurable doses" of radiation exposure. The NRC staff should reconsider the placement and value of the terms "temporary" and "fugitive'', and rethink the adverse affects of "air quality" on workers. (**CL-02/50**)

Response: *Table 1-1 of this Supplement lists activities at facilities that have been permanently shutdown by a major accident as being out of scope. Venting of radioactive gas related to a serious accident or accidental handling of core debris are activities that would not occur at a facility that is undergoing decommissioning. The term "fugitive dust" refers to particles that are resuspended from surfaces, such as the ground as a result of wind or mechanical action. The term does not imply contamination. Construction activities of any sort have the potential to impact air quality by releasing fugitive dust. As a result, mitigation measures have been developed and are routinely used to control fugitive dust at construction sites. When used properly, fugitive dust mitigation measures are effective. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.1.4 Ecology

Comment: Section 4.3.5, Page 4-19, 1st paragraph - This conclusion would result in site-specific analyses for the use of areas beyond the previously disturbed areas if a potential to impact the aquatic environment exists. The vagueness of the condition "potential to impact" could result in a site-specific analysis for any potential no matter how remotely possible. The NRC should consider rewording the condition to say ‘there is expected to be or likely to be an impact" Also on the previous page (Page 4-18 last paragraph in Section 4.3.5.2,) it appears that a site-specific assessment would be required merely if the aquatic environment has not been characterized. NRC should clarify that a site-specific EIS is not necessary just because the lack aquatic environment characterization, but rather, if an area beyond the previously disturbed area is to be used and no associated characterization of the aquatic environment, if applicable, exists, then such a characterization should be conducted. Then as stated above, if there is expected to be or likely to be an impact to the aquatic environment, then a site-specific

analysis should be conducted. (**CL-05/14**)

Comment: Section 4.3.6, p. 4-23, last paragraph - This section should be reworded as in section 4.3.5.4, as modified by the comment above. **(CL-05/15)**

Comment: 4.3.5 Aquatic Ecology (4.3.5.4) pg. 4-19, 1st para., last sentence. This conclusion would result in site-specific analyses for the use of areas beyond the previously disturbed areas if there is a potential to impact the aquatic environment. The vagueness of the condition "potential to impact" could result in a site-specific analysis for any potential no matter how remotely possible. The NRC should consider rewording the condition to say "there is expected to be or likely to be an impact." Also on the previous page (pg. 4-18 last para. in Section 4.3.5.2,) it appears that a site-specific assessment would be required merely if the aquatic environment has not been characterized. NRC should clarify that a site-specific EIS is not necessary just because the lack of environment characterization, but rather, if an area beyond the previously disturbed area is to be used and no associated characterization of the aquatic environment, if applicable, exists, then such a characterization should be conducted. Then, as stated above, if there is expected to be or likely to be an impact to the aquatic environment, then a site-specific analysis should be conducted. (**CL-04/4**)

Comment: 4.3.6 Terrestrial Ecology (4.3.6.4), pg. 4-23, last para. in Section 4.3.6.4, last sentence. This should be reworded to be the same as Section 4.3.5.4 as modified in the comment above. (**CL-04/5**)

Comment: Page 4-17, Section 4.3.5.2, Line 38 and page 4-18, Section 4.3.5.2, Lines 4 and 14. The term "previously disturbed" needs definition. (**CL-16/46**)

Comment: Page 4-18, Section 4.3.5.2, Lines 14-17. The Supplement should provide specific guidance on how to weigh the primary factors to be considered in evaluating the adverse impacts of decommissioning activities in "previously disturbed" areas. How much habitat can be disturbed before a site-specific analysis is required? How much time can have passed since the initial disturbance? How is a licensee to evaluate the successional patterns of the aquatic communities? (**CL-16/47**)

Comment: Page 4-21, Section 4.3.6.2, Lines 15-17. The Supplement should provide specific guidance on how to weigh the primary factors to be considered in evaluating the adverse impacts of decommissioning activities in "previously disturbed" areas. How much habitat can be disturbed before a site-specific analysis is required? How much time can have passed since the initial disturbance? How is a licensee to evaluate the successional patterns of the native communities? (**CL-16/53**)

Comment: Page 4-19, Section 4.3.5.4, Lines 4-6. This subsection appears to define a "previously disturbed area" as "within the security fences or surrounding paved, graveled, or otherwise developed areas without removal of near-shore or in-water structures." Does this definition also apply to land use activities on page 4-6, Section 4.3.1.2, Lines 15-16? Does the

definition mean that a licensee who plans to remove near-shore or in-water structures in "previously disturbed areas" must perform a site-specific analysis of the potential aquatic ecology impacts? (**CL-16/49**)

Comment: Page 4-19, Section 4.3.5.2, Lines 8-11. How is "previous" defined? What is the relationship between these "previous ecological surveys that indicate a low probability of adversely affecting ecological resources" and the aquatic environment characterizations referred to on Page 4-18, Lines 17-23? This subsection suggests that the aquatic ecology impacts of decommissioning activities conducted in areas that were not "previously disturbed" will be SMALL if a previous survey has demonstrated a low probability of adverse effects on the ecosystem, while Section 4.3.4.2 suggests that the aquatic ecology impacts of decommissioning activities in such areas will be SMALL if a characterization has demonstrated the possibility of some adverse effects to "sensitive resources," but the facility will manage those resources for their protection during decommissioning activities. (**CL-16/50**)

Comment: Page 4-19, Section 4.3.5.2, Lines 11-16. The Supplement should define more precisely the circumstances under which a site-specific analysis of potential aquatic ecology impacts in previously undisturbed areas is required. How is the licensee to determine whether an activity has the potential to impact the environment? How should the magnitude of potential impacts be determined? Also, can a licensee avoid doing a site-specific analysis by implementing a protection plan to protect the aquatic environment? (**CL-16/51**)

Comment: Page 4-21, Section 4.3.6.2, Lines 1, 15 and 24. The term "previously disturbed" should be defined or examples provided. (**CL-16/52**)

Comment: Page 4-22, Section 4.3.6.2, Line 43 and Page 4-23, Section 4.3.6.2, Lines 1-5. The Supplement should better define or provide examples of circumstances under which a site-specific analysis of potential terrestrial ecology impacts in previously undisturbed areas is required. What constitutes a "potential of adverse impact to important terrestrial resources"? What is an "important" terrestrial resource? The document should provide criteria by which a licensee can determine whether an activity has this "potential," as opposed to merely a "low probability of adversely affecting ecological resources." The Supplement should also clarify whether a licensee can avoid doing a site-specific analysis by implementing a protection plan to protect the terrestrial environment. (**CL-16/60**)

Comment: Page 4-21, Section 4.3.6.2, Lines 25-29. The document states that the potential impact of disturbing areas beyond the original construction area is SMALL and can be characterized generically if "the terrestrial environment has been characterized." Moreover, a site-specific analysis is needed if "decommissioning activities occur in terrestrial environments

that have not been characterized." What must this characterization consist of, and when/how recently must it have been performed, to allow a licensee to conclude that it is sufficient and can properly support the conclusion that potential impacts are SMALL? (**CL-16/55**)

Comment: Page 4-22, Section 4.3.6.4, Lines 37-39. This subsection appears to define a "previously disturbed area" as "within the security fences or surrounding paved, graveled, or otherwise developed areas." How does this definition relate to the definition provided on Page 4-6, Section 4.3.1.2, lines 15-16? (**CL-16/58**)

Comment: Page 4-22, Section 4.3.6.4, Lines 40-43. This subsection suggests that the terrestrial ecology impacts of decommissioning activities conducted in areas that were not previously disturbed will be SMALL if a "previous" survey has demonstrated a low probability of adverse effects on the ecosystem. How recent must the "previous" survey have been? (**CL-16/59**)

Comment: My question is with regard to the site-specific issues. One of the site-specific issues is threatened, I'm sorry, aquatic and terrestrial ecology. And it says, the rationale, activities occurring beyond previously disturbed areas. And I'm wondering what the definition of a previously disturbed area is. Is there a time frame, or how that is defined? (**CH-B/1**)

Response: *Section 4.3.5 Aquatic Ecology, and Section 4.3.6, Terrestrial Ecology, have been extensively revised to address the above comments and the concept of "previously disturbed land" no longer is the criteria for initiating a site-specific analysis. The concept of relying on a previous ecological survey and an environment protection plan to determine whether a site-specific analysis is needed has also been eliminated.*

Comment: 4.3.5 Aquatic Ecology (4.3.5.2) pg. 4-17, 1st para. in Section 4.3.5.2, 4th sentence, "Aquatic environment s" should be corrected. (**CL-04/18**)

Response: *Section 4.3.5.2 was changed to eliminate the typographical error*.

Comment: Page 4-16, Section 4.3.5, Lines 25-29. This section's discussion of impacts to aquatic resources following plant shutdown seems to contradict the example given on page 1-5, lines 6-7, of plant discharges post-shutdown being outside the scope of this document. Similarly, the discussion at Page 4-19, Section 4.3.6, Lines 26-29 seems to contradict page 1-5.

Note also the comment above on the page 1-5 language. (**CL-16/45**)

Response: *Section 4.3.5 was changed to eliminate the contradiction.*

Comment: Page 4-18, Section 4.3.5.2, Lines 17-23. The Supplement states that the potential impact of disturbing areas beyond the original construction area is SMALL and can be characterized generically if "the aquatic environment has been characterized," and that a site-specific analysis is needed if "decommissioning activities occur in aquatic environments have not been characterized." What must this characterization consist of, and when and how recently must it have been performed, to allow a licensee to conclude that it is sufficient and can properly support the conclusion that potential impacts are SMALL? (**CL-16/48**)

Response: *Section 4.3.5, Aquatic Ecology, has been revised to eliminate the use of an environmental characterization to determine whether a site-specific analysis needs to be performed.*

Comment: Page 4-21, Section 4.3.6.2, Lines 23-25. What is a "significant" terrestrial resource? What does "potentially" affected mean? These terms need to be defined or examples provided so that licensees understand when they are required to perform a site-specific analysis. (**CL-16/54**)

Response: *Section 4.3.6.2 has been extensively revised and the phrase "significant terrestial resource" is not used in this section in the Final Supplement. The comment is no longer relevant. The comment did not provide new information relevant to this supplement and will not be evaluated further. The comment did not result in a change to the Supplement*.

Comment: Pages 4-21 to 4-22, Section 4.3.6.3. The document assumes that "[i]n most cases, the amount of land required to support the decommissioning process is relatively small and is normally a very small portion of the overall plant site." It also states that "licensees typically anticipate utilizing an area of between 0.4 ha (1 ac) to approximately 10.5 ha (26 ac) to support the decommissioning process." EPA assumes this means that a licensee must perform a site-specific analysis of impacts if the terrestrial ecology impacts of decommissioning activities may or will be greater than 10.5 ha (26 ac). If this assumption is incorrect, when is a site-specific analysis required and why? (**CL-16/56**)

Response: *The estimates of the typical area used to support decommissioning are based on the decommissioning experience to date. They are not criteria. The licensee must evaluate impacts resulting from decommissioning activities against previously issued environmental assessments (10 CFR 50.82(a)(b)(ii)). If the evaluation determines that the impacts are greater than previously assessed then the impact is not SMALL and the impact is outside the envelope*

established by this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: Page 4-22, Section 4.3.6.3, Lines 27-29. The document assumes that the "activity of rubblization of construction material should not have significant nonradiological impacts beyond other decommissioning activities except for potential short-term noise and dust effects." However, on Page 4-12, the document states that rubblization may affect groundwater pH and thereby "affect the transport properties of radioactive and nonradioactive chemicals in the subsurface." Any radioactive or nonradioactive chemicals in the subsurface that are mobilized as a result of concrete leaching from rubblized material could have an adverse effect on the terrestrial ecology of a facility. For this reason, EPA recommends that the Supplement require a site-specific analysis of all of the potential environmental impacts of rubblization, both nonradiological and radiological. (**CL-16/57**)

Response: *The staff, based on the available literature and experience has determined that the impacts associated with concrete leaching from subsurface burial of uncontaminated demolition debris are SMALL, localized and can be evaluated generically. Evaluation of the long-term radiological aspects of rubblization (or onsite disposal of slightly contaminated material) would require a site specific analysis and would be addressed at the time the LTP is submitted. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: (4.3.6.4) ENVIRONMENTAL IMPACTS of DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS: Conclusion - Terrestrial Ecological Resources: The NRC staff aptly stated,"...the magnitude, (i.e., SMALL, MODERATE, LARGE) of potential impacts will be determined through a site-specific study ..." These flexible barometers should be applied to all the above mentioned Conclusions. (**CL-02/53**)

Response: *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. The staff determined for onsite terrestrial issues, that the impacts of decommissioning activities are SMALL and the analysis need not be site-specific analysis. For those impacts that have been determined to be generic, a licensee is required to evaluate impacts resulting from decommissioning activities against this Supplement or previously issued environmental assessments (10 CFR 50.82 (a)(6)(ii). If the evaluation determines that the impacts are greater than previously assessed, then a site-specific analysis is required. The comment did not provide new information relevant to this Supplement and will not be evaluated*

further. The comment did not result in a change to the Supplement.

Comment: Regarding aquatic ecology p.4-16, as touched on earlier, the environmental impact statements originally written for the plants were often very poor, and did not mention that the discharge water would be radioactively contaminated nor that sediment would be contaminated for miles etc. (**CL-20/36**)

Response: *The original Environmental Impact Statements for power reactors acknowledged that there would be routine releases of radionuclides to the aquatic environment that would be controlled to meet regulatory requirements. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Other aquatic environmental impacts also merit site-specific review. (**CL-11/5**)

Response: *The comment can not be evaluated because it did not provide specific information. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: (4.3.5.2) ENVIRONMENTAL IMPACTS OF DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS; Aquatic Ecological Resources- Conclusions: The staff found that"....the impact to aquatic ecology for all decommissioning activities is generic and that the environmental impact for these activities is SMALL." Unfortunately, the staff biologists are unfamiliar with the unique water chemistry of the Susquehanna River and historic infestations that have afflicted Three Mile Island. In February 1986, one celled organisms believed to be fungus, bacteria and algae-like creatures were discovered. These creatures obscured the view of the reactor core. And impeded the cleanup of Three Mile Island-2.

On June 23, 1999, Three Mile Island, trying to rid itself of clams, recently released too much of a potentially hazardous chemical into the Susquehanna River. State regulations allow TMI to release 0.3 parts per million of Clamtrol back into the Susquehanna River. For about an hour, the plant was releasing 10,500 gallons per minute containing twice the amount. (**CL-02/51**)

Response: *Table 1-1 of this Supplement lists activities at facilities that have been permanently shutdown by a major accident as out of scope. The microorganisms discussed in the comment were found inside the reactor vessel, and were not a result of an impact on the Susquehanna*

River. The operating unit, TMI-1, rather than TMI-2 was involved in the release of Clamtrol to control clams. Discharge of chemicals to control molluscs occurs at operating facilities and is regulated by the NPDES permit issued by the state or EPA. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: It is a proven fact - proven by the old Atomic Energy Commission and its contractors, - that migratory birds become contaminated eating seeds, drinking water and so on at radioactively contaminated sites, wetlands areas etc. and the birds carry this contamination in their bodies worldwide. NRC, DOE and licensees violate the MBT by not protecting birds from such contamination, and by spewing radioactive noble gases out that impact passing birds. This is one of the reasons I suggest that netting or similar should be placed over the sites in question, fine wire mesh set at an angle that can have leaves and other debris hosed off it, it must be small enough to keep birds out down to the size of hummingbirds. Enclosed, such an obscene site poses slightly less of a threat to birds and other wildlife, the utilities can pay for it all, it can come out the salaries of the top management and company owners. And on the endangered bird subject, let me address the Migratory Bird Treaty Act of 1918 - (p.4-20). (**CL-20/40**)

Response: *Licensees are required to take measures necessary to control the spread of contamination through the animal pathway. Studies to date have not shown that the spread of contamination by this route is in any way significant, but rather is very minor. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: (4.3.1.4) ENVIRONMENTAL IMPACTS of DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS; On site/Off site Land Use - Conclusions:

The GEIS stated, "It is rare for decommissioning activities to affect off-site land use ..." This statement fails to recognize that most nuclear generating stations are located in close proximity to substantial water resources. The Susquehanna Steam Electric Station, Three Mile Island and Peach Bottom are located on or adjacent to the Susquehanna River which feeds the most productive estuary in America, i.e., the Chesapeake Bay. (**CL-02/45**)

Response: *Table F-2 identifies each of the licensed nuclear power plants and the cooling water source. The comment cannot be evaluated because it did not provide specific information. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The Draft GEIS does not adequately consider the effects on aquatic ecology caused by an accidental, radioactive release. **(CL-11/4)**

Comment: NRC saying that it has not established standards to biota other than humans on the basis that limits established (by the aforementioned) for the public would provide adequate protection for other species is outrageous and contrary to what has been established for decades. (**CL-20/9**)

Comment: When thinking about exposure to plants and animals and fish, one needs to take the effects to an infant and to a child in the womb to better approximate the effects to wildlife, the smaller the non-human entity (e.g. a bird, a frog) the child in utero down to embryonic level would be appropriate. We all know what happens when an embryo is exposed - namely death or severe damage. The same happens to birds eggs. (**CL-20/10**)

Response: *The NRC established standards for radiological exposures to humans on the basis that limits established for the exposed members of the public would provide adequate protection for other species. No standards were established for radiological exposure to biota other than humans. The validity of the assumption that radiation guidelines, which are protective of the public, would also provide adequate protection to plants and animals has been upheld by national and international bodies that have examined the issue, including the National Council on Radiation Protection and Measurement (NCRP Report No. 109, Effects of Ionizing Radiation on Aquatic Organisms, 1991) and the International Atomic Energy Agency (IAEA Technical Report Series No. 332, Effects of Ionizing Radiation on Plants and Animals at Levels Implied by Current Radiation Protection Standards, 1992). Both of those studies were conducted in part to evaluate the original assumption presented in 1977 by the International Commission on Radiological Protection (ICRP Publication 26, 1977). In all of these cases, it has been emphasized that such radiation levels may adversely affect non-human species, but effects at the population level are not detectable. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Removal of intake/outfall structures may be the most beneficial action to the aquatic ecology, but it should not go forward without site-specific study of the environmental impacts. (**CL-11/8**)

Response: *The removal of the intake/outfall structures and other SSCs after operation of the facility is discontinued is not expected to detectably change or destabilize the aquatic environment. The removal process is expected to be conducted in a manner and at a time that will have minimal impact to the aquatic environment. In addition, it is anticipated that best management practices would be employed and the necessary permits obtained. All impacts would be, at most, a short-term impact. Therefore, the staff concluded that the impact to the aquatic environment for these decommissioning activities is SMALL and no further mitigation is required. The comment did not provide new information relevant to this Supplement and will*

not be evaluated further. The comment did not result in a change to the Supplement.

Comment: The aquatic ecology issue should also be site-specific (**CL-20/38**)

Response: *The analysis in the Supplement shows that the impacts on aquatic ecology will not be detectable. Therefore, the staff concluded that the impact to the aquatic environmental to these decommissioning activities is SMALL. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.1.5 Threatened and Endangered Species

Comment: 4.3.7 Threatened and Endangered Species (4.3.7.4), pg. 4-25, last para., last sentence. This conclusion indicates that the NRC will meet its responsibilities on a site-specific basis during any decommissioning process, but it does not specify how the NRC will meet its responsibilities or what information it will need from licensees. (**CL-04/6**)

Response: *The responsibilities under ESA will be met through interactions among the licensee, the NRC, and the appropriate resource agency either the U.S. Fish and Wildlife Service (FWS) or the National Marine Fisheries Service (NMFS). Information required of the licensee will likely depend on the activity and the species potentially present. This process is described in Section 1.5. The staff has determined that it will conduct informal consultations after the licensee announces permanent cessation of operations. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Page 4-23, Section 4.3.7, Lines 10-12. The supplement should elaborate on the basis for the statement that "the potential impacts of nuclear power facility decommissioning efforts on threatened or endangered species will normally be no greater and likely less than the effects of plant operations." **(CL-16/61)**

Response: *There are one or more threatened and endangered species in the general vicinity of virtually all licensed commercial nuclear facilities. Very few of these facilities have had documented adverse impacts on the local threatened and endangered species, and in those rare instances when there is an effect, the species that are affected are almost all aquatic species. An operating reactor can affect threatened or endangered aquatic species via water intake through the cooling system resulting in impingement or entrainment, through the heated discharge from the cooling system, or through the purposeful or inadvertent addition of chemicals or contaminants to the cooling water stream. When the plant is shut down for decommissioning the reactor cooling system is shut down, and therefore the impact on aquatic environment is much lower than the impacts of an operating reactor. Therefore, the potential*

effects on the threatened and endangered species will likely be less during decommissioning than during operations. For terrestrial species, the most common potential impacts from operating plants are due to transmission line rights-of-way maintenance activities. Most transmission lines (beyond the switchyard) are expected to remain energized even after a commercial nuclear power facility ceases operation and the right-of-way maintenance activities are expected to continue. Therefore, the potential impacts of decommissioning on terrestrial species will normally be no greater than the potential impacts of plant operation. Section 4.3.7 was revised.

Comment: Page 4-25, Section 4.3.7.2, Lines 3-7. The Supplement should provide guidance on determining the amount of habitat that can be disturbed beyond previously disturbed areas. (**CL-16/62**)

Response: *The evaluation of impacts on threatened and endangered species will be conducted on a site-specific basis. Guidance on the amount of habitat disturbed is irrelevant. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.1.6 Radiological

Comment: Section 3.1.4 Formation and Location of Radioactive Contamination and Activation in an Operating Plant, pg. 3-15. This description should include the activation of corrosion products as a contributor to radioactive contamination. (**CL-04/16**)

Response: *Radioactive corrosion products are the result of activation and can be considered activation products. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Section 3.1.4, Pg 3-15, last paragraph - clarify whether the last sentence is referring to radiation exposure during decommissioning or operation. In context, the inference is that the activation products provide the main source of radiation exposure to plant personnel in an operating plant, but typically contaminated materials provide more exposure to plant personnel during operation. (**CL-05/8**)

Response: *The sentence refers to the decommissioning process. Section 3.1.4 was revised for clarification.*

Comment: It also is not clear how, why, and how many plants were selected for Tables G-11 and G-12. Additionally, the first sentence of the fourth paragraph should indicate that the data

is estimated worker dose for major types of decommissioning activities. Actual data appeared to be listed for only one plant in the tables. (**CL-09/41**)

Comment: Section G.2.2, p G-21 – while the conclusion appears correct, it is strange that information was only available for a small sample of facilities. This data is reported to the NRC annually by licensees. (**CL-09/45**)

Comment: Table G-15 – the basis of this table should be better explained. How were the plants selected? What years are covered? (**CL-09/46**)

Comment: Table G-16 – how were the plants listed in this table selected? It appears to be a strange non-representative sample. (**CL-09/47**)

Response: *Data were used to be representative of operating plants around the country including an operating BWR and two PWRs, two different vendors, and two different location types (coastal and interior). Two shutdown power reactor facilities were also included. Data on permanently shutdown plants were used as provided by the licensee or found in references. Tables G-11 and G-12 have been revised.*

Comment: In Appendix G, I was very surprised to read of excess malignancies that have been experienced at doses of 10 REM. This is contrary to the health physics and radiological health handbook and other material that I've read over the more than 25 years I've spent in this industry. And I think that needs to be addressed and reevaluated. (**CH-D/11**)

Response: *The statement made in Appendix G related to the health effects of doses of approximately 10 rem is correct and is taken from the BEIR V report. However, the commentor's statement that the excess malignancies were "experienced" is incorrect. They were calculated based on the extrapolation of an assumed linear relationship between dose and malignancies. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 4.3.8 Radiological (4.3.8.3), pg. 4-29, 4th full para. last sentence. Maine Yankee agrees that it is not necessary to update the estimates for exposure found in the 1988 GEIS. (**CL-04/7**)

Response: *The staff agrees with this comment. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Section 3.1.4, page 3-15, does not reflect that alpha-emitting Transuranic radioactivity is significant at some plants. This radioactivity is formed after failed fuel releases small amounts of Uranium (as well as fission products) to the reactor coolant. Subsequent activation of the Uranium results in the formation of Transuranic isotopes of Plutonium, Americium and Curium, most of which decay with alpha radiations. For the plants where this issue is significant, the production of airborne alpha radioactivity during decommissioning activities must be carefully controlled to avoid radiation exposure from inhaled alpha radioactivity. (**CL-15/6**)

Response: *The NRC staff acknowledge that failed fuel can result in alpha contamination within the facility. However, the standards for protection of workers found in 10 CFR Part 20, "Standards for Protection Against Radiation" provide adequate protection for workers. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Page 3-16, Section 3.1.4, Line 1. This line notes that spent fuel comprises the largest amount of radioactive material at a shutdown facility. It would be informative to include here a summary of or reference to the data in Appendix G on the amount of radioactive material at various types of power plants. (**CL-16/20**)

Response: *The amount of radioactive material varies between facilities and is dependent on factors such as the type of facility, the size of the facility, the length of time the facility is operated and other variables. Because of the number of factors affecting the amount of radioactive material, the staff does not believe this information will be useful. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: FOR THE NRC TO HAVE USED DATA FOR SOUTHERN COMPANY'S PLANT HATCH IS SICKENING - WHEN HATCH HAD THEIR DISASTROUS SPENT FUEL POOL SPILL, DID ANYONE ADD THE EXTRA DOSES AND CONTAMINATION IN ? THIS IS THE SAME HATCH WITH OVER 1200 WORKER CONTAMINATION EVENTS IN ONE YEAR. (**CL-20/96**)

Response: *The comment cannot be evaluated because it did not provide specific information. The only place in the document where occupational dose information from the Hatch plant was included was in Table G-9, which summarized occupational dose as a total at all light water reactors for a given year. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Pg. G-21, Table G-15, Summary of Effluent Releases Comparison of Operating

Facilities and Decommissioning Facilities. The values associated with the maximum, minimum and average gaseous effluents for the Decommissioning Reactors do not add up. The Fission and Activation Gases for gaseous effluents are incorrectly all the same for the maximum, minimum and average in each category (PWR & BWR). It appears that the minimum category for Decommissioning PWR's is Maine Yankee. If so, the minimum value for Fission and Activation Gasses for gaseous effluents should be "none detected." Making this correction appears to make the table add up assuming a PWR population of two. (**CL-04/12**)

Response: *The average, maximum, and minimum values for this radionuclide category are identical because the licensees of only one reactor of each type reported emissions. Others either did not report or were reported as below detection limits and therefore could not be included in the calculation. A footnote was added to Table G.15 for clarification.*

Comment: Pg. G-22, Table G-16, Summary of Public Doses from Operating and Decommissioning Facilities. This table is not well formatted and difficult to interpret. The table mixes the collective dose in person-rem with the individual dose in mrem. The years of concern are assorted. We suggest that the table be simplified and either further discussed in Section G.2.2. Text or eliminated. The following is Maine Yankee's data on individual public doses from Maine Yankee's effluents for 1998, 1999 & 2000. (chart followed). (**CL-04/13**)

Response: *Table G-16 was deleted and general information was added to the text.*

Comment: In order to ensure that the radiological aspects of this activity are assessed consistently, NEI recommends that standard dose modeling assumptions be documented directly through the Q&A process associated with the NRC guidance consolidation project. (**CL-05/2**)

Response: *Dose modeling assumptions are not within the scope of this Supplement. Information related to dose modeling assumptions, that are currently in NUREG-1727, will be documented with the NRC guidance consolidations project. In addition, and to the extent possible, the results of NEI's quality and assurance effort will also be included in the consolidation project. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Table 4-1 provides estimates of cumulative occupational dose for decommissioning reactors (comparisons of the 1988 GEIS to new estimates compiled for draft Supplement 1). In order to reflect the conclusions of Section 4.3.8, it is recommended that a note be added to Table 4-1 to clarify that these estimates of cumulative occupational dose are generic and are not intended to be site-specific limits. (**CL-06/1**)

Response: *While these are not site-specific limits, this document is providing an envelope that licensees can use in the future to compare impacts from their decommissioning activities. If the licensee is within the values listed for cumulative occupational dose in this Supplement then the impact is expected to be SMALL. As stated in Section 1.5, licensees must make sure they are within the envelope or must perform a site-specific analysis. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: After the meeting in Atlanta, we are increasingly concerned about the safety of the workers that will be involved in decommissioning. Will a more specific analysis of worker effects be dealt with in the final EIS or is there a separate report that will research health impacts? Georgians for Clean Energy requests that all worker exposures that have occurred at nuclear power plants that are currently being decommissioned be made available to the public and listed in the final GEIS. (**CL-08/25**)

Response: *NRC licensees, including permanently shutdown reactors, are required to provide reports as specified in 10 CFR Part 20, Subpart M. These reports are publicly available. The potential health impacts to workers are discussed in Section 4.3.8 and Appendix G of the Supplement. A more specific analysis of worker health impacts will not be provided in Section 4.3.8. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Section G.1.1.4.1, Pg. G-5 – delete or revise fourth bullet. Conditions typically encountered in exposures from normal facility operations result in external dose, rather than internal dose. Internal deposition of particles can occur, but this is less common than external dose. Also, clarify last bullet. (**CL-09/37**)

Response: *Occupational doses are typically from external exposure; however, environmental exposures to members of the public would be a result of an internal dose largely from radionuclide intake. Section G.1.1.4.1 was revised and the last bullet referenced above has been deleted.*

Comment: Section G 1.1.4.3, p G-8, lines 13-22 – this somewhat explains selection of the occupational nominal probability coefficient in Table G-4 for fatal cancers, but does not explain selection of hereditary coefficient. (**CL-09/38**)

Response: *Section G.1.1.4.3 was revised and provides a source for the hereditary coefficient used in Table G-4.*

Comment: Table G-6, p G-11 – the table per its title covers dose limits for an individual member of the public under 10 CFR 20. The ALARA air emission dose constraint listed in the

table is not a 10 CFR 20 limit. (**CL-09/39**)

Response: *Table G-6 was revised and a footnote added stating that the value is not a 10 CFR Part 20 dose limit but is given to ensure consistency with air emission standards for Federal facilities in 40 CFR Part 61.*

Comment: Section G.2.1, Pg. G-13, lines 26-45 – the conclusion in the first sentence of the third paragraph is misleading. The main reason that the occupational doses at reactors undergoing decommissioning are a small fraction of dose accumulated at operating facilities, as shown in Table G-9, is that there are many more operating plants than decommissioning plants. The average for decommissioning plants shown in the table is less than the operating plant, but not only a small fraction. (**CL-09/40**)

Comment: Table G-12, Page G-17 – the two numbers listed for San Onofre should be explained. (**CL-09/42**)

Response: *Table G-12 is revised. The estimate of Bequerel's has been corrected and the extraneous personnel exposure estimate was removed.*

Comment: Table G-14 it appears strange that only 26-34 operating plants were listed as reporting dose from gaseous effluents each year, since all plants are required to report. Also, the selection of the years 1985-1987 appears strange for an update report. (**CL-09/44**)

Response: *The information cited was taken from a published report, and is limited to information contained in that report. More recent information from operating facilities is also included in Appendix G. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Page 3-10, Section 3.1.3, Lines 34-37. The supplement states that "the amount of liquid and gaseous radioactive waste generated is usually lower for decommissioning plants." Must the plant's waste remain within the limits established during operations to be bounded by this GEIS? (**CL-16/18**)

Response: *Liquid and gaseous waste releases must meet the requirements in 10 CFR Part 20, Appendix B, Table 2. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Section 4.3.8.2, Potential Radiological Impacts from Decommissioning Activities, fails to adequately consider the potential for decommissioning activities to spread or hide radiological contamination. The presumption is that accidents or mistakes will not take place, when experience at decommissioning plants shows that they do. The report fails to draw from this experience. For example, early in the decommissioning of one site and prior to complete radiological survey, a trench was dug across an impacted area to lay an electrical cable to power equipment no longer serviced through the plant. The trench was left open to the weather for a few days, then backfilled with loose material and thus could permit rainwater to carry contamination deeper and spread it further. Individually, such activities may not provide what are termed significant doses, but they have the potential to add incremental to the dose of future site occupants and overall risk and may violate ALARA principles. The potential environmental impacts of such activities should be evaluated. Incidents have occurred in which workers left the site with contaminated clothing and in which train car loads of class A waste were permitted to languish for weeks on a siding in a residential community. Although radiation levels in these instances were extremely low, the potential for greater exposures existed. Such scenarios should be considered, worst case, in preparing the GEIS. (**CL-13/14**)

Response: *Decommissioning experience related to characterization of radiological contamination and decontamination was obtained from many of the permanently shutdown reactors currently in decommissioning. This experience is summarized in Section 4.3.8 and Appendix G of the Supplement. Potential radiological accidents for all permanently shutdown plants were characterized and presented in Section 4.3.9 and Appendix I of the Supplement. The scenarios considered in Appendix I are considered appropriate for evaluating the environmental impacts from decommissioning. Furthermore, accidental releases of radioactive contamination are investigated on a site-specific basis. Such investigations focus on the potential and actual exposure of workers and the public. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Page 4-28, Section 4.3.8.3. This discussion in this section indicates that public and occupational dose comparisons were made with the facility's EIS for normal operations and with the 1988 GEIS. This statement appears to contradict earlier statements about the assessment of impacts being based on NRC regulatory limits for worker protection. Please clarify how the comparisons were made. (**CL-16/64**)

Response: *The comparisons of public and occupational doses were made to identify whether the envelope for radiological impacts to workers and the public needs to be adjusted from the 1988 GEIS. The level of significance was determined using the regulatory limits in 10 CFR Part 20, "Standards for Protection Against Radiation." The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Page 4-29, Section 4.3.8.3. Line 14 indicates that the data used in the evaluation are those presented in Appendix G. Appendix G uses units of collective dose equivalent; however, as also outlined in the appendix, the radiation protection standards are in units of annual individual dose. The Supplement should use consistent units and provide data on population densities for nuclear power plants.

Appendix G.2 (page G-19) provides the average public dose within a 50 miles radius of a facility. The Supplement should clarify if facilities which fall outside this analysis (e.g., have denser populations yielding more person-rem than indicated in the appendix) must complete a site-specific analysis. (**CL-16/65**)

Response: *Appendix G provides a general discussion on radiation protection to assist the reader in understanding the basis for the analysis and conclusions in Chapter 4. The information in Appendix G is abstracted from a variety of published documents making consistency in units difficult. The staff chose to report the units as given in the referenced document.*

The discussion in 4.3.8.3, Evaluation, addresses public dose and states that both the average individual dose and the collective doses attributable to decommissioning activities are not substantially different from those experienced by the public during operation and are much lower than from natural background radiation. The NRC regulations do not establish collective dose limits to the population surrounding a nuclear plant but rather address limits to individual dose. The individual dose limits were established to assure that the radiological impact to the public from the nuclear facility would be SMALL. Even if the anticipated collective public dose attributable to a specific facility decommissioning exceeded the collective dose values given in Table G-13 of the Supplement no site-specific analysis would be required. A site specific assessment would not be required for decommissioning activities as long as the highest dose to an individual member of the public from sources under the licensee's does not exceed the limit in 10 CFR Part 20 of 1 mSv/yr (0.1 rem/yr) and effluent concentrations do not exceed the levels specified in 10 CFR Part 20,Appendix B, Table 2, at the unrestricted boundary. In addition, the dose from external sources in an unrestricted area should not exceed 0.02 mSv(0.002 rem) in any given hour or 0.5 mSv (0.05 rem) in 1 year. If these limits are not exceeded, the radiological impacts, regardless of the collective dose to the population within the 50 mile radius, are inconsequential. The comment did not provide new information related to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: Page 4-31, Section 4.3.8.4. While the overall worker health impact is SMALL,

Appendix G shows data from some decommissioning facilities where worker exposure is higher during decommissioning than during operations. The Supplement should clarify how these

higher exposure levels compare with the radiation protection standards. Also, this section should clarify whether an analysis was done of the normal wastewater streams produced during decommissioning that are contaminated with radiation. (**CL-16/66**)

Response: *Annual collective doses at decommissioning facilities vary widely with time depending on the nature of the activities taking place during the year and the number of workers involved in those activities. Similar variations can also occur at operating facilities during periods of major maintenance. Although the annual average collective dose for decommissioning facilities is generally lower over the long-term than during active operations at the same facility, the maximum collective dose during any given year may be comparable to, or higher than, the annual dose during a typical year of operation. No individual workers at decommissioning (or operating) facilities have exceeded the regulatory dose limit of 0.05 Sv/y (5 rem/y) since the late 1980s.*

Decommissioning activities are typically planned to minimize generation of liquid waste, which is ultimately solidified and managed with other solid radioactive waste. Because the facility cooling systems are shut down during decommissioning, these activities would not generate large volumes of liquid effluents to which members of the public might be exposed. Nevertheless the licensee is required to submit an effluent release report to the NRC on an annual basis that summarizes radioactive releases over the previous 12 months. The procedures and results of the monitoring programs are inspected and reviewed by the NRC staff to ensure requirements are being met. The wastewater streams do contain measurable amounts of radiological contaminants, however they have consistently been within regulatory limits. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: On Page M-2 it says, under the glossary, under Background Radiation, that "the typically quoted United States average individual exposure from background radiation is 360 mrem per year." It may be typically quoted, but it is a blatant LIE. For example, typical background radiation in Georgia is 42 mrem year according to the state (which recently upped it a notch probably due to the radioactive fallout on the state from nuclear power plants and the Savannah River Nuclear Site on its borders.) (**CL-20/103**)

Response: *Background radiation from various sources differs depending on the location within the United States. The value quoted in this document is an average for the United States, including cosmic radiation, terrestrial sources, natural radon, and artificial exposures (largely for medical purposes). The value was taken from the National Council on Radiation Protection and Measurements (NCRP's) Report No. 94 issued December 30, 1987. The dose quoted for*

Georgia probably did not include the component from radon, which is the largest contributor overall. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: On Page 4-29 the NUREG (Section 4.3.8.3) concludes that it is not necessary to update estimates for collective dose due to decommissioning activities. This is an important conclusion that is supported by the current range in collective dose that decommissioning plants have experienced. Any change to this conclusion needs to be well supported by actual data and needs to be thoroughly studied to identify all potential impacts. (**CL-31/10**)

Response: *The staff agrees with this comment. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Table 4-1 on page 4-30 is misleading. The totals given include 100 rem of transportation dose that is not tracked by the facility undergoing decommissioning. It also does not include dose incurred during construction of a Spent Fuel Pool Island or in support of a dry cask storage campaign. A footnote should be added explaining these differences. (**CL-31/11**)

Response: *Section 4.3.8 of the Supplement indicates that the estimates in the table do not represent dose estimates for the same activities. Some of the estimates include doses from transportation of radioactive material, while others do not. Table 4-1 only provides a comparison of occupational dose estimates. Section 4.3.17 provides information on transportation impacts from decommissioning.*

Comment: The Draft even says during licensing the applicants commit to implement ALARA programs. The combination of ICRP, NRC, NCRP, and ALARA standards is, and has been a recipe for premeditated murder and/or illness, genetic damage and great suffering as it is. (**CL-20/8**)

Comment: R.M. Sievert (after whom the unit the Sievert is named) pointed out that there was no level below which radiation did not cause damage, no threshold that must be exceeded for damage to occur, yet NRC says a threshold must be exceeded for effect to occur, I believe Sievert. The ICRP standard of 5 rem per year is based on a principle called risk/benefit that allows a one in five thousand chance of contracting cancer. In other words, the death or cancer risk is the workers and the publics', the benefits are the dollars flowing to the industry and the NRC (from the industry in return for NRC services and licenses etc.). (**CL-20/7**)

Comment: The exposure allowed by regulation is, in fact, slow death, and furthermore, worker doses can't always be trusted because of faulty measuring equipment, horror stories of workers being told not to wear their dosimeters periodically, and so on. The dose received also has a

different effect on each person depending on age, sex, current and past health status and many other factors, plus each organ is affected differently. (**CL-20/55**)

Comment: Regarding Occupational Dose and nuclear power plant exposure data (Page. G 12, etc.). The regulatory limits for exposure were not set based on medical reasons but were set in order to enable the industry to operate - that is historic FACT because what people are being exposed to is either not found in nature (i.e., it is man-made) or found in nature at far, far lower levels. (**CL-20/54**)

Comment: To add to these levels by deliberately ignoring the dangers of radiation exposure is wantonly criminal. Those who do so will go down in history as villains of the worst sort: smug, obtuse, shrivel-hearted, deceiving, opportunistic, self-serving, cowardly, corrupt people who really ought to know better. (**CL-33/4**)

Comment: Environmental and health risks from improper decommissioning are very high, particularly to neighboring communities. (**CL-45/2**)

Comment: 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. (**CL-50/10**)

Comment: The direct gamma radiation coming off the plants to the public is the equivalent of a continuous x-ray emanating from their midst. No x-ray is "negligible." (**CL-20/94**)

Comment: That no one asked to be exposed to ANY dose of radiation, and most people in surrounding communities don't even know they are being exposed, or if they know, they think they are being protected because they think there is a safe level of radiation. (**CL-20/98**)

Comment: There are no "acceptable levels" - the public does not accept any level of radioactive contamination - plutonium, cobalt-60, Strontium-90, etc. or tritium, radioactive iodine and so on and on - (**CL-20/105**)

Comment: Most of us also realize that the immune systems of every living thing on this planet – human systems included – are becoming intolerably stressed by mounting (and synergistically interacting) levels of pollution of all sorts. (**CL-33/3**)

Comment: You are insuring the further deterioration of health for innocent civilians and this planet. (**CL-34/2**)

Comment: 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 great varieties of adverse effects of low-level radiation on human beings. (**CL-52/12**)

Comment: But it is also increasingly important to incorporate into radiation protection standards low-dose effects. (**CL-52/20**)

Comment: One problem here is that the only non-stochastic effects considered in the GIS—GEIS are those related to above threshold doses which cause such things as cataracts or other high dose morbidities. This is unacceptable. There are many morbidities which are associated with low dose radiation which do not rise to the level of effects on cataracts, such as the effect on the human immune system and many other non-cancer effects. This is missing from the generic statement. (**AT-F/6**)

Comment: Even the NRC admitted back in the late ‘70's that there was no safe level. (**CL-20/99**)

Response: *The NRC's primary mission is to protect the public health and safety, and the environment from the effects of radiation from nuclear reactors, materials, and waste facilities. The NRC's regulatory limits for radiological protection are set to protect workers and the public from the harmful health effects of radiation on humans. The limits are based on the recommendations of standards-setting organizations. Radiation standards reflect extensive scientific study by national and international organizations (International Commission on Radiological Protection [ICRP], National Council on Radiation Protection and Measurements [NCRP], and the National Academy of Sciences [NAS]) and are conservative to ensure that the public and workers at nuclear power plants are protected. The NRC radiation exposure standards are presented in 10 CFR Part 20, "Standards for Protection Against Radiation," and are based on the recommendations in ICRP 26 and 30. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: 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-50/16**)

Comment: The NRC must incorporate offsite contamination in all evaluations of environmental impacts. (**CL-25/8**)

Comment: I utterly oppose [that] NRC should incorporate offsite contamination into all evaluations of environmental impacts. (**CL-33/12**)

Comment: I ask that the NRC incorporate offsite contamination into all evaluations of environmental impacts. (**CL-26/9**)

Comment: 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-48/14**)

Comment: 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-48/41**)

Comment: One does not want radioactive and chemical particulate matter getting offsite if possible. (**CL-20/34**)

Comment: I am opposed to the following proposal(s) in the EIS: NRC ignores radiation offsite. (**CL-26/7**)

Comment: I am opposed to the following proposal(s) in the EIS: NRC permits utilities to ignore it [radiation offsite] in decommissioning planning. (**CL-26/8**)

Comment: I utterly oppose ignoring offsite radiation and permitting utilities to ignore it in decommission planning. (**CL-33/11**)

Comment: I am opposed to the following change to NUREG-0586: In Supplement 1 to the Generic Environmental Impact Statement on Decommissioning: 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-43/6**)

Comment: The extent to which radioactive contamination levels that are permitted to be released from regulatory control for decommissioning would result in the release of radioactive materials routinely. (**CL-38/5**)

Comment: I am opposed to NRC regulations pertaining to Decommissioning which would allow offsite radiation to be ignored, and permits utilities to ignore it in decommissioning planning. It is imperative to include offsite contamination into all aspects of decommissioning planning and evaluation of environmental impacts. (**CL-44/7**)

Comment: 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. (**CL-49/2**)

Comment: There are right now already elevated levels of some radioactive contaminants nearly 100 miles downstream of Plant Hatch and Plant Vogtle. (**AT-A/33**)

Response: *All nuclear power plants were reviewed and licensed with the expectation that there would be routine very low-level releases of radioactivity to the environment through airborne and liquid releases from the facility and that these releases would be detectable offsite. Gaseous and liquid releases to the environment must be monitored and meet the requirements of 10 CFR Part 20, Appendix B, Table 2. Therefore, contaminants may be present and detectable offsite, however the release limits have been designed and proven to be protective of the health and safety of the public and environment. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: 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. (**CL-52/19**)

Comment: Page 4-27, Section 4.3.8, lines 17-21. The Supplement should clarify the statement about the "relatively lower sensitivity of non-human species to radiation." Is this statement based on scientific studies or is the impact to non-humans not known? Why were decommissioning's radiological impacts on ecological receptors defined as outside the scope of the Supplement? (**CL-16/63**)

Response: *The effects of ionizing radiation on non-human biota have been studied since at least the 1940s. Radiological impacts on ecological receptors are not within the scope of this Supplement because the NRC does not maintain radiation protection guidelines for non-human organisms because they are assumed to be protected by the radiation protection standards for humans. The validity of the assumption that radiation guidelines, which are protective of the public, would also provide adequate protection to plants and animals has been upheld by national and international bodies that have examined the issue, including the National Council on Radiation Protection and Measurement (NCRP Report No. 109, Effects of Ionizing Radiation on Aquatic Organisms, 1991) and the International Atomic Energy Agency (IAEA Technical Report Series No. 332, Effects of Ionizing Radiation on Plants and Animals at Levels Implied by Current Radiation Protection Standards, 1992). In both of those studies, it was emphasized that non-human species may be adversely affected by such radiation levels, but effects at the population level are not detectable. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Contamination means: that some thing/someone etc., has been brought into contact with something that defiles or pollutes it etc., - go look the word up - NRC must stop redefining words and lying about their meaning. (**CL-20/106**)

Comment: The definition of CONTAMINATION is also a LIE, in that it states that something is contaminated if its in excess of "acceptable levels." (**CL-20/104**)

Response: *The definition for contamination used in the Supplement is "undesired radioactive material or residual radioactivity that is deposited on the surface of or inside structures, areas, objects or people in excess of acceptable levels (e.g., for a release of a site or facility for unrestricted use)." This word is defined in Appendix M for clarification as used in this Supplement and is generally accepted by radiation protection experts. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: The radioactive material releases is not released in stringently controlled conditions, technical specifications are often violated, monitoring is only done at select locations and frequently monitors don't work. (**CL-20/91**)

Response: *The NRC sets limits on radiological effluents, requires monitoring of effluents and foodstuffs to ensure those limits are met, and has set dose limits to regulate the release of radioactive material from nuclear power facilities. The regulations are intentionally conservative and provide adequate protection for the public, including the most radiosensitive members of the population. All reactor licensees monitor their effluent and calculate offsite doses caused by radioactive liquid and gaseous effluents. These calculations are performed to demonstrate the*

licensee's compliance with its technical specifications and NRC regulations. Requirements for redundancy in monitoring as well as the monitoring of various pathways that could result in the release of radiation to the environment ensure that unmonitored and unplanned releases are avoided. The licensee's Offsite Dose Calculation Manual (ODCM) provides for collection and analysis of a variety of samples such as soil, water, plants, and animals. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: 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-48/40**)

Comment: 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-49/1**)

Comment: I utterly oppose ignoring radiation exposures to children and other vulnerable members of the population and creating a fictitious highest exposed "critical group" based on unsubstantiated assumptions. (**CL-33/10**)

Comment: All decommissioning activities need to consider the impacts of radiation exposure to workers and the public. Radiation exposures to children and other vulnerable members of the population should be separately and realistically addressed with all pathways to exposure closely examined. Assumptions about off-site exposure should be substantiated with full peer-review from neutral parties, i.e. not employees of the nuclear utilities. The risk to public health cannot be minimized or discounted. (**CL-40/2**)

Comment: Affected populations are composed of many individuals who are not close to being that "standard man" in whom the NRC places so much faith. (**CL-52/13**)

Comment: I am opposed to the following change to NUREG-0586: In Supplement 1 to the Generic Environmental Impact Statement on Decommissioning: 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-43/5**)

Comment: Using an adult male as the average member of the critical population for dose calculations in site release criteria does not establish effective cleanup 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-50/17**)

Response: *The NRC's primary mission is to protect the public health and safety, and the environment from the effects of radiation from nuclear reactors, materials, and waste facilities. The NRC's regulatory limits for radiological protection are set to protect workers and the public from the harmful health effects of radiation on humans. The limits are based on the recommendations of standards-setting organizations. Radiation standards reflect extensive scientific study by national and international organizations (the International Commission on Radiological Protection [ICRP], the National Council on Radiation Protection and Measurements [NCRP], and the National Academy of Sciences [NAS]) and are conservative to ensure that the public and workers at nuclear power plants are protected. The NRC radiation exposure standards are presented in 10 CFR Part 20, "Standards for Protection Against Radiation," and are based on the recommendations in ICRP 26 and 30. The assumptions used for the critical group are not fictitious or unsubstantiated. The "critical group" means the group of individuals reasonably expected to receive the highest exposure to residual radioactivity within the assumptions of a particular scenario. The average dose to a member of the critical group is represented by the average of the doses for all members of the critical group, which in turn is assumed to represent the most likely exposure situation. For example, when considering whether it is appropriate to "release" a building (allow people to work in the building without restrictions) that has been decontaminated, the critical group would be the group of regular employees that would work in the building. If radiation in the soil is the concern, then the scenario used to represent the maximally exposed individual is that of a resident farmer. The assumptions used for this scenario are "prudently conservative" and tend to overestimate the potential doses. The added sensitivity of certain members of the population, such as pregnant women, infants, and children, are accounted for in the analysis. However, the most sensitive member may not always be the member of the population that receives the highest dose. This is especially true if the most sensitive member (for example, an infant) does not participate in specific activities that may provide the greatest dose or if he/she does not eat specific foods that cause the greatest dose. These comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: ALARA is not a sufficient basis for judging proper methods. (**CL-10/11**)

Comment: NRC ignores radiation dangers after decommissioning is done and utility is relieved of liability. (**CL-48/39**)

Response: *The Commission has established a dose of 0.25 mSv (25 mrem) per year total effective dose equivalent to an average member of the critical group as an acceptable criterion for release of any site for unrestricted use. The licensee will be required to demonstrate that the site can meet this criterion before the license will be terminated for unrestricted use. In*

addition to the dose criteria, the regulations state that the licensee must show that residual radioactivity left on the site have been reduced to levels that are as low as is reasonably achievable (ALARA). The concept of ALARA means that doses must be reduced to the lowest possible level considering economic and societal factors. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: All sites should have audible (sirens) alarms that are triggered during decommissioning, and after decommissioning, when monitors exceed the EPA levels EPA allows, but reduced below what EPA allows to give an advance warning. Such audible alarm systems are absolutely vital also during the time radioactive spent fuel is still on the site, these alarms should be at various locations onsite, including next to the spent fuel pool and one above it, and next to an ISFSI/cask area and suspended on a wire or pole above it. The alarms should be audible miles of site via relay loudspeakers. (**CL-20/89**)

Response: *Requirements for emergency response at nuclear facilities are provided in 10 CFR Part 50 and their application to decommissioning facilities is stated. This Supplement does not (1) establish or revise regulations, (2) impose requirements, or (3) provide relief from requirements. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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...Surrogate measurements must not be allowed at sites where consistent ratios of radionuclides do not exist. (**CL-50/20**)

Response: *The purpose of this Supplement does not include establishing methodologies for decommissioning or measurement of radionuclides. The information that should be presented in the LTP is not included as part of this GEIS. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: DOESN'T NRC UNDERSTAND THAT ONE CANNOT DECONTAMINATE SOMETHING RADIOACTIVELY CONTAMINATED IN THE TRADITIONAL SENSE, UNLIKE WITH A CHEMICAL OR OTHER CONTAMINANT, WHATEVER IS DONE TO SOMETHING RADIOACTIVE DOES NOT CHANGE THE CHARACTER OF THE RADIATION, IT CONTINUES TO EMIT ITS DEADLY ALPHA, BETA, GAMMA, NEUTRON ETC. RADIATION THROUGH THE FULL RADIOACTIVE HAZARDOUS LIFE. (**CL-20/70)**

Response: *The definition of decontamination is the removal and appropriate disposal of radioactive materials to ALARA levels. The NRC has prescribed specific radiological criteria for license termination. Radioactive materials removed during decontamination are appropriately disposed of just as any other chemical material would be. Subpart K of 10 CFR Part 20 provides the requirements for the disposal of licensed material, including low-level waste. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: And to ignore radiation concerns to the unsuspecting public health is criminal. It is outrageous to allow the reactors to be liability-free. (**CL-32/3**)

Response: *NRC's actions do not in any way eliminate the liability of licensees of nuclear power reactors. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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-52/21**)

Response: *The levels of radiation and amounts of radioactive material that are released offsite as considered in this document, are so low that synergies between radiation and hazardous materials are not an issue. This document does not look at the synergies between ionizing radiation and hazardous materials released into the environment. At the levels of radioactive releases from decommissioning plants there has been no documented cases of harmful synergistic interactions with hazardous waste that could pose a public health and safety concern. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I do not think it's outside of the scope of this particular document to have some regulations about the speed, let's say, of how the total amount of radiation on a given site was reduced. I think that would be perfectly within the scope of this document. (**SF-C/7)**

Response: *The mission of the NRC includes ensuring that decommissioning of all nuclear reactor facilities will be accomplished in a safe and timely manner. NRC regulations currently require that all decommissioning activities be completed within 60 years after a nuclear power plant permanently ceases operations, unless exemptions are granted on a case-by-case basis. The Supplement does not (1) establish or revise regulations, (2) impose requirements, (3) provide relief from requirements, or (4) provide guidance on the decommissioning process. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The potential threat of a release along the shoreline or into the lake of radioactive material during decommissioning or storage of spent fuel requires special consideration. (**CL-11/3**)

Response: *The licensee is allowed to release gaseous and liquid effluents to the environment, but the releases must be monitored and meet the requirements of 10 CFR Part 20, Appendix B, Table 2; therefore, contaminants may be present and detectable offsite. However, the release limits have been designed and proven to be protective of the health and safety of the public and environment. Although long-term storage of spent fuel is not within the scope of the Supplement, as described in Section 1.3, "Scope of This Supplement," NRC is committed to ensuring that both spent fuel and low-level wastes are managed to prevent detrimental health impacts to the public. The NRC has stated in its regulations that "The Commission has made a generic determination that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impact of at least 30 years beyond the licensed life for operation (which may include the term of renewed license) of that reactor at its spent fuel storage basin or at either onsite or offsite independent fuel-storage installations." Further, the Commission believes there is reasonable assurance that at least one mined geological repository will be available in the first quarter of the 21st century, and sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level waste and spent fuel originating in such a reactor and generated up to that time. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Third, the Draft GEIS does not explain at what point in time radioactive decay of the material will make it sufficiently safe to proceed with any further dismantling. NRC should shorten the acceptable time period for SAFSTOR and link it to the timeframe that would make the material safer. NRC should encourage licensees to go forward with dismantling the facility under DECON as soon as appropriate, even if they start with placing the facility in SAFSTOR. (**CL-11/11**)

Response: *NRC regulations currently require that all decommissioning activities be completed within 60 years after a nuclear power plant permanently ceases operations, unless exemptions are granted on a case-by-case basis. The purpose of the Supplement is not to discuss acceptable time periods for decommissioning activities or provide or suggest to licensees when they should undergo decommissioning activities. The Supplement describes the potential environmental impacts from decommissioning activities and provides an envelope of the impacts that the licensee can compare to prior to undertaking a decommissioning activity. The purpose of the Supplement is described in Section 1.1, "Purpose and Need for This Supplement." The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The area being worked in should be covered to contain dust if it means covering the whole site with a tent with an adhesive inner surface to capture particulates. (**CL-20/33**)

Response: *The use of enclosures (such as plastic "tents") during decommissioning to contain airborne contamination is a common practice. However, the enclosures are limited in size to the area that is being worked on in order to contain contamination and not allow it to drift to areas that are not contaminated. Covering the whole site with a tent would not be an appropriate or realistically feasible method of containing contamination. In addition, the specification of methods to use during decommissioning is not within the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: For the Draft to take the attitude of "well, the doses at plants being decommissioned are generally only a small fraction of doses at operating plants," p. G 13 is no comfort, and all the charts show, concerning Occupational doses (P. G 14 and on), is thousands upon thousands of contaminated workers. (**CL-20/56**)

Response: *The connection between occupational doses and contaminated workers is incorrect. Although some occupational dose is associated with contamination, most is from direct radiation (radioactive sources in piping or other components, including activation products). The NRC's regulatory limits for radiological protection are set to protect workers and the public from the harmful health effects of radiation on humans. The limits are based on the recommendations of standards-setting organizations. Radiation standards reflect extensive scientific study by national and international organizations (the International Commission on Radiological Protection [ICRP], the National Council on Radiation Protection and Measurements [NCRP], and the National Academy of Sciences [NAS]) and are conservative to ensure that the public and workers at nuclear power plants are protected. The NRC radiation exposure standards are presented in 10 CFR Part 20, "Standards for Protection Against Radiation," and are based on the recommendations in ICRP 26 and 30. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: "Dose to members of the public" Pg. G-19, and following pages, the doses to the public are listed in the usual deceptive and inaccurate manner. (**CL-20/90**)

Response: *The comment cannot be evaluated because it did not provide specific information. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: WHEN YOU CALCULATED THE RADIO-IODINES, DID YOU ADD IN THE HUGE RADIO-IODINE RELEASE OFF PLANT FARLEY THAT WENT OVER GEORGIA? (**CL-20/97**)

Response: *It is not clear what calculation the commenter is referring to. The NRC sets limits on radiological effluents, requires monitoring of effluents and foodstuffs to ensure those limits are met, and has set dose limits to regulate the release of radioactive material from nuclear power facilities. The regulations are intentionally conservative and provide adequate protection for the public, including the most radiosensitive members of the population. All reactor licensees monitor their effluent and calculate offsite doses caused by radioactive liquid and gaseous effluents. These calculations are performed to demonstrate the licensee's compliance with its technical specifications and NRC regulations. The licensee's Offsite Dose Calculation Manual (ODCM) provides for collection and analysis of a variety of samples such as soil, water, plants, and animals. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The degradation that will occur due to the constant bombardment of radiation could affect how the plant is dismantled and how the radiation exposures will be for workers and could easily add new accident scenarios. For instance, Plant Hatch has a cracked core shroud, and I know other plants do, too. But I don't know—that's question, I guess, have any of those been dismantled? How will that deficiency affect decommissioning? These factors, among others, must be incorporated in addressing the decommissioning of individual facilities. (**AT-A/27**)

Response: *The reactor fuel will be removed from the reactor core before any major decommissioning activities take place. A reactor with a cracked core shroud will not pose any additional difficulty in decommissioning. The industry has considerable experience in the removal of damaged components (e.g., the cleanup at Three Mile Island, Unit 2). Decommisioning can be accomplished efficiently and safely with minimal radiation exposure to the workforce. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Okay, we searched the document to determine what the actual acceptable risk is to the public for the activities addressed in your process. And what we determined is that it's a pretty wide range, from three to 21 person rems. Okay, yeah. What is the absolute level of acceptable risk -- and I know it ranges in the experiences that the NRC has had at different decommissioned power plants. And so there were different doses identified at different plant locations and I know some of the variables that went into that. What is the absolute level of acceptable risk that NRC will allow for decommissioning activity in general? That's number one. (**AT-B/1**)

Response: *This Supplement does not establish acceptable risk levels; it lists reported doses for individuals and populations and provides estimates of potential impacts. NRC and EPA regulations contain permissible dose limits for individuals. Neither agency has established*

permissible population doses. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: I don't think the long-term radiological impacts [from entombment] are being addressed and the scope of this document is inadequate as it relates to radiological impacts. I think in generic terms, that should be addressed. (**CH-C/6**)

Response: *Entombment was addressed in this Supplement at the request of the Commission. Although Entombment, as described in this Supplement, does not result in unrestricted release at License Termination, the environmental impacts from the activities for preparing for Entombment can be evaluated and that was within the scope of this Supplement. In October 2001, the Commission published, for public comment, an advance notice of proposed rulemaking (ANPR) on Entombment Options for Power Reactors (66 FR 32551). The NRC's regulatory limits for radiological protection are set to protect workers. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The NRC is charged to protect the quality of the human environment and we ask that they all can uphold that charge. The current draft GEIS is not protective and needs major improvement. (**CL-08/33**)

Response: *The NRC's mission includes ensuring that decommissioning of all nuclear reactor facilities will be accomplished in a safe and timely manner. This comment cannot be evaluated because it did not provide specific information. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The U.S. Environmental Protection Agency (EPA) and most state agencies that set radiation exposure standards employ measures, limits, or goals expressed in terms of risk. NRC Radiological Site Release Criteria appear to yield a higher risk to the public than those risk levels acceptable to EPA under CERCLA. If this is so, then the GEIS should contain the comparisons (risk to risk, nuclear to chemical, one in ten thousand to one in a million) in plain language. The presentation of risk in Appendix G is unnecessarily obtuse and murky. It appears not to contain a comparison to permissible or target risks from non-radiological pollutants, which in all fairness, it should. (**CL-13/2**)

Response: *Although licensees may be required to meet state and other Federal regulations during decommissioning, this Supplement evaluated environmental impacts from decommissioning activities using, where appropriate, NRC regulations and guidelines as part of the evaluation. The statement is made that the GEIS should contain the comparisons (risk to*

risk, nuclear to chemical, one in ten thousand to one in a million). NEPA requires Federal agencies to consider every significant aspect of the proposed action. NEPA requires that the agencies inform the public that it has considered environmental concerns in its decision-making process and it requires agencies to take a hand look at the environmental consequences of an action. It does not require comparisons between technologies , or comparisons of risks between the various technologies. Appendix G provides a summary of risks from radiation exposure. Section G.1.1.4.3, "Risk Coefficient Selection," discusses the use of the BEIR-V risk coefficient of 8 x 10^{-4} fatalities per 0.01 person-Sv (1 person-rem). The Supplement provides a range of occupational doses experienced in permanently shutdown reactors for a number of decommissioning activities. The staff concludes that the occupational and public health impact from radiological dose for all decommissioning activities is generic and the impact will be SMALL. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: Water quality should continue to be tested for radioactive contaminants for at least 600 years which is the full radioactive hazardous life approximately for cesium-137, which is a contaminant of concern in fish and shellfish as it migrates to muscle in particular. (**CL-20/37**)

Response: *There are regulations in place concerning the release of any material from a nuclear power facility. The plants were licensed with the expectation that there would be routine releases to the air and water due to normal operations and that these releases would be detectable offsite. The releases are limited to ensure public health and safety. Liquid releases to the environment must be monitored and meet the requirements of 10 CFR Part 20, Appendix B, Table 2. Therefore, contaminants may be present and detectable offsite, however the release limits have been designed and proven to be protective of the health and safety of the public and the environment. No offsite decontamination efforts or additional monitoring procedures are warranted. The Supplement does not (1) establish policy, (2) establish or revise regulations, (3) impose requirements, (4) provide relief from requirements, or (5) provide guidance on the decommissioning process. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: NRC MUST MAKE LICENSEES, CONTRACTORS, SUBCONTRACTORS AND ANYONE WHO WORKS ON DECOMMISSIONING TAKE THE EFFECTS OF RADIOACTIVE "DAUGHTER" PRODUCTS INTO CONSIDERATION AS THEY MAY HAVE VERY DIFFERENT PHYSICAL, CHEMICAL AND RADIOACTIVE PROPERTIES THAN THE RADIOACTIVE "PARENT." THIS MUST BE PART OF DECOMMISSIONING STANDARDS. (**CL-20/52**)

Response: *The NRC radiation exposure standards are presented in 10 CFR Part 20 and take into account daughter products. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Emissions are allowed to be averaged out to make them appear less, and there is no independent monitoring and utilities do and say whatever they please. (**CL-20/92**)

Response: *Emissions are reported as total for a given period, not as averages. The NRC sets limits on radiological effluents, requires monitoring of effluents and foodstuffs to ensure those limits are met, and has set dose limits to regulate the release of radioactive material from nuclear power facilities. The regulations are intentionally conservative and provide adequate protection for the public, including the most radiosensitive members of the population. All reactor licensees monitor their effluents and calculate offsite doses caused by radioactive liquid and gaseous effluents. These calculations are performed to demonstrate the licensee's compliance with its technical specifications and NRC regulations. The licensee's Offsite Dose Calculation Manual (ODCM) provides for collection and analysis of a variety of samples such as soil, water, plants, and animals. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I know that I am not alone in asking you to protect our citizens from radioactivity on such a large scale and hope that you will live up to your responsibility by not lessening the requirements that utility companies face when decommissioning takes place. (**CL-39/6**)

Response: *The NRC's primary mission is to protect the public health and safety, and the environment from the effects of radiation from nuclear reactors, materials, and waste facilities. The NRC has and will continue to live up to the responsibility to protect the citizens of the United States from the harmful effects of radiation resulting from the use of licensed material. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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? (**CL-51/10**)

Response: *Included in the license termination plan is a site characterization, which is based on radiological surveys made throughout operation of plant and decommissioning process. The purpose of the site characterization is to ensure that the final radiation surveys are conducted to cover all areas where contamination existed, remains, or has the potential to exist or remain as well as to provide data for planning further decommissioning activities. The site*

characterization contains a description of (1) the radiological contamination on the site before any cleanup activities associated with decommissioning took place, (2) a historical description of site operations, spills, and accidents, (3) a map of remaining contamination levels and contamination locations, and (4) a description of the survey instruments and supporting quality assurance practices used in the site-characterization program. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: How can the radioactive content of this structure be accurately estimated? (**CL-51/13**)

Response: *Discussion of method for estimating the radioactive content of structure is outside the scope of the Supplement. There are several methods by which the total activity could be estimated. These methods include taking core samples through the containment vessel and determining the variation of activity as a function of the location of the sample and position in the sample. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Tritium can't be contained. (**CL-20/93**)

Response: *Tritium is water with an extra neutron in the nucleus. It can be contained in the same manner as water, for instance in bottles, tanks, etc. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.1.7 Decommissioning Accidents

Comment: Section 4.3.9 and Appendix I discuss the potential of, and consequences of, postulated radiological accidents. On page I-2 of Appendix I, the text states, "As a result of improvements in the technology used for decommissioning, several of the accidents listed in Table 1-2 may now be considered to be of a much lower probability or, at the least, to result in much-reduced consequences." It is recommended that the text be revised to identify typical technology improvements. For example, some of the plants currently undergoing decommissioning intend to use single failure proof cranes to preclude the potential for certain postulated spent fuel cask drop or heavy load drop accidents. (**CL-06/3**)

Response: *Appendix I was revised to include reference to specific technological improvements such as the upgrading to a single failure proof crane.*

Comment: Section 4.3.9.3, page 4-35, lines 19-21 – the category of hazardous (non-radiological) chemical related accidents is listed here, which is appropriate since such accidents are possible during decommissioning. The description only mentions potential for injury to the public. However, in Section 4.3.9.2, which describes the classification of accidents as small, moderate and large, effects on workers are also discussed. This should be clarified since it appears to be inconsistent. (**CL-09/24**)

Response: *Section 4.3.9 is a discussion of offsite impacts to members of the public. The commenter is referred to Section 4.3.10 for an assessment of impacts to workers, including chemical hazards.*

Comment: I think the document needs to address fires, chemical hazards, particulates, spills. I just think there are more issues that need to be addressed in the document. (**CH-D/8**)

Response: *Appendix I of the Supplement evaluates a large number of potential accidents for plants undergoing decommissioning including fires, chemical hazards and spills. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Table I-5, page I-20 – add fire and hazardous materials to associated accidents for removal of contaminated pipe and tubing. (**CL-09/51**)

Comment: Table I-5, page I-21 – add fire and hazardous materials to associated accidents for metal component dismantlement, intact removal or partial segmentation of large components and the first three subcategories of removal of reactor pressure vessel and internals. (**CL-09/52**)

Comment: Table I-5, page I-22 – add fire to associated accidents for cut piping attachments. Add fire and hazardous materials to associated accidents for decontamination, segmentation and disposal of RCS and other larger bore piping. (**CL-09/53**)

Comment: Table I-5, page I-23 – add fire to associated accidents for deactivate systems, disposal of nonessential structures and systems; establish a permanent reactor coolant system vent path; establish a permanent containment vent path; remove dedicated safe-shutdown diesel and generator; and remove unused equipment during SAFSTOR. Add hazardous materials to deactivate systems; disposal of nonessential structures and systems; drain and flush plant systems; process, package, and ship liquid and solid radioactive wastes; remove dedicated safe-shutdown diesel and generator; dispose of non-radioactive hazardous waste; and limited decontamination of selected structures and systems. (**CL-09/54**)

Comment: In general, any activities that involve cutting or welding could lead to a fire. Precautions are implemented to minimize the possibility and respond quickly if a fire starts. Depending on the materials in the systems during operation or during earlier decommissioning activities, a hazardous materials accident is possible when removing systems, handling waste or using decontamination materials. Again, precautions are planned to minimize the possibility. (**CL-09/55**)

Response: *Table I-5 was revised and "fire" was added as a potential accident for a number of decommissioning activities.*

Comment: Page 1-8, Lines 10-13. EPA agrees that inadvertent releases resulting from an accident should be handled on a site-specific basis. We would like to see an explanation of how the analysis of impacts from an accident would be handled. (**CL-16/14**)

Response: *As stated in the Supplement, the discussion of environmental impacts from reactors that were permanently shut-down due to a major accident is outside the scope of this document and would require a site-specific analysis. In response to EPA's request, the staff recommends that EPA examine NUREG-0683, as supplemented. NUREG-0683 is a Programmatic EIS related to the decontamination and disposal of radioactive wastes resulting from the March 28, 1979 accident at Three Mile Island, Unit 2. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Perhaps most disgusting is that under "Consequence of Potential Accidents" p. I-16 the impression given is that spent fuel pool accident risks are low, when in fact NRC's own cited document shows, hundreds upon hundreds would die and also many spent fuel pools were highly vulnerable to catastrophic accident due to earthquakes and a lot more besides - spent fuel pool accidents would have terrible consequences. (**CL-20/100**)

Response: *The level of risk is the result of the probability of occurrence and the consequences of the accident. The risk associated with spent fuel pools is low because the probability of an accident is low. Furthermore, the accident could be mitigated before a release occurs. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Table I-3 incorrectly lists site flooding as the only accident analyzed for Peach Bottom Unit 1 in the documents referenced in Appendix 1 for Peach Bottom Unit 1. The additional accidents analyzed for Peach Bottom Unit 1 that should be added to Table I-3 are:

-- Release of helium coolant under containment breach (open penetration to containment) for accidents involving radioactive materials (non-fuel-related) on page I-9.

-- Fire inside reactor vessel under fire for accidents involving radioactive materials (non-fuel-related) on page I-10. (**CL-31/15**)

Response: *The additional accidents identified above for Peach Bottom Unit 1 were added to Table I-3.*

Comment: Appendix 1, Summary of Accidents For PWR and BWR Plants Undergoing Decommissioning Operations, Table 1-3 lists accidents considered in various individual plant evaluations but lists no potential consequences and no probabilities. So what good is this list except to show the random and will-nilly cafeteria approach to individual plants picking out and designing bounding accident scenarios? At one plant the limiting scenario is fuel handling accident; at another it is a fire in the low-level waste storage building. Case in Point: No fire scenarios are listed for Maine Yankee under Table 1-3, yet recently a fire occurred in a low-level waste dewatering unit and burned at several hundred degrees for more than an hour. A local volunteer fire company approached the fire without respirators and without advice from radiation protection personnel. A GEIS should contain a comprehensive generic list of potential accidents (scenarios) together with probabilities and potential consequences. (**CL-13/3**)

Response: *Potential consequences are shown in Table I-4 of Appendix I. Probabilities for accidents other than those related to the spent fuel pool have not been calculated primarily because of the low risk associated with the accidents and the potential for mitigation of the accident consequences. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Presenting licensee estimates of consequences without comment or qualification as in Table 1-4, Highest Offsite Doses Calculated for Postulated Accidents in Licensing Basis Documents, provides an incomplete picture of real potential consequences. For example, Maine Yankee asserts that loss of spent fuel pool heat sink will result in the same offsite dose as a liquid waste spill, that of .23 REM. Other than a reference to another study, NRC does not bother to explain what sort of dose spent fuel pool drain down might result in if remedial action is not taken. As dose consequences can be rather large, the actual figures should be included in he GEIS. (**CL-13/4**)

Response: *The event scenarios that lead to a spent fuel pool drain-down and subsequent large offsite radiological release are beyond design basis. While the consequences from such a postulated event can be large, the likelihood of the event is very small. The overall risk to the public is well within the quantitative health objectives of the NRC. To more accurately quantify the risk, several figures have been added to Appendix I of the Supplement and the discussion on spent fuel pool drain-down events has been appropriately modified.*

Comment: A serious accident or terrorist act could be catastrophic. Such an occurrence could result in large numbers of human fatalities, injuries and illnesses and vast areas of land uninhabitable for years. (**CL-46/4**)

Comment: 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-50/25**)

Response: *Once the reactor shuts down permanently, the risk to the public is greatly reduced; however, there are still accidents that may occur that could have consequences offsite. Licensees are required to examine their sites and plans for decommissioning to identify postulated accidents that could occur during decommissioning. An analysis of these accidents is required in their Final Safety Analysis Report, or equivalent document, which is part of the licensing basis for the plant. Possible accidents, such as the ones mentioned above, and many other possible scenarios, have been considered in this analysis. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Wherever human beings are involved, there are bound to be errors and accidents. The human element cannot be removed, as we found out at Three Mile Island and Chernobyl. (**CL-10/5**)

Response: *Radiological accidents during decommissioning are considered in Appendix I of this Supplement. The comment is not specific and did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I challenge any licensee and any NRC staffer, to walk into the area where the spent fuel pool is after the water has drained from the spent fuel pool, and try and refill the spent fuel pool with a garden hose (that is what they thought they'd do at the Georgia Institute of Technology Reactor) and see how well they can "mitigate" the situation before "offsite dose consequences could occur" - they'd be dead before they could pick up the hose. To say that such an accident could be mitigated is the height of deception. (**CL-20/101**)

Response: *The NRC staff considers loss of water from the spent fuel pool to be a very low probability accident because of design features required at all spent fuel storage pools that minimize the possibility of losing all the spent fuel coolant. Obviously, what the NRC staff had in mind as mitigation of a loss of inventory accident at a spent fuel pool was not manual refilling with a garden hose. Technology exists and it is routinely employed to work effectively in very high radiation fields. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: THE NRC SHOULD READ ITS OWN DOCUMENTS AND THE FAMOUS "CRAC 2" REPORT DONE BY SANDIA LABS, THE NRC AND THEN CONGRESSIONAL OVERSIGHT BECAUSE TO PRESENT DATA TAKEN FROM LICENSING-BASIS DOCUMENTS WHICH HISTORICALLY HAVE DOWNPLAYED ANYTHING THAT COULD HAPPEN IS OUTRAGEOUS, AND IF THERE IS STILL FUEL IN THE REACTOR AND A LOSS OF WATER COOLANT HAPPENS, EVEN IF THE REACTOR HAS BEEN SHUTDOWN RECENTLY, THERE WILL BE A MELTDOWN. (**CL-20/102**)

Response: *The staff is aware of the information that is present in the documents it publishes. This comment is general in nature and does not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Section 4.3.9.2, page 4-34 – it is not clear whether the physical injuries discussed in this section are only those due to radiological impacts or due to non-radiological aspects of an accident. The section is on radiological accidents so the former is implied, but the wording is not clear. (**CL-09/23**)

Response: *Section 4.3.9.2 was revised to refer specifically to radiological accidents. Information that could be misconstrued pertaining to nonradiological accidents has been removed from the section.*

O.1.8 Occupational (Nonradiological) Impacts

Comment: I'm going to have comments on the details of my facility, Fermi I, ranging from the status of our decommissioning since we are inactive, the final act of decommissioning…(comments on the details of my facility, Fermi I) what kind of fuel the plant used, the type of containment, some of our systems. We are cleaning up sodium residues. I'd like that stated in the report. It is one of the type of chemical activities and chemical hazards that are being done as part of decommissioning. (**CH-D/2**)

Response: *Section 4.3.10.1 was revised to include removal of sodium residues.*

Comment: There are some additional hazards that have to be addressed in the discussion of the hazards. I don't think these would affect the overall conclusions of the document. But I think there is more detail, and to some extent, some hazards that are not fully addressed in the document. And some of these are in the areas of occupational hazards. (**CH-D/7**)

Comment: Section 4.3.10.1, page 4-37 – the hazard of flames and fires should be addressed in the section on physical hazards. (**CL-09/25**)

Response: *Section 4.3.10 was extensively revised. The hazard of flames and fires are addressed in Section 4.3.10.3.*

Comment: Section 4.3.10.1, page 4-39 – the following items should be added to the list of activities that expose workers to chemical hazards:

"Removal of chemical containing systems, such as demineralizers, and acid and caustic containing tanks," "Removal of sodium and NaK residues." (**CL-09/26**)

Response: *Section 4.3.10.1 was extensively revised. The chemical hazards identified above are addressed in Section 4.3.10.3.*

Comment: Tables E-3 and E-5 The issue of occupational hazards applies to activities in addition to those indicated in Table E-3. Since Table E-5 is based on Table E-3, it also needs to be revised to reflect the following.

Such additional activities that can affect or involve occupational issues are as follows. A brief explanation of why follows each item.

Adjust site training (Industrial safety type training needs to be continued and revised based on job hazards to ensure workers are trained for activities or areas [e.g., confined spaces] involved in decommissioning)

Establish a reactor coolant system vent pathway (Depending on specific method, this could involve cutting, welding and working at heights)

Establish containment vent pathway (Depending on specific method, this could involve cutting, welding and working at heights)

Do preventive and corrective maintenance on SSCs (Maintenance activities at an operating plant or decommissioning plant can involve industrial hazards, some more so than others. There can be energized systems, pressurized fluids, rotating equipment, etc.)

Chemical decontamination (Occupational hazards include chemicals and pressurized fluids)

High pressure water sprays of surface (High pressure sprays are themselves a hazard due to energy involved. Precautions need to be taken to use them safely)

Cut out radioactive piping (Cutting typically involves torches or cutting wheels, creation of fumes or particles, and rigging)

Remove large and small tanks or other radioactive components from the facility (Careful rigging is needed to maintain control and prevent injury. If this activity also involves cutting the equipment free, the hazards of cutting are also involved)

LLW packaging and storage (Handling the LLW and packages needs to be performed ergonomically safe to prevent injuries)

Large component transportation (The transportation issues all involve lifting of materials to remove them or bring them onto the site. Care also is needed if vehicle is backing up during the evolution.)

LLW transportation

Equipment into site transportation

Backfill tracked into site

Non-radioactive waste transportation

Complete final radiation survey (The survey will involve working at heights if buildings remain, and possibly accessing hard to reach locations.) (**CL-09/33**)

Comment: Tables H-1 and H-2 – as addressed under comments on Tables E-3 and E-5, other activities involve occupational hazards. Occupational issues do not seem to belong as an environment issue category. Safety of workers is considered as a separate category when planning work. From a regulatory perspective, OSHA and state agencies typically promulgate regulation on worker safety, not the EPA or state environmental agencies. The environmental issues typically are impacts to the air, water, or land both on and off site, while other environmental issues that impact people are evaluated for the public. The type of review is also different for occupational issues than other environmental issues. As each work package is planned, the hazards of the job need to be addressed in the planning and appropriate methods, engineering controls and protective equipment planned and workers briefed for each activity. This is an immediate, short-term (for the duration of the activity) type of review, while most environmental issues have longer term implications. However, if occupational issues are to be included in this environmental review, the additional activities discussed earlier also need to be included. (**CL-09/48**)

Response: *Tables E-3, E-5, H-1 and H-2 were revised as appropriate in response to the above comments.*

Comment: (4.3.10.1) ENVIRONMENTAL IMPACTS of DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS; Occupational Issues - Conclusions:

Labor relations is an essential component, and potential impediment to prompt decommissioning activities. For example:

On August 12, 1982, William Pennsyl, a cleanup worker, was fired for insisting he be allowed to wear a respirator while undressing men who entered highly radioactive areas. Pennsyl filed a complaint with the U.S. Department of Labor. William Pennsyl settled out-of-court two days before an administrative law judge was scheduled to hear his case

On March 22,1983, JM 1-2 senior-safety engineer Richard Parks publicly charged GPU and Bechtel Corporation with deliberately circumventing safety procedures, and harassing him and other workers for reporting safety violations.

On July 31,1990, the NRC announced "that an allegation that a shift supervisor on duty at Three Mile Unit 2 control room, during defueling operations in 1987, had sometimes slept on shift or had been otherwise inattentive to his duties, was true ..."

Also, in February 1991 an operator "inadvertently flooded the vaporizer" and several days later an operator was discovered "apparently sleeping.

Based on the experience at Three Mile Island, the SMALL and MODERATE evaluations need to be upgraded to "LARGE." (**CL-02/54**)

Response: *Consideration of worker safety and health, training, and experience with nuclear facilities was included in looking at occupational health and safety issues in this Supplement. Instances of worker misconduct occur, and the licensee and NRC have been diligent in identifying such instances and will continue to do so in the future. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I noticed that the Draft blabbers on about OSHA standards YET FAILS TO MENTION THAT OSHA DOES NOT COME ON SITE AND IS NOT ALLOWED TO ACCORDING TO OSHA, EVERYTHING IS UNDER NRC. So let's print the truth shall we? (**CL-20/24**)

Response: *OSHA has jurisdiction for non-radiological safety hazards. NRC inspectors have jurisdiction over radiological safety hazards. OSHA has access to licensed facilities, however, because of NRC inspector presence onsite during decommissioning activities, the NRC has entered into a Memorandum of Understanding with OSHA. NRC inspectors are required to be*

alert for conditions of non-radiological safety hazards. NRC inspectors are also required to follow up on identified non-radiological safety hazards to include reporting requirements to OSHA. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: To what extent will chemical decontaminants be used? (**CL-51/11**)

Response: Chemical decontamination, the use of chemicals to decontaminate structures, systems, and components is conducted and will be conducted at all decommissioning sites to varying degrees. Chemical decontamination of the primary system has been conducted at a number of facilities including Maine Yankee and Big Rock Point. Chemical decontamination of the primary system is a determination that is made by the licensee. When available, data on chemical decontaminants were factored into the evaluation of environmental impacts from decommissioning activities presented in this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

O.1.9 Cost Impacts

Comment: Table 4-3 lists the decommissioning cost of Peach Bottom Unit 1 to be 54 million dollars (in January 2001 dollars). In our letter submitted on March 30, 2001, in accordance with 10 CFR 50.75 the decommissioning cost estimate for Peach Bottom Unit 1 reported in beginning of year 2001 dollars is 65.4 million dollars. Table 4-3 should be changed to reflect the latest cost estimate. (**CL-31/12**)

Comment: Table 4-4 lists the decommissioning cost of the high-temperature gas-cooled reactor in SAFSTOR (Peach Bottom Unit 1) to be 54 million dollars (in January 2001 dollars). In our letter submitted on March 30, 2001, in accordance with 10 CFR 50.75 the decommissioning cost estimate for Peach Bottom, Unit 1 reported in beginning of year 2001 dollars is 65.4 million dollars. Table 4-4 should be changed to reflect the latest cost estimate. (**CL-31/13**)

Response: *The revised decommissioning cost estimate for Peach Bottom Unit 1 was included in Tables 4-3 and 4-4.*

Comment: No, I think my main issue is just, you know, having the costs on the table and having the costs be understood, and I think there's got to be some explicit discussion of those sorts of economic issues, and it seems like they're not really out there. (**AT-C/6**)

Response: *This Supplement does not discuss cost-estimation techniques or the economic factors, which may or may not enter into those estimates. The regulations (10 CFR 50.82) require periodic submittals to the NRC on estimates associated with decommissioning. 10 CFR 50.75 requires biannual submittal of the status of the licensee's decommissioning trust fund. Guidance for the cost estimates is found in Draft Regulatory Guide, "Standard Format and Content of Decommissioning Cost Estimates for Nuclear Power Reactors" (temporarily identified as DG-1085) and Draft NUREG 1713, "Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors." The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: For example, the specific formula for the decommissioning cost. Not that we don't have to have plant's decommissioning fund and have to look to the adequacy because the regulations do require that and we do that. But the formula doesn't apply to non-light water reactors. (**CH-D/6**)

Response: *The decommissioning funding requirements for plants involving other than light water reactor designs (Fermi I and Peach Bottom 1) currently undergoing decommissioning were evaluated on a site-specific basis. All of the United States commercial nuclear power plants currently operating use light water reactor designs and the formulas in 10 CFR 50.75 apply. It is anticipated that most future plants will be light water reactor designs, so the formulas will apply to these reactors also; if other than light water reactors are licensed to operate, then the decommissioning funding requirements will be established on a site-specific basis or the regulations revised to include other reactor designs. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: An Associated Press news article from December 5, 2001, "Japanese power company begins dismantling country's oldest nuclear reactor," highlighted the enormous financial and technical concerns that Japan is facing regarding decommissioning. "Japan Atomic Power Co., which took the Tokaimura plant off line in 1998, won't begin taking apart the reactor for another 10 years because extremely high levels of radiation remain inside, said spokesman Eichi Miyatani. It will completely dismantle the plant by 2017 and spend an estimated 92.7 billion yen (US$748 million), Miyatani said." These monetary figures exceed those that were mentioned as average decommissioning cost estimates at the NRC's public meeting in Atlanta. (**CL-08/11**)

Response: *Decommissioning and environmental requirements differ significantly in the United States from elsewhere in the world. Additionally, economic (societal, design, etc.) and other factors (labor, inflation, etc.) vary from country to country, and, thus make decommissioning*

costs incomparable. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: On Pg. 3-19 the discussion of the SAFESTOR option assumes that there is a savings associated with less Solid RW disposal costs. However, they do not consider that the current NRC guidance for release of material includes a no detectable criteria. In order for the reduction of Solid RW to be achieved, significant quantities of plant materials would need to be released from the site. The current regulations do not support this assumption. (**CL-31/7**)

Response: *Discussion of cost estimates for the Supplement did consider current regulations for release of materials from a decommissioned plant. The assumption made in the GEIS for developing cost estimates did assume the no detectable criterion for release of solid waste. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The cost of decommissioning nuclear facilities can vary according to the size of the facility and the degree of contamination. (**CL-48/21**)

Response: *The variables of size, location, operating history, and others are considered when evaluating the cost impacts. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: A lot of my work has been based on concern about the cost of these facilities relative to the amount of electricity or other benefits they provide on a life cycle basis, and that seems to be something that's a subtext of this statement. (**AT-C/4**)

Response: *The societal benefits, or the lack of benefits, from plant operations is outside the bounds of the Supplement. This comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: In addition to the economic gash in the GEIS portal, this fatally flawed document does not adequately address, acknowledge, account for, or compute a number of significant barriers related to radiological decommissioning; including: Cost Estimates for Radiological Decommissioning; (**CL-02/3**)

Response: *Decommissioning costs are discussed in Section 4.3.11. Two other documents that address decommissioning costs are or were available for public comment. One is a draft guide, "Standard Format and Content of Decommissioning Cost Estimates for Nuclear Power Reactors," temporarily identified as DG-1085. This guide is being developed to assist licensees*

in determining financial assurance and for preparing the various cost estimates required for different stages and methods of decommissioning nuclear power reactors. A related document, Draft NUREG-1713, "Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors," is also available. The NRC staff plans to use Draft NUREG-1713 in their review of licensees' cost estimates for decommissioning that are submitted to the NRC. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: [In addition to the economic gash in the GEIS portal, this fatally flawed document does not adequately address, acknowledge, account for, or compute a number of significant barriers related to radiological decommissioning; including:]Rate payer Equity. (**CL-02/7**)

Comment: We are tired of being unknowingly treated as an entity from whom the industry can escape the obligation of full disclosure, and "used" as the entity upon whom the industry dumps the real long-term costs, and as the entity who absorbs the costs. (**CL-44/16**)

Comment: 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. 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. (**CL-47/17**)

Comment: Georgians for Clean Energy requests that all decommissioning costs be borne by the parent company of the licensee in perpetuity. The parent company should not be allowed to recoup the cost of decommissioning from the ratepayer or federal government through the taxpayer. Ratepayers and taxpayers in Georgia have already had to pay far beyond their share of promised cheap nuclear power that has brought one of the largest rate hikes in the history of Georgia. Furthermore, private landowners, whether residential or commercial, farms, federal, state, county, city, community properties or others should not be responsible for the costs of monitoring, containment or cleanup. (**AT-A/29**)

Comment: THE COSTS MUST NOT BE PASSED ON TO THE RATE PAYERS (**CL-20/47**)

Comment: I think going back 25-30 years, the notion was well, we're going to build these things, we're going to run them and then we're going to cover them up in concrete and post guards around them and they'll be safe. Well, now we have rubblization. Suddenly entombment was the floor, now it's become the ceiling, we won't see it because it's too expensive. Money moves too fast and, you know, how can we do it cheap, how can we do it quick. And of course, our concern is, you know, it may be quick and cheap for the licensee, but for people in the immediate area, people downstream, people on the Savannah River, on the Altamaha River, my concern is that they not be unduly saddled with costs that should be taken into account and that those local concerns be maintained in this process. (**AT-C/2**)

Comment: The most troubling aspect of this section is the assertion that, "The cost of decommissioning results in impacts on the price of electricity paid by rate payers." Due to deregulation, additional decommissioning recovery is either limited or "under-funding" is the sole responsibility of the "electric utility," e.g., Three Mile Island Unit-1. The "hostage rate payer" is being replaced by the shareholder who is not likely to advocate paying for the "under-collected" portion of the fund after the plant is permanently shut down. This section needs to be redrafted and include the following variables: Cost Estimates for Radiological Decommissioning (20); Planned Operating Life of Nuclear Generating Stations; Spent Fuel Isolation; Low-level Radioactive Waste Isolation; Rate Payer Equity; Plant Valuation; Joint Ownership; and Regulatory Ambiguity. (**CL-02/57**)

Response: *The missions of the NRC include the protection of public health and safety, and protection of the environment. NRC requirements established a framework to ensure that decommissioning of all nuclear reactor facilities will be accomplished in a safe and timely manner, and that funding will be available for this purpose. NRC regulations regarding the methods used to ensure that funds will be available to cover the decommissioning process are in 10 CFR 50.75. NRC does not prescribe how the funds are to be raised. The license holder for the facility funds decommissioning costs. Equitability of investment decisions is outside of the regulatory authority of the NRC and thus is not within the scope of this Supplement. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Power reactor licensees continue to rely heavily on nuclear decommissioning projections provided by the industry consultant, Thomas LaGuardia and TLG, Inc. Furthermore, TLG continues to base decommissioning estimates on flawed and specious "Yield" studies extrapolated from small, minimally contaminated, and prematurely shutdown nuclear reactors. No reasonable, sound or prudent financial officer operating outside of the nuclear industry would accept funding formulas and that rely on so many fluid caveats and assumptions.

The wild fluctuation in the cost estimates for radiological decommissioning are attributable to the lack of actual decommissioning experience at large nuclear generating stations (over 1,000 MWe), or at plants that have operated for their full and planned lifespan. The largest commercial nuclear power plant to be fully decommissioned, Shippingport, is a 72 megawatt (MWe) light-water breeder reactor and is substantially smaller than the Susquehanna Steam Electric Station-1 & 2 (1,050 Net MWe for each unit).

Several other nuclear reactors are being prepared for decommissioning but provide little meaningful decommissioning experience that could be used reliably to predict decommissioning costs.

TLG's are specious and depend on: 1) The development of nonexistent technologies; 2) Anticipated projected cost of radioactive disposal; and, 3) The assumption that costs for decommissioning small and short lived reactors can be accurately extrapolated to apply to large commercial reactors operating for forty years.

The industry "leader", Exelon, has filed comments attesting to the imprecise and speculative nature of radiological decommissioning estimates. (**CL-02/17**)

Comment: TLG provided nuclear waste storage and nuclear decommissioning costs estimates for all Pennsylvania utilities regulated by the Public Utility Commission. However, TLG's testimony during the 1995 PP&L Base Rate Proceeding discredits their projections. Mr. LaGuardia based his cost estimates for low-level radioactive waste (LLW) disposal on the assumption that the Appalachian Compact would be available when the SSES closes. He concluded that the disposal of LLW is the most expensive component in the decommissioning formula. Furthermore, Mr. LaGuardia conceded that it may be necessary to recompute cost estimates for disposal because it now appears imminent that Barnwell will open for seven to ten years for all states except North Carolina. However, the Company has not yet taken the step of reconfiguring costs of LLW disposal now that Barnwell has been open since July 5, 1995. (**CL-02/28**)

Response: *Cost estimates are simply estimates. The adequacy or inadequacy of site specific cost estimates is outside the scope of this Supplement. Draft Regulatory Guide DG-1085, "Standard Format and Content of Decommissioning Cost Estimates for Nuclear Power Reactors" and Draft NUREG-1713, "Standard Review Plan for Decommissioning Cost Estimates for Nuclear Power Reactors" contain additional information on cost estimates for decommissioning. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Experience at large commercial nuclear power plants over 200 MWe has clearly demonstrated that TLG's assumption that nuclear units will operate for 40 years, contradicts existing nuclear reactor experience.

The Company reconfirmed the 40 year assumption in the 1997 Rate Case.

Mr. LaGuardia's and Mr. Jones's acknowledgments are confirmed by empirical data contained in the GEIS. (**CL-02/19**)

Comment: Obviously, there are chronic shortfalls between "targeted" funding levels and actual costs for nuclear decommissioning. The burden of proof rests squarely on the shoulders of power reactor licensees, their partners and the NRC to demonstrate that a 40 year operating life, which they predicate their financial planning upon, is realistic. Furthermore, the nuclear industry has exacerbated this problem by resolutely refusing to put aside adequate funds for non-radiological decontamination and decommissioning. (**CL-02/20**)

Response: *NRC recognizes that each reactor that has been decommissioned or that is now being decommissioned was permanently shut down prior to the end of its expected operating life. Operating life is based on the reactor design life, i.e., on the plant remaining structurally safe for a certain period of time. For financial planning purposes, operating life is a reasonable period of time. Utilities that have decommissioned their reactor plants prematurely have done so because of political, economic, or other unforeseeable factors. Since energy planning decision factors have diverse options, decommissioning funding requirements are linked to operation for the license term. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Cost projections by "electric utilities" must be revised to necessarily include funding scenarios that anticipate premature closure. (**CL-02/27**)

Response: *The impacts of the cost of decommissioning generally occur over the life of the facility as the decommissioning fund is being collected. Most power generators are diversified and are able to continue to add funds to their decommissioning trust funds as part of their continued business. In the event that a facility shuts down prematurely, the licensee is still required to fully fund the decommissioning. Further, licensees are required to demonstrate throughout the operational period that the finances are available by one of several methods outlined in 10 CFR 50.75. The licensees submit the status of decommissioning funding to the NRC on a biannual basis. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The cost estimates for non-radiological decommissioning (an imprecise term) are not mandated by the NRC. "For PECO Energy Company and ComEd, the costs for 'Greenfield' are included in the cost estimates and in the funding streams established for decommissioning." However, Greenfield, i.e. the original environmental status of nuclear generating station prior to construction of the nuclear power plant, has never been achieved by an operating nuclear generating station. Moreover, this site status is unattainable if a station is placed in delayed-SAFSTOR, DECO, or ENTOMB. (**CL-02/36**)

Comment: Since 1999, Rancho Seco has embarked on an extended DECON process scheduled for completion in 2008 (including license termination). After license termination, SMUD will, depending on its business needs, embark on site restoration currently estimated at ~$45-80 million. This approximate estimate dollar figure was never a part of the decommissioning trust fund. (We assume your number in Table 4-3 includes all the costs of dismantlement, fuel storage and non-radiological site restoration.) (**CL-18/2**)

Response: *Decommissioning activities continue until the licensee requests termination of the license and demonstrates that radioactive materials have been removed to levels that permit termination of the NRC license. Once the NRC determines that the decommissioning is completed, 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 authority. As a result, activities performed after license termination (to meet other requirements, e.g., additional state requirements, are not subject to NRC authority) and the resulting impacts are outside the scope of this Supplement. Site restoration or the return of the site to greenfield conditions is specifically stated to be out of scope of the Supplement (Section 1.3, Scope). Most power generators are diversified and are able to be flexible in case of a change in plans (such as a change in decommissioning method). The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: All references to Three Mile Island-2 as a "decommissioned reactor" are in error. The plant has not been decommissioned or decontaminated. TMI-2 was placed in Post-Defueling Monitored Storage in December, 1993. (**CL-02/66**)

Response: *Three Mile Island Unit 2 was not considered as one of the decommissioned reactors in the Supplement. Table 1-1 of the Supplement specifically lists activities at facilities that have been permanently shutdown by a major accident as out of scope. References to Three Mile Island will be revised for clarification.*

Comment: The GAO report also highlights several uncertainties relating to the costs of decommissioning: "Varying cleanup standards and proposed new decommissioning methods introduce additional uncertainty about the costs of decommissioning nuclear power plants in the

future. Plants decommissioned in compliance with NRC's requirements may, under certain conditions, also have to meet, at higher cost, more stringent EPA or state standards. New decommissioning methods being considered by NRC, which involve leaving more radioactive waste on-site, could reduce short-term decommissioning costs yet increase costs over the longer term. Moreover, they would raise significant technical and policy issues concerning the disposal of low-level radioactive waste at plant sites instead of in regulated disposal facilities. Adding to cost uncertainty, NRC allows plant owners to wait until 2 years before their license is terminated—relatively late in the decommissioning process—to perform overall radiological assessments to determine whether any residual radiation anywhere at the site will need further cleanup in order to meet NRC's site release standards. Accordingly, GAO is recommending that NRC reconcile its proposed decommissioning methods with existing waste disposal regulations and policies and require licensees to assess their plant sites for contamination earlier in the decommissioning process." (**CL-08/14**)

Response: *The commenter raises a number of issues that will be responded to in the approximately same order as they were asked. Cost estimates are precisely that: estimates. For the facilities that are currently decommissioning the monies available for the radiological decontamination and license termination appear to be sufficient. Once the reactor license is terminated no additional decontamination of the facility or site would be required so additional funds would not be needed (see Table 1-1 and Section 4.3.11.2). The NRC is using dose-based criteria for termination of the license. There was never the expectation that all radiological contamination resulting from operation of the power reactor would be removed from the site. Rather, the cleanup of the site would result in an acceptable dose (0.25 mSv/yr or 25 mrem/yr) to the average member of the critical group, or that group of individuals reasonably expected to receive the highest exposure to residual radioactivity within the assumptions of a particular future site use scenario. This type of site release criteria assumes some residual radioactivity onsite. This residual radioactive contamination is not waste, and therefore the site would not be considered an unregulated disposal facility. Additional requirements placed upon the licensee by State and local jurisdictions are clearly outside the scope of this Supplement. Licensees make measurements of contamination throughout the life of the plant. A systematic survey of contamination for the purposes of decommissioning most properly should be made during decommissioning. At the time of cessation of operations, the licensee knows where the majority of the contamination is located at their site. Towards the end of the decommissioning process a characterization study is performed to focus the remainder of cleanup activities and to assist in the design of the final site survey. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement*.

Comment: If the costs of the decision to shutdown are included, then the cost of the immediate alternative, repair and continued operation, ought to be included as well as comparative environmental impact and comparative risk. (**CL-13/7**)

Response: *A licensee's decision to shut down its reactor is outside the scope of this Supplement, as is the cost to repair or refurbish a plant to keep it operating during its initial term or for license renewal. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Section 4.3.11.2 Potential Impacts of Decommissioning Activities on Cost correctly points out that there are many variables in decommissioning that affect cost; among them are the size and type of reactor, the extent of contamination, property taxes and so on. However the GEIS does no more than list these variables without any attempt to assign the weight which any of them contribute. The GEIS correctly points out that only three commercial power reactors have successfully completed decommissioning, but does not say that they can hardly be considered typical of those plants under and entering decommissioning. Fort St. Vrain was a modest sized plant of oddball High Temperature Gas design and decommissioned on a fixed price, loss-leader price by a large manufacturing firm, Shoreham only ran the equivalent of one full power day, and Pathfinder was a 59MWe peanut of a plant. Thus it would be instructive to look at how costs are apportioned among today's more representative plants currently under decommissioning and from this base, knowing which are sensitive to scale and which are sensitive to choice, project final costs. These costs should be broken down and compared in the GEIS. (**CL-13/15**)

Response: *The NRC does not expect that the costs of Fort St. Vrain, Shoreham, and Pathfinder decommissioning represent the costs of typical reactors currently operating. However, the decommissioning costs for Trojan, comparable to a typical operating reactor, falls within the estimated cost range. Table 4-3 provides estimates of cost associated with the decommissioning of facilities that have permanently ceased operations. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The Generic Environmental Impact Statement needs to specify inappropriate uses of decommissioning funds:

A. Using funds for temporary procedures, such as SAFSTOR, is inappropriate.
B. Using funds for the maintenance and monitoring of temporary procedures, such as SAFSTOR, is inappropriate.
C. Transferring funds from PSC/PUC control to licensee control is inappropriate.
D. Using funds for the temporary storage of spent fuel, such as ISFSI or PFS, is inappropriate.
E. Using funds for the settlement of bankruptcy claims is inappropriate.
F. Using funds as collateral is inappropriate.

G. All other uses of funds that do not directly result in the permanent cleanup of contaminated nuclear plant sites, is inappropriate. Since the funds were obtained as an extra fee from ratepayers for the purpose of safely decommissioning nuclear plants, all of the funds need to be used for that purpose. (**CL-14/5**)

Response: *The requirements for use of decommissioning funds are provided in 10 CFR 50.75. The Supplement does not (1) establish or revise regulations, (2) impose requirements, (3) provide relief from requirements or (4) provide guidance on the decommissioning process. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Furthermore, the most expensive estimate should always be assumed for everything as a wise precaution. NRC lists the decommissioning costs in MILLIONS as estimated by the utilities - however, NRC WELL KNOWS THE COSTS ARE IN THE BILLIONS WHEN EVERYTHING FROM SPENT FUEL ON DOWN IS FACTORED IN, AND THAT MUST BE REFLECTED, PLUS THE NRC INSPECTOR GENERALS OFFICE SHOULD GO OVER ALL ESTIMATES MADE BY UTILITIES TO SEE HOW TRUSTWORTHY AND ACCURATE THEY ARE. (**CL-20/48**)

Response: *The NRC staff has reasonable assurance that the radiological decommissioning costs at facilities that have permanently ceased operation will be within the range of predicted amounts as described in 10 CFR 50.75. The NRC staff recognizes that there are additional costs associated with other activities including disposal of high-level waste and local requirements to refurbish a site to greenfield. Those costs are outside the scope of this Supplement, which is concerned with the radiological decontamination of the site. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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**)

Response: *There are no requirements for further measurement of radiation levels or long-term monitoring for those sites that have been determined to be acceptable for license termination for unrestricted use. For sites that have been determined to be acceptable for license termination under restricted conditions, additional measurements of radiation are only required for sites that have residual radioactivity in excess of 1 mSv/yr (100 mrem/yr), but less than 5 mSv/yr (500 mrem/yr). These measurements are to be made by a responsible government*

entity or independent third party, including a governmental custodian of a site. Long-term monitoring and isolation following the termination of the license is specifically stated to be outside the scope of the Supplement (Table 1-1). The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: 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-48/18**)

Response: *Insufficient decommissioning funds at time of reactor shutdown generally are not the result of inadequate cost estimates; rather, they are the result of a power generator deciding to prematurely shut down its reactor for economic reasons or other factors generally beyond its control. A premature shutdown may result in insufficient funds having been accumulated at the time of shutdown, thus preventing the licensee from beginning major decommissioning activities. In some instances, funding shortfalls have resulted in decommissioning decisions, such as choosing SAFSTOR instead of DECON as a method of decommissioning. Such decisions are made to ensure that funds can be obtained or can accrue to levels sufficient for proceeding with decommissioning. However, these delays have not resulted in unsafe and improper decommissioning. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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-48/20**)

Response: *Three power reactor facilities have had their licenses terminated. In addition the license termination plan for Trojan was approved on February 12, 2001. While the process for decommissioning nuclear power facilities is now well established, the cost of decommissioning*

varies from one nuclear facility to the next. That variability is due to the major factors listed in the Supplement (Section 4.3.11.2). Cost estimates (made at the time of licensing, at 5 years before anticipated shutdown, with the Post-Shutdown Decommissioning Activities Report submittal, at 2 years following shutdown, and at 2 years preceding the anticipated termination of the license) are site-specific and provide a method of re-evaluating the decommissioning costs at various times and stages in each facility's life. The regulations to ensure the availability of decommissioning funds were originally established in 1988, and site-specific decommissioning cost estimates are required by 10 CFR 50.75 and 10 CFR 50.82. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: 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. (**CL-48/24**)

Comment: The cost is one thing. It was awful, very high cost [Yankee Rowe], up in the millions. I don't remember how much. (**AT-D/1**)

Response: *Cost estimates are highly variable and estimates are precisely that: estimates. As experience increases with decommissioning, improved criteria will be developed to more accurately predict decommissioning costs. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Regarding economics, the NRC needs to pay attention to decommissioning costs proposed by Georgia nuclear utilities during rate cases and other proceedings so there is not a situation created where much needed monitoring and maintenance is ignored simply because there was no regulatory attention to the real cost of decommissioning. (**AT-A/31**)

Response: *The NRC regulations (10 CFR 50.75) require licensees to establish a decommissioning trust fund for each power reactor. The amount of money required in the fund at the time of permanent cessation of operations is based on formula given in 10 CFR 50.75(c). The funds are specific for the radiological decommissioning of the facility. The staff recognizes that State rate case proceedings may provide a more detailed site specific estimate of decommissioning costs; however based on our experience to date the amount of money required by 10 CFR 50.75(c) is adequate to assure radiological decommissioning of the facility. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: And the other is, isn't this fund built through rates, so what happens if it goes off line or even if the company is no longer billing. There seems to be a couple of vulnerabilities. (**AT-G/7**)

Response: *If a facility shuts down prematurely before the decommissioning trust is fully funded, or if it unexpectedly finds itself having to shift to a more costly decommissioning option, the facility license holder is still obligated to fund the entire cost of decommissioning. Most power generators are diversified and are able to continue to add funds to their decommissioning trust fund. To date, none of the license holders of prematurely shutdown power reactor facilities have defaulted on their decommissioning funding obligation. Bankruptcy does not necessarily mean that a power reactor licensee will liquidate. To date, the NRC's experience with bankrupt power reactor licensees has been that they file under Chapter 11 of the Bankruptcy Code for reorganization, not liquidation (for example, Public Service Company of New Hampshire, El Paso Electric Company, and Cajun Electric Cooperative). In these cases, bankrupt licensees have continued to provide adequate funds for safe operation and decommissioning, even as bondholders and stockholders suffered losses that were often severe. Because electric utilities typically provide an essential service in an exclusive franchise area, the NRC staff believes that, even in the unlikely case of a power reactor licensee liquidating, its service territory and obligations, including those for decommissioning, would revert to another entity without direct NRC intervention.*

Additionally, an NRC-licensed facility undergoing decommissioning or a site that is not under license but is undergoing decommissioning under NRC's regulations may also warrant remediation under the Comprehensive Environmental Response, Compensation, and Liability Act (referred to as "CERCLA" or "Superfund"). These statutory provisions might become particularly relevant at sites for which funding is inadequate for cleanup. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: When, and if, spent fuel storage is increased at the above mentioned facilities, the additional upward "adjustments" will have a significant impact on decommissioning funding. This cost, which was omitted from TLG's estimate, "None of the estimates we have prepared include the cost of disposal of spent nuclear fuel" is the main contributing factor to the escalation of decommissioning costs at Yankee Rowe. (**CL-02/22**)

Response: *As discussed in Table 1-1 of the Supplement, issues related to spent fuel maintenance and storage (including costs) are outside the scope of this Supplement. Appendix D provides additional information on spent fuel. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Inflation must also be added to costs. (**CL-20/49**)

Response: *The cost estimates provided in the Supplement reflect constant dollar costs (e.g., January 2001). However, the funding assurance for decommissioning trust fund accumulation does reflect inflation. The comment did not provide new information relevant to this Supplement and will not be evaluated further. This comment did not result in a change to the Supplement.*

Comment: Three Mile Island Alert (TMIA) and the EFMR Monitoring Group (EFMR) do not dispute the contention of "electric utilities" (I) and the Nuclear Regulatory Commission (NRC) that radiological decommissioning and radioactive waste isolation expenses are subject to change and likely to increase. (**CL-02/1**)

Response: *This comment is a statement of agreement and did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.1.10 Socioeconomics

Comment: Georgians for Clean Energy is also concerned about economic impacts to the local communities associated with decommissioning. Currently, according to the NRC relicensing documents on Hatch, Appling County, where the plant is located, receives an unhealthy 68 percent of its tax revenue from Southern Nuclear. Provisions for environmental staff and maintenance staff be established in perpetuity and all costs then be borne by the parent company of the licensee. The local community should not have to shoulder these costs. In the case of Appling County, after they lose their tax base, they would not even be able to remotely afford any type of monitoring. Again, it is apparent that communities are left dealing with tremendous problems and little or no resources to address them properly. (**AT-A/30**)

Response: *NRC does not require monitoring or maintenance at facilities once the license is terminated for unrestricted release. NRC acknowledges that communities typically experience a large decrease in tax revenue once a plant permanently ceases operation. However, this issue is clearly outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: J. 1 2. and Table J-3. All relevant information is provided on pages 45-46. (**CL-02/68**)

Response: *The staff does not understand the comment which was provided in bullet format. The reference to "pages 45-46" is unknown. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Table J-4 should incorporate data provided in F. Nuclear Plant Valuation pages 26-27 and pages 44-45. (**CL-02/69**)

Response: *Data on impacts to local public services associated with plant closure for Three Mile Island Unit 2 (TMI-2) was included for information. Because TMI-2 closure was the result of a major accident the staff had difficulty separating out which impacts were due to plant impacts and which impacts were due to the accident and the public's perception of impacts associated with the accident. The staff concluded that the impacts on public services from TMI-2 closure were SMALL. Although, the staff recognizes that impacts on the community due to the accident were significant. Since Supplement 1 deals with plant closures not as a result of a major accident, inclusion of the commentor's information would be inappropriate. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The draft Supplement discusses the economic impacts of decommissioning, including the fact that the Barnwell Low-Level Radioactive Waste Management Disposal Facility in South Carolina, the last remaining facility to dispose almost all classifications of LLW, is scheduled to stop accepting LLW from all NRC licensees except those in the Atlantic Compact, by 2009. Id. at 4-43. Yet, decommissioning of most nuclear power reactors is not expected to occur until after 2009. The existence of the EnviroCare disposal facility in Utah, which can accept Class A wastes for disposal, mitigates the economic impact of losing Barnwell, but nuclear power plant operators still are expected to incur significant waste disposal costs. The Supplement discusses how these costs are passed on to electricity customers. The Supplement also analyzes the socioeconomic impacts of decommissioning with respect to the communities surrounding power reactors. These impacts include direct and indirect job losses, losses in tax revenues and reductions in local governments' ability to pay for public services. Id. at 4-47 - 4-53. Yet, the draft Supplement does not discuss the economic and socioeconomic impacts on the metals industries related to the release of radioactively contaminated scrap metal into the economy. (**CL-03/5**)

Comment: MIRC urges NRC to look at all of the economic consequences (i.e., lost sales, employment reductions, and losses in sales by suppliers of equipment, materials, and services to metals industries) to be incurred by the metals industries and allied sectors, as well as the losses in tax revenues to be incurred by governmental entities. (**CL-03/7**)

Response: *The Supplement assumes that licensed burial sites would be available for the disposal of all categories of low-level waste at the time burial capacity is needed. The reader correctly identifies potential problems in the future disposal of low-level waste but the staff is confident that sufficient burial capacity will be available when needed.*

Currently, licensees at power reactors undergoing decommissioning are prohibited from releasing any solid material that has any detectable contamination. A discussion on the impacts of the release of contaminated scrap metal on the scrap metal industry is highly speculative. Furthermore, the release of contaminated scrap metal is prohibited under current regulations and clearly outside the scope of this Supplement. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: Page. J-2, Table J-1, Impact of Plant Closure and Decommissioning at Nuclear Power Plants Currently Being Decommissioned. Maine Yankee's Post Termination Work Force should be 360 rather than 246 resulting in a Maximum Work Force Change of 121 rather than 235. (**CL-04/14**)

Response: *Table J-1 was changed to include the revised work force numbers.*

Comment: Georgians for Clean Energy is also concerned about economic impacts to the local communities. (**CL-08/15**)

Response: *Socioeconomic impacts on communities near decommissioning facilities are discussed in Section 4.3.12 of the Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: As we have stated in earlier comments, adequate attention to issues surrounding economic justice and the long-term negative economic implications of decommissioning plans in the community have not been thoroughly studied. Reactor sites are often contaminated and made undesirable and unsafe for future economic development. (**AT-A/40**)

Response: *The NRC acknowledges that communities typically experience a large decrease in tax revenue once a plant permanently ceases operation. However, this issue is clearly outside the scope of this Supplement. The staff believes that Section 4.3.12 adequately addresses the socioeconomic implications of decommissioning. The staff has determined that the impact is SMALL and that no site-specific analysis is necessary. With respect to future economic*

development of the site, the established site release criteria will ensure that any future use of the site is adequate to ensure public health and safety and protection of the environment. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: This "revised" document also failed to adequately address and factor the socioeconomic impact of "Greenfield" on the revenue base of local municipalities. (**CL-02/34**)

Response: *The NRC is responsible for ensuring the radiological decontamination of the facility. The socioeconomic impact of "Greenfield " is outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: There are changing community conditions at these reactors....Last night the Mecklenburg County Board of Commissioners approved a 4,000-plus home development by Crescent, which is, of course, Duke, around the Catawba reactor. So there are changing conditions at these nuclear power plants that deserve your attention and will not fit into any generic environmental impact statement. (**AT-B/14**)

Comment: (4.3.1.4) ENVIRONMENTAL IMPACTS of DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS; Socioeconomics - Conclusions:

> The staff concludes that shutdown and decommissioning of nuclear facilities produces socioeconomic impacts that are generic. The impacts occur either through the direct effects of changing employment levels on the local demands for housing and infrastructure or through the effects of the decline of the local tax base on the ability of local government entities to provide public services.
>
> There can be no generic measure of the socioeconomic impact of any community without an in-depth study of a number of driving variables. Nuclear plants are subject to various regulations and tax codes based on location, plant history, levels of corporate investment, composition of work force, state and municipal legislation, economic diversity, and municipal relationships.
>
> Any further cuts in tax revenues, community giving or employment levels, i.e. "SMALL 10%" or "MODERATE 10-20%", create undue economic hardships. (**CL-02/58**)

Response: *The Supplement examined the issue of socioeconomic impacts generically at facilities undergoing decommissioning activities and concluded that the impacts were generic*

and SMALL for all plants. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: In 1986, the TMI-2 defueling work force peaked at 2,000. Today less than a dozen AmerGen employees police Unit 2. (**CL-02/55**)

Response: *Table 1-1 of this Supplement specifically lists an evaluation of impacts at facilities that have been permanently shutdown by a major accident as outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Before TMI reaches decommissioning, the community has already lost 250 jobs, and over $220,000 in tax revenues. Pennsylvania is not similar to Connecticut (22) whereby the difference in pre- and post-deregulation revenues are made up by the state. These jobs and revenues are lost forever. Most local and state taxing authorities classify "Greenfield" as non-commercial, tax-paying status. Moreover, TMI and Peach Bottom are located in rural areas that are sensitive to seasonal fluctuations. Farm revenues in the 1980s were sharply down due to drought, avian flu epidemics, and an informal boycott by consumers who did not want to purchase TMI-tainted produce, dairy products, or beef and poultry. (**CL-02/59**)

Response: *Differences between pre-and post-regulation tax revenues are discussed extensively in Section 4.3.12.2. The impacts generally are proportionate with the percentage of total revenue in local jurisdictions (with rural jurisdictions generally more dependent on the lost revenues). The section notes that the impact on the community also depends on manner in which the state and locality treat the plant for tax purposes and whether the state shares the burden with local government. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The draft supplement attempts to reflect the impact of plant closure on jobs, community tax revenues, and population. The impact of reactor shutdown must be considered apart from decommissioning. The decision to shutdown, to lay-off workers, to devalue the plant for tax purposes and so on, is not automatically a decision to decommission the plant. It may be a shutdown for a long-term repair or upgrade period. Or it may be intended to mothball the facility with the decision to decommission or not delayed a decade or more. In any case, if work force reduction at shutdown is a part of decommissioning, then work force replenishment because of fuel storage or enforcement of administrative site release conditions should also be considered. (**CL-13/5**)

Response: *The impacts of work-force reduction and increase related to closure and decommissioning were handled on a net basis—the difference between the decommissioning work force and the (usually much larger) operational work force. The possibility of a long delay between shutdown and active decommissioning is specifically discussed in Section 4.3.12.3. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Table J-1 Impact of Plant Closure and Decommissioning at Nuclear Power Plants Currently Being Decommissioned includes three plants that have already passed from decommissioning to license termination. Maximum work force and post termination work force figures are scant, incorrect, misleading, and more or less, useless for the purpose of gaining usable information. Maine Yankee currently has more than 400 workers on site; not 295 as listed. Without a reference date, maximum work force numbers mean what? During outages? During major repairs and retrofits? Of twenty-two plants listed, work force figures are given for only seven. (**CL-13/8**)

Response: *A footnote was added to Table J-1 to note the three plants whose licenses have been terminated. Regarding work force, the staff relies on information provided by the licensee. The staff recognizes that staffing levels fluctuate over time. The numbers were provided to give the reader some understanding of the magnitude of the changes. Table J-1 was revised.*

Comment: Table J-2 Impact of Plant Closure and Decommissioning on Population Change shows no causal relationship between closure, decommissioning and population change. Of twenty-one plant locations listed, all save two show population increases in the host county following plant closure. Did Rainer County, Oregon increase its population by 16.5 percent as an impact of the Trojan Nuclear Plant shutdown? It is even harder to credit that the impact of the closure of 65 MWe Humbolt Bay is an increase in the population of California of 25.8 percent. This may be the stupidest table ever presented in an NRC document. (**CL-13/9**)

Response: *The title of Table J-2 was revised to "County and State Population Changes During Plant Closure and Decommissioning." The population changes provided in the table are simply those that occurred at about the same time as plant closure. These were almost all increases and many were fairly substantial but did not result from decommissioning. The population increases occurred despite the effects of plant closure. However, the population increases did mitigate the effects of plant closure. The intent of the table was to show that any negative effects of plant closure on county population were not so large as to actually result in a net population decrease. Rainier County, Oregon, and Humboldt County, California, both grew for reasons independent of plant closure.*

Comment: Table J-3 Impact of Plant Closure and Decommissioning on Local Tax Revenues does not show any impacts of decommissioning activities on tax revenues there fore the table is incorrectly titled. There could be some small near term impact of decommissioning on tax revenues, for example, taxes levied on capital equipment purchased by local vendors working on decommissioning and taxes on spent fuel storage facilities. (**CL-13/10**)

Response: *The title of Table J-3 was revised.*

Comment: No effort is made to determine if marketability of local homes is increased by nuclear plant close. Marketability would determine price and ultimately impact tax-base. (**CL-13/11**)

Response: *It was not possible to isolate the effects of nuclear plant closure on marketability. There likely were three effects, which appear to be inextricably linked: (1) loss of labor force as a result of closure (reduced marketability), (2) perception of an improved environment for some people (increased marketability), and (3) other unrelated economic and demographic changes in the community (either direction). The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: At sites considered for re-powering, no consideration is given to the tax worth of the re-powered site. Haddam Neck, for example, has applied for early partial site release so that the construction of a gas-fired plant may begin even before decommissioning is completed. Fort St. Vrain hosts a gas-fired plant. If impact of closure is to be considered in a GEIS on decommissioning, so then should reuse be considered. (**CL-13/12**)

Response: *Repowering is a separate decision from decommissioning and should be analyzed separately. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: In Maine, utility ratepayers are entitled to share in moneys recovered from the sale of plant components and commodities, such as pipe and cable, as well as real estate and unspent decommissioning funds. While not taxes, per se, these are funds or credits added to the general public revenue. (**CL-13/13**)

Response: *Section 4.3.12.3 was modified to reflect this additional income stream.*

Comment: Regarding the loss of local tax revenues due to "decommissioning." The utility must be required to notify the local government as far in advance as possible that they will lose taxes. (**CL-20/50**)

Response: *Although the NRC staff agrees with the comment that the licensee should notify the local government as far in advance of the permanent cessation of operation as possible, a requirement to do so is not within the scope of current NRC regulations. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The nuclear industry - the entire industry - (from nuclear plant owners to uranium enrichment plants to users of radiation for medical experiments posing as "therapy" etc) should have a tax levied on it by NRC to be paid into a special account to go towards compensating the communities. An additional tax can be levied on them yearly in the form of a small, flat fee which would help pay for the NRC and the EPA to do quarterly inspections at facilities, in perpetuity. (**CL-20/51**)

Response: *Consideration of a special "tax" to compensate local communities is outside the scope of this Supplement. NRC's core mission is public health and safety and protection of the environment with respect to the use of by-product and special nuclear material. Based on the requirements in 10 CFR Part 171, "Annual Fees for Reactor Licenses and Fuel and Material Licenses," licensees are charged fees to defray the cost of NRC's activities including inspections. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: If decommissioning is to be risk-informed and the impacts of shut down are to be considered, then the cost and environmental and risk impacts of continued operation should also be compared. Maine Yankee shutdown rather than face the costs of steam generator replacement and correction of a host of safety defects, including system-wide cable separation issues, inadequate high energy line break protection, inadequate containment volume, marginal emergency diesel generator capacity, 95 percent of fire seals defective, undersized atmospheric steam dump valves, and on and on. Haddam Neck had similar problems. Just prior to the closure of Yankee Rowe, NRC staff was arguing internally about the sanity of permitting the plant to run one more fuel cycle with a badly embrittled reactor vessel. (**CL-13/6**)

Response: *The licensee's decision to permanently cease operations is outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.1.11 Environmental Justice

Comment: Facilities included in the NRC's review of information during preparation of the draft supplement should be able to use the NRC's conclusions on socioeconomic impacts instead of performing an additional assessment along with a license-amendment request. In Section 4.3.13, the results of the evaluation stated (page 4-56, lines 30-32) that "in the

21 decommissioning case studies observed, it is concluded that facility decommissioning should have a SMALL socioeconomic impact on low-income and minority populations." At the same time, given that populations differ near each reactor site, the staff concluded that environmental justice was a site-specific issue. The NRC should revise the GEIS Supplement to clarify that licensee of a plant that was one of the case studies can refer to the staff's assessment that this was a SMALL impact instead of having to perform a site-specific evaluation and submit a license amendment request. (**CL-01/6**)

Response: *Section 4.3.13 was revised. It cannot be concluded from the general indicators in Table J-5 that any of the specific plants would not have an environmental justice issue; rather, that it would be unlikely. Therefore, a site-specific analysis of environmental justice is necessary*.

Comment: Table J-5 fails to acknowledge that the "white" population is not monolithic. In the case of Three Mile Island a "special white population", i.e. the Amish does not utilize electricity, telecommunications, or mechanical transportation, and lives in close proximity to the plant. (**CL-02/70**)

Response: *Executive Order 12898 on Environmental Justice explicitly identifies three populations: minority, low income, and Native American. The low-income Amish would meet the criteria for consideration under the Presidential Executive Order. The Amish do not otherwise qualify as a special population group. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 4.3.13 Environmental Justice (4.3.13.4), page 4-57, last para., last sentence. This conclusion indicates that licensees will need to provide appropriate information related to environmental justice as part of the environmental portion of the PSDAR, but it does not specify what kind of information is needed or what evaluation criterion should apply. (**CL-04/8**)

Comment: Section 4.3.13, p 4-57, last paragraph - This conclusion indicates that licensees will need to provide appropriate information related to environmental justice as part of the environmental portion of the PSDAR, but it does not specify what kind of information is needed or what evaluation criterion should apply. (**CL-05/17**)

Response: *Section 4.3.13, Environmental Justice, has been revised. The text now states that at the time of the PSDAR submittal, the staff will consider the impacts of environmental justice*. *The supplement does not specify the kind of information received. The staff will address information needs in an update to Regulatory Guide 1.184, Decommissioning of Nuclear Power Reactors, July 2000, and Regulatory Guide 1.185, Standard Format and Content for Post-Shutdown Decommissioning Activities Report, July 2000.*

Comment: (4.3.1 3.4) ENVIRONMENTAL IMPACTS of DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS Environmental Justice - Conclusion: The NRC made the appropriate demarcation and concluded,"...the issue of environmental justice requires a site-specific analysis." (**CL-02/60**)

Response: *The comment agrees with a conclusion from the Supplement but did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.1.12 Cultural Resources

Comment: 4.3.14 Cultural, Historical and Archeological Resources (4.3.14.4), pg. 4-61, last paragraph in section 4.3.14.4, last sentence. This conclusion indicates that the NRC will meet its responsibilities on a site-specific basis during any decommissioning process, but it does not specify how the NRC will meet its responsibilities or what information it will need from licensees. (**CL-04/9**)

Response: *The staff's responsibilities are further described in Section 1.5. The staff is committed to conduct appropriate consultations as needed. This Supplement is not a guidance document or a review document. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Page 4-58, Section 4.3.14. EPA appreciates that, on the whole, decommissioning is not likely to affect previously undisturbed archeological resources potentially located near the facilities, but is concerned about the potential loss of these facilities as a body of engineering work. The Supplement mentions that a few facilities may be eligible for listing on the National Register of Historic Places individually and that those facilities would then be the subject of mitigation based upon consultation with the SHPO. Eventually, however, a substantial number of facilities may be decommissioned. While the facilities themselves may not be fifty years old nor require physical in situ preservation, the processes and engineering they employed may merit inclusion in the Historic American Engineering Record (HAER). The HAER is designed to provide uniform documentation standards so future scholars can look back at our achievements and study them for a multitude of purposes. Rather than make this determination on a case-by-case basis, the NRC may want to consider working with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers to achieve a programmatic agreement or other programmatic treatment for these facilities. (**CL-16/69**)

Response: *Section 4.3.14.2 was modified to include a reference to the Historic American Engineering Record. The NRC staff is considering working with the National Conference of State Historic preservation Officers on the appropriate actions to be taken for the preservation of significant historic or engineering achievement that might be applicable to a specific facility undergoing decommissioning.*

Comment: (4.3.1 4.2) ENVIRONMENTAL IMPACTS of DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS Cultural Resources; Conclusions: The NRC properly concluded,"...the magnitude, (i.e., SMALL, MODERATE, LARGE) of potential impacts will be determined through a site-specific analysis." (**CL-02/61**)

Response: *The comment agrees with a conclusion from the Supplement for activities beyond the operational area. It did not, however, provide new information relative to the Supplement and will not be evaluated further. The comment did not result in a change to the Supplement*.

Comment: One issue that needs to be factored into the equation is what happens when the object of decommissioning has been declared a historical marker, i.e. Three Mile Island-2? (**CL-02/62**)

Response: *Section 4.3.14.2 has been revised to address this comment*.

O.1.13 Aesthetics

Comment: Public opposition to a facility is not an objective criterion for determining the impact of decommissioning on aesthetics. In Section 4.3.15.2, the magnitude of potential impacts on aesthetics is described as proportional to how vigorously the plant is opposed by the host community. Opposition to a facility if frequently expressed by a few vocal individuals or groups who do not necessarily reside in the area, but who are philosophically opposed to the peaceful use of nuclear power. These individuals will continue to speak in opposition against a facility as a matter of principle, even when the facility begins decommissioning and site restoration. Since aesthetic issues are a function of each individual's perception, opposition to the facility should not be used as a criterion for assessing environmental impact. A more objective and justifiable approach would be to apply the other criteria described in this section (the facility's impact on the skyline, noise, land disturbance, traffic) or to consider recreational use, if any, in determining the magnitude of decommissioning impacts. (**CL-01/7**)

Comment: Decommissioning and decontamination tasks affect people's perception, especially when these visibly intrusive and audibly offensive activities are in close proximity to their homes and recreational areas. Peach Bottom and Three Mile Island are located next to prime water

skiing and boating areas on the Susquehanna River. Dozens of summer cabins are located less than 100 yards from TMI on Sholley. Fishing takes place on a daily basis, and Boy Scout badges are available by completing outdoor activities on Three Mile Island. (**CL-02/46**)

Response: *The staff has generically determined that the aesthetic impacts of decommissioning activities are SMALL (Section 4.3.15.4 of the Supplement). The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: The GEIS could have looked more closely at TMI-2, and considered the following "visual scenarios":

On August 5, 1992, GPU "declared an event of potential public interest when the Unit-2 west cooling tower caught fire." The fire lasted for ten minutes. This was the third fire at TMI-2 during the cleanup. The Department of Environmental Resources subsequently instructed GPU to dismantle the wooden paneling and waffling at the base of the cooling towers. The cooling towers now serve as a nesting ground for "fugitive" swallows. (**CL-02/64**)

Response: *The aesthetic issues that were considered in the Supplement on Decommissioning of Nuclear Facilities are of a longer term than would be considered for a small fire of short duration, such as that referred to in the comment. Any visual intrusion (such as dismantlement of buildings or structures) would be temporary and would serve to reduce the aesthetic impact of the site. The use of building structures by nesting birds would not be considered a criterion for determining aesthetic impacts. In addition, Table 1-1 indicates that activities at facilities that have been permanently shut down by a major accident are outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.1.14 Noise

Comment: Section 4.3.16.2 Potential Impacts of Noise from Decommissioning Activities seems to deal with noise as significant only at hearing-loss levels, however the admission is made that noise can be annoying. It can also degrade the general environment, and the aesthetic environment, lead to sleep loss, diminished creativity, and lost sales of goods and property. Where decommissioning schedules require night work, large pneumatic hammers can be heard miles distant from the site. The GEIS should also consider noise from explosive demolition. (**CL-13/16**)

Response: *Section 4.3.16 was revised. This Section discusses levels of noise that are used by government agencies to describe levels of environmental noise. In general, the noise created by decommissioning activities will be similar to noise associated with construction and*

industrial activities. This noise may be heard offsite, but because of the duration of decommissioning activities, it is unlikely that the noise associated with most decommissioning activities, will be of sufficient strength to be environmentally detectable or to destabilize the environment. Some decommissioning activities may involve demolition methods (e.g., pneumatic drills or explosives) that produce significantly higher noise levels. Use of these methods is limited to relatively short periods or isolated events during decommissioning. The environmental effects of these activities may be minimized by properly scheduling the activities, for example, by restricting the use of pneumatic drills and restricting explosives to day shift or by restricting explosive demolition during nesting season.

O.1.15 Transportation/Transportation Dose Impacts

Comment: Now, again, the document here outlines the fact that most—the major impact from radiation would be from low-level radioactive waste transport of the reactor itself, the vessel, to a low-level radioactive waste site. People living all along the waste site, primarily people living in town around that reactor, and all along the transport route along the way to—if it's South Carolina or Nevada or whatever ultimate destination this reactor vessel would have, amounts to many thousands of people, if not hundreds or thousands or millions of people. This level of human carnage cannot and should not be considered as quote, too small to be detectable. (**AT-F/7**)

Response: *Although many people may be potentially exposed to radiation during transport of radioactive materials, transportation regulations limit the dose rate from shipments including the shipment of the reactor vessel and internals, such that the dose to a given individual is very small and would represent a negligible risk to human health. The NRC is committed to preventing detrimental health impacts to the public. NRC has regulations covering the packaging and transport of radioactive material. These regulations are found at 10 CFR Part 71. NRC regulations related to exposure to the public are found at 10 CFR Part 20. In addition, the U.S. Department of Transportation and the U.S. Environmental Protection Agency have regulations to protect the public from health effects associated with radiation. U.S. Department of Transportation regulations related to transportation of radioactive material are found at 49 CFR Part 173, and the Environmental Protection Agency regulations related to radiation are found at 40 CFR Parts 190 through 194. Licensees are required to comply with these regulations during decommissioning. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: VIII. TRANSPORTATION Please refer to (4.3.1 7.4) ENVIRONMENTAL IMPACTS of DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS; Transportation - Conclusions: Please refer to the Enclosure which features articles highlighting problems with transporting spent fuel from TMI to Idaho. (**CL-02/71**)

Comment: (4.3.17.4) ENVIRONMENTAL IMPACTS of DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS; Transportation - Conclusions: Please refer to the Enclosure which features articles highlighting problems with transporting damaged fuel from TMI to Idaho. (**CL-02/65**)

Response: *The comments refer to transporting the TMI-2 core debris resulting form the 1979 accident to the Idaho National Environmental and Engineering Laboratory in Idaho. Section 1.3, "Scope of This Supplement," specifically excludes decommissioning activities following shutdown of a facility after a major accident because they would require site-specific review. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: This section does not seem to give sufficient attention to licensees that are removing all above grade structures from the site and transporting all of the above grade concrete offsite. The volume of concrete for PWR DECON is much too low for this situation by a factor of three or four. Provided below is Maine Yankee's License Termination Plan Revision 2. This waste volume is greater than that assumed in the GEIS. However, even with the increased LLW Volume associated with the removal of all above grade concrete, Maine Yankee's estimates of public dose is still less than that assumed in the draft supplement or the 1988 GEIS because of the extensive use of rail transportation. (**CL-04/10**)

Comment: Section 4.3.17, pg. 4-68 - This section does not seem to give sufficient attention to licensees that are removing all above grade structures from the site and transporting all of the above grade concrete offsite. The volume of concrete for PWR DECON is much too low for this situation by a factor of three or four based recent experience. (**CL-05/19**)

Response: *Additional shipments of uncontaminated waste from a site in response to State or local requirements to remove all above ground structures would not affect the dose estimates to the public because the material is not contaminated. The additional shipments could result in an increase in nonradioactive fatalities due to an increase in trucking or rail accidents. However, the accident rate is so small that even a three or four fold increase in the nonradioactive accident rate would still result in a small impact. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Appendix K Transportation Impacts, pg. K-2, Table K-1 Low-Level Waste Shipment Data for Decommissioning Nuclear Power Facilities {LLW Volume for Maine Yankee is indicated as 5920 cubic meters. The Maine Yankee LTP Rev. 2 states: 31,924 cubic meters for transport and 26,920 for disposal after processing}. (**CL-04/15**)

Response: *Appendix K was changed to include the revised number for LLW volume.*

Comment: Section 4.3.4, pg. 4-14, last paragraph - This statement indicates that in most cases the number of shipments of other materials (nonradioactive materials) will be small compared to those for LLW. This is not necessarily the case for a plant that is removing all above grade facilities. However, this fact should not affect the conclusion that the air quality related environmental impacts for these activities will be small. (**CL-05/13**)

Response: *Section 4.3.4 was revised and the comparison of the amount of contaminated to noncontaminated material was eliminated.*

Comment: Page 4-68, Section 4.3.17.1. This section should address regulations governing the transportation of hazardous and mixed wastes as well as of low-level waste. (**CL-16/70**)

Response: *Section 4.3.17.1 was revised to include a reference to the regulations regarding the transportation of hazardous, mixed waste and radioactive material.*

Comment: Table 4-6 Radiological Impacts of Transporting LLW to Offsite Disposal Facilities is something of a puzzle. Waste volumes and radiological impacts in the table are much greater for the SAFSTOR decommissioning option (45,000 cubic meters/78 person-rem) than for the DECON option (10,000 cubic meters/48 person-rem). Same plant, if you let the radiation dissipate with time, you wind up with more waste. With all due respect, this makes no readily apparent sense. (**CL-13/17**)

Response: *Data on the volume of waste to be shipped and the number of shipments was obtained from licensees undertaking decommissionings. Waste volumes vary considerably from facility to facility and depend on many factors including State and local requirements for the disposal of solid waste. Rather than present the data by decommissioning option the staff revised the text in Section 4.3.17 and Table 4-6 providing potential impacts associated with the shipment of waste from a hypothetical facility. The number of shipments represents a reasonable number of shipments from a facility undergoing decommissioning and is based on existing data and projections provided by licensees. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The Draft shows the awful DOT and NRC regulations for transport and radiation levels allowed page 3-14, these should be changed to be massively lower, this can be done by better shielding and more shielding and the transport of fewer assemblies per cask or fewer rods per cask, and shielding that is thick enough that anti-tank weapons would not penetrate

through to the fuel. Disguising the shipments is not an option due to the size of the casks, therefore far stricter security i.e., military escorts and the sealing off of roads ahead of transports would be a must. (**CL-20/85**)

Comment: The NRC needs to pass rules on these issues, and put out orders for more and better transport casks and vehicles. All shipments of LLW should also fall under these better packaging and shielding standards. If the NRC does not address all these issues as part of decommissioning, future generations (that means YOUR children and grandchildren) are going to die due to NRC's lack of actions today. (**CL-20/86**)

Comment: If you're going to cut apart a plant and pack it and ship it, everybody along the route is exposed to the danger and whatever is left is an exposure to the people who still live there. (**AT-D/6**)

Response: *The NRC is committed to preventing detrimental health impacts to the public. NRC has regulations covering the packaging and transport of radioactive material. These regulations are found at 10 CFR Part 71. NRC regulations related to exposure to the public are found at 10 CFR Part 20. In addition, the U.S. Department of Transportation and the U.S. Environmental Protection Agency have regulations to protect the public from health effects associated with radiation. U.S. Department of Transportation regulations related to transportation of radioactive material are found at 49 CFR Part 173, and the Environmental Protection Agency regulations related to radiation are found at 40 CFR Parts 190 through 194. Licensees are required to comply with these regulations during decommissioning. The regulations are sufficiently protective to assure the safety of the public. The Supplement does not (1) establish or revise regulations, (2) impose requirements, (3) provide relief from requirements, or (4) provide guidance on the decommissioning process. As noted in Chapter 1, the transport of spent fuel is outside the scope of this document. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Georgians for Clean Energy does not promote the idea of shipping nuclear waste all over the country. (**CL-08/21**)

Response: *The comment is general in nature and did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: In addition, many reports of lost shipments of nuclear waste and materials, including fuel rods, in various parts of the country come to light, another hazard of transporting radioactive materials. (**CL-10/4**)

Response: *The only missing fuel rods known to NRC are those at the Millstone Nuclear Plant. Although the location of the two missing fuel rods has not been determined, the staff has concluded that the fuel rods were not lost during transportation. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.1.16 Conclusions

Comment: It is hard to believe that decommissioning activities will have a small impact on water quality or air quality. Construction and demolition sites across Georgia, most of which do not have nuclear contaminants fortunately, contribute to the degradation of our rivers and air. How can an enormous project such as decommissioning an entire nuclear plant, which will involve the handling of nuclear contaminated materials, have a small impact? (**AT-A/34**)

Comment: We are still concerned that the NRC mistakenly poses that decommissioning activities will have a small impact on water quality or air quality. Construction and demolition sites across Georgia, most of which do not have nuclear contaminants, contribute to the degradation of our rivers and air. Georgians for Clean Energy would like to know how the NRC determined that an enormous project such as decommissioning an entire nuclear plant, which will involve the handling of nuclear contaminated materials, would have a SMALL impact or air and water quality. We have already requested a copy of the analysis that was done to make this determination, and since we have not received that analysis yet we continue to urge that the NRC make this available to the general public and us. (**CL-08/18**)

Response: *Decontamination and dismantlement of structures, systems, and components are conducted under highly controlled conditions. Impacts of construction and deconstruction activities are mitigated by best management practices. A discussion of the analysis for all the environmental issues addressed in the Supplement can be found in Chapter 4 (see 4.3.3, "Water Quality," 4.3.4, "Air Quality," and 4.3.8, "Radiological"). The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: We request a copy of the analysis that was done to make this determination. (**AT-A/35**)

Response: *The staff's analysis can be found in the Supplement. A discussion of the analysis for all the environmental issues addressed in the Supplement can be found in Chapter 4 (see 4.3.3, "Water Quality," 4.3.4, "Air Quality," and 4.3.8, "Radiological"). No separate analysis is available. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement*.

Comment: Finally, considering the importance of the Great Lakes to the world and to this region, we think that the impact should be addressed specifically. It is not appropriate to lump them under a generic impact analysis. (**CH-A/10**)

Comment: Considering the importance of the Great Lakes, which represent 20% of the world's freshwater supply, the NRC should prepare a site-specific impact analysis for the 18 nuclear facilities located on the United States side of the Great Lakes. (**CL-11/2**)

Response: *The variability between a commercial nuclear plant located on the Great Lakes versus one located on the ocean, a man-made impoundment, or a river was carefully considered in evaluating the environmental impacts from decommissioning activities. 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 before undertaking any decommissioning activity to determine whether the impacts fall within the generic envelope. If they are outside the bounds of the generic envelope, the licensee must seek approval from the NRC (see Section 1.5) The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: The NRC staff correctly concluded,"...the magnitude, (i.e., SMALL, MODERATE, LARGE) of potential impacts will be determined through a site-specific study …" This flexible barometer should be applied to all of the above mentioned Conclusions. (**CL-02/52**)

Response: *The comment agrees with the staff's conclusions in the GEIS. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement*.

Comment: I am strongly opposed to the attempts to designate many issues as generic instead of site-specific and thus to remove these issues form public review and comment. (**CL-26/1**)

Comment: I also strongly oppose and object to the proposed supplement to the "Generic" E.I.S., and the deliberate and inappropriate exclusion of "site-specific" issues, which should be an imperative part of any analysis, for any form of an E.I.S. Supplement. (**CL-44/2**)

Comment: We are deeply concerned about the NRC's proposal to treat almost all decommissioning issues in a generic EIS rather than in an individual EIS for each plant. As we have seen in many of the licensing proceedings, nuclear plants have a wide variety of dissimilarities, even with other plants owned by the same utility and constructed by the same

companies. These differences are compounded when it comes to decommissioning as the different work plans for each plant may have considerably different impacts on workers onsite and the public offsite. (**CL-40/1**)

Comment: Labeling certain issues "generic" and making them unchallengable is a disservice to those communities and citizens around the country who may be exposed to radioactive waste during the transport and disposal process. (**CL-45/3**)

Response: *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 to determine whether the impacts fall within the generic envelope. If they are outside the bounds of the generic envelope then the licensee must seek approval from the NRC. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Reactor sites are often contaminated to the extent that the location is made undesirable and unsafe for future economic development. As we stated at the public meeting in Atlanta, Georgians for Clean Energy urges that site-specific studies be conducted. For example, the economy of rural Georgia is much different from that of urban New York. How can these impacts be treated generically? Some nuclear power plants are in urban settings where economic impacts could be much different that in rural areas that have little or no other major employer in the region. (**CL-08/26**)

Response: *In evaluating the environmental impacts from decommissioning activities, the staff took into consideration that there are wide varieties of types of plants, for example, size and location of plants, operating conditions, and levels of contamination. Even for those issues that are considered generic, each licensee, before they conduct a decommissioning activity, must determine that they are within the envelope of those environmental impacts. Most impacts were determined to be of SMALL significance, which meant that the impacts were not detectable in the environment or were so minor as not to destabilize or noticeably alter an important attribute of the environment. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Any work on or removal of an intake/outfall structure should trigger site-specific analysis. Indeed, the Draft GEIS explains that the removal of near-shore or in-water structures could result in the establishment of nonindigenous species to the exclusion of native species.

DGEIS, 4-17. It also explains that in some cases wetlands will develop in areas where the construction of the facility alters surface drainage patterns. DGEIS, 4-18. The Draft GEIS suggests that site-specific analysis is appropriate in certain circumstances when the impact is beyond the previously disturbed area and when there is a potential to impact the aquatic environment. DGEIS, 4-19. The above examples of establishment of nonindigenous species or wetlands are exactly the types of impacts that require site-specific analysis. Yet, the site-specific analysis recommended may not cover these examples because they may occur within the previously disturbed area. (**CL-11/7**)

Response: *The comment resulted in a change to the Supplement. Sections 4.3.5 and 4.3.6 were revised. Intake/outfall structures and other SSCs that will be removed after operation is discontinued are not expected to detectably change or destabilize the aquatic environment. As stated in Section 4.3.5.2, impacts associated with removal of the intake and outtake structures are not expected to adversely affect the aquatic environment. The staff concluded that the impact to the aquatic environment for these decommissioning activities is SMALL and of short duration and no further mitigation is required. A site-specific analysis is required if there are disturbances outside of the security fences (protected areas) or the adjoining gravel, the paved or maintained landscape areas, or the intake or discharge structures (see revised Section 4.3.5 and 4.3.6). The issue of non-indigenous species, and creation of wetlands is a valid concern. The assumption in this analysis is that licensees would use best management practices to mitigate for potential impacts to areas adjacent to the intake/discharge structure*.

Comment: The evaluation of each nuclear plant site for radioactive contamination can only be done on a site-specific basis. Data of site contamination from Shoreham with zero years of operating experience cannot be compared with 33 years of operation at Big Rock Point and either of those sites can not be compared with a potential 120 years of Calvert Cliff operation or a potential 180 years of Oconee operation. Stating that, generically, all impacts of radioactive contamination from all sites are similar (P. 4-28), is simply wrong. The important concept underlying the Environmental Impact Statement for decommissioning nuclear plants is the health and safety of the public. The Nuclear Regulatory Commission Staff (NRC) is writing an EIS based on an unsupported assumption. The impacts of a nuclear plant site contaminated with radioactivity can be SMALL or MODERATE or LARGE, but the impacts are site-specific and are not similar nor generic. (**CL-14/1**)

Comment: The evaluation of each nuclear plant site for radioactive contamination can only be done on a site-specific basis. The liquid low-level radioactive waste dump for St. Lucie 1 and 2 is the Atlantic Ocean, whereas the dump for liquid low-level radioactive wastes at Turkey Point 3 and 4 is a closed cooling canal system. The northern end of the canal system, Lake Warren, is the designated dump. If the sediments of Lake Warren and the cooling canals contain levels of radioactivity above those levels that are deemed safe for unrestricted human activity, then Lake Warren is one of the “safety-related structures, systems, and components” that needs to

be decontaminated and dismantled. Lake Warren and the canals are also safety related as they function to mitigate the effects of a design basis accident by collecting and concentrating radioactive spills, dumped liquids, leachates, and site runoff. Other nuclear plants that dump their liquid radioactive wastes into closed waters will also require site-specific evaluations. (**CL-14/2**)

Comment: The evaluation of each nuclear plant site for radioactive contamination can only be done on a site-specific basis. In NUREG-0743, page 4-11, Turkey Point units 3 and 4 averaged 340 curies of radioactive solid waste per year. Twenty two years later NUREG-1437, Supplement 5, page 2-12 states that in 1999, units 3 and 4 shipped solid waste containing 834.3 curies per year, an increase of 145%, yet Turkey Point is only 47% through its potential operational life. Projections concerning the amounts of radioactivity in solid waste, gaseous waste, liquid waste, and site contamination appear to be pure guesswork with a potential operational life of 60 years per unit. For the NRC Staff to conclude that site contamination for all nuclear plant sites is generically similar and that the impacts to the human environment are SMALL, has no basis in fact. The NRC Staff needs to present the reasoning behind its projections to the scientific community for scientific scrutiny. (**CL-14/3**)

Response: *NRC staff recognizes that there is wide variability among nuclear power plants in the quantity and distribution of radioactive contamination at a specific site. One of the primary purposes of decontamination is to reduce residual activity to levels permitting termination of the license. The NRC regulations (CFR 50.82) require a site-specific license termination plan to be submitted by licensees for NRC review and approval. Part of the license termination plan submittal is a detailed site characterization study that characterizes remaining radioactive contamination. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Surface and groundwater quality, p.4-12, should NOT be considered a generic decommissioning issue - climate zone can also create unique problems, terrain likewise, it should be site-specific. (**CL-20/30**)

Response: *Variables such as climate zones were considered in evaluating environmental impacts on groundwater from decommissioning activities. 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 to determine whether the impacts fall within the generic envelope. If they are outside the bounds of the generic envelope, the licensee must seek approval from the NRC. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I support the designation of environmental justice and endangered species issues as site-specific, NOT generic. (**CL-24/3**)

Comment: I support the designation of environmental justice and endangered species issues as site-specific (not generic) and designation of rubblization as site-specific. (**CL-25/6**)

Response: *The comments are supportive of conclusions in the Supplement. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement*.

Comment: …what a sham it all is, and how industry writes it's own ticket. For example, p. xii, [xiii] the Commission has concluded (says the Commission) that impacts that do not exceed permissible levels in the Commission's regulations are considered small. (**CL-20/5**)

Comment: Two site-specific environmental issues were identified, threatened and endangered species and environmental justice, with four other issues listed as quote, conditionally site-specific. That is ludicrous. (**AT-A/21**)

Response: *The comments are not specific, did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: I also utterly oppose making most aspects of decommissioning "generic" rather than site-specific, so they cannot be legally reviewed or challenged at individual sites. (**CL-33/14**)

Comment: I am opposed to the following change to NUREG-0586: In Supplement 1 to the Generic Environmental Impact Statement on Decommissioning: NRC makes most aspects of decommissioning "generic" rather than site-specific, so they cannot be legally reviewed or challenged at individual sites. (**CL-43/8**)

Response: *There are several methods by which the public can formally raise issues related to decommissioning. If the licensee has requested an action requiring a license amendment, then the process for intervening in this action is by requesting or participating in a hearing. The process is set forth in NRC's regulations in 10 CFR Part 2, Rules or Practice of Domestic Licensing Proceedings and Issuance of Orders. If the action of concern does not involve a license amendment, any member of the public may raise potential health and safety issues in a petition to the NRC to take specific enforcement action against a licensed facility. This provision is contained in the NRC's regulations and is often referred to as a 2.206 petition in reference to its location in the regulations (Chapter 2, Section 206 of 10 CFR). Additionally, the*

licensee is required to submit a license termination plan (LTP) for NRC review and approval approximately two years before anticipated license termination. The LTP is submitted as an amendment to the facility license. As such, interested members of the public can request intervention in the amendment process. The request for intervention could lead to an adjudicatory hearing. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: "Site specific" issues are of vital importance, especially at San Onofre Nuclear Generating Station (SONGS) where Unit 1 is currently being decommissioned. It is imperative that NRC evaluate and analyze SONGS Decommissioning on a "site-specific" basis instead of a "Generic" basis, due to the very unique physical site characteristics at SONGS, which other existing nuclear plants in United States do not possess. The distinctions, and physical characteristics which make conditions at SONGS so different and unique are vitally important, and are of utmost importance in any analysis of Decommissioning at SONGS, in order to ensure the level of public health and safety will be assured, and provided without compromise to citizens in communities surrounding SONGS. As SONGS Unit 1 is currently being Decommissioned, the site-specific analysis must include both short-term and long-term effects, and must also analyze effects of offsite contamination, effects of cumulative contamination and exposure, and must provide realistic mitigation measures. A Summary of the "site-specific" physical characteristics and conditions at SONGS, which should justify "site-specific" analysis (as opposed to a Generic E.I.S. Supplement) include the following: - SONGS is located in a highly populated area, with dense populations in both Orange County and San Diego County, where citizens may be exposed to potentially significant offsite effects. - 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. (**CL-44/3**)

Response: *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 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. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: (4.3.10.3) ENVIRONMENTAL IMPACTS of DECOMMISSIONING PERMANENTLY SHUTDOWN NUCLEAR POWER REACTORS; Costs - Conclusions: TMIA and EFMR object to the absence of a Conclusion in this section. (**CL-02/56**)

Response: *As stated in Section 4.3.11, "Cost," an assessment of decommissioning cost is not required by NEPA; however, for completeness the staff included an analysis of decommissioning cost in the Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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 onsite and offsite and are subject to site-specific public hearings. (**CL-48/3**)

Response: *NRC has determined that decommissioning is not a major Federal action. NRC chose to update the 1988 GEIS to further the purposes of NEPA (see Section 1.1, "Purpose and Need for This Supplement"). With the exception of some physical security activities and requirements, all NRC activities associated with decommissioning are conducted in a manner that assures full public disclosure. If the licensee has requested an action requiring a license amendment, then the process for intervening in this action is by requesting or participating in a hearing. The process is set forth in NRC's regulations in 10 CFR Part 2, "Rules or Practice of Domestic Licensing Proceedings and Issuance of Orders." The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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-51/1**)

Response: *NRC takes a serious and specific overview of the decommissioning of each site. The contamination levels of each site are looked at on a site-specific basis by the NRC regional inspectors throughout the decommissioning process and again during the license-termination phase, when the licensee is required to submit a site characterization showing the amount of contamination that remains on the site. See the explanation in revised Section 3.3.3. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I am very strongly opposed to the regulatory changes sought by NRC to further relax decommissioning requirements for nuclear power reactors, as proposed by the 1998 "Generic" E.I.S. on Decommissioning Nuclear Facilities (NUREG-0586), with new "updated" information on nuclear power reactor decommissioning. The Proposed regulatory changes sought by NRC are an insult to the public interest. (**CL-44/1**)

Comment: The only rules changes that I want to see until spent rods are removed to Yucca Mountain are to stricter rules. (**CL-25/2**)

Response: *The Supplement does not (1) establish or revise regulations, (2) impose requirements, (3) provide relief from requirements, or (4) provide guidance on the decommissioning process. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

O.2 NRC Experience, Role and Regulations

O.2.1 NRC Experience with Decommissioning

Comment: We're familiar with some of the decommissioning models that they, NRC, are using. Believe me, Yankee Rowe, Connecticut Yankee and Maine Yankee are not good models for anyone to follow for subsequent decommissioning. (**AT-B/10**)

Response: *Overall decommissioning of Yankee Rowe, Connecticut Yankee, Maine Yankee and Haddam Neck have been conducted safely and without endangering the public. Applicable lessons learned at these and other decommissioned sites are evaluated for subsequent decommissioning. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: And so much of what is in this document depends on the skills and the experience level, which are lacking, because decommissioning is new, just like plutonium fuel is new. NRC does not know what it's doing, the people who are on these reactor sites don't know what

they're doing and so if safety depends on human capability, it does too much by the way in this document, then you know, that's not very reassuring and I'm glad I've got the last word. (**AT-B/22**)

Response: *Since the 1988 GEIS was written, the NRC and the industry have gained over 200 facility-years' worth of additional decommissioning experience. This Supplement addresses new decommissioning technologies and approaches that the 1988 GEIS did not address. Decommissioning work is typically done by experienced contractors in conjunction with staff who have worked at the plants and are very familiar with the facilities. The operations associated with decommissioning are also similar to those performed during routine maintenance or major system replacements, which have been carried out routinely since the plants began operating. In addition, all commercial reactor fuel contains some plutonium at the end of its life cycle, so handling the material is not a new experience. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The GEIS stated, "Based on the number of reactors shut down and the date that they permanently ceased operations, over 200 facility-years' worth of decommissioning experience have accumulated since the 1988 GEIS." (Executive Summary, xi). However, based on this statement, and NRC's inability to grasp the "exponential nature" of radiological decommissioning estimates, it appears that the Commission has had the same experience 200 times. Moreover, the GEIS's sophomoric tone in declaring vast decommissioning experience is similar to the NRC's rhetoric at the time of the 1988 GEIS. On May 26, 1988, in Harrisburg, Pennsylvania, the Commission confidently stated they have "considerable experience [decommissioning] with reactors that have not had a significant accident before the end of their useful lives." (**CL-02/18**)

Response: *The staff believes that there is significant value in 200 facility years' worth of decommissioning experience. The staff is not aware of the concept of the "exponential nature" of radiological decommissioning estimates. The staff endeavored to write the Supplement using plain language that would be understood by a wide audience, despite the highly technical nature of the subject. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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-48/5**)

Response: *This Supplement updates information provided in the 1988 GEIS by considering decommissioning experience gained since 1988 and changes in the U.S. Nuclear Regulatory Commission regulations and, where appropriate, other agency regulations. This Supplement is intended to be used to evaluate environmental impacts for facilities currently undergoing decommissioning and those that will decommission in the future. The four "failure areas" identified in the comment above are addressed in detail during the licensee's site-specific, license termination plan review. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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 United States commercial reactor that operated for any significant length of time. As stated by Mr. Michael Masnik 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." (**CL-48/19**)

Response: *The commenter is correct that not a single license has been terminated under the Commission's 1996 revised regulations. The NRC has, however, terminated three licenses at three facilities: Shoreham, Ft. St. Vrain, and Pathfinder. None of the decommissioning challenges facing licensees of reactors that are currently undergoing decommissioning are substantially different from those experienced by the industry in the past 50 years. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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 work force exposures by 20,000-30,000 person-rem. (**CL-50/12**)

Response: *Trojan, Maine Yankee, and Haddam Neck are a few examples of large-scale reactors that operated for decades and are successfully undergoing decommissioning with worker radiological exposure levels at or below estimates. This is discussed in Table F-1 of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Nor does the NRC have any experience decommissioning nuclear power plants that used plutonium bomb fuel, also known as mixed-oxide fuel (MOX). (**CL-08/9**)

Response: *None of the plants being decommissioned or operated at this time have used MOX fuel. The use of MOX fuel is outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.2.2 NRC Role

Comment: [There is a] discrepancy or debate between the EPA and the NRC standard for site cleanup or license termination and I think that has been an obstacle to public understanding and acceptance of decommissioning. While it's not unexpected, if you gave two different regulators authority over the same activity that they might develop different approaches towards regulating that activity—and in fact that is the case....The reality is, as was noted in a GAO report on the EPA and NRC standard, that the results actually are very similar, of the two approaches, that they both protect public health and safety....In other words, you can leave more radioactivity behind under the EPA standard, by the way it's designed, for light water reactors than you can under the NRC standard. (**AT-E/2**)

Comment: Former Senator John Glenn and the General Accounting Office announced in November 1994, that it is time for the Environmental Protection Agency (EPA) and the NRC to coordinate radiation protection standards which are based on risk-assessment. Eight years later, the agencies have been unable and unwilling to settle their conflicting regulatory standards. As it stands, how would the nuclear industry determine what levels constitute "Greenfield?" Worker exposures remain decidedly liberal. The Commission has already approved a 1-in-285 lifetime cancer, or 100 mR/year and rejected the Staff's recommendation of 3 mR/year of residual radiation. (**CL-02/37**)

Response: *EPA and NRC have elected to establish separate radiation dose criteria for licensee termination. Licensees must meet the NRC criteria for license termination in order for NRC to terminate their reactor license. The NRC staff is working with EPA to resolve any differences in site release criteria. The commenter is correct in that either standard is sufficiently protective to assure public health and safety and protection of the environment after termination of the license. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Within the same paragraph it talks about the non-radiological impacts following license termination that are related to activities performed during decommissioning are considered in this supplement. We are considering in this supplement the non-radiological impacts following license termination, not the radiological impacts after a license termination. This is a radiological device, a nuclear reactor. I cannot understand how that could even be in the executive summary to describe the document which is under review. (**AT-F/1**)

Response: *The radiological consequences occurring after termination of the license were considered in the NRC staff's environmental assessment of the rulemaking that established the criteria for license termination. That assessment is contained in the Environmental Impact Statement found in NUREG-1496, "Final Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities." No environmental assessment of the nonradiological impacts occurring after license termination associated with the decommissioning process for power reactors exists prior to this Supplement. Such impacts are considered in the Supplement for completeness. Hence, post-license nonradiological impacts are considered in this Supplement, and radiation-related consequences are excluded. See Section 1.2, "Process Used to Determine Scope of This Supplement." The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: In this Supplement, the NRC fails to consider whether it has the statutory or regulatory authority to terminate a license that allows for unrestricted site use with residual contamination present on site or to terminate the license with restricted site use in an Agreement State. **(CL-17/5**)

Comment: We request that licensees undergoing or planning decommissioning require a new environmental assessment. (**AT-A/22**)

Comment: The Final GEIS should directly indicate that licensees must obtain all necessary environmental permits prior to beginning the decommissioning process. Omitting this information may imply that the compliance with the requirements of this GEIS is adequate. (**CL-11/15**)

Comment: I am violently opposed to the Nuclear Regulatory Commission's proposal to further relax its decommissioning requirements for nuclear power reactors. This is nothing but a sellout to the nuclear industry--which puts citizens at risk--with no recourse in case of liabilities. This is wrong and dangerous. (**CL-21/1**)

Comment: I am appalled at the NRC's draft of decommissioning requirements for nuclear power reactors. The requirements should be made stricter not more relaxed!!!!!!!!!!!! (**CL-24/1**)

Comment: I strongly object to the proposed changes to the decommissioning rules. We have recently become more sensitive to the rules governing nuclear power plants, even their decommissioning. Since these proposals were begun before September 11, I hope and expect that they will be dead on arrival at the Commission. (**CL-25/1**)

Comment: I urge you to stop any further relaxing of nuclear power reactor decommissioning requirements. (**CL-32/1**)

Comment: In setting requirements for decommissioning United States nuclear power reactors, please bear in mind other things besides the needs of Richard (Enron) Cheney, Halliburton Inc., Brown & Root, and other powers that be. (**CL-33/1**)

Comment: I am opposed to NRC regulations pertaining to Decommissioning which would allow NRC to redefine terms to avoid local, site-specific opportunity by public to question, challenge and prevent unsafe decommissioning decisions. (**CL-44/9**)

Comment: I am opposed to NRC regulations pertaining to Decommissioning which would allow (with this supplement), NRC to legally justify removal of existing opportunities for community involvement and for legal public intervention until after the bulk of decommissioning has been completed, including activities as flushing, cutting, hauling and possible rubblization of reactor. (**CL-44/11**)

Comment: In conclusion, it is with utmost disappointment to again observe with each and every new NRC rulemaking, important components of the public's existing "right to know" and the public's right of active involvement in plant processes, decisions and their methodology, on all aspects of decommissioning activities routinely appears to be further diminished. As proposed, the EIS (Supplement 1) would eliminate all opportunities for public intervention, and public oversight and/or intervention entirely with use of a "generic" EIS. In such cases, the loss of public oversight and intervention on projects with a scope as large as decommissioning at SONGS, such losses may be unparalleled, or fully understood without a site-specific issue analysis. The citizens in local communities surrounding nuclear plants such as SONGS deserve this entitlement, and demand this entitlement. (**CL-44/14**)

Comment: 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-50/6**)

Comment: The relaxation of regulatory control is also evident throughout this draft volume. Decommisioning is the final chapter for the agency in its relationship to a given site and license. (**CL-52/23**)

Comment: We also advocate for sound, systematic policymaking regarding decommissioning. (**AT-A/9**)

Response: *The Supplement does not eliminate opportunities for public intervention. Opportunity to intervene is specified by regulation at 10 CFR Part 2. This Supplement is a Generic Environmental Impact Statement that evaluates impacts from the decommissioning process. It does not (1) establish policy, (2) establish or revise regulations, (3) impose requirements, (4) provide relief from requirements, or (5) provide guidance on the decommissioning process. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: 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, 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-51/24**)

Response: *The comment is not specific and the NRC staff is unable to determine what is surprising or disturbing about the statement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement*.

Comment: GEIS does not consider the give and take between the federal government and the agreement states as to who really has the authority to say that yes, you can entomb a reactor. And from the State of Illinois' perspective, it's not you folks, it's us. Because what you are proposing in this GEIS as an allowable decommissioning option is the disposal of low-level radioactive waste. (**CH-C/10**)

Response: *The NRC is currently considering the development of changes to its regulations pertaining to the entombment option for decommissioning nuclear power plants, as discussed in Section 3.2.3 of the Supplement. This comment relates to a future rulemaking process. It is considered out of scope for this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: This only relates to the nuclear power stations, but in previous NRC federal register notice, they specifically asked whether or not entombment should be allowed for non-reactors as well. In terms of authority as it relates to those federal acts, you know, there's no talk here in this GEIS about consultation with regional compacts. I see your GEIS as not addressing those issues in terms of, again, authority as to who can really say something can happen. (**CH-C/12**)

Response: *The Supplement is limited (see Section 1.1) to considering the environmental impacts of decommissioning reactor facilities that were licensed by the NRC for commercial power production. In October 2001, the Commission published for public comment an Advance Notice of Proposed Rulemaking (ANPR) on entombment options for power reactors (66 FR 32551). The rulemaking process encourages and involves the public and other stakeholders, including states, to make comments and recommendations on the rulemaking effort. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: [In addition to the economic gash in the GEIS portal, this fatally flawed document does not adequately address, acknowledge, account for, or compute a number of significant barriers related to radiological decommissioning; including:] Regulatory Ambiguity. (**CL-02/10**)

Response: *Regulatory ambiguity is outside the scope of this Supplement. The Supplement does not (1) establish policy, (2) establish or revise regulations, (3) impose requirements, (4) provide relief from requirements, or (5) provide guidance on the decommissioning process. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The NRC, once again, has missed an opportunity to constructively participate in solving the nuclear decommissioning riddle. Radiological decommissioning requires interagency cooperation among federal, state, and local shareholders. (**CL-02/15**)

Response: *The process followed by the NRC staff includes opportunity for cooperation on all levels. Public meetings are held during the decommissioning process to which States and local shareholders are invited to comment. In both cases, the NRC publishes notifications of the meetings in the Federal Register and in local media, and the meetings are held in the vicinity of the power plant to encourage local participation. Representatives from other Federal agencies*

and State and local governments are invited to attend. Amendments to the license also require NRC interaction with State officials. Comments and questions may also be submitted in writing to the NRC project manager of the facility. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: What legislation or regulations are in place to compensate communities, such as fisheries, farmers, etc. in cases of releases or accidents during or after decommissioning? (**CL-08/30**)

Comment: If the NRC is confident--as its supplementary changes to NUREG-0586 suggest--that onsite and offsite radioactive contamination during decommissioning and afterward will be minimal, why does it seek to remove all liability from the owner even before the process is complete? (If the NRC is wrong, who will pay?) (**CL-36/2**)

Response: *Licensees are required to maintain insurance coverage as part of the Price-Anderson system in the event of accidents. The level of coverage is commensurate with risk and risk changes as the plant status changes from an operating status to a permanently shutdown status. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: The NRC should be required to expressly approve a post-shutdown decommissioning activities report ("PSDAR") before a licensee initiates decommissioning activities. Otherwise, the licensees have little incentive to perform a rigorous analysis of whether their decommissioning activities fit within the envelope of environmental impacts set forth in the GEIS. Instead, they will likely assume they fit within the guidelines when they prepare their PSDAR. Moreover, a formal approval process should incorporate more opportunity for public input. (**CL-11/14**)

Response: *The primary purpose of the PSDAR is to inform the public and the NRC of the licensee's plans for facility decommissioning. NRC staff conduct an inspection to verify the licensee's basis for concluding that the potential impacts of the proposed decommissioning fall within the bounds of previously issued environmental assessments. The results of that inspection are included in an inspection report, which is available to the public. However, the regulations do not require the NRC to review and approve the PSDARs. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The NRC should reevaluate their legal standing in deciding what radioactive material would remain at a reactor site located in an Agreement State and whether their proposed action would be contrary to the waste management policies of the applicable compact. (**CL-17/12**)

Response: *Low-level waste would not be left behind after license termination. Any radioactive contamination left behind after license termination must meet the License Termination Criteria given in 10 CFR Part 20, Subpart E. Materials that cannot meet these criteria are considered to be low-level waste and would have to be disposed of at a licensed low-level waste facility before the license could be terminated. Therefore, any radioactive material remaining onsite after license termination would not be considered radioactive waste. This Supplement does not (1) establish policy, (2) establish or revise regulations, (3) impose requirements, (4) provide relief from requirements, or (5) provide guidance on the decommissioning process. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The NRC should add a 10% surcharge to any calculated fees for decommissioning to help cover those costs that are unforseen which may arise.[It is absurd that NRC states that "decommissioning activities do not include the maintenance, storage or disposal of spent nuclear fuel, or the removal and disposal of nonradioactive structures and materials beyond that necessary to terminate the NRC license..... they are not considered as a cost impact because the licensees are not required to accumulate funds for these activities." (See p.4-42).The licensees must be held responsible and accountable for everything about and on the site and generated by the site past, present and future.] (**CL-20/44**)

Response: *NRC's role is not to levy taxes on licensees. The NRC's regulations requiring establishment and funding of the Decommissioning Trust Fund (10 CFR 50.75) provides adequate funds necessary for the safe radiological decontamination of the facility. NRC's responsibilities are limited to the radiological decontamination of the facility. The oversight of any onsite surplus structures, after the termination of the license, is clearly outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: And of course they must pay for the "spent" deadly radioactive fuel storage at the sites, whether in pools or casks at ISFSI's and the maintenance and upkeep and security and waste handling and fire prevention and similar. This MUST be addressed as past as part of this decommissioning, it must be incorporated. (**CL-20/45**)

Response: *All issues related to spent fuel maintenance and storage, including costs, are outside the scope of this Supplement (see Section 1.3). Appendix D provides additional*

information on spent fuel. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: NRC seems to have ignored it in this Draft also. This is an important health and also environmental issue that cannot be ignored.[NRC MUST MAKE LICENSEES, CONTRACTORS, SUBCONTRACTORS AND ANYONE WHO WORKS ON DECOMMISSIONING TAKE THE EFFECTS OF RADIOACTIVE "DAUGHTER" PRODUCTS INTO CONSIDERATION AS THEY MAY HAVE VERY DIFFERENT PHYSICAL, CHEMICAL AND RADIOACTIVE PROPERTIES THAN THE RADIOACTIVE "PARENT." THIS MUST BE PART OF DECOMMISSIONING STANDARDS.] (**CL-20/53**)

Response: *Decay products ("daughter" products) are included in the dose assessments. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: HOW ABOUT TESTS BEING RUN BY THE NRC ON THE SITE. HOW ABOUT INTERVIEWS WITH LONG TIME STAFF CONCERNING PAST PROBLEMS THAT COULD BE ENCOUNTERED? (**CL-20/66**)

Response: *Radioactive contamination will be detected during the final radiation survey and will be reduced to the level necessary to allow license termination. NRC staff will either oversee the final radiation survey or conduct independent surveys of the site and environs. The licensees are required by 10 CFR 50.75 to keep records of information during the operating phase of the facility that would be used to identify where any spills or other occurrences involving the spread of contamination would be located. During site characterization, licensees routinely interview former and current staff to uncover any past occurrence of radioactive spills, contaminants, or other events that may affect decommissioning. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: You must not remove license amendment requirements when changing from an operating license to a nuclear materials possession-only license. (**CL-25/10**)

Comment: There should be a requirement for a license amendment when a utility changes from being a nuclear power operating license to a nuclear materials possession-only license. (**CL-39/5**)

Comment: The NRC must retain regulatory control of the entire site. The NRC must require a LICENSE AMENDMENT when an owner is granted a change from an operating license to a materials-possession-only license. (**CL-36/4**)

Response: *The regulations do not allow the reactor licensee to have a "materials-possession-only license." The operating license is maintained until decommissioning is complete and the criteria for license termination are met. The NRC retains regulatory authority over the licensee and site as long as the licensee possesses a license. This Supplement does not establish or revise regulations, impose requirements, provide relief from requirements, or provide guidance on the decommissioning process. The NRC staff believe that these comments are in fact directed at rule changes that occurred in 1996 in which the NRC revised its regulations by the Commission's notice and comment rulemaking process. The public had several opportunities during the rulemaking process to comment on and influence the development of the revised regulations. The basis for the current regulations and a summary of the current regulations are given in Sections 2.1 and 2.2 of the Supplement. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: I am opposed to the following change to NUREG-0586: In Supplement 1 to the Generic Environmental Impact Statement on Decommissioning: 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-43/11**)

Comment: I also utterly oppose removing the requirement for a license amendment when changing from a nuclear power operating license to a nuclear materials possession-only license, thereby eliminating the opportunity for public challenge or adjudicatory processes. (**CL-33/17**)

Comment: 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-48/46**)

Comment: I am opposed to the following proposal(s) in the EIS: 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-26/13**)

Response: *There are two public meetings required by the regulations during the decommissioning process. The first occurs before the major decommissioning activities begin, when the post-shutdown decommissioning activities report is submitted. The second takes place when the licensee submits a license-termination plan, which describes how the site will be returned to a condition that makes radiological controls no longer necessary. In both cases, the NRC will publish notifications of the public meetings in the Federal Resister and in local*

media. The meetings are held in the vicinity of the power plant to encourage local participation. Normally, a license amendment request allows for an opportunity for a request to intervene, which could lead to a hearing. However, the regulations do not allow the reactor licensee to have a materials possession-only license. Therefore, there has not been, nor can there be a license amendment. The comments did not provide new information and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: Decommissioning should not be a final opportunity for the nuclear industry to "take the money and run" - be it to make a profit from inadequate cleanup and monitoring, or to limit losses from costs that had been underestimated for decommissioning throughout the operating lifetime of the nuclear reactor. (**CL-47/8**)

Response: *The missions of the NRC include the protection of public health and safety and protection of the environment. The NRC's regulations ensure that decommissioning of all nuclear reactor facilities will be accomplished in a safe and timely manner and that adequate licensee funds will be available for this purpose (10 CFR 61.61). It has regulations regarding the methods used to reasonably ensure that funds will be available to decommission the facility, but it does not regulate how the funds are to be raised. The particular licensee that holds the license for the facility pays for the decommissioning. Disposition of remaining funds after license termination are outside the scope of this Supplement and NRC's purview. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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. (**CL-48/2**)

Response: *The missions of the NRC include the protection of public health and safety and protection of the environment. The NRC's regulations ensure that decommissioning of all nuclear facilities will be accomplished in a safe and timely manner. The decommissioning regulations published in 1996 supercede those promulgated in 1988. The changes in the regulations were made through an established notice and comment rulemaking process, which allowed for public participation. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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's mission. (**CL-50/5**)

Response: *The mission of the NRC is to regulate the nation's civilian use of by-product, source, and special nuclear materials to ensure adequate protection of public health and safety, to promote the common defense and security, and to protect the environment. To accomplish this mission, the NRC staff must ensure that the decommissioning of all nuclear reactor facilities is accomplished in a safe and timely manner and that adequate licensee funds will be available for this purpose. The NRC has promulgated regulations which must be followed by licensees in the construction, operation, and decommissioning of power reactors. The licenses for power reactors in the United States continue throughout decommissioning, and licensees must comply with the NRC regulations and conditions specified in the license. In 1996, the NRC changed the regulations pertaining to the decommissioning of power reactors. The NRC revised its regulations by the Commission's notice and comment rulemaking process. The public had several opportunities during the rulemaking process to comment on and influence the development of the revised regulations. The NRC did not, as the commenter suggests, set aside NRC requirements, abdicate its responsibility to protect health and safety and the environment, and violated due process, but instead adopted new regulations after the appropriate notice and comment rulemaking. Supplement 1 provides no licensees of power reactors with "broad discretionary powers to regulate themselves." The Supplement does not establish or revise regulations, impose requirements, provide relief from requirements, or provide guidance on the decommissioning process. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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-50/22)**

Response: *The NRC disputes the statement that there have been repeated and serious worker radiation exposures during decommissioning of reactor sites. Worker contamination has been infrequent and individual worker doses have been well within Federal standards. Rather than stationing a resident inspector at the site during the entire decommissioning process, the NRC will provide subject-matter experts to cover specific activities occurring at the site. For example, if the licensee is planning to remove a large component, the NRC might send, at appropriate times, an expert in radiation protection, an expert in heavy lifting and polar cranes, and an expert in packaging radioactive waste. Inspections are performed by the NRC headquarters staff and NRC regional personnel. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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 environment 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? (**CL-51/26**)

Response: *Current regulations require continued surveillance at commercial power reactors after permanent cessation of operation. Such requirements are similar to those at operating plants. The NRC's environmental impact statement, NUREG-1496, "Final Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities," was prepared in support of the rulemaking effort that established the site-release criteria. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement*.

Comment: 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. (**CL-52/4**)

Response: *The missions of the NRC include the protection of public health and safety and protection of the environment. The NRC reviews and inspects the environmental programs to ensure that the requirements related to radioactive releases into the environment are consistent with the regulations. Any remaining onsite radioactive material attributable to plant operation and decommissioning must meet the stringent site-release criteria set forth in 10 CFR Part 20, Subpart E. The staff has determined that any remaining radioactive material after license termination will not pose a threat to public health and safety. The staff's analysis is presented in NUREG-1496, "Final Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities," prepared in support of the rulemaking effort that established the site-release criteria. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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. (**CL-52/5**)

Response: *Nuclear power plants were licensed with the expectation that there would be routine releases of radioactive material to the air and water due to normal operations. The releases are limited to levels that ensure public health and safety. There was never the expectation that this material would be completely removed from the site or surrounding environment prior to license termination. Any radioactive materials remaining onsite that are attributable to plant operation or decommissioning must meet the stringent site release criteria set forth in 10 CFR 50.20, Appendix E. The staff has determined that any remaining radioactive material after license termination will not pose a threat to public health and safety and protection of the environment. The staff's analysis is presented in NUREG-1496, "Final Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities," prepared in support of the rulemaking effort that established the site-release criteria. The licensee is required to submit a license termination plan (LTP) for NRC review and approval approximately two years before anticipated license termination. The LTP is submitted as an amendment to the facility license. As such, interested members of the public can request intervention in the amendment process. The request for intervention could lead to an adjudicatory hearing. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: What happens in the real world is different from your idealistic presentations and your idealistic views of what ought to be happening. And we have such things as the nuclear waste train carrying Yankee Rowe waste coming into the town of Roanoke at 9: 00 on a Friday evening with a street festival going on and you know where the railroad track goes in Roanoke, it comes right into downtown. And all of the highways were blocked off for the festival, there were thousands of people there, having come into the county for this festival. And that train sat there for hours. And if they were really only emitting 10 millirem per hour at six feet—and believe me, people were closer than six feet, a bunch of them ran up to it, although our people who were there tried to stop them and get the crowd to move away from the train. There was nobody there who was doing that function except us. And so, you know, in the real world, what—the decisions that you make come down to people's communities and so I don't need to preach at you—well, yeah, I do. You've got to do better, you've got to make assumptions that are way more conservative than what you're doing. And you've got to assume human failings. (**AT-B/21**)

Response: *The regulations applying to transportation of radioactive materials are provided by the U.S. Department of Transportation (DOT) and cited in 49 CFR Parts 171-177. NRC regulations are cited in 10 CFR Part 71 and discussed in this Supplement in Section 4.3.17. These regulations are adequate to protect public health and safety and take into account public presence in the vicinity of waste shipments. Specific details related to the shipment described above are outside the scope of this Supplement. However, the comment has been forwarded to the appropriate NRC office for follow up. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Now my point in bringing this up is that the NRC cannot continue to allow rulemaking to be driven by exemption as it has been done in the past. It lowers the bar for all subsequent actions every time an exemption is made. (**AT-F/5**)

Response: *The comment is not specific. The granting of exemptions to the NRC regulations is allowed under 10 CFR 50.11. This Supplement does not (1) establish or revise regulations, (2) impose requirements, (3) provide relief from requirements, or (4) provide guidance on the decommissioning process. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The Atomic Energy Act allows states to assume regulatory authority over the disposal of low-level radioactive waste in their state. In an Agreement State it is the Agreement State not the NRC that has the jurisdiction over disposal of low-level radioactive waste at reactor sites. (**CL-17/8**)

Response: *The "Low-Level Radioactive Waste Policy Amendments Act of 1985" gives states the responsibility to dispose of low-level radioactive waste generated within their borders and allows them to form compacts to locate facilities to serve a group of states. The Act provides that the facilities will be regulated by the NRC or by States that have entered into Agreements with the NRC under Section 274 of the Atomic Energy Act. This comment is in reference to entombment, which is the subject of future rulemaking, as discussed in Section 3.2.3. Such future rulemaking on entombment will address the issue as to what role Agreement States will play in the entombment process. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: It always amazes me how the Nuclear Regulatory Commission INVENTS its own laws and standards - its own regulations, its own definitions (such as "decommissioning" see p. xii) (**CL-20/4**)

Response: *The NRC does not pass laws; that is the role of Congress. Under its authorizing legislation, the NRC does develop implementing regulations. The definition of "decommissioning" in the NRC regulations was established by the NRC rulemaking process. The rulemaking process encourages and involves the public and other stakeholders to make comments and recommendations. Information about this process can be found in NRC regulations at 10 CFR 2, Subpart H, and on the NRC Web site at: http://www.nrc.gov. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: HOW ABOUT THE NRC ACTUALLY READING THE INSPECTION REPORTS AND VIOLATIONS ETC. ON THE DOCKETS OF EACH FACILITY AS I SAID EARLIER. (**CL-20/65**)

Response: *The NRC staff writes, reviews and issues the inspection reports and the violations placed on the dockets. All dockets that dealt with the nuclear facility must be reviewed prior to decommissioning to ensure that all previous problems or concerns with the site are taken into account and are addressed properly and thoroughly in decommissioning plans. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: NRC should take its own independent samples of offsite water and sediment and soils, as well as onsite. The NRC must not go by the original Offsite Dose Calculation Manuals as what was allowed in them. (**CL-20/67**)

Response: *During the License Termination phase of reactor decommissioning, the NRC staff conducts its own independent, confirmatory measurements. The NRC may also observe, perform, or collect side-by-side surveys or samples with licensees during the final site survey. The results of these confirmatory surveys are publicly available. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Often the plants DO NOT HAVE TO REPORT THEIR RELEASES UNTIL THOSE RELEASES REACH A CERTAIN LEVEL, IT DEPENDS WHAT THEIR LICENSE STATES. (**CL-20/95**)

Response: *The site is carefully monitored and regulated prior to license termination, and is only released for unrestricted use under carefully monitored conditions (Section 2.2.2). Gaseous effluent and liquid releases from all licensed light water power reactor sites are monitored in accordance with the licensee's Offsite Dose Calculation Manual (ODCM) and releases must meet the requirements in 10 CFR Part 20, Appendix B, Table 2. The licensee is required to submit an effluent release report to the NRC on an annual basis that summarizes*

radioactive releases over the previous 12 months. The procedures and results of the monitoring programs are inspected and reviewed by NRC staff to ensure that all requirements are being met. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: In the name of humanity and morality, you should all leave your jobs now in righteous protest at what you're being asked to do. Walk out. Say goodbye. Go work at Wal-Mart if you have to. But don't recklessly endanger the health of this nation by acquiescing in these evil plans. (**CL-33/6**)

Response: *The comment is not specific to the Supplement, however, the missions of the NRC do include the protection of public health and safety and protection of the environment. The mission of the NRC includes ensuring that decommissioning of all nuclear reactor facilities will be accomplished in a safe and timely manner and that adequate licensee funds will be available for this purpose. Regulations are in place to ensure that the health and well-being of our nation is protected (see 10 CFR Part 20 and NUREG-1496). The health and safety of the public is a top priority and the staff takes this matter very seriously. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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. (**CL-50/1 and CL-50/2**)

Response: *The appellate court did not rule (59 F.3d 284 [1st Cir 1995] that decommissioning was a "major Federal action." In fact, the decommissioning of power reactors was never considered a major Federal action. The appellate court did rule that the NRC had not followed its own regulations [the 1988 revision to the regulations] in allowing the licensee of the Yankee Rowe Nuclear Plant to remove major components before the completion of the review and approval of the Decommissioning Plan. Since then, in 1996, the NRC has revised its regulations by the Commission's notice and comment rulemaking process. The public had several opportunities during the rulemaking process to comment on and influence the development of the revised regulations. By regulation, the NRC staff no longer has to review and approve a decommissioning plan for power reactor decommissioning. Supplement 1 to NUREG-0586 is consistent with the current NRC regulations for decommissioning of power reactors. The purpose and need of this Supplement are to provide an analysis of environmental impacts from decommissioning activities that can be treated generically so that*

many of the decommissioning activities for commercial nuclear power reactors conducted at specific sites will be bounded, to the extent practicable, by this and appropriate previously issued environmental assessments. Supplement 1 is not the proper forum for challenging the NRC regulations on decommissioning. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: What the NRC decides to do concerning decommissioning, is what the following generations of children, women, men, plants, animals, insects, birds, fish - all life, is going to suffer from, and die by. A small bunch of (mainly) men in an office complex in Washington, along with a few cohorts elsewhere, plus an immoral multinational polluting industry (in the business for money only) are seemingly setting a set of criteria that will impact the whole world to no good end and cause great misery. (**CL-20/107**)

Comment: You need to start doing what is safest and in the best interest of the people of the United States and its land, NOT what is going to relieve the nuclear power companies of their responsibility to what they have created and profited off. (**CL-24/6**)

Response: *The comments are not specific and did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: The NRC has a statuatory obligation to do a better job. (**CL-52/24**)

Comment: Because of deregulation, the United States 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. (**CL-51/20**)

Comment: I fail to see any moral difference between terrorists who fly planes into buildings, and bureaucrats who are perfectly willing to expose whole populations to additional dangers from radiation. (**CL-33/5**)

Comment: The present openness is most welcome, and a nice change, but past history hangs over NRC like a dark cloud. (**CL-10/2**)

Comment: The most formidable governmental regulations facing nuclear related industries is conflicting regulatory authority. Uncertainty is the enemy of the electric industry. This is most clearly evident in the decontamination and decommissioning of nuclear power plants. (**CL-02/38**)

Comment: The Nuclear Regulatory Commission can no longer evade its responsibilities and duties without considering the practical consequences, financial limitations, and political realities. (**CL-02/11**)

Comment: 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. (**CL-51/28**)

Response: *The missions of the NRC include the protection of public health and safety and protection of the environment. The NRC staff takes this responsibility seriously. The reputations in place and the actions and activities of the NRC staff provide adequate oversight of the industry to assure public health and safety. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

O.2.3 Decommissioning Duration and Options

O.2.3.1 Decommissioning Duration

Comment: On page 1-6 of the document, it references that, there's literature saying that materials can be stored safely for 30 years, yet safe store can go on for 60 years. And I don't understand how you can reconcile that. There may be a way but I just don't understand it from the document. There may be a way that you can make that more clear in the document. (**CH-A/12**)

Response: *The reference on page 1-6 of the draft Supplement refers to spent fuel storage and the second reference is related to permissible time the facility has to complete decommissioning. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I understand that spent fuel is dealt with in a different GEIS. But I think I raised this concern during the scoping. The 60-year period presumes a lot of things. (**SF-B/4**)

Response: *Although long-term storage of spent fuel is not within the scope of the Supplement, as described in Section 1.3, the staff is committed to ensuring that both spent fuel and low-level wastes are safely stored to protect the public. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: What was the technical basis for establishing a 60-year period? And is it still appropriate? (**CH-A/14**)

Response: *The basis was that major dose reduction via decay of cobalt-60 would occur in approximately 30 years, and major contaminant volume reduction would occur in approximately 50 years; also, detailed engineering considerations estimated that prompt dismantlement could require as much as 6 years to complete. Thus, an estimate of 50 years for significant contaminant waste reduction was used. Adding the time needed for dismantlement of 5-6 years and rounding up resulted in the 60-year time period for permissible storage delay given in the final rule. The staff currently finds the 60-year time period to be appropriate. The 60-year time includes the time required for termination of license by the NRC. A licensee of a power reactor has 60 years to complete decommissioning. Additionally, the regulations allow for completion of decommissioning beyond 60 years, but only by approval of the Commission when necessary to protect the public health and safety. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Sixty years is an arbitrary and inappropriate time period to allow a nuclear reactor to remain in SAFSTOR, where the contaminated facility will largely remain intact and spent fuel may remain onsite. According to NRC staff, no technical basis exists for this 60-year timeframe. See Transcript, December 6, 2001 Public Meeting, Drake Hotel, Chicago. First, if a company waits too long to decommission, it will lose its institutional memory and familiarity with the facility's structures because current workers may be deceased or otherwise unavailable. Such intricate knowledge of the facility is critical to avoiding radioactive releases during decommissioning. (**CL-11/9**)

Response: *There is a basis for the 60-year period for decommissioning. The consideration was that major dose reduction via decay of cobalt-60 would occur in approximately 30 years, and major radioactive contaminant volume reduction would occur in approximately 50 years. Thus, an estimate of 50 years for significant contaminant waste reduction and dose reduction was used. Adding the time needed for dismantlement of 5-6 years and rounding up resulted in the 60-year time period. The staff currently finds the 60-year time period to be appropriate. The 60-year period also includes the time required for termination of license by the NRC. The possible shortage of personnel familiar with the facility at the time of deferred dismantlement and decontamination is recognized as a disadvantage of SAFSTOR. There are offsetting advantages, such as reduction of worker dose and public exposure compared with the DECON option. Sections 3.2.1, DECON, and 3.2.2, SAFSTOR, explain the advantages and disadvantages of each option. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.2.3.2 Decommissioning Options

Comment: The Supplement incorrectly addresses the impact on the SAFSTOR scenario due to the time gap between cessation of operations and decommissioning activities. The Supplement expects the time gap will result in a shortage of personnel familiar with the facility when decommissioning activities commence. Our own experiences have shown us that both DECON and SAFSTOR decommissioning scenarios can be conducted in a safe and efficient manner. Regarding the familiarity of the facility at the end of licensed life, whether the plant begins decommissioning immediately or waits for some defined period - the most difficult aspect is retrieving records from the earliest days of operation. Recently retired facilities have taken the appropriate step of preparing a site historical assessment - documenting the operating years of the facility. This historical assessment will guide the decommissioning process whether it begins immediately upon retirement or 50 years later. (**CL-31/5**)

Response: *The text in the Supplement was meant to be general in nature with regard to the possible advantages and disadvantages of the various decommissioning options. There are always exceptions to such general comments. The staff does not mean to imply that DECON is preferable to SAFSTOR or vice versa. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: In conclusion, as we have stated earlier, the methods used to decommission a nuclear plant will affect not only the communities of today but also the livelihood of future generations. (**AT-A/42**)

Response: *The staff agrees with the comment. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: If life cycle plants has the decommissioning activities out as far as 60 years, what's the scenario that might involve? (**BO-A/1**)

Response: *The scenario in which decommissioning activities extend for a period of up to 60 years is described in Section 3.2.2, SAFSTOR, of this Supplement. In the SAFSTOR option, there is an initial period of activity to prepare for storage, a storage period, and a period of final decommissioning activities in which the facility and systems are decontaminated and dismantled. All three periods must be completed within 60 years. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: But, at least, in your experience, have you seen facilities--You haven't seen facilities where the only facility that's been operating has been shut down, and then they're just sitting there waiting. (**BO-A/2**)

Response: *Table 3-2 lists the facilities that have permanently ceased operations. La Crosse is a one-unit plant in SAFSTOR. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: It [SAFSTOR] seems like it's taking a substantial land mass out of sort of useful life for a long period of time. (**BO-A/3)**

Response: *The SAFSTOR option involves continued commitment of land for a significantly longer period than the DECON option. This is one of the disadvantages of the SAFSTOR option. Most of the plants selecting the SAFSTOR option are at multi-unit facilities where one of the facilities has permanently ceased operation and the commitment of land would continue as a result of the other operating unit(s). The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: First, we don't believe you should allow nuclear reactor owners under safe store to store waste for 60 more years after operations cease. We think the document should narrow the parameters. Because we have many concerns, some of which relate to institutional memory. (**CH-A/5)**

Response: *NRC regulations 10 CFR 50.82 require that decommissioning be completed within 60 years of permanent cessation of operations. Amendment of NRC regulations is outside the scope of this Supplement. NRC rulemaking procedures are found at 10 CFR Part 2. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Allowing the licensee to choose the decommissioning method is not recommended, due to the usual pressures to cut costs despite the obvious dangers. (**CL-10/10**)

Comment: UNDER NO CIRCUMSTANCES SHOULD A FACILITY BE ALLOWED THE OPTION OF CHOOSING THE METHOD OF DECOMMISSIONING IT WANTS, AS IS THE CURRENT CASE. (**CL-20/61**)

Response: *The licensee owns the facility and is allowed to choose the process for decommissioning consistent with NRC regulations. The comments did not provide new*

information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: Combinations of DECON and SAFSTOR would be the best, however, under no circumstances should SAFSTOR continue past five years. That would enable workers familiar with the plant to be still available, but at the same time allow for the decay of some of the radioactive contaminants which have shorter full hazardous radioactive lives prior to removal, thus lowering worker exposure etc. (**CL-20/62**)

Response: *The licensee owns the facility and is allowed to choose the process for decommissioning consistent with NRC regulations. NRC allows SAFSTOR because, in spite of some disadvantages, there are offsetting advantages, such as reduced worker dose and public exposure, compared with the DECON option. Under the current regulations, the licensee is permitted to begin active dismantlement after a 5-year storage period or continue to maintain the facility in SAFSTOR provided that decommissioning is completed within the 60-year period allowed by the regulations. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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. (**CL-48/28**)

Response: *Entombment and partial site release are the focus of current NRC rulemaking that would provide further guidance on these methods of decommissioning a nuclear power facility. The staff stated in Section 1.3 that radiological impacts associated with Rubblization would receive a site-specific environmental assessment during the staff's review of the license termination plan. Additionally, providing alternative decommissioning options to licensees does not necessarily introduce uncertainty into the estimate of the cost of decommissioning. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: And we were tacitly or directly promised a 50-year cooling period for the nuclear power plants. I can go back and drag out some of those documents if you want to see that. And two-year cooling periods for Yankee Rowe before it's chopped up and decommissioned is unthinkable. You know, we will not approve of and we will fight diligently in every opportunity and arena we have a hot, quick and dirty decommissioning which violates the promise of future—safety to future generations. (**AT-B/16**)

Response: *NRC regulations in 10 CFR 50.82 that cover decommissioning do not require a "cooling period." Amendment of NRC regulations is outside the scope of this Supplement. NRC rulemaking procedures are found at 10 CFR Part 2. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Any of the methods proposed would require long time maintenance and monitoring, but keeping it in its original location would mean that the community would be familiar with it, it would be visible, and the community would be likely to care about its monitoring. In fact, involving the community in the whole process could utilize their experience and encourage their help. (**CL-10/9**)

Comment: The lowest possibility of releasing contamination into the environment requires entombing radioactive structures, systems and components in a long-lived substance, maintaining and monitoring it, until the radioactive level is reduced to a safe level, which would take many years. (**CL-10/7**)

Comment: Although the alternatives [decommissioning options] proposed for decommissioning nuclear facilities all sound reasonable, the proposal in general has one major problem, which is the NRC's lack of credibility due to past errors and cover-ups. (**CL-10/1**)

Response: *The comments are not specific and did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

O.2.3.3 Entombment

Comment: One of the things that your GEIS did not consider is termination of a license under entombment. (**CH-C/7**)

Response: *The purpose of this Supplement is to evaluate the impacts associated with the process of decommissioning. Issues related to the regulatory process for terminating the license for entombment are outside the scope of this Supplement. As stated in Section 3.2.3,*

the NRC issued an Advance Notice of Proposed Rulemaking (ANPR) (66 FR 52551, dated October 16, 2001) to solicit early public comment in developing changes to its regulations to permit entombment as an option in decommissioning nuclear power plants. As stated in Section 3.2.3 for the ENTOMB1 option, "The Staff makes no assumptions as to when the license would be terminated and whether it would be terminated under the restricted or unrestricted provisions of 10 CFR Part 20, Subpart E. These decisions would likely be addressed as part of the staff's rulemaking effort related to entombment explained above." Although absent in draft Supplement 1, similar language has been added to the description of the ENTOMB2 entombment option. For this reason, the comment resulted in a change to the Supplement.

Comment: And you said that for that restricted release use is going to need analysis on a site by site basis. Then why are you dealing with entombment in a generic EIS? (**CH-C/15**)

Response: *As stated in Section 1.3, the Supplement considers the environmental impact of those activities conducted during decommissioning. The Supplement does evaluate nonradiological impacts to the environment that occur after the license is terminated but only those resulting from activities that were conducted during decommissioning. Some of those impacts can be assessed generically and have been in this Supplement. The Supplement does not consider the radiological impacts that might occur after the license is terminated. Nor does the Supplement consider nonradiological impacts due to activities conducted after the license is terminated. If a licensee pursues the entombment option, there will be activities necessary to ready the facility for the entombment. The impact, during decommissioning and after, of some of those activities are considered generic by the Supplement. The site-specific assessment required by a proposed restricted release would naturally focus on radiological issues. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Section 3.2, p. 3-20 - defines two ENTOMB options developed specifically to envelope a wide range of potential options by describing two possible extreme cases of entombment. These extremes are useful in bounding an analysis, however they may be inappropriate for analysis to support a potential rulemaking for this option. (**CL-05/10**)

Response: *The staff agrees with the comment. We state in Section 3.2.3, "Any rulemaking effort on the part of the NRC staff will require an environmental assessment (10 CFR 51.21)." We say further, "The staff is making the assumption that environmental issues arising from any rulemaking effort will be addressed in the rulemaking and its supporting environmental documentation." The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The Supplement (page 3-16) indicates that ENTOMB is still considered a viable option for decommissioning. Section 3.2.3 notes that the Supplement includes a bounding analysis, but that any environmental issues arising from a subsequent rulemaking on ENTOMB will be addressed in that rulemaking and its supporting environmental documentation. EPA urges NRC to consider in any subsequent analysis of ENTOMB the issue of residual dose and the potential need for state approval of any de facto disposal. (**CL-16/10**)

Response: *NRC published an Advance Notice of Proposed Rulemaking on October 16, 2001 (66 FR 52551) seeking stakeholder input on three proposed regulatory options and whether entombment was a viable decommissioning alternative. The ANPR comment period closed on December 31, 2001. NRC received 19 comments from: six States; eight licensees; the Nuclear Energy Institute (NEI); the U.S. Environmental Protection Agency (EPA); the Conference of Radiation Control Program Director E-24 Committee on Decommissioning and Decontamination (CRCPD E-24 Committee); the Southeast Compact Commission (SCC); and a private individual.*

Generally, the eight utilities and NEI stated that they would like to have entombment available as a decommissioning option; however, none unequivocally committed to using entombment in their decommissioning process. Some Agreement State commenters endorsed the Part 20 dose limits, with one State adding that a time limit to reach the dose rates should be considered. Although one State advocated extending the decommissioning period beyond 60 years, most were silent on the decommissioning regulations in Part 50. The staff notes that there was no consensus on a preferred option. NRC staff has considered the comments received and has prepared a paper transmitting the Staff's recommendations to the Commission. As of the date of this publication the Commission has not acted on the staff's recommendations.

Since the development of a proposed rule on entombment is clearly outside the scope of this Supplement, the comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: Page 3-24 mentions the containment ceiling being lowered to the top of the pressurizer for a PWR under the ENTOMB2 option. Appendix E, page 9 lists this action as optional. This action needs to clearly be listed as optional on pages 3-24, 3-25, and 3-31. SCE&G believes this action should be optional as listed in Appendix E due to the extreme effort to lower the ceiling of a massive building such as the reactor building and yet maintain it intact for entombment purposes. (**CL-19/1**)

Response: *The scenarios for entombment are non-prescriptive and were developed to reasonably envelop a typical entombment. The staff developed the scenarios based on the*

limited past United States experience in entombing reactors and experience from other countries. The comment did not provide new information relevant to this Supplement and will not be evaluated further. However, the Supplement was revised for clarification.

Comment: Also, on page 3-24 “low density concrete grout” is mentioned. Grout is not lightweight, but concrete can make use of lightweight large aggregate to lower the weight per volume. Therefore, SCE&G recommends concrete be used in place of grout on pages 3-24, 3-25, 3-31, and 3-33. (**CL-19/2**)

Response: *Chapter 3 was revised and the term “concrete” was used in place of “grout”.*

Comment: The Supplement properly addresses the ENTOMB decommissioning option. Issues related to the ENTOMB option after the facility has terminated its NRC license and entered the entombment period are outside the scope of this GEIS. Power reactor entombment is not construction of a LLW disposal facility - it is properly classified as a decommissioning scenario, which creates an assured storage facility for radioactive material to decay in place, until it no longer represents a hazard considering future public use of the site. The clear distinction between entombment as a decommissioning scenario and a LLW disposal facility may be found in the ability to reuse the site in the future for other purposes. Regulation governing LLW-disposal facilities does not contemplate future use of the site, restricted or unrestricted. Future use of an entombed site will be dictated by the dose-based performance criteria found in 10 CFR Part 20, Subpart E. (**CL-31/3**)

Response: *The comment is supportive of the discussion of entombment as a decommissioning option. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: While the Supplement addresses two entombment options stating they have prepared as extreme cases to envelop a wide range of potential options, there should be additional language early in Section 3.2.3 ENTOMB clarifying that utilities are likely to develop entombment scenarios based upon their site-specific needs. (**CL-31/18**)

Response: *Section 3.2.3 was revised to include a statement that licensees will adopt the entombment option to fit their specific site requirements*.

Comment: So I’m really interested in this entombment rule making process and I promise you that we will have a lot to say about that because that really is the only option for what to do with these plants. (**AT-B/17**)

Response: *The comment is on the NRC entombment rulemaking effort, which is outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: You need to keep it where it is and somehow seal it off, and then you have to monitor it for years and years and years because none of this goes away. (**AT-D/9**)

Response: *The staff makes the assumption for the purposes of developing an entombment scenario for this Supplement that there "would be a monitoring program period as long as 20 to 30 years to demonstrate that there was isolation of the contamination and adequate permanence of the structure" (see Section 3.2.3). If isolation were not adequately demonstrated in this amount of time, it is likely that mitigation would be required along with further monitoring. This comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I'm real happy to see entombment is coming up and getting more discussion because it is the area that we look to, the avenue that we think will yield the most protection for the public ultimately. (**AT-G/1**)

Response: *The comment is supportive of the discussion of entombment as a decommissioning option. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The thing that really jumped up and disturbed me was about the middle of the paragraph. It says, "All decommissioning activities were assumed to determine their potential for radiation exposures that may result in health effects to workers and the public. This section considers the impacts to workers and the public during decommissioning activities performed up to the time of the termination of the license. And potential radiological impacts following license termination are not considered in this supplement…I don't think that you can remove the long-term radiological impacts of using entombment as a decommissioning method from this environmental impact… but if you're going to pursue entombment as a disposal option which according to your slide in the 1988 draft or '88 GEIS was assumed not to be a viable alternative, you really need to look beyond license termination into the long-term radiological impacts because that stuff is going to be there forever until it decays away. (**CH-C/1**)

Comment: As mentioned at the December 6, 2001 public meeting in Chicago, the scope of the Draft Supplement is inadequate in its evaluation of long-term radiological exposure to the public for the reactor entombment decommissioning method. (**CL-17/1**)

Response: *For license termination to occur, the radiological impacts following license termination must meet the criteria defined in 10 CFR Part 20, Subpart E. These criteria would apply to license termination for any of the decommissioning options including entombment. If the entombment process used did not allow the site to meet the license termination criteria, then the license would not be terminated. Current criteria for license termination is given in 10 CFR Part 20, Subpart E. These criteria were established by a 1997 rulemaking. The staff evaluated the impacts of the site-release criteria in NUREG-1496, "Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities." As stated in Table 1-1, the radiological impacts following license termination are outside the scope of this Supplement. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: And depending upon what system structures and components you put into the containment building, that time period of potential radiological hazard may be relatively short, it could be really long. (**CH-C/2**)

Response: *The staff agrees with the comment. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: If you take a look at the date of this NUREG-1496 being 1997, that was also in a time frame when entombment really wasn't being talked about. NRC held their first meeting on entombment as a viable reactor decommissioning option in December of 1999. So I doubt that those long-term radiological impacts are assessed in this EIS, referenced in NUREG-1496. (**CH-C/4**)

Response: *NUREG-1496, "Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities," does not specifically discuss entombment of power reactors. It does, however, assess the impact of specific radiological criteria and long-term radiological impacts that may result following termination of the license of a nuclear facility. The analysis clearly envelopes the entombment concept, and the long-term impacts would be those identified in NUREG-1496. Furthermore, if the proposed entombment was not within the bounds of the 1997 assessment, then the assessment would not be applicable to whatever option or scenario the licensee chose. Additionally, the radiological impacts following license termination are outside the scope of this Supplement, as indicated in Table 1-1. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Entombment is basically the isolation of contaminated reactor stuff from the environment. Now, if you, and that's just a rough estimate on a definition. But if you look at definitions of disposal, it's going to be pretty similar. (**CH-C/8**)

Comment: By definition entombment is disposal of low-level radioactive waste in the containment structure. (**CL-17/7**)

Response: *As stated by one of the commenters on the draft Supplement (CL31/3), power reactor entombment is not the same as construction of a LLW disposal facility. The LLW disposal facility is designed and constructed to accept waste from other locations and store it in a manner that allows it to decay in place until it no longer represents a hazard. A reactor entombment is designed to isolate waste generated at that location in a manner that protects public health and safety and the environment. The clear distinction between entombment as a decommissioning scenario and a LLW disposal facility may be found in the ability to reuse the site in the future for other purposes. Regulation governing LLW disposal facilities does not contemplate future use of the site, restricted or unrestricted. Future use of an entombed site will be dictated by the dose-based performance criteria found in 10 CFR Part 20, Subpart E and may allow future reuse of the site. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: The one thing this GEIS did not consider is regulatory authority as to whether or not the NRC can license the disposal or in essence allow entombment as a reactor decommissioning option in agreement states, because in agreement states, it's those states such as Illinois that has licensing authority over the disposal of low-level radioactive waste in the state. (**CH-C/9**)

Comment: Entombment could potentially, in the State of Illinois, create seven disposal facilities. Your GEIS does not address the potential conflict with other state or other federal statutes as it relates to authority of the disposal of low-level radioactive waste. That being the Federal low-level radioactive waste policy act of 1980 as amended in 1985 which specifically gave states the responsibility for providing for the disposal of low-level radioactive waste generated within their states. (**CH-C/11**)

Response: *The NRC staff agrees that the Supplement does not evaluate the regulatory implications of an entombment of a power reactor within the borders of an Agreement State. Such a discussion is clearly outside the scope of this Supplement. As stated in Section 3.2.3, the NRC is considering the development of changes to its regulations pertaining to the entombment option for decommissioning nuclear power plants. The public and the Agreement States will have an opportunity to participate in the development of the regulations in the rulemaking process. Since the development of a proposed rule on entombment is also*

clearly outside the scope of this Supplement, the comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: So, what you're saying is you're going to set something in motion, i.e. entombment in motion, you're going to allow a nuclear plant operator to take all the contaminated system structures and components, put them in a containment building as part of this GEIS and you're not concerned at what's going to happen at license termination? Because that's in essence what you just said. I mean, in terms of radiological exposure. (**CH-C/14**)

Response: *The Supplement does not set anything in motion, nor does it authorize or allow entombment of a power reactor. For an entombment of a power reactor to occur, the licensee either has to obtain an exemption from certain regulations or the NRC, through the rulemaking process, has to change the regulations. The Supplement is focused on evaluating the impacts from activities associated with the decommissioning process. One of the decommissioning options that historically has been identified is entombment. This Supplement evaluated the environmental impacts from the preparation activities for two entombment scenarios. Radiological criteria for any license termination (even those granted on a case-by-case basis) are given in 10 CFR Part 20, Subpart E. The license cannot be terminated without compliance with the site-release criteria. The staff has evaluated the radiological impacts of meeting these criteria at the time of, and subsequent to, license termination in NUREG-1496, "Generic Environmental Impact statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities." Both the future NRC rulemaking effort for entombment and the impacts associated with the NRC's site-release criteria are outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Doesn't that set the utility up for a great risk exposure to go down the path of entombment and find out that 40, 50 years, whatever time frame they elect when they try to terminate their license of someone saying, no, you can't do that? I mean, because of the radiological impacts? (**CH-C/16**)

Response: *For license termination to occur, the radiological impacts following license termination must meet the criteria defined in 10 CFR Part 20, Subpart E. If the criteria were met, then the license can be terminated. The staff cannot generically speculate on the potential for denying license termination after 40 to 50 years of entombment. As stated in Table 1-1, the radiological impacts following license termination are outside the scope of this Supplement. The comment is outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: On October 16, 2001, the NRC published an advance notice of proposed rulemaking regarding entombment options for power reactors. Even with that notice and this draft Supplement, the NRC has yet to evaluate the long-term environmental impacts associated with entombment of power reactors. (**CL-17/4**)

Comment: So, what I see happening here is you're setting yourself up with entombment…you're not looking at the long-term radiological impacts to the residents of the State of Illinois or the residents of Connecticut or whatever state it may be. (**CH-C/5**)

Response: *For license termination to occur, the radiological impacts following license termination must meet the criteria defined in 10 CFR Part 20, Subpart E. The long-term impacts would be those identified in NUREG-1496, "Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities." As stated in Table 1-1, the radiological impacts following license termination are outside the scope of this Supplement. The comments are out of the scope of this Supplement. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: NO WAY SHOULD ENTOMB I OR ENTOMB II BE ALLOWED. (**CL-20/63**)

Comment: One of the important and obvious things to be said about decommissioning nuclear power plants is that it is expensive, potentially dangerous and nearly unprecedented. We appreciate that entombment is now being considered. (**CL-42/1**)

Response: *The comments are matters of opinion and are general in nature. The comments do not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: I am opposed to the following proposal(s) in the EIS: NRC opens up two "entombment" options. (**CL-26/4**)

Comment: I am opposed to the following change to NUREG-0586: In Supplement 1 to the Generic Environmental Impact Statement on Decommissioning: NRC opens up two "entombment" options. (**CL-43/3**)

Comment: NRC opens up two "entombment" options. (**CL-48/38**)

Response: *As stated in Section 3.2.3, the staff evaluated impacts associated with preparing the facility for a hypothetical entombment. Two scenarios were developed. Consideration of impacts in a Supplement to a GEIS resulting from two hypothetical scenarios does not in any way allow for an entombment of a power reactor. For an entombment of a power reactor to*

occur, the licensee either has to obtain an exemption from certain regulations or the NRC, through the rulemaking process, has to change the regulations. The Commission has independently issued an advance notice of proposed rulemaking on entombment options for power reactors (66 FR 32551), as discussed in Section 3.2.3, to invite early input from stakeholders on issues related to entombment. Based on comments on the proposed rulemaking, the staff may propose changes to the regulations. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: Just one example is letting the concrete reactors erode naturally which is extremely unsafe. (**CL-32/2**)

Response: *The entombed power reactor would likely employ numerous engineered barriers to contain any radiological contamination. Radioactive contamination inside the entombed structures would be fixed so that migration of material in the engineered structure would be minimized or eliminated. Additionally, there would likely be a monitoring program in place for some period of time to ensure that the contamination was isolated from the environment. Finally, there would have to be institutional controls to ensure that the structure and monitoring were secure over an extended period of time. Simply abandoning the site and allowing the concrete of the containment to erode away was never considered an option for entombment. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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:

"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-48/32**)

Response: *The staff understands that additional costs may be incurred if decommissioning methods do not adequately remove the radiological hazard. The cost comparison does not include costs associated with the failure of any of the engineered barriers and a release of radioactive contamination to the environment. However, the cost analyses are performed assuming that the licensee appropriately decontaminates or adequately isolates the radioactive*

contaminants during the entombment process. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: This method would be the most likely to reduce exposure to workers and the public, and would not require workers familiar with the original construction. (**CL-10/8**)

Response: *The staff agrees that the most likely scenarios for an entombment of a power reactor would reduce radiological exposure to both the work force and the public when compared to the immediate DECON decommissioning option. Although none of the options "require" workers familiar with the original construction, it is the staff's position that all three options would benefit from the experience and knowledge of workers familiar with the plant design, construction, and operation. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Entombment [has been] taken to an aesthetic level. You've got like contaminated soil, maybe even mill tailings if we could figure out how to get them there—fill everything in and just build out soil barriers, barriers, barriers, make it a pyramid, make it vast, make it huge—sell tickets for the first few generations. And I even think possibly the geometric—the geology of this might even be an earthquake that just keeps falling in on itself. You hit it with something, it just keeps falling in on itself. Now there's a question of subterranean—what's the subterranean issue here and, you know, forget practicality, forget cost, which I would like to do that, I mean I really would not like cost to be much of a factor here. We need to do what it takes. So probably you need some subterranean things, definitely a site-specific idea I've got here. And then let's plant spider worts around it because everybody knows that spider worts are shown to—they have these little blue hairs, maybe they're called stamens or something that's the pollinator part of it, and they are like these incredible plants that—there's this perfect correlation for the amount of radiation exposure it gets. These little things turn pink, these little hairs turn pink. And it's been like studied and it's a good correlator. So we need to plant the spider worts, which is basically a weed and then we need to teach the people how to analyze. You know, we can't forget the technology of microscope. That's pretty easy—lenses. And the site-specific advisory board and actually, you know, this sounds kind of corny, but I'm your artist speaker tonight—the nuclear priesthood has been talked about seriously. Religion is probably a good model for long memory. (**AT-G/5**)

Response: *The issue of marking the entombed facility so that it is recognized in the future has been discussed by scientists for years. The comment is outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

0.2.3.4 Rubblization

Comment: Because of the potential presence of highly radioactive "hot particles" in unexpected areas through the plant, particularly in the reactor containment building, the rubblized materials proposed for on-site disposal could be more than just "slightly" contaminated. Contrary to the Draft Supplement, at page I-7, for example, I think it is important to note that the rubblization of concrete could have radiological impacts as well as non-radiological ones. (**CL-51/8**)

Response: *The Supplement states that the radiological aspects of Rubblization on onsite disposal of slightly contaminated material would be addressed in a site-specific manner at the time that the LTP is submitted. The site-specific LTP will provide a mechanism for the NRC staff's evaluation of the licensee's plans to dispose of rubblized concrete on site. The radioactive material that remains at the site after the license has been terminated must meet the dose criteria for license termination given in 10 CFR Part 20. All radioactive material removed from the site must be disposed of in a licensed low-level waste facility in accordance with 10 CFR Part 61. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Georgians for Clean Energy requests that the "rubblization" method of decommissioning be removed from the final EIS. Chopping up a plant and storing it on site not only sounds ridiculous but also is grossly negligent of the fact that there are facilities designed, built and licensed to handle radioactive materials. A point supported by the GAO report cited earlier in these comments. (**CL-08/20**)

Comment: I think if people thought we're going to be rubblized and have a waste dump out there, they might not have been so welcoming to these facilities. (**AT-C/3**)

Comment: 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: "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 offsite 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-48/33**)

Response: *In a letter dated March 1, 2002 (ML020250068), the NRC responded to the GAO findings and elaborated on its programs and practices. Rubblization (the process of onsite disposal of slightly contaminated material in a manner to meet the site release criteria of 10 CFR Part 20, Subpart E) would not involve the quantity of radioactivity, nor the inventory of radionuclides associated with a commercial low-level waste disposal site. In addition, the range of waste forms are not comparable. Rubblization is considered a viable decommissioning process that is consistent with the requirements of the license termination rule and is not considered low-level waste under 10 CFR Part 61. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Pages 4-30, 4-12 and xii. The Supplement should clarify the circumstances under which rubblization is permitted. It is EPA's understanding that, to date, rubblization has only been permitted after site decontamination. Does the term "rubblization" on page 4-30 refer to the treatment of concrete or structures that have not been decontaminated? Note that page xii indicates that the continued dismantlement of structures that have been radiologically decontaminated falls outside the scope of the Supplement. (**CL-16/67**)

Response: *The staff has clarified the use of the word "rubblization". The staff chose to use the term "demolition" to describe the process of crushing structural material to allow for easy burial or disposal. Demolition debris can be contaminated or uncontaminated. Demolition debris, if uncontaminated, can be disposed of either onsite or offsite without any additional NRC oversight. Demolition debris that is contaminated can be shipped to a low-level waste site or waste processor. Slightly contaminated demolition debris may be disposed of onsite using the process of "rubblization" (the process of onsite disposal of slightly contaminated material in a manner to meet the site release criteria of 10 CFR Part 20, Subpart E). Section 4.3.3.3 and 4.3.8.3 of the Supplement have been revised to reflect the above clarification in terminology.*

Comment: Delete the discussion of "rubblization" on page 1-7 and delete the term "rubblization" in the Glossary (Appendix M). Maine Yankee first utilized this term in a January 13, 2000 letter which served to submit their License Termination Plan (LTP). On June 1, 2001, Maine Yankee filed revision 1 to their LTP. On August 13, 2001, Maine Yankee filed revision 2 to their LTP. In their current LTP, Maine Yankee does not propose to use "rubblization" and no longer utilizes the term. No licensee is currently pursuing the "rubblization" concept as described in Maine Yankee's original LTP submittal. The term which most accurately describes the approach which licensees are currently pursuing is "concrete backfill." Connecticut Yankee described the process as follows in section 4.3.1 of our LTP

submitted on July 7, 2000: Concrete from contaminated structures will be remediated to a level meeting the radiological criteria for unrestricted release of the site. After completion of final status surveys and absent any findings during NRC inspections, concrete building debris from decontaminated structures may be used as backfill and placed into the remaining subsurface building foundations. (**CL-30/4**)

Comment: 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-50/21**)

Comment: "Rubblization", to me reflects a sense that NRC is looking for ways to make it easier to finish the decommissioning process rather than thinking about ways to make it safer or more environmentally sound. And that concerns me. It seems to be driven by how we can facilitate the process, making it happen more quickly or with less cost as opposed to considering the safety issues. All of those issues relate to doing it more quickly and less costly. (**CH-A/11**)

Comment: The fact that the Staff and the Commission have even considered rubblization shows an utter disregard for the health and welfare and safety of the public and the ecosystem upon which life depends. (**CL-20/20**)

Comment: I oppose the concept of rubblization as it is very dangerous. (**CL-29/2**)

Comment: There should be no allowance for the industry to 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 cleanup operation. The public must be protected. (**CL-47/9**)

Response: *The NRC staff has decided to retain the discussion of Rubblization in the Final Supplement. Rubblization (the process of onsite disposal of slightly contaminated material in a manner to meet the site-release criteria of 10 CFR Part 20, Subpart E) is considered a viable*

decommissioning process that is consistent with the requirements of the LTP and is not considered low-level waste under 10 CFR Part 61. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: Rubblization (p. 4-14), the breaking of contaminated concrete structures into gravels and blocks cannot be considered an option where: A. the leachate plume could contaminate potable water, B. the leachate plume could contaminate water used for food production such as farming, fishing, seafood harvest, or dairy, C. the leachate plume could contaminate closed bodies of water such as cooling canals or cooling ponds, or D. airborne particles could contaminate food crops, fishing waters, seafood harvesting waters, or dairy areas. All contaminated building materials must be removed from the nuclear plant site. (**CL-14/4**)

Comment: 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: "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 plan locations may limit the viability of these options." (**CL-48/34**)

Comment: 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-48/30**)

Response: *Rubblization (the process of onsite disposal of slightly contaminated material in a manner to meet the site-release criteria of 10 CFR Part 20, Subpart E) would require a site-specific analysis during the LTP review. Such a site-specific review would consider the potential for groundwater contamination. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement*.

Comment: The Supplement improperly addresses rubblization by stating it will require a site-specific analysis at the time the license termination plan is submitted. Rubblization should be addressed generically as a part of the decommissioning process. The NRC should continue to

maintain that to the extent that 10 CFR Part 20, Subpart E dose performance criteria are met - and that decommissioning has been performed using the ALARA principle, rubblization has a SMALL environmental impact. (**CL-31/4**)

Comment: Some of my concerns about NUREG-0586 include: the generic approval of rubblization of reactor buildings and leaving them on site. (**CL-38/3**)

Comment: I oppose rubblization but support its designation as site-specific. (**CL-24/4**)

Response: *Both site-specific factors and the licensee's preparation of the demolished demolition debris prior to onsite disposal can significantly affect the dose assessment calculations that are necessary to demonstrate compliance with the licensee termination criteria. As such, a generic analysis cannot be made that would envelop rubblization. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Now, with Supplement 1 to NUREG-0586, the NRC would appear to be paving the way for the very rubblization and possible release into the environment of slightly contaminated material that the AEP rep said could not happen. The vehicle to allow this (rubblization) would appear to be the declaration of more decommissioning issues "Generic" rather than "Site-Specific," thus preempting the right of local residents to raise concerns during the License Termination Plan review. (**CL-38/1**)

Comment: 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. (**CL-47/14**)

Comment: NRC allows "rubblization" (crumbling the concrete reactor building) of nuclear reactors, without opportunity for public intervention until the action is completed. (**CL-48/36**)

Comment: We adamantly disagree with the possibility of rubblization as a method of decommissioning. Chopping up a plant and storing it on site not only sounds ridiculous, but also is grossly negligent of the fact that there are facilities designed, built and licensed to handle radioactive materials. Plant owners never told communities near nuclear plants that they were also accepting a permanent nuclear waste dump. Rubblization is an egregious assault on the public participation process and a devious example of corporations casting aside those communities that supported them over the years. (**AT-A/37**)

Comment: I am opposed to the following proposal(s) in the EIS: NRC allows "rubblization" (crumbling the concrete reactor building) of nuclear reactors, without opportunity for public intervention until the action is completed. (**CL-26/2**)

Comment: [Georgians for Clean Energy] recognizes that nuclear plant owners and the NRC never told communities near nuclear plants that they were also accepting a permanent nuclear waste dump. Rubblization is an egregious assault on the public participation process and a devious example of corporations casting aside those communities that supported them over the years. (**CL-08/22**)

Comment: I am opposed to the following change to NUREG-0586: In Supplement 1 to the Generic Environmental Impact Statement on Decommissioning: NRC allows rubblization (crumbling the concrete reactor building) of nuclear reactors, without opportunity for public intervention until the action is completed. (**CL-43/1**)

Comment: I am opposed to NRC regulations pertaining to Decommissioning which would allow rubblization (crumbling the concrete reactor building) of nuclear reactors, without opportunity for public intervention until the action is completed. (**CL-44/5**)

Comment: 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**)

Comment: 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 radioisotopes in the concrete and should not be ignored or defined away. No data are provided in this Supplement to justify rubblization and onsite or offsite disposition. Thus, local communities have every right to participate legally (in adjudicatory proceedings) and be provided with information - full disclosure of such planning. (**CL-48/29**)

Comment: I utterly oppose "rubblization" with no opportunities for meaningful public intervention ahead of time. (**CL-33/7**)

Comment: 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. (**CL-51/7**)

Response: *Rubblization (the process of onsite disposal of slightly contaminated material in a manner to meet the site release criteria of 10 CFR Part 20, Subpart E) is considered a site-specific issue and would be addressed during the LTP review. Since the LTP is approved by amendment to the facility license, the public will have the opportunity to participate in the review. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: If rubblization were technologically achievable, where on a plant site could the wastes be stored in perpetuity? Would that be above grade or below? (**CL-51/14**)

Response: *An explanation of rubblization and the location of the demolition debris is given in Section 1.3. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The question goes to the issue of the rubblization and the language in the GEIS that puts part of it out of scope and part of it is discussed as being covered under the generic environmental impact statement supporting the license termination rule. The heart of the comment and question really gets at the issue that from our perspective is not yet covered in that license termination rule and the assumptions embedded in that GEIS. And that has to do with the scenario of what happens and what are the assessments for the radiological materials post license termination. The rubblization is one angle that begs that question...The question is do you need to assume some refurbishment scenario post-license termination?...The question the industry asks is how do we address that? Do we come up with some scenario and refurbishment that would account for that? What would that scenario look like? We need that information so that we can do those assessments....Again, the issue is post-license termination. How do you assess a potential risk to a member of the public from that material?...The question is, is there some unique pathway that needs to be assessed for this material, such as an intruder pathway?...Our understanding was this GEIS would sort of beef that up because of this new idea; however, it appears that was sort of left out of scope and appropriately maybe so. Perhaps that is in the scope of the license termination rule. (**AT-E/1**)

Response: *The License Termination Rule does not contemplate post-license termination assessments for radiological hazards. The staff finds that the site-release criteria are sufficiently conservative to protect public health and safety and the environment for any reasonable post-license termination use of the site. The expectation is that any potential pathway would be addressed during the site-specific review of rubblization that occurs during the LTP review. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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-48/31**)

Response: *Rubblization requires a site-specific analysis, as noted in Section 1.3 of the Supplement. The staff acknowledges that technical factors related to the site and the licensee's actions could significantly influence the cost savings. Additionally, the staff acknowledges that it may be difficult to demonstrate that the material can be safely disposed of in the below-ground structures on site. These and other factors have led the staff to conclude that the radiological effects of rubblization would necessarily have to be considered on a site-specific basis. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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 rubblized. 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 building have similar base mats? (**CL-51/12**)

Response: *The staff believes that if a licensee chose to rubblize a portion of their facility and dispose of the slightly contaminated rubble onsite they would only rubblize above-ground structures. Rubblizing a base mat for a reactor would not be necessary or required. The deconstruction industry is very effective in rubblizing reinforced concrete and it is done quite frequently. San Onofre recently rubblized several uncontaminated structures onsite, separating the reinforcing steel from the concrete. The effort was accomplished without incident. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.2.4 Safety of Decommissioning

O.2.4.1 Issues Related to Terrorist Events

Comment: Getting onto a brief comment on security, as many things are being reviewed in light of September 11, the decommissioning of nuclear reactors should be no exception. From what I've heard today, it sounds like there will be some sort of analysis of security issues and I hope that's directly relating to this decommissioning document. As we know, the draft EIS is grossly deficient in ensuring that security measures are taken to protect our homeland security from threats of sabotage at a nuclear plant. Georgians for Clean Energy request that a thorough amended review of necessary security measures be compiled by the NRC and added to the supplement. (**AT-A/12**)

Comment: If there is the possibility of release during decommissioning, then that should be something that should be accounted for especially in light of concerns of attack. (**CH-A/9**)

Comment: The terrorist attacks of September 11, 2001 have raised many issues concerning the currently, inadequate security of our nation's nuclear reactors. Because decommissioning creates opportunities for release of spent fuel and structures contaminated with radioactive material, the Final GEIS should revisit the appropriate security needed during decommissioning. (**CL-11/12**)

Comment: While EPA did not identify security issues during the GEIS scoping process, the events of Sept. 11 have brought them to the forefront of public concern. EPA suggests that NRC include in the final Supplement a general discussion on how the Commission is addressing security from terrorism at plants undergoing decommissioning. (**CL-16/9**)

Comment: I do want to talk about the physical protections and the existing regulations under 10 CFR 73.55. I guess I could state this as more or less of a question. For example, what measures will the Commission employ during decommissioning to protect against radiological sabotage? (**AT-F/2**)

Comment: Even 10 CFR 73.55 falls short in our estimation in the preparations for such a scenario. 73.55 considers only primary physical security barriers for vehicles, for isolation zones, for access to the plant, for detection of intrusion and what not. For example, it mentions that there [would] be bullet resistant walls, floors and doors in reactor control rooms. Well plainly this 10 CFR 73.55 needs to be updated because this is woefully inadequate to consider anything which is now possible after September the 11th. (**AT-F/4**)

Comment: Security must be upgraded, not downgraded. (**CL-20/74**)

Comment: EVERY SITE, OPERATING OR NOT OPERATING, IS A PRIME TERRORIST TARGET AS I HAVE SAID FOR DECADES. (**CL-20/79**)

Comment: It ought to be equally obvious that a serious accident or terrorist act in this industry could be catastrophic, leaving immense fatalities, injuries, future cancer victims and vast areas uninhabitable for years. (**CL-42/3**)

Comment: 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-53/2**)

Comment: The danger to the public from a terrorist act is a function of the total level of radiation that exists on one given site. We cannot do anything about the total level of radiation in a global sense, but through government regulations we could do something about the amount of radioactive material that is stored at any one location. (**SF-C/6**)

Comment: But I think that there is an overall concern, which I know that this doesn't address, and that is the vulnerability of nuclear power plants to various acts of terrorists. And I don't think it should be ignored, and I think that we should be very concerned about it. (**SF-C/3**)

Comment: Before September 11th, I probably felt that the SAFSTOR approach was one of the best things, to let them sit for 10, 20 years, and let the radioactive level decrease significantly before you try to disperse it. I no longer think that. And yet I just heard, well, the licensees have 60 years to decide, and they can do anything they want. And I don't think that's a danger that the public should put up with. (**SF-C/4**)

Response: *NRC and other Federal agencies have heightened vigilance and implemented initiatives to evaluate and respond to possible threats posed by terrorists, including the use of aircraft against commercial nuclear power plants. Malevolent acts remain speculative and beyond the scope of a NEPA review. NRC routinely assesses threats and other information provided to them by other Federal agencies and sources. The NRC also ensures that licensees meet appropriate security levels. The NRC will continue to focus on prevention of terrorist acts for all nuclear facilities and will not focus on site-specific evaluations of speculative environmental impacts. While these are legitimate matters of concern, they should continue to be addressed through the ongoing regulatory process as a current and generic regulatory issue that affects all nuclear facilities and many activities conducted at nuclear facilities. The NRC has taken a number of actions to respond to the events of September 11, and plans to take additional measures. However, the issue of security and risk from malevolent acts at nuclear*

power plants is not unique to decommissioning facilities and, therefore, is not within the scope of a Generic Environmental Impact Statement (GEIS) on decommissioning of nuclear power plants. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: With regard to the threat of attack, I think this relates to our second point. The document was prepared after September 11th, but it doesn't seem to respond to September 11th. We think the document should be responsive to the events of September 11th. What is NRC going to do to make sure that facilities are protected and secure during decommissioning? Has that changed in response to the threat of terror attack? We think it should. (**CH-A/8**)

Comment: In light of September 11th it is now abundantly clear that nuclear materials are desired by terrorist organizations. Our nation's operating nuclear power plants represent terrorist targets, but so too does the nuclear waste they generate. Since a decommissioned nuclear power plant would have a greatly reduced security force, the closed plant could provide an easier opportunity for terrorists to obtain nuclear materials. In the case of plants like Hatch that have outdoor storage of nuclear waste, the notion of a reduced security force is even more troubling. Georgians for Clean Energy again stresses the need for a full evaluation of security measures to be assessed prior to issuing a final GEIS. (**CL-08/3**)

Comment: NRC staff mentioned at the public meeting on 12/12/01 that a full, top-to-bottom review of security concerns would be conducted. Georgians for Clean Energy urges that this review be done prior to the issuance of the final generic impact statement for decommissioning (GEIS). (**CL-08/34**)

Comment: The massive destruction of September 11th accomplished by the Al Qaeda terrorists has rendered the Waste Confidence Policy ineffective and obsolete. No reasonable person can be assured that high-level nuclear waste can be safely stored at plant sites under present conditions. The GEIS fails to consider the consequences of acts of terrorism and acts of war perpetrated by suicidal zealots against spent fuel facilities at decommissioned nuclear plant sites. This failure of the GEIS needs to be remedied. (**CL-14/6**)

Comment: 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. (**CL-50/28**)

Comment: 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-51/21**)

Comment: THE SPENT FUEL IS THE ULTIMATE IN TERRORIST TARGETS. (**CL-20/80**)

Response: *Malevolent acts affecting the physical security of nuclear power plants is an important issue for all reactors, both operating and permanently shut down, and is not unique to reactors in the decommissioning process. Shortly after the events of September 11, 2001, the NRC initiated a comprehensive review of its security requirements at nuclear power plants to ensure that the appropriate level of protection is in place for both operating and decommissioning reactors. The safety review will transcend the entire NRC licensing framework (operating reactor licensing, license renewal, decommissioning etc.) to fulfill NRC's responsibilities under the Atomic Energy Act. The findings resulting from the NRC's comprehensive review of its security requirements and whatever actions the Commission determines to be appropriate will be required of decommissioning reactors. Comments related to physical security considerations at decommissioning facilities have been forwarded to the appropriate program office within the NRC for consideration during the Commission's comprehensive review of security requirements. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Indeed, under the current plan, facilities under SAFSTOR will have fewer personnel at the site even though the radioactivity of the material will still be high. With less security, these facilities are at greater risk for attack. (**CL-11/13**)

Comment: Since a decommissioned nuclear power plant would have a greatly reduced security force, the closed plant could provide an easier opportunity for terrorists to obtain nuclear material. (**AT-A/14**)

Response: *Changes in the level of security at a nuclear power plant during decommissioning would be related to the type of activities and the area that requires protection. The Commission has initiated activities to reassess security issues in light of recent terrorist activities with the principal objective of maintaining public health and safety. While these are legitimate matters of concern, they should continue to be addressed through the ongoing regulatory process as a current and generic regulatory issue that affects all nuclear facilities. Comments related to physical security considerations have been forwarded to the appropriate program office within*

the NRC for consideration. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: If an organization like ours can spot a train carrying very dangerous radioactive waste, any terrorist organization can do the same thing. You've got to take that into consideration. (**AT-B/11**)

Comment: Re 9/11: I direct you to a quote from a recently published German report concerning the vulnerability of the Castor containers to terrorism: "The fact that all the technical data used in the report can be accessed by terrorists does not imply that a more restrictive policy towards information is required. Rather, it should be regarded as an argument against the use of a technology which is, at the time, hazardous and complex to a large degree, creating a conflict between the necessary societal discussion on the one hand and the protection of society from terrorist attacks on the other." (**CL-27/3**)

Response: *NRC routinely assesses threats and information provided to the NRC by other Federal agencies and other sources and ensures that licensees meet appropriate security levels. This issue will remain a priority for the NRC even during the transportation of the spent fuel. However, as discussed in Section 1.0, transportation of the spent fuel is outside the scope of the Supplement. Comments related to physical security considerations have been forwarded to the appropriate program office within the NRC for their consideration. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

O.2.4.2 Safety of Decommissioning

Comment: We're also concerned about safety. With reduced staffing as mentioned in the document, there's an increased risk of accident [and] the threat of attack on these sites with huge environmental and human consequences. (**CH-A/7**)

Response: *The missions of the NRC include the protection of public health and safety and protection of the environment. Staffing reductions at decommissioning power facilities are made commensurate with the reduction in risk associated with the facilities' permanently shutdown condition. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Every shut down reactor can take us a step closer to a sustainable energy future but, unfortunately, reactor shut down is not the threshold of safety, where the public can be assured that no health or environmental dangers will originate from the site. (**CL-47/6**)

Comment: Since many nuclear contaminants are extremely long-lived and dangerous to humans and the environment, decommissioning measures need to be handled most carefully, as our future generations literally will depend on how well the job is done today. (**AT-A/10**)

Comment: The notion presented by industry and others that decommissioning is inherently safe because the plant is no longer operating is a deceptive argument that confuses the public. Due to the nature of radiation, even after shutdown, parts of the plant, as we know, remain highly contaminated and extremely radioactive. The nuclear waste, such as the spent fuel produced by the plant during operation generates heat and emits radiation for thousands of years after the plant is shut down. Therefore, there is risk to the workers at the plant and to the local communities during decommissioning. (**AT-A/11**)

Response: *Decommissioning results in a reduction of the risks associated with the nuclear power plant. No major decommissioning activities take place until the fuel has been permanently removed from the reactor. Those risks associated with nuclear power plant operation are eliminated when the spent fuel is permanently removed from the reactor and placed in spent fuel storage. The risks continue to decrease as contaminated structures and systems are cleaned up and dismantled and the contaminate material is shipped offsite. Risks associated with storage of spent fuel are also reduced over time but are outside of the scope of this review. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: The NRC must address the subject of radiation dangers after decommissioning HONESTLY, USING THE BEST INDEPENDENT RESEARCH, including: --exposure of children --exposure of the weak, the ill, the elderly --offsite contamination --credible, not arbitrary, environmental impact categories FOR EACH STEP OF A DECOMMISSIONING. (**CL-36/6**)

Response: *Potential radiological impacts following license termination that are related to activities performed during decommissioning are not considered in this Supplement, as discussed in Table 1-1. Such impacts are covered by NUREG-1496, Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities and given in regulations in 10 CFR Part 20. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The workers were not prepared. They didn't—whatever the—the moon suits they were supposed to wear or something, they often didn't. And it was—I mean it's dangerous. (**AT-D/2**)

Response: *Radiological conditions that workers are likely to be exposed to dictate the need and type of protective clothing to be used for a specific task. The industry has a remarkably good safety record when it comes to radioactive contamination and exposure. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: It affects people's health. Workers especially who are not warned, who are not protected. (**AT-D/11**)

Response: *Training is required including notification of hazards for each specific job that involves the actual or potential exposure to radiation. In addition, there are regulations controlling the occupational doses to the workers. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.2.4.3 Risk-Informed Regulations

Comment: The U.S. Nuclear Regulatory Commission (NRC) has applied extraordinary effort to risk-inform reactor oversight but, save for Appendix G of this report, has avoided translation of environmental impacts from dose based-language to risk-based language. (**CL-13/1**)

Response: *The commenter is correct. The Supplement does not use risk-based language for the major portion of the Decommissioning Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The whole approach—the whole probablistic approach to risk is inappropriate. You must assume that whatever can go wrong will go wrong and that should be the level at which your risks are evaluated, not some unrealistic dream-like assessment of probability that isn't real world anymore. (**AT-B/12**)

Response: *The use of probabilistic risk assessments (PRA) as a tool to support regulatory decision making is a well established process that has been fully vetted, publically discussed, and widely accepted. The use of PRA by the industry and NRC staff complements the staff's deterministic approach to evaluating safety and supports the more traditional defense-in-depth philosophy. One of the primary reasons to employ a PRA approach is to achieve greater realism and effectiveness in evaluating and regulating what precisely is important and safety-significant. Evaluating every conceivable accident scenario without regard to its probability of occurrence is not realistic, wasteful of resources, and does not lead to good regulatory decisions. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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). (**CL-52/22**)

Response: *The NRC staff has not chosen to abandon its former regulatory philosophy. Defense-in-depth, which includes redundancy, remains a principal element of the NRC safety philosophy. Any application of risk-informed or performance-based regulation must be entirely consistent with the principals of providing for defense-in-depth and maintaining adequate safety margins. See Regulatory Guide 1.174, "An approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Current Licensing Basis", July 1998, for a detailed discussion of the NRC's regulatory guidance on risk-informed decision making. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.3 Decommissioning Process

Comment: The location of intake and outfall structures in the lake alone requires site-specific analysis. As written, the Draft GEIS does not make clear whether an intake/outfall structure on the facility is considered part of a previously disturbed area. If deemed part of the previously disturbed area, any work on the intake/outfall structure will be deemed generic and the impact small. (**CL-11/6**)

Response: *Chapter 4 of the Supplement has been extensively revised and the concept of "previously disturbed area" is no longer the criteria for initiating a site-specific analysis. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Page 3-5, Section 3.1.2, Lines 31-33 and Page 3-8, Lines 13-16. The document states on page 3-5 that "the impacts of dismantling all SSCs (structures, systems and components) that were built or installed at the site to support power production are considered in this Supplement." It then states on page 3-8 that the Supplement does not evaluate switchyards which "may remain on the site." If they are dismantled, would they be evaluated? (**CL-16/17**)

Response: *None of the facilities that have recently permanently ceased operation have dismantled their switchyards. However, if licensees choose to remove the switchyards it could be accomplished with little or no impact to the environment. The staff, in deciding the scope of the Supplement, attempted to place reasonable limits on the analysis. Since historically*

licensees generally maintained the switchyard the staff chose to not include it in the assessment of potential impact. The comment did not provide new information relevant to this supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: Could you explain to me what that [previously disturbed area] would mean for an intake for water for cooling at the facility. Would that, does anything happen to that intake position during decommissioning? (**CH-A/3**)

Response: *Chapter 4 of the Supplement has been extensively revised and the concept of "previously disturbed area" is no longer the criteria for initiating a site-specific analysis. The intake structure, for the purpose of this Supplement, is considered within the operational area (the concept that replaced "previously disturbed area"). The licensee may choose to remove the intake structure during decommissioning, could wait until after the license is terminated to remove the intake structure, or could choose to leave the structure in place. The text was revised in several sections of this Supplement to better describe this issue.*

Comment: 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. (**CL-50/7**)

Response: *Major decommissioning activities are clearly defined in 10 CFR 50.2. Regulatory Guide 1.184, Decommissioning of Nuclear Power Reactors, July 2000, provides additional clarification on major and minor components and what can be removed prior to submission of the PSDAR. The NRC regulations do not require the approval of a decommissioning plan prior to the commencement of major decommissioning activities. The purpose of the PSDAR is to inform the public and the NRC of the licensee's plans for the decommissioning of the facility. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The original site maps and drawings and photos made during construction should be consulted (some building techniques may have changed) all modifications and revisions should be tracked down. All vent systems should go through both HEPA (for the chemicals) and sand filters. Additional containment should be added around spent fuel pools including over the top and beneath it, extra supports, new liners. They will suffer serious embrittlement and activation, same goes for the casks. Such issues must be addressed. (**CL-20/72**)

Response: *Licensees are required by 10 CFR 50.75(g) to keep records of information important to the safe and effective decommissioning of the facility. Records of spills or unusual occurrences as well as "as-built" drawings and modifications to structures, systems, and components are covered by this requirement. The licensee is also required to use procedures and processes to accomplish decommissioning in a safe manner and to keep doses to the public and to the workers As Low As Reasonably Achievable (ALARA). The staff does not prescribe specific requirements related to facility decommissioning. The detailed suggestions made by the comment are outside the scope of this environmental assessment. The staff does, however, oversee the decommissioning process to ensure that appropriate regulatory requirements are being met. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The License Termination Plan (LTP) should be established, reviewed by the public and approved by the NRC before site remediation begins. (**CL-50/18**)

Response: *The NRC regulations require that the licensee submit the License Termination Plan (LTP) approximately two years prior to expected termination of the license. This could, depending on the decommissioning option chosen, be anywhere from approximately 3 to 58 years after permanent cessation of operation. Therefore, the current regulations (10 CFR 50.82) allow for site remediation to begin prior to submission and approval of the LTP. The regulations require that the NRC staff conduct a public meeting related to the LTP submittal in the vicinity of the plant. Since the LTP is approved by amendment to the facility license, the public will have the opportunity to participate in the review. Amendment of NRC regulations is outside the scope of this Supplement. NRC rulemaking procedures are found in 10 CFR Part 2. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: But things that shouldn't have been done did happen and things—you know, when they were washing some of the surfaces to prepare for cutting apart and shipping the wash water—I've spoken about this to some of the people already. It just went into the ground. It was supposed to be contained and it wasn't. And other things like that, that happened that were not supposed to happen, but they do happen. (**AT-D/5**)

Response: *Although infrequent, inadvertent releases of radioactive material during decommissioning occurs, the amount and consequences of those releases in the past have been minor and pose no threat to public health and safety. Past Releases to the environment have been remediated or determined to be of inconsequential health risk. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: One idea that we've talked about for a long time, and we actually had a big meeting about it and I think the idea is probably still alive, the site-specific advisory board. (**AT-G/4**)

Response: *Licensees at many decommissioning facilities have developed site-specific advisory boards that are composed of elected officials, technical experts, and members of the local public. These boards have been used as a means of keeping the public informed regarding the decommissioning process and to provide public input to the utility. The NRC encourages the use of these boards and frequently attends the meetings. However, NRC regulations do not require the formation of these advisory boards, nor is the NRC involved in their formation or their maintenance. This subject is outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: My direct experience is limited to having heard an eyewitness account of the decommissioning of Yankee Rowe. This person reported a whole list of unfortunate incidents that released contamination into the air and groundwater, contaminating workers on site who were not wearing protective clothing, and possibly contaminating people along the rail and truck routes where parts of the plant were being transported. (**CL-10/3**)

Response: *Occasional releases of radioactive material have occurred at Yankee Rowe during decommissioning. Such events have been documented, investigated, and determined not to pose any risk to public health and safety. Specific information on the decommissioning at Yankee Rowe can be found in the NRC's ADAMS information system under docket number 050-00029. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The Technical Specifications and what the facility was allowed to dump under the license are outdated and bear no resemblance to current knowledge and should be junked and the whole thing done over. (**CL-20/14**)

Response: *The comment is nonspecific. The Technical Specifications for the decommissioned facility are modified as decommissioning progresses through the license amendment process. Releases of radioactive material from the facility must be consistent with the regulations. The release limits are the same for decommissioning plants and operating plants. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: To find out the extent of past problems, and contamination levels, IT IS VITAL THAT THE NRC, THE LICENSEE (as some are new owners/licensees), AND THE CONTRACTORS AND SUB-CONTRACTORS, GET ALL REPORTS OF ACCIDENTS,

LICENSEE EVENT REPORTS, VIOLATIONS, INSPECTION REPORTS, SPILLS AND CONTAMINATION EVENTS FROM THE DOCKET FOR THE REACTOR AND SITE IN QUESTION. (**CL-20/22**)

Response: *The staff agrees that those NRC staff members responsible for the oversight of the facility decommissioning should have access to and become familiar with the relevant NRC documents. Licensees are required by 10 CFR 50.75(g) to keep records of information important to the safe and effective decommissioning of the facility. Records of spills and unusual occurrences as well as "as-built" drawings and modifications to structures, systems, and components are covered by this requirement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: NRC must stipulate, that ALL CONTRACTORS AND SUB-CONTRACTORS RIGHT DOWN TO THE BACK-HOE OPERATORS MUST BE HIGH SCHOOL GRADUATES. Cleanup cannot just be dished out to any contractor, all involved should not only have a sterling track record, but experience in nuclear fields. There should be a radiation biologist on site, plus a health physicist, plus a wildlife biologist with a knowledge of radiation effects, plus there must be federal and state oversight ON THE SITE at all times. (**CL-20/23**)

Response: *Qualifications and educational requirements for various licensee positions are specified in the regulations in 10 CFR Part 50 and are outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: ALL workers must have self-contained breathing systems (moon-suits). (**CL-20/32**)

Response: *Requirements for personnel protection are outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The use of high pressure water sprays is obscene. (**CL-20/69**)

Response: *High-pressure water sprays have been used to decontaminate structures, systems, and components and are an effective and safe method of decontamination. The use or non-use of specific decommissioning equipment is outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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-50/15**)

Response: *Licensees, as part of their radiological control procedures, have established requirements to limit the spread of radioactive contamination from tools. The recovery of contaminated material improperly released from facilities undergoing decommissioning is outside the scope of this document. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: It is obvious that the reactor vessel should NEVER be cut up, but do what was done with the Trojan vessel (p.G-18, remove the whole thing offsite) (**CL-20/58**)

Response: *Although the intact shipment of the reactor vessel greatly reduced the dose to the workers and the cost of removal, it was only facilitated because of the proximity of the Trojan Nuclear Plant to the low-level waste site at Hanford, Washington, the ability to use the Columbia River, a navigable river that allowed the barge transport for the reactor vessel, and the ability of Hanford to take the vessel for disposal. The industry has had experience in removing reactor vessel internals and, in the case of Shoreham, did segment and dispose of the reactor vessel. Such activity has been performed safely in the past and without serious injury or release of radioactivity to the environment. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: However, the vessel should have additional shielding placed around it prior to placement on the heavy haul trailer, and upon arrival at the disposal site it should be further encased in what would amount to a giant burial cask. (**CL-20/59**)

Response: *Licensees must comply with NRC standards for allowable offsite radiation; regulations for transportation of waste materials are in 10 CFR Part 20, Subpart K. Additional shielding beyond that required by NRC regulations is not required to protect the health and safety of workers or members of the public. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Removing the vessel offsite massively reduces worker doses, water contamination and the contamination to the local community and the environment. (**CL-20/60**)

Response: *The comment was not specific and did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I noticed that it said cutting methods included abrasive water G-17, but in any case where there is plutonium contamination or depleted uranium metal, that all is meant to be cut under heavy oils and much else besides. Since many of the components will have been contaminated with plutonium, or were made of depleted uranium (when is the NRC going to tell the public that DU is NOT radioactive waste?) (**CL-20/57**)

Response: *Abrasive cutting of structures, systems, and components has been used frequently in decommissioning operations (Trojan, Fort St. Vrain, Haddam Neck). Such activities require stringent contamination control measures and occur inside buildings or structures, such as the containment building, which are designed to contain radioactive contamination. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: No structural remains should be sent to local landfills. (**CL-20/75**)

Response: *Only materials that have been carefully surveyed and determined to have no detectable radiation are allowed to be released from the plant. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.4 Out-of-Scope Issues

O.4.1 Reuse of Materials Offsite

Comment: In a related issue, there continues to be a gap in regulations concerning the release of slightly contaminated solid materials. In both partial site release without a license termination plan and license termination for the entire site, residual radioactivity may remain as long as the exposure criterion of 10 CFR 20 Subpart E is satisfied. Conversely, this same residual radioactivity is treated as licensed material prior to license termination--regardless of how little the amount, concentration, or dose significance--and can only be disposed of at a licensed facility. This double standard poses an incentive to retain radioactive material onsite until the license has been terminated to avoid potentially excessive costs for radwaste disposal, while creating a longer term risk for additional site cleanup required by other regulator authority or court of law. While we recognize that the U.S. Nuclear Regulatory Commission (NRC) is seeking to resolve this discrepancy through study by the National Academy of Sciences, and further agency deliberation, this process may take several years. Prolonged delay contributes to the erosion in public understanding and confidence in government policy as well as the lack

of resolution mentioned above for licensees. Public policy is needed to define the quantitative dose and radionuclide characteristics that have no discernible public health consequences. (**CL-01/8**)

Comment: The release of scrap metal from power reactors undergoing decommissioning will present a far more insidious problem than orphan sources, by greatly increasing the volume of radioactive scrap arriving at, and the frequency of alarms at, metals companies. This poses a serious problem for the suppliers and transporters, who must manage and arrange for the ultimate disposition of the rejected scrap. It would have a similarly enormous adverse impact on the smaller producers, foundries, scrap dealers and processors, fabricators, and end product manufacturers. Metals companies experiencing several alarms daily would continue to incur enormous costs, either unfairly increasing their manufacturing costs or compelling them to raise detection levels to above background, thereby exposing themselves to increased risk of inadvertently melting sealed sources. Receipt of even slightly elevated levels of radioactively contaminated scrap imposes enormous costs on metals companies. (**CL-03/6**)

Comment: No radioactively contaminated parts should be allowed into consumer use, commerce, or unregulated disposal. (**CL-39/3**)

Comment: Georgians for Clean Energy also opposes any efforts by the nuclear industry or licensee of a decommissioning nuclear plant to “recycle”—and I use that in quotes—radioactive materials for release into the marketplace. It is appalling that there may be an option for companies involved in a technology that can cause its own facilities to become radioactive, to financially benefit from selling the hot garbage to unsuspecting citizens in the form of daily household products. (**AT-A/38**)

Comment: Georgians for Clean Energy also opposes any efforts by the nuclear industry or licensee of a decommissioning nuclear plant to “recycle” radioactive materials for release into the marketplace. No facilities should be able to sell their demolition debris. Instead, it should be dealt with as regulated nuclear waste since the bulk of the materials will be radioactively contaminated. (**CL-08/23**)

Comment: The radioactive components, parts, liquids i.e. anything part of or to do with or emanating from the structures and the site MUST NEVER BE RE-CYCLED, OR RE-USED. (**CL-20/109**)

Comment: NRC MUST IMMEDIATELY CEASE ALLOWING, OR THINKING OF ALLOWING, RADIOACTIVELY CONTAMINATED SOIL TO BE RE-USED FOR ANYTHING. (**CL-20/110**)

Comment: Has the NRC no common sense at all? Releasing radioactively contaminated materials into daily consumer use and commerce and unregulated disposal is a direct assault on humanity. Don't let this happen. (**CL-23/1**)

Comment: Although it is not certain, a strong possibility exists that power reactors could release scrap metal that has a serious impact on the environment, such as by contaminating the soils or groundwater underneath a scrap yard or by escaping detection and becoming melted inadvertently in a metal company furnace. Furthermore, certain isotopes in scrap metal that escape detection before melting may accumulate and concentrate in emission control systems at metals company facilities, to the extent that metals producers could generate low-level wastes ("LLW") or mixed wastes. (**CL-03/3**)

Comment: Even if NRC eventually does establish dose-based clearance standards for solid materials, thousands of tons of scrap metal with residual radioactive contamination still would be released into the economy or sent to LLW or industrial waste landfills. (**CL-03/4**)

Comment: The economic and socioeconomic impacts of decommissioning, coupled with the lack of health-based release criteria using dose-based standards, create a disturbing incentive for the nuclear power industry to release as much surplus metal as it can into the economy and market it as useful material, rather than incurring additional disposal costs when the scrap metal meets general regulatory release guidelines but may contain levels of residual radioactivity unacceptable to metals producers. NRC's recognition of these economic and socioeconomic impacts and its concurrent failure to consider the impacts of contaminated scrap metal on the metals industries create the mistaken impression that the agency has covered all of the significant impacts of decommissioning. (**CL-03/8**)

Comment: 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 acknowledgment of the stewardship responsibility for that material. (**CL-48/17**)

Comment: I specifically oppose any release of contaminated materials during decommissioning or other times/procedures. (**CL-38/7**)

Comment: Concerning the scope of this hearing and to what extent the radioactive contamination levels that are permitted to be released from regulatory control for decommissioning are being used to release radioactive materials routinely. (**SF-D/2**)

Comment: We would oppose any release of contaminated materials during decommissioning or other times. (**SF-D/3**)

Comment: I Firmly oppose the “release” of radioactively contaminated materials into daily consumer use and commerce and unregulated disposal. (**CL-24/5**)

Comment: I stand firmly against the “release” of contaminated materials into daily consumer contact and commerce or unregulated disposal. (**CL-25/11**)

Comment: I stand firmly against the “release” of radioactively contaminated materials into daily consumer use and commerce or unregulated disposal. (**CL-26/15**)

Comment: I oppose the release of radioactive contaminated materials into daily consumer or commercial uses. (**CL-29/3**)

Comment: I stand firmly against the “release” of radioactively contaminated materials into daily consumer use and commerce or unregulated disposal. (**CL-37/1**)

Comment: 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. (**CL-47/16**)

Comment: 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. (**CL-52/16**)

Comment: 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. (**CL-48/49**)

Comment: The NRC must NOT permit “release of property for unrestricted use” or under “restricted conditions.” To permit the release of radioactively contaminated materials into daily consumer use and commerce, or to allow unregulated disposal of such materials is abhorrent. Bin Laden might approve of such an interesting experiment; I trust that the NRC does not and will not. (**CL-36/7**)

Comment: MIRC appreciates the opportunity to comment on the draft Supplement and urges NRC to consider in the final Supplement to the GEIS the environmental impacts of releasing radioactively contaminated scrap metal into the economy for unrestricted use, as well as the economic impacts on the metals industries and related socioeconomic impacts. (**CL-03/9**)

Comment: The Supplement does not discuss the potential environmental impacts of releasing scrap metal or other solid materials pursuant to NRC's unrestricted release guidance, except to state that licensed facilities must comply with standards in 10 CFR. Part 20, limiting the sum of allowable internal and external doses to individual members of the general public to 0.1 rem per year. NUREG-0586 at 4-26 (Allowable doses to individual members of the public following license termination are limited to 25 millirem per year during the control period and 100 millirem per year after the end of institutional controls. See 10 CFR § 20.1402) (**CL-03/2**)

Comment: IF NRC, EPA, THE DOE AND OTHERS DO NOT STOP THIS INSANE RUSH TO REUSE, RECYCLE, DUMP AND COVER ETC. NUCLEAR MATERIALS, RADIOACTIVE MATERIALS, ACTIVATED MATERIALS ETC., WITHIN FIFTY YEARS NO LIVING BEING WILL BE BORN WITHOUT SOME TYPE OF DEFORMITY, GENETIC ABNORMALITY, CHROMOSOME ABERRATION ETC AND THE IMMUNE SYSTEMS OF EVERY LIVING BEING WILL BE SERIOUSLY COMPROMISED DUE TO RADIATION SUPPRESSING THE IMMUNE SYSTEM RESPONSE, AND ALL BECAUSE WE WILL BE COMPLETELY ENGULFED IN A MIASMA OF MANMADE, OR MAN ENHANCED, RADIOACTIVE CONTAMINATION. (**CL-20/112**)

Comment: These exposures from multiple unmonitored, unlabeled, uncontrolled sources are in no way accounted for, but they are additive and cumulative for the 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. (**CL-52/17**)

Comment: IT MUST FORBID THE MELTING, SMELTING OR RE-USE OF RADIOACTIVELY CONTAMINATED METALS, PIPING, PLASTICS, WOOD, (INCLUDING FORBIDDING THE BURNING OF WOOD), ASPHALT, AND SO ON. (**CL-20/111**)

Comment: As we have previously commented in other dockets, there should be no release of radioactively contaminated material of any kind into consumer use or into general commerce. Disposal of all materials from decommissioning needs to be regulated, regardless of whether they are radioactive or not. (**CL-40/4**)

Comment: 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-52/18**)

Comment: 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-52/15**)

Response: *During the decommissioning process, solid materials may not be released, recycled, or reused if there are detectable levels of licensed radioactive material present. Solid materials are carefully surveyed before release. The NRC has an initiative underway to consider the reuse or recycling of slightly contaminated solid material. This issue is being considered in an open forum and is outside the scope of the Supplement. Comments on the reuse or recycling of solid material will be forwarded to the appropriate NRC office for consideration. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Since at least as early as 1974, NRC has espoused a policy of "unrestricted release" of solid materials, including scrap metal, from nuclear fuel cycle facilities, without any specific, health-based release criteria. Unlike NRC requirements applicable to gaseous and liquid releases from nuclear facilities, there are no specific criteria governing releases of solid materials by licensees. Requests to release solid material are approved on a case-by-case basis using existing regulatory guidance and license conditions. (**CL-03/1**)

Response: *The release criteria for scrap metals and other solid material from nuclear power reactors are not "health-based" because the release criteria are based on demonstrating that there is no detectable contamination on the material. While these criteria do not have a specific dose or risk basis, they are considered to be protective of public health. The NRC has an initiative underway to consider the reuse or recycling of slightly contaminated solid material. This issue is being considered in an open forum and is outside the scope of the Supplement. The evaluation of environmental impacts from the release of potentially contaminated solid materials is not within the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.4.2 Partial Site Release

Comment: To categorize as "generic" "the release" from regulatory control portions of sites before they are completely decommissioned is not responsible. (**CL-39/2**)

Response: *The Supplement does not categorize partial site release as "generic". It does indicate that a proposed rule was issued on September 4, 2001 for partial site release prior to license termination. The partial site release rule does not advocate the release from regulatory control, portions of the site before they are completely decommissioned. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I utterly oppose allowing portions of sites to be released from regulatory control before the whole site is released. (**CL-33/8)**

Comment: I am opposed to the following change to NUREG-0586: In Supplement 1 to the Generic Environmental Impact Statement on Decommissioning: NRC allows portions of sites to be "released" from regulatory control before the whole site is released. (**CL-43/2**)

Comment: I am opposed to NRC regulations pertaining to Decommissioning which would allow portions of sites to be "released" from regulatory control before the whole site is released. (**CL-44/6**)

Comment: NRC allows portions of sites to be "released" from regulatory control before the whole site is released. (**CL-48/37**)

Comment: I am opposed to the following proposal(s) in the EIS: NRC allows portions of sites to be "released" from regulatory control before the whole site is released. (**CL-26/3**)

Response: *The partial site release rule does not advocate the release from regulatory control portions of the site before they are completely decommissioned. The rule requires that portions of a site released prior to NRC approval of the License Termination Plan must meet the same criteria as the entire site would at license termination. In providing public review of a proposed partial release, the NRC notices receipt of a licensee's proposal for a partial site release, regardless of the potential for residual radioactivity, and makes it available for public comment. The NRC is also required to hold a public meeting in the vicinity of the site to discuss the licensee's request for approval, or license amendment application in the case of impacted property, as applicable, and obtain comments before approving the release. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement*.

Comment: Again THERE MUST NEVER BE A PARTIAL OR FULL SITE RELEASE. ALL PROPERTY DEEDS MUST STATE THE SITES ARE NOT ONLY RADIOACTIVE, BUT SUPERFUND SITES, AS THAT IS WHAT THEY ARE. THE RIVER, LAKE, OCEAN BEACH

STRETCH OR WHATEVER IS NEXT TO THE SITE SHOULD BE POSTED AS RADIOACTIVE ALSO, EVEN IF THE SEDIMENT IS REMOVED, AS IT IS IMPOSSIBLE TO GET EVERYTHING. (**CL-20/73**)

Response: *A power reactor site or portions of a power reactor site that are released prior to termination of the reactor license would not qualify as a Superfund site with respect to a radiological hazard because the site or portion of the site would not be released from the NRC license until the licensee could demonstrate that the property posed no immediate or long-term radiological danger to the public. How former sites are identified, posted, or described in property deeds is outside the scope of NRC's mandate and regulations. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the text of the Supplement.*

Comment: 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 property through environmental migration e.g. rain, wind, etc and future decommissioning activities i.e. excavating, tracking or relocating contaminated materials. (**CL-50/19**)

Response: *The partial site release rule requires that portions of a site released prior to NRC approval of the License Termination Plan must meet the same criteria as the entire site would at license termination. In providing public review of a proposed partial release, the NRC notices receipt of a licensee's proposal for a partial site release, regardless of the potential for residual radioactivity, and makes it available for public comment. The NRC is also required to hold a public meeting in the vicinity of the site to discuss the licensee's request for approval, or license amendment application in the case of impacted property, as applicable, and obtain comments before approving the release. The partial site release rule does not specifically address methodologies for preventing recontamination of the released property. Licensees, however, have the same continuing responsibilities for controlling radiological releases onto property previously released for unrestricted use as they do for releases onto any other unrestricted areas adjacent to the site. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.4.3 Disposal of Low-Level Radioactive Waste

Comment: The draft GEIS says that low-level radioactive waste disposal is not part of the scope of this GEIS. However, this would appear to be contradicted by the definition of decommissioning (pg. xii), and by the scope, the release and removal of Sites, Systems and Components (SSCs). (**CL-38/6**)

Response: *The disposal of low-level waste (LLW) is not within the scope of this Supplement as it is an activity performed at a facility that is separately licensed or regulated. Sections 1.2, "Process Used to Determine the Scope of this Supplement," and 1.3, "Scope of this Supplement," address low-level waste and how it is considered in this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: In addition to the economic gash in the GEIS portal, this fatally flawed document does not adequately address, acknowledge, account for, or compute a number of significant barriers related to radiological decommissioning; including:] "Low-level" Radioactive Waste Isolation; (**CL-02/6**)

Comment: You talk about burying it somewhere, well everybody is in danger when you do this kind of thing. (**AT-D/7**)

Response: *The disposal of LLW is not within the scope of this Supplement, as it is an activity performed at a facility that is separately licensed or regulated. LLW facilities are sited in areas that are away from surface water and where the groundwater is located at depths sufficiently beneath the trenches to minimize nuclide migration. Sites and the surrounding areas are monitored using a system of wells to determine whether radioactive material is migrating into the groundwater. A combination of natural site characteristics and engineered safety features is used to ensure the safe disposal of LLW. In addition, restrictions of types and amounts of waste disposed of at a site, as well as the technical analysis performed as part of the licensing review to demonstrate compliance with performance objectives in NRC regulations, maintain the safety of LLW disposal. The natural characteristics of an LLW disposal site are relied on in the long-term, and they should promote disposal-site stability and attenuate the transport of radionuclides away from the disposal site into the general environment. Sites generally must possess the following characteristics: (1) relatively simple geology, (2) well-drained soils free from frequent ponding or flooding, (3) lack of susceptibility to surface geological processes, such as erosion, slumping, and landslides, (4) a water table of sufficient depth so that groundwater will not periodically intrude into the waste or discharge onsite, (5) lack of susceptibility to tectonic processes, (6) no known potentially exploitable natural resources, (7) limited future population growth or development, and (8) capability of not being adversely impacted by nearby facilities and activities. Engineered barriers are man-made structures designed to improve the natural site characteristics to isolate and contain waste. They consist of various engineered system components, including the following: (1) a layered earthen cover, (2) a disposal vault, (3) a drainage system, (4) waste forms and containers, (5) backfill material, and (6) an interior moisture barrier and low-permeability membrane. Regulations specify the*

allowable radiation dose from the LLW facilities to the workers and to the public. Evaluation of the environmental impacts associated with the disposal of low-level waste is outside the scope of this Supplement. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: The on site disposal of radiological demolition debris (rubblization) is considered in the GEIS. With rubblization abandoned at Maine Yankee, the cumulative effect of disposal of the debris at a licensed facility elsewhere is not considered. This makes no sense. Nor does it make sense to "lose" impacts when contaminated materials are shipped to handling facilities for recycling. Different choices made at the decommissioning site will result in different impacts to workers and other citizenry offsite and away. These effects should not be artificially separated from the environmental impacts of decommissioning simply because they are exported. (**CL-13/19**)

Response: *The disposal of low-level waste (LLW) is not within the scope of this Supplement, as it is an activity performed at a facility that is separately licensed or regulated (see Section 1.3). Regulations related to LLW disposal are in 10 CFR Part 61 and 10 CFR Part 20, Subpart K, of the Code of Federal Regulations. The staff did consider cumulative impacts. Section 4.2 has been changed for clarification.*

Comment: If such a tent system were used, afterwards it would be disposed of as rad waste. (**CL-20/35**)

Response: *If the tent system was contaminated and the contamination could not be removed to undetectable levels then the tent or the contaminated portions of the tent would have to be disposed of as LLW. The disposal of low-level waste (LLW) is not within the scope of this Supplement, as it is an activity performed at a facility that is separately licensed or regulated. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: In addition to recomputing the cost of LLW disposal, the reopening of Barnwell has indefinitely postponed the siting of a waste facility in Pennsylvania. (**CL-02/29**)

Response: *The factors influencing the siting of regional-compact burial sites is outside the scope of the Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The fact is, wherever this radioactively contaminated refuse winds up - from spent fuel to contaminated rags - it can't be contained forever and will reach the environment, which is why it must go to a remote location, below ground (none of this idiot parking lot out in Utah or

Nevada cask storage either) in a dry, geologically sound (as far as possible in a moving planet) location where monitoring could alleviate problems that arise prior to reaching the public and wildlife. NRC must recognize that this "solution" - while not a perfect solution, as there is no perfect solution to the nuclear waste issue, is the solution that has been gone back to repeatedly over the decades, after thousands of studies contemplating what to do with the waste failed to identify anything better, or safer. What NRC and industry are proposing in this Draft, flies in the face of thousands of prior studies by some of the world's most renowned people who understand the horror of the dilemma, and of their conclusions. Leaving all this contamination on sites around the nation to contaminate and kill hundreds of communities is simply barbaric and must be stopped at all costs. (**CL-20/114**)

Comment: The nuclear industry is leaving humankind a legacy of devastation, epitomized by its long-lived and highly dangerous nuclear waste. They are unable to solve their waste problem and now, when faced with the eventual shutdown of their plants, are unwilling to take measures to ensure that the public is protected. (**AT-A/43**)

Response: *The NRC has stated in its regulations: "The Commission has made a generic determination that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impact for at least 30 years beyond the licensed life for operation (which may include the term of renewed license) of that reactor at its spent fuel storage basin or at either onsite or offsite independent fuel-storage installations." Further, the Commission believes there is reasonable assurance that at least one mined geological repository will be available in the first quarter of the 21st century, and sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level waste and spent fuel originating in such reactor and generated up to that time. The evaluation of environmental impacts from the disposal of LLW and spent fuel is outside the scope of the Supplement (see Section 1.3). The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: There still remains a mountain of radioactive waste after shut down, including the reactor itself and, typically, an incredibly dangerous stockpile of irradiated reactor fuel. Whereas the reactor itself and the equipment and materials of the central facilities are often treated as the object of decontamination, it must be noted that the previous operation of the plant has dispersed radiation and contamination that did not regard the facility's fence line as a barrier. Any serious approach to decommissioning a site must take this into account. (**CL-47/7**)

Response: *Nuclear power facilities were licensed with the expectation that there would be routine releases of detectable radioactivity to the air and water surrounding the site. Such releases are controlled and limited to levels considered adequate to protect public health and*

safety. Radiological impacts of releases during plant operations are limited by criteria set forth in 10 CFR Part 20. Offsite remediation due to routine plant release is not warranted. The evaluation of environmental impacts from the disposal of LLW and spent fuel is outside the scope of the Supplement (see Section 1.3). The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: Allowing NRC to determine whether waste can or will remain after a reactor license is terminated is contrary to the policy of the respective compacts and in direct disregard of the federal low-level radioactive waste framework established by Congress. (**CL-17/9**)

Response: *Material that could be classified as low-level waste would not be left behind after license termination. Any radioactive contamination left behind after license termination must meet the License Termination Criteria given in 10 CFR Part 20, Subpart E. Materials that cannot meet these criteria are considered to be low-level waste and would have to be disposed of at a licensed low-level waste facility before the license could be terminated. Therefore, any radioactive material remaining onsite after license termination would not be considered radioactive waste. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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. (**CL-48/10**)

Response: *Although long-term storage of spent fuel and low-level waste is not within the scope of the Supplement, as described in Section 1.3, NRC is committed to ensuring that both spent fuel and low-level wastes are managed to prevent detrimental health impacts to the public. The NRC has stated in its regulations: "The Commission has made a generic determination that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impact for at least 30 years beyond the licensed life for operation (which may include the term of renewed license) of that reactor at its spent fuel storage basin or at either onsite or offsite independent fuel-storage installations." Further, the Commission believes there is reasonable assurance that at least one mined geological repository will be available in the first quarter of the 21st century, and sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level waste and spent fuel originating in such reactor and generated up to that time. LLW facilities are sited in areas that are away from surface water and where the groundwater is located at depths sufficiently beneath the trenches to minimize nuclide migration. Sites and the surrounding areas are monitored using a system of wells to determine if there is any leakage of radioactivity into the groundwater. A combination of natural*

site characteristics and engineered safety features is used to ensure the safe disposal of LLW. In addition, restrictions of types and amounts of waste disposed of at a site, as well as the analysis performed as part of the licensing to demonstrate compliance with performance objectives in NRC regulations, increase the safety of LLW disposal. The natural characteristics of an LLW disposal site are relied on in the long-term, and they should promote disposal-site stability and attenuate the transport of radionuclides away from the disposal site into the general environment. Sites generally must possess the following characteristics: (1) relatively simple geology, (2) well-drained soils free from frequent ponding or flooding, (3) lack of susceptibility to surface geological processes, such as erosion, slumping, and landslides, (4) a water table of sufficient depth so that groundwater will not periodically intrude into the waste or discharge onsite, (5) lack of susceptibility to tectonic processes, (6) no known potentially exploitable natural resources, (7) limited future population growth or development, and (8) capability of not being adversely impacted by nearby facilities and activities. Engineered barriers are man-made structures designed to improve the natural site characteristics to isolate and contain waste. They consist of various engineered system components, including the following: (1) a layered earthen cover, (2) a disposal vault, (3) a drainage system, (4) waste forms and containers, (5) backfill material, and (6) an interior moisture barrier and low-permeability membrane. Regulations specify the allowable radiation dose from the LLW facilities to the workers and to the public. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: Limerick, Oyster Creek, Peach Bottom, Salem, and Three Mile Island are among the nation's nuclear generating stations currently serving as "temporary" repositories for low-level radioactive waste. Limerick, Peach Bottom, and Three Mile Island do not meet the standards set by the Appalachian Compact in regards to a permanent LLW facility. (**CL-02/30**)

Response: *The NRC has historically discouraged the use of onsite storage as a substitute for permanent disposal, but has not limited the amount of time that the waste can be stored. However, LLW is normally stored onsite on an interim basis before being shipped offsite for permanent disposal. Onsite storage facilities are designed to minimize personnel exposure. High-dose-rate LLW is isolated in a shielded storage area and is easily retrievable. The lower dose-rate LLW is stacked or stored to maximize packing efficiencies. The NRC has guidelines regarding the storage facility, including the following: (1) shielding used should be controlled by dose-rate criteria for both the site boundary and any adjacent offsite areas and (2) a liquid drainage collection and monitoring system should be present. The drain should be routed to a radwaste processing system. The regulations related to LLW disposal are in 10 CFR Part 61 and 10 CFR Part 20 Subpart K. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Anything dumped or buried from the past practices on site must also be dug up and removed. (**CL-20/21**)

Response: The licensee is required to conduct a site characterization study to determine the location and extent of radioactive contamination. The LTP addresses the issue of onsite buried waste and soil contamination. Site remediation is addressed by the LTP. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: YOU CAN'T BURN IT/INCINERATE IT, IT GOES OUT THE STACK AND POLLUTES THE STACK, YOU CAN'T WASH IT, IT WINDS UP ALL OVER THE PLACE AND IN THE WATER, IT IS ALWAYS THERE, THE DEADLY, INVISIBLE KILLER. AT MOST YOU CAN TRY AND CONTAIN IT. (**CL-20/71**)

Response: *Companies licensed to incinerate radioactive waste are regulated by the NRC and EPA. Effluents are monitored and controlled prior to release and limited by NRC and EPA regulations. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: None of the mixed-waste should be dealt with as mixed waste (i.e. a combination of chemical/hazardous and radioactive) because MIXED WASTE FALLS THROUGH ALL REGULATORY CRACKS, BUT IT SHOULD BE TREATED AS RADIOACTIVE WASTE. (**CL-20/77**)

Response: *The disposal of mixed waste falls under NRC regulations (10 CFR Part 61, "Licensing requirements for land disposal of radioactive waste") and EPA regulations for disposal of hazardous waste (40 CFR Part 260 through 40 CFR Part 270). Offsite disposal of mixed waste is outside the scope of the Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: WASTE OILS SHOULD NOT BE SENT TO VENDORS FOR INCINERATION OR RECYCLING OR REUSE AS THEY ARE CONTAMINATED. (**CL-20/78**)

Response: *Contaminated waste oil will be dealt with in an appropriate manner consistent with NRC and EPA regulations. Offsite disposal of LLW is outside the scope of the Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: One of the things that has to be acknowledged I think or anticipated is the failure of the United States nuclear waste program on all levels, so that low-level dumps are not getting established, high-level dumps are not getting established. Therefore, we may really have to keep a lot more of this radiation on site than we had anticipated. (**AT-G/2**)

Comment: 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-United States reactors. (**CL-51/22**)

Response: *The NRC has stated in its regulations: "The Commission has made a generic determination that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impact for at least 30 years beyond the licensed life for operation (which may include the term of renewed license) of that reactor at its spent fuel storage basin or at either onsite or offsite independent fuel-storage installations." Further, the Commission believes there is reasonable assurance that at least one mined geological repository will be available in the first quarter of the 21st century, and sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level waste and spent fuel originating in such reactor and generated up to that time. LLW facilities are sited in areas that are away from surface water and where the groundwater is located at depths sufficiently beneath the trenches to minimize nuclide migration. The natural characteristics of an LLW disposal site are relied on in the long-term, and they should promote disposal-site stability and attenuate the transport of radionuclides away from the disposal site into the general environment. Sites generally must possess the following characteristics: (1) relatively simple geology, (2) well-drained soils free from frequent ponding or flooding, (3) lack of susceptibility to surface geological processes, such as erosion, slumping, and landslides, (4) a water table of sufficient depth so that groundwater will not periodically intrude into the waste or discharge onsite, (5) lack of susceptibility to tectonic processes, (6) no known potentially exploitable natural resources, (7) limited future population growth or development, and (8) capability of not being adversely impacted by nearby facilities and activities. Engineered barriers are man-made structures designed to improve the natural site characteristics to isolate and contain waste. They consist of various engineered system components, including the following: (1) a layered earthen cover, (2) a disposal vault, (3) a drainage system, (4) waste forms and containers, (5) backfill material, and (6) an interior moisture barrier and low-permeability membrane. Regulations specify the allowable radiation dose from the LLW facilities to the workers and to the public. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

O.4.4 Spent Fuel Maintenance, Storage, and Disposal

Comment: I find nothing in this thick document where [it] addresses at all the generic, or under generic or site-specific issues the impact and the effects on the structure, systems and components of an event which happens during decommissioning. And, of course, the radioactive fuel pools are the principle source in that case of radioactive contamination. (**AT-F/3**)

Response: *Section 4.3.9 addresses accident analysis, including those involving the spent fuel pool. Details of potential accidents are in Appendix I. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The Draft says, p.1-6, that NRC and the Commission are not considering the issue of spent fuel storage (in a pool or in one of those ridiculous casks outside in plain view for every terrorist to see) as part of decommissioning. The excuse is that its dealt with under other license aspects. (**CL-20/25**)

Response: *The commenter is correct in noting that the issue of spent fuel storage is outside the scope of this Supplement for reasons discussed in Section 1.3, "Scope of This Supplement." The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: It also says that the Commission has made a finding that the DEADLY, RADIOACTIVE SPENT FUEL BE STORED SAFELY AND WITHOUT SIGNIFICANT ENVIRONMENTAL IMPACTS FOR AT LEAST THIRTY YEARS BEYOND THE LIFE FOR OPERATION ETC. ETC. (**CL-20/26**)

Comment: [In addition to the economic gash in the GEIS portal, this fatally flawed document does not adequately address, acknowledge, account for, or compute a number of significant barriers related to radiological decommissioning; including:]Spent Fuel Isolation. (**CL-02/5**)

Comment: 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 plant, but dealing also with storage and transportation of lethal substances unforeseen when licenses were granted. (**CL-53/4**)

Comment: One of the things it (the 60 year period) presumes is that there's going to be a viable option for removing the spent fuel from the site. And I'm just wondering if anybody could

talk a little bit about the relationship there, because I am one of many people who believe that Yucca Mountain is not a foregone conclusion, although probably that is not your view here, but there is significant opposition to it from some rather more powerful actors than us in the State of Nevada. (**SF-B/5**)

Comment: Can the Commission identify a pragmatist, physicist, chemist, policy analyst, or behavioral scientist who is willing to testify that radiological decommissioning can be achieved with the fate of Yucca Mountain in perpetual limbo and the three current "low-level" radioactive waste facilities limited by finite capacity and geopolitical considerations? (**CL-02/13**)

Comment: Spent fuel "disposal" is an unresolved and hugely problematic area. Each reactor produces approximately 20 to 30 tons of high-level radioactive waste per year. There is presently, and at least until 2010, nowhere to put this waste. The technology to safely manage spent fuel for an indefinite period of time does not exist. There is no location to permanently store spent fuel and high-level radioactive waste (HLW) generated by nuclear power plants. (**CL-02/21**)

Comment: Aggravating the critical shortage of HLW storage space is the bleak estimate for the completion of Yucca Mountain, the designated repository for high-level nuclear waste. The earliest date this repository could be available is 2010. Lynn M. Shishido-Topel served as the Overseeing Commissioner of the Illinois Commerce Commission testified, also predicted that the amount of spent fuel generated by 2000 will be 40,000 metric tons (MTU). This amount of waste would exceed Yucca Mountain's capacity, and the State of Nevada has demonstrated that Yucca Mountain will probably hold about 20% of the total 85,000 MTU of spent fuel earmarked for the facility. (**CL-02/23**)

Comment: Isolation of high-level radioactive waste, which is primarily composed of spent fuel, can not be separated from radiological decommissioning. The earliest Yucca Mountain will be available is in the year 2010. Nuclear generating stations can not be decommissioned or decontaminated with the presence of HLW onsite or inside the reactor vessel. Aggressive decontamination process will be precluded, necessitating utilities to place retired reactors into extended-DECON or SAFSTOR. If a long-term solution to spent fuel isolation is not found in the immediate future, some of the nation's nuclear generating stations will be shut down prematurely due to an absence of spent fuel storage capacity. (**CL-02/26**)

Comment: It ought to be equally obvious that a satisfactory waste isolation solution evades us (we do not agree with Secretary Abraham that Yucca Mountain is a suitable repository based on science - the DOE itself admits that the site is not geologically suitable and the GAO raises serious questions about the selection process). (**CL-42/2**)

Response: *Although long-term storage of spent fuel is not within the scope of the Supplement, as described in Section 1.3, "Scope of This Supplement," NRC is committed to ensuring that both spent fuel and low-level wastes are managed to prevent detrimental health impacts to the public. The NRC has stated in its regulations: "The Commission has made a generic determination that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impact of at least 30 years beyond the licensed life for operation (which may include the term of renewed license) of that reactor at its spent fuel storage basin or at either onsite or offsite independent fuel-storage installations." Further, the Commission believes there is reasonable assurance that at least one mined geological repository will be available in the first quarter of the 21st century, and sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level waste and spent fuel originating in such reactor and generated up to that time. The comments do not provide new information relevant to this Supplement and will not be evaluated further. The comments do not result in a change to the Supplement.*

Comment: I probably have a question in there because I wasn't sure, reading through the document itself, where, like the outdoor storage facilities at Plant Hatch and elsewhere—how they are dealt with after the plant itself is decommissioned and if the license is terminated. I'm not sure how that works and who's responsible and I would like more clarification on that. (**AT-A/16**)

Response: *Both operating plants and plants that have permanently ceased operations and are decommissioning have the option to store their spent fuel in dry cask storage outside on a specially constructed concrete pad. The facility is called an Independent Spent Fuel Storage Installation or ISFSI. An ISFSI can be constructed and operated either under the same licensee that is used for an operating or decommissioning facility (called a "Part 50 license" in reference to the location in the Code of Federal Regulations that describes the license requirements) or under a site-separate license (called a "Part 72 license" in reference to the location in the Code of Federal Regulations that describes the licensing requirements for the ISFSI). Licensing the ISFSI separately under Part 72 license allows completion of the decommissioning of the power reactor and its associated structures, systems and components while retaining a license for the ISFSI. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Furthermore, some nuclear plants, like Hatch have overflowing volumes of nuclear waste that are now being stored outdoors which impacts the environment and could affect decommissioning. (**AT-A/25**)

Comment: Some nuclear plants, like Hatch, have overflowing volumes of nuclear waste that are now being stored outdoors which impacts the environment and could affect decommissioning. (**CL-08/7**)

Response: *Some of the spent fuel at Hatch is stored in an ISFSI located onsite. The ISFSI is licensed under the provisions of 10 CFR Part 50. The spent fuel at Hatch is stored in accordance with the regulations in 10 CFR Part 50 and/or 10 CFR Part 72. However, the impacts from an ISFSI are outside the scope of this Supplement, as discussed in Section 1.3. The impacts that an onsite ISFSI might have on decommissioning activities were considered to be insignificant since it is an independent facility located some distance from structures, systems or components that are likely to be removed during decommissioning. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: How will onsite, outdoor nuclear waste storage dumps, [also known as Independent Spent Fuel Storage Installations—ISFSI] like at Plant Hatch, be affected by decommissioning? How will the licensee of an ISFSI be impacted by events that may happen during decommissioning, i.e. what if there is an accident nearby and the casks are damaged or the site is rendered inaccessible? (**CL-08/27**)

Comment: Those issues are of grave concern. What happens, if during decommissioning terrorists take out three spent fuel casks blasting them to kingdom come OR two casks had a major problem and needed to be opened under shielding inside the spent fuel pool and there was either no room in the spent fuel pool or the cask came apart while trying to move it due to embrittlement of the cask from the radioactive decay heat coming off the spent fuel? (**CL-20/27**)

Response: *ISFSIs are generally located far enough away from structures and systems being dismantled or demolished during decommissioning that an accident during decommissioning would be unlikely to adversely impact the ISFSI. If a cask were to be damaged by some means, the licensee would be required to decontaminate the area and re-secure the spent fuel. Although difficult, such activity is technically feasible and could be accomplished relatively quickly. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: The GEIS does not consider the impacts of spent fuel storage. We believe this to be based on artificial distinctions. Both Maine Yankee and Haddam Neck have identified establishing an Independent Spent Fuel Storage Facility as a " critical pathway" in decommissioning. ISFSI construction has been regulated under the very same Part 50 license that

will be terminated upon successful decommissioning. Only then will a Part 72 license be issued. The ISFSI is in the middle of a decommissioning site and physically inseparable from decommissioning. Its impacts should be considered among the impacts of decommissioning in the GEIS. (**CL-13/18**)

Comment: 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 ISFSI's 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-50/23**)

Response: *Both operating plants and plants that have permanently ceased operations and are decommissioning use ISFSIs. ISFSIs are not unique to decommissioning plants. The initial development of the decommissioning regulations occurred in the early 1980s. At that time, the NRC and the industry assumed that by the time facilities began decommissioning, the U.S. Department of Energy's (DOE) high-level waste repository would be accepting spent fuel for ultimate disposal. Therefore, spent fuel onsite during decommissioning was not expected to be an issue. Consequently, development of regulations related to ISFSIs occurred separately from the development of decommissioning regulations. Since the ISFSI may in some cases remain at the site longer than a nuclear facility that is undergoing immediate decommissioning, it is appropriate that ISFSIs be capable of being licensed separately. The decommissioning of the ISFSI is also handled separately from the decommissioning of the nuclear power plant. Site-specific ISFSI licenses require the evaluation of the ISFSI separately from the remainder of the facility although other site activities adjacent to the ISFSI are considered to evaluate their impact on the storage of the spent fuel. An ISFSI can be constructed and operated either under the same license that is used for an operating or decommissioning facility (called a "Part 50 license" in reference to the location in the Code of Federal Regulations that describes the license requirements) or under a site-separate license (called a "Part 72 license" in reference to the location in the Code of Federal Regulations that describes the licensing requirements for the ISFSI. ISFSI licensing, siting, construction and operation are outside the scope of the GEIS on decommissioning (see Section 1.3). The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Until the spent rods are removed from local nuclear power plants the decommissioning rules should be tightened, not loosened. Your proposal may have seemed reasonable earlier this year but we live in a very different world now. It can no longer be business as usual at the NRC. (**CL-25/4**)

Response: *The Supplement provides an assessment of impacts related to the decommissioning process. The Supplement does not (1) establish policy, (2) establish or revise regulations, (3) impose requirements, (4) provide relief from requirements, or (5) provide guidance on the decommissioning process. The regulations for maintenance and storage of spent fuel are given in 10 CFR Parts 50 and 72 and are summarized in Appendix L of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: In the case of plants like Hatch, that have outdoor storage of nuclear waste, the notion of a reduced security force is even more troubling. (**AT-A/15**)

Response: *Nuclear power plants are regulated under 10 CFR Part 50 during both plant operation and decommissioning. Typically once a plant permanently ceases operation there is a gradual reduction in security requirements commensurate with the reduction of risk associated with the various structures, systems and components. However, security around the spent fuel pool remains at levels commensurate with those at an operating nuclear facility. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The excess storage—I mean the storage in pools, but there's a whole lot setting out in dry casks very vulnerable to whatever comes along, whatever happens. I mean the whole thing is just—I don't know how in the world they're going to deal with it. (**AT-D/4**)

Response: *Although long-term storage of spent fuel is not within the scope of the Supplement, as described in Section 1.3, "Scope of This Supplement," NRC is committed to ensuring that both spent fuel and low-level wastes are managed to prevent detrimental health impacts to the public. The NRC has stated in its regulations: "The Commission has made a generic determination that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impact of at least 30 years beyond the licensed life for operation (which may include the term of renewed license) of that reactor at its spent fuel storage basin or at either onsite or offsite independent fuel-storage installations." The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: As early as 1995, concerns about Yucca Mountain's integrity surfaced from scientists at Los Alamos National Laboratories. Dr. Charles Bowman warned that plutonium would remain after the steel casks holding the nuclide dissolved. Plutonium could then migrate and concentrate. And in February 1999, the scientific peer review panel for Yucca Mountain commissioned by the U.S. Department of Energy (DOE) produced a "highly critical" report. "The review panel said the model [DOE'S computer model] has so many uncertainties - like the corrosion rates of waste containers, the area's vulnerability to earthquakes and how climate

changes would affect rainfall - that its reliability was limited. In February, 1999, the scientific peer review panel for Yucca Mountain commissioned by the U.S. Department of Energy (DOE) produced a "highly critical" report. 'The review panel said the model [DOE's computer model] has so many uncertainties - like the corrosion rates of waste containers, the area's vulnerability to earthquakes and how climate changes would affect rainfall - that its reliability was limited." (**CL-02/24**)

Comment: A satisfactory waste isolation site evades us. Yucca Mountain is not a suitable geologic repository based on science – the DOE itself admits that the site is not geologically suitable; storage canisters will be required to protect the waste from exterior environmental contamination. Additionally, the GAO raises serious questions about the selection process. (**CL-46/3**)

Comment: I don't think there is any good way to treat the long-term storage of radioactive waste. I don't think Yucca Mountain is the answer, for darn sure, for various reasons. Also at Lawrence Berkeley Lab the group that's the Earth science group has done the study on groundwater transportation. And I know from some of my associates there that they think it is not a satisfactory location for long-term storage. (**SF-C/5**)

Response: *The spent fuel repository planned for Yucca Mountain is the subject of a separate NRC licensing action. Uncertainties of specific parameters are being evaluated at this time and will ultimately be addressed in the licensing action and the specific documents associated with it at that time. High-level waste disposal is outside the scope of this Supplement, as discussed in Section 1.3, "Scope of This Supplement." The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Furthermore, on October 4, 1999, LeBoeuf, Lamb, Green & MacRae, filed a complaint alleging a conflict of interest by the Department of Energy in their selection and awarding of $16 million legal contract to Winston & Strawn. Former general counsel to the Energy Department, R. Jenney Johnson, in a sworn affidavit, stated: "[A] situation has been created which an entity [Winston & Strawn] will pass judgment on its own work." (**CL-02/25**)

Comment: Years ago, when people spoke of some type of monitored, retrievable spent fuel storage, they meant monitored, so repairs could be made by remote control if needed, and retrievable so problems could be addressed. Spent fuel is the stuff that the Department of Energy has been charged with trying to contain for approx. 10,000 years removed from the biosphere. (**CL-20/81**)

Response: *High-level waste disposal is outside the scope of this Supplement as discussed in Section 1.3, "Scope of This Supplement." The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement*.

Comment: THE SPENT FUEL IS THE MOST SERIOUS ISSUE THERE IS. ANYONE WHO DOES NOT UNDERSTAND THAT SPENT FUEL CANNOT BE LEFT WHERE IT IS ON SITE, IN POOLS OR ISFSI'S BEYOND A VERY LIMITED NUMBER OF YEARS, BUT MUST BE PLACED DEEP UNDERGROUND, IN A DRY LOCATION, GEOLOGICALLY AS SOUND AS POSSIBLE, MONITORED FOR ETERNITY, DOES NOT UNDERSTAND RADIATION OR THE NUCLEAR ISSUE AND SHOULD NOT BE WORKING FOR THE NRC. NRC MUST SET THE TIME WHEN THE SPENT FUEL SHOULD ALL BE REMOVED OFFSITE AS NO LATER THAN TWO YEARS AFTER THE LAST CORE OFFLOAD HAS SPENT TEN YEARS IN THE SPENT FUEL POOL, I.E. FROM SPENT FUEL REMOVED FROM THE REACTOR INTO THE SPENT FUEL POOL AND THEN THE TEN YEAR "COOL DOWN" PLUS TWO YEARS, AFTER WHICH IT MUST BE MOVED. IF SUCH A DEADLINE IS NOT DECIDED, AND SET, COMMUNITIES ARE GOING TO BE STUCK WITH IT, WITH AWFUL CONSEQUENCES. (**CL-20/84**)

Response: *Although long-term storage of spent fuel is not within the scope of the Supplement, as described in Section 1.3, "Scope of This Supplement," NRC is committed to ensuring that both spent fuel and low-level wastes are managed to prevent detrimental health impacts to the public. The NRC has stated in its regulations: "The Commission has made a generic determination that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impact of at least 30 years beyond the licensed life for operation (which may include the term of renewed license) of that reactor at its spent fuel storage basin or at either onsite or offsite independent fuel-storage installations." Further, the Commission believes there is reasonable assurance that at least one mined geological repository will be available in the first quarter of the 21st century, and sufficient repository capacity will be available within 30 years beyond the licensed life for operation of any reactor to dispose of the commercial high-level waste and spent fuel originating in such reactor and generated up to that time. The comment proposes limits for the onsite storage of spent fuel. The Supplement does not (1) establish policy, (2) establish or revise regulations, (3) impose requirements, (4) provide relief from requirements, or (5) provide guidance on the decommissioning process. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.4.5 License Extensions

Comment: Likewise, there is no experience in decommissioning nuclear reactors that have operated beyond the original 40-year license period. (**AT-A/26**)

Comment: The NRC has no experience in decommissioning nuclear reactors that have operated beyond the original 40-year license period. (**CL-08/8**)

Response: *The commenter is correct. Nevertheless, the NRC is considering the environmental impacts of decommissioning following the extended operation during the renewal period and, if appropriate, refurbishment activities. License renewal is not within the scope of this Supplement, as it is a licensing activity covered elsewhere in the NRC regulations (see 10 CFR Parts 51 and 54) and in other EISs (see NUREG-1437, its addendum and supplements). The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement*.

Comment: We believe that the decommissioning document has definitely underestimated the impacts of the additional license extension period. In fact, the minimization of that impact I think is a major flaw in the document and that there needs to be a reassessment of all of the impacts, including cost, but also including the aging issues, including the waste issues and other offsite environmental impacts for license extension periods. (**AT-B/8**)

Response: *An analysis performed for NUREG-1437, Generic Environmental Impact Statement for License Renewal of Nuclear Plants, indicated that the physical requirements and attendant effects of decommissioning nuclear power plants after a 60-year license renewal (original 40-year license plus an additional 20 years for license renewal) are not expected to differ from those of decommissioning at the end of 40 years of operation. Section 1.3 was changed for clarification of this information.*

Comment: None should be re-licensed - the NRC should be ashamed of re-licensing. (**CL-20/116**)

Comment: I am opposed to any extensions on operating licenses for nuclear facilities of any sort and wish for a move to cleaner renewable energy. (**CL-41/2**)

Response: *License renewal is outside the scope of this Supplement. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

O.4.6 Site Characterization and Final Site Surveys

Comment: Additionally each nuclear power plant has a different historical performance record that may have impacted the surrounding environment in ways that are unique to the facility. What makes it acceptable to ignore these operating histories when decommissioning? (**AT-A/24**)

Response: *Licensees are required by 10 CFR 50.75(g) to "keep records of information important to the safe and effective decommissioning of the facility in an identified location until the license is terminated." These records include records of spills, etc. Prior to termination of an operating license, the NRC must determine that the terminal radiation survey and associated documentation demonstrate that the facility and site are suitable for release in accordance with the criteria for decommissioning in 10 CFR Part 20, Subpart E. Title 10 CFR Part 51.53(d) requires that the "Supplement to the Applicant's Environmental Report–Post Operating License Stage," which must be submitted with the License Termination Plan, update the "Applicant's Environmental Report– Operating License Stage" to reflect any new information or significant environmental change associated with the applicant's proposed decommissioning activities or with the applicant's proposed activities with respect to the storage of spent fuel. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: In order to provide a complete and up-to-date environmental profile of the site, the Supplement should direct licensees to summarize the following in their site-specific NEPA analyses (and as appropriate in the PSDAR and LTP): (a) pre-plant construction environmental reports (for plants constructed before the enactment of NEPA) and environmental impact statements (EISs) regarding the impacts of plant construction and operation, (b) environmental reports and/or assessments that were prepared during the period the plant was in operation regarding the impacts of plant operation, (c) significant requirements and changes in the licensee's environmental permits, and (d) changes in the environmental parameters of a facility site during operation and the impacts of any such changes (see also Response to Comment #6-A, page A-11). (**CL-16/7**)

Response: *The purpose of the Supplement is to provide an environmental analysis of the impacts associated with the decommissioning process. The Supplement does not (1) establish or revise regulations, (2) impose requirements, (3) provide relief from requirements, or (4) provide guidance on the decommissioning process. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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 U.S. General Accounting Office (GAO) May 1989 "NRC's Decommissioning Procedures and Criteria Need to Be Strengthened" (GAO/RCED-89-119) reports in its Executive Summary: "For almost 25 years, NRC allowed licensees to bury radioactive waste onsite 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-48/15**)

Response: *The NRC has addressed the issues in the GAO report in a letter to U.S. Senator Joseph I. Lieberman from Richard A. Meserve, Chairman U.S. NRC dated, March 2002 (ML020250068); however, the comment does not relate to commercial nuclear reactors. 10 CFR 50.75(g) requires power reactor licensees to maintain records of activities or events that could influence decommissioning. Additionally, licensees are required to conduct a site characterization study to support remediation efforts outlined in their LTP. During the review of the LTP, the NRC staff focuses attention on the possibility of groundwater contamination and soil contamination. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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-48/16**)

Response: *The purpose of the Supplement provides an environmental analysis of the impacts associated with the decommissioning process. The Supplement does not (1) establish or revise regulations, (2) impose requirements, (3) provide relief from requirements, or (4) provide guidance on the decommissioning process. 10 CFR 50.75(g) requires power reactor licensees to maintain records of activities or events that could influence decommissioning. Additionally licensees are required to conduct a site characterization study to support remediation efforts outlined in their LTP. During the review of the LTP, the NRC staff focuses attention on the possibility of groundwater contamination and soil contamination. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: New environmental assessment documents must be required, as old assessments are outdated and have been found to be inaccurate both on and offsite. (**CL-50/11**)

Response: *This Supplement is an update to an existing environmental impact statement. In addition, NRC decommissioning regulations at 10 CFR 50.82 require (1) that environmental issues be addressed in the post-shutdown decommissioning activities report and (2) that the licensee include a supplement to its environmental report part of the License Termination Plan. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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. (**CL-51/2**)

Response: *This Supplement deals with the impacts of decommissioning. Identification of onsite, contaminated areas is an integral part of the decommissioning process. Licensees are required to conduct a site characterization study to radiologically characterize the site and to support remediation efforts outlined in the LTP. One of the stated purposes of this document is to identify and assess the impact of decommissioning activities generically so that a site-specific assessment is not needed. The cooling water system, from intake structure through the discharge structure, is an integral part of the plant and is on owner-controlled land. It is, therefore, considered to be onsite. NRC will not terminate an operating license until the radiation survey and associated documentation demonstrate that the facility and site are*

suitable for release in accordance with the criteria for decommissioning in 10 CFR Part 20, Subpart E. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: This Draft 1 references MARSSIM. In its introduction, Draft "Marssim" did not address all sorts of things from contamination on vicinity properties through contaminated subsurface soil, water, construction materials and on and on. All of which must be cleaned up/have the contamination removed. They showed a lack of understanding of the groundwater cycle, and groundwater issues JUST LIKE THIS DRAFT DOES. (**CL-20/17**)

Comment: 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 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-50/26**)

Response: *The MARSSIM provides detailed guidance for planning, implementing, and evaluating environmental and facility radiological surveys conducted to demonstrate compliance with a dose- or risk-based regulation. It was prepared by the Department of Defense, The Department of Energy, the Nuclear Regulatory Commission, and the Environmental Protection Agency and discusses contamination of surface soil and building surfaces in detail. The MARSSIM specifically states that since other media (e.g., groundwater, surface water, subsurface soil, equipment, and vicinity properties) are potentially contaminated at the time of the final status survey, modifications to the MARSSIM survey design guidance and examples may be required. Identification of onsite contaminated areas is an integral part of the decommissioning process. NRC will not terminate an operating license until the radiation survey and associated documentation demonstrate that the facility and site are suitable for release in accordance with the criteria for decommissioning in 10 CFR Part 20, Subpart E. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: 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. (**CL-50/13**)

Response: *The purpose of this Supplement is to provide an environmental assessment of the impacts associated with the decommissioning process. It is not the place to establish or revise NRC regulations. Procedures for revising NRC regulations are found in 10 CFR, Part 2. NRC will not terminate an operating license until the radiation survey and associated documentation demonstrate that the facility and site are suitable for release in accordance with the criteria for decommissioning in 10 CFR Part 20, Subpart E. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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**)

Comment: 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. 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? (**CL-51/3**)

Comment: 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. 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? (**CL-51/4**)

Response: *Nuclear power reactors were licensed with the expectation that there would be routine airborne and liquid releases of radioactivity to the environment and that the releases would be detectable. The licensee is allowed to release gaseous and liquid effluents to the environment, but the releases must be monitored and meet the requirements of 10 CFR Part 20, Appendix B, Table 2. Therefore, although contaminants may be present and*

detectable offsite, the release limits have been designed and proven to be protective of the health and safety of the public and the environment. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

O.4.7 License Termination Criteria

Comment: Can you explain what the differences are between the actual impacts on a population of say 10,000 for the two options of non-restricted use and restricted use at the end of the decommissioning. And number two is what are the two levels of acceptable risk for the two options of leaving the site—leaving the site really clean, which is unrestricted use, or leaving the site restricted? (**AT-B/2**)

Comment: The question was 25 millirems where? (for unrestricted release) (**AT-B/3**)

Response: *The criteria for license termination are discussed in Section 2.2.2. For sites that have been determined to be acceptable for unrestricted use, there are no requirements for further measurement of radiation. For sites that have been determined to be acceptable for license termination under restricted conditions, additional measurements of radiation are required for sites that have residual radioactivity in excess of 1 mSv/yr (100 mrem/yr), but less than 5 mSv/yr (500 mrem/yr). These measurements are to be made by a responsible government entity or independent third party, including a governmental custodian of a site. The measurements are to be carried out no less frequently than every 5 years to ensure the institutional controls remain in place as necessary to meet the criterion of 0.25 mSv/yr (25 mrem/yr) to an average member of the critical group. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: I also utterly oppose defining decommissioning, in part, to include the "release of property for unrestricted use" and the "release of property under restricted conditions"—in other words, releasing radioactively contaminated materials into daily consumer use and commerce and unregulated disposal. How can you contemplate such a thing!!!!!!!!!!!!!! (**CL-33/20**)

Comment: I am opposed to the following change to NUREG-0586: In Supplement 1 to the Generic Environmental Impact Statement on Decommissioning: NRC defines decommissioning, in part, to include the "release of property for unrestricted use.." and the "release of property under restricted conditions." (**CL-43/14**)

Comment: I am opposed to NRC regulations pertaining to Decommissioning which would allow NRC to define decommissioning in part, to include "the release of property for unrestricted use.." And the "release of property under restricted conditions." It is entirely inappropriate and

scientifically ludicrous to allow "release" of highly radioactive contaminated materials into daily consumer use and commerce, or unregulated disposal, or the recycling of such materials into any form which causes public exposure with radioactivity contaminated materials. (**CL-44/13**)

Response: *The criteria for license termination are described in Section 2.2.2. The release of the property occurs only after the license termination criteria are met. The purpose of this Supplement is to provide an environmental assessment of the impacts associated with the decommissioning process. The Supplement does not (1) establish or revise regulations, (2) impose requirements, (3) provide relief from requirements, or 4) provide guidance on the decommissioning process. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: I am opposed to the following change to NUREG-0586: In Supplement 1 to the Generic Environmental Impact Statement on Decommissioning: 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 the Supplement. (**CL-43/13**)

Comment: I am opposed to NRC regulations pertaining to Decommissioning which would allow NRC to assert that the portion of decommissioning regulations (10 CFR 20 section E and its EIS, NUREG 1496) set the 25, 100 and 500 millirems per year allowable public dose levels from closed, decommissioned nuclear plants sites, and are not part of the scope of the Supplement. I disagree, and consider the inclusion of exposure from closed decommissioned plants a necessity to develop an accurate and realistic analysis of cumulative impacts. (**CL-44/12**)

Comment: 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-48/48**)

Response: *Chapter 1, Introduction, addresses how the scope of the Supplement was determined. Regulations pertaining to restricted or unrestricted release of a site were promulgated as part of the 1997 rulemaking on radiological criteria for license termination of NRC-licensed nuclear facilities. The rulemaking relied on by the "Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities," NUREG-1496, July 1997. Site release criteria are outside the scope of this Supplement. The Supplement does not (1) establish or revise regulations, (2) impose requirements, (3) provide relief from requirements, or (4) provide guidance on the*

decommissioning process. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: 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 preoperational radiation level. (**CL-52/14**)

Response*: Naturally occurring radioisotopes in the building materials would make such a standard impossible to achieve. For those facilities in which soil or building contamination exists, it would be extremely difficult to demonstrate that an objective of "return to background" had been achieved. In addition, the removal of soil or concrete to "pre-existing background" levels is generally not desirable from the perspective of risk to public health and safety and protection of the environment. For example, at some point, the removal of increasingly larger volumes of concrete and soil would also result in a greater net risk from transportation accidents. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: It really may matter to you, Ms. Hickey, that the license termination document details one level of exposure while the draft EIS on decommissioning details another level of exposure. (**AT-B/6**)

Response: *The comment is not specific and the staff is unable to respond. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Twenty-five millirems additional per year of exposure added to an increasing background, which is certainly manmade—and I say manmade. I mean women had very little to do with the decision making that went into increasing the background radiation that all of us are exposed to. But 25 millirems per year additional exposure is way too much....This is a roulette game. So the dose is way out of line for the restricted use, not to even mention the unrestricted use, which I'll get distressed if I do, so I won't. (**AT-B/15**)

Response: *The NRC's regulatory limits for radiological protection are set to protect workers and the public from the harmful health effects of radiation on humans. The limits are based on the recommendations of standards-setting organizations. Radiation standards reflect extensive scientific study by national and international organizations (the International Commission on Radiological Protection [ICRP], the National Council on Radiation Protection and Measurements [NCRP], and the National Academy of Sciences [NAS]) and are conservative to ensure that the public and workers at nuclear power plants are protected. The NRC radiation exposure standards are presented in 10 CFR Part 20, "Standards for Protection Against*

Radiation," and are based on the recommendations in ICRP 26 and 30. The purpose of this Supplement is to provide an environmental assessment of the impacts associated with the decommissioning process. The Supplement does not (1) establish or revise regulations, (2) impose requirements, (3) provide relief from requirements, or (4) provide guidance on the decommissioning process. The acceptability of the site release criteria is outside the scope of the Supplement (see Section 1.3). The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: I think the one other question I had was as I recall when the first statement was issued, there was a discrepancy between the NRC radiation exposure floor, threshold level, and the EPA level. Is that still out there? I think yours is 25, theirs is 4 to 15 or something for the same exposure. (**AT-C/5**)

Response: *NRC continues to rely on the findings from two international organizations, the International Commission on Radiation Protection (ICRP) and the National Council on Radiation Protection and Measurements (NCRP). Both organizations have acknowledged the difficulty in setting acceptable levels of risk for the public; however, both ICRP and NCRP have established a dose of 1 mSv/yr (100 mrem/yr) to an individual member of the public as the level that is acceptable for exposure to radiation from sources other than medical procedures. The ICRP and the NCRP further established the need to reduce this annual dose rate by using the principle of "optimization," considering the cost-effectiveness of additional dose reduction. Following these recommendations, the NRC adopted a level of 0.25 mSv/yr (25 mrem/yr) as the value for residual radioactivity at a site under consideration for license termination. EPA's radiation dose limit of 0.15 mSv/yr (15 mrem/yr) results from a different technical analysis for establishing an acceptable risk to the public and a value for residual radioactivity other than that of NRC where radiation is the only contaminant considered. In addition, the NRC also has a "cleanup" requirement of "As Low As Reasonably Achievable" (ALARA). The use of the ALARA requirement usually results in a site that is below the EPA's requirements as well. Nuclear reactors are licensed by the NRC, and the NRC is responsible for making the safety and environmental determination for termination of the license. Therefore, licensees are required to meet the NRC's requirements for residual radioactivity. However, since the NRC value of 0.25 mSv/yr (25 mrem/yr) is a limit, a licensee can choose to further reduce the value of residual radioactivity at a site to achieve annual dose values less than 0.25 mSv/yr (25 mrem/yr). The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: THERE SHOULD BE ABSOLUTELY NO UNRESTRICTED USE OF THE PROPERTY EVER. THE ADDITIONAL EXPOSURE IS TOTALLY INSANE (**CL-20/12**)

Response: *Unrestricted use is described in Section 2.2.2. The purpose of the Supplement is to provide an environmental assessment of the impacts associated with the decommissioning process. The 1997 rule establishing site release criteria allows for termination of the license without continued restrictions on the site. The Supplement does not (1) establish or revise regulations, (2) impose requirements, (3) provide relief from requirements or (4) provide guidance on the decommissioning process. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I am opposed to the following proposal(s) in the EIS: 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-26/6**)

Response*: The staff believes the author of the comment is referring to the effects of radiation exposures to the public from the site following license termination. The acceptability of the site release criteria is outside the scope of the Supplement. However, the dose models that were used to develop the site release criteria evaluate the persons receiving the highest dose as the maximally exposed individual. This person is a resident farmer. Doses were calculated to children and other vulnerable members of the population; however, their doses were lower because of the types of activities they were involved in. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.4.8 Beyond License Termination

Comment: There are still radioactive dangers after decommissioning. (**CL-29/1**)

Comment: I am opposed to the following change to NUREG-0586: In Supplement 1 to the Generic Environmental Impact Statement on Decommissioning: NRC ignores radiation dangers after decommissioning is done and utility is relieved of liability. (**CL-43/4**)

Comment: The proposed rules ignore radiation dangers after decommissioning. (**CL-25/7**)

Comment: I am opposed to the following proposal(s) in the EIS: NRC ignores radiation dangers after decommissioning is done and utility is relieved of liability. (**CL-26/5**)

Comment: I utterly oppose ignoring radiation dangers after decommissioning is done and utility is relieved of liability. (**CL-33/9**)

Comment: The nuclear facility's land, even after decommissioning, must not be allowed to revert to public or private use, even if the NRC believes that the radioactivity on the land is less than 25 millirems per year. Additionally, in no circumstances should future buildings, structures, etc. be built atop the former nuclear site. The draft GEIS mentions that tourism activities are planned for the Trojan nuclear plant in Oregon after decommissioning. Under no circumstances should that be allowed at any of these sites. Bringing tourists or school groups to nuclear plants that are running now is not acceptable. It's dangerous. I was just in Oregon for my honeymoon, and I just can't imagine going and touring that site. There are a lot of beautiful things in Oregon but the Trojan plant ain't one of them. (**AT-A/39**)

Comment: The nuclear facility's land, even after decommissioning, must not be allowed to revert to public or private use even if the NRC believes that the radioactivity on the land is less than 25 millirems per year. Additionally, under no circumstances should future buildings, structures, etc. be built atop the former nuclear site. (**CL-08/24**)

Comment: Even after all fuel is removed from the site and the entire structure is removed, the site will still be radioactive forever and still need a security person, basic maintenance person. (**CL-20/42**)

Response: *The acceptability of the site release criteria and its potential for affecting public health and safety and protection of the environment after license termination is outside the scope of the Supplement (see Section 1.3). Potential radiological impacts following license termination are covered by the "Final Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities," NUREG-1496, which supported the development of 10 CFR Part 20. Current criteria for license termination, given in 10 CFR Part 20, Subpart E, and shown in this Supplement in Section 2.2.2, stated that the Commission has established a 0.25 mSv/yr (25 mrem/yr) total effective does equivalent to an average member of the critical group as an acceptable criterion for release of any site for unrestricted use. This Supplement does not (1) establish or revise regulations, (2) impose requirements, (3) provide relief from requirements, or (4) provide guidance on the decommissioning process. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: The NRC must continue to monitor sites FOREVER after license termination in case of sudden increases in radiation levels from a source on the site no one had either considered or knew was there. (**CL-20/88**)

Comment: What agency or governing body is responsible for monitoring the site after the decommissioning is deemed "complete"? How do the licensee and a government agency, such as the NRC, which is mandated to protect the public health, allowed to walk away from a site that will essentially remain radioactive forever? (**CL-08/31**)

Response: *Structures, systems, and components onsite will be surveyed during the final radiation survey and contamination levels will be reduced to the level necessary for termination of the license. All structures, systems, and components that have radioactive contamination that could exceed the criteria would be decontaminated or dismantled and shipped to a low-level-waste disposal site. The licensee must keep records of information during the operating phase of the facility that would be used to identify where any spills or other occurrences involving the spread of contamination would be located. In addition, because the radioactive material will have been removed from the site, there would be no mechanism for further contamination or radiological releases, and any radiation levels would only be reduced over time due to natural decay. Therefore, there would not be any significant increase in onsite radiation levels some time in the future. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: For a site decommissioning that results in a license termination for unrestricted use, the long-term radiological impacts to the public may well be within acceptable limits. However, for a decommissioning that results in a license termination with restricted site use the potential exists for long-term radiological impacts to the public to be far above acceptable limits. The draft Supplement does not consider this potential. While narrowly focusing the radiological studies to the decommissioning process, the NRC does not consider those potential long-term impacts to the public. (**CL-17/3**)

Response: *Licensees are allowed by regulations in 10 CFR Part 20, Subpart E, "Radiological Criteria for License Termination," to release the site for restricted use. The impacts following a restricted release license termination will not be considered by this Supplement because the impacts are highly site-specific and would require a site-specific analysis. The site-specific analysis would be included in the License Termination Plan submitted to the NRC for review and approval by the license amendment process. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: To allow utilities to have no liability after decommissioning is done when the proposals are seen as "generic" does not provide any protection to local citizens. Accountability for our actions is important and utility companies should not be exempt from that. (**CL-39/4**)

Response: *The consideration of liability is outside the scope of this Supplement. The criteria for license termination are discussed in Section 2.2.2. Termination of the NRC license does not eliminate the utility's liability. The missions of the NRC include the protection of public health and safety and protection of the environment. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Decommissioning should never be deemed to be complete until the entire site is no longer radioactive. We understand that this means extremely long-term oversight of the reactor sites. Some of the decommissioning wastes, such as the nickel compounds, have extremely long half-lives and remain dangerous for millennia. Liability for the site needs to remain with the utilities and the NRC must retain regulatory control over the entire site. (**CL-40/3**)

Response: *For those sites in which structures or buildings are left it would be extremely difficult or impossible to demonstrate a "return to background" or that the site is "no longer radioactive." Naturally occurring radioactive materials in the building materials, soils, the presence of radon gas, and cosmic rays would make such a standard impossible to achieve. Termination of the license does not eliminate the licensee's liability for the site. The criteria for license termination are described in Section 2.2.2. The release of the property occurs only after the license termination criteria are met. The purpose of this Supplement is to provide an environmental assessment of the impacts associated with the decommissioning process. The Supplement does not (1) establish or revise regulations, (2) impose requirements, (3) provide relief from requirements or (4) provide guidance on the decommissioning process. The consideration of liability is outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Residual contamination left at a site whose license was terminated for unrestricted use could be perceived as disposal of low-level radioactive waste. (**CL-17/6**)

Response: *The material that remains at the site after the license has been terminated must meet the license termination criteria in 10 CFR Part 20, Subpart E, or it can not have been left at the site. Material that cannot meet these criteria would have been considered to be low-level radioactive waste and would have to have been disposed at a licensed LLW facility before the license could be terminated. Therefore, any low-level radioactive waste left on site after license termination would not be considered as radioactive waste. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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? (**CL-51/16**)

Comment: Okay, so who's responsible then for a site that has restricted use. Because I couldn't quite tell. Who would actually protect the public? (**AT-B/4**)

Response: *For sites that have been determined to be acceptable for license termination under restricted conditions, additional measurements of radiation are only required for sites that have residual radioactivity between 1 and 5 mSv/yr (100 and 500 mrem/yr) to the average member of the critical group. These measurements are to be made by a responsible government entity or independent third party, including a governmental custodian of the site. The institutional controls remain in place as necessary to meet the criterion of 0.25 mSv/yr (25 mrem/yr) to an average member of the critical group (Section 2.2.2). The licensee is responsible to provide sufficient funds to carry out responsibilities for control and maintenance of the site (Section 2.2.2). The NRC regulations do not specify the institutional controls. The institutional controls are established during the NRC staff review of the license termination plan (LTP). The LTP is incorporated into the license by amendment so an opportunity to request a hearing would be provided. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Who would determine if remediation were needed; who would be liable for the costs of offsite contamination or other accidents? (**CL-51/17**)

Response: *For sites that have been determined to be acceptable for unrestricted use, there are no requirements for future measurement of radiation levels. It is not expected that these radiation levels would change, other than to be reduced over time, because the radioactive material will have been removed from the site, and there would be no mechanism for further contamination or radiological releases. For sites that have been determined to be acceptable for license termination under restricted conditions, additional measurements of radiation are only required for sites that have residual radioactivity between 1 and 5 mSv/yr (100 and 500 mrem/yr) to the average member of the critical group. These measurements are to be made by a responsible government entity or independent third party, including a governmental custodian of the site. The institutional controls remain in place as necessary to meet the criterion of 0.25 mSv/yr (25 mrem/yr) to an average member of the critical group (Section 2.2.2). The licensee is responsible to provide sufficient funds to carry out responsibilities for control and maintenance of the site (Section 2.2.2). The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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 rubblized concrete dismantlement, from William Travers, NRC Executive Director for Operations, to the Commissioners (February 14, 2000). (**CL-51/18**)

Response: *During the decommissioning process for power reactors, materials may not be released, recycled, or reused if there are detectable levels of licensed radioactive material present. These materials are carefully monitored and controlled before release. If contaminated equipment or debris is inadvertently released from the site and it presents a risk to public health and safety or a risk to the environment then the material would be recovered and disposed of in a licensed disposal facility. Responsibility for recovery of the material would be determined on a case by case basis. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The transformation of the nation's abandoned nuclear power plants into de facto waste facilities is worrisome from environmental, safety and national security standpoints. (**CL-51/23**)

Response: *Nuclear power plants will not be abandoned. NRC oversight at the facility will continue until the license terminated. There are two categories of uses for the facility after license termination: unrestricted use and restricted use. For sites that have been determined to be acceptable for unrestricted use, there are no requirements for further measurement of radiation levels. It is not expected that these radiation levels would change, other than to be reduced over time, because the radioactive material will have been removed from the site and there would be no mechanism for further contamination or radiological releases. For sites that have been determined to be acceptable for license termination under restricted conditions, additional measurements of radiation are only required for sites that have residual radioactivity between 1 and 5 mSv/yr (100 and 500 mrem/yr) to the average member of the critical group. These measurements are to be made by a responsible government entity or independent third party, including a governmental custodian of the site. The institutional controls remain in place as necessary to meet the criterion of 0.25 mSv/yr (25 mrem/yr) to an average member of the critical group (Section 2.2.2). The licensee is responsible to provide sufficient funds to carry out responsibilities for control and maintenance of the site (Section 2.2.2). The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: THERE NEVER SHOULD BE A LACK OF INSTITUTIONAL CONTROL EITHER. (**CL-20/13**)

Response: *NRC has regulations in place to monitor sites until license termination. At that time, if the facility is categorized for restricted use, the institutional controls remain in place as necessary to meet the criterion of 0.25 mSv/yr (25 mrem/yr) to an average member of the critical group (Section 2.2.2). The licensee is responsible to provide sufficient funds to carry out responsibilities for control and maintenance of the site (Section 2.2.2). If it meets the criteria for unrestricted use, there are no required institutional controls. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: To enforce no liability after they leave is simply criminal. (**CL-34/4**)

Comment: The owner must remain fully liable. (**CL-36/5**)

Response: *The consideration of liability is outside the scope of this Supplement. However, termination of the NRC license does not eliminate the utility's liability. The criteria for license termination are discussed in Section 2.2.2. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: The federal government (the U.S. 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? (**CL-51/25**)

Response: *The criteria for license termination are discussed in Section 2.2.2. For sites that have been determined to be acceptable for unrestricted use, there are no requirements for further measurement of radiation. For sites that have been determined to be acceptable for license termination under restricted conditions, additional measurements of radiation are required for sites that have residual radioactivity in excess of 1 mSv/yr (100 mrem/yr) but less than 5 mSv/yr (500 mrem/yr). These measurements are to be made by a responsible government entity or independent third party, including a governmental custodian of a site. The measurements are to be carried out no less frequently than every 5 years to ensure the institutional controls remain in place as necessary to meet the criterion of 0.25 mSv/yr (25 mrem/yr) to an average member of the critical group. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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 other nuclear licensee'

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. (**CL-52/11**)

Response: *Compliance with the Radiological Release criteria found in 10 CFR Part 20, Subpart E, will result in protection of the public health and safety. Once the licensee can demonstrate that the Radiological Release Criteria will not be exceeded, no further cleanup is necessary. Therefore, the State or municipalities would not incur any additional costs. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.4.9 Ownership

Comment: [In addition to the economic gash in the GEIS portal, this fatally flawed document does not adequately address, acknowledge, account for, or compute a number of significant barriers related to radiological decommissioning; including:] Joint Ownership. (**CL-02/9**)

Response: *Joint ownership of a nuclear facility is not uncommon and is an outgrowth of anti-trust consideration. This comment relates to nuclear power facilities in general and is outside the scope of this Supplement. However, a number of power facilities undergoing decommissioning have joint owners and no significant problems in this arrangement have been identified. The decommissioning funds will be available for decommissioning a permanently shutdown reactor, regardless of ownership. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The most disturbing and financially bizarre component of radiological decommissioning is the relationship between a “power reactor license” and the “minority power reactor licensee.” Unlike “power reactor licensees,” “fractional licensees” are not subjected or mandated by the Nuclear Regulatory Commission to empirically verify, report or monitor record keeping relating to nuclear decommissioning funding mechanisms. In some instances, even Public Utility Commissions lack the ability to mandate or regulate savings levels from “fractional licensees”, e.g., Rural Electric Cooperatives. (**CL-02/35**)

Response: *Although the facility may be owned by multiple owners, the licensee is a single entity and is responsible for complying with the financial assurance requirements of 10 CFR 50.75. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: How will the facility licensee, in our case, Southern Nuclear, benefit from later sale of the nuclear plant's land to a new owner? Also, how will the land be tracked after it's deemed "safe" and the licensee sells it…especially in cases where there may be a leak or a release of radiation into the environment after the initial sale occurred? For instance, isn't it in the best financial interest of the licensee, in our case Southern Nuclear, to use the fastest and least expensive decommissioning option so that the license can be terminated and they can sell the land before deficiencies can be found in the manner in which a plant was decommissioned? (**CL-08/28**)

Response: *Once the license is terminated, the NRC has no regulatory authority over activities at the site, and the owner of the site is no longer subject to NRC regulations. If the condition of the facility at the time the license is terminated is such that the regulations allow the site to be available for unrestricted use, then there will not be any sources of radioactive contamination to result in a leak or significant release of radioactive material into the environment. The economic benefits to the utility after license termination are not within the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Since deregulation, numerous nuclear plants have changed hands. To "Cushion" the transition from regulated monopoly to competitive marketplace, many states allowed"electric utilities" to recover "stranded costs." Rate payers are saddled with paying for the industry's uneconomical investments, i.e., "stranded costs." "Two of the most "bullish" nuclear corporations, Exelon and PPL, recovered over $8.3 billion in "uneconomical investments." This figure does not include the millions in savings Exelon and PPL have accrued by unilaterally devaluing the combined PURTA and Real Estate tax assessments for their nuclear generating stations.

The Susquehanna Steam Electric Station is the most glaring example of a company "devaluing" their property at the expense of taxpayers, while billing the same hostage rate payer for uneconomical investments, and exposing this rate payer/taxpayer to further financial exposure related to the underfunding of nuclear decommissioning.

In the of Winter 1999-2000, PPL unilaterally devaluated the combined PURTA and Real Estate tax assessments for the SSES. Prior to the 1998 Joint Petition for Negotiated Settlement, the nuclear power generating units were assessed by PP&L at approximately $1 billion. PPL now claims that the SSES is only worth $74 million or the same amount as the valuation of the Columbia Hospital. Not only did the Berwick School District and Luzerne County experience revenue shock, but PPL refused to pay or escrow any monies they owed to Luzerne County and the Berwick School district while the case was being appealed.

PPL's behavior is all the more egregious in an era where nuclear plant's value on the open-marker are equal to, or in excess, of fossil generating stations. For example, Entergy and Dominion resources engaged in a bidding war to purchase the Fitzpatrick and Indian Point 3 nuclear generating stations from the New York Power Authority (NYPA). The sale established a record high. (**CL-02/32**)

Response: *The Supplement provides an environmental assessment of the impacts associated with the decommissioning process. Discussions on the source of funds for the decommissioning trust fund are outside the scope of the GEIS. Furthermore, the comment relates to operating nuclear power facilities and not decommissioning facilities and is outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The General Accounting Office has slammed the NRC for its lack of oversight of transfers and mergers in the nuclear industry and had not verified that new owners would have guaranteed access to the decommissioning charges that their affiliated utilities would collect, in some cases, plus, a host of other safety and other issues were raised, all of which are troubling. The NRC must immediately address problems, and should demand that companies provide enough money for oversight - to include security staff, maintenance staff, nuclear engineers, radiation safety officers etc. - essentially forever. (**CL-20/41**)

Response: *In a letter dated March 1, 2002 (ML-020250068), the NRC responded to the GAO findings and elaborated on its programs and practices. The Supplement provides an environmental assessment of the impacts associated with the decommissioning process. Discussion of access to the decommissioning trust funds by new owners of facilities is outside the scope of the GEIS. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Utility deregulation has put the ownership of these plants in hands that are not as responsible as they once were. Plymouth MA suffers financially because of the loss of tax revenue from the Pilgrim Plant - we cannot assume the additional risk these rules would place on us. (**CL-25/3**)

Response: *This comment relates to the power market and the effects of deregulation in general and is outside the scope of this Supplement. Licensees are required to satisfactorily maintain the decommissioning trust fund for the facility under the provisions of 10 CFR 50.755.*

They are required to periodically report the status of their trust fund to the NRC. The NRC has the responsibility to review the progress the licensee is making in fully funding the trust fund for decommissioning. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

O.4.10 Financial Assurance

Comment: Second, we're concerned about the financial viability of the companies that own these sites. During a 60-year period, the companies may go bankrupt and that may leave the sites unaccounted for. We're also worried about the uncertainty associated with the cost of disposing radioactive material later. We understand that safe store is preferred because of lower costs later, but because of Yucca Mountain and other uncertainties about disposal, we're concerned about those hanging costs. (**CH-A/6**)

Comment: But what happens to a facility that shuts down prematurely and they haven't actually collected sufficient funds for what's necessary for decommissioning and then, they go bankrupt? And that situation still poses a risk. (**CH-A/15**)

Comment: Does any one of sound mind or body residing within the Commission really think that a nuclear power plant can be radiologically decommissioned if the funding is inadequate and the plant is prematurely shut down? (**CL-02/12**)

Comment: Prematurely shutdown reactors place an additional financial strain on the licensee. (**CL-02/42**)

Comment: There's a financial assurance gap here, I feel, and this has been mentioned several times tonight. I'll say two syllables—Enron....And I could be wrong about this but I thought the money was somewhat linked to the rate base and all these plants are not operating for their design life. And so I'm real concerned that the fund was never—the goal was never set correctly to begin with and that we would fall short on raising the money, it may not be enough....Is there assurance or something for a corporation a couple of generations removed from the corporation that actually originally licensed and built the plant? (**AT-G/3**)

Response: *If a facility shuts down prematurely before the decommissioning trust is fully funded, or if it unexpectedly finds itself having to shift to a more costly decommissioning option, the facility license holder is still obligated to fund the entire cost of decommissioning. Most power generators are diversified and are able to continue to add funds to their decommissioning trust fund. To date, none of the license holders of prematurely shutdown power reactor facilities have defaulted on their decommissioning funding obligation. Bankruptcy does not necessarily mean that a power reactor licensee will liquidate. To date, the NRC's experience with bankrupt power reactor licensees has been that they file under Chapter 11 of*

the Bankruptcy Code for reorganization, not liquidation (for example, Public Service Company of New Hampshire, El Paso Electric Company, and Cajun Electric Cooperative). In these cases, bankrupt licensees have continued to provide adequate funds for safe operation and decommissioning, even as bondholders and stockholders suffered losses that were often severe. Because electric utilities typically provide an essential service in an exclusive franchise area, the NRC staff believes that, even in the unlikely case of a power reactor licensee liquidating, its service territory and obligations, including those for decommissioning, would revert to another entity without direct NRC intervention. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: However, the Nuclear Regulatory Commission has steadfastly refused to address the fundamental problem that has created and perpetrated financial gaps between "target" (2) decommissioning funding and actual assets on hand to complete radiological decommissioning (3). In fact, the Commission has no statutory authority to compel "electric utilities" to physically raise, maintain, secure and account for radiological decommissioning funding. The NRC can authorize and mandate a preferred "mode of decommissioning", but the Commission lacks the ability to ensure the existence of adequate funding levels. i.e. accretible external sinking funds.

The NRC's GENERIC Environmental IMPACT STATEMENT (GEIS) on DECOMMISSIONING of NUCLEAR FACILITIES-NUREG-0588: DRAFT SUPPLEMENT DEALING WITH DECOMMISSIONING of NUCLEAR POWER REACTORS does not adequately factor the financial disconnect between NRC "Funding targets" and actual and realized funding pools accrued by "electric utilities." Moreover, there remains a chronic shortfall between "targeted" funding levels and actual costs for nuclear decommissioning. (4) (**CL-02/2**)

Comment: The GEIS failed to address the issue of nuclear plant "devaluation" and revenue shock. (**CL-02/33**)

Response: *While the process for decommissioning nuclear power facilities is now well established, the cost of decommissioning varies from one nuclear facility to the next. The variability is due to the major factors listed in the Supplement (Section 4.3.11.2). Cost estimates (at the time of licensing, 5 years before anticipated shutdown, with the Post-Shutdown Decommissioning Activities Report submittal, 2 years following shutdown, and 2 years preceding the anticipated termination of the license) are site-specific, and provide a method of re-evaluating the decommissioning costs at various times and stages in each facility's life. The regulations to ensure the availability of decommissioning funds were originally established in 1988, and site-specific decommissioning cost estimates are required as provided in 10 CFR 50.75 and 10 CFR 50.82. Failure to comply with NRC regulations is a violation of the facility license and the NRC could take enforcement action to compel the licensee to comply*

with the provisions of 10 CFR 50.7. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: Funding targets to bring a site back to "Greenfield' are set by the Nuclear Regulatory Commission and do not include spent fuel disposal or non-radiological decommissioning. However, the NRC has no rate making authority and electric utilities must go before state utility commissions to recover funding levels "suggested" by the NRC. But the Companies are not mandated by the federal government to submit detailed funding plans until two years prior to site closure. In addition, if a utility has been saving for DECON, but SAFSTOR is necessitated, the funding package becomes grossly inadequate. (**CL-02/39**)

Response: *Radiological decommissioning activities continue 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, 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 authority. As a result, activities performed after license termination (to meet other requirements, e.g., additional state requirements such as additional radiological decontamination, removal of structures, site grading, etc.), and the resulting impacts are outside the scope of this Supplement. These activities may include site restoration. The return of the site to Greenfield conditions is specifically stated to be out of scope of the Supplement (Section 1.3, "Scope"). Experience to date has shown that licensees have been able to change decommissioning options (such as DECON to SAFSTOR) without significant financial difficulties. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: As of this filing, no commercial nuclear power plant has been decommissioned, decontaminated, and returned to free-release. Nuclear decontamination and decommissioning technologies are in their infancy and several identifiable industrial trends are apparent when reviewing the Nuclear Regulatory Commission's treatment of prematurely shutdown reactors: There is a reluctance to undertake, initiate or finance decommissioning research. (**CL-02/41**)

Response: *The statement is not true; two commercial nuclear power plants (Shoreham and Ft. St. Vrain) have been decontaminated and decommissioned and the sites released for unrestricted access. The U.S. Department of Energy (DOE) has funded significant decommissioning-related research over the past 10 years. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Georgians for Clean Energy does not believe that the GEIS adequately addresses decommissioning costs. Though assurances were made at the public meeting in Atlanta that decommissioning funds are adequate, real-world examples have proved otherwise. For instance, in the current world of mega-mergers of electric utilities and sudden dissolution of energy giants such as Enron, there is little guarantee in place that companies will be able to pay for the full costs of decommissioning. Additionally, we are concerned that the method of decommissioning a nuclear power plant is determined more by the cost implications to the licensee than the overall ramifications of leaving a contaminated site for the local communities. (**CL-08/10**)

Response: *NRC staff would not speculate on how the financial collapse of one corporation affects the financial soundness of power generators as a whole. There is, in fact, reasonable assurance that utilities will have the resources to fund decommissioning. Industry experience to date has not revealed problems in securing adequate funds in the decommissioning trust fund to complete decommissioning. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Furthermore, a report issued this December by the U.S. Government Accounting Office, "NRC's Assurances of Decommissioning Funding During Utility Restructuring Could Be Improved--GAO-02-48," brings to light many concerns about the lack of adequate funding available for decommissioning activities. The following statement by the GAO makes it apparent that the NRC needs to improve, "However, when new owners proposed to continue relying on periodic deposits to external sinking funds, NRC's reviews 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. Accordingly, GAO is making a recommendation to ensure a more consistent review process for license transfer requests." (**CL-08/12**)

Comment: Georgians for Clean Energy requests that this extensive report be thoroughly reviewed by the NRC staff, be printed in it's entirety as an appendix in the final GEIS as the report did not come out before the draft GEIS was issued, and that the recommendations by the GAO be studied and incorporated into the final GEIS. Additionally, the public participation process should be extended to allow for proper review of this important report. (**CL-08/13**)

Comment: 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-48/23**)

Response: *In a letter dated March 1, 2002 (ML-020250068), the NRC responded to the GAO findings and elaborated on its programs and practices related to licensee financial qualifications and decommissioning funding assurance. Based on the industry experience to date and the decommissioning funding requirements in 10 CFR 50.75, the NRC staff has no reason to believe that the decommissioning trust funds are inadequate. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: The NRC needs to pay attention to decommissioning costs proposed by Georgia nuclear utilities during rate cases and other proceedings so there is not a situation created where much needed monitoring and maintenance is ignored simply because there was no regulatory attention to the real cost of decommissioning. (**CL-08/16**)

Response: *Decommissioning activities continue 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, 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 authority. As a result, activities performed after license termination (to meet other requirements, e.g., additional state requirements, not subject to NRC authority) and the resulting impacts are outside the scope of this Supplement. These activities may include any other than NRC-required monitoring, including site restoration. The return of the site to Greenfield conditions is specifically stated to be outside the scope of this Supplement (Section 1.3, "Scope"). Most power generators are diversified and are able to be flexible in case of a change in plans (such as a change in decommissioning method). The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: How is the funding of decommissioning costs guaranteed to be met by a company in a day and age where gigantic utility companies can collapse at any moment, as has recently happened with Enron? (**CL-08/29**)

Response: *NRC staff would not speculate on how the financial collapse of one corporation affects the financial soundness of power generators as a whole. There is, in fact, reasonable assurance that utilities will have the resources to fund decommissioning. Furthermore, the decommissioning trust fund is specifically set up to prevent licensees from accessing the fund for money other than for decommissioning. To date, none of the license holders of prematurely*

shutdown facilities have defaulted on their decommissioning funding obligation. Bankruptcy does not necessarily mean that a power reactor licensee will liquidate. To date, the NRC's experience with bankrupt power reactor licensees has been that they file under Chapter 11 of the Bankruptcy Code for reorganization, not liquidation (for example, Public Service Company of New Hampshire, El Paso Electric Company, and Cajun Electric Cooperative). In these cases, bankrupt licensees have continued to provide adequate funds for safe operation and decommissioning, even as bondholders and stockholders suffered losses that were often severe. Because electric utilities typically provide an essential service in an exclusive franchise area, the NRC staff believes that, even in the unlikely case of a power reactor licensee liquidating, its service territory and obligations, including those for decommissioning, would revert to another entity without direct NRC intervention. Additionally, an NRC licensed facility undergoing decommissioning or a site that is not under license but is undergoing decommissioning under NRC's regulation also warrant remediation under CERCLA as a Superfund site. These statutory provisions might become particularly relevant at sites for which funding is inadequate for cleanup. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: 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. (**CL-48/22**)

Comment: 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-51/19**)

Response: *The NRC has published a final policy statement in the Federal Register (62 FR 44071) regarding the adequacy of decommissioning funds. Because of deregulation in the power market, some licensees would cease being an "electric utility," as defined in NRC regulations. Should this occur, periodic deposits to an external sinking fund would no longer be allowed; rather, the NRC requires that a licensee provide funding assurance for the full estimated cost of decommissioning, either through full up-front funding or by some allowable guarantee or surety mechanism. Deregulation would not invalidate the license; as a result, the licensee will still be liable for the safe and complete decommissioning of their facilities. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Objective empirical data clearly demonstrate that the majority of commercial nuclear power plants will not operate through their planned operating life of forty years (40). While the power reactor licensees are entitled to recover a portion of decommissioning funding

through the rate, they are not entitled to a full and complete rebate on “stranded investments”, and shortfalls that will certainly arise due to the under funding of nuclear decommissioning “funding targets.” Shareholders and Board Members of electric utilities and Rural Electric Cooperatives (REC) must assume responsibility for their business decisions. These aforementioned entities aggressively sought to license, construct, and operate nuclear power plants. To allow artificial definitions concerning ownership of nuclear generating stations to insulate those who cogently made capital investments is immoral, unethical, and an endorsement of corporate socialism. That is, shareholders profit from imprudent investment decisions and are accorded relief when error of mismanagement becomes manifest. The Pennsylvania Public Utility Commission cited Nuclear Regulatory Commission guidelines that suggested five criteria for evaluating alternative financing mechanisms for nuclear decommissioning. One of the components of was titled “Intergenerational equity - that the cost of decommissioning be spread equitably to all rate payers throughout the life of the facility.” Unless a more equitable funding formula for nuclear decommissioning is established, rate payers and taxpayers who received little or no direct electrical benefit from nuclear generating, will be financially exposed. The nuclear industry must assume responsibility for their investment strategies. Creating and perpetuating intergenerational debt is reckless and fundamentally inequitable and undemocratic. Future generations may be exposed to gross rate payer inequity if adequate decommissioning funding based on realistic estimates (and not “funding targets”) are not assured. The solution should not be a financial safety net provided by hostage rate payers and taxpayers excluded from internal corporate decision making. “Electric utilities” must assume financial responsibility for their decisions to invest in nuclear power which necessarily means the shareholder should bear a substantial portion of post-deregulation decommissioning expenses. Clearly, a formula must be established that recognizes rate payer and taxpayer equity for the realized service that power reactor licensees provide. It is time for the Nuclear Regulatory Commission to recognize, through its Environmental Impact Statements, that consumers and taxpayers are human beings and not abstract, hypothetical billing invoices. (**CL-02/31**)

Response: *The missions of the NRC include the protection of public health and safety, and protection of the environment. NRC requirements established a framework to ensure that decommissioning of all nuclear reactor facilities will be accomplished in a safe and timely manner, and that adequate funding will be available for this purpose. NRC does not prescribe how the funds are to be raised. The license holder for the facility funds decommissioning costs. Equitability of investment decisions is outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Second, we are concerned that over the course of 60 years, the ownership of nuclear plants, financial status of licensees, and decommissioning obligations for many plants could change; if companies have not operated the facility long enough to accrue sufficient funds

for decommissioning, and then go into an extended SAFSTOR period, bankruptcy of the facility owner could jeopardize cleanup at the site. The extended time of storage combined with reduced staffing associated with SAFSTOR could mean that these sites are more likely to be subject to accident, theft of equipment, or attack. (**CL-11/10**)

Response: *If a facility shuts down prematurely before the decommissioning trust is fully funded, or if it unexpectedly finds itself having to shift to a more costly decommissioning option, the facility license holder is still obligated to fund the entire cost of decommissioning. To date, none of the license holders of prematurely shutdown facilities have defaulted on their decommissioning funding obligation. Bankruptcy does not necessarily mean that a power reactor licensee will liquidate. To date, the NRC's experience with bankrupt power reactor licensees has been that they file under Chapter 11 of the Bankruptcy Code for reorganization, not liquidation (for example, Public Service Company of New Hampshire, El Paso Electric Company, and Cajun Electric Cooperative). In these cases, bankrupt licensees have continued to provide adequate funds for safe operation and decommissioning, even as bondholders and stockholders suffered losses that were often severe. Because electric utilities typically provide an essential service in an exclusive franchise area, the NRC staff believes that, even in the unlikely case of a power reactor licensee liquidating, its service territory and obligations, including those for decommissioning, would revert to another entity without direct NRC intervention. Additionally, an NRC-licensed facility undergoing decommissioning or a site that is not under license but is undergoing decommissioning under NRC's regulations also warrant remediation under CERCLA as a Superfund site. These statutory provisions might become particularly relevant at sites for which funding is inadequate for cleanup. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.5 NEPA-Related Issues

O.5.1 Process for Developing the GEIS

Comment: What consideration was given to the location of the facility as a variable in determining? (**CH-B/3**)

Response: *Location of the facility (on the ocean, a lake, a river, etc.) was one of the variables used to determine the potential environmental impacts from decommissioning activities. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I don't know if site location was included in as an Other in the variable. I'd be interested in what kind of depth of analysis went into that if it was a variable that was considered. (**CH-B/4**)

Response: *Location of the facility (on the ocean, a lake, a river, etc.) was one of the variables used to determine the potential environmental impacts from decommissioning activities. Data from sites located on the Great Lakes, the Atlantic and Pacific Oceans; as well as plants located on rivers were used in evaluating the impacts from decommissioning facilities. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I recommend highly that in the future efforts of this sort, the communications to get information about specific plants be with those specific plants or otherwise actions be taken to ensure that all plants are covered. (**CH-D/12**)

Response: *The staff agrees that in many instances direct contact with the licensees yields the most accurate and current information. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I understand that Elk River is the only United States 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, as pages 3-27, 4-44, and Table F-1. (**CL-51/5**)

Response: *The Elk River Reactor was not regulated by the NRC. Elk River was not a commercial reactor and not attached to the electric power grid. It was a 58 megawatt (thermal), boiling water reactor that was owned and operated by the Atomic Energy Commission as part of the demonstration reactor program project. Therefore, it was not included in the permanently shutdown reactors considered in this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.5.2 Public Meetings and Public Participation

Comment: I am opposed to the following change to NUREG-0586: In Supplement 1 to the Generic Environmental Impact Statement on Decommissioning: NRC redefines terms to avoid local, site-specific opportunity to question, challenge and prevent unsafe decommissioning decisions. (**CL-43/9**)

Comment: I am opposed to the following change to NUREG-0586: In Supplement 1 to the Generic Environmental Impact Statement on Decommissioning: 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 possible rubbilizing of the reactor. (**CL-43/12**)

Comment: While the 9/11 events may call for some more secrecy, in most cases it's a matter of "closing the gates long after the horses are gone." Instead you should adopt a policy of allowing more public participation to ensure public confidence in your process! (**CL-27/2**)

Comment: I would like to start out by addressing the process and how it limits the ability for the public to effectively participate in this and other nuclear-related issues that impact Georgia communities. The technical nature of the issues and an ongoing resistance by nuclear regulators to share accurate information about nuclear threats has always made it difficult for the public to be involved in decision-making involving nuclear energy issues. (**AT-A/2**)

Comment: We have some grave concerns about the process....There is a real problem, I think, with public knowledge about the opportunities for input into NRC's decision making. (**AT-B/5**)

Comment: My executive director asked me to express our concern for we want this process to be transparent. Allow public accessibility to the process, knowledge of the standards. Do no harm. We represent physicians who take the Hippocratic Oath. Take no risks that can be avoided. It seems ridiculous to come in here and say to professionals "be careful." But Adele quoted the too-cheap-to-be-metered promise and there's some credibility problems, so be careful. (**AT-H/1**)

Comment: As I noted at the time, I am concerned about the silence of the draft supplement on public participation in the decommissioning process. Commenters raised these concerns 18 months ago, but the draft supplement does not seem to address them. (**CL-12/1**)

Comment: As I read the supplement, its effect will be to predetermine a number of issues about decommissioning of all public-utility power reactors. This will remove those issues from examination in trial-type proceedings, where licensees' evidence or the NRC's assumptions and conclusions could be tested and exposed to public scrutiny. (**CL-12/2**)

Comment: Unless the public is allowed to intervene in decommissioning proceedings and participate fully in those proceedings, it cannot be certain that trustworthy decisions will result. Your 1996 brochure Public Involvement in the Nuclear Regulatory Process, NUREG/BR-0215, assures us that "the public has an opportunity to participate in NRC's decision making process to decommission a facility." Public participation short of party-intervener status and review of

less than all issues relevant to each plant seems to me a recipe for inadequate decision making. If your agency restricts review, I believe you will be reneging on your promises to the public, as well as violating NRC's laws and regulations and the Administrative Procedure Act. (**CL-12/3**)

Comment: I am opposed to the following proposal(s) in the EIS: NRC redefines terms to avoid local, site-specific opportunity to question, challenge and prevent unsafe decommissioning decisions. (**CL-26/11**)

Comment: I also utterly oppose redefining terms to avoid local, site-specific opportunity to question, challenge, and prevent unsafe decommissioning decisions. (**CL-33/15**)

Comment: I also utterly oppose attempting to legally justify the removal of the existing opportunities for community involvement and for legal public intervention until activities such as flushing, cutting, hauling, and possibly rubblizing of the reactor are complete—in other words, until the damage has irretrievably been done. (**CL-33/18**)

Comment: Please increase, rather than decrease, public participation in every single aspect of the planning, building, and running of Nuclear Power Plants. Please do this even if you don't want to. The public, to you, may seem like a thorn in your side, something that gets in the way of your plans. But a democratic government should not seek to shut their people out of decisions that effect their lives. It is a very sad reflection on the state of our democracy that this seems to be precisely the aim of your draft regulations. Don't you believe in democracy? Are you tired of playing by democratic rules if it means you can't win each and every time? Is democracy too inconvenient for you? If you were busy doing the "right thing" you would be excited and proud to open your process to the public. If you were involved in an honest process, you would be eager to engage your opponents in debate about it. You would not have to stack the deck, hide your process, shut the people out. Shame on you! See if you have the courage to do the right thing! --- And have the courtesy not to send one of those dummy automatic replies! (**CL-35/1**)

Comment: In keeping with appropriate medical and public policy principles, we urge total transparency. United States citizens deserve nothing less than total transparency. (**CL-46/1**)

Comment: We urge that the Commission always lead it's interactions with the public at large by being fully open and informative about the potential dangers, the expense and the limited experience we as a nation have with the decommissioning of nuclear reactors. (**CL-46/2**)

Comment: Any and all decommissioning activities should be performed methodically and with great caution, ensuring that the public is appropriately involved in the processes and thoroughly protected from dangers every step of the way. (**CL-47/4**)

Comment: 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-47/12**)

Comment: We're concerned that the use of the proceeding may be used to eliminate site-specific evaluation of local concerns. And our concern is the right of local residents will be preempted from raising concerns during the license termination plan review. (**SF-D/1**)

Comment: 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**)

Comment: 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 environ-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. (**CL-50/9**)

Comment: 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. (**CL-52/7**)

Comment: 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. (**CL-52/6**)

Comment: 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. (**CL-48/4**)

Comment: Why, in this same democracy that we hold up so proudly to the world, does the NRC seek to prevent public comment on the basic issue of public health in a nuclear world? (**CL-36/1**)

Comment: Please consider my opposition to many of the proposed Supplements. The public should not be further shut out of the decommissioning process. Nuclear waste is deadly and it's handling should not be downgraded in any way. (**CL-43/16**)

Comment: I am opposed to the following proposal(s) in the EIS: 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 rubblizing of the reactor. (**CL-26/14**)

Comment: CWAA supports the comments of NIRS, Public Citizen and the Critical Mass Energy Project. We concur with these organizations that changes in the supplement designed to limit citizen's opportunities to review or challenge decommissioning projects are undemocratic and ill advised. It is imprudent to reduce public oversight of these projects, no matter how much more convenient it seems. (**CL-45/1**)

Comment: Alternative methods being considered by the NRC include "entombment" and "rubblization." These involve leaving more nuclear waste onsite 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 onsite. On-site and offsite contamination and radioactivity and associated issues involved with extended institutional control must all be subject to site-specific public hearings. (**CL-48/27**)

Comment: NRC redefines terms to avoid local, site-specific opportunity to question, challenge and prevent unsafe decommissioning decisions. (**CL-48/44**)

Comment: 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 rubblizing of the reactor. (**CL-48/47**)

Response: *The Supplement provides an environmental analysis of the impacts associated with the decommissioning process for power reactors. Comments pertaining to the decommissioning process for power reactors as prescribed by 10 CFR 50.82 are outside the scope of this Supplement. The current regulations were published on July 29, 1996 as part of a comprehensive rulemaking effort related to power reactor decommissioning. The NRC revised its regulations by the Commission's notice and comment rulemaking process.*

Section 2.2 of the GEIS describes the regulatory aspects of the decommissioning process as specified by 10 CFR 50.82, including the options for public participation. In addition to public meetings, the public has certain adjudicatory opportunities that are outlined in NRC regulations at 10 CFR Part 2, "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders." If the licensee has requested an action requiring a license amendment, then the process for intervening in this action is by requesting or participating in a hearing. For decommissioning reactors, the process will usually follow the regulations in 10 CFR Part 2, Subpart L, "Informal Hearing Procedures for Adjudications in Materials and Operator Licensing Proceedings" (depending on the timing of the request, the process may follow the regulations in 10 CFR Part 2, Subpart A). If the action of concern does not involve a license amendment, then any member of the public may raise potential health and safety issues in a petition to the NRC to take specific enforcement action against a licensed facility. This provision is contained in the NRC's regulations and is often referred to as a "2.206 petition" in reference to its location in the regulations (Chapter 2, Section 206 of 10 CFR). Licensees are permitted to perform activities allowed under their licenses. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: After the tragic events of September 11, this problem has escalated to a point where our organization believes it is highly irresponsible of our Federal government to go forward with making crucial decisions that will affect generations and generations to come. The NRC's Web site, as many of you know, was not available for a time and is currently severely scaled back, making public access to important background information very difficult or impossible. I have spoken with representatives of the U.S. Nuclear Regulatory Commission and they have echoed some of my concerns as they, too, have difficulty gaining information on nuclear industry activity. If people like myself who have the ability to research these issues on a full-time basis along with staff members of the regulatory agencies are having a hard time, imagine the fate of a concerned citizen who has limited time to devote....For citizens concerned about issues at Plant Hatch in south Georgia, unless they have a hard copy of the relicensing

documents, it is difficult for them to look up concerns that would be relevant to today's meeting because those relicensing documents are no longer available online. We did have a link to it on our Web site, but you know, we all know it's not working. (**AT-A/3**)

Comment: Georgians for Clean Energy remains concerned about the ability for the public to effectively participate in this and other nuclear related issues that impact Georgia's communities. Due to the tragic events of September 11th the Nuclear Regulatory Agency's (NRC) Web site was not available for a time and is currently severely scaled back, making public access to important background information very difficult or impossible. (**CL-08/1**)

Comment: SLOMP is troubled by the inability of the public to have adequate access to the NRC Web site. Prior to the censorship, the existence of the Web site had been viewed as a giant step forward in communication between the public and the Commission. (**CL-53/1**)

Comment: Given the difficulty in accessing thorough and accurate information, including potentially relevant material such as the relicensing documents on Plant Hatch in South Georgia, we feel it is important to both extend the public comment period until these documents can be made readily available and to provide more meeting locations to adequately gather public comments. Since nuclear reactors will eventually be decommissioned in many states the public should be given more than just four locations nationwide to voice their concerns. Public meetings should also be held in communities neighboring currently existing nuclear power plants. (**CL-08/2**)

Comment: Moreover, the NRC's public notice, as an example, that went out on November 2 of this meeting, contained an inaccurate link to the public electronic reading room.... Well, for a lot of people that got that link, that's all they'll do, they'll go to that link and it doesn't work and they think they don't know how to use their computer and then they just go home. So again, the accuracy of information that's going out right now, we have to be very aware of when there are mistakes made. (**AT-A/5**)

Response: *The NRC realizes that the Web site was not available to the public for a period of time following September 11, 2001, and has taken prudent steps to make important information available to the public as soon as practicable. The staff extended the comment period for an additional 30 days until January 31, 2002, in part, to provide additional time for members of the public to review appropriate documents relating to decommissioning. Currently, the NRC website has been re-established and the public has access to a large amount of information via the Internet. The subject of license renewal is outside the scope of this Supplement. However, if individuals have questions related to license renewal they should contact the project manager*

of the plant of interest. The NRC website can direct an individual member of the public to the NRC point of contact. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: It is essential to provide more meeting locations to gather public comments. Four locations is not enough, given that we have nuclear reactors that will eventually be decommissioned in many states and the public, as I've said, has had difficulty accessing the information...have more meetings. (**AT-A/7**)

Comment: Once again, that's where having other meetings outside of the area could gather some useful information that may have been missed, and maybe site-specific, that wasn't addressed earlier. (**AT-A/20**)

Comment: Thank you for holding these meetings in four locations around the country, and for encouraging public participation. (**CL-10/12**)

Comment: I'd like to invite you to come to Charlotte. We could, I think, fill up a hearing room so that you could hear from the citizens who are directly affected by your decision making that is on going. (**AT-B/13**)

Comment: 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. (**CL-53/6**)

Response: *The meeting locations were chosen to provide convenient locations across the country and in each NRC region. The NRC staff identified public interest groups and concerned citizens in the vicinity of all 22 power reactors undergoing decommissioning. Copies of the Draft Supplement were provided to all identified personnel and organizations. Additionally, the NRC and EPA published Federal Register notices identifying the availability of the Draft Supplement. The NRC included the Draft Supplement on the NRC's Web site, issued a press release, and made it available to members of the public through the electronic reading room. Finally, any member of the public seeking to gain a copy of the draft was provided a copy at no charge. In response to concerns expressed by members of the public, the NRC staff extended the public comment period again allowing additional public input. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: The GEIS needs to create a chronological list of all the decommissioning activities that accept public participation. All public participation opportunities such as meetings, hearings, oral comments, written comments, petitions, and interventions need to be listed. At later times when specific dates are known, this list needs to be advertised locally in the affected area. The licensee should also solicit public input on the formulation of decommissioning plans well before the decisions are made. (**CL-14/7**)

Response: *Section 2.2.1 of this Supplement provides a detailed discussion of the decommissioning process and regulations. Additionally, 10 CFR 50.82 describes the process necessary to decommission a facility and identifies instances when public participation is afforded. Also, within two to three months of the licensee's announcement of permanently ceasing operation, the NRC staff holds a public meeting in the vicinity of the plant to describe in detail the decommissioning process. At that time the opportunities for public input are identified. NUREG-1628, "Staff Responses to Frequently Asked Questions Concerning Decommissioning of Nuclear Power Plants," provides a discussion on when and how the public can participate. Copies of the document can be obtained from the NRC Staff. Based on the above sources of information no additional listing of activities that accept public participation is necessary. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The public has not only the "right to know", but NRC and the industry has the duty to fully disclose all related impacts, short and long-term, on and offsite, direct and indirect, as well as cumulative effects resulting from decommissioning to citizens and members of the public living in local communities surrounding the nuclear plants. (**CL-44/15**)

Response: *The NRC staff examined the impacts of decommissioning activities at NRC-licensed nuclear power facilities for cumulative, short- and long-term, onsite and offsite, direct and indirect impacts. This analysis is contained in Section 4.0 of the document. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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). (**CL-48/1**)

Response: *The comments that were received during the scoping process that are within the scope of this document are discussed in Appendix A of the Supplement. Because the scope of this document, as described in Section 1.3, does not include Below Regulatory Concern issues*

or the License Termination process or related rulemakings, they are outside the scope and not addressed in the Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: 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. (**CL-53/5**)

Response: *At each public meeting, the public is asked to sign up for 5-minute time slots at the beginning of the meeting to ensure that everyone has the opportunity to comment. After these comments are received the remaining time is allocated for further public comment, either from those who did not sign up or for those who wished to express additional comments.*

The meeting locations were chosen to provide convenient locations across the country and in each NRC region. The Staff determined that meetings in additional locations would not have provided enough added value for the expense of holding the meetings. Public meetings was only one of several means for the public to share their comments with the NRC. The other means included email, mail, or hand delivery to the NRC in Rockville, Maryland. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: I would challenge you not to lose any of the comments that have been made about security or any other issue that you consider outside the scope. And make certain that those do surface somewhere. (**AT-B/20**)

Comment: I guess I'd like to just comment that to the public and to many non-profit organizations, generic means you may say this, you may not say that; this is on the table, that is not on the table. And what happens is that people do make comments that affect their communities and affect their safety and if they are indeed outside the scope of a particular process, I would truly love to believe that those comments are not lost. But at this point, my experience doesn't lead me to be sure that's the case. (**AT-B/19**)

Comment: I recognize that it has probably been a waste of my time and will be ignored, therefore I am not bothering to write it again with every paragraph in the right place. (**CL-20/113**)

Response: *All comments and questions received at the meeting became part of the transcribed record. Other comments received from three other meetings, emails and letters were included in the record; the disposition of all public comments makes up this Appendix.*

Comments that pertain to physical security issues have been forwarded to the appropriate NRC office for consideration. Other issues determined to be outside the scope of the Supplement were evaluated for their relevance to on going NRC actions and activities and forwarded to the respective NRC office if appropriate. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: 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-50/24**)

Response: *The licensing of an ISFSI is outside the scope of the Supplement (see Section 1.3). The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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-50/27**)

Response: *Because of the highly technical nature of designing, conducting, and evaluating final site surveys using the MARSSIM protocols, extensive training in statistics, health physics, physics, and mathematics are needed. It is unreasonable to expect the NRC to provide such training to members of the public at each facility location. Trained NRC experts are available to answer specific questions on the design, execution, and results of the surveys. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

O.5.3 Request for Additional Comment Period

Comment: Therefore, we feel it is important to both extend the public comment period until these documents can be made readily available.... But I think we do need to extend the public comment period to address the inability of getting the information easily. (**AT-A/6**)

Comment: There's a number of decommissioning related documents that have come out for review. And while I appreciate the NRC has been very busy, in addition to this GEIS supplement, the entombment proposed rule making, there's also I think, I got two documents this week regarding decommissioning cost reports and I think the cost estimate formats. If

there is any way that we could not have to get all the comments in the very short comment period, if it could be extended, I'd really appreciate it because it's going to be a very busy December for me. (**CH-D/13**)

Comment: This highlights the need for an extended comment period and careful analysis of this issue. For instance, I'm sure there are a number of nuclear security organizations worldwide that perhaps this draft and others within the NRC could be opened up to get their comments and maybe their suggestions of what they're doing in other countries or whatever, because we're looking at a global assault. (**AT-A/13**)

Response: *The comment period for the Supplement was extended an additional 31 days until January 31, 2002. The comments did not result in a change to the Supplement.*

O.5.4 Determination of Scope

Comment: The NRC scope is clearly associated with the radiological aspects of decommissioning. So, an issue such as rubblization, that has a radiological component, this seems clearly it's within the scope of NRC's review regulation. I do not see the removal of a cooling tower is within NRC's scope. (**BO-B/2**)

Comment: However, while the stated intent of the Supplement is to consider in a comprehensive manner all aspects related to the radiological decommissioning of nuclear reactor facilities, the Supplement sometimes deviates from this intent by delving into activities and impacts related to the removal of uncontaminated structures, systems, and components such as intake structures or cooling towers. While the consideration of these impacts may be useful and helpful, their inclusion without proper caveat may tend to blur the line of NRC jurisdiction. (**CL-04/2**)

Comment: And yet, I note in the document that you also include decommissioning--environmental impacts of decommissioning a nonradioactive system such as cooling towers and discharge pipes. I'd like to understand what criteria NRC will use to determine the acceptability of a licensee's plans in those areas. (**BO-B/1**)

Response: *The Supplement provides an environmental analysis of the impacts associated with the decommissioning process for nuclear power reactors. Clearly part of that decommissioning process involves the removal and disposal of structures, systems, and components that may not be radiologically contaminated. For completeness, and in the spirit of NEPA, the staff chose to include the dismantlement of all structures, systems, and components necessary for power generation on the site. As a result, cooling towers and the diesel generator building were included, but the site training center and visitor information center was not. During scoping, the NRC staff met with EPA and at their urging the staff agreed to look at*

the impacts from activities performed to support dismantlement of nonradiological structures, systems, and components (SSCs) required for the operation of the reactor. This is discussed in Section 1.3, "Scope of This Supplement." The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: The scope is just inadequate. (**CH-C/3**)

Response: *The comment can not be evaluated because it does not provide specific information. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Out-of-scope activities are identified and discussed in Section 1 and Appendix D. It is recommended that "Interim Storage of Greater than Class C Waste" also be identified as an out-of-scope activity, consistent with the final rule published in Federal Register Vol.66, Number 197, dated October 11, 2001. (**CL-06/2**)

Response: *Section 1 and Appendix D have been revised to indicate that the interim storage of Greater-than-Class-C Waste is an out-of-scope issue.*

Comment: Page 1-5, Section 1.3. This section states that except for decommissioning planning activities, the Supplement only considers activities following removal of the fuel from the reactor. The exclusions include "impacts that result directly and immediately from the act of permanently ceasing operations" such as the environmental impacts of ceasing thermal discharges to receiving waters which the Supplement states "is essentially a restoration of existing conditions." This ignores the potentially adverse effects that the thermal discharges may have had on the ecosystem while the plant was operating; and, while the affected ecosystem may recover from the thermal discharges, such recovery may not be the equivalent of restoration to the originally existing conditions. Also, a species may have become established and dependent upon the thermal discharge. (**CL-16/12**)

Response: *As discussed in Section 1.3, impacts related to the decision to permanently cease operations are outside the scope of this Supplement. Efforts to maintain an altered ecosystem appear contrary to the spirit of NEPA. Furthermore, the NRC has no regulatory authority to require the licensee to continue operating the facility in order to avert impacts form permanently ceasing operations. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: It is absurd that NRC states that "decommissioning activities do not include the maintenance, storage or disposal of spent nuclear fuel, or the removal and disposal of nonradioactive structures and materials beyond that necessary to terminate the NRC license.....

they are not considered as a cost impact because the licensees are not required to accumulate funds for these activities." (See p.4-42).The licensees must be held responsible and accountable for everything about and on the site and generated by the site past, present and future. (**CL-20/43**)

Response: *The Supplement does not state that the licensee is not responsible for the above-stated concerns, only that maintenance, storage, and disposal of spent fuel is not within the scope of this Supplement. The Supplement provides an environmental analysis of the impacts associated with the decommissioning process for power reactors. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: It is murderous that potential radiological impacts following licensing/license termination that are related to activities performed during decommissioning are not in the Supplement. This allows the licensee to slowly murder a community as the radiological criteria for license termination by NRC was woefully inadequate anyway. (**CL-20/87**)

Response: *The radiological criteria for license termination are given in 10 CFR Part 20, Subpart E, and further addressed in NUREG-1496, "Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities." For a site to be released as unrestricted, the total effective dose equivalent to an average member of the critical group is 0.25 mSv/yr (25 mrem/yr). The NRC staff believes that these criteria are adequate to protect public health and safety. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I also utterly oppose stating that 10 CFR 20 section E and its Environmental Impact Statement, NUREG 1496, are not part of the scope of this Supplement. (**CL-33/19**)

Response: *10 CFR Part 20, Subpart E, and NUREG-1496 are not part of the scope of this Supplement. The 1997 license termination rule relied on the environmental assessment contained in the "Generic Environmental Impact Statement in support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Facilities," Final report, NUREG-1496, dated July 1997. The public had the opportunity to comment on that draft GEIS and the rulemaking effort at the time that the rule was being developed. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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. (**CL-47/18**)

Response: *Spent fuel storage is outside the scope of the Supplement, as are transportation and disposal of spent fuel. Both Skull Valley and Yucca Mountain were subjected to site-specific EISs. The staff has stated in the Supplement that the disposal of slightly contaminated rubble onsite (rubblization) would be subject to a site-specific review, as would entombment. Evaluation of the License Termination Plan in support of the rubblization or entombment would allow for a request for intervention on the part of a member of the public. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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 particularly 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 advertent 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-48/13**)

Comment: 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 nonetheless, as a direct result of station operation. (**CL-48/12**)

Response: *Routine releases from power plants do not result in offsite contamination that warrants offsite remediation. There are regulations in place concerning the release of any material from a nuclear power facility. The plants were licensed with the expectation that there would be routine releases to the air and water due to normal operations. The releases are limited to ensure public health and safety. Licensees are required to conservatively estimate offsite dose annually. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: 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. (**CL-52/2**)

Response: *NUREG-0586 is still valid for all facilities except nuclear power facilities. As stated in Section 1.1 (and unlike the 1988 GEIS), this Supplement covers only reactor facilities licensed by the NRC for commercial power production. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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. (**CL-52/3**)

Response: *The environmental monitoring program and the licensee's Offsite Dose Calculation Manual would adequately characterize the cumulative radiological impacts associated with nearby facilities that are also light water reactors or that emit or release similar radioisotopes to those occurring in a light water reactor. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: For purposes of this GEIS, the NRC is only focusing on the environmental impact of the actual decommissioning activities between the cessation of operations and license termination. This approach completely and inappropriately ignores the environmental impact associated with any radioactive material remaining following license termination. (**CL-17/2**)

Response: *Any potential radiological impacts following license termination that are related to activities performed during decommissioning are not considered in this Supplement. Such impacts are covered by the "Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities," NUREG-1496. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The NRC in this Draft says p. D-2 that the temporary storage or future permanent disposal of spent fuel at a site other than the reactor site is not within the scope of this Supplement. Why the hell not? It MUST BE, OTHERWISE THIS DRAFT IS EVEN MORE MEANINGLESS. (**CL-20/83**)

Response: *The Commission has independently, in a separate proceeding called the "Waste Confidence Proceeding," made a finding that there is "reasonable assurance that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation (which may include the term of a revised license) of that reactor at its spent fuel storage basin, or at either onsite or offsite independent spent fuel storage installations" (54 FR 39767). The Commission has committed to review this finding at least every 10 years. In its most recent review, the Commission concluded that experience and developments since 1990 were not such that a comprehensive review of the Waste Confidence Decision was necessary at that time (64 FR 68005). Accordingly, the Commission reaffirmed its finding of insignificant environmental impacts, cited above. This finding is codified in the Commission's regulations at 10 CFR 51.23(a). The*

operation of a spent fuel pool or an ISFSI is not uniquely linked to decommissioning. All operating nuclear power facilities have spent fuel pools and some (with the number anticipated to increase) have ISFSIs generally located adjacent or near to the power reactor facility. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: Our organizations have a fundamental dispute with the Commission's definition of decommissioning. 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. (**CL-48/11**)

Response: *Various activities that are performed during decommissioning may seem intuitively to be part of the decommissioning process. However, they are not considered within the scope of this Supplement because these activities have already received a thorough environmental review during the promulgation of the NRC regulations governing such activities. They are reviewed and regulated by the NRC under other regulations. The public has had the opportunity to comment on the regulations and the environmental assessment during the rulemaking process. The radiological criteria for license termination are given in 10 CFR Part 20, Subpart E, and further addressed in NUREG-1496, "Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities." For a site to be released as unrestricted, the total effective dose equivalent to an average member of the critical group is 0.25 mSv/yr (25 mrem/yr). The NRC staff believes that these criteria are adequate to protect public health and safety. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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 10 CFR 51.95(b.)" (**CL-50/4**)

Response: *Decommissioning of power reactors was never considered a major Federal action. The staff agrees with the commenter that NEPA compliance is required. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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. (**CL-52/9**)

Response: *10 CFR 50.75(g)(1) requires that reactor licensees maintain records of spills or other unusual occurrences involving the spread of contamination in or around the facility, equipment, or site during operations. The staff chose to consider the environmental effect of those actions or decisions made prior to certification of permanent cessation of operations because those activities would be covered by the environmental assessment made at the time the facility was licensed to operate. Additionally, these records are available and referred to during decommissioning. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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. (**CL-52/10**)

Response: *Any potential radiological impacts following license termination that are related to activities performed during decommissioning are not considered in this Supplement. Such impacts are covered by the "Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities," NUREG-1496. However, any potential non-radiological impacts resulting from decommissioning and occurring after termination of the license are considered within the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.5.5 Definition and Discussion of SMALL, MODERATE and LARGE Impacts

Comment: As I understand your slides, they're not saying that all--that all sites, the water--the water use and quality and air quality and ecology are small. You're just saying the sites--those issues that are dealt with in the generic sense–are small issues. And then, there can be site-specific issues that could be SMALL, MEDIUM or LARGE? (**BO-A/6**)

Response: *Section 4.1.2 of this GEIS Supplement provides a definition of generic and site-specific. For each issue, a generic conclusion can be made if the potential impacts of all sites or subsets of sites are SMALL, MODERATE, or LARGE. Site-specific issues can be SMALL, MODERATE, or LARGE. The comment did not provide new information relevant to the GEIS Supplement and will not be evaluated further. This comment did not result in a change to the Supplement.*

Comment: Executive Summary, page xiv, line 20 - references 10 CFR 50.82(a)(6)(ii) which states that the licensee must not perform any decommissioning activity that causes any significant environmental impact not previously reviewed. The supplement at page 1-8 beginning on line 23 defines three levels of significance SMALL, MODERATE, and LARGE. At which of these significance levels does the requirement of 10 CFR 50.82 (a)(6)(ii) come into affect. This needs to be defined as several Environmental Issues, e.g. threatened and endangered species are listed as site-specific. (**CL-05/3**)

Response: *The definition of "significance" in 10 CFR 50.82(a)(6)(ii) is not related to the SMALL, MODERATE, and LARGE levels of significance used to evaluate impacts in the Supplement. The determination of significance for 10 CFR(a)(6)(ii) is based on comparison of the potential environmental impact of a specific activity with the bounds of impacts previously reviewed. If the impact of the activity is within the bounds of previously reviewed impacts, the activity may proceed as long as the other criteria of 10 CFR 50.82(a)(6) are met. If the impact is not within the bounds, then the licensee may not undertake the activity without a license amendment and environmental review. The SMALL, MODERATE, and LARGE significance levels refer to whether an impact is noticeable or not and whether the impact will destabilize the impacted resource. The Executive Summary was revised.*

Comment: After the explanation by the NRC staff at the public meeting in Atlanta, we further disagree with the process of using the significance levels of SMALL, MODERATE, and LARGE for a variety of issues at a variety of locations to come up with a generic, one-word answer. The classifications are generic in form, hard to understand, and it is difficult to figure out how the NRC came to those characterizations even after NRC staff attempted to explain it at the public meeting in Atlanta. If the NRC unwisely chooses to continue using this classification system, Georgians for Clean Energy urges that, at a minimum, layman's terms be used to define the levels and the methods used to categorize the issues. (**CL-08/5**)

Comment: The Supplement should distinguish better among certain of the small, moderate and large impact levels and better explain certain assumptions used in setting these levels. (**CL-16/3**)

Comment: I am opposed to the following proposal(s) in the EIS: 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-26/12**)

Comment: ...the vague and arbitrary use of Small, Moderate, and Large significance levels and the intent for use of these designations, which echoes previous attempted bogus designations such as below regulatory concern; (**CL-38/4**)

Comment: I am opposed to the following change to NUREG-0586: In Supplement 1 to the Generic Environmental Impact Statement on Decommissioning: 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-43/10**)

Comment: 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. (**CL-47/13**)

Comment: NRCs "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. 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. (**CL-48/26**)

Comment: 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-48/45**)

Comment: I would like to have you expand somewhat on your definition of "small," "moderate," and "large" at this moment. (**SF-C/1**)

Comment: It seems a bit strange to me that the majority of the things are defined as "small." With my experience with radiation I would not think that most of them would end up being small, but that often comes down to a matter of scientific debate and opinions. (**SF-C/2**)

Comment: We disagree with the process—and it happened during the Hatch relicensing, too—the process of using the significance levels of small, moderate and large for a variety of issues at a variety of locations, to come up with a generic one-word answer. The classifications

are generic in form, hard to understand and even though it's small, moderate and large which sounds easy, I fundamentally have a hard time explaining that. (**AT-A/18**)

Comment: I also utterly oppose setting "low, medium, and high" environmental impact categories for each of the steps in decommissioning, to give the appearance that some things have negligible effects that don't warrant further consideration. (**CL-33/16**)

Comment: I am opposed to NRC regulations pertaining to Decommissioning which would allow NRC to set 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. This use of this piecemealing approach in unacceptable. (**CL-44/10**)

Response: *The SMALL, MODERATE, and LARGE significance levels provide a method of describing the severity of impacts. These impact levels were established using the Council on Environmental Quality (CEQ) terminology for determining significance (40 CFR 1508.27), which requires consideration of both "context" and "intensity." Impacts that are of SMALL significance are either not detectable or are so minor that they neither destabilize nor noticeably alter any important aspect of a resource. MODERATE impacts may noticeably alter an important aspect of a resource, but do not destabilize the resource. And LARGE impacts are clearly noticeable and destabilize important aspects of the resource. The discussion of decommissioning impacts in Chapter 4 was changed to more clearly relate the impacts in terms of detectability and effect on resource stability.*

Comment: Page 1-8, Section 1.4. EPA encourages NRC wherever possible to make the Levels of Significance (small, moderate and large) used in the Supplement more definitive by including risk ranges, referencing the appropriate NRC regulations or providing examples of impacts. We note that in several cases the qualitative analysis is given in units of person-rem with no regulatory limit provided. (**CL-16/15**)

Response: *The discussion of decommissioning impacts in Chapter 4 was changed where needed to more clearly relate the impacts in terms of detectability and effect on resource stability.*

Comment: NRC has absolutely no basis to say whether impacts will be small etc. based on that sort of garbage. (**CL-20/6**)

Response: *Use of the levels of significance of SMALL, MODERATE, or LARGE is recognized as an acceptable and commonly used approach to ascribe a measure of significance to*

decommissioning impacts. These levels of significance are based on CEQ guidelines. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: (4.1.1) Terms of Significance of Impacts The Nuclear Regulatory Commission employed a "standard of significance" developed by the Council of Environmental Quality (CEQ). Context means that the significance of an action must be analyzed in several contexts, such as a society as a whole (human, national), the affected region, the affected interests, and the locality. However, no "electric utility" constructs, operates, or decommissions a nuclear station without economics being the paramount consideration. Yet, the NRC and CEQ have created a nuclear Potamkin [sic] Village where economic imperatives are subordinated to the behavioral science flavor-of-the-day. In the NRC's world, an "electric utility" can apply for a loan using NEPA as collateral. I hope that at the end of the GEIS process, the Commission, can provide me with an address so that I can relocate my family to a neighborhood-without-economic considerations. (**CL-02/44**)

Response: *The comment can not be evaluated because it does not provide specific information. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.5.6 Time Frame for Assessing Environmental Impacts

Comment: It is not acceptable to give the option of using recent environmental assessments. What is the definition of recent?...So I would like a definition of what is recent and if we're talking about endangered and threatened species, that list is going to change when a lot of these power plants actually go through decommissioning because species are being put on and taken off those lists all the time. So what is recent? I would request—our organization requests that they always have a recent—a new, like that year that they decide to decommission—an environmental assessment. (**AT-A/23**)

Comment: Georgians for Clean Energy requests that the NRC require licensees undergoing or planning decommissioning to submit a new environmental assessment. We do not find it acceptable to give licensees the option of using "recent environmental assessments." (**CL-08/6**)

Comment: Page xv, Lines 37-38. The document identifies certain issues that are "site-specific for activities occurring outside the disturbed areas in which there is no recent environmental assessment." "Recent" should be defined by, for example, specifying a time frame or "shelf life"

for environmental assessments, so that licensees have clear notice of when they must prepare or update such a document for the disturbed area(s) in question. This same problem arises in Table ES-1, which refers to “current” and “recent” ecological assessments. (**CL-16/11**)

Response: *The text was revised throughout the Supplement to provide clarification and the phrase “recent environmental assessments” is no longer applicable or used.*

Comment: The time frame for assessing the magnitude of the environmental impacts is not clearly discussed. In some instances (terrestrial ecology page 4-20, lines 39-41), the draft acknowledges that some impacts will be temporary but once decommissioning is completed, not significant. The discussion of other issues is silent with regards to when the impact is assessed. For example, dewatering for a relatively short period while sub-surface foundations are removed would be performed in accordance with a National Pollutant Discharge Elimination System (NPDES) permit (section 4.3.2). However the impact on the water table during this period of decommissioning would probably be noticeable. Once dewatering has ceased the water table would most likely return to its pre-decommissioning level. The licensee would reasonably conclude that dewatering during decommissioning is a SMALL (not noticeable, does not de-stabilize any important attribute of the resource) impact once decommissioning has been completed and is addressed in this GEIS Supplement. The NRC should revise the GEIS Supplement to clarify that the magnitude of the impact should be assessed once decommissioning activities have ceased and the license is terminated. (**CL-01/2**)

Response: *The commentor proposes that the NRC assess the magnitude of impacts only after the decommissioning activities have been concluded and the license terminated. NEPA requires a Federal agency to consider in advance every significant aspect of the environmental impact of the proposed action and to take a hard look at the environmental consequences. Such consideration should occur even if the impact is temporary and minor. Additionally, the Federal agency is to evaluate the potential for mitigation of the impact. The staff believes that the consequences of an activity needs to be evaluated at or close to the time that it occurs, thereby complying with the intent of NEPA to provide full disclosure and also to allow for mitigation. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.5.7 Reactors Included in the GEIS Analysis

Comment: You said you had visited a number of facilities. I wondered if you’d visited any in New England, in particular, the Maine Yankee facility? So, you talked with some of the folks up there (Maine Yankee facility) and got a sense of what was--what were the issues and so on? (**BO-A/4**)

Response: *Maine Yankee was one of the reactors visited during the scoping and data collection process. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: In Table J-2, the location of Peach Bottom is incorrect. Peach Bottom resides in Delta, and is located less than a mile from Lancaster County and the State of Maryland.

In Table J-2, the location of Three Mile Island by county is incorrect. Three Mile Island resides in Londonderry Township, Dauphin County. "Northampton" County is located in Northeastern Pennsylvania. In addition, there are four counties located within five miles from Three Mile Island, i.e. Cumberland, Lancaster, Lebanon, and York. (**CL-02/67**)

Response: *Table J-2 was revised and Dauphin County is given as the county in which Three Mile Island is located.*

O.5.8 Application of NEPA Process to Decommissioning

Comment: I am opposed to the following change to NUREG-0586: In Supplement 1 to the Generic Environmental Impact Statement on Decommissioning: 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 satisfied the Environmental Policy Act for most of the decommissioning issues.) (**CL-43/7**)

Comment: The National Environmental Policy Act was written for a purpose, your proposed rules side step that purpose. (**CL-25/9**)

Comment: I am opposed to the following proposal(s) in the EIS: NRC prevents the National Environmental Policy Act from applying to most of the decommissioning process. (**CL-26/10**)

Comment: I also utterly oppose preventing the National Environmental Policy Act from applying to most of the decommissioning process. (**CL-33/13**)

Comment: 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-48/42**)

Comment: But to the people in the affected communities, it is a problem and that problem is one that they're going to have to live with after the NRC has washed its hands of the site. So we do have some real problems with the fragmentation of the decision making process and the public participation opportunities, and believe that indeed that there are NEPA violations. (**AT-B/7**)

Response: *NRC does not exclude the decommissioning process from the environmental analysis expected under NEPA or the NRC's environmental protection regulations (10 CFR Part 51). The NEPA process allows for the development of programmatic and generic EISs where a "hard look" can be made for programs and issues that have common themes. Power reactor licensees cannot perform decommissioning activities that could result in a significant impact to the human environment that was not previously reviewed. Those activities are reviewed in the Final Environmental Statement (FES) or Final Environmental Impact Statement (FEIS) for construction and operation, Supplements to the FES or FEIS, the GEIS for license renewal, site-specific supplements for license renewal, and the GEIS for decommissioning. If any decommissioning activity might result in significant environmental impacts and that activity is not reviewed in one of these aforementioned documents, then the licensee must submit a request for a license amendment. A license amendment requires that the licensee must submit a Supplement to their environmental report and the staff conducts an environmental review on the request. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: It is important to address NEPA and "psychological stress." The reality is that "psychological stress" exists, and will continue to exist. In fact, if the NRC had revisited the issue of "psychological stress" and the TMI community, it would have found the following:...The D.C. Circuit Court decided psychological (psych) stress does not need to be covered during the restart hearings. However, the Court ruled, that under the National Environmental Policy Act (NEPA), psych stress must be addressed. The Court ordered an injunction on restart until a study on psych stress was conducted. However, on April 19, 1983, The U.S. Supreme Court reversed the D.C. Circuit Court's opinion on psych stress and ruled an environmental study is not necessary. Two months later, on May 5, 1983, GPU revealed for the first time to the NRC that management audits, including psychological evaluations, concluded by BETA and RHR, completed in February and March, 1983, were critical of plant operations and management. The NRC can hide behind NEPA or any other convenient acronym, but "psychological stress" is a verifiable fact of life for people who live and work, in and around, nuclear power plants. (**CL-02/43**)

Response: *No activity has been initiated to vacate the U.S. Supreme Court decision on this matter. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: 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 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-50/3**)

Response: *As stated in Chapter 1 of the Supplement, one reason the 1988 GEIS was updated was to further the purposes of NEPA. The Appellate court did not rule that decommissioning was a major Federal action. Rather, the court ruled that the NRC had not followed its own regulations in allowing the licensee of Yankee Rowe to remove major components prior to the completion of the review of the Decommissioning Plan. The NRC revisited this issue as part of a rulemaking involving the public, and has determined that decommissioning is not a major Federal action. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.5.9 Opposition to Use of Generic Impacts

Comment: 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) 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-53/3**)

Response: *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. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Generic things sound good, but each plant is different. I was originally thinking well, they are all kind of the same system, so it wouldn't matter, they are on the same principle, but they're not. I mean, there are differences. (**AT-D/3**)

Response: *The generic approach is used (1) when impacts of environmental issues apply to all plants or a specific characteristic of that plant, (2) when a single significance level has been assigned to the impacts, and (3) when mitigation of adverse impacts associated with the issue have been considered in the analysis, and it has been determined that additional site-specific mitigation measures are not likely to be sufficiently beneficial to warrant implementation. If an*

environmental issue does not meet all three requirements, additional site-specific review is required. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: Georgians for Clean Energy does not believe that a Generic Environmental Impact Statement regarding decommissioning of nuclear facilities is a sufficient tool for evaluating impacts borne to specific environments from decommissioning a nuclear power plant. (**AT-A/17**)

Comment: Again, we feel that a site-specific analysis must be done for each individual nuclear plant. This includes the area of the site itself, along with downstream and downwind regions and all areas within the ingestion radius of the facility. (**AT-A/32**)

Comment: Georgians for Clean Energy does not believe that a generic environmental impact statement (EIS) regarding decommissioning of nuclear facilities is a sufficient tool for evaluating impacts borne to specific environments from decommissioning a nuclear power plant. (**CL-08/4**)

Comment: I do not support any attempt of your agency to narrow the scope of site-specific issues by declaring them to be generic. (**CL-27/1**)

Comment: Some of my concerns about NUREG-0586 include:—the use of generic proceedings to eliminate site-specific evaluation of concerns; (**CL-38/2**)

Comment: Issues common to the process of decommissioning nuclear reactors should be raised with every reactor being decommissioned, not excluded from every specific reactor being decommissioned. These common issues have not been resolved. (**CL-28/1**)

Response: *The NRC has an obligation to implement effective regulatory practices that involve public participation. In this Supplement, 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 perform an assessment of environmental impacts from each decommissioning activity to determine whether the impacts fall within the generic envelope described in the Supplement. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: We disagree with the NRC conclusion that most of the environmental issues they addressed are deemed as quote, generic and small for all plants, regardless of the activities and identified variables, end quote. (**AT-A/19**)

Response: *The commenter did not provide a specific example or basis to demonstrate that the conclusions were not characterized correctly. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: And again, we feel that site-specific studies should be conducted. The economy of rural Georgia is much different from that of urban New York. (**AT-A/41**)

Comment: Therefore, the safest alternative would be, first, to consider each reactor site individually rather than making a blanket policy to cover every site. (**CL-10/6**)

Comment: We again stress system need for site-specific EIS studies on decommissioning for nuclear power reactors. Our communities, from the people to the waterways, are unique and entitled to nothing less. (**AT-A/45**)

Comment: Georgians for Clean Energy firmly believes that a site-specific analysis must be done for each individual nuclear plant. This includes the area of the site itself along with downstream and downwind regions and all areas within the ingestion radius of the facility. As we mentioned at the public meeting in Atlanta, there are already elevated levels of some radioactive contaminants nearly 100 miles downstream of Georgia's Plant Hatch and Plant Vogtle. (**CL-08/17**)

Comment: We again stress the need for site-specific Environmental Impact Statements on decommissioning for nuclear power reactors. Our communities—from the people to the waterways—are unique and are entitled to nothing less. (**CL-08/35**)

Comment: 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. (**CL-52/8**)

Response: *Site-specific analysis is required for those situations where an environmental review has not been conducted or where the impacts may be different from those previously analyzed. NRC staff recognizes that there is wide variability among nuclear power plants. However, based on the results of the analyses presented in the Supplement, many of the impacts resulting from decommissioning are similar regardless of plant characteristics. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: I oppose the use of "Generic" listing of issues. I support "Site Specific" listing so that local communities can still raise issues they have. (**CL-24/2**)

Comment: Many key issues that local communities face as reactors close and owners leave (liability-free) will be unchallengeable, because they are being listed as "generic" issues. (**CL-25/5**)

Comment: It is my understanding that the purpose, and certainly the effect, of the proposed supplement to NUREG-0586 is to reclassify many decommissioning issues as "generic" in order to avoid a community's right of challenge and to allow owners to depart without liability. I understand that the NRC supplement seriously limits a community's ability to challenge even those issues that are considered "site-specific." (**CL-36/3**)

Comment: If the changes pass, many key issues that local communities face as reactors close and owners leave (liability-free) will be unchallengeable, because they are being listed as "generic" issues. "Generic" decommissioning issues are ones that NRC determines apply to numerous reactors and which are supposedly being resolved with this Supplement to the Generic Environmental Impact Statement. "Site specific" issues are ones than can still be raised in local communities, but the opportunities to address even site-specific issues is being curtailed dramatically. I support the designation of environmental justice and endangered species issues as site-specific (not generic). I oppose Rubblization but support its designation as site-specific. (**CL-43/15**)

Comment: I am opposed to NRC regulations pertaining to Decommissioning which would allow NRC to make most aspects of decommissioning "generic" rather than site-specific so NRC cannot be legally reviewed or challenged at individual sites. (**CL-44/8**)

Comment: 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. (**CL-47/10**)

Comment: 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. (**CL-47/11**)

Comment: NRC cleverly makes most aspects of decommissioning "generic" rather than site-specific, so they cannot be legally reviewed or challenged at individual sites. (**CL-48/43**)

Comment: 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 full disclosure of the extent and location of radioactive contamination both on and off site. (**CL-48/6**)

Comment: 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-48/25**)

Comment: I think my concern is always to what extent a generic statement like this takes particular issues that are local out of the local decision-making process, out of the public hearing that has to be had for—or we were originally led to believe has to be had for each of these. (**AT-C/1**)

Response: *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 perform an assessment of environmental impacts from each decommissioning activity to determine whether the impacts fall within the generic envelope. The description of impacts as site-specific or generic does not preclude local communities from participating. The commenters are referred to the Executive Summary for a description of "generic" and "site-specific."*

The public can raise issues using any of several methods. If the licensee has requested an action requiring a license amendment, then the process for intervening in this action is by requesting or participating in a hearing. The process is set forth in NRC's regulations in 10 CFR Part 2, "Rules of Practice of Domestic Licensing Proceedings and Issuance of Orders." If the action of concern does not involve a license amendment, then any member of the public may

raise potential health and safety issues in a petition to the NRC to take specific enforcement action against a licensed facility. This provision is contained in the NRC's regulations and is often referred to as a "2.206 petition" in reference to its location in the regulations (Chapter 2, Section 206 or 10 CFR). The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.

Comment: The above reasons illustrate the lack of a sound basis for staff conclusions that the decommissioning alternatives of entombment and rubblization are a"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. **(CL-48/35)**

Response: *Entombment is the focus of a current NRC rulemaking that would provide further guidance on this method of decommissioning a nuclear power facility. If a licensee pursues the ENTOMBMENT option, there will be activities necessary to ready the facility for the entombment. The impacts from the activities to prepare the facility for Entombment are considered generic. A site-specific assessment required by a proposed restricted release would naturally focus on radiological issues.*

Rubblization is not considered an option for decommissioning, but a potential activity of decommissioning. The Supplement states that the radiological aspects of rubbilization on onsite disposal of slightly contaminated material would be addressed in a site-specific manner at the time that the LTP is submitted. The site-specific LTP will provide a mechanism for the NRC staff's evaluation of the licensee's plans to dispose of rubblized concrete on site. The radioactive material that remains at the site after the license has been terminated must meet the dose criteria for license termination given in 10 CFR Part 20.

The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement

O.6 General

O.6.1 Clarifications and Recommendations Related Specifically to Supplement 1

Comment: Second, we would like to see a place in the document where you're comparing the risks, environmental risks associated with dismantling the facility immediately, versus storing the material and keep putting the facility in safe store. It's referenced in the document that there are higher risks, sometimes, of dismantling immediately because the material is more radioactive. But it doesn't show a comparison of the risks associated with storing it versus dismantling it in the short-term. (**CH-A/13**)

Response: *The Supplement provides general advantages and disadvantages for the various options for decommissioning. Both long-term storage followed by decontamination and dismantlement and immediate decontamination and dismantlement were found to be acceptable approaches to decommissioning. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: There are some aspects of the regulations that are specific to light water reactors and I just think the document needs to reflect those rather than all reactors. (**CH-D/5**)

Response: *Section 4.3.11.1, "Regulations," has been revised to reflect that the minimum amounts required to demonstrate reasonable assurance of funds for decommissioning found in 10 CFR 50.75(c) apply only to light water reactors.*

Comment: Activities that require state or local permits or approval should be considered to have a SMALL impact under the GEIS. Licensees will be required to obtain approval from state and/or local agencies for several activities performed as a part of decommissioning and cite restoration. These activities may include routine discharge or non-radiological liquids, dewatering, removal or modification of circulating water conduits, and use of portable combustion engines. Typically, the regulations governing approval for these activities require that the regulatory agency perform an assessment of the environmental impact(s) and, as appropriate, establish mitigating measures as permit conditions. In the case of water quality issues, the NRC relies on the licensee's compliance with the NPDES permit to conclude that the magnitude of the impact(s) is SMALL. The NRC should revise the GEIS Supplement to clarify that the NRC will consider the impact of an activity to be SMALL and rely on the licensee's compliance with a state or local permit, including any mitigating conditions. (**CL-01/3**)

Response: *The determination of level of significance is specific to the evaluation of environmental impacts from decommissioning, regardless of State permits and approvals. The staff does not agree that just because the licensee has a State or local permit that impact of the activity will always be SMALL. NEPA requires an evaluation based on postulated impacts. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The potential impacts of removing circulating water conduits on water quality or aquatic ecology are not consistently discussed or are considered an exception from the staff's conclusions. The Executive Summary states that the "removal of uncontaminated SSCs (such as the intake structure or cooling towers) that were required for the operation of the reactor are included in the scope of the GEIS. However, chapter 4 does not discuss the potential impacts of removing circulating water conduits on water quality (section 4.3.3) and the staff considers

removal of these structures to be an exception to the generic evaluation for aquatic ecology (section 4.3.5). Similarly, the tables in Appendix H do not address this issue. Realistically, the licensee will have to comply with state and/or local regulations to remove the circulating water conduits or cooling towers. The state and/or local agency would perform an environmental assessment and, as appropriate, establish conditions in the permit to mitigate any environmental impact(s). As in the case of water quality issues, the NRC relies on the licensee's compliance with the NPDES permit to conclude that the magnitude of the impact(s) is SMALL. The NRC should revise the GEIS Supplement to clarify that the NRC will rely on the environmental assessment performed for and any mitigating conditions included as part of the state or local permit for removal of circulating water conduits. (**CL-01/5**)

Response: *The consistency of the discussion and the tables in Section 4.3, "Environmental Impacts from Nuclear Power Facility Decommissioning," of this Supplement have been addressed. The staff recognizes that removal of circulation water conduits or cooling towers will be conducted in accordance with State and local requirements. However, the NRC staff cannot reach a conclusion on the level of impact based solely on the presumed compliance with these requirements. Circulating water conduits and other SSCs that will be removed after operation, however, are not expected to detectably change or destabilize the aquatic environment. The staff conclude that the impact to the aquatic environment for these decommissioning activities is SMALL and no further mitigation would be required. The staff conclusion is based on the short duration of most deconstruction activities, the fact that the impact is to a previously disturbed ecosystem, and the potential use of mitigative actions, such as scheduling in-water activities during periods in which impacts to aquatic resources would be minimal, as well as provided oversight from State and local agencies. The staff's conclusions in this Supplement do not provide relief or exception from other laws and regulations related to any of the activities discussed in the Supplement. The staff relies on the licensee's compliance with other agency regulations, such as the NPDES, as an indicator of potentially causing detectable or destabilizing changes in the aquatic environment. Section 4.3, "Environmental Impacts from Nuclear Power Facility Decommissioning," was revised to be consistent with the above response.*

Comment: The GEIS's glossary superficially glosses over "Greenfield" and equates it with an end state of decommissioning ..."According to NRC Regulations, Greenfield is achieved when a nuclear generating station is returned to "original status" prior to licensing, construction, and generation of nuclear power. The NRC would then clear the site for ''free release" and allow a "school or playground" to be constructed at the former nuclear power plant. (**CL-02/40**)

Response: *The definition of Greenfield in Appendix M, "Glossary," was revised to describe Greenfield as one possible end state of decommissioning and that NRC regulations do not require a greenfield end state.*

Comment: Appendix F Summary Table of Permanently Shutdown and Currently Operating Commercial Nuclear Reactors, PG. F-1, Table F-1 Permanently Shutdown Commercial Nuclear Plants {Total Site Area (ac.) For Maine Yankee: 741 (should be 820)}. (**CL-04/11**)

Response: *The revised area was included in Table F-1.*

Comment: 3.3.3 Decommissioning Process pg. 3-29, 2nd full para. This paragraph is redundant to the preceding and seceding paragraphs and can be deleted in its entirety. (**CL-04/17**)

Response: *Section 3.3.3, "Summary of Plants that Have Permanently Ceased Operations," was revised to remove redundancy.*

Comment: Appendix A Draft Generic Environmental Impact Statement Scoping Summary Report: Comments in Scope pg. A-2, Written Comment Letters: George A. Zinke is listed as the "Director, Nuclear Safety & Regulatory Affairs, U.S. Environmental Protection Agency." This reference should be revised to indicate; "Director, Nuclear Safety & Regulatory Affairs, Maine Yankee Atomic Power Co." (**CL-04/19**)

Response: *Appendix A was renamed Appendix N and Mr. Zinke's correct title included.*

Comment: Section 3.1.3, p 3-8 - add "The systems described are typical and may differ at specific facilities." to end of the 1st paragraph. (**CL-05/4**)

Response: *Section 3.1.3, "Description of Systems," was revised and the above phrase added to the end of the first paragraph.*

Comment: Section 3.1.3, p 3-10, 1st paragraph - add "or similar document" following "(ODCM)", since limits may be in Technical Specifications rather than an ODCM. Also, the description of effluent systems should include mention of an evaporator, since some facilities use evaporation to convert liquid waste to gaseous and monitor their discharge. (**CL-05/5**)

Response: *Section 3.1.3, "Description of Systems," was revised and the above phrase was added.*

Comment: Section 3.1.4, p 3-13, last paragraph - shipment of contaminated apparatus or hardware may also occur to support specific activities. (**CL-05/6**)

Comment: Section 3.1.3, p 3-13, last paragraph – Shipment of contaminated apparatus or hardware may also occur to support specific activities. (**CL-09/11**)

Response: *Typically, contaminated apparatus or hardware are considered routinely generated low-level waste (LLW) even if they were operated to support specific decommissioning activities. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Section 3.1.3, p 3-14, 1st paragraph - shipment may also occur on barges or other ships. (**CL-05/7**)

Response: *Section 3.1.3, "Description of Systems," was revised to include barges and other ships.*

Comment: Section 3.2, p 3-16 - the definition of SAFSTOR should more clearly define that it includes the final decontamination of the facility. This would be more consistent with definitions used elsewhere. (**CL-05/9**)

Comment: Section 3.2, p 3-16, lines 18-24 – The definition of SAFSTOR should more clearly define that it includes the final decontamination of the facility. This would be more consistent with definitions used elsewhere, such as in the original GEIS. (**CL-09/13**)

Response: *Section 3.2, "Decommissioning Options," was revised to clearly state that final decontamination of the facility is part SAFSTOR.*

Comment: Section 4.3.4.4, page 4-16, 1st paragraph - add the following sentence to the end of the paragraph: "Particulates produced by decommissioning activities within buildings will be filtered as needed so that air quality impacts will be small." (**CL-05/12**)

Response: *The staff has chosen not to include the comment in section 4.3.4.4, "Conclusions". Section 4.3.4.3, "Evaluation," does however address filtration systems to control the release of particulate material to the environment. The comment did not provide new information relevant to this supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Section 4.3.7, p 4-25, last paragraph - This conclusion indicates that the NRC will meet its responsibilities on a site-specific basis during any decommissioning process, but it does not specify how the NRC will meet its responsibilities or what information it will need from licensees. (**CL-05/16**)

Response: *The responsibilities under the Endangered Species Act (ESA) will be met through appropriate interactions among the licensee, the NRC, and the jurisdictional regulatory agency, either the U.S. Fish and Wildlife Service (FWS) or the U.S. National Marine Fisheries Service (NMFS), or both. Information required of the licensee will depend on the planned*

decommissioning activities and the species potentially present. The NRC staff will seek informal consultation with NMFS and the FWS shortly after the licensee announces permanent cessation of operation. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: Section 4.3.14, pg. 4-61, last paragraph - This conclusion indicates that the NRC will meet its responsibilities on a site-specific basis during any decommissioning process, but it does not specify how the NRC will meet its responsibilities or what information it will need from licensees. (**CL-05/18**)

Response: *Section 4.3.14, "Cultural, Historical and Archeological Resources," was revised and identifies what activities can be generically evaluated and which require a site specific review. See section 4.3.14.1 for a discussion of the requirements and section 106 of the National Historic Preservation Act .*

Comment: Abstract, p iii, lines 16-17 – add "explicitly" before "consider" in the 5th sentence. The original GEIS did not explicitly cover reactors except boiling water reactors (BWRs) and pressurized water reactors (PWRs). However, other reactors were not explicitly listed in what was not covered by the GEIS. Also, other reactors were listed in the table of decommissioning reactors in the original GEIS. They have been considered covered for activities described in the GEIS. (**CL-09/2**)

Response: *The Abstract was revised and the above change made.*

Comment: Executive Summary, p xi, 3rd paragraph, 4th sentence, lines 31-32 – change to "It does not include research and test reactors or the decommissioning of reactors that were permanently shutdown as a result of an accident." This change provides consistency with the report and does not imply exclusion of all reactors that have been involved in an accident at some time during their operating history. (**CL-09/3**)

Response: *The Executive Summary was revised incorporating the phrase "it does not include research and test reactors."*

Comment: Section 3.1, p 3-2, line 21 – the LaCrosse Boiling Water Reactor site is smaller than San Onofre. McGuire Nuclear Station has two operating reactors rather than three. (**CL-09/4**)

Response: *The Lacrosse reactor is on approximately 1.2 ha (3 ac) with the total utility owned site of 66 ha (163 ac). The total site area for San Onofre is 34 ha (84 ac). The staff chose the total site area to contrast the various decommissioning facilities. The comment on the McGuire plant was correct and the staff chose to use the Turkey Point plant instead.*

Comment: Section 3.1.1, p 3-2, line 39 and 3-3, line 1 – Fermi 1 is in the final phase (decontamination and dismantling) of SAFSTOR. (**CL-09/5**)

Response: *Section 3.1.1, "Types of Nuclear Power Reactor Facilities," was revised and the above phrase incorporated in the text.*

Comment: Section 3.1.1.3, p 3-4, lines 10-14 – delete 2nd sentence and modify 3rd sentence. The Fermi 1 FBR used uranium as its fuel. The information on uranium capturing neutrons to produce plutonium is correct. Breeding rates are dependent on the FBR's specific design. (**CL-09/6**)

Response: *Section 3.1.1.3, "Fast Breeder Reactors," was revised and the above changes incorporated in the text.*

Comment: Section 3.1.1.3, p 3-5, line 1– add "commercial" before "FBR." The final decision on whether to permanently shutdown the FFTF, a DOE FBR, has not yet been announced. (**CL-09/7**)

Response: *Section 3.1.1.3, "Fast Breeder Reactors," was revised and the word "commercial" inserted before "FBR". On December 19, 2001 DOE announced the deactivation of the FFTF.*

Comment: Section 3.1.2, p 3-6, lines 18-19 – The Fermi 1 Reactor Building is a steel domed structure. Below ground, there is considerable concrete shielding, but the building is not reinforced concrete. (**CL-09/8**)

Response: *Section 3.1.2, "Types of Structures Located at a Nuclear Power Facility," was revised and the above changes incorporated in the text.*

Comment: Section 3.1.3, p 3-8, line 32 – Add "The systems described are typical and may differ at specific facilities." to end of the 1st paragraph. (**CL-09/9**)

Response: *Section 3.1.3, "Description of Systems," was revised and the above sentence added to the text.*

Comment: Section 3.1.3, p 3-10, line 7 – Add "or similar document" following "(ODCM)", since limits may be in Technical Specifications rather than an ODCM. Also, the description of effluent systems should include mention of an evaporator, since some facilities use evaporation to convert liquid waste to gaseous and monitor their discharge. (**CL-09/10**)

Response: *Section 3.1.3, "Description of Systems," was revised and "or similar document" added to the text after "ODCM".*

Comment: Section 3.1.3, p 3-14, lines 5-6 – Shipment may also occur on barges or other ships. (**CL-09/12**)

Response: *Section 3.1.3, "Description of Systems," was revised and the reference to barges or ships was included in the text.*

Comment: Table 3-2, p 3-27 – Add footnote "c" to Fermi 1. Detroit Edison informed the NRC in late 2001 per the requirements of 10 CFR 50.82, that the final decontamination and dismantling phase of SAFSTOR would be started for Fermi 1. (**CL-09/14**)

Response: *Table 3-2 was revised and footnote "c" added.*

Comment: Section 3.3.3, p 3-29 – Sentences are duplicated between the three full paragraphs on p 3-29. (**CL-09/15**)

Response: *Section 3.3.3, "Summary of Plants that Have Permanently Ceased Operations," was revised to remove redundant text.*

Comment: Section 4.3.3.3, p 4-12, line 16 – There appears to be a discontinuity between the previous paragraph and the paragraph starting on line 16. Is something missing? (**CL-09/16**)

Response: *Section 4.3.3.3, "Results of Evaluation," was revised to include the missing information.*

Comment: Section 4.3.3.3, p 4-12, lines 28-30 – Add "The processing of residual sodium products from an FBR is no more likely to result in water quality impact than decommissioning activities at a LWR." (**CL-09/18**)

Response: *The suggested wording does not add anything to or change the staff's conclusion. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Section 4.3.10.2, p 4-40, lines 12-14 – in the paragraph on FBR decommissioning activities, add that decommissioning a FBR involves removal of sodium and NaK, but that these decommissioning activities can be performed safely with the proper engineering controls. (**CL-09/27**)

Response: *The suggested wording does not add anything to or change the staff's conclusion. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Section 4.3.11.1, p 4-41, line 7 – add "LWR" before "licensee" in the third sentence. The formula for the specified minimum amount of decommissioning funds applies to LWR's. The other regulations on decommissioning funds and evaluation of adequacy do apply to all reactors, so there is no adverse impact of the formula applying only to LWR's. (**CL-09/28**)

Response: *Section 4.3.11.1, "Regulations," was revised and "LWR" was added before "licensee".*

Comment: Section 4.3.11.3, p 4-45, lines 4-5 – delete or reword "and is either undergoing decommissioning or is in safe storage awaiting decommissioning" from the second sentence. SAFSTOR or safe storage is a form of decommissioning. (**CL-09/29**)

Response: *Section 4.3.11.3, "Evaluation," was reworded eliminating the misperception that safe storage is not decommissioning*.

Comment: Tables 4-6 and 4-7, p 4-71 – footnote "d" is not used in the tables, but probably belongs next to the 960 value for the number of shipments from a PWR using SAFSTOR. (**CL-09/30**)

Response: *Tables 4-6 and 4-7 were extensively revised and footnote "d" referring to truck and rail shipments is no longer used.*

Comment: Section 4.3.18.2, p 4-72, lines 38-41 – other irretrievable resources include gases and tools, but these resources are also minor. (**CL-09/31**)

Response: *Section 4.3.18.3, "Evaluation," was revised and "gases" and "tools" were added to the text*.

Comment: Section 6.1, p 6-1 – for plants shutdown before existing decommissioning rules were adopted, the environmental reviews may not be in the PSDAR as discussed in this section. In such cases environmental aspects not previously addressed that need to be addressed will be covered in the LTP. (**CL-09/32**)

Response: *For plants that permanently ceased operation before the 1996 rule, the Decommissioning Plan and the Environmental Report become the PSDAR. Decommissioning activities at all permanently shutdown facilities are substantially underway. The major impacts, if any, that may not have been covered by the Decommissioning Plan and the environmental report (such as impacts to minority and low-income populations surrounding the facility) have already occurred. In addition, the staff has been sensitive to protected species at existing decommissioning sites with several informal consultations occurring over the past several years. The comment did not provide new information relevant to this Supplement and will not be* evaluated further. The comment did not result in a change to the Supplement.

Comment: Table F-1The site area for Fermi 1 is listed as 1,120 acres. That is the size of the Fermi 2 site; Fermi 1# is on a portion of that site. The original Fermi 1 site was 900 acres. Currently, the portion of the site considered to be the Fermi 1 nuclear facility on the Fermi 2 site is less than 4 acres. (**CL-09/34**)

Response: *The revised area values were incorporated in Table F-1.*

Comment: Fermi 1's cooling water source was Lake Erie. Saxton's area is listed as 1.1 acres, however, the text reported San Onofre as having the smallest site. Also, footnote "b" should be applied to the "Cooling System" header, rather than "Cooling Water Source." (**CL-09/35**)

Response: *Table F-1 was corrected to include Lake Erie as the Fermi 1's cooling water source. The staff chose to list the area of the original licensed site for Saxton. Footnote "b" was changed to "cooling system".*

Comment: Table F-2, p F-4 – Fermi is in Michigan, not Ohio. (**CL-09/36**)

Response: *Ohio was changed to Michigan for Fermi in Table F-2.*

Comment: Section G.2.1, p G-13 & G-19 – the conclusion reached that the doses for SAFSTOR and DECON are not substantially different is partly due to which decommissioning plants were selected to be evaluated. (**CL-09/43**)

Response: *In some cases, data for different categories of facilities were limited, and the data presented represents the best information currently available. All data received from decommissioning facilities was included in the estimates. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Tables E-3, E-5, H-1 and H-2 – some additional activities, for example, system dismantlement and large component removal, could potentially impact air quality. Provisions are needed for portions of these activities to prevent adverse impacts. (**CL-09/49**)

Response: *Typically, such activities are conducted inside enclosed structures with monitored release points and are considered under the category "Maintain Effluent and Environmental Monitoring Program." The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Table H-2, p H-17 – in the "Impact and Summary of Findings" section, "water use" should be changed to "air quality." (**CL-09/50**)

Response: *"Water use" was changed to "air quality" in Table H-2.*

Comment: Section J.1.1, p J-1 – add, "selected" before "facilities" in the first sentence of the first paragraph. Identify the time period used for the comparison in the second paragraph. (**CL-09/56**)

Response: *The recommended revision has been made in part. The word "selected" has been added in the text. The time period considered in the analysis is from the shutdown of the plant. Section J.1.1 was revised.*

Comment: Table J-1 – add footnote "c" to Fermi 1. (**CL-09/57**)

Response: *Footnote "c" was added under Fermi 1 in Table J-1.*

Comment: Section 4.3.9.1, page 4-33, refers to the licensee's FSAR. Suggest adding the words "or equivalent" after "FSAR" since some licensees have a defueled safety analysis report (DSAR) instead of a FSAR. (**CL-15/2**)

Response: *The phrase "or equivalent" was added after "FSAR" in Section 4.3.9.1, "Regulations".*

Comment: Section 4.3.12.1, page 4-47, second line – Add a period after the word "effects" and begin the next sentence with the word "Socioeconomic." (**CL-15/3**)

Response: *The text was revised in Section 4.3.12.1, "Regulations," consistent with the above comment.*

Comment: The following Conclusions sections discuss environmental impacts that may have

small, moderate or large impacts: 4.3.1.4 (Onsite/Offsite Land Use), 4.3.5.4 (Aquatic Ecology), 4.3.6.4 (Terrestrial Ecology), 4.3.9.4 (Radiological Accidents), 4.3.10.3 (Occupational Issues), 4.3.12.4 (Socioeconomics). The FGEIS is not clear what, if any, actions a licensee should take depending on if the impacts are small, moderate or large. (**CL-15/4**)

Response: *The Supplement was revised to explain those issues that are considered generic and have more than one level of significance. Section 4.3 was changed for clarification.*

Comment: It is not always clear when a particular decommissioning activity or site/operating condition falls within the envelope of environmental impacts described in Section 4.0 and when that activity or condition would require further analysis. (**CL-16/2**)

Response: *Chapter 4 was extensively revised to more clearly define the envelope of generic impacts. However, the comment is too general to provide a specific answer. The comment did not provide new information relevant to this supplement and will not be evaluated further. The comment did not result in a specific change to the Supplement.*

Comment: The Supplement should address how the environmental analysis of decommissioning activities takes into account changes in the environmental parameters of the site during plant operation. (**CL-16/4**)

Response: *The Supplement has taken into account the changes in the site environment during the plant's operation. A generic environmental impact statement is a method of evaluating the impacts of similar activities at similar facilities resulting in similar impacts. Changes in the site environment during the plant operational period are not so significant as to cause the impacts of similar activities at similar facilities to be significantly different. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The Supplement should provide more specific guidance to licensees regarding the level of a particular decommissioning activity, or the site conditions in which an activity is occurring, which would trigger a site-specific NEPA analysis of the activity by the licensee. For example, with regard to levels of activity that would require a site-specific analysis, the Supplement should more specifically define what constitutes a major transportation upgrade. With regard to site conditions, it should define how much time may pass after the previous disturbance of an aquatic or terrestrial ecosystem before a site-specific analysis is necessary, or how recent the ecological assessment of that ecosystem must be to rely on the Supplement instead of a site-specific analysis. This will facilitate both licensees' evaluation of environmental impacts in required submissions such as the Post Shutdown Decommissioning Activities Report (PSDAR) and the License Termination Plan (LTP), and NRC's development of site-specific NEPA documents. (**CL-16/6**)

Response: *Chapter 4 was extensively revised to more clearly define when a site specific analysis is required.*

Comment: Response to Comment No. 6-C, page A-13, indicates that impacts from potentially contaminated sediment are addressed in the Supplement, but we did not find this information. (**CL-16/8**)

Response: *The staff response in the scoping summary report (see comment 6-C, page A-13) referred to evaluation of the impacts of potentially contaminated sediment within the site boundary. Onsite contaminated sediments are normally addressed in detail during the license termination plan review and is not addressed in any detail in this Supplement. The NRC staff does not normally require remediation of offsite sediments unless they pose a threat to public health and safety. The plants were licensed with the expectation that there would be routine releases to the air and water due to normal operation. These releases are limited to ensure the public health and safety. Offsite contamination is monitored and remediation is not warranted. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Page 2-5, Section 2.2, Line 10. This section should note that state or local requirements may be more restrictive than NRC's. (**CL-16/16**)

Response: *The text in Section 2.2, "Summary of Current Regulations," was revised to recognize that state or local requirements may be more restrictive than NRC's requirements .*

Comment: Page 3-17, Section 3.2.1, Lines 32-33. Please revise the document to clarify that while the evaluation of ISFSIs is outside the scope of the GEIS, it should be noted that the DECON alternative does not necessarily completely eliminate the need for long-term security and surveillance of a facility; an ISFSI at a decommissioned facility will require long-term security and surveillance. (**CL-16/21**)

Response: *It is stated (Table 1-1) that ISFSI maintenance is an activity that may be separately licensed under 10 CFR Part 72 and is out of scope. It is further discussed in Section 1.3, "Scope of This Supplement." The statement in Section 3.2.1, "DECON," is correct. The facility being referred to is the reactor facility and not the ISFSI, which is considered as a separate facility. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Page 3-29. Lines 29-39 repeat lines 11-21. (**CL-16/22**)

Response: *The redundancy in the lines has been eliminated.*

Comment: Page 4-57, Section 4.3.13.4, Lines 36-38. The environmental sections of some PSDARs submitted to date have not provided detailed information. The Supplement should elaborate on the "appropriate information" that licensees should provide relating to environmental justice in the environmental section of their PSDARs to enable NRC to obtain sufficient information on potential environmental justice issues at decommissioning facilities. (**CL-16/68**)

Response: *The requirements for submitting the PSDAR can be found in 10 CFR 50.82(a)(4)(I). Guidance on what should be in the PSDAR can be found in Regulatory Guide 1.185, "Standard Format and Content for Post-Shutdown Decommissioning Activities Report," dated August 2000. The staff plans to update Regulatory Guide 1.185 subsequent to publishing Supplement 1 to NUREG-0586, with guidance on including environmental justice considerations in the PSDAR. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Page 4-69, Section 4.3.17.2, Line 5. What is meant by "not large enough to destabilize the important attributes of the system?" (**CL-16/71**)

Response: *In terms of transportation impacts, MODERATE impacts are those that would result in noticeable changes such as increased traffic or increased road maintenance requirements, but would not result in the need for major transportation system modifications, cause substantial changes in local traffic flow, or cause a significant increase in traffic fatalities or public radiological dose. Section 4.3.17.2 was consistent with the above explanation.*

Comment: Pages 4-72 to 4-73, Section 4.3.18. The discussion of irretrievable resources more properly belongs in a section that summarizes environmental consequences. The Supplement could benefit from having such a section as was done with the recently issued draft NMSS guidance document on NRC preparation of NEPA documents. (**CL-16/72**)

Response: *This section summarizes irreversible environmental consequences for impacted areas. The reader is referred to Table ES-1 for a summary of the environmental impacts of decommissioning. NRC has not determined that combining the discussion of irretrievable resources with a summary of environmental consequences would substantially improve the Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Page 4-72, Section 4.3.18, Line 9. It seems inappropriate to include concrete as an irretrievable resource. (**CL-16/73**)

Response: *Section 4.3.18, "Irretrievable Resources," was revised and concrete was eliminated as an irretrievable resource.*

Comment: Page 4-72, Section 4.3.18.1, Line 14. The Supplement states that there "are no regulations that deal specifically with the concept of irretrievable resources." It is unclear what is meant by this statement. The following statutory and regulatory provisions pertain to irreversible and irretrievable resources in the NEPA context: —NEPA ' 102(2)(C)(v), 42 U.S.C. ' 4332(2)(C)(v);—40 CFR 1502.16 (CEQ regulations); and,—10 CFR, Part 51, Subpart A, Appendix A (NRC regulations). (**CL-16/74**)

Response: *Section 4.3.18.1, "Regulations," was revised. The first sentence was removed and the pertinent references were added to the section.*

Comment: We would like to comment on the draft NUREG to correct an error in Table 4-3, line 21 regarding the Cost Impacts of Decommissioning for Rancho Seco. Line 21 should read:

Rancho Seco 913MWe PWR DECON $394.

Please refer to our letter submitted to the NRC Document Control Desk dated 3/26/01 entitled Rancho Seco Report on Decommissioning Funding Status. On page 2 of the letter we stated:

"...Their [TLG] estimate was $495.4 million in 2000 dollars. The portion of this total that is non NRC-defined decommissioning activities related to non-radiological dismantlement and management and storage of spent fuel is $101 million, most of which is related to fuel storage costs..."

SMUD, when it first established its decommissioning fund, included radiological dismantlement costs and costs related to storing spent fuel. Therefore, $495m -$101m leaves $394 million for equivalent cost discussed in Table 4-3 of the NUREG. (**CL-18/1**)

Response: *Table 4-3 was revised to reflect the new estimate for decommissioning.*

Comment: The Figure 1-1, "Decommissioning Timeline" should also reflect the 60 year window, mentioned in 10CFR50.82(a)(3), that starts from the permanent cessation of operation. (**CL-30/2**)

Response: *Figure 1-1 was revised to reflect the sixty year period for decommissioning.*

Comment: Revise the first part of the last sentence on page 1-5 to read: If a licensee chose to operate the ISFSI under a Part 50 license, they could choose to continue under the Part 50 license, or by way of license amendment request. (**CL-30/3**)

Response: *Chapter 1, "Introduction," was revised to accurately reflect the requirements in 10 CFR Part 50 and Part 72.*

Comment: Under the description of the Turbine building (on page 3-6) revise the last two sentences to read: Primary coolant is not circulated through the turbine building systems in PWRs. However, it is not unusual for the turbine building to become mildly contaminated during power generation at PWRs. (**CL-30/5**)

Response: *Section 3.1.2, "Types of Structures Located in a Nuclear Power Facility," was revised and the last two sentences in the description of the "Turbine building" were changed as proposed above.*

Comment: Add the following sentence to the first paragraph in section 3.1.4: Most of the contamination in the reactor coolant system is from the activation of corrosion products and not fuel. (**CL-30/6**)

Response: *Section 3.1.4, "Formation and Location of Radioactive Contamination and Activation in an Operating Plant," was revised and the above sentence was added to the text.*

Comment: Revise the second to last sentence on page 3-15 to read: The entire structure (or portions) must be removed…….. (**CL-30/7**)

Response: *Section 3.1.4, "Formation and Location of Radioactive Contamination and Activation in an Operating Plant," was revised consistent with the above comment.*

Comment: The last sentence on page 3-15 is only true if corrosion products are included. The sentence should be revised to read: If corrosion products are included, the radioactive decay…….. (**CL-30/8**)

Response: *Radioactive corrosion products are the result of activation and can be considered activation products, therefore the staff chose not to make a change to the text of the Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The last two paragraphs on page 3-15 need to be rewritten. The discussion of contamination and activation needs to be clarified. If requested, CYAPCO will work with the Commission to rewrite this text. (**CL-30/9**)

Response: *The staff has determined that for the purpose of this Supplement the explanation of contamination and activation is adequate. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Yankee Rowe should be added to the list of plants mentioned in the second to last paragraph of page 3-26. The Yankee Nuclear Power Station was one of the plants in the AEC's Demonstration's Program. Yankee Rowe's license number is DPR-3. (**CL-30/10**)

Response: *Section 3.3.1, "Plant Sites," was revised and Yankee Rowe was added to the list.*

Comment: The second to last paragraph on page 3-32 discusses the creation of nuclear islands. Nuclear islands are not primarily created because of security reasons. The real benefit in creating nuclear islands is to not interfere with spent fuel storage. The purpose for creating a nuclear island is to provide a facility for the safe long-term storage of spent fuel, which is independent of the remainder or the rest of the facility. The purpose of the modifications is to divorce the spent fuel cooling function from dependence on systems which must be dismantled as part of the overall decommissioning process. (**CL-30/11**)

Response: *Section 3.3.3, "Decommissioning Process," was revised to more accurately describe the reasons for establishing a nuclear island.*

Comment: Expand the discussion about Stage 4 of the decommissioning process. This discussion should contain as much description as the descriptions under stages 1 through 3. (**CL-30/12**)

Response: *The staff chose not to expand the discussion of Stage 4 of the decommissioning process. Activities during Stage 4 result in minimal environmental impact and focus on demonstrating that the previous decommissioning activities have resulted in site radiological conditions that allow termination of the license. The comment did not provide new information relevant to this supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Delete "groundwater" from the first sentence in section 4.3.3.4. Releases are not made to groundwater under NPDES permits. NPDES discharge points discharge to surface water locations. (**CL-30/13**)

Response: *Section 4.3.3.4, "Conclusions," was revised and the term "releases" was removed from the first sentence. Section 4.3.3 does consider impacts to groundwater due to decommissioning; therefore, it is appropriate that the "Conclusions," Section 4.3.3, include groundwater.*

Comment: On Pg 3-17 there is a discussion of the advantages of the DECON alternative for decommissioning. One advantage of DECON is not discussed and should be. Generally speaking the shorted lived nuclides are easier to detect because of their beta/gamma emissions, versus the alpha emissions of longer lived nuclides. The difficulty of detecting the alpha emitters will increase analysis costs and increase the difficulty of performing surveys. Ultimately the cost of providing RP coverage and of performing the Site Characterization and Final Status Survey will also be increased. (**CL-31/6**)

Response: *Section 3.2, "Decommissioning Options," provides a very general comparison of the various options for decommissioning, including the advantages and disadvantages of each option; therefore, the staff has determined that the suggested change provides detailed advantages not consistent with the other options.*

Comment: Table F-1 lists the total site area for Peach Bottom Unit 1 to be 620 acres. 620 acres is the total site area reported in the Peach Bottom Unit 2 and 3 Updated Final Safety Analysis Report. However, Table F-2 reports the total site area for Peach Bottom Units 2 and 3 to be 618 acres. Table F-2 should be changed to reflect the total site area for Peach Bottom Units 2 and 3 to be 620 acres. (**CL-31/14)**

Response: *Table F-2 was revised and the value 620 acres was used.*

Comment: On page L-6 of Appendix L, line 4 refers to criticality accident monitoring requirements described in 10 CFR 7.24. Criticality accident monitoring requirements are described in 10 CFR 70.24. This typographical error should be corrected. (**CL-31/16**)

Response: *The reference was corrected to 10 CFR 70.24.*

Comment: On page L-6 of Appendix L, line 17 refers to 10 CFR 50.73 as requiring a licensee event report within 30 days. 10 CFR 50.73 was recently revised to require a licensee event report within 60 days. This change should be made to Appendix L. (**CL-31/17**)

Response: *Appendix L was revised to reflect the 60 day limit.*

Comment: All spent fuel at Dresden Unit 1 will be moved to dry storage on site by the end of the first quarter of 2002. This change needs to be reflected in Table 3-2. (**CL-31/19**)

Response: *Table 3-2 was revised to indicate that all the Dresden Unit 1 fuel is in dry storage.*

Comment: 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**)

Response: *Appendix F was revised and Montana was changed to Missouri.*

O.6.2 Clarification Questions

Comment: I had a question on the difference between the 1988—or one of the differences between the 1988 version and this supplement. The scope of facilities that are being addressed is much smaller, it's mainly just nuclear power reactors and I wanted to know for all the other facilities that were referenced in the '88 document and some of those included like the MOX facilities. How will those be addressed? Are they going to be addressed in a different type of document down the road or—I'm just asking along those lines. (**AT-A/1**)

Response: *This Supplement only addresses permanently shutdown commercial nuclear power reactors. The environmental analysis for the other facilities in the 1988 GEIS is still valid. As deemed necessary and appropriate, NRC will update the environmental impact assessments for the decommissioning of other facilities evaluated in the 1988 GEIS but not included in this Supplement. MOX fabrication and utilization facilities will have a separate environmental assessment prepared by the NRC staff. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The last paragraph in the Conclusions section of the Executive Summary, and page 2-3 of Section 2.2.1, state that a licensee would have to submit a license amendment request if environmental assessments are outside the bounds of the GEIS or if the environmental impacts of a decommissioning activity have not been previously reviewed. What is the licensing document that should be modified in the license amendment request? Section 2.2.1 states the Environmental Report should be revised, but the PSDAR may be a more appropriate document. (**CL-15/1**)

Response: *The Environmental Report is the appropriate document that needs to be updated. The PSDAR requires a discussion of the reasons for concluding that the environmental impacts associated with site-specific DECON activities will be bounded by previously issued environmental impact assessments. It does not require the analysis of specific impacts related to specific activities. However, based on the results of the licensee's environmental review, the PSDAR may also require updating. The license amendment would request the incorporation of*

a license condition in the license that would allow the activity to proceed. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: Will this Supplement replace entirely the previous NUREG-0586? (**SF-A/1**)

Response: *No. This Supplement will entirely replace the evaluation of environmental impacts from decommissioning activities of nuclear power facilities. The Supplement will be a stand-alone document and supercedes the environmental impacts to power reactors described in the 1988 GEIS. This Supplement goes beyond the 1988 GEIS and considers the permanently shutdown high-temperature gas-cooled reactors and the fast breeder reactors. This Supplement does not cover research and test reactors or power reactor facilities that have shut down due to major accidents (i.e., Three Mile Island). It also does not cover other types of fuel-cycle facilities. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I'm a little confused because if a licensee is outside the bounds or in an area that is beyond what has been previously reviewed, we're required to submit a licensee amendment request. Now I'm confused, since you've got, for these different criteria, a small impact, and a moderate impact, and a large impact, what is the bounds? (**SF-A/2**)

Response: *If the evaluation of any activity indicates that it could potentially result in an environmental impact that is greater than that predicted by the Supplement, then the licensee needs to submit a license-amendment request. For example, if the change to the facility would result in a moderate impact to the environment and the Supplement predicts a small impact, then the licensee needs to submit an amendment request. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: In reaching your findings about these impacts, these environmental impacts, the generic issues and impacts, I'm wondering what the baseline you were using was to measure those impacts against. In other words, were you comparing the impacts to the site before the nuclear facility was built or during its peak period? And in that case were the impacts considered cumulative or stand alone? (**SF-B/1**)

Response: *The impacts were compared against those that existed at the time the facility permanently ceased operation. The impacts identified at the time that the facility permanently ceased operation are cumulative impacts from plant construction through operation. Therefore, comparing decommissioning impacts to impacts at the time the plant ceased operation would*

include cumulative impacts. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.

Comment: My question concerns the last comment that you just made about that no activities can be performed during decommissioning that would result in significant environmental impacts not previously reviewed. Would you determine this from the submission of the PSDAR? Is that how you would determine if anyone was going to do anything that wasn't previously reviewed? (**CH-A/1**)

Response: *When the licensee prepares the PSDAR, they will identify the major activities that they plan to perform during decommissioning. They must evaluate the environmental impacts from decommissioning activities and compare those impacts to the results of the GEIS on decommissioning and other site-specific environmental impact statements. The licensee is required to evaluate any planned decommissioning activity against any previous environmental assessments prior to undertaking that activity [10 CFR 50.82(a)(b)(ii)]. the requirement for the evaluation is contained in the facility's written procedures. Documentation that such an evaluation has been conducted is available for NRC review during a site visit or inspection. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Once the work is performed, is there monitoring to make sure they're in compliance with the PSDAR? If they're actually acting, doing what they said they were going to do? (**CH-A/2**)

Response: *During the decommissioning process, NRC inspectors will periodically conduct special inspections of specific activities at the site. Site visits and inspection will be more frequent for plants that are undergoing decontamination and dismantlement and less frequent for plants that are in storage mode. Since the PSDAR is primarily an information document prepared to inform the public and NRC of the licensee's plans and schedule, it is not normally utilized by the NRC to determine compliance with regulations. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: You said that a licensee could go ahead and dismantle without formal approval and I thought that the licensee based on the document, the licensee had to submit the PSDAR and then there was a 30-day public process. Were you not counting that because that didn't directly relate to the question? (**CH-A/16**)

Response: *Initial decommissioning activities such as draining systems, removal of some components, pumps, tanks, disposal of resins, and surface contamination removal can occur at any time, including immediately after permanent cessation of operations. However, no major decommissioning activities may take place until 90 days after the PSDAR has been submitted. Major decommissioning activities are defined as "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 that Class C waste." A description of the decommissioning process is given in Section 3.2. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: What I was asking you was then cumulative impacts in terms of the plant during its operating period with the decommissioning activities added onto it, or do you mean something else? (**SF-B/2**)

Response: *For discussions of cumulative impacts, the NRC considered the terminology defined in 40 CFR 1508.7: "Cumulative impact is the impact on the environment which results from the incremental impact of the action [in the case of this Supplement, that is decommissioning activities] when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." Using this definition, the staff examined the impacts of decommissioning activity at NRC-licensed nuclear power facilities and made a cumulative assessment of decommissioning activities and other past, present, and reasonably foreseeable future activities at the sites. Section 4.0 of the Supplement has been changed for clarification.*

O.6.3 Statements for or Against Nuclear Power

Comment: Georgians for Clean Energy promotes the shutdown of our unsafe nuclear power plants here in Georgia and the phase out of nuclear power nationwide. (**AT-A/8**)

Response: *Shutting down operating facilities is outside the scope of this Supplement, which deals with facilities that have permanently ceased operations. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: I'm now concerned about the costs, about all the broken promises, because these all sound—all these systems sound so good. But I can remember—I'm old enough to remember when this was going to be clean, safe and cheap. Electricity was going to be too

cheap to meter. That sticks with me. And we know that it's as expensive as anything possibly could be when you consider the whole—the whole cycle from the mining of the uranium to what happens afterwards. There's a huge process. (**AT-D/10**)

Comment: The nuclear issue is the most important issue facing humanity and has been since the atom was first split. The nuclear issue is the Sword of Damocles over the planet and all future generations should we survive the next decade. (**CL-20/2**)

Comment: Furthermore, no new nuclear plants should be allowed or built as they will just add to the existing contamination, and all operating plants should be shutdown to stop further "waste" - such as plutonium-generation. (**CL-20/115**)

Comment: The nuclear power industry was a colossal mistake to begin with, as we all know. (**CL-33/2**)

Comment: The NRC must resist the pressure of the nuclear industry. If their profits are waning, they have had their turn. The citizens of the U.S., who pay everyone's way, have a right to expect a healthy environment, and a right to fight for it within the United States legal system. (But what a shame that a fight is ever needed.) (**CL-36/8**)

Comment: It ought to be equally obvious that without public subsidy (via Price-Anderson) nuclear power is economically untenable. (**CL-42/4**)

Comment: It ought to be equally obvious given these factors the complete phase-out of nuclear power should be a high priority. Alternative power sources such as wind, solar, hydrogen fuel cell [and conservation] should be vigorously pursued in its stead. (**CL-42/5**)

Comment: The enterprise of electricity generation using nuclear fission requires public subsidy. Without Price-Anderson protection, nuclear power would be economically untenable. (**CL-46/5**)

Comment: Consideration of these factors must be fully and publicly discussed before exposing our citizens to additional exposures through development of new nuclear generation facilities. The complete phase-out of nuclear power should be considered based on objective analysis of health and economic effects including probability evaluation of all possible accidents and incidents, and comparison of all potential energy sources such as wind, solar, hydrogen fuel cell and including conservation. (**CL-46/6**)

Comment: As we have stated earlier, the methods used to decommission a nuclear plant will affect not only the communities of today but also the livelihood of future generations. The nuclear industry is leaving humankind a legacy of devastation—epitomized by its long-lived and

highly dangerous nuclear waste. They are unable to solve their waste problem and now, when faced with the eventual shutdown of their plants, are unwilling to take measures to ensure that the public is protected. (**CL-08/32**)

Response: *The comments relate to nuclear energy in general and are outside the scope of this Supplement. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: Bush is stripping us all of those safeguards we all need to protect citizens--and this includes you. He has only corporate interests--the nuclear power industry being one. (**CL-34/3**)

Response: *The missions of the NRC include the protection of public health and safety and protection of the environment. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

O.6.4 Comments in Support of Decommissioning

Comment: I certainly heard Eva loud and clear, that the amount of exposure for decommissioning is less than for operating reactors. So our organization is certainly in favor of decommissioning. Let's just do it right. (**AT-B/18**)

Comment: We'd like to see the decommissioning of nuclear plants go forward, and we want it to go forward in the safest, most environmentally sound manner. (**CH-A/4**)

Comment: As a preliminary matter, we support the prompt decommissioning of nuclear power plants and urge the U.S. Nuclear Regulatory Commission ("NRC") to ensure that decommissioning goes forward in the safest, most environmentally sound manner. (**CL-11/1**)

Comment: We would like to make it abundantly clear that we see decommissioning to be the most appropriate and responsible action to take with all nuclear reactors. (**CL-47/3**)

Comment: Certainly, every reactor shut down is another step away from further creation of radioactive waste, the ever-present possibility of nuclear terror (be it a reactor accident or terrorist attack) and the continuing irradiation of our everyday lives. (**CL-47/5**)

Comment: Our organizations are fully supportive of the permanent closure of nuclear power reactors. (**CL-48/7**)

Comment: 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, "cleanup" and decommissioning; 2)Prevent additional environmental contamination both onsite and offsite and to remediate and minimize that which has already occurred. (**CL-48/8**)

Response: *The comments are in support of safe, efficient, and timely decommissioning of permanently shutdown power reactors. The comments did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

O.6.5 General Comments

Comment: I think this is a good beneficial effort to have this generic supplement. I think it's going to help do evaluations of the environmental consequences of what we're doing. It's going to make sure in some cases that we look at the right things and don't skip anything. I do agree with the overall conclusions of the document. And also, I agree on what should be considered generically and what is site-specific because there are some site-specific issues. (**CH-D/1**)

Comment: For the next comment, for older plants, in some cases, there are some differences in the physical configuration from what was described and assumed. An example is like there may not be active ventilation systems. We are just going to have to install those systems as needed to properly protect the air quality and so forth. (**CH-D/9**)

Comment: Also, in the licensing arena, our documents may not include what has already been assumed to be in the documents for plants that recently shutdown. And in those cases, like for the environment hazards, if we don't have it already covered in the document, we're going to have to cover it in the license termination plan. So, I think what will be covered is just, it may not already be covered in the document. (**CH-D/10**)

Comment: Overall, Maine Yankee (MY) believes that the Supplement provides a fair update of the sections of the 1988 NUREG versions relating to pressurized water reactor, boiling water reactors, and multiple reactor stations. (**CL-04/1**)

Comment: Draft supplement 1 represents a useful update of the environmental impacts of decommissioning based upon over 200 facility-years' worth of actual decommissioning experience accumulated by nuclear facilities since the NRC published the initial GEIS in 1988.

NEI concurs with the GEIS conclusions, which found that for the "…environmental issues assessed, most of the impacts are generic and SMALL for all plants regardless of the activities and identified variables…" (**CL-05/1**)

Comment: Overall, Detroit Edison agrees with the conclusions in the draft NUREG-0586, Sup 1. The supplement will be helpful and updates the previous Generic Environmental Impact (GEIS) on Decommissioning to accommodate changes in regulations and experience gained in recent decommissioning activities. (**CL-09/1**)

Comment: In conclusion, Detroit Edison thinks the draft supplement to the GEIS on decommissioning of nuclear facilities is a good effort and agrees with the overall conclusions. Some details should be revised to improve accuracy and to ensure planned decommissioning activities, intended to be covered by this supplement, are fully addressed. This will avoid future questions on whether activities are covered and/or bounded by this GEIS supplement. (**CL-09/58**)

Comment: EPA supports the approach NRC has taken in the Supplement of establishing an envelope of environmental impacts resulting from decommissioning activities and identifying those activities which can be bounded by a generic evaluation and those which require a site-specific analysis. This approach concentrates the environmental analysis on those activities with the greatest likelihood of having an environmental impact. EPA also commends NRC for drafting a Supplement which facilitates public understanding in its use of plain English and explanation of technical terms. (**CL-16/1**)

Comment: Also, based on information presented in various industry forums, several numbers quoted for some of the other plants may be inaccurate. Each plant should verify the numbers for accuracy. (**CL-18/3**)

Comment: Just as anyone with common sense can tell this Draft Supplement 1 to NUREG-0586 will have dire consequences if implemented in its current form. (**CL-20/3**)

Comment: Exelon continues to maintain that providing guidance, which addresses environmental issues generically, provides the highest standard the public at large can use effectively to challenge industry to return power plant sites to beneficial use upon facility retirement. (**CL-31/2**)

Comment: Excelon believes the proposed Draft Supplement correctly concludes that most of the environmental issues assessed result in impacts that are generic and SMALL for all plants. We reach this conclusion based upon our experience decommissioning one BWR (Dresden 1),

two PWR's (Zion Station), one HTGR (Peach Bottom 1), and our observation of other industry decommissioning projects. We have not seen to date - and currently do not expect to find - environmental impacts different from those addressed and bounded by this Supplement to the GEIS. (**CL-31/1**)

Comment: In general the draft supplement meets the goal of updating the GEIS to current decommissioning practices and dismantlement options. (**CL-30/1**)

Comment: There is still time to correct all the serious problems in the Draft, still time for the NRC to turn from the path of wickedness and ruin the Draft Supplement and GEIS will lead to if passed as is. (**CL-20/118**)

Comment: I would point out that on pages C-1 and C-2 are the names of those responsible for this abomination for reference in case of future lawsuits, so the public should make a note of that (this is, after all public record, what I have written). (**CL-20/117**)

Comment: It appears that the nuclear industry has written its own ticket, as usual, on the issues in the Draft. P. E-5 notes the help from the Nuclear Energy Institute in gathering information. (**CL-20/64**)

Comment: The NRC is charged to protect the quality of the human environment and we ask that they can—that they do all they can to uphold that charge. The current draft GEIS is not protective and needs major improvement. (**AT-A/44**)

Comment: [In addition to the economic gash in the GEIS portal, this fatally flawed document does not adequately address, acknowledge, account for, or compute a number of significant barriers related to radiological decommissioning; including:] Planned Operating Life of a Nuclear Generating Stations. (**CL-02/4**)

Comment: [In addition to the economic gash in the GEIS portal, this fatally flawed document does not adequately address, acknowledge, account for, or compute a number of significant barriers related to radiological decommissioning; including:] Plant Valuation. (**CL-02/8**)

Comment: Did the Nuclear Regulatory Commission "encourage" its economists, accounts, and actuaries to ignore the impact of deregulation and plant devaluations on local communities? Is it unreasonable to ask the NRC to view decommissioning through a global lens that accounts for economic reality, objective science, and fiduciary accountability? Or is the Commission intent on viewing radiological decommissioning through surrealistic prescription monocles prescribed by the Nuclear Energy Institute, the Edison Electric Institute, Electric Power Research Institute, and the Institute for Nuclear Power Operations? (**CL-02/14**)

Comment: At some point, the NRC will have to create a decommissioning vessel the incorporates reality as its guide. Frankly, the GEIS resembles a script for "Abbott and Costello" prepared by Norman C. Rasmussen, Bernie Snyder and Ken Lay. (**CL-02/16**)

Comment: The document can be condensed in to three words, namely: "DUMP AND COVER." (**CL-20/1**)

Comment: Deregulation has already had serious negative impact on local municipalities this will be just another blow. (**CL-25/12**)

Comment: To even think that decommissioning nuclear power plants' regulations via presidential fiat is acceptable is beyond logic and reason. (**CL-34/1**)

Comment: I find the proposals in Supplement 1 to the Generic Environmental Impact Statement on Decommissioning unrealistic when it comes to the health of United States citizens at the time of decommissioning and to those living years later. (**CL-39/1**)

Comment: 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. (**CL-51/27**)

Comment: We concur with and adopt by reference the comments of the Nuclear Information and Resource Service, submitted by Paul Gunter. (**CL-52/1**)

Comment: I don't really know why I am bothering to write all this, as the NRC will ignore it anyway, but hope springs eternal as they say. If we don't have comparisons, we can't have at least some idea of what constitutes the start of a return to a more unpolluted site, and we can't establish what needs bulldozing and taken to a radioactive waste national sacrifice area. (**CL-20/11**)

Comment: Additionally, Public Citizen is concerned that the provisions outlined in the Supplement might allow owners and operators of nuclear power reactors to reduce or completely evade their civic, environmental, economic and legal responsibilities. (**CL-47/2**)

Comment: (The Western Shoshone Nation, AKA the Nevada Nuclear Test Site) that blew radioactive fallout across the nation causing serious illness, birth defects and cancers, besides doing the same to some nearer the site in Nevada. The only thing Las Vegas worried about, was if the tests shook their gambling tables according to press reports. When the wind blew towards Las Vegas they tried not to test. For Nevada to now whine that they don't see why they should get the spent nuclear fuel as they have no reactors-power reactors-is obscene,

considering that a huge Curie quantity of the spent fuel was generated making/creating the plutonium and the tritium for the nuclear weapons most of them supported and didn't care that the fallout dumped on their fellow planetary citizens. The fact that there were, and are, some small groups who were, and are against the weapons and the testing and the horrors of nuclear power does not alter the fact that the state didn't protest. The states current protests, even if valid for other reasons, ring hollow against that history of nuclear collaboration, when they use the "no power reactor" excuse to keep the waste out. It is time history was set straight. (**CL-20/82**)

Comment: Have you all no shame? (**CL-20/108**)

Comment: This is ridiculous! (**CL-22/1**)

Comment: You do not need to further endanger our lives while the polluters go scott free. (**CL-34/5**)

Comment: These admonitions have been presented to the NRC repeatedly in many Commission and staff meetings, agency panels and workshops, public meetings, 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. (**CL-52/25**)

Response: *The comments are general in nature and did not provide new information relevant to this Supplement and will not be evaluated further. The comments did not result in a change to the Supplement.*

Comment: We support the NRC's current efforts to update the GEIS for nuclear power plants to reflect the industry's experience in decommissioning and to more fully consider issues like partial site release and re-use of concrete rubble as fill. (**CL-01/1**)

Response: *Rubblization and partial site release are evaluated and discussed in the scope of the document in Section 1.3 and further addressed in Chapter 4, as appropriate. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: As the NRC evaluates the comments received on the GEIS, it should look beyond the actual decommissioning process and focus on what condition the site would be in following license termination. (**CL-17/10**)

Response: *Regulations regarding license termination are in 10 CFR 20, Subpart E. These regulations and ultimate goal of decommissioning is to ensure that the site will be in a condition suitable for future use in either a restricted or unrestricted capacity. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: If the possibility exists that radioactive material will remain onsite under an unrestricted or restricted use condition the GEIS should consider the associated long-term environmental impacts. (**CL-17/11**)

Response: *Regulations regarding license termination are found in 10 CFR 20, Subpart E. For sites that have been released for unrestricted use, there would be no mechanism for future contamination or radiological releases. Therefore, long-term environmental impacts would be negligible. In the event that the site is released for restricted use, the site would continue to be monitored until the levels have been reduced below 10 CFR 20, Subpart E limits. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: Public Citizen is very concerned about several aspects of this supplement to NUREG-0586, specifically those that could pose risks to public health, the public's right to participate in decisions that affect them, and environmental quality. (**CL-47/1**)

Response: *The description of impacts as site-specific or generic does not preclude local communities from participating. The commenter is referred to the Executive Summary for a description of "generic" and "site-specific." The public can raise issues using any of several methods. If the licensee has requested an action requiring a license amendment, then the process for intervening in this action is by requesting or participating in a hearing. The process is set forth in NRC's regulations in 10 CFR Part 2, "Rules of Practice of Domestic Licensing Proceedings and Issuance of Orders." If the action of concern does not involve a license amendment, then any member of the public may raise potential health and safety issues in a petition to the NRC to take specific enforcement action against a licensed facility. This provision is contained in the NRC's regulations and is often referred to as a "2.206 petition" in reference to its location in the regulations (Chapter 2, Section 206 or 10 CFR). The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: The potential use of plutonium fuel at the McGuire and Catawba reactors is not adequately addressed in decommissioning—in this decommission document. In fact, the costs of decommissioning are nowhere to be found. So we would request that there be a supplement right away before mistakes are made in licensing the use of plutonium fuel at the McGuire and

Catawba reactors because the decommissioning impacts, including costs, and also including the additional radioactivity, the additional waste, those are real impacts that are basically left unaddressed in the generic environmental impact statement for decommissioning. (**AT-B/9**)

Response: *If a MOX Fuel program is adopted in this country then it may be considered in the next Supplement to the GEIS. However, at the present time the use of MOX fuel is speculative at best. The comment did not provide new information relevant to this Supplement and will not be evaluated furthers. The comment did not result in a change to the Supplement.*

Comment: The Oconee plant, which I'm near, which we've gone to visit, it scares me. I mean the reactors look like they're really solid. One thing they're going to do is cut into the wall to take—to change the steam generator. They're only going to put it back and somehow—is it going to be as strong as it was before? (**AT-D/8**)

Response: *The replacement of a steam generator at an operating facility is outside the scope of this Supplement. The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*

Comment: It has come to my attention that the Nuclear Regulatory Commission is possibly compromising the security of our nation's future by making way for further build up of nuclear waste that will theoretically be safe in so many thousands of years. (**CL-41/1**)

Response: *Spent fuel maintenance and storage are outside the scope of this Supplement as discussed in Section 1.3, "Scope of this Supplement." The comment did not provide new information relevant to this Supplement and will not be evaluated further. The comment did not result in a change to the Supplement.*