

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)

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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

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| 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 decom-
| missioning 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.

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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.*

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| **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)

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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 Floridan 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)

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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.

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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 than 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 detectability 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

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(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)

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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.

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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 terrestrial 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*

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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)

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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 environment 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*

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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.*

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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 Gases 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)

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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.*

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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 incrementally 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,

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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 public's, 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

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| 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)

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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)

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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

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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)

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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.*

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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)