Historical Perspective and Staff Evaluation Considerations

The regulations governing emergency planning (EP) for nuclear power reactors are set forth in Section 50.47, paragraphs 50.54(q), (s) and (t) to Title 10 of the *Code of Federal Regulations* (10 CFR), and Appendix E to 10 CFR Part 50. Every nuclear power reactor licensee must establish and maintain emergency plans and preparedness in accordance with these regulations. The EP regulations for an operating nuclear power reactor include standards for both onsite and offsite[1] emergency response plans. These regulations and the planning basis for EP are based upon an anticipated prompt response to a wide spectrum of events. However, for a decommissioning nuclear power reactor, the spectrum of accidents that can have significant offsite consequences is greatly reduced. At a decommissioning power reactor site, the only accident scenario that might lead to a significant radiological release is a highly unlikely, beyond-design-basis event resulting in a potential spent fuel cladding fire. This event involves a postulated major loss of water inventory from the spent fuel pool (SFP), where preplanned SFP mitigation measures were unsuccessful, generating a significant heat-up of the spent fuel to the point where substantial zirconium cladding oxidation and fuel damage can occur. The amount of decay heat present in irradiated fuel in the SFP is directly related to the amount of time that has passed after the reactor is shut down. As such, the potential for the conditions needed for a zirconium cladding fire to occur continues to decrease as a function of the time since the reactor was permanently shut down. However, current regulations do not reflect that: (1) considerably more time is available during decommissioning to respond to a postulated zirconium cladding fire incident than is available for many postulated operating power reactor accidents, and (2) comprehensive SFP mitigation measures and on-shift staff remain in place following the permanent cessation of power operations.

Since there are no explicit regulatory provisions distinguishing EP requirements for a nuclear power reactor that has permanently ceased operation from those for an operating nuclear power reactor, licensees transitioning to, or already in the decommissioning phase, usually seek to establish a level of EP commensurate with the risk of a radiological emergency at a decommissioning site. Exemptions from certain EP requirements are typically requested early in the decommissioning process. The U.S. Nuclear Regulatory Commission (NRC) reviews each request on a case-by-case basis and grants exemptions only after conducting a thorough analysis of each request. Historically, given the significant reduction in radiological risk from a decommissioning site, the NRC has approved exemptions from EP requirements based on site-specific evaluations and the objectives of the regulations. Between 1987 and 1999, the NRC issued exemptions from certain EP requirements for 10 licensees. More recently, exemptions from certain EP requirements have been granted for the Kewaunee Power Station; Crystal River Nuclear Power Station, Unit 3; San Onofre Nuclear Generating Station, Units 2 and 3; Vermont Yankee Nuclear Power Station; and Fort Calhoun Station, Unit 1. The recent exemption documents are available in the Agencywide Documents Access and Management System (ADAMS) under Accession Nos. ML14261A223, ML15058A906, ML15082A204, ML15180A054, and ML17263B198, respectively.

Previously granted exemptions from EP regulations reduced the requirements for decommissioning power reactors to those consistent with these standards:
(1) 10 CFR 50.47(d), which states the requirements for a license authorizing fuel loading and

[1] The offsite standards are reproduced in the Federal Emergency Management Agency (FEMA) regulations at 44 CFR Part 350.5, “Criteria for review and approval of State and local radiological emergency plans and preparedness,” and are based on the standards established by the Commission in 10 CFR 50.47.

low power testing only[2]; and (2) 10 CFR 72.32(a)[3], which establishes the information required in an emergency plan for an ISFSI. Examples of previously granted exemptions from EP regulations for decommissioning power reactors include: setting the highest emergency plan classification as an "Alert"; extending the timing requirements for notification of offsite authorities; requiring only onsite exercises with the opportunity for offsite response organization participation; and maintaining arrangements for only offsite response organizations (i.e., law enforcement, fire, and medical services) that might support the licensee's response to onsite emergencies.[4] The EP exemptions also relieve the licensee from the requirement to maintain formal offsite radiological emergency preparedness (REP) plans, including the 10-mile plume exposure pathway and 50-mile ingestion pathway emergency planning zones.

Licensees that have been granted EP exemptions must continue to maintain an onsite emergency plan addressing the classification of an emergency, notification of emergencies to licensee personnel and offsite authorities, and coordination with designated offsite government officials following an event declaration.

In evaluating EP exemptions requested by Exelon Generation Company, LLC (Exelon), specifically in relation to relieving the licensee from the requirement to maintain formal offsite REP plans, the staff considered the conclusions from recent SFP studies completed since the publication of NUREG-1738, "Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants" (ADAMS Accession No. ML010430066), which served as the technical basis for SECY-01-0100, "Policy Issues Related to Safeguards, Insurance, and Emergency Preparedness Regulations at Decommissioning Nuclear Power Plants Storing Fuel in Spent Fuel Pools" (ADAMS Accession No. ML011450420). In addition, the staff considered enhancements put into place as a result of the events of September 11, 2001, and the March 11, 2011, accident at the Fukushima Dai-ichi site. The studies, described in more detail below, support staff positions that only a highly unlikely, beyond-design-basis event (e.g., extreme earthquake or large aircraft impact) would cause sufficient structural damage to the SFP structure resulting in a rapid SFP water draindown and potential zirconium cladding fire. In addition, there would be a significant amount of time between the initiating event and the possible onset of conditions that could result in a zirconium cladding fire. This time provides a substantial opportunity for event mitigation. Licensees are required to maintain effective strategies, sufficient resources and adequately trained personnel to mitigate such an event. If State or local governmental officials determine that offsite protective actions are warranted, then sufficient time and capability would be available for offsite response organizations (OROs) to

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[2] 10 CFR 50.47(d) states, in part, "Notwithstanding the requirements of paragraphs (a) and (b) of this section, and except as specified by this paragraph, no NRC or FEMA review, findings, or determinations concerning the state of offsite emergency preparedness or the adequacy of and capability to implement State and local or utility offsite emergency plans are required prior to issuance of an operating license authorizing only fuel loading or low power testing and training (up to 5 percent of the rated thermal power)."

[3] The Final Rule to 10 CFR Part 72, "Emergency Planning Licensing Requirements for Independent Spent Fuel Storage Facilities (ISFSI) and Monitored Retrievable Storage Facilities (MRS)," (60 *Federal Register* (FR) 32430, June 22, 1995), states that "the postulated worst-case accident involving an ISFSI has insignificant consequences to public health and safety. Therefore, the final requirements to be imposed on most ISFSI licensees reflect this fact, and do not mandate formal offsite components to their onsite emergency plans." It also states, "based on the potential inventory of radioactive material, potential driving forces for distributing that amount of radioactive material, and the probability of the initiation of these events, the Commission concludes that the offsite consequences of potential accidents at an ISFSI or an MRS would not warrant establishing Emergency Planning Zones."

[4] Requirements for licensees to maintain agreements for fire-fighting and local law enforcement services exist outside of EP (i.e., the requirement for licensees to maintain a fire protection plan in 10 CFR 50.48, "Fire protection" and physical security requirements in 10 CFR Part 73).

implement these measures using a comprehensive, or "all-hazards," emergency management plan (CEMP) approach.[5]

Spent Fuel Pool Study Considerations

Following removal of spent fuel from the power reactor, the principal radiological risks are associated with the storage of spent fuel onsite. Generally, a few months after the reactor has been permanently shut down, there are no possible design-basis events that could result in a radiological release exceeding the U.S. Environmental Protection Agency (EPA) early phase protective action guide (PAG) limit of one roentgen equivalent man at the exclusion area boundary. The only potential accident that might lead to a significant radiological release at a decommissioning reactor is a zirconium fire. The zirconium fire scenario is a postulated, but highly unlikely, beyond-design-basis accident scenario that involves a major loss of water inventory from the SFP, resulting in a significant heat-up of the spent fuel, and culminating in substantial zirconium cladding oxidation and fuel damage. The significance of spent fuel heat-up scenarios that might result in a zirconium fire depends on the decay heat of the irradiated fuel stored in the SFP. The amount of decay heat in the spent fuel is directly associated with the amount of time since the reactor permanently ceased operations. Therefore, the probability of a zirconium fire scenario continues to decrease as a function of the time that the decommissioning reactor has been permanently shut down.

The staff assessed the risk of an SFP accident at decommissioning nuclear power plants in the late 1990s to support development of a risk-informed technical basis for review of exemption requests and a regulatory framework for integrated rulemaking. The staff's assessment, published in NUREG-1738, conservatively assumed that if the water level in the SFP did drop below the top of the spent fuel, an SFP zirconium fire involving all of the spent fuel would occur, and thereby bounded those conditions associated with inadequate air cooling of the fuel (including partial drain-down scenarios) and fire propagation. The study used simplified and sometimes bounding assumptions and models to characterize the likelihood and consequences of beyond-design-basis SFP accidents. Even with this conservative assumption, the study found the risk of an SFP fire to be low and well within the Commission's safety goals. The amount of time available (after complete fuel uncovery) before a zirconium fire also depends on various factors, including decay heat rate, fuel burnup, fuel storage configuration, building ventilation rates and air flow paths, and fuel cladding oxidation rates. Although NUREG-1738 did not completely rule out the possibility of a zirconium fire, it did demonstrate that storage of spent fuel in a high density configuration in SFPs is safe, and that the risk of accidental release of a significant amount of radioactive material to the environment is low.

After the events of September 11, 2001, Sandia National Laboratories (SNL) conducted studies (collectively, the "Sandia studies"), which considered spent fuel loading patterns and other aspects of a pressurized-water reactor SFP and a boiling-water reactor SFP, including the role that the circulation of air plays in the cooling of spent fuel. These studies are non-publically available because they contain security-related information. The Sandia studies indicated that there is a significant amount of time between the initiating event (i.e., the event that causes the SFP water level to drop) and the spent fuel assemblies becoming partially or completely

[5] A CEMP in this context, also referred to as an emergency operations plan, is addressed in FEMA's Comprehensive Preparedness Guide 101, "Developing and Maintaining Emergency Operations Plans," Version 2.0, dated November 2012. https://www.fema.gov/media-library-data/20130726-1828-25045-0014/cpg_101_comprehensive_preparedness_guide_developing_and_maintaining_emergency_operations_plans_2010.pdf.

uncovered. In addition, the Sandia studies indicated that for those hypothetical conditions where air cooling may not be effective in preventing a zirconium fire, there is a significant amount of time between the spent fuel becoming uncovered and the possible onset of such a zirconium fire, thereby providing a substantial opportunity for event mitigation. The Sandia studies, which account for relevant heat transfer and fluid flow mechanisms, also indicated that air-cooling of spent fuel could be sufficient to prevent SFP zirconium fires at a point much earlier following fuel offload from the reactor than previously considered (e.g., in NUREG-1738).

In NUREG-2161, "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling Water Reactor," dated September 2014 (ADAMS Accession No. ML14255A365), the NRC evaluated the potential benefits of strategies required in 10 CFR 50.54(hh)(2). The study results for the analyzed severe earthquake at the reference plant are consistent with past studies' conclusions that SFPs are robust structures and likely to withstand severe earthquakes without leaking. The study showed that the likelihood of a radiological release from the spent fuel as a result of a severe earthquake at the reference plant to be about one time in 10 million years or lower. If a leak and radiological release were to occur, this study shows that the individual cancer fatality risk for a member of the public is several orders of magnitude lower than the Commission's Quantitative Health Objective of 2 in 1 million (2x10-6/year). As explained in NUREG-2161, successful implementation of mitigation strategies significantly reduces the likelihood of a release from the SFP in the event of a loss of cooling water. Additionally, the NRC found that the placement of spent fuel in a dispersed configuration in the SFP, such as the 1 x 4 pattern, more effectively used the heat capacity of the stored fuel and available cooling mechanisms to extend the necessary heatup time and reduce the likelihood of a release from a completely drained SFP.

In 2014, the NRC documented a regulatory analysis of expediting the transfer of spent fuel assemblies in COMSECY-13-0030, "Staff Evaluation and Recommendation for Japan Lessons Learned Tier 3 Issue on Expedited Transfer of Spent Fuel" (ADAMS Accession No. ML13329A918). The staff concluded that SFPs are robust structures with large safety margins and recommended to the Commission that possible regulatory actions to require the expedited transfer of spent fuel from SFPs to dry cask storage were not warranted. The Commission subsequently approved the staff's recommendation in the staff requirements memorandum to COMSECY-13-0030 (ADAMS Accession No. ML14143A360).

To inform the current integrated decommissioning rulemaking effort, the staff conducted an applied research study, as documented in "Transmittal of Reports to Inform Decommissioning Plant Rulemaking for User Need Request NSIR [Office of Nuclear Security and Incident Response]-2015-001," dated May 31, 2016 (ADAMS Accession No. ML16110A416), and concluded:

- the representative plant staff can reliably implement mitigation strategies to timely mitigate cask-drop events and prevent spent fuel heatup damage;
- only the events causing a rapid SFP water draindown (e.g., extreme earthquake and large aircraft impact) would challenge the successful mitigation of fuel heatup; and
- even in the event of a highly unlikely beyond-design-basis accident leading to a rapid draindown of the SFP and subsequent zirconium fire, there may be an additional time margin on the order of several hours beyond the 10-hour heatup time during which protective actions can be taken to protect the public before the dose levels associated with EPA early phase PAGs would be exceeded offsite.

In addition, for the hypothetical event sequence considered in the highly unlikely beyond-design-basis accident leading to a rapid draindown of the SFP and subsequent zirconium fire, acute fatal effects offsite appear to be unlikely from either source term evaluated, provided that individuals can be relocated within a reasonable time after plume arrival; in most cases this time was longer than 24 hours.

As previously stated, these studies (NUREG-1738, the Sandia studies, NUREG-2161, COMSECY-13-0030, and studies supporting the decommissioning rulemaking efforts) support the staff positions that:

- there would be sufficient time between the initiating event and the possible onset of conditions that could result in a zirconium cladding fire, which would provide a substantial opportunity for successful mitigation measures, and
- only a highly unlikely, beyond-design-basis event (e.g., extreme earthquake or large aircraft impact) would cause sufficient SFP structural damage to uncover the fuel and potentially support development of a zirconium cladding fire and, even in such cases, the fuel may be air coolable following a complete draindown.

As such, the staff believes that for all but the most unlikely events, any offsite protective actions would be taken by governmental officials as a precautionary measure. In the unlikely event of a beyond-design-basis accident resulting in a loss of the SFP water inventory, there would be time to initiate appropriate SFP mitigating actions. If State or local governmental officials determine that offsite protective actions are warranted, then sufficient time and capability would be available for offsite response organizations to implement these measures using a CEMP, "all-hazards," approach.

Hostile Action-Based Event Considerations

NRC regulatory activities and studies have reaffirmed the safety and security of spent fuel stored in pools and shown that SFPs are effectively designed to prevent accidents and minimize damage from malevolent attacks. In the wake of the terrorist attacks of September 11, 2001, the NRC took several actions to further reduce the possibility of an SFP fire. The NRC issued Order EA-02-026, "Order for Interim Safeguards and Security Compensatory Measures," dated February 25, 2002 (ADAMS Accession No. ML020510635), which required licensees to immediately implement additional security measures, including increased patrols, augmented security forces and capabilities, and more restrictive site-access controls to reduce the likelihood of an SFP accident, resulting from a terrorist-initiated event. The NRC's regulatory actions after the terrorist attacks of September 11, 2001, have significantly enhanced the safety of SFPs. A comprehensive discussion of these actions, some of which specifically address SFP safety and security, was provided in the memorandum to the Commission titled, "Documentation of Evolution of Security Requirements at Commercial Nuclear Power Plants with Respect to Mitigation Measures for Large Fires and Explosions," dated February 4, 2010 (ADAMS Accession No. ML092990438).

Licensees develop strategies in order to protect against the NRC design-basis threat (DBT)[6] for radiological sabotage and are required to maintain these strategies under the provisions of 10 CFR 73.55(b) until the termination of their Part 50 (or Part 52) license. In addition, other Federal agencies such as the Federal Aviation Administration, the Federal Bureau of

[6] The DBT represents the largest threat against which a private sector facility can be reasonably expected to defend, with high assurance. The NRC's DBT rule was published in the *Federal Register* on March 19, 2007 (72 FR 12705).

Investigation, and the Department of Homeland Security have taken aggressive steps to prevent terrorist attacks in the United States. Taken as a whole, these systems, personnel, and procedures provide reasonable assurance that public health and safety, the environment, and the common defense and security will be adequately protected (73 FR 46204, 46207; August 8, 2008).

Mitigative Action Considerations

NRC Order EA-02-026 also established new requirements for licensees to have mitigating strategies for the potential loss of SFP water inventory and for large fires or explosions at nuclear power plants. In response, the Nuclear Energy Institute (NEI) provided detailed guidance in NEI 06-12, "B.5.b Phase 2 & 3 Submittal Guideline," Revision 2, dated December 2006 (ADAMS Accession No. ML070090060), which the NRC endorsed on December 22, 2006 (ADAMS Accession No. ML063560235 (not publicly available because it contains security-related information)). The NRC found the NEI guidance to be an effective means for mitigating the potential loss of large areas of the plant due to fires or explosions. In addition, these strategies enhanced spent fuel coolability and the potential to recover SFP water level and cooling prior to a potential SFP zirconium fire, which further reduced the probability of a radiological release from an SFP zirconium fire initiation.

Through NRC's issuance of the "Power Reactor Security Requirements" final rule on March 27, 2009 (74 FR 13926), the requirements in the order were made generically applicable. In that final rule, the NRC added 10 CFR 50.54(hh)(2) to require licensees to implement mitigating measures to maintain or restore SFP cooling capability in the event of loss of large areas of the plant due to fires or explosions, which further decreases the probability of an SFP fire. Under 10 CFR 50.54(hh)(2), power reactor licensees are required to implement strategies such as those provided in NEI-06-12.[7]

Further, other organizations, such as SNL, as discussed previously in the section, "Spent Fuel Pool Considerations," have confirmed the effectiveness of the additional mitigation strategies to maintain spent fuel cooling in the event that the pool is drained and its initial water inventory is reduced or lost entirely. The findings of SNL in the Sandia studies are sensitive security-related information and are not available to the public.

In response to the Fukushima Dai-ichi accident, the NRC implemented regulatory actions to further enhance reactor and SFP safety. On March 12, 2012, the NRC issued Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" (ADAMS Accession No. ML12054A735), which requires licensees to develop, implement, and maintain guidance and strategies to maintain or restore SFP cooling capabilities, independent of normal alternating current power systems, following a beyond-design-basis external event. In addition, on March 12, 2012, the NRC issued Order EA-12-051, "Issuance of Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation" (ADAMS Accession No. ML12054A679), which requires that licensees install reliable means of remotely monitoring wide-range SFP levels to support effective prioritization of event mitigation and recovery actions in the event of a beyond-design-basis external event. Although the primary purpose of the order was to ensure that operators

[7] The guidance in NEI-06-12 specifies that portable, power-independent pumping capabilities must be able to provide at least 500 gallons per minute (gpm) of bulk water makeup to the SFP, and at least 200 gpm of water spray to the SFP. Recognizing that the SFP is more susceptible to a release when the spent fuel is in a non-dispersed configuration, the guidance also specifies that the portable equipment is to be capable of being deployed within 2 hours for a non-dispersed configuration.

were not distracted by uncertainties related to SFP conditions during the accident response, the improved monitoring capabilities will help in the diagnosis and response to potential losses of SFP integrity. These requirements ensure a more reliable and robust mitigation capability is in place to address degrading conditions in SFPs resulting from certain significant but unlikely events.

Offsite Radiological Emergency Preparedness Considerations

The staff determined, based on EP exemption evaluation criteria previously discussed, that in the event of an SFP accident, the licensee will maintain sufficient resources and adequately trained personnel available on-shift to promptly initiate mitigative actions without the support of offsite response organizations. In the highly unlikely event of a zirconium cladding fire in the SFP, due to a beyond-design-basis event resulting from the loss of all spent fuel cooling, sufficient time would exist for offsite response organizations to implement protective measures, if warranted, using a CEMP, "all-hazards," approach. Therefore, the staff concluded, consistent with previous exemption requests, that formal offsite REP plans, required under 10 CFR Part 50, are not necessary for permanently shutdown and defueled nuclear power reactor licensees once the evaluation criteria outlined in Section 5, "Evaluation of Exemptions to EP Regulations," of the NSIR Division of Preparedness and Response (DPR) Interim Staff Guidance (ISG) document NSIR/DPR-ISG-02, "Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants" (ADAMS Accession No. ML14106A057) have been addressed.

If the Commission approves these exemptions, Exelon would still be required to maintain an onsite emergency plan, which would provide for the notification of, and coordination with, offsite organizations, to an extent commensurate with the approved exemptions. Section V.B.1 of the "Memorandum of Understanding Between the Department of Homeland Security/Federal Emergency Management Agency and Nuclear Regulatory Commission Regarding Radiological Response, Planning and Preparedness" (ADAMS Accession No. ML15344A371), states an NRC responsibility is "[t]o assess licensee emergency plans for adequacy. This review will include organizations with which licensees have written agreements to provide onsite support services under emergency conditions." As such, the NRC will continue to evaluate, as part of periodic oversight activities under the respective regulatory programs, the adequacy of OROs that are identified by licensees to respond onsite in the event of an emergency, such as fire-fighting, law enforcement and medical transportation/treatment. Agreement with these OROs to respond onsite or provide assistance in the event of an emergency will be documented in formal letters of agreement, which will be contained or referenced in the licensee's emergency plan, physical security plan, or fire protection plan, as applicable.

The staff's exemption recommendation, if approved by the Commission, would not affect the responsibility that FEMA has under its regulations in 44 CFR Chapter I, "Federal Emergency Management Agency," for assistance to State and local response organizations, nor would it affect the responsibilities of State and local governments to establish and maintain CEMPs under the National Preparedness System. The NRC would base its finding of reasonable assurance on its review of licensee onsite emergency preparedness and would not require a finding from FEMA on the adequacy of State and local CEMPs. Under its role as described in the National Response Framework, the NRC remains ready to support FEMA by providing it and State, local and Tribal governments with technical advice related to the safety and security of operations at the plant.

In a letter dated April 2, 2018 (ADAMS Accession No.: ML18093A071), FEMA provided the following statement for inclusion in this SECY paper:

> As nuclear power plants decommission and the nature of the risk changes, it may affect the capabilities that state and local governments need to maintain offsite to protect the health and safety of the public. Given the risk implications both onsite and offsite during decommissioning, it is imperative that FEMA and the NRC consult with one another when the topic of risk is under discussion. FEMA acknowledges the NRC's role in analyzing incidents that could result in offsite dose impacts, but FEMA also recognizes the authority of state and local governments to determine risk to public health and safety, and the associated capabilities needed to protect their communities. The exemption, if issued, will create a transitional environment for offsite emergency preparedness programs and associated planning for radiological hazards. FEMA will continue to support offsite response organizations (ORO) as they adjust their plans, sustain capabilities, and manage resources to the changing radiological hazard. The resources available to support FEMA stakeholders during the transition process include, but are not limited to, the National Preparedness System guidance materials, the Federal Radiological Preparedness Coordinating Committee, and technical assistance from FEMA Headquarters and FEMA Regions.

In accordance with the memorandum of understanding with FEMA, the NRC will continue to use the FEMA/NRC Steering Committee on Emergency Preparedness as the focal point for coordination of emergency planning and preparedness issues and will continue to provide FEMA the opportunity to review and comment on guidance and relevant research and development programs prior to adoption as formal agency guidance and/or implementation.

In the April 2, 2018, letter, FEMA also stated the following:

> FEMA Region II consulted with the New Jersey Office of Emergency Management (NJOEM) concerning this exemption request. At this time, NJOEM does not anticipate any significant reduction in response capabilities at the state or county level due to the OCNGS decommissioning, nor does the state expect to lose any full time emergency management employees; which could degrade staffing capabilities. There may be some budget reallocation required to address some funding areas such as salaries and equipment, but there is no anticipation of any loss or noticeable reduction of response capabilities in the communities surrounding OCNGS.

Though not considered part of the NRC staff's reasonable assurance determination, the staff is informing the Commission of an Administrative Consent Order between Exelon and the State of New Jersey Department of Environmental Protection (ADAMS Accession No. ML18023A138). Under this Administrative Consent Order, Exelon has agreed to continue to meet various post-shutdown EP requirements until all spent fuel is secured into the ISFSI. Obligations under this agreement include, in part:

- continue to monitor and provide State of New Jersey Bureau of Nuclear Engineering (BNE) staff remote access to OCNGS's effluent and safety data, including but not limited to: ventilation exhaust monitoring, area radiation monitoring, SFP level and temperature, and water discharge monitoring;

- continue to maintain on-site meteorological equipment and provide BNE remote access to collected real-time and meteorological data;

- provide notification within 1 hour of initiation of any emergency event to both the BNE and to the State Police Office of Emergency Management through the currently established means of communication, and continue to maintain full participation in State, county or local (onsite and offsite) exercises annually and testing of communications capabilities quarterly;

- maintain operability of notification sirens for State or county office of emergency management use until all spent fuel is secured into the ISFSI, and support State efforts in performing routine testing of a public alert and notification system;

- identify qualified personnel responsible for making offsite dose projections and coordinating the development of dose projections with the BNE assessment team;

- continue to maintain availability of electrical power and other physical requirements in support of the operation of the on-site Continuous Radiological Environmental Surveillance Telemetry monitors;

- annually, provide communication on the OCNGS's emergency plan to the public located within a 10-mile radius of the facility via brochures through the summer of 2020, and the OCNGS's external Web site after that time; and

- conduct annual Stakeholder Information Forums to inform the public of emergency management plans and facility operating and decommissioning status, and to solicit public comments, and establish and maintain a Web site that is accessible to the public as another venue to disseminate this information.