

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY
COMMISSION**

BEFORE THE SECRETARY

In the Matter of)	
)	
THREE MILE ISLAND NUCLEAR)	
STATION, UNIT NO. 2;)	
CONSIDERATION OF APPROVAL OF)	Docket No. 50-320 LT
TRANSFER OF LICENSE AND)	
CONFORMING AMENDMENT)	
)	

NOTICE OF APPEARANCE

Notice is hereby given that the undersigned attorney enters an appearance in the above-captioned matter in accordance with 10 C.F.R. § 2.314(b).

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Admissions:	United States District Court for the Eastern District of Pennsylvania Pennsylvania
Name of Party:	Commonwealth of Pennsylvania, Department of Environmental Protection

Respectfully submitted,

Commonwealth of Pennsylvania
Department of Environmental Protection

Signed (electronically) by

Alicia R. Duke

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Dated: April 15, 2020

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**PETITION OF THE COMMONWEALTH OF PENNSYLVANIA,
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FOR LEAVE TO INTERVENE AND REQUEST FOR AN
EXTENSION OF TIME TO FILE A HEARING REQUEST**

The Commonwealth of Pennsylvania, Department of Environmental Protection (“Department” or “DEP”) requests that the U.S. Nuclear Regulatory Commission (“NRC” or “Commission”) or, in the event the Commission’s Secretary refers this Petition to the Chief Administrative Judge of the Atomic Safety and Licensing Board (“ASLB”), the designated presiding officer, permit the Department to intervene in this proceeding, pursuant to 10 CFR § 2.309(h)(2), and grant the Department’s request for an extension of time to request an adjudicatory hearing on the application of GPU Nuclear, Inc. (“GPU Nuclear”), Metropolitan Edison Company, Jersey Central Power & Light Company, and Pennsylvania Electric Company (collectively referred to as the “FirstEnergy Companies”) and the TMI-2 Solutions, LLC (“TMI-2 Solutions”) (collectively, “Applicants”) to transfer the Possession Only License No. DPR-73 for Three Mile Island Nuclear Station, Unit 2 (“TMI-2”) from the FirstEnergy Companies to TMI-2 Solutions. In support of this Petition for Leave to Intervene and Request

for an Extension of Time to File a Hearing Request, the Department sets forth the following.

I. PETITION FOR LEAVE TO INTERVENE

A. Introduction

1. The Department is the executive agency of the Commonwealth of Pennsylvania responsible for administering and enforcing all of Pennsylvania's environmental protection statutes, and for overseeing Pennsylvania's responsibilities related to nuclear power plants. David J. Allard, Director of the Department's Bureau of Radiation Protection, located at 400 Market Street, 13th Floor, Harrisburg, Pennsylvania, 17105 with phone number (717) 787-2480 is the Department's representative in this proceeding.

2. The TMI-2 is located within the boundaries of Pennsylvania, in Dauphin County, approximately 10 miles from the City of Harrisburg, the capitol of Pennsylvania. The TMI-2 site is specifically located in the middle of the Susquehanna River, which runs through Pennsylvania and eventually drains into the Atlantic Ocean. The Susquehanna River is a major source of drinking water for, and a waterway that affects, multiple states.

3. In March of 1979, the TMI-2 experienced the worst nuclear accident in U.S. history. The accident resulted in damage to approximately 90% most of the reactor core's enriched uranium fuel and associated components, released millions of curies of radioactive noble gases into the environs, severely damaged reactor systems, and grossly contaminated the interiors of the containment and auxiliary buildings.

4. After the March 1979 accident, there have been some entries into the containment building to remove damaged nuclear fuel and related materials; however, there are several areas in the plant with potentially unknown radiological conditions related to the TMI-2 accident.

5. On or about November 12, 2019, the Department received notice from the Applicants

that they had filed the Application for an Order Approving License Transfer and Conforming License Amendments (“Application”).

6. This Application comes at the time when the Applicants are preparing to decommission the TMI-2. Because the Commonwealth may face significant financial, environmental, and public health and safety consequences in the event of a funding shortfall for the decommissioning, the Department has a significant interest in ensuring that an adequate radiological characterization has been performed within the TMI-2 facilities. The Department is further concerned that the current and proposed licensees have sufficient funds available now and into the future to satisfactorily decommission and restore the TMI-2 site. The Department recognizes that the Applicants have given assurances in their Application that the TMI-2 tax qualified nuclear decommissioning trust fund (“NDT”) will be sufficient to complete decommissioning of TMI-2 under its proposed accelerated schedule, as combined with TMI-2 Solutions’ financial assurance of an additional \$100 million and the limited guarantee of payment and performance from its parent company *EnergySolutions, Inc.* (“*EnergySolutions*”). However, the Department believes it is necessary for the full Commission and NRC staff to ensure that the record demonstrates that there is adequate protection for the citizens of Pennsylvania as required by the Atomic Energy Act of 1954 42 U.S.C. §§ 2011 *et seq.* (“AEA”), and the Commission’s regulations. (Attachment 1 of the Application, p. 2).

7. While the Department welcomes a properly conducted and expedited cleanup and restoration of the TMI-2 site, the obvious risk of a funding shortfall and the attendant significant health, safety, environmental, financial and economic risks to the Commonwealth and its citizens raise serious questions about the realization of that benefit. If the Applicants’ financial assurances and agreements with third parties are insufficient or lacking to cover all of TMI-2

Solutions' costs for dismantlement and waste disposal, the Department is concerned that Pennsylvania citizens will become the payers of last resort.

8. The Department believes the current record needs to be further and fully developed for the Commission to be able to determine the “technical and financial qualifications of the applicant” and find, as it must, that the license transfer application would, if approved, provide “adequate protection to the health and safety of the public.” 42 U.S.C. § 2232(a).

9. For these reasons, the Department petitions the Commission and the ASLB for leave to intervene in this proceeding. In support of its Petition, the Department sets forth the following contentions, as required by 10 CFR § 2.309(h).

B. Contentions the Department Proposes to Raise

Statement of the Issue of Law or Fact to be Raised

10. After reviewing the material contained in the Application, the Department does not believe the record contains the necessary information to determine the “financial qualifications of the applicant” and for the Commission to find, as it must, that the license transfer application would, if approved, provide “adequate protection to the health and safety of the public.” 42 U.S.C. § 2232(a).

Explanation for the Basis for the Contention

11. Applicants assume that \$200 Million will accrue in the NDT over the 16-year anticipated decommissioning process. However, the Application does not explain the basis for the Applicants' assumption that \$200 Million would accrue in the NDT over the 16-year anticipated decommissioning process. Without this explanation, the NRC will not be able to determine if enough funds are set aside to complete the decommissioning as outlined in the Application.

12. The Applicants did not include in the Application a description of expenses necessitating the withdrawals by GPU Nuclear from the NDT prior to the Closing. It appears based on the minimum value of \$800 million required in the NDT at time of license transfer and the approximate current NDT value, the amount withdrawn could potentially approach \$100 million. The Applicants need to fully justify any withdrawal amount from the NDT prior to the license transfer so that the NRC can determine if the funds are withdrawn for appropriate purposes as per the regulations.

13. It is unclear how the Applicants' contingencies for cost estimates are formulated and whether they meet the NRC requirements for the Standard Review Plan on Power Reactor Licensee Financial Qualifications and Decommissioning Funding Assurance. This is of particular concern in that a 2015 TMI-2 decommissioning cost estimate by the licensee was approximately \$1.22 Billion.

14. Due to the lack of information on how assumptions and contingencies were formed by the Applicants, under the current record, the NRC will not be able to determine whether the Applicants have fully complied with the NRC Regulatory Guide 1.159-2 Assuring the Availability of Funds for Decommissioning Nuclear Reactors Revision 1 (October 2003) (ADAMS Accession No. ML032790365).

15. The current public record does not provide the Commission with the information necessary to fully evaluate the validity of funding through financial assurance instruments and the parent guarantee being available when necessary to support the decommissioning by TMI-2 Solutions.

The Issue Raised is within the Scope of the Proceeding

16. Ensuring there is a complete record to verify claims of financial assurance made by the

Applicants is well within the scope of a request for a License Transfer and Conforming License Amendments to decommission TMI-2.

The Issue Raised is Material to the Findings the NRC must make to Support the Action Involved in the Proceeding

17. Ensuring there is a complete record to verify claims of financial assurance made by the Applicants is material to the findings the NRC must make to support approving a request for a License Transfer and Conforming License Amendments to decommission TMI-2.

Concise Statement of Alleged Facts or Expert Opinions which Support Petitioner's Position

18. The facts outlined below are confirmed by the Declaration of David J. Allard filed with this Petition.

19. The Application for the license transfer of TMI-2, dated November 12, 2019, states that once transfer occurs the NDT must maintain a minimum balance of \$800 Million. (Attachment 1 of the Application, p. 11). Furthermore, the Application states that Decommissioning Cost Estimates are approximately \$1.06 Billion (in **2019** dollars) (Attachment 1 of the Application pp. 9-10; Enclosure 7). A previous decommissioning cost estimate submitted to the NRC by GPU Nuclear was approximately \$1.22 Billion (in **2014** dollars) (*see* TMI-15-036 - March 27, 2015 - Decommissioning Funding Status Report for the Three Mile Island Nuclear Station, Unit 2 Attachment 2 p. 1). TMI-2 Solutions anticipates that Phase 1 of the decommissioning costs for the higher activity areas and unknowns of the fuel debris that will be worked on through 2028 will be approximately \$563 Million. (Attachment 1 of the Application, p. 10; Enclosure 7). The more routine decommissioning of the reactor in Phase 2 is anticipated to cost approximately \$494 Million. (Attachment 1 of the Application, p. 10; Enclosure 7). The Application also states, multiple times, that approximately \$56 Million will be maintained for the long-term

storage of fuel debris material after completion of Phase 2, to cover any remaining site closure issues, and the removal of the storage facility. (Attachment 1 of the Application, p. 12; Enclosure 7). The Department notes that the Application does not fully explain the Applicants' assumption that \$200 Million would accrue in the NDT over the 16-year anticipated decommissioning process.

20. Attachment 1 of the Application on Pages 10-11, states that prior to the closing on the transaction, GPU Nuclear will make withdrawals from the NDT to pay for accrued but unpaid expenses. However, a description of these expenses is not included in the Application. The Department believes it is important that the NRC require the Applicants to fully justify any withdrawal amount from the NDT prior to the license transfer so that the NRC, the Department, and the citizens of Pennsylvania can be assured that funds are withdrawn for appropriate purposes as per NRC regulations.

21. Attachment 1 of the Application, Enclosure 7, Figures 7.2 and 7.3 in the application state that there are contingencies added to various parts of the cost estimates. These contingencies seem to vary in percentage with a range between 18% and 25%. For materials licensees, these cost estimates are required to include an overall contingency of 25%. (10 CFR § 30.35(e)(1)(D) requiring "An adequate contingency factor" which is further defined in NUREG 1757, Volume 3, Rev 1 Section 4.1, Number 7, page 4-11 – "The cost estimate applies a contingency factor of at least 25% to the sum of all estimated costs.") It is unclear how the Applicants' contingencies are formulated and whether they meet the NRC requirements for Standard Review Plan on Power Reactor Licensee Financial Qualifications and Decommissioning Funding Assurance, including 10 CFR § 50.33(k) which requires that reasonable assurance will be provided that funds are available to decommission as described in

10 CFR §§ 50.75 and 50.82.

22. The Department is uncertain whether the Applicants have fully complied with the NRC Regulatory Guide 1.159-2 Assuring the Availability of Funds for Decommissioning Nuclear Reactors Revision 1 (October 2003) (ADAMS Accession No. ML032790365). This guidance underscores the importance that “a lack of funds does not result in delays in or improper conduct of decommissioning that may adversely affect public health and safety.” *Id.* at 1.159-2. Two factors are considered when evaluating if financial assurance has been made, “the amount of funds needed for decommissioning and the method used to provide financial assurance.” *Id.* It is critical for the NRC staff to have a thorough understanding on these matters before any decision is reached by the Commission. Having all parties further evaluate the issues raised by the Department will assist in reaching this understanding.

23. Ensuring that TMI-2 Solutions maintains a level of financial assurance and utilizes decommissioning funds in a manner that is sufficient to protect workers and public health, safety, and the environment in the event “unforeseen conditions or expenses arise” and “ensure the availability of funds to ultimately release the site and terminate the license” is especially important given the unique historic and factual circumstances surrounding the decommissioning of TMI-2 and its location in a waterway that impacts multiple locations. 10 CFR § 50.82(a)(8)(i)(B) and (C).

24. Attachment 1 of the Application on Page 2, states that TMI-2 Solutions will provide the following financial assurance mechanisms:

Upon Closing, the assets from the TMI-2 tax-qualified nuclear decommissioning trust fund (“NDT”) will be transferred to a tax-qualified NDT established by TMI-2 Solutions. The form of the NDT agreement is provided in Enclosure 3A. Enclosure 3A contains confidential commercial and financial information. A redacted version of the NDT Agreement suitable for public release is available as Enclosure 3B. The funds in the NDT will be sufficient to complete

Decommissioning of TMI-2 under the accelerated schedule. In addition, TMI-2 Solutions will have in place additional Decommissioning financial assurance instruments valued up to \$100 million during the most critical phases of the project, as well as a parent guarantee of payment and performance by EnergySolutions (“Parent Guarantee”). This is discussed further in Part V and Enclosure 4A of this Application. Enclosure 4A contains confidential commercial and financial information. A redacted version of this enclosure suitable for public release is available as Enclosure 4B.

Attachment 1 of Application, p. 2.

25. The current record does not provide the Department with the information necessary to fully evaluate the validity and adequacy of available funding necessary to support the financial assurances made by TMI-2 Solutions. It is unclear to the Department what are the “financial assurance instruments valued at up to \$100 Million” and what the phrase “up to” means. Also, the Application does not provide a defined amount of funds that will be provided by the parent guarantee. As a separate concern, the global pandemic of COVID-19 has greatly affected financial markets, and the Department questions how this impacts the assumptions made by the Applicants in the various “financial assurance instruments” and “parent guarantee” it will have accessible during the decommissioning of TMI-2.

26. Because EnergySolutions is not publicly traded, details on its annual financial information are not readily available to the Department. The Department’s past experience with financial assurances of this nature is that the financial assurance is subject to the requirement that an annual financial audit of the parent company be performed. This audit would compare the liability of decommissioning as well as the corporate-wide liabilities of the parent company with the liquidity of the parent company to determine available funding in the event of a bankruptcy. It is unclear from the Application whether this will be done here. Moreover, because the Department is not a beneficiary to any of the financial guarantees, it would not have standing to enforce those guarantees or request a withdrawal if the Department was burdened

with cleanup costs. The record needs to be developed to provide sufficient information for the Commission to determine the adequacy of the financial assurances made in the Application.

27. After review of the Application, it is unclear to the Department where the ultimate responsibility and liability lie should TMI-2 Solutions fail to have enough funds set aside for decommissioning and associated activities and then ceases to exist. Given the obvious uncertainties and complexities associated with cleaning up the remains of TMI-2's damaged fuel debris, the reactor vessel, coolant system, associated piping and safety systems, containment and auxiliary buildings, the demonstration of adequate funding to complete the decommissioning of TMI-2 and restoration of the site, is a significant concern to the Department and the citizens of Pennsylvania.

28. As stated in this Petition and in the Department's April 6, 2020 letter (Exhibit A), the Department is deeply concerned that the citizens of Pennsylvania will be left with the ultimate responsibility for the cleanup. The record needs to be fully developed to ensure that TMI-2 Solutions has adequate financial resources to prevent this occurrence.

A Genuine Dispute Exists with Applicants on a Material Issue of Law or Fact

29. As described above, the Applicants have not provided sufficient detail on financial assurances to ensure that the decommissioning can be fully and properly completed to provide "adequate protection to the health and safety of the public." 42 U.S.C. § 2232(a).

II. REQUEST FOR EXTENSION OF TIME TO REQUEST HEARING

30. For reasons outlined below, and confirmed by the Declaration of David J. Allard filed with this Petition, pursuant to 10 C.F.R. § 2.307(a), the Department is requesting an extension of time of at least one month after DEP's physical offices reopen, following the COVID-19 pandemic, to request a hearing to review with the FirstEnergy Companies, TMI-2 Solutions,

EnergySolutions, and the Nuclear Regulatory Commission staff whether adequate financial assurances exist to complete the proposed TMI-2 decommissioning project. The Department may elect to not pursue a hearing if, through further discussions with these parties, it is satisfied that the record before the Commission is complete in accordance with the AEA.

31. Several federal statutory and regulatory provisions inform how the Commission interacts with states in which an NRC-regulated facility is located when the license for such a facility, or an amendment thereto, is under consideration. While making clear that the Commission does not have to wait to act on a license application until a state has had the opportunity to express its concerns and explore solutions to those concerns, these provisions generally require the Commission to provide states with a meaningful opportunity to so advise the Commission even if it means postponing the license action. This is subject, obviously, to the proviso that there are no adverse consequences to waiting and the wait is likely to have a meaningful outcome.

32. Pursuant to 42 U.S.C § 2021(l) regarding an application for a Commission license, such as the one at issue in this proceeding, the Commission is required to “afford reasonable opportunity for State representatives to offer evidence, interrogate witnesses, and advise the Commission as to the application without requiring such representatives to take a position for or against the granting of the application.”

33. 42 U.S.C. § 2239 Hearings and Judicial Review, allows the Commission “to issue and make immediately effective any amendment to an operating license or any amendment to a combined construction license, upon a determination by the Commission that such amendment involves no significant hazards, notwithstanding the pendency before the Commission of a request for a hearing from any person. Such amendment may be issued and made immediately

effective in advance of the holding and completion of any required hearing” 42 U.S.C. § 2239(a)(2)(A). However, this section also states that, “[i]n determining whether such amendment involves no significant hazards consideration, the Commission shall consult with the State in which the facility involved is located. In all other respects such amendment shall meet the requirements of this chapter.” 42 U.S.C. § 2239(a)(2)(A).

34. Under 10 CFR § 50.91 Notice for public comment; State Consultation:

The Commission will make a good faith attempt to consult with the State before it issues a license amendment involving no significant hazards consideration. If, however, it does not have time to use its normal consultation procedures because of an emergency situation, it will attempt to telephone the appropriate State official. (Inability to consult with a responsible State official following good faith attempts will not prevent the Commission from making effective a license amendment involving no significant hazards consideration, if the Commission deems it necessary in an emergency situation.)

10 CFR § 50.91(b)(4)

35. Lastly, 10 CFR § 50.91(c) Caveats about State Consultation, provides that the state consultation procedures in 10 CFR § 50.91(b) do not give the State a right to “a hearing on the determination before the amendment becomes effective” or to “insist upon a postponement of the determination or upon issuance of the amendment.” 10 CFR § 50.91(c)(1)(i) and (ii).

36. However, Pennsylvania along with many other states is currently in the midst of coping with the COVID-19 pandemic. On March 6, 2020, Pennsylvania Governor Tom Wolf issued a Proclamation of Disaster Emergency due to this pandemic. On March 11, 2020, pursuant to the Governor’s emergency disaster proclamation, state agencies were required to cancel all in-person meetings. On March 16, 2020, the Department’s Central Office where the Bureau of Radiation Protection (“Bureau”) is located was closed and employees were instructed to begin teleworking from their homes. On March 17, 2020, all remaining Commonwealth offices were

closed, and employees were instructed to telework. As of the date of this filing all Commonwealth offices remain closed through at least April 30, 2020, with the possibility of the closure being extended. Furthermore, on April 1, 2020, Governor Wolf announced a Statewide Stay-at-Home Order to the public which is still currently in effect.

37. Prior to the pandemic, an in-person meeting between representatives of the Bureau and TMI-2 Solutions was scheduled for March 19, 2020 at TMI-2 Solution's request. The purpose of the meeting was for TMI-2 Solutions to engage with Bureau staff and have an understanding of environmental plans and process moving forward as well as to become familiar with contacts on both sides. The Department intends to set up a teleconference to discuss these issues while all parties are navigating the complexities of remote access and are addressing novel and complex issues specific to the pandemic itself.

38. On April 6, 2020, the Department sent a letter to Kristine L. Svinicki, Chairperson of NRC, presenting the Department's concerns about this license transfer and requesting a meeting to further discuss the matter. (Exhibit A). All of the NRC Commissioners were copied on this letter, as well as the NRC Region I Administrator. In addition, the Department sent the Applicants a courtesy copy of the letter.

39. After the letter was sent, the Department discussed its concerns with the Applicants. On April 13, 2020, the Department received a written response to its concerns that was signed by the President of GPU Nuclear and the President of EnergySolutions. (Exhibit B). The Department is in the process of reviewing this response and following up with all parties. After its initial review of the April 13, 2020 response, the Department's contention of the Applicants' financial qualifications remains paramount and the Department's position remains that the Applicants must further supplement the record before the NRC. However, due to the office

closings, travel restrictions, and a hiring freeze, and the need to draft an emergency expense contract to hire a financial consultant, the Department has limited capabilities to complete a comprehensive review of the license transfer Application at this time.

40. The Department received verbal confirmation from the NRC that it received the April 6, 2020 letter, it has been placed in the Agencywide Documents Access and Management System (ADAMS), and that the NRC will send a follow-up response. However, the Department has not yet received a response from the NRC Chairperson or NRC staff. In addition, the Department does not know if the NRC has reviewed the Applicants' recent response to the Department's letter and whether this response will be made part of the official record before the NRC.

41. In response to the COVID-19 pandemic, NRC is also making adjustments in all of its duties including review of license applications, license amendments, and postponing public meetings, as well as other of its functions as described on its website and in its continuing series of conference calls to discuss the various impacts of COVID-19. *see* <https://www.nrc.gov/reading-rm/doc-collections/faq/coronavirus.html>.

42. As part of the State Consultation provisions discussed above, along with the complications caused by the COVID-19 pandemic, the Department respectfully requests that the Commission postpone making a determination on the Applicants' license transfer Application until all parties have had a chance to further discuss the issues raised by the Department.

43. The Department acknowledges that under 10 CFR § 50.91(c) the NRC has the discretion to postpone a decision or require a hearing in this procedural posture. However, the Department submits that the most prudent course of action is for the NRC to postpone making a decision until the Department can consult with all parties and address the issues raised in this Petition.

The unique factual history of the TMI-2 site (that it is the site of the worst nuclear accident in United States history), and its location in the middle of the Susquehanna River (a major waterway that affects multiple states and drains into the Atlantic Ocean), argue for taking greater care at this site than at any other, especially under these current abnormal global circumstances. It is imperative that the NRC has adequate time to gather and analyze all TMI-2 radiological characterization data and develop a complete record before it determines that there are “no significant hazardous conditions.” Given the known current radiological conditions within the Auxiliary and Containment Buildings at the TMI-2 site, there is a clear grave hazard to workers, the public and the environment once any decommissioning begins.

44. The Department recommends that the first step in ensuring the development of a full record would be to allow an extension to request a hearing so that all parties have time to read, comprehend, and discuss the issues raised by the Department in its April 6, 2020 letter and in this Petition. This is a particularly wise course of action given that the damaged TMI-2 facility has been in a “Post-defueling Monitored Storage” (PDMS) state for over 40 years since the accident. Allowing it to remain in its PDMS sealed and monitored condition for some months longer should not present a “significant hazard” to the public or the environment.

45. Moreover, a grant of an extension of time to file a request for a hearing to allow the current record to be supplemented, even while the parties try to resolve the Department’s concerns informally, will not unduly delay the proposed closing. This is especially true considering that the present circumstances resulting from the COVID-19 pandemic have required the shutdown of many instrumentalities through which the transaction closing could be achieved.

46. Furthermore, on page 3 of the Application cover letter, the Applicants request that the

Commission issue an Order by July 31, 2020 authorizing that the transfer and the required license amendments be approved on the issuance of that Order. The Applicants also anticipate that the closing of the transaction described in the purchase agreement will take place during the second half of 2020. Certainly, there is no emergency situation alleged by the Applicants which would warrant the Commission's denial of the Department's request for an extension, under 10 CFR § 50.91(b) (that the Commission "does not have time to use its normal [State] consultation procedures because of an emergency situation.").

47. The Department appreciates the Applicants' response to the inquiries outlined in its April 6, 2020 letter and believes that a resolution can be achieved. After reviewing the Application and having follow-up conversations with the Applicants, the Department currently has no concerns with *EnergySolutions* technical and decommissioning capabilities. However, the Department is still evaluating the accuracy and completeness of the decommissioning cost estimates in the Application and the financial assurance and liability of the Applicants in light of the unique factors associated with TMI-2.

48. A summary of the specific factual issues that are within the scope of this proceeding and are material to the findings the NRC must make to support any approval of the license transfer application are set forth above in the section on the Department's Contentions. The Department would raise any remaining contentions if it later determines that a request for a hearing is necessary.

III. CONCLUSION

The Department and the citizens of Pennsylvania have a direct and ongoing interest in all aspects of the decommissioning, damaged fuel management, radioactive waste disposal, and site restoration of TMI-2. While the Department welcomes the possibility of a properly conducted and expedited cleanup and restoration of the TMI-2 site, where the historic accident took place, it believes the current record needs to be further developed for the Commission to find, as it must, that the license transfer application would, if approved, provide “adequate protection to the health and safety of the public.” 42 U.S.C. § 2232(a). For these reasons, the Department requests that the NRC/ASLB grant this Petition to Intervene and the associated request for an extension of time of one month after the Department’s physical offices reopen to request a hearing.

Respectfully submitted,

Commonwealth of Pennsylvania
Department of Environmental Protection

By its attorney,

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Dated: April 15, 2020

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DECLARATION OF DAVID J. ALLARD

I, David J. Allard, declare and state as follows:

1. I have worked for the Pennsylvania Department of Environmental Protection (Department or DEP) for over 21 years, I have a Bachelor of Science degree in Environmental Sciences and a Master of Science degree in Radiological Sciences & Protection, and I am a Certified Health Physicist (CHP). I have over 40 years of diverse experience in the field of radiation protection, and recognized nationally and internationally as such.

2. The general requirements of a CHP include at least a bachelor's degree from an accredited college or university in physical sciences, engineering, or in a biological science, with a minimum of 20 semester hours in physical science; at least six years of professional experience in health physics¹; a reference from an immediate supervisor and from at least two other

¹ By permission of the Board, an advanced degree may be substituted for a maximum of two years of the required experience.

individuals, including one from a currently Certified Health Physicist; a written report that reflects a professional health physics effort; and a two-part exam. Part I of the examination consists of 150 multiple choice questions in fundamental aspects of health physics. Part II consists of word and computational problems, which test competency in applied health physics. After passing Part I, the applicant must pass Part II within a period of seven years, or retake both parts.

3. During my 21 years at DEP, I have served as the Director of DEP's Bureau of Radiation Protection (Bureau), located at 400 Market Street, Harrisburg, Pennsylvania. On two occasions in 2003 and 2019 I served for several months as acting Deputy Secretary over the Bureaus of Waste, Air, Radiation and Remediation.

4. The Bureau's mission is to ensure that public, occupational, and environmental exposure to radiation from man-made and controllable natural sources is as low as reasonably achievable.

5. The Bureau manages the regulation and inspection of users of radiation sources throughout Pennsylvania. It performs independent nuclear safety reviews while evaluating nuclear power plants and oversees an emergency radiation response program. The Bureau implements a statewide radon program by increasing public and professional awareness of radon and its health risks.

6. Since 2008, the Bureau licenses and inspects users of all forms of radioactive materials as part of a formal Agreement between the Commonwealth and the U.S. Nuclear Regulatory Commission. Prior to 2008 the Bureau licensed only naturally occurring and accelerator produced radioactive material. It also licenses and/or registers all radiation-producing machines in Pennsylvania.

7. The Bureau also performs technical reviews of decontamination and decommissioning activities for radioactive materials licensees and oversees a comprehensive environmental radiation monitoring program.

8. The Bureau is divided into four divisions:

- Decommissioning & Environmental Surveillance Division. This division performs oversight of numerous facility and site cleanups in the state. This division also carries out the environmental monitoring around nuclear facilities and subsequent laboratory sample analysis.
- Nuclear Safety Division. This division conducts an independent oversight review program for nuclear power plants in Pennsylvania. It also monitors the management and disposal of low-level radioactive waste in Pennsylvania, and provides emergency response planning and support for incidents involving nuclear power plants and/or radioactive materials in Pennsylvania.
- Radiation Control Division. This division licenses facilities in Pennsylvania that possess radioactive material and facilities possessing particle accelerators. It also registers facilities possessing radiation-producing machines and vendors/service providers. The contracted U.S. Food and Drug Administration mammography facility inspection program is also managed by this division.
- Radon Division. This division improves public health and safety by increasing public and professional awareness of radon and its health risks through public outreach and administration of a certification program for radon testing, mitigation and laboratory analysis firms and individuals.

9. I direct the Bureau's implementation of a statewide radiation protection program. My responsibilities include policy, technical, and fiscal management of program areas including radioactive materials, radiation-producing machines, radon, nuclear safety, low-level radioactive waste, emergency response and decommissioning, and environmental surveillance. I am also responsible for ensuring that the Bureau's over 100 Central Office and Regional Office staff communicate uniformly and effectively to implement statewide program activities such as licensing, registration, certification, and inspections of approximately 800 radioactive materials licensees and approximately 11,000 registrants of radiation-producing machines.

10. As Bureau Director and the Governor's official liaison to the NRC, I have reviewed and discussed with my staff the application filed on November 12, 2019 by GPU Nuclear, Inc. (GPU Nuclear), Metropolitan Edison Company, Jersey Central Power & Light Company, and Pennsylvania Electric Company (collectively referred to as the FirstEnergy Companies) and the TMI-2 Solutions, LLC (TMI-2 Solutions) (collectively, Applicants) to transfer the Possession Only License No. DPR-73 for Three Mile Island Nuclear Station, Unit 2 (TMI-2) from the FirstEnergy Companies to TMI-2 Solutions.

11. I also heavily participated in the drafting and final review of the Department's April 6, 2020 letter that was signed by DEP Secretary Patrick McDonnell and addressed to Kristine L. Svinicki, Chairman of the U.S. Nuclear Regulatory Commission presenting DEP's concerns about this license transfer and requesting a meeting to discuss the matter further.

12. I have reviewed the final version of the Department's Petition for Leave to Intervene and Request for An Extension to File a Hearing Request that is being filed with the Commission and agree with the factual and legal statements made therein.

13. The Department remains concerned and wants to ensure that the record is fully developed to demonstrate that there is an accurate assessment of the cost, and adequate financial assurances to ensure that TMI-2 Unit is properly cleaned up by TMI-2 Solutions in order to protect the citizens and environment of the Commonwealth of Pennsylvania.

14. I, David J. Allard, have read the above statement consisting of 4 pages, and I certify under penalty of perjury that the foregoing is true and correct. Executed on April 15, 2020.

Executed in Accord with 10 CFR 2.304(d)

David J. Allard, CHP

Director, Bureau of Radiation Protection

400 Market Street, 13th Floor

Harrisburg, PA 17105

(717) 787-2480

djallard@pa.gov

April 15, 2020

April 6, 2020

Kristine L. Svinicki, Chairman
U.S. Nuclear Regulatory Commission
Office of the Chairman
Mail Stop O-16 B33
Washington, D.C. 20555-0001

Re: Three Mile Island Unit 2 License Transfer

Dear Chairman Svinicki:

I am writing to you to express my serious concern regarding the proposed license transfer of the Three Mile Island Unit 2 (TMI Unit 2) nuclear power plant from GPU Nuclear Corporation to the EnergySolutions' subsidiary TMI-2 Solutions, LLC (TMI-2 Solutions).

As you are aware, in 1979, the TMI Unit 2 power reactor had the worst nuclear accident in U.S. history. The TMI Unit 2 nuclear accident resulted in damage to the majority of the reactor core, released millions of curies of radioactive noble gases into the environs, and grossly contaminated the interiors of the containment and auxiliary buildings. Because of this, we understand there are very high radiation areas within TMI Unit 2 that present a grave risk to personnel that enter. Despite the limited entries into the containment building to remove damaged nuclear fuel in the 1980s, there are vast areas in the plant with unknown radiological conditions related to the TMI Unit 2 accident. I firmly believe TMI Unit 2 is the most radiologically contaminated facility in our nation outside of the Department of Energy's weapons complex.

When it was announced that TMI Unit 1 was going to be permanently shut down, the Commonwealth's residents and the Pennsylvania Department of Environmental Protection (DEP) believed this to mean that TMI Unit 1 would enter into a SAFSTOR status for several decades and be decommissioned first. This would allow for the further decay of radioactivity within TMI Unit 2 and reduce worker exposure and possible environmental releases of radiation during clean up.

However, this understanding is no longer the case. With the announcement of GPU Nuclear Corporation planning to shed its responsibility for TMI Unit 2 to TMI-2 Solutions, we now understand that TMI-2 Solutions plans to immediately begin the decommissioning of TMI Unit 2 with the accrued \$800 million in the financial assurance fund that GPU Nuclear Corporation and the NRC currently control. This leaves us with many questions and concerns, which I outline in more detail below, about what a license transfer of TMI Unit 2 will mean for Pennsylvania, the local environment, and the communities surrounding Three Mile Island.

Secretary

Concerns with Three Mile Island Unit 2 License Transfer

Environmental & Safety Impacts

Due to the TMI Unit 2 power reactor partial meltdown, it is our understanding there are still very high radiation areas within TMI Unit 2 that would present a grave risk to any personnel that enter. Related to this understanding, I have the following questions about environmental impacts and safety associated with the decommissioning of TMI Unit 2:

- What increased environmental surveillance and pollution controls will the NRC require during clean-up of TMI Unit 2 to ensure any radiological releases are detected?
- The TMI Unit 2 facility is in the middle of the Susquehanna River, a major water supply for the region that drains into the Chesapeake Bay. What environmental and pollution controls will be put in place to ensure no contamination of this critical water source?
- What flood controls will be utilized during decommissioning to mitigate a worst-case flood scenario on the Susquehanna (e.g. a weather event similar to Hurricane Agnes in 1972 that produced 19-inches of rain in Pennsylvania)?
- Will the NRC require a local decommissioning advisory committee to be established to assure the clean-up of TMI Unit 2 is transparent to the public and local and state governments?

Cost of Clean-Up & Financial Responsibility

As noted above, GPU Nuclear Corporation and the NRC currently have \$800 million in its financial assurance fund for decommissioning TMI Unit 2. However, estimates have shown it will cost \$1.2 billion to decommission TMI Unit 2. For these reasons, I have the following questions, related to the cost and financial responsibility of cleaning up TMI Unit 2:

- Given there is a significant disparity between the estimated cost to decommission TMI Unit 2 from the amount of funds currently available, what funding source will be used to cover the deficit?
- Since the radiological conditions inside TMI Unit 2 are unknown, the actual cost to decommission it could be much higher than the current estimate of \$1.2 billion. What legal and financial assurances will be put in place to address this potential?
- Who will the NRC require to retain financial responsibility to clean-up TMI Unit 2 after the license has been transferred?

Radioactive Waste Handling

Due to the severe contamination from the partial meltdown and the unknown radioactivity levels of materials that will need to be disposed, I request to know the following information related to how the radioactive waste from TMI Unit 2 will be handled:

- Has the U.S. Department of Energy agreed to dispose of the TMI Unit 2 reactor vessel, which has a portion of the damaged nuclear fuel from the 1979 accident still fused inside?

- How will TMI-2 Solutions dispose of any contaminated lead shielding, which is now mixed waste, that may be present in TMI Unit 2?
- Are there volume and activity estimates of the Class B & C low-level radioactive waste that cannot be shipped to the EnergySolutions disposal site in Utah?
- Has the low-level radioactive waste disposal site in Texas agreed to accept the Class B & C waste?
- Is there any greater than Class C low-level radioactive waste in TMI Unit 2? If so, will that remain onsite?
- If asked by the licensee, will the NRC consider and approve very low-level radioactive waste to be disposed of in non-hazardous landfills in Pennsylvania?

Given my stated concerns, I hope you and your fellow Commissioners will thoughtfully consider the unique aspects of the severely damaged TMI Unit 2 nuclear reactor and not approve a license transfer until all parties are satisfied that the decommissioning can be done safely. Equally important, we require firm legal assurances that financial resources are available to complete decommissioning once started, including bonding between the Commonwealth and licensee. I also expect no radioactive waste from TMI Unit 2 will be left on Three Mile Island.

Additionally, I ask your executive staff and the current and proposed licensee brief my fellow local and state officials responsible for protection of the public and environment. Obviously, the current health crisis will dictate whether this meeting is in person or virtual. Furthermore, in that the licensee has recently amended the Post-Shutdown Decommissioning Activities Report (PSDAR) and has proposed a significant schedule change, the Pennsylvania DEP expects the NRC to hold a local PSDAR meeting after the COVID-19 situation has resolved so that the proposed clean-up work at TMI Unit 2 and timeline can be presented to the public, with ample opportunity for questions and discussion.

Should you or your staff have any questions regarding my stated concerns or wish to discuss them further, please feel free to contact David J. Allard, Director for Bureau of Radiation Protection, by e-mail at djallard@pa.gov or by telephone at 717.787.2480.

Sincerely,



Patrick McDonnell
Secretary

cc: David J. Allard, Director, Bureau of Radiation Protection, DEP
NRC Commissioner Jeff Baran, Washington, DC 20555-0001
NRC Commissioner Annie Caputo, Washington, DC 20555-0001
NRC Commissioner David A. Wright, Washington, DC 20555-0001
David Lew, Regional Administrator, U.S. NRC Region I,
2100 Renaissance Blvd., Ste. 100, King of Prussia, PA 19406-2713



April 13, 2020
TMI-20-013

Exhibit B

Patrick McDonnell
Office of the Secretary
Department of Environmental Protection
Rachel Carson State Office Building
P.O. Box 2063
Harrisburg, PA 17105-2063

Dear Secretary McDonnell

We want to thank you for the clarity of the concerns and questions the Department of Environmental Protection expressed on the future of Three Mile Island Unit 2 (TMI-2) in your April 6, 2020 letter to NRC Chairman Svinicki. We felt it imperative that we (GPU Nuclear and EnergySolutions, the parent of TMI-2 Solutions) address the questions you raised regarding the status and decommissioning of TMI-2. First let me assure you that we are intensely focused on the environment as well as the health and safety of the public and our personnel at TMI-2, both now and in the future. Our decommissioning planning efforts, considering also the shutdown of Three Mile Island Unit 1 (TMI-1), have been a key focus of our activities over the last several years. During this time, we have ensured open access to information to your on-site Division of Nuclear Safety staff.

The radioactive cleanup of the accident-generated radioactive material in the 1980s resulted in approximately 99% of the nuclear fuel being taken by the U.S. Department of Energy to a dry fuel storage facility in Idaho. Over the last 30 years, the plant has been carefully monitored by GPU Nuclear, Exelon, the NRC, and with oversight through the Pennsylvania Division of Nuclear Safety. TMI-2 is in a state of Post-Defueling Monitored Storage (PDMS), designed and implemented specifically for the unique characteristics of TMI-2. There have been no incidences or even near misses of releases from the plant that in any way endangered or put the public at any risk. Having said that, we are taking the planned dismantlement of the plant and remediation of the remaining radioactive material very seriously. In May of 2019, as GPUN Chief Nuclear Officer, I personally performed my 3rd inspection of the inside of the Reactor Building and put my eyes on many of the areas of increased radioactivity. I was accompanied on this tour by a member of your DEP staff as well as a USNRC commissioner.

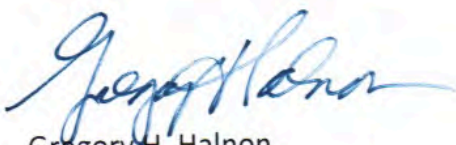
We believe now is the right time to complete the cleanup. GPU Nuclear carefully and thoughtfully chose EnergySolutions as a proven and leading nuclear decommissioning and waste management company to handle the remediation of TMI-2. They have successfully decommissioned sites in Illinois, Arkansas and Wisconsin and are actively working on the decommissioning of San Onofre Nuclear Generating Station in California and Fort Calhoun Station in Nebraska. They own the leading radioactive waste depository in the country and are the most experienced company in the United States at handling radioactive waste of all types.

The questions and concerns you raised are very much in the forefront of our planning efforts. We feel they are very valid points, and would like to take this opportunity to provide some additional information and renew our offer of an in-person meeting with you and your staff to field additional questions and clarifications. We realize these are challenging times for in-person meetings, but at the first opportunity, whether in-person or by teleconference, we would appreciate the opportunity to provide additional time for further understanding. The enclosure to this letter provides detailed answers to the issues raised. To ensure clarity, we restated points in your letter and provided commentary beneath it. It is difficult to anticipate further questions in this letter, but we welcome additional interaction in any area you require more detail.

We trust these answers and commentary will provide the PA DEP with increased assurances about the efficacy of the proposed transfer of TMI-2 to TMI-2 Solutions. This license and ownership transfer, at the time of reductions in Exelon's workforce on the Island, will ensure a deeply experienced nuclear company to care for TMI-2. The proposed business deal described in the License Transfer Application to the USNRC provides for strong financial assurances coupled with the proven technical abilities of EnergySolutions. As we work through the approval process with the USNRC, we are more than willing to address additional concerns and questions by the Department of Environmental Protection in a meeting forum of your choice.

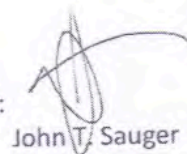
As mentioned above, we are very much interested in being able to meet with you and your staff to further the discussion on future plans for TMI-2. The planning phase will occur over the next several years so there is ample opportunity to interact, address questions and concerns, and maintain a high level of engagement with all of our stakeholders.

Please, if you have additional questions or concerns, feel free to contact Greg Halnon, President and Chief Nuclear Officer, GPU Nuclear at gshalnon@firstenergycorp.com. Your Division of Nuclear Safety staff is able to contact me on my personal devices if necessary during the COVID-19 restrictions.



Gregory H. Halnon
President, CNO
GPU Nuclear

Confirmed By:



John T. Sauger
President, CNO
EnergySolutions

Cc (via email)

David J. Allard, Director, Bureau of Radiation Protection, DEP
Rich Janati, Chief, Division of Nuclear Safety, DEP
Kristine Svinicki, Chairman, USNRC Commission
David Lew, Regional Administrator, USNRC Region 1

**Detailed Commentary to Issues Raised by the Pennsylvania
Department of Environmental Protection**

Environmental & Safety Impacts

1. What increased environmental surveillance and pollution controls will the NRC require during the clean-up of TMI Unit 2 to ensure any radiological releases are detected?

TMI Unit 2 Technical Specification (TMI-2 TS) 6.7.4a requires a Radiological Effluent Controls Program which conforms to NRC Regulation 10 CFR 50.36a "Technical specifications on effluents from nuclear power reactors". This regulation requires that releases of radioactive materials to unrestricted areas during normal conditions, including expected occurrences, are as low as is reasonably achievable. Implementation of these controls are described in the Offsite Dose Calculation Manual and include redundant monitors on the TMI-2 ventilation exhaust as described in the Post-Defueling Monitored Storage (PDMS) Safety Analysis Report (SAR) Revision 13 Section 7.2.4.3 "Effluent Monitoring". In addition, the PDMS SAR sections 7.2.1.2 "Containment Atmospheric Breather", 7.2.1.3 "Containment Ventilation and Purge", 7.2.6.1 "Auxiliary Building Ventilation System" and 7.2.6.2 "Fuel Handling Building Ventilation System" identifies the capability to provide HEPA filtered ventilation exhaust from Three Mile Island Unit 2. Results of this monitoring are reported in the Annual Radioactive Effluent Release Report required by Technical Specification 6.8.1.2 and 10 CFR 50.36a. The most recent Annual Radioactive Effluent Release Report for TMI Unit 2 is dated April 29, 2019 and can be found on the NRC's website at ADAMS Accession Number ML19120A236.

Additionally, TMI-2 TS 6.7.4b requires a Radiological Environmental Monitoring Program which conforms to the guidance of NRC Regulation 10 CFR 50 Appendix I. This program monitors radiation and radionuclides in the environs of the plant. The program provides:

- a. Representative measurements of radioactivity in the highest potential exposure pathways; and
- b. Verification of the accuracy of the effluent modeling program and modeling of environmental exposure pathways.

Also, groundwater monitoring will continue throughout the decommissioning process to ensure that groundwater is not impacted.

Implementation of these controls for this program is also described in the Offsite Dose Calculation Manual. The most recent Radiological Environmental Monitoring Program Report for TMI Unit 2 is dated April 30, 2019 and can be found on the NRC's website at ADAMS Accession Number ML19120A231.

TMI-2 will continue to comply with all applicable NRC Technical Specification and related requirements throughout the decommissioning.

2. **The TMI Unit 2 facility is in the middle of the Susquehanna River, a major water supply for the region that drains into the Chesapeake Bay. What environmental and pollution controls will be put in place to ensure no contamination of this critical water source?**

As described in response to Question 1 above, TMI-2 TS 6.7.4a and 6.7.4b require TMI-2 to maintain a Radiological Effluent Controls Program and a Radiological Environmental Monitoring Program, which are implemented via the Offsite Dose Calculation Manual. These programs ensure monitoring of radiological release from TMI-2 and reporting via the Annual Radioactive Effluent Release Report and the Radiological Environmental Monitoring Program Report. For non-radiological contaminants NPDES Permit 0009920 controls their release. The NRC required programs and NPDES permit will remain in effect throughout decommissioning. In addition, TMI's Preparedness, Prevention and Contingency (PPC) Plan documents the pollution prevention design features of Three Mile Island Nuclear Station (TMINS) as well as the established plans and procedures that assure facility operation in compliance with the PADEP's Emergency Environmental Response Guidelines. Best management practices will be designed and implemented specific to the decommissioning activities.

3. **What flood controls will be utilized during decommissioning to mitigate a worst-case flood scenario on the Susquehanna (e.g. a weather event similar to Hurricane Agnes in 1972 that produced 19-inches of rain in Pennsylvania)?**

As described in the PDMS SAR Section 2.4, TMI is situated at an elevation that is above the peak Agnes flood elevation of 300.5 feet mean seal level (MSL) with a flow of approximately 1,000,000 cubic feet per second (cfs). In addition to the largest recorded historic flood, TMI-2 is designed to protect against a Probable Maximum Flood. The Probable Maximum Flood (PMF) at TMI-2 exceeds the Agnes flood with a flow rate of 1,625,000 cfs with a flood elevation of 308.5 ft MSL. TMI-2 is protected from this flood including any wave action by the installation of flood barriers at all external entrances to the contaminated portions of the facility. Procedures and regulatory commitments remain in effect for the installation of these flood control barriers.

The current revision of the PDMS SAR also describes a dike surrounding the TMINS. The elevation of this dike is 304 ft. MSL and thus is not protective of a PMF event. With the closure of TMI-1 this dike is no longer maintained and reference to the dike will be removed in PDMS SAR Revision 14.

Radioactive or contaminated waste temporarily stored outside for packaging into transport containers will incorporate flood protection features, such as berms, to prevent the material from being washed away during a flood or severe storm.

4. Will the NRC require a local decommissioning advisory committee to be established to assure the clean-up of TMI Unit 2 is transparent to the public and local and state governments?

EnergySolutions, through its subsidiary TMI-2 Solutions, intends to establish a Citizens Awareness Panel (CAP) after completion of the transfer of TMI-2. EnergySolutions is eager to engage with the state and the TMI community as it proceeds with decontamination and dismantlement of the TMI-2 site. The panel will provide a continuing opportunity for the stakeholders and public to be informed and provide feedback on the progress to decontaminate and cleanup the site for future use. EnergySolutions has had a very positive experience with a CAP decommissioning the two unit Zion site and will build on that experience with TMI-2. Included in our progress reports to the Zion CAP is a status of the NDT and the remaining estimated work to complete. Public participation was also welcomed and the NRC and Illinois Nuclear Safety Division attended and were periodically asked to provide their perspectives on our decommissioning progress as our regulators.

Cost of Clean-up and Financial Responsibility

1. Given there is a significant disparity between the estimated cost to decommission TMI Unit 2 from the amount of funds currently available, what funding source will be used to cover the deficit?

The License Transfer Application (LTA) Enclosure 7 provides a decommissioning cost estimate for TMI-2 of \$1,056,874, as well as the projected annual spending, which includes a substantial contingency. Although the current value of the TMI-2 nuclear decommissioning trust fund (NDT) is approximately \$892M, it is important to recognize that the cost estimate represents the cost to decommission the facility over many years in the future. Over time, even presuming a conservative 2% average estimate of fund growth above inflation, the current 2019 NDT can satisfy the roughly \$1.05 billion decommissioning cost estimate. The TMI-2 Post-Shutdown Decommissioning Activities Report (PSDAR) revision 3 Table 1B-3 provides a funding analysis that also demonstrates there is sufficient margin in the NDT today to complete the planned decommissioning in accordance with NRC requirements. The funding analysis uses realistic parameters and has actual project estimates based on detailed planning.

Additionally, as described in Section IV.A.3 and Enclosure 4B of the LTA, EnergySolutions is providing additional financial protection mechanisms to ensure there are sufficient funds available to complete the decommissioning of TMI-2 as required by NRC. This extra financial protection can amount to \$100 million at certain phases of the project, above and beyond what is projected to meet the current project expectation.

Finally, it is important to provide a high-level description of how the deal with EnergySolutions was constructed. The project cost estimate was developed and each major

activity was assigned a contingency risk percentage based on the confidence level it could be successfully completed within the base line-item budget costs. Additional funds were added to each activity based on this confidence level of success. After each activity was increased due to the risk of successful completion, *EnergySolutions* added another unassigned contingency of \$50M on top of all of the assigned contingencies across the project. Finally, the additional \$100M financial assurance was added to the transaction to give further assurance of adequate funds. *EnergySolutions* demonstrated the financial and technical ability to meet these and numerous other parameters of the deal structure required by FirstEnergy.

The financial assurances required by FirstEnergy during deal negotiations were based on an assumed minimum balance in the NDT of \$800M. In other words, as long as the NDT balance is above \$800M, the assurances of the \$100M financial assurance mechanisms as well as the assigned and unassigned contingencies provide for acceptable project finances built into the transaction, adequately protecting FirstEnergy companies and any downstream liabilities to the Commonwealth from potential future shortfalls.

- 2. Since the radiological conditions inside TMI-2 Unit 2 are unknown, the actual cost to decommission it could be much higher than the current estimate of \$1.2 billion. What legal and financial assurances will be put in place to address this potential?**

The radiological conditions inside TMI-2 are fairly well known and characterized. Pre-PDMS surveys have been documented and extensive analyses of radiological conditions were performed prior to the NRC approving the PDMS license amendment in 1993. Appendix H, Chapter 5 of the PDMS SAR provides a full description of the radiological conditions that existed in TMI-2 at the time it entered PDMS. Since that time natural radioactive decay has reduced these radiation and contamination levels and the amount of curies of major radioactive constituents (Cs-137 and Sr-90) contained in the plant have decayed by over 50%. Continuous monitoring over the many years since the accident has confirmed the level of radioactive decay. The PDMS SAR Appendix H, Chapter 5 Appendix 5A contemplated a 30 year PDMS period and described future clean-up operations and expected personnel radiation exposure savings.

In addition to the detailed and conservative characterizations already in place for TMI-2, recognizing that any project carries risk of overruns, as previously mentioned, additional financial assurance mechanisms required by FirstEnergy are being put in place by *EnergySolutions*, amounting to \$100 million at certain phases of the project, to help ensure overall decommissioning success.

3. Who will the NRC require to retain financial responsibility to clean-up TMI Unit 2 after the license has been transferred?

As stated on page 2 of the License Transfer Application Cover letter "TMI-2 *Solutions* will assume responsibility for all licensed activities at the TMI-2 site, including responsibility under the License to complete radiological decommissioning pursuant to NRC regulations".

Radioactive Waste Handling

1. Has the U.S. Department of Energy agreed to dispose of the TMI Unit 2 reactor vessel, which has a portion of the damaged nuclear fuel from the 1979 accident still fused inside?

GPU Nuclear and *EnergySolutions* have met with the Department of Energy regarding the status of TMI-2 waste that will be generated during the removal and recovery of the remaining damaged core material. There is conceptual agreement that DOE retains ultimate responsibility for the disposal of any high-level radioactive waste on site, including the remaining damaged core material, pursuant to the terms of the DOE Standard Contract for Disposal of Spent Nuclear Fuel and High Level Waste. Packaging and storage of this damaged core material is fundamentally similar to that for the spent fuel that TMI-1 will be storing on-site in the Independent Spent Fuel Storage Facility (ISFSI).

EnergySolutions, leveraging its past experience on large nuclear decommissioning projects, plans to minimize the overall volume of radioactive waste produced by the TMI-2 remediation. This is accomplished by separating accident-generated solid waste from the Reactor Vessel and other components containing fragmented damaged core material. When separation is not feasible, segmentation is performed to reduce the radioactive waste volume. Given this proven technique, the estimated volume of damaged core material is estimated to be contained to twelve dry cask storage canisters that will be stored in the ISFSI. Such operations are being planned and are technically feasible using already established commercial techniques and equipment.

2. How will TMI-2 Solutions [*sic*] dispose of any contaminated lead shielding, which is now mixed waste, that may be present in TMI Unit 2?

Reactor site decommissioning projects typically encounter some level of RCRA hazardous materials used throughout the facility. Some of these materials are radioactively contaminated and as a result are "mixed waste". The *EnergySolutions* disposal facility in Clive Utah is permitted to accept mixed waste, which is a combination of both RCRA hazardous and radioactive waste. Treatment technologies include macro encapsulation of radioactive lead solids and hazardous debris, stabilization of heavy metals, neutralization and solidification of contaminated liquids, thermal treatment of waste containing organic solvents, amalgamation of elemental mercury, and treatment of other unique waste streams.

Dealing with such wastes is neither new nor unique to TMI-2 and EnergySolutions. Proven techniques and processes are available, and staff are trained and qualified to deal with these materials in a manner that is in full compliance with applicable regulations.

3. Are there volume and activity estimates of Class B & C low-level radioactive waste that cannot be shipped to the EnergySolutions [sic] disposal site in Utah?

As described in the 2018 TMI-2 Decommissioning Cost Estimate there is an estimated 12,558 cubic feet of Class B & C waste at TMI-2. This waste is intended to be disposed of at the Waste Control Specialists (WCS) Disposal Facility in Andrews County, Texas.

4. Has the low-level radioactive waste disposal site in Texas agreed to accept the Class B & C waste?

EnergySolutions has an ongoing contractual relationship with WCS, and it regularly ships Class B & C waste to WCS for disposal.

5. Is there any greater than Class C low-level waste in TMI-2? If so, will that remain on site?

The decommissioning of TMI-2 may generate some greater than Class C (GTCC) low level waste. GTCC waste is a regulatory term, not a unique waste type. TMI-2 did not operate long enough (approximately 90 days) to produce irradiated hardware GTCC as is with most decommissioning projects. However, portions of the damaged core material at TMI-2 that have spread and contaminated components inside and outside of the reactor vessel may be classified as GTCC. The 2018 DCE estimates approximately 2530 ft³ which is similar to the volume at other decommissioning projects. One must keep in mind that much of the cleanup had already been performed in the years following the accident. This remaining waste will be stored on site in accordance with NRC Regulations contained in 10 CFR Part 72, "Licensing Requirements for the Independent Storage of Spent Fuel, High-Level Radioactive Waste, and Reactor-Related Greater than Class C Waste." It is important to emphasize that every reactor decommissioning project generates some GTCC waste, and GTCC waste is routinely stored on site until the Department of Energy accepts ownership to dispose of this waste in a deep geologic repository. For example, the Crystal River Unit 3 PSDAR¹ assumes there will be 1785 ft³ of GTCC waste.

6. If asked by the licensee, will the NRC consider and approve very low-level radioactive waste to be disposed of in non-hazardous landfills in Pennsylvania?

The NRC website states: "On March 6, 2020, the NRC issued a proposed interpretation of its low-level radioactive waste disposal regulations in 10 CFR 20.2001 that would permit licensees to dispose of waste by transfer to persons who hold specific exemptions for the purpose of disposal (85 FR 13076)¹. In the proposed interpretation, the NRC would consider approval of requests for specific exemptions for the purpose of disposal if they are for the disposal of VLLW by land burial. Therefore, the NRC's intent is that this interpretive rule

¹ NRC ADAMS ML13340A009; page 30, Section 5.1.17

would allow licensees to transfer VLLW to exempt persons for the purpose of disposal by land burial. The NRC is requesting comment on this proposed interpretive rule.” The rulemaking is on-going and the DEP staff is encouraged comment as requested by the NRC. In addition, approvals granted by the NRC for disposal of VLLW at a burial site generally require such disposal to be in full compliance with any regulations and permits required by regulations administered by the host state. Therefore, this is an issue over which the Commonwealth of Pennsylvania has a certain degree of control. The important point is that TMI-2 *Solutions* will comply with all applicable state and federal regulatory requirements for disposal of all types of wastes, including VLLW.

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY
COMMISSION**

BEFORE THE SECRETARY

In the Matter of)
)
)
THREE MILE ISLAND NUCLEAR)
STATION, UNIT NO. 2;)
CONSIDERATION OF APPROVAL OF) Docket No. 50-320 LT
TRANSFER OF LICENSE AND)
CONFORMING AMENDMENT)
)

CERTIFICATION OF SERVICE

Pursuant to 10 C.F.R. § 2.305, I certify that copies of the Commonwealth of Pennsylvania, Department of Environmental Protection’s Notice of Appearance and Petition for Leave to Intervene and Request For an Extension to File a Hearing Request and the attached Declaration have been served upon the Electronic Information Exchange, the NRC’s e-filing system, in the above-captioned proceeding this 15th day of April 2020.

Signed (electronically) by _____
Alicia R. Duke
Assistant Counsel
PA ID No. 209672
Southcentral Regional Office
909 Elmerton Avenue, Third Floor
Harrisburg, PA 17110-8200
Telephone (717) 787-8790
Fax (717) 772-2400
Email: alduke@pa.gov

Dated: April 15, 2020