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Financial Services

September 21, 2009

Mr. Ted H. Carter

U.S. Nuclear Regulatory Commission

Mail Stop T-8-F-5

Washington, D.C. 20555

Dear Ted,

Enclosed please find WPI's nuclear materials transportation plan. The document has been prepared and reviewed in support of the removal of the fuel during WPI's decommissioning of its nuclear reactor.

Please review at NRC's earliest convenience and provide comments or questions to me. Thank you, Ted.

We certify under penalty of perjury that the enclosure is true and correct to the best of our knowledge.

Regards,

Michael J. Curley, Reactor Director/University Compliance and Risk

David S. Adams

David S. Adams, Ph.D., Radiation Safety Officer

Reviewed and approved by an officer of WPI, as indicated by the signature below.

Jeffrey S. Solomon, Executive Vice president and CFO

Special Nuclear Material Transportation Plan
Worcester Polytechnic Institute
July 23, 2009
Docket No. 50-134

Background:

This plan specifically addresses compliance with the requirements of 10CFR73 "Physical Protection of Plants and Materials" for the one-time shipment of WPI's nuclear reactor fuel, for its return to the Department of Energy (DOE), with its destination either a DOE facility or a third party NRC licensee. WPI will deliver the fuel to a DOE contracted carrier (staged at the WPI reactor facility). The scope of WPI's activities covered by this plan is the providing and receiving of notifications and providing (or overseeing DOE's contractor provide) the arrangements for physical protection during transit and completing paperwork for the SNM shipment.

The shipment will consist of 27 fuel elements (22 used and 5 fresh). Each fuel element contains approximately 167 grams of Uranium-235, giving a total SNM content of approximately 4.5 Kg, with a U-235 enrichment of 19.75%.

This plan specifically addresses the requirements paragraph (g) of 10CFR73.67 "Licensee Fixed site and In-transit Requirements for the Physical Protection of Special Nuclear Material of Moderate and Low Strategic Importance". This plan has been prepared using the format and applicable parts of Regulatory Guide 5.59 "Standard Content and Format for a Licensee Physical Security Plan for the Protection of Special Nuclear Material of Moderate or Low Strategic Significance, Part II". This plan does not modify any plans or requirements of WPI's existing SNM protection plans for its reactor facility that are currently in place. As indicated below, due to this plan covering a one-time shipment of the SNM, not all items covered by Regulatory Guide 5.59 are applicable to this plan.

1.0 Use and Storage Area at a Fixed Site

Not applicable.

2.0 Detection Devices and Procedures at a Fixed Site

Not applicable.

3.0 Security Response at a Fixed Site

Not applicable.

4.0 Response Procedures for a Fixed Site

Not applicable.

5.0 SNM Transportation Requirements

WPI's Reactor Director is responsible for providing and receiving the notifications described in this section, arranging for (or overseeing DOE and its transportation contractor Nuclear Assurance Corporation (NAC) arrange for) the physical protection during transit. Furthermore, the Department of Energy (DOE) and its transportation contractor (NAC) are responsible arranging for transportation, loading the shipment, inspecting the shipment and completing shipment's paperwork. The transportation requirements performed by the DOE and NAC will be overseen and approved by the WPI's Reactor Director.

5.1 *Advance Notification*

Prior to the shipment of SNM, the receiver is notified of the following:

- Mode of transport;
- Estimated time of arrival;
- Planned location for transfer of material to the receiver, if other than receiver's facility;
- Name of carrier; and
- Transport identification (e.g., number of trucks, train identification, flight number or ship's name).

Shipping procedures provide for obtaining confirmation that the intended receiver has been provided the above information.

5.2 *Receiver Confirmation*

Prior to the shipment of SNM, confirmation is obtained from the intended receiver that the receiver will be ready to accept the shipment at the planned time and location. Shipping procedures provide for obtaining confirmation that the receiver has acknowledged the mode of transport, confirmed the acceptability of the shipment, and has the proper authorization for receipt.

5.3 *Containers*

All SNM shipping containers are sealed using tamper-indicating seals. These seals are applied to the outer containment system in a manner such that removal of the container cover or lid cannot be accomplished without breaking the seal.

5.4 *Inspection*

Procedures and checklists require and document that the integrity of the package and associated safeguard seals have been verified by visual inspection just prior to shipment.

5.5 *In-Transit Protection*

WPI is responsible for the in-transit physical protection of the shipment of SNM unless the planned receiver is a licensee and has agreed, in writing, to accept responsibility for arranging for the in-transit protection of the material to be shipped. Actions necessary to maintain current information relative to the shipment status are performed in coordination with its carrier.

6.0 Receiver Practices

Not applicable

7.0 In-Transit Physical Protection Requirements

7.1 *Response Procedures*

For this transportation of SNM of low strategic significance, events which require responsive actions are given in Table 7.1. The type of response, objectives and associated responsibilities related to those events are given in Table 7.2.

7.2 *Notification*

Arrangements will be made with the receiver or carrier to notify WPI of any shipment which is not received within four hours of the latest estimated time of arrival.

7.3 *Lost Material Notification*

WPI will have the responsibility for scheduling departure and arrival times for SNM shipments. Through communication with DOE and the carrier, WPI will maintain knowledge of the shipment routing, timing, etc. WPI will work with the DOE and carrier to trace a missing or lost shipment or otherwise determine the shipment status. The WPI will notify the NRC Operations Center within one hour after the discovery of the loss of the shipment and within one hour after recovery of or accounting for such lost shipment in accordance with the provisions of 10 CFR 73.71.

Table 7-1
In-Transit Protection Events Requiring Contingency Response

ID CODE	EVENT
UT1	A threat to steal SNM in-transit is received via message or third-party report.
UT2	An accumulation of anomalies suggests someone might be planning to steal in-transit SNM.
UT3	Management perceives that Events UT1 or UT2 represent a serious threat to steal SNM
UT4	A duly constituted authority alerts management that an expressed or implied threat constitutes a serious threat to steal in-transit SNM.
UT5	Information is received suggesting that an attempted theft of in-transit SNM has occurred or is imminent.
UT6	A shipment is not received as scheduled
UT7	Container and/or seal inspections indicated damage, lost or missing containers, or tampering with the shipment.

Table 7-2
In-Transit Contingency Responses

Event	Action	Reactor Director
UT-1 – A threat to steal in-transit SNM is received by message or third-party report. Objective Determine if threat is serious.	Obtain and report information on shipments to the Reactor Director without delay.	Determine if threat is serious. Assemble appropriate plant management personnel to assess the threat. Assemble available information on the threat and the adversary. Report the threat within one hour of receipt to the NRC Operations Center (301) 816-5100 or as backup, (301) 951-0550, and to law enforcement agencies, as applicable, and request any pertinent information that might be available. Analyze available information to assess the threat. If threat is perceived as serious, go to Event UT3.
UT2 – An accumulation of anomalies suggests someone might be planning to steal in-transit SNM. Objective Determine if threat is serious.	Obtain and report information on shipments to the Reactor Director without delay.	Determine if threat is serious. Assemble appropriate plant management to assess the available information. Analyze the available information to assess the inferred threat. Decide if the inferred threat should be considered serious. If threat is perceived serious, go to Event UT3.

Table 7-2 (continued)
In-Transit Contingency Responses

Event	Action	Reactor Director
UT3-Management perceives that Events UT1 or UT2 represent a serious threat to steal SNM. Objective Prevent the theft of SNM.	Obtain and report information relative to any shipment location, status and planned routings. Coordinate WPI activities with the carrier and DOE.	Prevent the theft of SNM. Report within one hour of perceiving a credible threat to NRC Operations Center (301) 816-5100 or as backup, (301) 951-0550). Inform DOE and carrier, as appropriate. In coordination with DOE and the carrier, as appropriate, inform applicable law enforcement authorities of the threat and request assistance, as applicable. Be prepared to provide support services as necessary.
UT-4 – A duly constituted authority alerts management that an expressed or implied threat constitutes a serious threat to steal in-transit SNM. Objective Prevent the theft of SNM.	Obtain and report information relative to any shipment location, status and planned routings. Coordinate WPI activities with the carrier and DOE.	Prevent the theft of SNM. Report threat within one hour of receipt to the NRC Operations Center (301_ 816-5100 or as backup, (301) 951-0550). In coordination with DOE and the carrier (as appropriate), inform applicable law enforcement authorities of the threat and request assistance as applicable. Be prepared to provide support services as necessary.

Table 7-2 (continued)
In-Transit Contingency Responses

Event	Action	Reactor Director
UT5 – Information is received suggesting that an attempted theft of in-transit SNM has occurred or is imminent. For example: - Carrier informs WPI of problem with the shipment. - Receiver informs WPI of missing or damaged containers or seals. <u>Objective</u> Direct the assessment of the event.	Obtain and report information on the shipment and related problems without delay. Coordinate activities with the carrier and DOE.	Direct the assessment of the event. Assure that the NRC Operations Center (301) 816-5100 or as backup, (301) 951-0050) is notified within one hour of receipt of information and law enforcement authorities are notified. Inform DOE and the carrier as appropriate. Be prepared to provide support services as necessary.
UT6 – A shipment is not received as scheduled. For example: - An expected shipment is not received within 4 hours of the latest estimated time of arrival. - Receiver informs WPI that a scheduled shipment was not received within 4 hours of the latest estimated time of arrival. <u>Objective</u> Direct the assessment of the event.	Obtain and report information on the shipment without delay. Provide liaison between WPI, DOE and the carrier.	Direct the assessment of the event. Assure that the NRC Operations Center (301) 816-5100 or as backup, (301) 951-0550) is notified within one hour after discovery of loss of the shipment, and within one hour after recovery of or accounting for the shipment. Assure that appropriate law enforcement authorities are notified. Be prepared to provide support services as necessary.

Table 7-2 (continued)
In-Transit Contingency Responses

Event	Action	Reactor Director
UT7 – Container and/or seal inspection indicates damaged, lost or missing containers or tampering with the shipment. Objective Determine the possibility of theft.	Report all information relative to shipment to the Reactor Director without delay.	Determine the possibility of theft and initiate or coordinate an investigation of the circumstances surrounding the incident. If there has been a loss of SNM or a credible possibility of loss, notify the NRC Operations Center (301) 816-5100 or as backup, (301) 951-0550) within one hour of discovery or within one hour of recovery. If appropriate, notify applicable law enforcement authorities. Be prepared to provide support services as requested.

8.0 Export Requirements

Not applicable.

9.0 Import Requirements

Not applicable.

10.0 Recordkeeping Requirements

10.1 *Security Plan*

WPI shall retain a copy of the current physical protection plan for three (3) years after the close of period for which WPI possesses the SNM under the site license for which the plan was established. Copies of superseded material shall be retained for three (3) years after each change.

10.2 *Response Procedures*

WPI shall retain a copy of the current response procedures, as a record for three (3) years after the close of period for which the procedures where established. Copies of superseded material shall be retained for three (3) years after each change.

10.3 *Export Shipment Records*

Not applicable.

10.4 *Import Shipment Records*

Not applicable.