GPU Nuclear

Technical Functions
Safety Evaluation
(EP-016)

UNIT TMI-1

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ACTIVITY/DOCUMENT TITLE Shipment of Misc. Waste Evaporator Concentrates

SE No. 115302-052

Rev. No. 1

DOCUMENT NO. (if applicable) _____ Rev. No. _____

Type of Activity/Document Radwaste Shipment
(Modification, procedure, test, experiment, or document)

This Safety Evaluation provides the basis for determining whether this activity/document involves an Unreviewed Safety Question or impacts on nuclear safety.

Answer the following questions and provide reason(s) for each answer per Exhibit 7. A simple statement of conclusion in itself is not sufficient. The scope and depth of each reason should be commensurate with the safety significance and complexity of the proposed change.

1. Will implementation of the activity/document adversely affect nuclear safety or safe plant operations? ☐Yes ☒No

   The following questions comprise the 50.59 considerations and evaluation to determine if an Unreviewed Safety Question exists:

2. Is the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Safety Analysis Report increased? ☐Yes ☒No

3. Is the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report created? ☐Yes ☒No

4. Is the margin of safety as defined in the basis for any Technical Specification reduced? ☐Yes ☒No

   If any answer above is "yes" an impact on nuclear safety or an Unreviewed Safety Question exists. If an adverse impact on nuclear safety exists revise or redesign. If an unreviewed safety question with no adverse impact on nuclear safety exists forward to Licensing with any additional documentation to support a request for NRC approval prior to implementing approval.

5. Specify whether or not any of the following are required, and if "yes" indicate how it was resolved

	Yes	TFAAI/PFU/Other	No
a. Does the activity/document require an update of the FSAR?	X		

Explain: Text in Section 11 indicates that evaporator concentrates are shipped in a solidified form; this text needs to be revised to allow for the option of a liquid shipment for processing as this document eva.

b. Does the activity/document require a Technical Specification Amendment?

Explain: Solid Radwaste Operations are not covered in the Technical Specifications.

1.0 PURPOSE

This Safety Evaluation analyzes the shipment of Miscellaneous Waste Evaporator Concentrates, liquid radioactive waste, (or its equivalent) from TMI-1 to a processor's facility. The shipment of this radioactive material is to provide for processing that will result in significant volume reduction prior to ultimate disposal as radioactive waste.

Under the present methods of processing and disposal, liners are partially filled with evaporator concentrates in the Hittman Building and solidified with concrete. They are then lifted onto trucks for direct shipment to the disposal facility. In the new process the liners are filled to a predetermined free board level and then lifted from the Hittman Building to a secondary container on a truck for shipment to the processor's facility.

At the processor's facility the liquid portion of the waste is driven off leaving behind a solid in the form of a powder. This powder is then packaged and shipped for disposal with an overall volume reduction of 8 to 1, when compared to the current form of treatment and shipment and disposal as solidified concrete (the current disposal technique of conversion into concrete involves a volume increase of approximately 50 to 100 percent above the liquid volume owing to the addition of cement material).

The technology the processor offers provides a significant reduction in final disposal volume and a product form (powder) which can be shipped for disposal or put into interim storage and then reconstituted should a better technology become available for final disposal form. This interim storage could be at TMI should the site lose access to a LLRW disposal facility.

The change from shipping solidified radioactive waste to shipping liquid radioactive waste is being evaluated to ensure a sufficient degree of safety is maintained during packaging in the plant and during transport.

2.0 SYSTEMS AFFECTED

The activity evaluated by this Safety Evaluation (shipment of miscellaneous liquid radwaste) involves an interface with the SEG portable dewatering/solidification equipment skid as shown on GPUN Drawing 302-692, "Liquid Waste Disposal Flow Diagram".

The operation of the SEG solidification system is described in TMI-1 Operating Procedure 1104-28A (Rev. 27), "Radioactive Waste Solidification - SEG".

The current operation of shipping evaporator concentrates as solidified radwaste is further discussed in Section 11.2.3 of the TMI-1 FSAR. The solidification operations described take place in the Hittman Solidification Building.

3.0 EFFECT ON SAFETY

3.1 The following is a list of documents that define the safety functions of the systems, subsystems, structures or components listed in item 2.0 above.

3.1.1 Section 11.2.3 of the TMI-1 Updated FSAR provides a description and design evaluation of the radioactive solid waste disposal system.

3.1.2 The radioactive solid waste disposal system is no longer covered in the technical specifications; however, appropriate requirements are now covered in the respective process control program (PCP) procedure. The offsite dose calculation manual (ODCM), GPUN Procedure No. 6610-PLN-4200.01 describes the methodology and parameters to be used in the calculation of off-site doses due to radioactive liquid and gaseous effluents. Tech Spec 3.22.1.2 provides the quarterly and annual whole body and organ dose limits due to liquid effluents. See GPUN Safety Evaluation 000230-001 Rev. 0 covering tech spec change request 194 for relocation of the REMP/RETS tech specs to the ODCM/PCP.

3.1.3 TMI-1 Operating Procedure 1104-28A Rev. 27, "Radioactive Waste Solidification - SEG" provides direction for operation of the in-container cement solidification system provided by Scientific Ecology Group (SEG). The system is installed and operated externally to the TMI-1 auxiliary building in the "Hittman Building".

3.1.4 TMI-1 operating procedure 1104-28I provides the process control program for operation of the radioactive waste solidification process. This procedure with the ODCM controls radioactive waste solidification requirements initially covered in the TMI-1 technical specifications.

3.1.5 US Code of Federal Regulations title 10 part 71 "Packaging and Transportation of Radioactive Material". 10CFR71 provides the US NRC regulations for transport of radioactive materials for Type B quantities. However, 10CFR71.5 requires licensees to comply with Title 49 for all radioactive material shipments.

3.1.6 US Code of Federal Regulations Title 49, Part 173 "Shippers - General Requirements for Shipments and Packagings". 49CFR173, and in particular sub-part I, "Radioactive Materials", provides for the US DOT regulations affecting shipment of radioactive materials.

3.1.7 GPUN Calculation No. C-1101-232-5310-037, Rev. 0, "Waste Evaporator Concentrates Liner Spill" Calculates offsite release and compares to 10CFR20 limits for a spill from a liner filled with Waste Evaporator Concentrator."

3.1.8 GPUN Calculation No. 6612-94-004, Rev. 0, "Postulated Release from Liner of Concentrated Waste" which evaluates the radiological effects, for a release of one liner of evaporator concentrates to the Susquehanna River.

3.1.9 GPU Nuclear Procedure No. 1000-ADM-3890.01 "Lifting and Rigging."

3.1.10 GPUN Safety Evaluation No. SE-000233-002, Rev. 1, "Hittman Radwaste Solidification System" evaluated the original installation of the Hittman Radwaste Solidification System.

3.1.11 GPUSC Drawing ID-132-32-001, Rev. 0, "Concrete Slab-Hittman Solidification System" shows the floor curb in the Hittman Building.

3.1.12 GPUN Procedure 4231-ADM-4450.01, Rev. 3-00, "Radioactive Material Shipment Portfolio Preparation."

3.1.13 GPUN Calculation No. C1101-232-5310-038, Rev. 1 "Ingestion Limit in Event of a Transportation Accident." (1)

3.2 **Safety Function**

The function of the solid waste disposal system is to package radioactive solid and concentrated liquid wastes in such a manner as to ensure public health and safety and to ensure that exposure to unit personnel is maintained ALARA during the packaging process, and to produce waste packages that provide protection for the public during transportation and that comply with regulations and disposal requirements. This safety evaluation evaluates the use of the system to prepare a radioactive liquid material shipment and shipment of this material to a processor who will produce the waste disposal package for shipment to disposal or to interim storage.

3.3 **Effect of Proposed Activity**

3.3.1 System Performance - With this activity the performance of the radioactive waste solidification system is not changed, except that the solidification process itself is not implemented. Filling of the shipping container with the liquid waste would continue beyond that volume normally prescribed for addition of solidification agent. The container would be filled to within a predetermined freeboard level. Following appropriate sealing the container of liquid waste would be placed in an appropriate outer container (e.g., SEG's Tandom Container Transport, an appropriate shipping cask, etc.) and then

shipped offsite by truck to the processor's facility. The activity concentration of the liquid waste is such that the Type A - Low Specific Activity (LSA) definition of 49CFR173.403(n) is met.

49CFR173.403(n) sets LSA limits for the various radionuclides based on the A2 values listed in 49CFR173.435. As described in the Federal Register volume 48, number 48 for Thursday, March 10, 1983, "the basis for the A2 value for normal form material (that is, all forms other than special forms) are: (1) an accident of moderate severity might release 0.1 percent of the contents of a type A package and 0.1 percent of the amount released might then be taken into the body of a human being in the vicinity [i.e., ingestion limit = .1% x .1% of A2 or A2 x 1E-6]; this intake should not exceed half the maximum permissible annual intake for workers as given in IAEA Safety Series #9, 1967 Edition." This excerpt from the Federal Register provides the basis for setting A2 values, and in turn, provides the basis for the regulations as stated in the shipment of radioactive material. It should be noted, however, that a shipment of LSA material need not meet the packaging requirements of Type A. 49CFR173.425 would permit shipment of LSA material (including liquid) in a strong-tight container designed for conditions normally incident to transportation; LSA packaging does not require consideration of release of contents due to accidents of moderate severity. As such the proposed shipment could be shipped simply in a single liner properly tied-down on a flat-bed truck. It should be further noted for the proposed shipments, that not only is the material to be shipped LSA, but the total curies being shipped is a tiny fraction of the total permitted per A2 for each radionuclide (see Reference 3.1.7 for typical activity concentrations).

For conservatism, we assume that an LSA shipment of liquid evaporator concentrates, in a simple liner, is subject to an accident that releases all the contents (approximately 1500 gallons). In order for an individual

to receive an uptake in excess of that given by A2 x 1E-6 for the radionuclides listed in Table 3.3.1-1, the individual would need to consume (ingest or inhale) about 3 oz. of the undiluted miscellaneous waste evaporator concentrate or its equivalent from a typical shipment (See Ref. 3.1.13). Even if the activity concentrations of Co58, Co60, Cs134 and Cs137 (the significant isotopes for these shipments) were ten times the typical values used in Ref. 3.1.7 the human being in the vicinity of the postulated accident would have to ingest or inhale about 0.4 ounces of undiluted concentrate. ①

Since the concentrate is a liquid with suspended and dissolved solids very little of the concentrate would become airborne following accidental release. Most of the release would be absorbed in the soil local to the accident. Even for those amounts that do become airborne or find a path to a waterway that feeds a drinking water system, dilution of the limited vapor or liquid release in either air or the large body of a drinking water supply would so dilute the release that no individual would be expected to uptake in excess of A2 x 1E-6 of the radionuclides. As indicated above an individual would need to consume a significant quantity of undiluted concentrate at the accident scene to ingest in excess of A2 x 1E-6 of the radionuclides.

The table below shows the radionuclides of concern (taken from Reference 3.1.7), typical activity concentrations, the corresponding A2 values from 49CFR173.435, and the maximum acceptable uptake, A2 x 1E-6.

Table 3.3.1-1

Isotope	µCi/ml	Ci (total)	A2 Curies	A2x1 E-6	LSA Limit
H3	3.70 E-01	2.095 E+00	1000	1.000 E-03	5000 µCi/ml
Mn 54	1.41 E-05	7.984 E-05	20	2.000 E-05	*
Fe 55	6.10 E-04	3.454 E-03	1000	1.000 E-03	*
Co 58	4.08 E-02	2.310 E-01	20	2.000 E-05	*
Co 60	1.69 E-03	9.569 E-03	7	7.000 E-06	*
Ni 59	5.30 E-05	3.001 E-04	900	9.000 E-04	*
Ni 63	1.40 E-02	7.927 E-02	100	1.000 E-04	*
Sr 89	1.50 E-05	8.494 E-05	10	1.000 E-05	*
Sr 90	6.10 E-05	3.454 E-04	0.4	4.000 E-07	5.0 µCi/gm
Tc 99	2.30 E-05	1.302 E-04	25	2.500 E-05	*
Sb 125	2.09 E-03	1.183 E-02	25	2.500 E-05	*
I 129	2.60 E-05	1.472 E-04	2	2.000 E-06	*
I 131	3.07 E-02	1.738 E-01	10	1.000 E-05	*
Cs 134	2.43 E-02	1.376 E-01	10	1.000 E-05	*
Cs 137	3.84 E-02	2.174 E-01	10	1.000 E-05	*
Total Curies =		2.960180			
Shipment Vol. (ml)=		5.662 E+06			
Avg Activity = µCi/ml =		5.228 E-01			

* 300 µCi/gm for all other nuclides listed.

To address this unique feature of a liquid shipment (i.e., that an accident might release all of the shipment) the liner containing the liquid concentrate will be placed inside a secondary containment prior to shipment.

In summary, then, shipment of evaporator liquid concentrates is acceptable based on the following:

1) The material is classified LSA and, therefore, need only be packaged for conditions normally incident to transportation. The material (liquid) need not be packaged with either absorbent or secondary containment (see 49CFR 173.425).

2) If an accident is postulated, and if it is assumed that the entire contents of the shipment is released, dilution of the release by air and water and absorption in soil would preclude any individual from ingesting (or inhaling) more than A2 x 1E-6 of the radionuclides.

3) To address the concern of potential accidental release, the primary liner will be placed inside a sealed secondary containment prior to shipment. This minimizes the probability of a release assuming an accident does occur.

For potential accidental releases on-site, especially when lifting the primary liner out of the Hittman Building and into the secondary containment on the shipping truck, References 3.1.7 and 3.1.8 show that resultant radiological effects are well below 10CFR20 and Tech Spec off-site dose limits given consideration of soil and direct water-release pathways. The lift should follow requirements of Ref. 3.1.9.

To control potential accidental releases when a liner is being lifted or stored outside the Hittman Building spill control measures such as blocking local storm drains will be in place.

Note: For activity concentrations for the isotopes of concern (Cs 134, 137), significantly higher (factor of 5 to 10) than the typical analysis shown in Table 3.3.1-1 above, spill control <u>must</u> be effective at the east dike or implemented local to the shipping truck.

Local measures could include blocking storm drains and/or providing spill retention barriers around the truck.

To minimize the chances of a spill on-site the secondary containment, with the primary liner already loaded in, can be placed inside the Hittman Building prior to filling. This way the shipment is already protected by secondary containment prior to lifting onto the conveyance.

Should an accidental release occur during shipment, Reference 3.1.12 covers emergency actions to be taken.

3.3.2 Quality Standards

The radioactive waste solidification system is classified as regulatory required; the change in process from solidifying the liquid radwaste on-site to shipping the liquid concentrate offsite will not change this quality classification since the purpose of the system (i.e., process/prepare radwaste) remains unchanged. As covered in Reference 3.3.1 above, system malfunctions that may result in spills would not violate 10CFR20 or off-site dose limits.

3.3.3 Natural Phenomena Protection

The change in the solid radwaste system process from solidifying waste concentrate on-site to shipping waste concentrate offsite will not affect TMI-1 designs that provide for seismic, tornado, hurricane, or flood protection since no structures are being modified. As covered in Ref. 3.1.10 the Hittman Building is seismically designed to retain spills within the building. A seismic event that causes a spill outside the building would not result in exceeding 10CFR20 or off-site dose limits as covered in 3.3.1, above.

3.3.4 Fire Protection

Utilizing the new process of shipping the waste concentrate offsite will not alter any fire protection designs for TMI-1; the new proposed process would not introduce any new combustibles.

3.3.5 Environmental Qualifications

There are no aspects of the existing solid waste transfer system and process which need to be environmentally qualified per 10CFR50.49. And the new process will not introduce any need for such qualifications.

3.3.6 Missile Protection

The new process will not introduce any new high energy systems or arrangements that could produce missiles or allow for gravity missiles that could impact safety related systems.

3.3.7 High Energy Line Pipe Breaks; Internal Flooding

The existing solid waste system, as well as the proposed change in process, provides for no high energy process piping which could result in high energy line breaks. The change in process will not produce volumes of liquid which could cause threat of internal flooding. The Hittman Building floor design incorporates a dike (curb) which would retain up to 187 ft3 of spillage (approximate volume of a typical liner) (based on floor area and curb height, 20' x 14' x 8", as shown in Reference 3.1.11). Even if the largest liner available for this operation were used (approximately 202 cu. ft.) operator presence during the filling operation would limit the loss from a leaking liner to about 150 gallons based on isolation within 5 minutes as described in Ref. 3.1.10.

3.3.8 Electrical Separation; Electrical Isolation; Electrical Loading

The existing radioactive solid waste system is not required to meet any nuclear safety related criteria for electrical separation, isolation or electrical loading. Therefore, the proposed change in process would not affect these criteria.

3.3.9 Single Failure Criteria

There are no nuclear safety related single failure criteria (active) for the solid radioactive waste handling system. A seismic bathtub exists in the Hittman Building which would contain any spills or leaks within the building.

3.3.10 Separation Criteria

There are no nuclear safety related criteria for active functions which require separation in the solid radwaste handling system. Therefore, the proposed change in process does not impact any separation criteria.

3.3.11 Containment Isolation

Neither the solid radwaste handling system nor the proposed change in process effect any systems or equipment which penetrate primary containment; therefore, containment isolation is not effected.

3.3.12 Materials Compatibility

Since the proposed change in process involves transferring the inner container to the conveyance as liquid phase, a review of chemistry criteria will be performed to ensure compatibility of the liquid concentrate chemical characteristics with the materials of the inner container and vendor requirements. For example, pH adjustment may be necessary prior to transferring the inner container to the conveyance.

Also, a review will be done of the radioactive material in its volume reduced form to ensure compatibility of materials for shipping, interim storage and ultimate disposal.

3.3.13 Water Impingement

The proposed change in process does not result in, nor require any changes to fire suppression or deluge type systems which could impact electrical or instrument equipment.

3.4 **Basis for Determination that the Margin of Safety defined in the SAR is not reduced**

As covered in the Technical Specifications and the FSAR there is no margin of safety defined for the radioactive solid waste disposal system.

3.5 Nuclear Safety or Safe Plant Operations will not be adversely affected since more than the required level of containment (per 49CFR173.425) will be provided for shipment of liquid concentrate; for spills that are postulated for release off-site, resultant radiological effects are well within 10CFR20 and off-site dose limits as covered in 3.3.1, above.

3.6 The activity will not increase the probability of occurrence or the consequences of an accident previously evaluated in the SAR in that any spills of liquid concentrate during filling operations would be contained in the solidification building. Any accidental spills during transfer to the conveyance could result in loss of liner contents off-site with radiological effects bounded by 10CFR20 or tech. spec. off-site dose limits as covered in 3.3.1, above.

3.7 The activity will not increase the probability of occurrence or consequence of a malfunction of equipment important to safety previously evaluated in the SAR since the new process follows the same basic procedure as the existing process except that the transfer to the conveyance involves a liquid filled (rather than solidified) liner. The transfer path does not cross over any safety related systems or equipment that could be damaged by a

liquid spill. Any spills that may occur are either contained within the solidification building (inside the plant) or if released to the environment, would result in radiological effects bounded by 10CFR20 limits or tech. spec. off-site dose limits per 3.3.1, above.

3.8 The proposed activity does not create a possibility for an accident of a different type than any previously identified in the FSAR.

The FSAR does imply that the health and safety of the public will be maintained during transportation. As evaluated by this safety evaluation,

a) Department of Transportation (DOT) regulations are met with the packaging of liquid shipments as they have been for solid shipments. The requirements for LSA activity limits are met; however, the shipment is limited to a minor fraction of LSA as covered in 3.3.1 above.

b) Solid shipments of solidified concentrate could be shipped in a single strong, tight package; likewise, the DOT regulations permit shipment of LSA liquid in a single strong, tight container.

However, as covered in 3.3.1 above, these liquid shipments will be made with both primary and secondary containment.

c) As covered in 3.3.1, an individual at the scene of an accident would have to ingest a significant volume of undiluted concentrate in order to consume the activity limit for accidental ingestion. The volume of ingestion evaluated in 3.3.1 above is in excess of what is assumed in the basis for 49CFR173.435 (i.e., .1% x .1% of a shipment).

d) Also, it should be noted that 49CRF173.425 for LSA shipments calls for packaging to meet conditions normally incident to transportation and does not require evaluation of accidents. Despite this, on-site and off-site accidents are evaluated. As covered in 3.3.1 above

accidental spills on-site would be bounded by 10CFR20 and Tech Spec off-site dose limits. And accidents during transportation are bounded by the basis for the A2 values in 49CFR173.435.

3.9 The proposed activity will not decrease the margin of safety as defined in the basis of any technical specification since this activity is not covered by the technical specifications. Any spills within the plant (Auxiliary Building and Hittman Building) are covered by the ODCM; and any spills to the environment during transfer to the conveyance would result in radiological effects bounded by 10CFR20 or tech spec off-site limits as covered in 3.3.1, above.

3.10 The proposed activity will not violate any plant technical specification or other license requirements or regulations since, as described above, the operation is not covered by plant technical specifications, spills within the plant are contained in the solidification building (thus any spills are within the bounds of the ODCM) and spills to the environment do not violate 10CFR20 or tech. spec. off-site dose limits as covered in 3.3.1, above.

3.11 The proposed activity will not involve a radiological safety concern in that any spills in the plant are contained in the solidification building and spills during transfer to the conveyance would not violate 10CFR20 or tech. spec. off-site dose limits as covered in 3.3.1, above.

3.12 Implementation of the proposed process will require a change to the updated FSAR with change in text as follows. Paragraph 11.2.3, presented below, is amended to add a note (*) as shown:

Transportation approved containers are supplied and transported by a subcontractor. Shipping packages/overpacks may be shielded as appropriate.

Five general types of waste are produced, processed, and shipped from Unit 1 as solid radioactive waste. These wastes are:

a. Liquid waste for off-site processing
b. Used precoat (spent powdered resin)

c. Spent resin (bead type)

d. Dry compatible trash

e. Dry non-compatible trash

Dry trash is either shipped offsite directly to disposal, shipped following compaction (to reduce the volume) or shipped to an offsite processor for decontamination and/or volume reduction prior to recycle or disposal. Appropriate packaging of dry trash is performed in accordance with applicable shipping and disposal regulations.

Liquid waste, and contaminated used precoat and spent resin will be solidified prior to being shipped offsite for disposal where required by applicable regulations. When solidification is not required for contaminated precoat and spent resin, they will be properly dewatered prior to being shipped offsite for disposal. Permanently installed plant equipment does not currently exist to solidify radwaste.*

**Note: If not being shipped for disposal, liquid waste may be shipped in liquid form to a licensed processor for volume reduction prior to disposal. The shipment must comply with DOT regulations for shipment and license conditions of the recipient.*

4.0 EFFECTS ON THE ENVIRONMENT

4.1 Implementing the proposed process will not result in any changes to the plant's environmental interfaces such as effluents or withdrawals since no withdrawal from, or discharge to, the environment is involved.

4.2 The potential environmental impact of accidental spillage of radioactive liquid concentrate during transfer to the conveyance on-site is bounded by analyses of on-site spills to the environment (See 3.3.1, above) and is covered under the framework of existing DOT regulations for transport of radioactive material. As covered in 3.3.1, above, concerns with on-site spills can be addressed either with implementation of spill control measures or by filling the shipping liner within its secondary containment, in the Hittman

Building, prior to transfer to the conveyance. Therefore, there is no adverse impact on the Final Environmental Statement, Environmental Impact Statement nor is there a violation of environmental permit requirements or Environmental Technical Specifications.

5.0 CONCLUSION

The purpose of the proposed activity (shipment of liquid radwaste) is to obtain improved volume reduction at a radioactive waste processor prior to shipment for final disposal or interim storage. Although not permitted for disposal, shipment of liquid radioactive waste is provided for in current DOT regulations. The effects of accidental spillage of liquid concentrate during filling operations or during transfer to the conveyance on-site is well bounded by 10CFR20 and tech. spec. off-site dose limits as per 3.3.1, above. Also, on-site spills can be controlled or eliminated with the implementation of spill-control measures or loading inside the secondary containment within the Hittman Building. The shipment after it leaves the plant is covered under the framework of existing DOT regulations.

Since there is no defined margin of safety for the solid radwaste system in the SAR, the margin of safety defined in the SAR is not reduced. Nuclear safety or safe plant operations will not be adversely effected since spills in the plant would be contained and spills released off-site would be within 10CFR20 and tech. spec. off-site dose limits or can be controlled or eliminated as per 3.3.1, above. There will not be an increase in probability of occurrence or consequences of an accident or malfunction of NSR equipment previously evaluated in the SAR since the proposed process follows the same basic procedure as the existing system operation except that a liquid (rather than solid) shipment is lifted onto the conveyance and safety related systems are not affected by any potential spill. The effects of an accidental spill would be within 10CFR20 and existing off-site dose limits. The process does not introduce a different type of accident than previously analyzed in that the effects of a postulated spill are bounded by operating limits and existing TMI-1 10CFR100 analyses, does not effect the Technical Specifications or other license requirements or regulations. Also, as covered in 3.8 above, the conditions for this liquid shipment are bounded by the existing bases for solid radwate shipments.

There is no new radiological safety concern since the activity is bounded by existing accident analysis and existing DOT regulations for transport of radioactive material.

Therefore, the proposed activity can be safely pursued to achieve the benefit of significant volume reduction of liquid waste while also providing a waste form suitable for disposal or for interim storage (allowing for reconstitution, if necessary, at a later time)

GPU Nuclear	DOCUMENT NO. SE No.115302-052

TITLE Shipment of Misc. Waste Evaporator Concentrates

REV	SUMMARY OF CHANGE	APPROVAL	DATE
1	Revised text in para. 3.3.1, pg. 9 to account for corrections to Table 3.3.1-1 for A2 values for Co 58 and Ni 59. Also revised ref. 3.1.13 to show reference to revision 1 of the ingestion calculation. Provided response to questions 5c and 5d on pg. 3. Replaced the term "indefinite storage" with "interim storage" in paragraph 1.0, pg. 4.	T. M. Dougherty B. Elam [illegible] Michael Ross	8/3/94 8/4/94 [illegible] 8/8/94

N0036 (C)

008/179
August 3, 1994

ATTACHMENT 2 TO ATTACHMENT 6

MODIFICATION DESIGN DESCRIPTION FOR THE NEW
TMI RADWASTE DEMINERALIZER SYSTEM

MDD-T1-232-B DIV 1/2