

March 1, 2000

Mr. Charles E. Jensen
President
Diversified Technologies Services, Inc.
2680 Westcott Boulevard
Knoxville, TN 37931-3111

Dear Mr. Jensen:

We have considered your letter request of January 24, 2000, regarding restriction of the ENCAP™ Solidification Process. This restriction was discussed in our recent Technical Evaluation Report (TER), dated December 30, 1999. The TER restricts the ENCAP™ process to encapsulation of spent filter cartridges. In your letter you state that "while these cartridges were envisioned as the primary object(s) to be encapsulated, other items can potentially be encapsulated as well, including tools, instruments, valves and objects of a similar type that would normally be found at nuclear facilities." Your tests have shown that no chemical "bad actors" have been identified that would negatively impact the VERI™ encapsulating media. The only real limitations on waste items encapsulated using the ENCAP™ process are: (a) items that exceed the specified size and could lead to voids that could limit the structural stability of the monolith, and (b) items that would provide a dose equal to or greater than 10^8 rad to the polymer matrix. Therefore, the wording of Section 3.2.a).3 of the TER is changed to read as follows:

3.2.a).3 The General Operating Procedure should be revised to limit waste to be encapsulated to spent filter cartridges, and other items such as tools, instruments or valves that do not exceed the specified size, and will not chemically or mechanically attack, or otherwise impugn, the integrity of the monolith.

A replacement page for the TER is enclosed. If you have any questions on this matter, please contact Jennifer Davis at (301) 415-5874, or bjd1@nrc.gov.

Sincerely,

/s/ Daniel Gillen for

Thomas H. Essig, Chief
Uranium Recovery and
Low-Level Waste Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Enclosure: Replacement page for TER

cc: State of Washington, Division of Radiation Protection
State of South Carolina, Dept of Health and
Environmental Control

Mr. Charles E. Jensen
President
Diversified Technologies Services, Inc.
2680 Westcott Boulevard
Knoxville, TN 37931-3111

March 1, 2000

Dear Mr. Jensen:

We have considered your letter request of January 24, 2000, regarding restriction of the ENCAP™ Solidification Process. This restriction was discussed in our recent Technical Evaluation Report (TER), dated December 30, 1999. The TER restricts the ENCAP™ process to encapsulation of spent filter cartridges. In your letter you state that "while these cartridges were envisioned as the primary object(s) to be encapsulated, other items can potentially be encapsulated as well, including tools, instruments, valves and objects of a similar type that would normally be found at nuclear facilities." Your tests have shown that no chemical "bad actors" have been identified that would negatively impact the VERI™ encapsulating media. The only real limitations on waste items encapsulated using the ENCAP™ process are: (a) items that exceed the specified size and could lead to voids that could limit the structural stability of the monolith, and (b) items that would provide a dose equal to or greater than 10⁸ rad to the polymer matrix. Therefore, the wording of Section 3.2.a).3 of the TER is changed to read as follows:

3.2.a).3 The General Operating Procedure should be revised to limit waste to be encapsulated to spent filter cartridges, and other items such as tools, instruments or valves that do not exceed the specified size, and will not chemically or mechanically attack, or otherwise impugn, the integrity of the monolith.

A replacement page for the TER is enclosed. If you have any questions on this matter, please contact Jennifer Davis at (301) 415-5874, or bjd1@nrc.gov.

Sincerely,
/s/ Daniel Gillen for
Thomas H. Essig, Chief
Uranium Recovery and
Low-Level Waste Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Enclosure: Replacement page for TER
cc: State of Washington, Division of Radiation Protection
State of South Carolina, Dept of Health and
Environmental Control

DISTRIBUTION:

Central File URLL r/f NMSS r/f PUBLIC
JKennedy PHsueh/OSP PLohaus/OSP

ML003685591

DOCUMENT NAME: ADAMS\NMSS-DWM-URLL/Low-Level Waste Program/newdti.wpd

OFC	URLL	URLL	URLL				
NAME	/s/BJDavis	/s/RWeller	/s/ DMG forTEssig				
DATE	2/29/00	2/29/00	3/ 0100				

OFFICIAL RECORD COPY

This document should/should not be made available to the PUBLIC bjd 02/23/00
(Initials) (Date)

3.1 Limitations

- a. The resins used to produce the encapsulating waste forms are limited to those specifically identified in the VERI™ TR and associated TER as those used to prepare the test specimens on which the data were obtained.
- b. The disposal unit containing the encapsulated mass must be segregated from disposal units containing Class A wastes that do not meet the structural stability requirements in 10 CFR 61.56(b).
- c. If any of the cartridge filters to be encapsulated contain gamma emitters which control the waste classification (see Section 2.5), the calculated dose rate must be less than 0.02 mrem/hr on the surface of the encapsulating media (after a 500-year decay period).

3.2 Further Actions

- a) Information to be added to the revised Topical Report Addendum:
 1. Appendix B to the TR Addendum [1] should be revised to reflect the smaller void space permitted considering tensile creep test results.
 2. The General Operating Procedure [15] should be revised to reflect the smaller void space permitted considering tensile creep test results, and the associated limitations on filter loading and positioning.
 3. The General Operating Procedure [15] should be revised to limit waste to be encapsulated to spent filter cartridges, and other items such as tools, instruments or valves that do not exceed the specified size, and will not chemically or mechanically attack, or otherwise impugn, the integrity of the monolith.
 4. Additions/alterations as discussed in the responses [10, 11, 12] to the NRC RAI [9].

3.3 Recommendations

- a) NRC staff recommends that the vendor or licensee classifying the mixture of filter cartridges [and spent ion exchange resin beads, if applicable] have in place a quality control program to ensure compliance with the waste classification provisions of 10 CFR 61.55.