

MAY 11 1992

MEMORANDUM FOR: Paul Lohaus, Branch Chief  
Low-Level Waste Management Branch  
Division of Low-Level Waste Management  
and Decommissioning

THRU: Joseph Kane, Acting Section Leader  
Technical and Special Issues Section  
Low-Level Waste Management Branch  
Division of Low-Level Waste Management  
and Decommissioning

FROM: Jennifer Davis, Materials Engineer  
Technical and Special Issues Section  
Low-Level Waste Management Branch  
Division of Low-Level Waste Management  
and Decommissioning

SUBJECT: TOPICAL REPORT TRACKING SYSTEM

Enclosed is the May, 1992 issue of the monthly Topical Report (TR) tracking system. The report is composed of three sections:

1. A single page summary listing all active and non-active TR's and their dispositions.
2. A disposition/status summary showing submittal and completion dates, past and current reviewers, and the last steps and next steps to be performed per review procedures.
3. An updated summary sheet for each TR whose status has changed since the previous TR Status Report was issued. If you would like a summary sheet for any TR which is not included, please contact me on (301) 504-2697.

ORIGINAL SIGNED BY

Jennifer Davis, Materials Engineer  
Technical and Special Issues Section  
Low-Level Waste Management Branch  
Division of Low-Level Waste Management  
and Decommissioning

Enclosures: As stated.

Distribution: Central File # NMEB r/f LLWM r/f

RBangart	WBrach	JSurmeier	JAustin	JKane
JDavis	MAdams	RShewmaker	CDefino	WReed
RCooper	JStohr	CNorelius	LCallan	RScarano

PDR YES ☒ NO ☐ Category: Proprietary ☐ or CF Only ☐

ACNW YES ☒ NO ☐

SUBJECT ABSTRACT: MAY TOPICAL REVIEW STATUS TRACKING SYSTEM

OFC :LLWM *JD*

NAME:JDavis/jd

9205150216 920511  
PDR WASTE  
WM-3 PDR

DATE: 5/7/92

JD/TR TRACKING SYSTEM

OFFICIAL RECORD COPY

*413.7*  
*WM-3*  
*NH4*

TOPICAL REPORT REVIEW STATUS SUMMARY  
SOLIDIFIED WASTE FORMS AND HIGH INTEGRITY CONTAINERS (HIC's)  
Office of Nuclear Material Safety and Safeguards  
May 1, 1992

VENDOR	DOCKET NO.	TOPICAL REPORT	DISPOSITION
Nuclear Packaging	WM-45	HIC (Ferralium/FL-50)	APPROVED
SEG	WM-46	Solidification (Cement)	APPROVED*
Chichibu	WM-81 Rev 2.1	HIC (Concrete/Poly)	APPROVED
DOW Chemical	WM-82 Rev 1	Solidification (Polymer)	APPROVED
Nuclear Packaging	WM-85 Rev 2.1	HIC (Ferralium/Enviralloy)	APPROVED
General Electric	WM-88	Solidification (Polymer)	APPROVED
WasteChem	WM-90	Solidification (Bitumen)	APPROVED
LN Technologies	WM-93 Rev 1	HIC (Stainless/Poly)	APPROVED
Chem-Nuclear	WM-97 Rev 1	Solidification (Cement #2)	APPROVED**
Chem-Nuclear	WM-98	Solidification (Cement #3)	APPROVED**
Chem-Nuclear	WM-101	Solidification (Cement #1)	APPROVED**
US Ecology	WM-102	Solidification (Bitumen)	APPROVED***
Chem-Nuclear	WM-18	HIC (HDPE)	NOT APPROVED
Pacific Nuclear	WM-51	Solid (Envirostone)	NOT APPROVED
TFC Nuclear	WM-76	HIC (HDPE)	NOT APPROVED
Westinghouse	WM-80	HIC (HDPE)	NOT APPROVED
VIKEM	WM-13	Solid (Oil/Cement)	DISCONTINUED
US Ecology	WM-91	Solidification (Bitumen)	DISCONTINUED
Stock	WM-92	Solidification (Cement)	DISCONTINUED
US Ecology	WM-100	Solid (NS-1 Bitumen)	DISCONTINUED
Chem-Nuclear	WM-19	Solidification (Cement)	WITHDRAWN
Chem-Nuclear	WM-47	HIC (Fiberglass/Poly)	WITHDRAWN
LN Technologies	WM-57	HIC (HDPE)	WITHDRAWN
Nuclear Packaging	WM-71	Solid/Encap (Cement/Poly)	WITHDRAWN
Westinghouse	WM-79	Solidification (SG-95)	WITHDRAWN
Nuclear Packaging	WM-87	HIC (Stainless/SDS)	WITHDRAWN
Bondico	WM-94	HIC (Fiberglass/Poly)	WITHDRAWN
Chem-Nuclear	WM-96	Solidification (Cement)	WITHDRAWN
SEG (LN Tech)	WM-99	Solid (Cement/Decon)	WITHDRAWN
SEG (LN Tech)	WM-20	Solidification (Cement)	UNDER REVIEW
Avancer (B&W)	WM-95	HIC (Coated Carbon Steel)	UNDER REVIEW
Pacific Nuclear	WM-103	HIC (Enviroglass)	UNDER REVIEW
JGC Corp.	WM-104	Solidification (Cement)	UNDER REVIEW
Diversified Tech.	WM-105	Solidification (VERI)	UNDER REVIEW
ChemNuclear	WM-107	HIC (Cement/Poly)	UNDER REVIEW

\* Interim (1-year) approval granted for selected waste forms on September 30, 1991.

\*\* Interim (1-year) approval granted for selected waste forms on July 2, 1991.

\*\*\* Interim (1-year) approval granted for one waste formulation on August 2, 1991.

TOPICAL REPORT REVIEW STATUS/DISPOSITION LISTING  
SOLIDIFIED WASTE FORMS AND HIGH INTEGRITY CONTAINERS (HICs)  
MAY 1, 1992

VENDOR	TOPICAL REPORT	DOCKET NUMBER	STATUS/DISPOSITION	REVIEWER	SUBMITTAL COMPLETION
1. VIKEM	Solidification (Oil/Cement)	WM-13	DISCONTINUED	T. Johnson ** (M. Adams)	12/13/83 09/30/86
2. Chem-Nuclear	HIC (HDPE)	WM-18	NOT APPROVED	E. McDaniel (J. Davis)	12/23/83 12/27/88
3. Chem-Nuclear	Solidification (Cement)	WM-19	WITHDRAWN	L. Person (M. Adams)	11/30/83 05/27/88
4. Scientific Ecology Group (LN Tech)	Solidification (Cement)	WM-20	LAST: NRC sent RAI #2 to SRG on 01/07/92. NOTE: Vendor submits responses to RAI #2.	J. Davis	08/85
5. Nuclear Packaging	HIC (Ferrallium/PL-50)	WM-45	APPROVED	M. Tokar (J. Davis)	02/13/84 11/07/85
6. Scientific Ecology Group (Westinghouse)	Solidification (Cement)	WM-46	APPROVED (INTERIM)	J. Kane J. Davis	*** 04/13/89 09/30/91
7. Chem-Nuclear	HIC (Fiberglass/Poly)	WM-47	WITHDRAWN	D. Tiktinsky (J. Davis)	04/30/84 05/02/86
8. Pacific Nuclear Systems	Solidification (Envirostone)	WM-51	NOT APPROVED	J. Kane	05/29/84 03/03/88
9. LN Technologies	HIC (HDPE)	WM-57	WITHDRAWN	T. Jungling (J. Davis)	06/21/84 05/13/85
10. Nuclear Packaging	Solid/Encap (Cement/Gypsum)	WM-71	WITHDRAWN	T. Johnson (J. Davis)	10/22/84 11/21/85
11. TFC Nuclear	HIC (HDPE)	WM-76	NOT APPROVED	E. McDaniel (J. Davis)	06/26/84 12/27/88
12. Westinghouse	Solidification (FG-95)	WM-79	WITHDRAWN	E. Wick (J. Davis)	06/26/84 06/10/88
13. Westinghouse	HIC (HDPE)	WM-80	NOT APPROVED	D. Widmayer (J. Davis)	06/26/84 12/27/88

\* For more information on any of these Topical Report Reviews, see attached summary sheets, or contact Jennifer Davis.

\*\* Names in parentheses indicate custodian of TR archives if different from reviewer.

\*\*\* Interim (12 month) approval issued for specific waste formulations.

VENDOR	TOPICAL REPORT	DOCKET NUMBER	STATUS/DISPOSITION	REVIEWER	SUBMITTAL COMPLETION
14. Chichibu	HIC (Concrete/Poly)	WM-81 EV 2.1	APPROVED	K. McDaniel ** (J. Davis)	06/29/84 06/25/86
15. DOW Chemical	Solidification (Polymer)	WM-82 REV 1	APPROVED	E. Wick (J. Davis)	9/26/91 12/11/91
16. Nuclear Packaging	HIC (Ferralium/ Enviralloy family)	WM-85	APPROVED	K. McDaniel (J. Davis)	06/29/84 04/20/88
17. Nuclear Packaging	HIC (Stainless/SDS)	WM-87	WITHDRAWN	E. Wick	08/84 10/25/88
18. General Electric	Solidification (Polymer/AZTECH)	WM-88	APPROVED	E. Wick (J. Davis)	02/13/85 09/29/87
19. WasteChem	Solidification (Bitumen)	WM-90	APPROVED	K. Chang (M. Adams)	05/30/86 01/22/88
20. U.S. Ecology	Solidification (Bitumen)	WM-91	DISCONTINUED	M. Folar (M. Adams)	01/03/86 03/04/88
21. Stock	Solidification (Cement)	WM-92	DISCONTINUED	J. Kane	12/05/86 06/24/88
22. LN Technologies	HIC (Stainless/Poly)	WM-93 REV 1	APPROVED	E. Wick (J. Davis)	03/23/89 04/89
23. Bondico	HIC (Fiberglass/Poly)	WM-94	WITHDRAWN	E. Wick (J. Davis)	02/25/88 09/30/91
24. Avancer Technologies (Babcock & Wilcox)	HIC (Coated Carbon Steel)	WM-95	LAST: Vendor submitted supplementary info on 02/04/92. NEXT: WRC reviews supplementary info regarding drop tests and coatings.	R. Shewmaker J. Davis	04/21/88
25. Chem-Nuclear	Solidification (Cement)	WM-96	WITHDRAWN	L. Person (M. Adams)	03/01/88 05/27/88
26. Chem-Nuclear	Solidification (Cement #2)	WM-97 REV 1	APPROVED (INTERIM)	M. Adams ***	06/03/88 07/02/91
27. Chem-Nuclear	Solidification (Cement #3)	WM-98	APPROVED (INTERIM)	M. Adams ***	06/10/88 07/02/91
28. Scientific Ecology Group (LN Tech)	Solidification (Cement/Decon)	WM-99	WITHDRAWN	J. Davis	07/22/88 11/18/91

\* For more information on any of these Topical Report Reviews, see attached summary sheets, or contact Jennifer Davis.

\*\* Names in parentheses indicate custodian of TR archives if different from reviewer.

\*\*\* Interim (12 month) approval issued for specific waste formulations.

VENDOR	TOPICAL REPORT	DOCKET NUMBER	STATUS	REVIEWER	SUBMITTAL COMPLETION
29. U.S. Ecology	Solidification (WS1 Bitumen)	WM-100	DISCONTINUED	B. Jaggenath ** (M. Adams)	07/15/88 09/13/90
30. Chem-Nuclear	Solidification (Cement #1)	WM-101	APPROVED (INTERIM)	M. Adams ***	06/01/88 07/02/91
31. U.S. Ecology	Solidification (LLW Bitumen)	WM-102	APPROVED (INTERIM)	R. Shewmaker ***	07/13/89 08/02/91
32. Pacific Nuclear	HIC (Enviroglass)	WM-103	LAST: WRC sent RAI #1 to vendor on 06/29/90. NEXT: Vendor submits responses to RAI #1. Due: 05/29/92	R. Shewmaker	06/30/89
33. JGC Corp.	Solidification (Cement)	WM-104	LAST: WRC sent RAI #1 to vendor on 01/26/92. NEXT: Vendor submits responses to RAI #1. Due 09/01/92.	R. Shewmaker	04/16/90
34. Diversified Technologies	Solidification (VERI)	WM-105	LAST: WRC sent RAI #2 to vendor on 04/14/92. NEXT: Vendor submits responses to RAI #2. Due 05/18/92.	J. Davis	08/26/90
35. ChemNuclear	HIC (Cement/Poly)	WM-107	LAST: ChemNuclear submitted a test plan for a future topical report. NEXT: WRC reviews and comments on test plan by 05/08/92.	R. Shewmaker	(04/16/92)

\* For more information on any of these Topical Report Reviews, see attached summary sheets, or contact Jennifer Davis.

\*\* Names in parentheses indicate custodian of TR archives if different from reviewer.

\*\*\* Interim (12 month) approval issued for specific waste formulations.

## SUMMARY SHEET

DOCKET NO: WM-20

VENDOR: Scientific Ecology Group (Formerly LN Technologies,  
after London Nuclear Svcs, Inc., after NUS Process  
Services Corp.,

TYPE: Solidification (Cement)

DISPOSITION: Under Review

PROJECT MANAGER: J. Davis

LAST: NRC faxed RAI #2 to SEG on 1/7/92.

NEXT: SEG submits responses to RAI #2.

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DATE TOPICAL REPORT SUBMITTED: 8/85

REQUEST FOR ADDITIONAL  
INFORMATION (RAI) #1

DUE:

ACTUAL: 8/86

VENDOR RESPONSE TO RAI #1

DUE:

ACTUAL: 11/15/88, 3/23/89,  
7/11/89, 11/27/91

REQUEST FOR ADDITIONAL  
INFORMATION (RAI) #2

DUE:

ACTUAL: 1/7/92

VENDOR RESPONSE TO RAI #2

DUE: 3/7/92

ACTUAL:

NRC held meeting with vendor on 8/17/89 to discuss remaining  
issues and schedule.

NRC staff and Bryan Roy (SEG) participated in a conference call  
to discuss potential disposition of each waste form on 1/6/92.

NRC sent letter to B. Roy (SEG) on 4/2/92 requesting status of  
RAI #2 responses, and enclosing a second copy of the RAI.

TECHNICAL EVALUATION REPORT

DUE:

ACTUAL:

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CONDITIONS FOR APPROVAL:

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SUMMARY OF MAJOR ISSUES:

1. A complete set of test data (biodegradation, irradiation,  
thermal cycling, etc.) was not provided for all waste stream  
formulations proposed to be qualified.
2. Waste characterization is inadequate.



Continuation Sheet for WM-20

3. The limiting parameters (wt %, pH, density, etc.) for the waste streams to be solidified are not well defined, or possibly fully qualified.
4. PCP's are incomplete (mixing times, testing procedures etc.) and confusing.
5. Calculations and rationale for the initial encapsulation design failed to demonstrate mechanical stability, however, a subsequent design analysis report was submitted.
6. Mixing scale-up is not well demonstrated.
7. Only 2 of 60+ waste forms appear to pass the revised Branch Technical Position on Waste Form.

### SUMMARY SHEET

DOCKET NO: WM-46  
VENDOR: Scientific Ecology Group (nee Westinghouse Radiological Services, formerly Westinghouse Hittman Nuclear)  
TYPE: Solidification (Cement)  
DISPOSITION: Approved (Interim, for specific waste formulations)  
PROJECT MANAGER: J. Kane, J. Davis

LAST: NRC issued interim (12 month) approval for six waste streams on 9/30/91.  
NEXT: Revised proprietary and non-proprietary TR's due 12/1/91.

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DATE TOPICAL REPORT SUBMITTED: 4/13/89 (Rev 4)

REQUEST FOR ADDITIONAL INFORMATION (RAI) #1 DUE:  
ACTUAL: 9/28/89

VENDOR RESPONSE TO RAI #1 DUE:  
ACTUAL: 12/5/89

REQUEST FOR ADDITIONAL INFORMATION (RAI) #2 DUE:  
ACTUAL: 8/1/90

VENDOR RESPONSE TO RAI #2 DUE:  
ACTUAL: 3/1/91, 3/11/91

REQUEST FOR ADDITIONAL INFORMATION (RAI) #3 DUE: 5/24/91, 6/21/91  
ACTUAL: 6/28/91

VENDOR RESPONSE TO RAI #3 DUE: 7/28/91  
ACTUAL: 8/12/91

Meeting between NRC and SEG was held on 8/26/91 to discuss SEG's responses to RAI #3.

NRC sent letter to B. Roy (SEG) on 4/2/92 requesting status of TR.

TECHNICAL EVALUATION REPORT DUE: 7/19/91, 9/1/91, 9/30/91  
(due to Sited States on 9/13/91)  
ACTUAL: 9/30/91, (to states 9/ /91)



Continuation Sheet for WM-46

CONDITIONS FOR APPROVAL:

Interim Approved Waste Formulations: Low-PE Powdered Resin, Diatomaceous Earth, Filter Sludge, 20% Sodium Sulfate, 5% Sodium Sulfate with 30% Mixed Solids, 20% Sodium Sulfate with 62% Mixed Solids

1. During the period of interim approval, SEG will perform additional qualification testing on the six interim approved waste streams, as described in Section 5.3 of the TER.
2. SEG will revise the PCP documents in accordance with the conditions in Sections 4.7.1 and 5.4 of the TER.
3. For the low-PE powdered resin, the filter sludge, and the sodium sulfate with mixed solids formulations, SEG will prepare, store and test surveillance specimens in accordance with Section 5.5 of the TER.
4. For final approval of the "not-approved" formulations, SEG shall comply with (2) and (3) above, and shall perform additional qualification testing in accordance with Section 5.3 of the TER.

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SUMMARY OF MAJOR ISSUES:

1. Weak correlation between qualification test samples described in the TR and the PCP verification samples.
2. Inadequate demonstration of correlation between the recipes used in qualification and waste parameters typically measured in the field.
3. Several of the waste forms fail various criteria in the revised Branch Technical Position on Waste Form:

High PE Mixed Bed Bead Resin - biodegradation, fungal, irradiation, asymptotic immersion

Low PE Powdered Resin - immersion

High PE Powdered Resin - initial, immersion, irradiation, leaching

8% Boric Acid - all

20% Boric Acid - initial, immersion, thermal, irradiation

Low PE Mixed Bed Bead Resin - thermal

10% Sodium Sulfate - immersion

Oil - all

Grit - all

20% Sodium Sulfate with 30% Mixed Solids - immersion

Blank - initial, thermal, irradiation, immersion

Continuation Sheet for WM-46

4. Full scale testing was limited to four compositions (of 17 submitted), and homogeneity was not substantiated by the full scale sample.
5. The grout formulation meets the criteria specified in the Technical Position on Waste Form in-so-far as it has been tested, however, this formulation is intended for filter encapsulation, and no design has been provided. (See Letter, Roy to Tokar of February 3, 1991, and Letter, Tokar to Roy of March 29, 1991 for more information).
6. Three waste formulations were not disapproved, but were not interim approved either. These formulations were termed "not-approved," and include, 10% sodium sulfate, 20% sodium sulfate with 30% mixed solids, and "grout" (for filter encapsulation). The first two formulations listed were tested in an attempt to qualify ranges of waste loading. Because these formulations are "not-approved," only the related discrete formulations are interim approved. For full and final approval, these formulations must demonstrate satisfactory performance with regard to the qualification testing specified in the Technical Position on Waste Form. The "grout" formulation requires full qualification testing, as well as the additional information as specified in #5 above.

### SUMMARY SHEET

DOCKET NO: WM-102  
VENDOR: U.S. Ecology  
TYPE: Solidification (LLW Bitumen)  
DISPOSITION: Approved (Interim, for one waste stream)  
PROJECT MANAGER: R. Shewmaker

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DATE TOPICAL REPORT SUBMITTED: 7/13/89 (Revised proprietary and non-proprietary TR's submitted on 2/5/92).

REQUEST FOR ADDITIONAL INFORMATION (RAI) #1 DUE: 2/28/90, 5/31/90  
ACTUAL: 9/18/90

VENDOR RESPONSE TO RAI #1 DUE: 3/30/90, 6/30/90  
ACTUAL: 12/14/90

NRC sent a letter to the vendor informing them of the unacceptability of the proposed three waste forms. (4/26/91)

Meeting of 5/8/91 between NRC, USE and JGC resulted in decision to interim approve boric acid waste stream with waste loading not to exceed 40% weight and a minimum pH of 9.0.

Letter, P. Lohaus (NRC) to O. Wong (USE), May 17, 1991, confirming the agreement made in the 5/8/91 meeting.

On 5/24/91, NRC representatives visited the JGC Radwaste facility at Surry, Virginia.

The NRC sent the vendor a letter regarding their proposed test plan on 4/16/92.

TECHNICAL EVALUATION REPORT DUE: 7/31/91 (Due to States, 8/31/90, 9/30/90, 6/28/91)  
ACTUAL: 8/2/91, (to States, 7/19/91), Supplement 1 issued 1/24/92.

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**CONDITIONS FOR APPROVAL: (12 month interim approval)**

1. The USE High Strength Asphalt Solidification Process shall be used in accordance with the limitations and actions called out in Section 5.0 of the Interim Technical Evaluation Report, as follows:
  - The boric acid waste stream is to be treated to a minimum pH of 9.0 with a maximum loading of 40 weight percent.
  - An administrative backfill procedure is to be used for waste burial of the bituminized waste.
  - Process control procedures are to be revised into final form as noted.

Continuation Sheet for WM-102

2. In addition, the resulting waste forms must be compatible with the final disposal restrictions and requirements specified by the waste disposal facility operators and the governing state agencies.
3. USE must notify users of the USE High Strength Asphalt Solidification Process that they shall certify that all restrictions and required procedures have been adhered to and that waste forms do not contain prohibited chemicals or waste materials.
4. Waste forms created from the solidification of bead resins, powdered resins, sodium sulfate concentrates, cellulosic filter aid, diatomaceous earth and activated carbon by this USE process are not at this time approved under any conditions. Approval of these waste forms is contingent on the submittal of additional information as discussed in Section 5.2 of the ITER and an evaluation by NRC resulting in a formal acceptance of each of the waste forms.

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SUMMARY OF MAJOR ISSUES:

1. The original request on seven waste streams has been reduced to three.
2. The boric acid, and bead and powdered resin waste forms at proposed loading show large compressive strength losses after environmental tests (especially after contact with water); they show large volume expansion with water, especially the resins, and the boric acid waste form shows a large weight loss. Too high a degree of waste loading is a possible cause.
3. In the meeting between NRC, USE and JGC of 5/8/91, NRC agreed to develop guidance for bitumen solidified waste forms similar to Appendix A to the revised Technical Position on Waste Form regarding cement stabilization.

## SUMMARY SHEET

DOCKET NO: WM-103  
VENDOR: Pacific Nuclear  
TYPE: HIC (Enviroglass)  
DISPOSITION: Under Review  
PROJECT MANAGER: R. Shewmaker

LAST: RAI #1 from NRC to vendor on 6/29/90.  
NEXT: Vendor responses to RAI #1 due on 5/31/92.

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DATE TOPICAL REPORT SUBMITTED: 6/30/89

REQUEST FOR ADDITIONAL INFORMATION (RAI) #1      DUE: 1/30/90  
ACTUAL: 6/29/90

VENDOR RESPONSE TO RAI #1      DUE: 3/1/90, 5/31/91, 6/15/91,  
8/30/91, 9/23/91, 2/29/92, 5/31/92  
ACTUAL:

REQUEST FOR ADDITIONAL INFORMATION (RAI) #2      DUE: 4/30/90  
ACTUAL:

VENDOR RESPONSE TO RAI #2      DUE: 7/30/90  
ACTUAL:

TECHNICAL EVALUATION REPORT      DUE: 10/1/90  
ACTUAL:

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CONDITIONS FOR APPROVAL:

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SUMMARY OF MAJOR ISSUES:

1. Concern regarding service life of fiber reinforced plastic, hydrolytic effects, and long-term physical properties.

## SUMMARY SHEET

DOCLET NO: WM-104  
VENDOR: JGC Corp.  
TYPE: Solidification (Cement)  
DISPOSITION: Under review  
PROJECT MANAGER: R. Shewmaker

LAST: NRC sent RAI # 1 to vendor on 1/6/92.  
NEXT: Vendor submits responses to RAI #1 by 9/1/92.

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DATE TOPICAL REPORT SUBMITTED: 4/16/90

REQUEST FOR ADDITIONAL INFORMATION (RAI) #1	DUE: 6/28/91, 9/15/91, 10/15/91, 11/22/91, 12/20/91 ACTUAL: 1/6/92
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VENDOR RESPONSE TO RAI #1	DUE: 9/1/92 ACTUAL:
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REQUEST FOR ADDITIONAL INFORMATION (RAI) #2	DUE: 8/30/91 ACTUAL:
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VENDOR RESPONSE TO RAI #2	DUE: 10/4/91 ACTUAL:
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TECHNICAL EVALUATION REPORT	DUE: 12/20/91 ACTUAL:
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CONDITIONS FOR APPROVAL:

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SUMMARY OF MAJOR ISSUES:

1. Original waste form qualification testing was performed using guidance contained in Rev 0 of the Technical Position on Waste Form.
2. Waste characterization is inadequate.
3. JGC needs to address the potential for gas generation in the AC-Process, and possible related effects.
4. It appears from sample labels that the results for some specimens which were tested were not reported.
5. Ranges of waste loading, pH, secondary constituent concentrations, etc., are not well defined and have not been fully tested.



Continuation Sheet for WM-104

6. Impurity tests used to support the claim that impurities to not affect the products of the AC-Process are not convincing.
7. The rationale for the proposed pretreatment process for boric acid wastes is not well-documented.
8. The cement and additives used for the solidification process are not well-characterized.
9. Scale-up tests do not appear to indicate that lab-scale samples accurately simulate full-scale waste forms.

### SUMMARY SHEET

DOCKET NO: WM-105  
VENDOR: Diversified Technologies, Inc.  
TYPE: Solidification (VERI)  
DISPOSITION: Under review  
PROJECT MANAGER: J. Davis

LAST: NRC sent RAI #2 to DTI on 4/14/92.  
NEXT: DTI to respond to RAI #2. Responses due 5/18/92.

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DATE TOPICAL REPORT SUBMITTED: 8/26/90, 12/1/91 (Rev.1)

REQUEST FOR ADDITIONAL INFORMATION (RAI) #1      DUE: 12/15/90  
ACTUAL: 2/8/91

VENDOR RESPONSE TO RAI #1      DUE: 3/10/91  
ACTUAL: 12/1/91 (Revised TR)

On 3/16/91 the vendor sent a letter to NRC acknowledging receipt of RAI #1 providing a proposed test regimen, and informing NRC that they intend to submit a revised TR.

NRC provided comments to the vendor on 3/21/91.

REQUEST FOR ADDITIONAL INFORMATION (RAI) #2      DUE:  
ACTUAL: 4/14/92

VENDOR RESPONSE TO RAI #2      DUE: 5/18/92  
ACTUAL:

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CONDITIONS FOR APPROVAL:

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SUMMARY OF MAJOR ISSUES:

1. The TR is too broad. It includes processes for which no qualification test data has been submitted. The TR is based on a new process, but builds on Dow's approved TR (WM-82). To be a stand-alone TR (as required), it should discuss Dow work in summary, then describe only the solidification of dewatered resin beads into the 200 ft<sup>3</sup> monolith, and the supporting qualification test program.
2. DTI treats its PCP's as proprietary. If proprietary, this implies that the process differs from Dow's which is in the public domain. If the DTI formulation is different, it must undergo the complete test regimen as described in the Revised Branch Technical Position on Waste Forms.

Continuation Sheet for WM-105

3. Diversified Technologies did not address the comments in RAI #1 when the TR was revised.
4. Characterization of the simulated waste (ion-exchange bead resin) used in the 200 ft full-scale solidification is negligible, and must be addressed.
5. There are several problems with the PCP documents, including essentially no restrictions on the waste to be solidified, very few quantities with tolerances, and two new additives described as "modifiers" which were not present in the original TR and PCP, and which are not addressed in the current TR.
6. The original TR contains information regarding the full-scale solidification which is of some concern. Namely, there was some liquid discovered when the liner was cut apart, and some visual discontinuities. These were left out of the revised TR, but should be addressed.

### SUMMARY SHEET

DOCKET NO: WM-107  
VENDOR: ChemNuclear  
TYPE: HIC (Cement/Poly)  
DISPOSITION: UNDER REVIEW  
PROJECT MANAGER: R. Shewmaker

LAST: ChemNuclear submitted a proposed test plan to the NRC on 4/16/92.  
NEXT: NRC reviews test plan and responds to ChemNuclear by 5/8/92.

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DATE TOPICAL REPORT SUBMITTED: (No TR has been submitted yet.)

REQUEST FOR ADDITIONAL INFORMATION (RAI) #1	DUE: ACTUAL:
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VENDOR RESPONSE TO RAI #1	DUE: ACTUAL:
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REQUEST FOR ADDITIONAL INFORMATION (RAI) #2	DUE: ACTUAL:
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VENDOR RESPONSE TO RAI #2	DUE: ACTUAL:
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REQUEST FOR ADDITIONAL INFORMATION (RAI) #3	DUE: ACTUAL:
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VENDOR RESPONSE TO RAI #3	DUE: ACTUAL:
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TECHNICAL EVALUATION REPORT	DUE: ACTUAL:
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CONDITIONS FOR APPROVAL:

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#### SUMMARY OF MAJOR ISSUES:

1. HIC is basically a cylindrical polyethylene HIC encased in a cement shell with a square cross-section. The space in between will be grouted.
2. No TR has been submitted. So far, only a proposed test plan has been submitted.