

<u>SUBJECT</u>		<u>DATE</u>
1339. The Hazardous Waste Characteristic of Reactivity (D003)	ENCORE	JUL 11, 2019
1340. Central Accumulation Areas and Signage Requirements		JUL 18, 2019
1341. RCRA EPA Identification Numbers – Site Specifics	ENCORE	JUL 25, 2019
1342. RCRA EPA Identification Numbers – Transporters	ENCORE	AUG 1, 2019
1343. Paint Wastes and the Applicability of the F001-F005 Listings to Ingredients	ENCORE	AUG 8, 2019
1344. F Listings and Ingredients in Commercial Chemical Product Formulations	ENCORE	AUG 15, 2019
1345. PCB Containers and ≥ 50 ppm	ENCORE	AUG 22, 2019
1346. CERCLA Hazardous Substances – The Petroleum Exclusion	ENCORE	AUG 29, 2019
1347. PCB Concentration Assumptions for Use vs. PCB Disposal	ENCORE	SEP 5, 2019
1348. RCRA LR One-Year Storage Prohibition vs., PCB One-Year Disposal Time Limit		SEP 12, 2019
1349. Regulatory Status of PCB Remediation Wastes Disposed Prior to April 18, 1978	ENCORE	SEP 19, 2019
1350. Regulatory Status of PCB Remediation Wastes Disposed Prior to April 18, 1978 – A Follow-Up		SEP 26, 2019
1351. PCB Waste Regulation and April 18, 1978 vs. July 2, 1979		OCT 3, 2019
1352. PCB Waste Storage Limitations and the One-Year Extension	ENCORE	OCT 10, 2019
1353. PCB Waste Storage Limitations and the PCB Radioactive Waste Exemption	ENCORE	OCT 17, 2019
1354. LDR One-Year Storage Prohibition and Generator Permitted Storage	ENCORE	OCT 24, 2019
1355. LDR Notification/Certification and Generator Permitted Storage		OCT 31, 2019
1356. Disposing of PCB Ballasts with PCB Potting Material	ENCORE	NOV 7, 2019
1357. Fluorescent Light Ballasts and PCB Annual Reporting	ENCORE	NOV 14, 2019
1358. Multiple Characteristic Hazardous Waste Codes and Underlying Hazardous Constituents	ENCORE	NOV 21, 2019
1359. Multiple Characteristic and Listed Hazardous Waste Codes and the “in lieu of” LDR Principle	ENCORE	NOV 26, 2019
1360. Universal Waste Lamps and Prohibition on Crushing	ENCORE	DEC 5, 2019
1361. Used Oil and Weekly Inspections	ENCORE	DEC 12, 2019
1362. Used Oil and Keeping Containers Closed – Washington State vs. the Feds	ENCORE	DEC 19, 2019
1363. ‘Twas the Night Before Christmas – The Twenty-Sixth Annual Edition		DEC 24, 2019
1364. Generator Weekly Inspection Log Documentation – Federal vs. WA State	ENCORE	JAN 2, 2020
1365. PCB Reporting and Recordkeeping Relief	ENCORE	JAN 9, 2020
1366. Satellite Accumulation and Product Vessel Cleanouts	ENCORE	JAN 16, 2020
1367. TSDF Requirements When Shipping Dangerous Waste to another TSDF		JAN 23, 2020
1368. The Hazardous Waste Manifest Instructions – Where did they go?		JAN 30, 2020
1369. The Mixtures Rule – Washington State vs. The Feds	ENCORE	FEB 6, 2020
1370. Used Oil and the Rebuttable Presumption		FEB 13, 2020
1371. Used Oil, Secondary Containment and Response to Spills	ENCORE	FEB 20, 2020
1372. Used Oil Eligibility for Animal and Vegetable Oils	ENCORE	FEB 27, 2020
1373. Used Oil Eligibility for Petroleum Oils Mixed with Animal or Vegetable Oils	ENCORE	MAR 5, 2020
1374. Mercury Wet Cell Batteries - Debris or Not Debris?	ENCORE	MAR 12, 2020
1375. Hazardous Debris and Non-Radioactive Lead-Acid Batteries	ENCORE	MAR 19, 2020
1376. Radioactively Contaminated Lead-Acid Batteries and Hazardous Debris	ENCORE	MAR 26, 2020
1377. MACRO encapsulation vs. macroencapsulation	ENCORE	APR 2, 2020

TWO MINUTE TRAINING

TO: CH2M HILL PLATEAU REMEDIATION COMPANY

FROM: PAUL W. MARTIN, RCRA Subject Matter Expert
CHPRC Environmental Protection, Hanford, WA

SUBJECT: *MACROENCAPSULATION VS. MACROENCAPSULATION*

DATE: APRIL 2, 2020

<u>CHPRC Projects</u>	<u>CH PRC - Env. Protection</u>	<u>MSA</u>	<u>Hanford Laboratories</u>	<u>Other Hanford Contractors</u>	<u>Other Hanford Contractors</u>
Richard Austin Tania Bates Rene Catlow Richard Clinton Larry Cole Laura Cusack John Dent Lorna Dittmer Stuart Hildreth Mike Jennings Stephanie Johansen Sasa Kosjerina Melvin Lakes Richard Lipinski Stuart Mortensen Dave Richards Phil Sheely Connie Simiele Jeff Westcott	Jeff Bramson Bob Bullock Frank Carleo Danielle Collins Bill Cox Jeanne Elkins Ryan Fisher Jonathan Fullmer Barry Lawrence Diane Leist Mitch Marrott Stewart McMahand Brian Mitcheltree Anthony Nagel Linda Petersen Sean Sexton Dave Shea Kat Thompson Wayne Toebe Eric Trotta Daniel Turlington Dave Watson	Brett Barnes Michael Carlson Mike Demiter Kip George Jerry Cammann Jeff Ehlis Garin Erickson Panfilo Gonzalez Jr. Dashia Huff Mark Kamberg Jon McKibben Saul Martinez Matt Mills Carly Nelson Michelle Oates Eric Pennala Jon Perry Christina Robison Christian Seavoy David Shaw John Skogleie Lana Strickling Greg Sullivan	(TBD) <u>DOE RL, ORP, WIPP</u> Mary Beth Burandt Duane Carter Al Farabee Tony McKarns	Bill Bachmann Dean Baker Scott Baker Lucinda Borneman Paul Crane Tina Crane Ron Del Mar John Dorian Mark Ellefson Darrin Faulk Rob Gregory James Hamilton Andy Hobbs Ryan Johnson Megan Lerchen Mike Lowery Michael Madison Terri Mars Cary Martin Grant McCalmant Steve Metzger Tony Miskho Tom Moon Chuck Mulkey Kirk Peterson	Dan Saueressig Joelle Moss Glen Triner Greg Varljen Julie Waddoups Jay Warwick Ted Wooley

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TWO MINUTE TRAINING

SUBJECT: MACROencapsulation vs. macroencapsulation

Q: Last week's Two Minute Training (2MT), referenced MACROencapsulation and macroencapsulation. Please expand on this land disposal restrictions (LDR) treatment standard concept. OK.

A customer has a container of radioactive lead solids (RLS) and another container of hazardous debris. Both wastestreams exhibit the characteristic of lead (D008). Per the LDR treatment standards at [40 CFR 268.40](#), the RLS waste must be treated via "MACRO" - the EPA five-letter specified technology code for macroencapsulation as defined at [40 CFR 268.42](#). Per the LDR treatment standards for hazardous debris at [40 CFR 268.45](#), the debris can be treated via "macroencapsulation". The customer understands that debris could be macroencapsulated via placement in a welded-shut, stainless steel container. Could the customer macroencapsulate the RLS in the same way as debris, i.e., place the RLS in a welded-shut, stainless steel drum and meet MACRO standards?

A: Per 40 CFR 268.42, the definition of "MACRO" is:

"Macroencapsulation with surface coating materials such as polymeric organics (e.g., resins and plastics) or with a jacket of inert inorganic materials to substantially reduce surface exposure to potential leaching media. Macroencapsulation specifically does not include any material that would be classified as a tank or container according to [40 CFR 260.10](#)." (*See definition of container attached*).

Per 40 CFR 268.45, the definition of "macroencapsulation" is:

"Application of surface coating materials such as polymeric organics (e.g., resins and plastics) or use of a jacket of inert inorganic materials to substantially reduce surface exposure to potential leaching media."

The difference between the definition of MACRO at 268.42 and the definition of macroencapsulation at 268.45 is that the MACRO definition specifically excludes the use of tanks or containers in meeting the LDR treatment standard of macroencapsulation.

Per an EPA letter dated September 19, 1995, ([13762](#)) the prohibition against using tanks and containers was intentionally not included in the definition of macroencapsulation for treating hazardous debris. This provided more flexibility in the treatment of hazardous debris, i.e., tanks and containers could be used for macroencapsulation if the tanks or containers are non-corroding, e.g., stainless steel.

Therefore, the customer could use a welded-shut, stainless steel drum for the macroencapsulation of hazardous debris. However, the customer could not use a welded-shut, stainless steel drum for the MACRO of RLS, since containers are specifically prohibited from the MACROencapsulation definition. The RLS must be macroencapsulated with a surface coating or a jacket of inert inorganic material per 40 CFR 268.42.

SUMMARY:

- Radioactive lead solids must be treated via macroencapsulation (MACRO) as defined at 268.42.
- Hazardous debris can be treated via macroencapsulation as defined at 268.45.
- The difference in the two definitions is that the 40 CFR 268.42 MACRO prohibits the use of tanks or containers.

Excerpts from 40 CFR 260 and 268 and the September 19, 1995, EPA letter are attached to the e-mail. If you have any questions, contact me at Paul.W.Martin@rl.gov or at (509) 376-6620.

FROM: Paul W. Martin

DATE: 4/2/2020

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TWO MINUTE TRAINING – ATTACHMENT

SUBJECT: **MACRO**encapsulation vs. macroencapsulation

40 CFR 268.40 **Applicability of treatment standards.**

WASTE CODE	TREATMENT STANDARDS FOR HAZARDOUS WASTE NOTE: NA means not applicable			
	WASTE DESCRIPTION AND TREATMENT/ REGULATORY SUBCATEGORY	REGULATED HAZARDOUS CONSTITUENTS		NONWASTEWATER
		Common Name	CAS No.	Concentration in mg/kg unless noted as "mg/l TCLP"; or Technology Code
D008	Radioactive Lead Solids Subcategory (Note: these lead solids include, but are not limited to all forms of lead shielding and other elemental forms of lead. These lead solids do not include treatment residuals such as hydroxide sludges, other wastewater treatment residuals, or incinerator ashes that can undergo conventional pozzolanic stabilization, nor do they include organo-lead materials that can be incinerated and stabilized as ash. This subcategory consists of nonwastewaters only.)	Lead	7439-92-1	MACRO

40 CFR 268.42 **Treatment standards expressed as specified technologies.**

Table 1. Technology Codes and Description of Technology-Based Standards

Technology code	Description of technology-based standards
MACRO:	Macroencapsulation with surface coating materials such as polymeric organics (e.g., resins and plastics) or with a jacket of inert inorganic materials to substantially reduce surface exposure to potential leaching media. Macroencapsulation specifically does not include any material that would be classified as a tank or container according to 40 CFR 260.10.

40 CFR 268.45 **Treatment standards for hazardous debris.**

Table 1. Alternative Treatment Standards For Hazardous Debris

Technology description	Performance and/or design and operating standard	Contaminant restrictions
C. Immobilization Technologies 1. Macroencapsulation: Application of surface coating materials such as polymeric organics (e.g., resins and plastics) or use of a jacket of inert inorganic materials to substantially reduce surface exposure to potential leaching media.	Encapsulating material must completely encapsulate debris and be resistant to degradation by the debris and its contaminants and materials into which it may come into contact after placement (leachate, other waste, microbes).	None.

40 CFR 260.10 **Definitions.**

Container means any portable device in which a material is stored, transported, treated, disposed of, or otherwise handled.

FROM: Paul W. Martin

DATE: 4/2/2020

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TWO MINUTE TRAINING – ATTACHMENT

SUBJECT: MACROencapsulation vs. macroencapsulation

FAXBACK 13762

PPC 9554.1995(02)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

September 19, 1995

Mr. Kevin J. Igli
Vice President, Environment, Health & Safety
Chemical Waste Management, Inc.
3001 Butterfield Road
Oak Brook, Illinois 60521

Dear Mr. Igli:

Thank you for your letter of June 15, 1995, regarding macroencapsulation of hazardous debris. You referred to an interpretive guidance memorandum sent by EPA's Office of Solid waste to EPA Region VIII on February 16, 1994 regarding the macroencapsulation of mixed hazardous/radioactive debris waste, and requested clarification on the memorandum's applicability. Specifically, you requested EPA's determination on whether CWM's macroencapsulation process addresses the requirements of 40 CFR 268.45, Table 1.

As your letter pointed out, EPA has specified two definitions of macroencapsulation: a specified technology for D008 radioactive lead solids, and one for hazardous debris. In 40 CFR 268.42, Table 3, EPA specified for D008 radioactive lead solids a required method of treatment, macroencapsulation. Macroencapsulation is defined in 268.42, Table 1 as:

Macroencapsulation with surface coating materials such as polymeric organics (e.g., resins and plastics) or with a jacket of inert inorganic materials to substantially reduce surface exposure to potential leaching media. Macroencapsulation specifically does not include any material that would be classified as a tank or container according to 40 CFR 260.10.

EPA defined macroencapsulation for hazardous debris at 268.45 as:

Application of surface coating materials such as polymeric organics (e.g., resins and plastics) or of a jacket of inert inorganic materials to substantially reduce surface exposure to potential leaching media.

FROM: Paul W. Martin

DATE: 4/2/2020

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