

<u>SUBJECT</u>		<u>DATE</u>
1253. Used Oil Filter Regulation – The Feds vs. Washington State	ENCORE	NOV 16, 2017
1254. PCB Radioactive Wastes and Exception Reporting	ENCORE	NOV 21, 2017
1255. Satellite Accumulation Requirements and Container Inspections	ENCORE	NOV 30, 2017
1256. Disposing of PCB Ballasts with PCB Potting Material	ENCORE	DEC 7, 2017
1257. Fluorescent Light Ballasts and PCB Annual Reporting		DEC 14, 2017
1258. 'Twas the Night Before Christmas – The Twenty-Fifth Annual Edition		DEC 21, 2017
1259. The Purpose of Keeping Containers Closed Except When Adding or Removing Wastes	ENCORE	DEC 28, 2017
1260. Satellite Accumulation and Product Vessel Cleanouts	ENCORE	JAN 4, 2018
1261. Conservative Declaration that Material is a Hazardous Waste	ENCORE	JAN 11, 2018
1262. Defining Criteria for Household Waste Exclusion	ENCORE	JAN 18, 2018
1263. The Household Waste Exclusion and Renovation Debris	ENCORE	JAN 25, 2018
1264. The Household Waste Exclusion and Renovation Debris – Part II	ENCORE	FEB 1, 2018
1265. The Mixtures Rule – Washington State vs. The Feds	ENCORE	FEB 8, 2018
1266. Spent Lead-Acid Batteries and Secondary Containment	ENCORE	FEB 15, 2018
1267. Spent Lead-Acid Batteries and Accumulation Time Limits	ENCORE	FEB 23, 2018
1268. CERCLA Hazardous Substances – A Brief Definition	ENCORE	MAR 1, 2018
1269. Radioactively Contaminated Lead-Acid Batteries and Hazardous Debris	ENCORE	MAR 8, 2018
1270. RCRA Treatment and the Two-Part Definition	ENCORE	MAR 15, 2018
1271. Who Wants to be a Generator!!!	ENCORE	MAR 22, 2018
1272. Who Wants to be a Generator Part 2!!!	ENCORE	MAR 29, 2018
1273. “No Smoking” Signs and Tobacco-Free Facilities		APR 5, 2018
1274. Aqueous Solutions and the Characteristic of Corrosivity	ENCORE	APR 12, 2018
1275. Aqueous Solutions and the Characteristic of Ignitability	ENCORE	APR 19, 2018
1276. PCB Bulk Product Wastes and the One Year Disposal Requirement	ENCORE	APR 26, 2018
1277. PCB Radioactive Wastes and Exception Reporting	ENCORE	MAY 3, 2018
1278. TSCA/PCB Determinations for Fluorescent Light Ballasts via the Manufacture Date	ENCORE	MAY 10, 2018
1279. RCRA Liquids, Free Liquids, and Releasable Liquids	ENCORE	MAY 17, 2018
1280. Satellite Accumulation Areas and the Three-Day Time Limit for Excess Accumulation		MAY 24, 2018
1281. Satellite Accumulation of Aerosol Cans and Determining the 55-Gallon Limit	ENCORE	MAY 31, 2018
1282. Universal Waste and Basis for the One Year Accumulation Time Limit	ENCORE	JUN 7, 2018
1283. F001 Degreaser versus F002 Solvent	ENCORE	JUN 14, 2018
1284. Hazardous Waste Determinations and Phase Separation	ENCORE	JUN 20, 2018
1285. PCB Certificates of Disposal and Manifesting Between Related Facilities		JUN 28, 2018
1286. PCB Concentrations and 10,000 PPM	ENCORE	JUL 5, 2018
1287. PCB Concentrations and 1,000 PPM	ENCORE	JUL 12, 2018
1288. Satellite Accumulation Containers and the Date of Accumulation Marking		JUL 19, 2018
1289. Satellite Accumulation Requirements in Washington State	ENCORE	JUL 26, 2018
1290. Satellite Accumulation Areas and Under the Control of the Operator		AUG 2, 2018
1291. Exceptions to Free Liquids in Landfills Prohibition	ENCORE	AUG 9, 2018
1292. Ampules and the Exception to Free Liquid in Landfills Prohibition		AUG 16, 2018
1293. Overpacks vs. Salvage Drums	ENCORE	AUG 23, 2018
1294. Universal Wastes - Recycling versus Disposal	ENCORE	AUG 30, 2018
1295. Universal Waste One Year Accumulation and Multiple Handlers	ENCORE	SEP 6, 2018
1296. Universal Waste and Multiple Handlers at One Facility		SEP 13, 2018
1297. Universal Waste, Satellite Accumulation and Centralized Collection Areas		SEP 20, 2018
1298. Available Regulatory Relief from Underlying Hazardous Constituent (UHC) Requirements	ENCORE	SEP 27, 2018
1299. Satellite Accumulation and the One Year LDR Prohibitions on Storage	ENCORE	OCT 4, 2018
1300. Purpose of the ≤90-day Hazardous Waste Accumulation Conditional Exclusion	ENCORE	OCT 11, 2018
1301. Regulatory Status of Used Oil Mixed with Diesel Fuel		OCT 18, 2019
1302. Recyclable Chemicals and Zombie Destruction	ENCORE	OCT 25, 2018
1303. Empty Containers and the “Empty” Label		NOV 1, 2018
1304. Manifest Exception Report Submittal Timeframes – RCRA vs. TSCA		NOV 8, 2018
1305. Smoke Detector Disposal and the NRC	ENCORE	NOV 15, 2018
1306. Smoke Detector Disposal and Well-Meaning Waste Minimization	ENCORE	NOV 21, 2018
1307. Characteristic Ignitable, Corrosive or Reactive Debris and Macroencapsulation	ENCORE	NOV 29, 2018
1308. Disposal Requirements for Hazardous Waste Treated to LDR Standards	ENCORE	DEC 6, 2018
1309. Disposal Relief for Listed Hazardous Debris Treated to LDR Standards	ENCORE	DEC 13, 2018
1310. 'Twas the Night Before Christmas - The Twenty-Sixth Annual Edition	ENCORE	DEC 20, 2018
1311. Product Storage Tank Residues and Hazardous Waste Regulations	ENCORE	DEC 27, 2018
1312. RCRA Personnel Training and Classroom Training vs. Online Training	ENCORE	JAN 3, 2019
1313. Absorbent Additions and Treatment	ENCORE	JAN 10, 2019
1314. D002 Waste and Dilution as Adequate LDR Treatment	ENCORE	JAN 17, 2019

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TWO MINUTE TRAINING

TO: CH2M HILL PLATEAU REMEDIATION COMPANY

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

SUBJECT: D002 WASTE AND DILUTION AS ADEQUATE LDR TREATMENT

DATE: JANUARY 17, 2019

<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 John Dent Lorna Dittmer Eric Erpenbeck Stuart Hildreth Mike Jennings Stephanie Johansen Sasa Kosjerina Melvin Lakes Richard Lipinski Jim McGrogan Stuart Mortensen Dave Richards Phil Sheely Connie Simiele Jennie Stults Jeff Westcott Jeff Widney	Bob Bullock Bill Cox Laura Cusack Jim Leary Anthony Nagel Linda Petersen Fred Ruck Ray Swenson Wayne Toebe Daniel Turlington Dave Watson	Brett Barnes Jerry Cammann Jeff Ehlis Garin Erickson Panfilo Gonzalez Jr. Dashia Huff Mark Kamberg Jon McKibben Saul Martinez Jon Perry Christina Robison Lana Strickling Lou Upton	(TBD) <u>DOE RL, ORP, WIPP</u> Mary Beth Burandt Duane Carter Cliff Clark Tony McKarns	Bill Bachmann Dean Baker Scott Baker Lucinda Borneman Paul Crane Tina Crane Ron Del Mar John Dorian Mark Ellefson Tom Gilmore Rob Gregory James Hamilton Andy Hobbs Ryan Johnson Megan Lerchen Charles (Mike) Lowery Michael Madison Terri Mars Cary Martin Grant McCalmant Steve Metzger Tony Miskho Matt Mills Tom Moon Chuck Mulkey Kirk Peterson	Jean Quigley Dan Saueressig Merrie Schilperoort Joelle Moss Glen Triner Greg Varljen Julie Waddoups Jay Warwick Ted Wooley

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TWO MINUTE TRAINING

SUBJECT: D002 Waste and Dilution as Adequate LDR Treatment

Q: A customer has a container of waste acid ($\text{pH} \leq 2$) that exhibits the characteristic of corrosivity and has been assigned the hazardous waste code D002. The land disposal restriction (LDR) treatment standard for this waste is "DEACT" (deactivation - remove the characteristic) and treat for underlying hazardous constituents (UHCs). The customer has determined that no UHCs are present and therefore wants to simply add water to the waste to raise the pH to >2 and remove the characteristic. Can the customer add water to this waste acid in order to meet the LDR treatment standard of DEACT or would this be considered impermissible dilution?

A: Per [40 CFR 268.3\(a\)](#), it basically states that dilution of an LDR waste cannot occur as a substitute for adequate LDR treatment. There is an exception to the dilution prohibition in 40 CFR 268.3(b) but it is limited to management in Clean Water Act (CWA) systems or CWA equivalent systems.

However, [40 CFR 268, Appendix VI](#), "Recommended Technologies to Achieve Deactivation Of Characteristics In Section 268.42" provides other specified treatment options for meeting the DEACT standard. Per this table, a D002 waste with a pH of ≤ 2 can be deactivated by using the specified technologies of RCORR (recovery of acids or bases), INCIN (incineration) or NEUTR (neutralization). A review of [40 CFR 268.42](#), "Treatment standards expressed as specified technologies" defines NEUTR as: "Neutralization with the following reagents (or waste reagents) or combinations of reagents: (1) Acids; (2) bases; or (3) water (including wastewaters) resulting in a pH greater than 2 but less than 12.5 as measured in the aqueous residuals".

Therefore, per the EPA recommended technologies in 40 CFR 268, Appendix VI, our customer could add water to the acid waste in order to meet the DEACT treatment standard. When the addition of water creates a pH >2 , the waste would no longer exhibit the D002 characteristic and hence the LDR treatment standard of DEACT achieved. This dilution would be permissible since EPA considers it adequate LDR treatment.

Note that if the customer's acidic waste had also contained UHCs, neutralization alone would not be an adequate form of treatment since the UHCs would be impermissibly diluted. An acidic or basic waste with UHCs could be neutralized to remove the corrosive characteristic but then subsequent treatment would be required such as solidification or incineration to address any UHCs.

SUMMARY:

- The LDR treatment standard of DEACT can be achieved via NEUTR.
- NEUTR includes neutralization with water that results in a pH greater than 2 but less than 12.5.
- Adding water to a waste acid with no UHCs would not be considered impermissible dilution since EPA recommends NEUTR as an adequate form of treatment to achieve DEACT.

Excerpts from 40 CFR 268.3, 268.42 and 268, Appendix VI are attached to the e-mail. If you have any questions, contact me at [Paul W. Martin@rl.gov](mailto:Paul_W_Martin@rl.gov) or at (509) 376-6620.

FROM: Paul W. Martin

DATE: 1/17/19

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TWO MINUTE TRAINING – ATTACHMENT

SUBJECT: D002 Waste and Dilution as Adequate LDR Treatment

40 CFR 268.3 Dilution prohibited as a substitute for treatment.

- (a) Except as provided in paragraph (b) of this section, no generator, transporter, handler, or owner or operator of a treatment, storage, or disposal facility shall in any way dilute a restricted waste or the residual from treatment of a restricted waste as a substitute for adequate treatment to achieve compliance with subpart D of this part, to circumvent the effective date of a prohibition in subpart C of this part, to otherwise avoid a prohibition in subpart C of this part, or to circumvent a land disposal prohibition imposed by RCRA section 3004.
- (b) Dilution of wastes that are hazardous only because they exhibit a characteristic in treatment systems which include land-based units which treat wastes subsequently discharged to a water of the United States pursuant to a permit issued under section 402 of the Clean Water Act (CWA), or which treat wastes in a CWA-equivalent treatment system, or which treat wastes for the purposes of pretreatment requirements under section 307 of the CWA is not impermissible dilution for purposes of this section unless a method other than DEACT has been specified in §268.40 as the treatment standard, or unless the waste is a D003 reactive cyanide wastewater or nonwastewater.

40 CFR 268, Appendix VI

Recommended Technologies to Achieve Deactivation of Characteristics in Section 268.42

The treatment standard for many characteristic wastes is stated in the §268.40 Table of Treatment Standards as “Deactivation and meet UTS.” EPA has determined that many technologies, when used alone or in combination, can achieve the deactivation portion of the treatment standard. Characteristic wastes that are not managed in a facility regulated by the Clean Water Act (CWA) or in a CWA-equivalent facility, and that also contain underlying hazardous constituents (see §268.2(i)) must be treated not only by a “deactivating” technology to remove the characteristic, but also to achieve the universal treatment standards (UTS) for underlying hazardous constituents. The following appendix presents a partial list of technologies, utilizing the five letter technology codes established in 40 CFR 268.42 Table 1, that may be useful in meeting the treatment standard. Use of these specific technologies is not mandatory and does not preclude direct reuse, recovery, and/or the use of other pretreatment technologies, provided deactivation is achieved and underlying hazardous constituents are treated to achieve the UTS.

Waste code/subcategory	Nonwastewaters	Wastewaters
D002 Acid Subcategory based on 261.22(a)(1) with pH less than or equal to 2	RCORR NEUTR INCIN	NEUTR INCIN
D002 Alkaline Subcategory based on 261.22(a)(1) with pH greater than or equal to 12.5	NEUTR INCIN	NEUTR INCIN

FROM: Paul W. Martin

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TWO MINUTE TRAINING – ATTACHMENT

SUBJECT: D002 Waste and Dilution as Adequate LDR Treatment

40 CFR 268.42 Treatment standards expressed as specified technologies.

- (a) The following wastes in the table in §268.40 "Treatment Standards for Hazardous Wastes," for which standards are expressed as a treatment method rather than a concentration level, must be treated using the technology or technologies specified in the table entitled "Technology Codes and Description of Technology-Based Standards" in this section.

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

Technology code	Description of technology-based standards
DEACT:	Deactivation to remove the hazardous characteristics of a waste due to its ignitability, corrosivity, and/or reactivity.
NEUTR:	Neutralization with the following reagents (or waste reagents) or combinations of reagents: (1) Acids; (2) bases; or (3) water (including wastewaters) resulting in a pH greater than 2 but less than 12.5 as measured in the aqueous residuals.