

| <u>SUBJECT</u>   |        | <u>DATE</u>  |
|--|--------|--------------|
| 1188. RCRA Empty Containers vs. TSCA PCB Decontaminated Containers - Scenario II   | ENCORE | AUG 11, 2016 |
| 1189. RCRA Empty Containers vs. TSCA PCB Decontaminated Containers - Scenario III  | ENCORE | AUG 18, 2016 |
| 1190. Product Spills and Waste Determinations                                      | ENCORE | AUG 25, 2016 |
| 1191. Product Spills, Waste Determinations, and LDR                                | ENCORE | SEP 1, 2016  |
| 1192. Regulatory Status of Caustic Rinse Waters Contaminated with Trace Solvents   | ENCORE | SEP 8, 2016  |
| 1193. Regulatory Status of Sand Blast Grit Contaminated with Trace Listed Solvents | ENCORE | SEP 15, 2016 |
| 1194. Hazardous Waste "F" Listings and Trace Contamination                         | ENCORE | SEP 22, 2016 |
| 1195. Hazardous Waste "F" Listings and Trace Contamination – Again!                | ENCORE | SEP 29, 2016 |
| 1196. Hazardous Waste Determinations and Phase Separation                          |        | OCT 6, 2016  |

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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:** HAZARDOUS WASTE DETERMINATIONS AND PHASE SEPARATION

**DATE:** OCTOBER 6, 2016

| <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<br>Roni Ashley<br>Tania Bates<br>Bob Cathel<br>Rene Catlow<br>Richard Clinton<br>Larry Cole<br>John Dent<br>Brian Dixon<br>Eric Erpenbeck<br>Stuart Hildreth<br>Mike Jennings<br>Stephanie Johansen<br>Jeanne Kisielnicki<br>Melvin Lakes<br>Marty Martin<br>Jim McGrogan<br>Stuart Mortensen<br>Dean Nester<br>Dave Richards<br>Phil Sheely<br>Connie Simiele<br>Jennie Stults<br>Michael Waters<br>Jeff Westcott<br>Jeff Widney | Brett Barnes<br>Mitch Boyd<br>Ron Brunke<br>Bill Cox<br>Laura Cusack<br>Lorna Dittmer<br>Rick Engelmann<br>Ted Hopkins<br>Sasa Kosjerina<br>Jim Leary<br>Dale McKenney<br>Jon McKibben<br>Rick Oldham<br>Anthony Nagel<br>Linda Petersen<br>Fred Ruck<br>Ray Swenson<br>Wayne Toebe<br>Daniel Turlington<br>Dave Watson<br>Joel Williams | Jerry Cammann<br>Jeff Ehlis<br>Garin Erickson<br>Panfilo Gonzales Jr.<br>Dashia Huff<br>Mark Kamberg<br>Edwin Lamm<br>Candice Marple<br>Saul Martinez<br>Jon Perry<br>Christina Robison<br>Lana Strickling<br>Lou Upton | (TBD)<br><br><u>DOE RL, ORP, WIPP</u><br><br>Mary Beth Burandt<br>Duane Carter<br>Cliff Clark<br>Mike Collins<br>Tony McKarns<br>Ellen Mattlin<br>Greg Sinton<br>Scott Stubblebine | Bill Bachmann<br>Dean Baker<br>Scott Baker<br>Lucinda Borneman<br>Paul Crane<br>Tina Crane<br>Jeff DeLine<br>Ron Del Mar<br>John Dorian<br>Mark Ellefson<br>Darrin Faulk<br>Joe Fritts<br>Lori Fritz<br>Tom Gilmore<br>Rob Gregory<br>Gene Grohs<br>James Hamilton<br>Andy Hobbs<br>Ryan Johnson<br>Dan Kimball<br>Megan Lerchen<br>Richard Lipinski<br>Charles (Mike) Lowery<br>Michael Madison<br>Terri Mars<br>Cary Martin<br>Grant McCalmant<br>Steve Metzger<br>Tony Miskho<br>Matt Mills<br>Tom Moon<br>Chuck Mulkey<br>Mandy Pascual<br>Kirk Peterson<br>Jean Quigley | Dan Saueressig<br>Merrie Schilperoort<br>Joelle Moss<br>Glen Triner<br>Greg Varljen<br>Julie Waddoups<br>Jay Warwick<br>Kyle Webster<br>Ted Wooley |

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## TWO MINUTE TRAINING

**SUBJECT:** Hazardous Waste Determinations and Phase Separation

**Q:** A customer has a water-solvent cleaning solution used to clean parts. The solution is agitated during use to maintain a homogenous mixture. Once the solution is spent, the homogenous mixture is collected in a container and determined to be a nonhazardous waste, i.e., does not exhibit the characteristic of ignitability. However, a few weeks later the container is reopened and the solvent has separated from the water and now resides at the surface of the waste. The solvent is sampled and found to exhibit the characteristic of ignitability (D001). Can the customer continue to manage the water-solvent waste as a nonhazardous since there was no ignitability at the initial point of generation or must the customer now manage the waste as hazardous, i.e., is the generator required to routinely check waste following generation to see if any changes to the waste status has occurred?

**A:** Per WAC 173-303-070(3), "Designation procedure", and subparagraph (a)(iii), it states that the generator must "determine if the waste exhibits any dangerous waste characteristics". There is no bounding timeframe like "at the initial point of generation" or "during subsequent accumulation or storage". However, 40 CFR 261.3(b)(3) states that a solid waste becomes a hazardous waste when:

*"In the case of any other waste (including a waste mixture), when the waste exhibits any of the characteristics identified in subpart C [characteristics of hazardous waste] of this part."*

As further clarification, an EPA guidance letter dated November 20, 2012 ([RCRA Online Number 14834](#)) states:

*"... a generator's responsibility to make a hazardous waste determination may continue beyond the determination made at the initial point of generation. In the case of a nonhazardous waste that may, at some point in the future, exhibit a hazardous waste characteristic or meet a hazardous waste listing description, there is an ongoing responsibility to monitor and reassess if changes occur that may cause the waste to become hazardous. 40 CFR 261.3(b)(3) states that "a solid waste becomes a hazardous waste ... when the waste exhibits any of the characteristics ... " (Also see [45 FR 33095](#), May 19, 1980.) Thus, if there is reason to believe that the waste may physically or chemically change during management in a way that might cause the waste, or a portion of the waste, to become hazardous, the generator must monitor the waste for these changes. The generator should also notify any subsequent handlers of the waste so they are aware that they should also monitor the waste for changes."*

Based on the regulations and guidance, the customer would be required to manage the solvent phase as a D001 characteristic hazardous waste. It did not matter that at the point of generation, the solid waste did not exhibit a characteristic of dangerous waste. Once the bi-phasic solution separated into the solvent and water components, the solvent exhibited a characteristic of dangerous waste and was therefore regulated as a dangerous/hazardous waste.

Note that the land disposal restrictions (LDRs) would apply whenever the waste was determined to be a hazardous waste. Also note that if the opposite scenario occurred and the solid waste was a hazardous waste at the initial point of generation and then later became a nonhazardous waste, any applicable LDRs that applied at the initial point of generation would continue to apply.

### SUMMARY:

- Dangerous/hazardous waste determinations apply at the initial point of generation.
- However, a generator's responsibility to make subsequent dangerous/hazardous waste determinations may continue beyond the determination made at the initial point of generation.
- Note that LDR requirements may apply at the initial or subsequent points of generation.

The November 20, 2012 EPA letter and excerpts from WAC 173-303-070 and 40 CFR 261.3(b)(3) are attached to the e-mail. If you have any questions, please contact me at [Paul\\_W\\_Martin@rl.gov](mailto:Paul_W_Martin@rl.gov) or at (509) 376-6620.

**FROM:** Paul W. Martin

**DATE:** 10/6/16

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## TWO MINUTE TRAINING - ATTACHMENT

**SUBJECT:** Hazardous Waste Determinations and Phase Separation

### **WAC 173-303-070 Designation of dangerous waste.**

(3) Designation procedures.

(a) To determine whether or not a solid waste is designated as a dangerous waste a person must:

- (i) First, determine if the waste is a listed discarded chemical product, WAC 173-303-081;
- (ii) Second, determine if the waste is a listed dangerous waste source, WAC 173-303-082;
- (iii) Third, if the waste is not listed in WAC 173-303-081 or 173-303-082, or for the purposes of compliance with the federal land disposal restrictions as adopted by reference in WAC 173-303-140, determine if the waste exhibits any dangerous waste characteristics, WAC 173-303-090; and
- (iv) Fourth, if the waste is not listed in WAC 173-303-081 or 173-303-082, and does not exhibit a characteristic in WAC 173-303-090, determine if the waste meets any dangerous waste criteria, WAC 173-303-100.

### **40 CFR Part 261.3 Definition of hazardous waste**

(b) A solid waste which is not excluded from regulation under paragraph (a)(1) of this section becomes a hazardous waste when any of the following events occur:

- (1) In the case of a waste listed in subpart D of this part, when the waste first meets the listing description set forth in subpart D of this part.
- (2) In the case of a mixture of solid waste and one or more listed hazardous wastes, when a hazardous waste listed in subpart D is first added to the solid waste.
- (3) In the case of any other waste (including a waste mixture), when the waste exhibits any of the characteristics identified in subpart C [*characteristics of hazardous waste*] of this part.

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## TWO MINUTE TRAINING - ATTACHMENT

**SUBJECT:** Hazardous Waste Determinations and Phase Separation

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
WASHINGTON, D.C. 20460

Nov 20, 2012

Office of  
Solid Waste and  
Emergency Response

Mr. Gary Jones  
Assistant Vice President, EHS Affairs  
Printing Industries of America  
200 Deer Run Road  
Sewickley, PA 15143

Dear Mr. Jones:

This letter is in response to your email of May 3, 2011, and subsequent q-mails on May 5th and 12th, 2011 regarding the regulatory status of a water-solvent cleaning solution that becomes phase separated after use under the Resource Conservation and Recovery Act (RCRA) hazardous waste regulations.

As we understand, a common practice in printing operations with automatic blanket wash systems is to mix an organic solvent with water to make a cleaning solution that is applied to the blanket. The mix ratio is typically 40% water to 60% solvent. Once the solution has been used, it is collected in a container located at the side of the press, and once full, transferred to a larger container, such as a 55-gallon drum, for disposal. You explained that the solvent used is not one of the solvents that is a listed hazardous waste when spent or one that can cause a waste to exhibit the Toxicity Characteristic (see 40 CFR 261.24). You also explained that at the point the spent solvent is generated, the solvent and water are thoroughly mixed and the flash point of the mixture is over 140 °F. Thus, the solution does not exhibit the characteristic of ignitability (see 40 CFR 261.21). However, after some time, the spent solvent solution can phase separate into its two original components, leaving the organic solvent on the top and the water on the bottom, much like vinegar and oil. This is known as a biphasic solution.

In the particular situation you described, a printer shipped this waste as non-hazardous, not realizing that the solvent-water mixture had separated into two layers. When the container arrived at the disposal facility, it was opened and sampled from the top (the organic solvent layer) and rejected, as the flashpoint was below 140 °F, indicating that the solvent layer was a RCRA ignitable hazardous waste (waste code D001, see 40 CFR 261.21).

In reference to this situation, you seek answers to the following questions:

1. When determining the RCRA regulatory status of the waste (hazardous vs. nonhazardous), when is the determination made?
2. Is there any available guidance on sampling waste streams that are not homogenous?
3. If the waste phase-separates prior to shipment, may the generator remove the water phase and either use knowledge or testing to determine if it is nonhazardous? How would such separation be regulated?

Our responses are below:

1. When determining the RCRA regulatory status of the waste (hazardous vs. nonhazardous), when is the determination made?

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## TWO MINUTE TRAINING - ATTACHMENT

**SUBJECT:** Hazardous Waste Determinations and Phase Separation

In this situation, the generator must make the hazardous waste determination not only at the point of generation, but also after the waste separates into phases. Generators of solid waste are required to make a hazardous waste determination at the initial point of generation following the procedure described in 40 CFR 262.11, which allows use of generator knowledge and/or testing, as appropriate. In this case, the initial point of generation would be when the spent water/solvent solution is removed from the blanket wash system and placed in the container located at the side of the press. A generator's hazardous waste determination at the initial point of generation is critical to ensure proper management of the waste not only by the generator, but also by transporters and treatment, storage and disposal facilities (TSDFs) who rely upon the generator's determination to allow them to safely manage the waste.

However, a generator's responsibility to make a hazardous waste determination may continue beyond the determination made at the initial point of generation. In the case of a nonhazardous waste that may, at some point in the future, exhibit a hazardous waste characteristic or meet a hazardous waste listing description, there is an ongoing responsibility to monitor and reassess if changes occur that may cause the waste to become hazardous. 40 CFR 261.3(b)(3) states that "a solid waste becomes a hazardous waste ... when the waste exhibits any of the characteristics ..." (Also see 45 FR 33095, May 19, 1980.) Thus, if there is reason to believe that the waste may physically or chemically change during management in a way that might cause the waste, or a portion of the waste, to become hazardous, the generator must monitor the waste for these changes. The generator should also notify any subsequent handlers of the waste so they are aware that they should also monitor the waste for changes.

With respect to the situation involving the printer's operation, the printer, like any person generating or managing waste, has a responsibility to understand the physical and chemical properties of the waste being managed that may affect whether the waste is hazardous. In this particular case, the printer should evaluate the solvent-water solution after it becomes biphasic, in addition to at the point of generation of the solvent-water solution. That is, the generator would be required under 40 CFR 262.11 to determine whether the various phases of the waste are hazardous. This is analogous to and consistent with situations we have discussed in the past such as when, over time, sludges that exhibit the characteristic of toxicity settle out of nonhazardous wastewaters managed in surface impoundments (55 FR 39410, September 27, 1990).

2. Is there any available guidance on sampling waste streams that are not homogenous?

A specific RCRA sampling protocol called the COLIW ASA (Composite Liquid Waste Sampler, ASTM D-5495), found in Chapter Nine of EPA's waste testing guidance, "Test Methods for Evaluating Solid Waste (SW-846)," can be used to sample each phase in a multiphasic solution. See also SW -846, Chapter Two, Sections 2.2.1, 2.2.4, and 2.3.15 for additional guidance. The COLIWASA test was developed to allow sampling of all phases throughout a container, including those that are not homogenous. The test involves placing a tube in the drum to capture a representative sample of each of the different layers from top to bottom.

3. If the waste phase-separates prior to shipment, may the generator remove the water phase and either use knowledge or testing to determine if it is nonhazardous? How would such separation be regulated?

Separating or physically removing the water phase from the ignitable solvent phase is considered treatment under the RCRA hazardous waste regulations. (See 40 CFR 260.10 for a definition of treatment.) However, under the federal hazardous waste regulations, generators may treat their hazardous waste without a permit or interim status in accumulation tanks and containers that are managed in compliance with the generator accumulation provisions of 40 CFR 262.34. (See 51 FR 10168, March 24, 1986.)

As specified in 40 CFR 262.11(c), for a waste that is not a listed hazardous waste, a generator may use either knowledge or testing to determine if the waste exhibits a characteristic. Thus, the printer may use either knowledge or testing to determine if the water phase after it separates from the solvent phase exhibits any of the characteristics of hazardous waste. In this case, the generator's knowledge that the cleaning solution can naturally separate into two layers, one of which is ignitable, is knowledge that is relevant to the hazardous waste determination. This knowledge must be considered in making the hazardous waste determination.

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**SUBJECT:** Hazardous Waste Determinations and Phase Separation

The COLIWASA protocol may be used to obtain a sample of the water layer if the generator would like to make this determination prior to removing the water phase from the biphasic solution. If the water that is removed proves to be non-hazardous, the generator may manage it in accordance with applicable requirements (e.g., place the water into another container for off-site disposal, or discharge it either directly or indirectly under the applicable Clean Water Act requirements, etc.). If any phase of the biphasic solution proves to be a hazardous waste, then the generator must manage such waste in compliance with the hazardous waste regulations at 40 CFR Parts 261-270.

Please note that most states are authorized to implement the RCRA hazardous waste program. State regulations, therefore, apply in authorized states in lieu of the federal regulations. Persons with questions about how the hazardous waste regulations apply to their operations should contact their implementing state agency or EPA regional office (in States not authorized for the RCRA program).

Thank you for your interest in the hazardous waste regulations. Should you have any questions regarding this response, please contact Greg Helms, at (703) 308- 8815 or helms.greg@epa.gov, or Jim O'Leary, at (703) 308-8827 or oleary.jim @epa.gov.

Sincerely,

Betsy Devlin, Director  
Materials Recovery and  
Waste Management Division

**FROM:** Paul W. Martin

**DATE:** 10/6/16

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