Practical Tips and Trends in RCRA Implementation

Solid & Hazardous Waste Management, Disposal, & Transportation

Workshop B



Meet Your Presenters



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Top Waste Violations

- Waste Identification
- 2. **Incorrect Generator Status**
- 3. Satellite Management & Waste Storage Area
- 4. Labeling Issues
- 5. Training
- 6. **Emergency Planning**
- 7. **Container Management**
- 8. **Return On Manifests/E-manifest**





Hazardous Waste Regulations Presented in Depth at Another Session in this Conference

RESOURCE CONSERVATION RECOVERY ACT

- Generation
- Treatment
- Storage
- Disposal
- Transportation
- Recycling
- Reclamation
- Import/Export



Complying With Hazardous Waste Regulations



Crystal Clean

7

Trihydro

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Waste Identification

- **STEP 1**: Determine that a material is a <u>waste</u>.
- **STEP 2:** Determine that the waste is a <u>solid waste</u> and is not excluded from the definitions of solid or hazardous waste.
- **STEP 3**: Determine if the waste is a <u>hazardous waste</u>.
- STEP 4: Determine if the waste is a listed hazardouswaste. Four lists:F listP List
 - K list U List
- STEP 5:Determine if the waste is a characteristichazardous waste:D List



Image retrieved from TNDEC:

https://www.tn.gov/environment/program-areas/solid-waste/hazardous-wastemanagement/hw-determination-matrix/access-flow-chart.html





Identifying Wastes at Your Facility

- Purchasing records and SDSs
 - Identify what is being purchased and be familiar with the chemical components and composition
- Facility walk-through
 - Observe discarded material
- Sampling and analysis of unknown waste streams
 - E.g., paint booth filters, oil/water sludge
- Review waste profiles for past shipped wastes





Keep Records

- Not just how you identified that a waste is hazardous but ALSO why a waste is not a hazardous waste.
- Proper shipping manifests.



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Know Your Generator Status!

- Large Quantity Generator (LQG)
 - >2,200 lbs./Month
 - >2.2 lbs./Month Acute Hazardous
- Small Quantity Generator (SQG)
 - 220 lbs. > per Month < 2,200 lbs.
 - 13,200 lbs. Maximum on Site
- Very SQG (VSQG)
 - < 220 lbs. per Month
 - < 2.2 Ibs. Acute Hazardous (P) Waste
 - 2,200 lbs. Maximum on Site









Hazardous Waste Generator Requirements

	LQG	SQG	VSQG
Waste Determination			
DOT Shipping Requirements			
On Site Storage	90 Days	180/270 Days < 13,200 Lbs Max	< 2,200 Lbs
Container/Tank Marking& Labeling			Not Required
Weekly Accumulation Area Inspections			Not Required
EPA ID Number			Optional
Formal Written Training Program		Not Required (Awareness)	Not Required
Contingency Plan		Not Required	Not Required
Bi-Annual Waste Report		Not Required	Not Required





Strategy to Reduce Waste Regulatory Burden

- Determine the goal examples
 - Get below the hazardous waste LQG threshold
 - Minimize generation of hazardous waste
 - Minimize landfilled waste
 - Become a SQG of hazardous waste with annual episodic month
- Identify the quantity or category of wastes that must change to achieve the goal and Identify potential solutions for each waste individually



Hypothetical Waste Table

Waste	P2 options	P2 options	Kg/mo	Total kg/mo
Purge solvent - bulk				
Aerosol cans				
Sealer applicators				
Rags for wiping, solvent soaked				
Solvent cleaning in cold cleaner				





- P2 is ALWAYS BEST
 - Reuse
 - Empty containers
 - Quality improvement to reduce off-spec material
 - Manage to avoid expired materials that must be disposed
 - Improve cleaning methods
 - Change chemistry
- Timing avoid monthly LQG threshold
 - SQG all year long
 - Episodic option





- Change the rules!
 - States are allowed to list universal wastes that are not on the federal list
 - Find out if any other state is excluding your waste by universal waste or other reclassification
 - Work with trade associations to present the case to your regulatory agency
 - Delisting process for your specific waste at your facility process is different in each U.S. EPA region and state
- Use Reclassification, Exclusions and Definitions to have your hazardous wastes regulated a different way



Managing Wastes to Avoid Hazardous Waste Classification

- Incentive: Large Quantity Generators have more requirements than Small Quantity Generators (100-1000 kg/month). Very Small Quantity Generators (< 100 kg/month) have very few requirements.
- Reduce regulatory requirements that apply to large quantity generators of hazardous waste including contingency plans, inspections, storage limits, training, etc.
- Potential less public visibility (reporting of hazardous waste vs. other)
- Impacts in other rules e.g., air pollution regulations for handling hazardous waste (BB, CC, incinerators, industrial boilers, etc.)



Solid Waste and Discarded Material

- 261.2 (a)
- (1) A solid waste is any discarded material that is not excluded under § 261.4(a) or that is not excluded by a variance granted under §§ 260.30 and 260.31 or that is not excluded by a non-waste determination under §§ 260.30 and 260.34.
- (2)
 - (i) A *discarded material* is any material which is:
 - (A) Abandoned, as explained in <u>paragraph (b)</u> of this section; or
 - (B) Recycled, as explained in <u>paragraph (c)</u> of this section; or
 - (C) Considered inherently waste-like, as explained in <u>paragraph (d)</u> of this section; or



Wastes That Are Not Solids Wastes

- Domestic sewage and industrial wastewater discharges that are point source discharges
- Secondary materials that are reclaimed and returned to the original process or processes in which they were generated where they are reused in the production process with provisions listed
- Oil-bearing hazardous secondary materials (*i.e.*, sludges, byproducts, or spent materials) that are generated at a petroleum refinery and are inserted into the petroleum refining process as listed in the rule
- Excluded scrap metal (processed scrap metal, unprocessed home scrap metal, and unprocessed prompt scrap metal) being recycled









Wastes That Are Not Solid Wastes 261.4

- Shredded circuit boards being recycled provided that they are free of mercury, ni-cd or lithium batteries
- Used cathode ray tubes (CRTs)
- Solvent-contaminated wipes that are sent for cleaning and reuse are not solid wastes from the point of generation







Solid Wastes That Are Not Hazardous Wastes

- Non-terne plated used oil filters, Puncturing, hot draining, etc.
- Samples
- Airbag waste.
- Used chlorofluorocarbon refrigerants from heat transfer equipment provided the refrigerant is reclaimed
- PCB containing ballasts 261.8















Solid Wastes That Are Not Hazardous Wastes 261.4

- The following solid wastes are not hazardous wastes:
 - Drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil, natural gas or geothermal energy.
 - Petroleum-contaminated media and debris that fail the test for the Toxicity Characteristic of § 261.24 (Hazardous Waste Codes D018 through D043 only) and are subject to the corrective action regulations under part 280 of this chapter.
 - Solvent-contaminated wipes, except for wipes that are hazardous waste due to the presence of trichloroethylene, that are sent for disposal are not hazardous wastes







Wastes That Are Excluded Wastes

- Used Oil 40 CFR 279
- POTWs, Injection wells, Ocean disposal 270.60
- Spent lead-acid batteries 266 Subpart G







Residues of Hazardous Waste in Empty Containers

- Hazardous waste remaining in either: an empty container; or an inner liner removed from an empty container, is not subject to regulation 261.7
- Manage the waste in the process to get them empty
 - The waste material is usually your raw material use as much as you possibly can
 - Tilt containers
 - Lids or Nitrogen gas to prevent oxidation or drying
 - Limit number of containers in use
 - Drain
 - Empty containers if possible, at the point of generation so the accumulation can be a hazardous waste satellite









SUBTITLE

Universal Wastes

- Hazardous wastes that can be classified as Universal waste do not count towards your hazardous waste generation pounds 40 CFR 273. States can add to the federal list.
 - Lamps, batteries, aerosol cans, pesticides, mercury-containing equipment.
 - State example Ohio paint wastes, antifreeze



Universal Wastes in State-specific Regulations

- Antifreeze
- Ballasts
- Totally enclosed, non leaking PCB ballast
- Barometers
- Cathode ray tubes
- Electronics
- Oil-based finishes
- Paint

- Thermostats
- Motor vehicle mercury switches;
- Electric lamps
- Anti-locking braking systems
- Gas flow regulators
- Hydrometers
- Blood pressure cuffs
- Hazardous waste pharmaceuticals





Materials That Are Not Solid Waste When Recycled

- 261.2 (e)(1)
- Used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed
- Used or reused as effective substitutes for commercial products
- Returned to the original process from which they are generated, without first being reclaimed or land disposed.



Materials That Are Not Solid Waste

- 261.4 (a)(8) Secondary materials that are reclaimed and returned to the original process or processes in which they were generated where they are reused in the production process provided:
- 261.4 (a) (23) (25) Hazardous secondary material generated and legitimately reclaimed







Many More Opportunities

- Elementary neutralization unit or wastewater treatment unit 264.1(g)(6), 265.1(c)(10)
- Used oil that is hazardous only due to a characteristic must be recycled 261.6 (a)(4)
- Industrial ethyl alcohol being reclaimed 261.6(a)(3)(i)
- Two long lists on next page and a resource document below:
- <u>Appendix A: RCRA Exclusions and Exemptions Federal Regulatory Universe (epa.gov)</u> a 2014 document



Waste Exclusions in 261.4 – More Than Shown Below

Wastes Excluded from Solid Waste Regulation

Wastes Which Are Not Solid Wastes	40 CFR Citation for the Exclusion
Domestic Sewage and Mixtures of Domestic Sewage	§261.4(a)(1)
Point Source Discharge	§261.4(a)(2)
Irrigation Return Flow	§261.4(a)(3)
Radioactive Waste	§261.4(a)(4)
In-Situ Mining	§261.4(a)(5)
Pulping Liquors	§261.4(a)(6)
Spent Sulfuric Acid	§261.4(a)(7)
Reclamation in Enclosed Tanks	§261.4(a)(8)
Spent Wood Preservatives	§261.4(a)(9)
Coke By-Product Wastes	§261.4(a)(10)
Splash Condenser Dross Residue	§261.4(a)(11)
Hazardous Secondary Materials From the Petroleum Refining Industry	§261.4(a)(12)
Excluded Scrap Metal	§261.4(a)(13)
Shredded Circuit Boards	§261.4(a)(14)
Pulping Condensates Derived from Kraft Mill Steam Strippers	§261.4(a)(15)
Spent materials generated within the primary mineral processing industry from which minerals, acids, cyanide, water, or other values	§261.4(a)(17)

Wastes Excluded from Hazardous Waste Regulation

Solid Wastes Which Are Not Hazardous Wastes	CFR Citation for the Exclusion
Household Hazardous Waste	§261.4(b)(1)
Agricultural Waste	§261.4(b)(2)
Mining Overburden	§261.4(b)(3)
Fossil Fuel Combustion Waste (Bevill)	§261.4(b)(4)
Oil, Gas, and Geothermal Wastes (Bentsen Amendment)	§261.4(b)(5)
Trivalent Chromium Wastes	§261.4(b)(6)
Mining and Mineral Processing Wastes (Bevill)	§261.4(b)(7)
Cement Kiln Dust (Bevill)	§261.4(b)(8)
Arsenical-Treated Wood	§261.4(b)(9)
Petroleum Contaminated Media & Debris from Underground Storage Tanks	§261.4(b)(10)
Injected Groundwater	§261.4(b)(11)
Spent Chloroflurocarbon Refrigerants	§261.4(b)(12)
Used Oil Filters	§261.4(b)(13)
Used Oil Distillation Bottoms	§261.4(b)(14)
Landfill Leachate or Gas Condensate Derived from Certain Listed Wastes	§261.4(b)(15)
Project XL Pilot Project Exclusions	§261.4(b)(17)
Project XL Pilot Project Exclusions	§261.4(b)(18)

Trade-Offs When You Reclassify Waste

- Space how many collection containers
- Confusion will workers put the waste in the correct container
- Complexity of managing episodic waste bump up to LQG
- May affect other processes e.g., VOC exempt solvents in paint not accepted by the recycler
- Hold time HW rule full drum starts the clock, Universal wastes and Excluded wipes first day waste is generated starts the clock
- Let your guard down perception that the other categories are unregulated or not subject to EPA inspections/fines
- Beware of sham recycling 40 CFR 261.2 (e) if its too good to be true...







This is Not a One-time Exercise

- Never stop brainstorming
- Ask EPA questions, use trade organizations or consultants if you need to remain anonymous.
- Contact your state organization that works with small and medium manufacturing to provide no/low-cost help with environmental, energy, lean manufacturing, etc. Dept. of Commerce, Dept. of Energy and others fund programs.



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Labeling and Storage Requirements

- Applies to all SQGs, LQGs, Transporters
- Label must indicate
 - The words "Hazardous Waste"
 - Identification of hazards NEW
 - Can use any of several established methods to indicate hazards (DOT, OSHA, NFPA, pictogram, RCRA characteristic...)
- All waste codes (prior to shipment) NEW
 - May use recognized electronic option (e.g., bar codes)
 - Exception for lab packs
 - Accumulation start date
- For vessels that can't be labeled (some tanks, drip pads, containment buildings, ...)
 - Info can be in records or logs kept near to location of the vessel







Satellite Accumulation Provisions

- New section: 40 CFR Specific clarification that hazardous wastes in Satellite Accumulation Areas (SAA) cannot be mixed or placed in a container with other incompatible hazardous wastes
- Containers in SAA are allowed to remain open under limited circumstances
 - When necessary for safe operations (limited exception)
- Clarifies that the three-day requirement to move containers from SAA to central accumulation area means three calendar days
- For acute hazardous waste, can consider max weight or volume
- Marking and labeling consistent with central accumulation areas



Satellite Accumulation Area (SAA)

INDICATE HAZARDS ON CONTAINER







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Notice bolt not tightened completely.



Drum ring is not properly secured. Notice drip lines on side of drum.



Non-DOT approved drum Hazardous Waste Label is covered with waste. Shipping labels must be completely visible and legible.







Dented drums must be considered for over-packing. If there is any doubt that the drum might leak, it must be over-packed.



Hole in the top of this drum. The lid must be replaced or the drum must be over-packed. Note the leakage across the lid.



Shrink-wrapped drums must have ALL labels completely visible through the shrink wrap.

A drum was placed on top of the flammable drums and it was not secured.







Waste labels do not match the DOT label. Lid was not secure.



Service drums are not DOT approved shipping containers.



Illegible hazardous waste label is here.







No bung in this drum.



Use fully-intact packaging. Wet or liquid material should never be placed in a fiber container unless there is secure inner packaging to prevent leaks.



This drum MUST be over-packed.





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Shipping - Comply with 49 CFR

- Determining whether a material meets the definition of a "hazardous material"
- Employee training
- Proper shipping name
- Class/division
- Identification number
- Hazard warning label
- Packaging

Training can be online

- Marking and labeling
- Shipping papers
- Certification
- Compatibility
- Blocking and bracing
- Placarding
- Security Plans
- Incident Reporting
- Emergency response information
- Emergency response telephone number



E-Manifests

- EPA launched e-Manifest tracking system on June 30, 2018
- National electronic manifest tracking system
- Receiving charged fees to cover cost to develop/operate (EPA updates fees every 2 years):
 - \$20 Scanned image & upload
 - \$13- Manifest data plus image upload
 - \$8 Electronic manifest (fully electronic & hybrid)
- Generators need to register for e-Manifest if they wish to sign manifests electronically, view records or submit corrections

As of June 30, 2021, EPA no longer accepts mailed paper manifests. Instead, receiving facilities must submit paper manifests as either a scanned image upload or data plus image upload.



The Hazardous Waste Electronic Manifest (e-Manifest) System





Flow on Manifests/E-Manifests

LQG must contact the transporter and/or destination facility if the final copy from the destination facility is not received within 35 days, that site to check the status of its shipment.

If the final, signed manifest does not arrive within 45 days, the generator must file an exemption report with the EPA.

SQGs who do not receive a final, signed copy within 60 days must file an exemption report.

Sites must keep each manifest for three years from the date that the initial transporter accepted the waste for shipment.





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Emergency Preparedness

- LQG Contingency Plans must have a "quick reference guide" with most critical information
- Contents of "quick reference guide"
 - Types and amounts of hazardous waste
 - Maps of site and surrounding area
 - Location of water supply
 - Identification of notification system (phones, PA, etc.)
 - Emergency contact(s)
- Who must submit
 - Any new LQG with their first Contingency Plan
 - Any existing LQG, at the first revision of the Contingency Plan following effective date of the regulation



Emergency Preparedness (cont)

- LQG Contingency Plan Emergency Coordinator information
 - No longer required to include certain personal contact information
 - Where 24/7 Emergency Coordinator is available on-site, may list the position(s) rather than employee names
- Clarifies where and what emergency equipment is required
 - Must address all areas where hazardous waste is generated and/or managed
- May use CBT/electronic training for personnel training
- Document that emergency arrangements have been attempted with local authorities
 - Not required to have something back from local authorities, just document that you attempted to make arrangements
 - Waiver option for facilities with on-site response capabilities





Final Thoughts

- Don't assume that just because a material doesn't look like a hazardous waste means that it isn't a hazardous waste.
- Be on the lookout for:
 - Virgin product storage areas.
 - Labs.
 - Returned products.
- Discontinued processes, unused portions of buildings.
- Document how you determined the identity of a waste.
- Don't fall into the trap of "it's an unused product, so it can't be a waste."

- Document legitimate use/reuse or recycling.
- Consider the possibility of sham recycling.
- Know your Generator Status and keep a close eye on wastes generated. Episodic events must be unique and discrete.
- Keep training up to date and keep records.





Questions



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Tim McDaniel is the Environmental, Health and Safety Manager at Navistar's Springfield Assembly Plant. In this capacity he manages all environmental, and sustainability issues. He has been with Navistar at the Springfield operations since 1989 and has worked in the EHS field for 38 years. Tim has worked to advocate smart changes in environmental regulations that provide manufacturing flexibility without compromising sound environmental principles.

Tim serves on the Clark County Solid Waste Management District Policy Committee and Local Emergency Planning Committee. He is the past chairman of the Truck Manufacturers' Association Environmental Management Committee and the Ohio Manufacturers' Association Environmental Committee and was a board member of the Great Lakes Regional Pollution Prevention Roundtable.

Tim received his master's degrees in environmental science and in biology from Indiana University and a bachelor's degree in environmental resources from Eastern Kentucky University.

Tim's favorite hobby is running and has two marathons planned for 2022 – Boston and Berlin.

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Mr. Sinha is a Chemical Engineer and Project Manager with over 30 years of experience in Environmental Consulting and Engineering. Mr. Sinha has provided a wide array of services to industry for compliance with various laws. For eight years, Mr. Sinha led a team of engineers, geologists, scientists, and administrative staff that provided environmental compliance, safety, and Industrial Hygiene services to commercial facilities and governmental clients. This includes projects conducted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); Resource Conservation and Recovery Act (RCRA); Superfund Amendments and Reauthorization Act (SARA); Bureau of Underground Storage Tank Regulations (BUSTR). Mr. Sinha has designed and implemented several systems for treating contaminated groundwater and industrial wastewater and assisted several clients in complying with provisions of the National Pollutant Discharge Elimination System (NPDES) under the Clean Water Act (CWA). He has coordinated his work activity with various disciplines and clients.

Mr. Sinha has also served as the Project Leader for research projects at the U.S. Environmental Protection Agency (USEPA) Test & Evaluation (T&E) Facility in Cincinnati, OH. He directs research related to providing safe drinking water with a particular emphasis on systems serving small communities without access to public drinking water systems. Other current projects include development of innovative retrofit devices for stormwater management and watershed management research. Mr. Sinha also develops and manages third-party commercial projects at the T&E Facility. Mr. Sinha has made numerous presentations in conferences as well as published papers in peer-reviewed journals.

Mr. Sinha holds a Bachelor of Technology in Chemical Engineering (Jadavpur University), Master of Science in Chemical Engineering (University of Southern California), and a Master of Business Administration (University of Cincinnati).

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Ms. Anita Decina is Heritage-Crystal Clean's Vice President of Operational, Safety, & Environmental Excellence. She is responsible for ensuring regulatory compliance, worker safety, and transportation compliance across our nation-wide network of branches, wastewater treatment plants, recycle centers, and solid waste processing facilities. She leads a talented team of environmental compliance, health and safety, and DOT safety compliance professionals. Her team has led the implementation of multiple safety and compliance programs resulting in increased compliance and improved environmental sustainability practices.

HCC provides full-service solvent and aqueous parts cleaning, containerized waste management, used oil collection and re-refining, vacuum truck services, wastewater treatment, and closed loop antifreeze recycling for its customers. HCC interacts not only within our own service operations but with multiple generators, transporters, receiving facilities, landfills, incinerators and a variety of other treatment and disposal facilities.

Ms. Decina is responsible for ensuring regulatory compliance, worker safety, and transportation compliance. Her team has led the implementation of multiple safety and compliance programs resulting in increased compliance and improved environmental sustainability practices.

Ms. Decina joined Crystal Clean in 2000 and has held several roles related to EHS and DOT compliance. She was part of a team that established Heritage-Crystal Clean's Environmental Solutions Partners Program and has worked with federal and state regulators to establish a positive, transparent working relationship.

Ms. Decina holds a Bachelor of Science in Business Administration from Central Michigan University.