



Hazardous Waste Determination Program Evaluation

Appendices

Promoting Environmental Results
←—————→
Through Evaluation

APPENDIX A: HAZARDOUS WASTE DETERMINATION NON-COMPLIANCE RATE BY SECTOR

Federal RCRA 262 Subpart A - Sector Non-Compliance Rates - The following table lists the 21 industries with the highest sector non-compliance rates, where non-compliance is calculated as follows: (number of EPA-conducted CEI's during which a RCRA 262 Subpart A violation was found/total number of EPA-conducted CEI's)				
Sector	NAICS Code	Total EPA Conducted CEI's	Total EPA Conducted CEI's w/Violations Found	Sector Non-Compliance Rate
Bare Printed Circuit Board Manufacturing	334412	91	42	46%
Copper Foundries (except Die-Casting)	331525	35	11	31%
General Medical and Surgical Hospitals	62211	193	57	30%
Colleges, Universities, and Professional Schools	61131	457	132	29%
Fabricated Structural Metal Manufacturing	332312	39	11	28%
Paint and Coating Manufacturing	32551	192	52	27%
Electroplating, Plating, Polishing, Anodizing, and Coloring	332813	531	142	27%
Wood Preservation	321114	167	42	25%
Iron Foundries	331511	57	14	25%
All Other Miscellaneous Manufacturing	339999	78	18	23%
Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	332812	183	39	21%
All Other Plastics Product Manufacturing	326199	100	20	20%
Automotive Body, Paint, and Interior Repair and Maintenance	811121	66	13	20%
Pharmaceutical Preparation Manufacturing"	325412	169	32	19%

Federal RCRA 262 Subpart A - Sector Non-Compliance Rates - The following table lists the 21 industries with the highest sector non-compliance rates, where non-compliance is calculated as follows: (number of EPA-conducted CEI's during which a RCRA 262 Subpart A violation was found/total number of EPA-conducted CEI's)				
Sector	NAICS Code	Total EPA Conducted CEI's	Total EPA Conducted CEI's w/Violations Found	Sector Non-Compliance Rate
Plastics Material and Resin Manufacturing	325211	189	28	15%
Petroleum Refineries	32411	112	15	13%
Research and Development in the Physical, Engineering, and Life Sciences	54171	236	31	13%
All Other Basic Inorganic Chemical Manufacturing	325188	160	20	13%
Printing	32311	189	23	12%
All Other Miscellaneous Chemical Product and Preparation Manufacturing	325998	164	18	11%
All Other Basic Organic Chemical Manufacturing	325199	240	26	11%

APPENDIX B: THEME PREVALENCE

Theme Prevalence in Interviews, Discussions, and the Federal Facility Survey					
Theme	Response Index	Data Sources Rated 3	Data Sources Rated 2	Data Sources Rated 1	Percentage of Data Sources Rated
Generators have difficulty making waste determinations for listed wastes	49	13	4	9	77%
Reliance upon third parties (vendors, suppliers, disposers) for information used to make determinations can result in generator determination violations	44	9	6	11	77%
Lack of training/staff turnover	43	6	11	9	77%
Industry specific guidance/outreach would be most helpful.	41	9	7	6	64%
Lack of consistency of the regulations and	39	6	8	11	73%

Theme Prevalence in Interviews, Discussions, and the Federal Facility Survey					
Theme	Response Index	Data Sources Rated 3	Data Sources Rated 2	Data Sources Rated 1	Percentage of Data Sources Rated
how to interpret them at the different levels of government is confusing to generators, leading to hazardous waste determination violations (Fed., State, County)					
Hazardous waste determination regulations are generally confusing and difficult to follow (e.g. narrative interpretations, references to previous sections)	38	7	4	14	73%
There is a need for more interpretation/guidance/definitive answers from EPA	37	9	3	8	60%
Generators struggle with understanding the hazardous waste recycling regulations	34	7	6	7	57%
Generators are often unaware that they are generating a hazardous waste at all and therefore subject to RCRA	30	6	6	6	51%
Cost constraints can lead to hazardous waste determination violations	29	3	4	14	63%
The size and/or sophistication of a firm plays a role in its ability to make accurate determinations	28	4	3	11	56%
Reduced funding at the federal, state, and county level has eliminated many generator outreach and training programs	23	4	1	10	46%
Generators are not concerned with hazardous waste determination unless they are fined for non-compliance	23	4	4	3	36%
Generators have difficulty making waste determinations for characteristic wastes	22	0	8	9	50%
Hazardous waste generators often mischaracterize peripheral waste	19	3	2	7	37%
Generators often use the MSDS for waste determinations but fail to account for materials that have been mixed or altered	18	2	1	11	43%

Theme Prevalence in Interviews, Discussions, and the Federal Facility Survey					
Theme	Response Index	Data Sources Rated 3	Data Sources Rated 2	Data Sources Rated 1	Percentage of Data Sources Rated
during the production process					
RCRA does not keep up with changes to products and/or technology	18	3	3	3	30%
Generators do not have procedures in place to ensure proper waste determination	16	0	7	4	33%
Generators are often confused about the rules/interpretations with regard to empty containers	15	1	2	9	37%
Generators have difficulty knowing when to make a waste determination during the production process	15	2	2	6	31%
A lack of presence by regulating entities dissuades generators from being attentive to waste determinations	14	0	2	11	40%
Generators have difficulty characterizing materials that are subject to different regulations by multiple entities (EPA, DOT, FDA)	14	1	1	10	36%
Generators do not understand when a waste should be analyzed for the determination vs. when process knowledge is sufficient.	14	1	3	6	30%
Generators are too busy/overwhelmed to keep up with compliance requirements	14	4	0	2	20%
Generators inappropriately apply RCRA exclusions/exemptions	13	1	1	9	33%
Generators have difficulty understanding and/or applying the analytical results of sampled waste streams	12	2	1	4	23%
Generators don't understand how to apply the "derived from" rule	7	0	1	6	20%
Generators don't understand how to apply the "mixtures" rule	6	0	1	4	16%
Facilities that fluctuate between	6	1	1	1	9%

Theme Prevalence in Interviews, Discussions, and the Federal Facility Survey					
Theme	Response Index	Data Sources Rated 3	Data Sources Rated 2	Data Sources Rated 1	Percentage of Data Sources Rated
generator statuses have difficulty with waste determination compliance					
Regulators lack the expertise needed to make effective interpretations of hazardous waste determination regulations	3	1	0	0	3%

APPENDIX C: STAKEHOLDER RECOMMENDATIONS, ORGANIZED BY RECOMMENDATION TYPE

Stakeholder Category	Recommendation Type: Provide/improve/increase guidance for making hazardous waste determinations
	Recommendation
State Regulator	Provide more technical support to generators.
State Regulator	Targeted training with follow up (inspections) to measure effectiveness.
State Regulator	Provide cheat sheets to help regulators.
State Regulator	Develop hazardous waste review docs to explain to generators the scope and application of individual listings.
State Regulator	Require transporter and consultant training and certification.
State Regulator	Develop more user- friendly website for generators to get help making determinations.
State Regulator	Have universities provide training/curriculum in hazardous waste determination.
Assistance Provider	Create a checklist that says" if you're doing x, you most likely have this waste."
Assistance Provider	Directory that lists standard wastes for each sector.
Assistance Provider	Industry guide to characterization.
Assistance Provider	For each sector, spell out the top ten things they can do to reduce waste.
Assistance Provider	Make the info on RCRC Online easier to find.
State Agency	Have outreach and training programs with a certification system to

Stakeholder Category	Recommendation Type: Provide/improve/increase guidance for making hazardous waste determinations
	Recommendation
Representative	ensure that businesses attend.
State Agency Representative	More training and outreach.
State Agency Representative	More face to face technical assistance and training.
State Agency Representative	Face to face outreach and training with both generators and inspectors.
Waste Services Provider	Reinstate RCRA Hotline.
Waste Services Provider	Publicly available waste determination trainings similar to those given by McCoy.
Waste Services Provider	Focus more on improving compliance and provide substantive and feedback and guidance.
Waste Services Provider	Provide more general and simple guidance and make it easy to find online. Make it sector specific and write it in language the lay person can understand.
Waste Services Provider	Create an online wizard that a generator could walk through. Have it ask you questions and based upon answers provide determination guidance.
Waste Services Provider	Create a list of primary sectors and then a tree of questions for specific sectors.
Industry Representative	More educational visits.
Industry Representative	When a business is registered, provide a fact sheet that says "these are what your typical waste streams will be."
Industry Representative	Alert generators to what may be hazardous.
County Regulator	It would be really helpful if EPA took more of its guidance out of the case specific guidance and discussed the general application for guidance.
HW Generator	Reinstate RCRA Hotline.
HW Generator	Enable the hazardous waste training that's required to fulfill the Hazmat training requirement for DOT.
HW Generator	Provide more outreach and make the regulations user friendly.
Industry Representative	More opportunities for training webinars specific to industry.
Industry Representative	Reinstate RCRA Hotline.

Stakeholder Category	Recommendation Type: Provide/improve/increase guidance for making hazardous waste determinations
	Recommendation
Industry Representative	Locate all guidance materials in one, easy to access locations.
Industry Representative	We encourage EPA to develop testing guidance and propose this guidance for public comment.
Industry Representative	We also strongly encourage EPA to reinstate the RCRA hotline.
Industry Representative	Put all FR, background documents, etc., that deal with RCRA on the web, back to the beginning.
Industry Representative	Provide more education and guidance materials to new businesses.
Industry Representative	Host an industry/EPA advanced waste seminar that addresses these and other issues.
Industry Representative	Provide industry specific training courses.
Federal Representative	Make outreach/guidance sector specific.
Industry Representative	Provide relief and regulatory guidance for retailers which participate in household hazardous waste collection programs.
Industry Representative	Reinstate RCRA Hotline.
Industry Representative	Create more reliable documents so they don't have to continually argue over the same interpretations.
Industry Representative	Require training for people who make hazardous waste determinations.
Federal Facility Representative	Issue guidance straight-forward guidance on how to handle common things (i.e. aerosol cans, batteries, solvent wipes, etc.). Existing guidance on these common wastes is vague and no helpful at all.
Federal Facility Representative	Provide a training roadshow where the EPA comes to certain areas and provides training in a classroom setting.
Federal Facility Representative	In rural America such as Native American lands, the webinar is not always available. On-site technical assistance would be the most beneficial.
Federal Facility Representative	Develop free user friendly hazardous waste management software for generators.
Federal Facility Representative	Provide a newsletter with helpful tips and hints to make hazardous waste determinations.
Federal Facility Representative	Back when EPA ran the 1-800 hotline to answer questions, I used it pretty often. That was a good thing. Those old answers are posted on an EPA web site but it is almost impossible to find the site.
Federal Facility	Make your website easier to use.

Stakeholder Category	Recommendation Type: Provide/improve/increase guidance for making hazardous waste determinations
	Recommendation
Representative	
Federal Facility Representative	Have the states be more involved with assisting the generators as opposed to just inspecting them for compliance.
HW Generator	Translate regulations into other languages.

Stakeholder Category	Recommendation Type: Other
	Recommendation
State Regulator	Require TSDFs to better focus on proper waste determinations.
Assistance Provider	Provide economic incentive for businesses to implement changes, currently only negative incentives exist (fines).
State Agency Representative	Somehow tie training to a financial incentive.
Waste Services Provider	EPA should do the determinations.
Industry Representative	Be more transparent with how the rules are developed.
Industry Representative	EPA has made a mistake by having small business assistance program in purchasing.
Industry Representative	EPA should request state input prior to making a new clarification/interpretation about hazardous waste.
County Regulator	The land ban rule, it is extra work and I'm not sure of the benefit. It's outdated, it's run its course, there was a reason - so people know what can't go into the landfills. We have a separate set of manifests, initially there was a reason for it; we've outlived it.
HW Generator	Maybe the way EPA should be looking at it is not addressing HW determination compliance directly, but indirectly through improving the regulations that apply to training or improving the regs that apply to notification requirements and then get at the HW determination that way.

Stakeholder Category	Recommendation Type: Other
	Recommendation
State Regulator	Create an alternate method for calculating generator status, perhaps a rolling 12 month average.
Industry Representative	Revise regulations to state that if a non-primary product material (e.g., spent material, by-product, listed waste, etc.) is used as is or is reclaimed such that the recovered component is used within the same site, within the same company, or within another site or industry (third party), it is not waste, and not subject to any 260-270 requirements. If the material is diverted to disposal, only then is it subject to 260-270 standards, if it is a hazardous waste.
Industry Representative	If a potential hazardous waste is exempt due to its management, use, recycle, etc., then any further RCRA management conditions should be removed. Once a material is exempt, then the only RCRA requirement should be disposal under RCRA if the material is not reused or recycled for some reason. Notification that the once disposed material is now recycled may be appropriate in some cases, however, RCRA requirements for the management of the material in the use or recycle mode is not.
Industry Representative	Increase my budget - more coverage - or more grant \$ for the states.
Federal Regulator	Enforcement alert s - do compliance alerts about common problems - e.g., full analysis on used oil, bulbs, common errors might pick up a lot of non-compliance - folks operating around the margins - maybe the folks who have out of date chemicals - discrete number of routine violations - failure to recognize.
Federal Regulator	Require generators to do a mass balance of everything that leaves their property and put it online to assist in targeting.
Federal Regulator	Regulation changes - issue of recordkeeping - keep records even if you determine it's not hazardous waste - 262.40 requirements - affirmative obligation to record the basis for a determination, even if operator knowledge - have that retained or, less ideal, Biannual Report that large quantity generators submit (BRS) - currently have to keep a record if you have.
Industry Representative	We find the state (New York) often has incorrect or debatable interpretations of regulations and too much is left up to the individual inspector.
Federal Facility Representative	Refer to 40CFR112 for how a regulation should be written.
Federal Facility Representative	List of qualified and certified analysis labs by state.

Stakeholder Category	Recommendation Type: Other
	Recommendation
Federal Facility Representative	It is absurd to say to us, you must test your own lamps to see if they are HW. Everyone uses the only lamps available. Just simply say that lamps are or are not a HW. Same goes for other waste. Tis much better to simply say it is hazardous vs. you must test your waste.
Federal Facility Representative	Because the environment is becoming a bigger and larger part of the world's focus, maybe the EPA should consider having an "EPA Consultation" Branch/Division in the same manner as the "OSHA Consultation" Branch.
Federal Facility Representative	Require delegated program States to make determinations & provide a responsive answer (not just respond saying that they are working on it), in writing, within 15 calendar days of an information request related to RCRA waste determinations.
Federal Facility Representative	Provide electronic copies of all forms, State and Federal.
Federal Facility Representative	Users are afraid to involve regulators.
Federal Facility Representative	Provide data where other facilities have failed to meet the expectations of HW determinations. Include references and finding discussions.
Federal Facility Representative	Provide competent State regulators.
Federal Facility Representative	DO NOT OVER REGULATE!
Federal Facility Representative	Make sure that hotline person has a broad range of knowledge.

Stakeholder Category	Recommendation Type: Simplify the regulations in general
	Recommendation
State Regulator	Simple - plain English regulations.
Assistance Provider	Re-write the regulations and make them simpler.
Waste Services Provider	Revise archaic regulations.
Industry Representative	Simplify regulations - give waste classifications by NAICS code.

Stakeholder Category	Recommendation Type: Simplify the regulations in general
	Recommendation
Industry Representative	Simplify and streamline the regulations.
HW Generator	The archaic parts of RCRA rules need to be reviewed. Some of them are derived from a rule that has no place as a regulation, like the listings we've talked about. Simplicity is a much better answer. You would get a lot better compliance.
County Regulator	Regulate waste determination of materials independent of their use (i.e. product vs. waste).
HW Generator	Beneficial reuse should be encouraged, but don't make it too complicated because it becomes a RCRA2 and people have two sets of regulations to memorize.
HW Generator	Make the regulations more linear - in terms of how they are written.
HW Generator	Base how waste is treated on where it is going. If going to a cement kiln, treat this way. Group wastes by the analysis they need.
Industry Representative	The whole hierarchy needs to change, not just determination. Start with what is a waste, take a flow chart type approach; is it a waste or not a waste. Although that seems very simple, that's been very convoluted. Then you move into the determination of is it a hazardous waste or a non-hazardous waste. Then you have probably ten areas of things that are technically hazardous waste but if you do work with them they're not hazardous. All of that needs to be clarified and streamlined.
Industry Representative	Streamline the regulations.
Federal Representative	Put regulations into plain English.
Industry Representative	Re-write regulations, making them less vague.
Federal Facility Representative	Simplify regulatory determination requirements. There are far too many intricacies in determining whether a solid waste is a hazardous waste, many of which have no bearing on whether they are potentially harmful to the environment if improperly disposed.
Federal Facility Representative	Just simplify the categories for the hazardous waste determination. I feel the TSD's have the upper hand in the process, whereby allowing the price of disposal to remain unchecked because of availability to a small number of local TSDS. As a chemist responsible for these determinations at the largest research arm of the USDA, I am very knowledgeable about the waste streams, but the end processing of those waste streams would be more effective if we used a system that did not try to out categorize the DOT's HMIS or GHS - clearly, the products at the end will burn, corrode, are toxic etc. and the 120+ hours of training I need to accomplish each year for emergency response, hazmat shipment, and hazmat characterization should be

Stakeholder Category	Recommendation Type: Simplify the regulations in general
	Recommendation
	streamlined so we do not wind up with the typical governmental alphabet soup on the manifests and declarations. Also, you might want to consider how IATA assembles their info for international shipping of dangerous goods; they do a very fine job of consolidating the information into a legible form which would decrease the hurdle all newbies into this field have to cross or the barriers companies, including the Feds, have to cross to convince management types the regulations are necessary and the funding needed to achieve program compliance.
Federal Facility Representative	The regulations just have to be simpler. Do away with listings and make everything based on characteristics.

Stakeholder Category	Recommendation Type: Define and clearly interpret specific sections of the regulations
	Recommendation
State Agency Representative	Hire an entity to create industry specific interpretation of hazardous waste determination regulations.
Waste Services Provider	Provide more interpretation of the regulations.
Waste Services Provider	"At the end of the day, someone needs to answer the difficult question of 'are these regulations focusing on the right thing.'"
Waste Services Provider	EPA should offer answers to specific questions about waste determination.
Waste Services Provider	Clarify "generator knowledge."
County Regulator	EPA should revise the definition of reactivity based on information that is widely available or generally held by generators. We need a definitive test for reactivity.
Industry Representative	Clarify the closed loop exemption.
Industry Representative	More clarity on electronics products. There is no consistent guidance about these at the Fed/state level.
Federal Regulator	Provide clear, reliable answers to generators so they wouldn't have so many questions.
Assistance Provider	Clarify the term "knowledge" with regard to process knowledge.
Industry Representative	Provide definitive ruling on the regulatory requirements to donate or

Stakeholder Category	Recommendation Type: Define and clearly interpret specific sections of the regulations
	Recommendation
	salvage potentially regulated consumer products.
Federal Facility Representative	Do not give cryptic answers. Be straight forward. Be more specific about the definition of process change; to what micro level is determined to be "de minis" and what constitutes a real process change.
Federal Facility Representative	Definition of "point of generation" is required in the regulations.
Federal Facility Representative	Clarify definition of D003 and identify criteria that can also be tested analytically.
Federal Facility Representative	Improve clarity of underlying constituent regulations.

Stakeholder Category	Recommendation Type: Address situations where applying the regulations is not practical
	Recommendation
Waste Services Provider	Simplify waste streams for Pharmaceuticals and other industries
Industry Representative	EPA should take themselves out of the industrial manufacturing setting think about what it takes to implement these regulations in a hospital setting and determine if it is really necessary at certain levels.
Industry Representative	Find a way to make more prompt decisions with regard to issues facing hospitals (e.g. P listed hazardous waste containers counting towards the generator status of a hospital).
Industry Representative	Finalize the proposed universal waste rule for pharmaceuticals.
Waste Services Provider	Address issues with the pharmaceutical industry.
Industry Representative	Consumer products exemptions.
Industry Representative	Expansion of Universal Waste rules to cover consumer products.
Industry Representative	Expansion of Universal Waste Rules to cover pharmaceuticals.
Industry Representative	Provide consumer product relief under the Universal Waste rules allowing consumer products to be characterized generally as Universal Waste limiting the resource intensive product level hazard characteristic review.

Stakeholder Category	Recommendation Type: Address situations where applying the regulations is not practical
	Recommendation
Industry Representative	Provide consumer product relief under the Universal Waste rules allowing consumer product waste determinations to be made at a consolidation or returns processing facility or provide a specific ruling on when waste determination must be made in the retail returns process.
Federal Facility Representative	RCRA regulations are strongly biased by an underlying assumption that wastes are generated by continuous industrial processes. However, most of our wastes are one-time generation events and contaminated media, which must be sampled and analyzed. The time required to sample and analyze the waste, develop a waste profile, make disposal arrangements, and schedule the waste pickup, makes it very difficult to meet the 90-day accumulation time limitation. EPA needs to address accumulation time and other requirements for wastes that must be individually assessed and which require variable treatment and disposal arrangements.
Federal Facility Representative	Pharmaceutical waste is very confusing and more guidance is needed for hospitals, etc.
Federal Facility Representative	Make pharmaceuticals universal waste.
Federal Facility Representative	Deal with consumer products as a single category of hazardous waste, not as each of the separate categories that comprise consumer products (i.e. electronics, pharmaceuticals, etc...).

Stakeholder Category	Recommendation Type: Increase collaboration with the regulated industries
	Recommendation
Industry Representative	EPA staff should learn about an industry before they try and regulate it.
Industry Representative	More open communication with industry and folks trying to make determinations.
Industry Representative	Work more closely with trade associations.
Industry Representative	Work more closely with industry to develop guidance documents.
Industry Representative	EPA should learn about the practical challenges faced by industries when trying to apply these regulations.

Stakeholder Category	Recommendation Type: Increase collaboration with the regulated industries
	Recommendation
Federal Regulator	To what extent are we getting to trade shows - as soon as we get a travel budget we want to do that again.
Assistance Provider	Work more with industry associations.
State Agency Representative	Work with trade associations to create and disseminate hazardous waste determination information.
Federal Facility Representative	Be less confrontational and more cooperative with the regulated industries.
Federal Facility Representative	EPA needs to use utilize the expertise of Pharmacologists who hold PharmD. degrees when issuing guidance to hospitals on how to characterize pharmaceuticals.

Stakeholder Category	Recommendation Type: Specific waste stream issues
	Recommendation
Assistance Provider	Make aerosol cans universal waste.
HW Generator	Acetone - On one hand the air rules are encouraging because it's not an ozone creating chemical and on the other hand the waste rules are disincentivizing because it's a listed waste only because of ignitability.
Industry Representative	For empty P listed pharmacy pill containers, count only the weight of the residue in the container towards the amount of P listed waste, don't include the weight of the container.
Industry Representative	Products that have been reverse distributed (returned to a retail facility) should not be considered waste until the retailer has had time to make the proper decisions about whether that product can be reused, donated, etc...
Industry Representative	Remove regulatory burdens for recycling aerosol cans.
Industry Representative	Add materials to the list of Universal Wastes <ul style="list-style-type: none"> o Aerosol cans o Un-used medicines
Federal Facility Representative	Ban the sales of tetrachloroethylene and other F001 & 2 listed solvents. OR make actual concentrations of chemicals be what is used for determinations. When the regulations state that contamination of any level makes it hazardous waste, then that is not even consistent with the treatment standards.

Stakeholder Category	Recommendation Type: Specific waste stream issues
	Recommendation
Federal Facility Representative	Specific to non-CRT electron tubes - telling me its regulated if it contains TCLP metals at regulated levels isn't helpful for a manufactured article that may or may not be testable - especially when there are over 12,000 different types ranging in size from ounces to hundreds of pounds with varying construction from mostly glass to mostly metal.
Federal Facility Representative	Reduce the UHC assessment burden.

Stakeholder Category	Recommendation Type: Revisit listed wastes
	Recommendation
State Regulator	Change the F006 listing to what processes were included in the listing, not just those that were excluded.
State Regulator	Develop an alternative hazardous waste identification method for listed hazardous waste based on toxic constituent concentration.
County Regulator	Revisit F listed wastes.
County Regulator	There should be a way out of "once listed, always listed."
HW Generator	I'd like to see more clarity around listed waste. Specifically with regard what's in and what's out. Maybe some of the listings don't need to be there. If the hazardous constituents aren't present then maybe we shouldn't have to list the waste.
Industry Representative	Eliminate outdated and unnecessary hazardous waste listings. If hazardous wastes were determined solely on objective analytical criteria, most problems could be avoided. In addition, regulations should clearly exclude all materials that are not discarded or abandoned in line with the 2008 DSW rule.
State Agency Representative	Refine what wastes meet the definition of hazardous waste - specifically look at the listed wastes.
Federal Facility Representative	P listed waste is very confusing to us. Especially since there are also poisons that are just as toxic or more so that are not considered P listed waste. Could similar regulations be devised that are based on the measured toxicity rather than a list of chemicals that are P listed?

Stakeholder Category	Recommendation Type: Improve consistency between regulating agencies as well as the regulations themselves
	Recommendation
HW Generator	In MN the 6.1 definition should be identical for lethality - evaluate LD50s and LC50s, wish we didn't have anyway.
HW Generator	Can't overstate the consistency issue. I can't understand why EPA allows states to have their own regulations. A national program that ensures consistency for everyone would be very helpful.
HW Generator	Consistency with the satellite issue.
State Regulator	Aware of that difficulty and emphasize all the time. Fire dept. says one thing and allows material to be thrown away but RCRA says differently. Ex: Evaporation of solvent on rags. Could be F-listed solvent. Outreach on every level. Talking with fire dept.
Industry Representative	Come up with standard methods for sampling so that generators and EPA follow the same protocol for collecting a representative sample.
Federal Facility Representative	Ease up designating by waste streams and go more towards profiles. Standardization between States, our workers work in several States have their own State regulations, besides Federal regulations. Really confuses our workers from what California, Washington, Virginia, Hawaii, Florida or New Hampshire state regulations require. Not to mention when they work in Japan or Guam.
Federal Facility Representative	Have the EPA or my state's (CA) hazardous waste determinations become the same.
Federal Facility Representative	If a federal Facility generates a federal HW, remove the requirement to additionally determine if it is ALSO a State-only waste. Wastes that are not Federal would still need to be screened for State-only criteria. In other words, if we are handling a waste as federal HW, it is most likely being properly transported, treated and disposed of. Why subject us the bother and expense of State designation as well.

Stakeholder Category	Recommendation Type: Address unregulated waste streams known to be harmful to the environment
	Recommendation
Waste Services Provider	Actively managed listed wastes. Renewed interest in adding chemicals to the listed wastes.

Stakeholder Category	Recommendation Type: Address unregulated waste streams known to be harmful to the environment
	Recommendation
Waste Services Provider	Address issues with nanoparticles.
County Regulator	EPA should be nimble enough to handle wastes that are likely to damage the environment but are not covered under Fed. Haz. waste laws. EPA should take the lead on emerging wastes.
County Regulator	EPA should capture more new chemicals, update list of hazardous wastes, and change the things that don't need to be there.
Industry Representative	Come up with a way to deal with all the other drugs that are not regulated under RCRA.

Stakeholder Category	Recommendation Type: Increase enforcement
	Recommendation
Federal Facility Representative	Audit our facilities & enforce non-compliance occasionally - management doesn't recognize non-compliance as a problem!
Federal Facility Representative	Most federal facilities, or at least the M&O contractors, already understand and know how to properly characterize waste (the process/rules haven't changed very much for many years). Lack of enforcement by EPA allows facilities to become lax. State agencies use enforcement as a political tool but don't have the expertise to properly enforce. Improved EPA oversight of the States would also help.
State Agency Representative	Make sure to follow up with enforcement after any outreach/assistance efforts.
Industry Representative	Create a penalty for incorrect determinations to prevent "over-coding."
Waste Services Provider	More regular/routine enforcement.

Stakeholder Category	Recommendation Type: Require manufacturers to provide more product information to generators via the MSDS or other means
	Recommendation
Industry Representative	Require manufacturers to provide end of life disposal information.

Stakeholder Category	Recommendation Type: Require manufacturers to provide more product information to generators via the MSDS or other means
	Recommendation
Federal Facility Representative	Require manufacturers to place the appropriate RCRA waste codes on MSDSs. Some companies already do this and it is a great aid in making process waste determinations. 50% of the waste leaving this facility could be more easily designated if the manufacturer placed the codes on the MSDS.
Assistance Provider	Revise the MSDS and make generic to industry.
Federal Facility Representative	Most federal waste streams are from products that can no longer be used it would be helpful if Waste information would be required to be included on the MSDS including shipping names, and waste codes.

APPENDIX D: INTERVIEW GUIDE FOR INDUSTRY/TRADE ASSOCIATION REPRESENTATIVES

1. Tell us a little about your organization (what percentage of the industry your organization represents, and if there are different types of companies represented within your membership).
2. Tell us a little about the characteristics of your members (size, years in operation, profitability, generator status, etc...)
 - a. Do you have a sense of the characteristics of companies in your sector who are not members?
3. Do the members of your association come to you for guidance about hazardous waste determination?
4. What are the most common challenges or points of confusion that your members have with making hazardous waste determinations?
 - a. Are there particular types of wastes, processes, or sections of the regulations that are particularly problematic?
 - b. Within your association, are there certain types of companies which have a more difficult time with making determinations (e.g. smaller businesses, those that are new to the industry, etc...)?
5. Does your organization provide members with assistance for making hazardous waste determinations (e.g. training, programs, helpline, education materials, etc.)?
 - a. What kinds of information do you think members most need?

6. Are you aware of any assistance programs (state, federal, etc...) that are particularly helpful for businesses in your industry when making hazardous waste determinations?
 - a. Do you know of any programs that were helpful but are no longer offered?
7. Are there states in which making accurate hazardous waste determinations is a greater challenge for your members?
8. Do many of your members utilize waste services vendors for making hazardous waste determinations?
 - a. Do you think waste services vendors typically provide good information on hazardous waste determination?
 - b. Have any of your members reported difficulties (e.g., incorrect determinations, over classification of waste as hazardous, etc.)?
9. What changes would you recommend EPA make to increase compliance with its hazardous waste determination regulations?

APPENDIX E: INTERVIEW GUIDE FOR HAZARDOUS WASTE SERVICE PROVIDERS

1. Tell us a little about your business (e.g. size of the firm, when you began operations, areas of focus, etc...).
2. Tell us a little about your clients (e.g. sectors, size, generator status, etc...).
3. Prior to enlisting your service, do your clients typically have difficulty making hazardous waste determinations?
 - a. Is your ability to make determinations for them something that you market?
4. Which industries/products/processes present the greatest challenge when making a determination?
 - a. Do these challenges drive clients to use your business?
 - b. What other challenges drive clients to use your service?
5. When training employees, what resources do you use to ensure that they are knowledgeable about hazardous waste determination regulations?
 - a. Do you encounter situations where it is unclear whether a waste should be treated as hazardous? If so, what resources do you find helpful to properly characterize these wastes?
6. Are there specific challenges that you face making hazardous waste determinations as a third party?
 - a. Are there circumstances where these challenges could lead one to over/under characterize waste as hazardous?

7. Do you have a sense of which states have the most stringent hazardous waste determination regulations?
8. Which states have the most active RCRA enforcement programs? Assistance programs?
9. Are you aware of any assistance programs (state, federal, etc...) that are particularly helpful for making hazardous waste determinations?
 - b. Do you know of any that were helpful but are no longer offered?
10. What changes would you recommend EPA make to increase hazardous waste determination compliance?
11. Have you conducted any studies which demonstrate how your company improves hazardous waste determination compliance for your clients?

APPENDIX F: DISCUSSION QUESTIONS FOR HAZARDOUS WASTE GENERATORS (DISCUSSIONS HELD AS PART OF CASE STUDIES)

1. To what extent do businesses like yours struggle to comply with hazardous waste evaluation rules?
2. What parts of waste evaluation are most challenging?
3. How do you determine which wastes to evaluate?
4. What factors lead businesses like yours to sometimes make incorrect waste evaluations?

For example, some factors might include not enough information or confusion about the rules, not enough time, not enough resources or management attention, cost of conducting tests, lack of staff experience or expertise, incorrect guidance from suppliers or shippers, rapidly changing production processes, etc.

5. Are there certain types of waste or processes that are particularly hard to evaluate? Why?
6. Have there been any changes in recent years that have made it harder or easier for businesses like yours correctly evaluate wastes?
7. What sources of information does your business rely on for waste evaluations (e.g., vendors, contractors, suppliers, assistance providers, trade associations, the state, EPA, etc.)? How helpful is the information they provide? What information or assistance do you lack?
8. How often do you rely on testing to evaluate waste?
9. If you had the opportunity, what would be the one thing you want EPA or the state to do differently to help you evaluate waste?

APPENDIX G: DISCUSSION QUESTIONS FOR EPA REGIONAL COMPLIANCE ASSISTANCE COORDINATORS

1. Please describe how the EPA regional compliance assistance coordinators interact with the following groups;
 - State regulating agencies
 - Generators in their region
2. What type of hazardous waste determination assistance do you provide (e.g. written assistance, such as newsletters, regulatory updates, etc...)?
3. What aspects of the regulations seem to be most challenging for regulated entities?
4. Are there particular sections of 40 CFR. 262.11 that generators have difficulty interpreting?
5. In your experience, what are the most important factors leading to non-compliance with hazardous waste determination regulations?
6. What changes would you recommend EPA make to increase hazardous waste determination compliance?

APPENDIX H: DISCUSSION QUESTIONS FOR SMALL BUSINESS ASSISTANCE PROVIDERS

1. Do you believe that hazardous waste determinations are one of the most common sources violations for small businesses¹?
2. Why do you think small businesses have a difficult time complying with hazardous waste determination regulations?
3. At what point in the hazardous waste determination process are small businesses likely to make decisions which lead to non-compliance? For example,
 - When characterizing the waste? (i.e., is it a solid waste? / is it a hazardous waste?)
 - When determining whether that waste is eligible for a RCRA exclusion? (i.e., Is it a product to be re-used or a hazardous waste?)
4. Are there particular industries where small businesses are common, that have more difficulty complying with hazardous waste determination regulations? What special challenges do they face?
5. Aside from industry type, are there other common characteristics of small businesses that struggle with hazardous waste determination?

¹ We assume that small businesses are typically small quantity generators (SQGs) or conditionally exempt small quantity generators (CESQGs). If you do not think this assumption is accurate, please let us know.

6. To what extent do small businesses in your state rely upon assistance providers, consultants, trade associations, or others to make hazardous waste determinations?
 - a. Do you feel they are effective at increasing compliance?
7. Are you aware of any state programs which you believe are especially effective at increasing hazardous waste determination compliance amongst small businesses?
 - a. Has your state had any programs in the past which you feel were effective?
8. If you had the opportunity, what would be the one thing you want EPA or your state to do differently to help small businesses increase hazardous waste determination compliance?

APPENDIX I: DISCUSSION QUESTIONS FOR SECTOR-BASED ASSISTANCE PROVIDERS (HOSTED BY THE EPA OFFICE OF ENFORCEMENT AND COMPLIANCE ASSURANCE)

1. To what extent do businesses in your sector struggle to comply with hazardous waste determination regulations?
2. What aspects of the regulations are most challenging?
3. What factors lead firms in your sector to sometimes make incorrect hazardous waste determinations?

For example, some factors might include not enough time, not enough resources or management attention, cost of conducting tests, not enough information or confusion about the requirements, lack of staff experience or expertise, incorrect guidance from suppliers or shippers, rapidly changing production processes, etc.

4. What types of waste or processes present particular challenges? Why?
5. What sources of information do businesses in your sector rely on the most for making proper hazardous waste determinations?
6. If you had the opportunity, what would be the one thing you want EPA or your state to do differently to help businesses increase hazardous waste determination compliance?

APPENDIX J: DISCUSSION QUESTIONS FOR EPA REGIONAL ENFORCEMENT MANAGERS

1. In your experience, how common are violations related to hazardous waste determination, compared to other types of hazardous waste violations?
2. What aspects of the regulations seem to be most challenging for regulated entities?
3. In your experience, what are the most important factors leading to non-compliance with hazardous waste determination regulations?
4. If you had the opportunity, what would be the one thing you want EPA or your region to do differently to increase hazardous waste determination compliance?

APPENDIX K: DISCUSSION QUESTIONS FOR STATE ASSOCIATIONS

1. *Describe findings from EPA analysis of compliance with hazardous waste determination regulations.* Have you found similar patterns of hazardous waste determination non-compliance within your state?
2. Why do generators have a difficult time making hazardous waste determinations?
3. What programs does your state operate to help generators with making hazardous waste determinations?
4. What other state programs stand out?
5. What is the effectiveness of third parties within your state?
6. What is the one thing you would like your state to implement?

APPENDIX L: DISCUSSION QUESTIONS FOR CASE STUDY STATES (COMPOSITE OF QUESTIONS ASKED IN THREE STATES)

1. Please describe the state's approach to ensuring compliance with hazardous waste determination requirements. For example, what are the state's activities with regard to inspections, enforcement, assistance, and outreach?
2. Are there any unique features of this state's hazardous waste program compared to other states?
3. How does MPCA coordinate with the EPA region, and what is the division of responsibilities?

4. Please describe how the county and state inspectors work together to ensure compliance with hazardous waste determination regulations.
5. How do you target the inspections?
6. How many inspections do you conduct?
7. Please describe your experience with hazardous waste generator compliance with waste determination regulations.
8. Are there common problems generators have with hazardous waste determination?
9. What are strengths and limitations of the program?
10. What are the greatest challenges the state faces in improving compliance with the HW determination regulations?
11. What do you think EPA should be doing differently to help states ensure compliance with hazardous waste determination regulations?