Draft Environmental Justice Methodology for the Definition of Solid Waste Final Rule

Proposed Methodology for Assessing Potential Disproportionate Impacts From the Hazardous Secondary Material Recycling Regulations On Minority, Low-Income, and Tribal Populations

Draft for Public Discussion

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Executive Summary

Background

On October 30, 2008, EPA published a change to the hazardous waste regulations entitled *Revisions to the Definition of Solid Waste*, also known as the "DSW rule." The DSW rule creates specific conditions for recycling hazardous secondary materials[1] under the Resource Conservation and Recovery Act (RCRA). These conditions are different from the hazardous waste requirements; as long as the conditions of the DSW rule are met, the hazardous secondary material are not defined as "solid waste" and therefore are not subject to hazardous waste requirements.

For example, under the DSW rule, hazardous secondary material can be stored for longer periods of time than fully regulated hazardous waste, can be stored in units other than hazardous waste tanks and containers, and can be transported to an off-site recycler without using a hazardous waste manifest. However, the hazardous secondary material must meet other conditions; for example, 75% of the material must be recycled each year, the material must be "contained" and not released to the environment, and the company must notify EPA about its activities and keep records of all shipments. (See Table 1 in Section IX of this paper for a complete description of the conditions and requirements that apply under the DSW rule.)

EPA's goal in promulgating the DSW rule was to make it more efficient to safely recycle these materials instead of landfilling or incinerating them, and to resolve uncertainty about when materials that are sent to recycling are regulated "solid wastes," and when they are more like commodities.

On January 29, 2009, the Sierra Club submitted an administrative petition requesting that EPA repeal the DSW rule. The petition argues that the revised regulations are unlawful and that they increase threats to public health and the environment without producing compensatory benefits and, therefore, should be repealed. In particular, the petition disagrees with the Agency's findings that the rule would have no adverse environmental impacts, including no adverse impact to minority or low-income communities.

[1] The DSW rule defines hazardous secondary materials as those materials that would be classified as hazardous waste, if discarded.

On June 30, 2009, EPA held a public meeting to allow the public and interested stakeholders to provide input to the decision-making process in responding to Sierra Club's administrative petition. Many commenters expressed strong concerns that the Agency did not adequately address Environmental Justice in the rulemaking. In response to these concerns, EPA has committed to conducting an expanded analysis of the Environmental Justice (EJ) impacts of the DSW rule.

Draft DSW EJ Analysis Methodology and Public Involvement

This document explains EPA's draft methodology for the DSW EJ analysis. It was designed to present enough detail on the draft methodology to allow the public to provide meaningful input, but to still occur early enough in the process to allow for course corrections.

Involvement of stakeholders, particularly those potentially affected by the DSW rule, will be a key part of the development of the revised DSW EJ analysis. EPA would like to begin a public dialogue about how best to conduct the DSW EJ analysis. Below is an overview of the draft methodology.

Overview of Draft DSW Environmental Justice Methodology	
Step 1: Hazard characterization	Includes two phases: (1) identifying potential hazards that could pose risks to human health and the environment from the recycling of hazardous secondary materials, including accidental releases of hazardous constituents and (2) analyzing the likelihood of such hazards occurring under the requirements of the DSW exclusions as compared to the pre-2008 DSW hazardous waste regulations.
Step 2: Identification of potentially affected communities	Modeling the locations of facilities (including potential new facilities) that are likely to choose to take advantage of the DSW rule.
Step 3: Demographics of potentially affected communities	Mapping the location of the facilities modeled in Step 2 and identifying the demographics (i.e., minority population and income level) of the surrounding communities.
Step 4: Identifying other factors that affect vulnerability in potentially affected communities	Identifying important vulnerability factors. These include factors that may increase the likelihood of "damages", or the likelihood that a facility is sited within a community, or the likelihood of health risks in the event of releases. Examples include the presence of other pollution sources and any

	information on public health of the surrounding population.
Step 5: Information synthesis: assessment of disproportional impact	Synthesizing all the information to characterize whether the DSW rule will facilitate the occurrence of any adverse impacts and whether some population groups (e.g., minority or low income populations) would be overrepresented in the impacted communities.
Step 6: Identification of potential preventive and mitigation strategies	Identifying potential strategies to prevent non-compliance and releases to the environment and also strategies to mitigate any impacts identified under step 5.

EPA plans to brief the National Environmental Justice Advisory Council (NEJAC) on the draft methodology at their next meeting, scheduled for January 27–29, 2010, in New Orleans, Louisiana. EPA will also hold a public roundtable discussion of the approach concurrently with the NEJAC meeting and is planning a second in person public roundtable in the Washington D.C. area for February 23, 2010 and a web conference for February 25, 2010.

Stakeholders are invited to provide feedback on any aspect of the methodology, and EPA is particularly interested in the following questions:

1. The primary data source EPA plans to use for *Step 1: Hazard Characterization* is a summary of recycling damage cases that EPA developed as part of the DSW rule.[2] EPA would be interested in any other sources of data regarding demonstrated problems with hazardous secondary materials reclamation, including any facilities that claimed to be conducting such reclamation, but were sham operations.

2. In determining the likelihood of environmental problems (e.g., soil and groundwater contamination, abandoned materials, accidental releases, such as fires and accidents) occurring at such reclamation facilities, EPA could take either a qualitative or quantitative approach.

   A qualitative approach would involve examining the DSW rule point-by-point and determining how the requirements of the DSW rule compare to the hazardous waste requirements and explaining the potential problems that would occur if the DSW requirements do not act as intended.

[2] U.S. EPA *An Assessment of Environmental Problems Associated with Recycling of Hazardous Secondary Materials* , EPA-HQ-RCRA-2002-0031-0355, January 11, 2007. http://www.regulations.gov/search/Regs/home.html#documentDetail?R=09000064801f3efb

A quantitative approach would require EPA to make certain assumptions about a model facility (e.g., the amount and type of hazardous secondary material, the type of neighborhood it is located in, the likelihood of a leak or spill or accident) and to calculate the potential impact to human health and the environment surrounding the facility.

Identifying a model facility will likely be a challenge given the different types of industry sectors that could participate in the DSW rule, and the outcome of the quantitative approach would depend greatly on the specific assumptions. The quantitative approach could yield more specific information than the qualitative approach. However, it would likely take longer to conduct. Would the quantitative information be useful enough to stakeholders to be worth spending additional time?

(Note that regardless of whether the approach to the Hazard Characterization step is qualitative or quantitative, the DSW Environmental Justice analysis would still present quantitative information on the number of minority or disadvantaged communities potentially affected by the DSW rule.)

3. For *Step 2: Identification of Potentially Affected Communities*, EPA has identified three main categories of communities potentially affected by the DSW rule: (1) facilities that have already notified EPA that they are operating under the DSW rule, (2) hazardous waste facilities likely to begin accepting hazardous secondary materials and operating under the DSW rule, and (3) new facilities reclaiming hazardous secondary materials for the first time and operating under the DSW rule.

   For the third category, EPA proposes to use the recycling damage case information as a surrogate for the types of facilities that might begin to reclaim hazardous secondary materials under the DSW rule. However, focusing on just facilities with environmental problems would likely skew the dataset, so these facilities could also be supplemented with a list of commercial non-hazardous industrial waste reclaimers who have no reported environmental problems. Are there other sources of information for the location and size of potential new facilities? Of particular concern is the possibility of smaller facilities with fewer resources to invest in environmental protection entering the business of hazardous secondary materials reclamation.

4. In addition to the primary EJ analysis of the DSW rule, EPA also plans to conduct a supplementary analysis of the other hazardous waste recycling exclusions. In addition to the exclusions in the 2008 DSW rule, there are dozens of other hazardous waste recycling exclusions that have been in place for many years, many of which are also associated with the recycling damage cases.

   EPA is interested in any information stakeholders may have about problems they have experienced with the existing hazardous waste recycling regulations (beyond the DSW rule). The supplementary analysis of other recycling exclusions would be done in parallel with the main analysis and would not delay preparation of the response to the Sierra Club administrative petition.

After receiving input on the DSW EJ methodology via the public roundtables, as well as any other information provided to EPA, the methodology will be revised and EPA will conduct the DSW EJ analysis.

Once the draft DSW EJ analysis is complete, EPA plans to make it available to the public for public comment and for peer review. The revised analysis will then be used as part of the information that will be assessed in developing EPA's proposed response to the Sierra Club administrative petition.

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Part 1: Background

I. What is Environmental Justice?

The Environmental Protection Agency (EPA) considers Environmental Justice to be the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. More specifically:

- Fair treatment means that no group of persons should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or policies.
- Meaningful involvement means that: (1) people have an opportunity to participate in decisions about activities that may affect their environment and/or health; (2) the public's contribution can influence the regulatory agency's decision; (3) their concerns will be considered in the decision making process; and (4) the decision makers seek out and facilitate the involvement of those potentially affected.

Environmental Justice is specifically addressed through *Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, which focuses federal attention on the environmental and human health conditions of minority and low-income populations with the goal of achieving environmental protection for all communities. The Order directed federal agencies to develop Environmental Justice strategies to address disproportionately high and adverse human health or environmental effects of their programs on minority and low-income populations. The order is also intended to promote nondiscrimination in federal programs that affect human health and the environment and aims to provide minority and low-income communities with access to public information and opportunities for meaningful public participation in matters relating to human health and the environment.

II. Purpose of the Draft DSW Environmental Justice Methodology

This document, entitled *Draft Environmental Justice Methodology for the Definition of Solid Waste Final Rule* ("Draft DSW EJ Methodology") outlines EPA's current thinking on the methodology for performing an Environmental Justice (EJ) analysis of hazardous secondary material[3] recycling, particularly as it pertains to the Definition of Solid Waste (DSW) final rule.[4]

The DSW EJ analysis will serve as a pilot project for EPA's EJ Executive Steering Committee's rulemaking workgroup as it develops a systematic process to incorporate Environmental Justice considerations within EPA's rulemaking procedures. While many of the issues discussed in the Draft DSW EJ Methodology are unique to the DSW rule, to the extent that the issues raised in the DSW EJ analysis relate to the broader issues of Environmental Justice, any comments or information obtained will be shared with other EPA Offices, including the Office of Environmental Justice in the Office of Enforcement and Compliance Assurance, the Office of Policy, Economics and Innovation and the EJ Executive Steering Committee, so that this information can be considered as the Agency develops guidance for conducting Environmental Justice analyses.

At the same time, the Agency remains mindful that each Environmental Justice analysis addresses a unique set of circumstances, and that the DSW EJ analysis should not be used to create a "one-size-fits-all" expectation for EPA's approach to Environmental Justice analyses in other contexts.

The Draft DSW EJ Methodology represents the problem-formulation stage of the analysis, a critical early step in determining which types of analytical approaches to use. Problem-formulation means clearly articulating the issues we are trying to address. For example, EPA's *Framework for Cumulative Risk Assessment* delineates "Planning, Scoping and Problem-Formulation" as the first phase in a cumulative risk assessment. Because there is limited precedent for how to conduct an Environmental Justice analysis in the context of a national rulemaking, thoughtful problem-formulation is critical for a meaningful analysis, as well as for laying the foundation for future analyses.

[3] A hazardous secondary material is any material that, if discarded, would be a hazardous waste.
[4] On October 30, 2008, EPA published a rule that revised the definition of solid waste to exclude certain hazardous secondary materials from the hazardous waste regulations promulgated under Subtitle C of the Resource Conservation and Recovery Act (RCRA). See 73 FR 64663.

Problem-formulation is informed by a scoping process, which should involve robust stakeholder/community involvement. It is critical that scoping and stakeholder involvement are incorporated into the Environmental Justice analysis/rulemaking effort very early in the process. Thus, this paper is intended to be a vehicle for engaging with outside experts and interested stakeholders, particularly those located in communities potentially affected by hazardous secondary materials reclamation, about the most appropriate way of conducting an Environmental Justice analysis for the DSW rule.

The DSW Environmental Justice analysis itself will, in turn, be used to help EPA's decision-making process regarding whether and, if so, how the DSW rule should be revised. As part of that decision process, the public will have the opportunity to formally comment on both the DSW EJ analysis and EPA's tentative decision on revising the DSW rule.

III. Public Involvement

EPA plans to share this draft methodology with interested stakeholders, particularly those potentially affected by the rulemaking, in order to make improvements, as appropriate, to the approach before conducting the analysis. Specifically, EPA plans to present the methodology to the National Environmental Justice Advisory Council (NEJAC) at their next meeting, scheduled for January 27–29, 2010, in New Orleans, Louisiana. EPA will also hold a public roundtable discussion of the approach concurrently with the NEJAC meeting and is planning a second in person public roundtable in the Washington D.C. area for February 23, 2010 and a web conference for February 25, 2010. We will also reach out to interested and impacted communities to identify effective ways to obtain their input. EPA will also reach out to state governments via state associations and regularly scheduled meetings and conference calls. Finally, a letter to Tribal leaders and Tribal Environmental Departments also will be sent inviting them to a nationwide teleconference or web conference to receive and discuss preliminary comments from Tribes.

Once the draft DSW EJ analysis is complete, EPA plans to make it available to the public for public comment and for peer review. Once all of this is completed, the revised analysis will then be used as part of the information that will be assessed in developing EPA's proposed response to the Sierra Club administrative petition.

IV. Regulation of Hazardous Secondary Material Recycling

The relationship between hazardous secondary material recycling and the RCRA definition of solid waste is a complex one. EPA's authority to regulate hazardous waste is dependent on the material first being a "solid waste" under the Resource Conservation and Recovery Act (RCRA). A solid waste is any material that has been discarded, within the plain meaning of the term. In court decisions regarding the RCRA definition of solid waste, the U.S. Court of Appeals for the D.C. Circuit has consistently cited a plain language definition of discard as meaning "disposing, abandoning or throwing away."

EPA's definition of solid waste states that for hazardous secondary materials that are recycled, one must evaluate both what the material is and how it is recycled before determining whether or not it is a solid waste subject to RCRA Subtitle C jurisdiction.[5] For some materials, such as processed scrap metals, EPA made a determination that, after processing, they are sufficiently like a commodity and, therefore, they are not solid wastes: that is, these materials have not been "disposed of, abandoned or thrown away" when recycled. For other materials, such as cathode ray tubes (CRTs), EPA has determined that they are not solid wastes when they are recycled under certain conditions (for example, the CRTs must either be intact or they must meet certain storage and labeling conditions). Failure to meet these conditions means that these hazardous secondary materials are discarded and therefore are solid and hazardous waste. Other materials, such as lead-acid batteries, remain solid and hazardous wastes, but are subject to alternative management standards when they are recycled. Still other materials are fully regulated as hazardous wastes when recycled.

Despite various EPA rulemakings since the 1985 regulation was promulgated, the regulatory status of hazardous secondary materials sent to recycling has continued to raise questions. These questions can and have created uncertainty in the regulated community and with the public and can potentially negatively affect enforcement actions involving the recycling of hazardous secondary materials.

In an attempt to more definitively answer the question of when reclamation of hazardous secondary material does not involve discard, EPA promulgated the DSW rule on October 30, 2008, which became effective on December 29, 2008.

[5] See 50 FR 618, January 4, 1985. For a more detailed explanation of the 1985 rules defining solid waste, see also EPA's webpage on DSW resources at http://www.epa.gov/epawaste/hazard/dsw/resources.htm.

(See later discussion on *Scope of the DSW Environmental Justice Analysis* in Section VIII and Attachment A for a more detailed description of the DSW rule.)

V. DSW Rule and Environmental Justice

As part of the DSW rule, EPA made a determination under *Executive Order 12898: Environmental Justice* that no disproportionate impacts to minorities or low income communities are expected to result from the rule. However, as discussed below, EPA will re-evaluate these findings as part of the larger re-evaluation of the DSW rule.

The 2008 Environmental Justice determination was based on EPA's assessment of potential countervailing risks of the final rule. As part of the record supporting the rulemaking, EPA performed an assessment of environmental problems associated with hazardous secondary materials recycling.[6] To address commenters' concerns that historic damages are irrelevant to current practices, EPA only included cases where damages occurred after 1982 (after the implementation of the RCRA and CERCLA[7] statutes). In addition, the assessment only included those damages that could clearly be attributed to some type of recycling activity, including those involving the recycling of hazardous secondary materials that are specifically excluded from the hazardous waste regulations.

Of the approximately 800 damage cases examined by EPA as part of the environmental problems study, the study identifies 208 cases in which environmental damages of some kind occurred from some type of recycling activity and that otherwise fit the scope of the study.[8] The remaining cases either did not fit the scope of the study (i.e., did not involve recycling or occurred prior to 1982) or there was not enough information to make a determination. These remaining cases are listed in an appendix to the study, but are not included in the calculations of damage cases. The damage cases included both reclaimers and intermediate storage facilities.

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[6] U.S. EPA *An Assessment of Environmental Problems Associated With Recycling of Hazardous Secondary Materials* , January 2007 (EPA-HQ-RCRA-2002-0031-0355).

[7] Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund.

[8] Potential cases were identified from a variety of sources, including: (1) comments on the October 28, 2003 proposed rule; (2) the Superfund National Priorities List; (3) national EPA databases maintained for the CERCLA, RCRA, and enforcement programs; (4) contacts with staff in state environmental agencies; (5) contacts with staff in EPA Regional Offices; (6) state agency data bases maintained for state Superfund programs and other environmental programs; (7) internet searches; and (8) news media reports. In conducting these searches, EPA recognizes that it likely does not identify all relevant cases, and that there are additional cases of environmental damage that have not been identified.

A detailed examination of the 208 cases revealed damages that included leaks, spills, dumping, or other activities that caused a release to occur that was serious enough to require some cleanup action. They also included instances where materials were abandoned (e.g., in warehouses) and which required removal actions overseen by a government agency and expenditure of public funds. Damages occurred in all parts of the country and varied from relatively small incidents involving limited contamination of soils and/or abandoned residuals, such as battery casings, to much more substantial and expensive cases, with large-scale soil and ground water contamination and remediation costs in the tens of millions of dollars.

The most common types of secondary materials associated with the cases were scrap metals, solvents, used oil, non-ferrous metals, lead-acid batteries, and used drums sent for cleaning and reconditioning. Less common were cases involving mercury, precious metals, and hazardous foundry sands. Thirteen (6%) of the 208 cases were determined to be from reclamation that occurred on-site, while the remainder were third-party commercial recyclers.

It should also be noted that many of these cases involved secondary materials that were not regulated as hazardous waste or were subject to reduced regulation, prior to the DSW rule. Thus, because these hazardous secondary materials were not regulated as hazardous wastes, or were subject to reduced requirements, the DSW rule did not, for all practical purposes, change the regulations for these materials. Also, we would note that these cases were not subject to the types of requirements included in the DSW rule, including notification, containment, financial assurance, reasonable efforts audits and codified legitimacy criteria.[9]

EPA's assessment of potential countervailing risks looked at the underlying causes of these damage cases and explained how each was addressed by the regulatory conditions of the rule. A summary table of this assessment is found in Appendix B. Because EPA determined, based on the conditions, that there would be no adverse environmental impacts in general, the Agency concluded in the 2008 DSW rule that there would also be no disproportionate adverse impacts to low income or minority communities.

[9] Because many of the damage cases involved secondary materials or activities that have not been subject to Subtitle C regulation, one of the questions that we will be reviewing as part of this Environmental Justice analysis is whether one or more of these materials or activities should be regulated in some sense under Subtitle C of RCRA.

On January 29, 2009, the Sierra Club submitted an administrative petition requesting that EPA repeal the October 2008 revisions to the DSW rule. The petition argues that the revised regulations are unlawful and that they increase threats to public health and the environment without producing compensatory benefits and, therefore, should be repealed. In particular, the petition disagrees with the Agency's findings that the rule would have no adverse environmental impacts, including no adverse impacts to Environmental Justice communities.

Of particular note is the fact that studies of hazardous waste treatment, storage and disposal facilities (of which hazardous waste recycling facilities are a subset) have been shown to be located disproportionately in minority communities, with over 56% of the population within 3 kilometers of the facilities consisting of people of color (African American, Hispanic or Latino, Asian or Pacific Islander or Native American), as compared to approximately 30% of the population in comparable areas without hazardous waste facilities.[10] Thus if the facilities claiming the DSW exclusion were to have an adverse environmental impact on the surrounding communities, and such facilities follow the same location pattern as hazardous waste facilities in general, a disproportionate impact on minority communities would be likely.

On June 30, 2009, EPA held a public meeting to allow the public and interested stakeholders to provide input to the decision-making process in responding to Sierra Club's administrative petition. The information presented at the meeting and through written submissions will help the Agency decide whether to make revisions to the rule and, if so, how such revisions would ensure that it appropriately and safely encourages resource conservation.[11]

At least two-thirds of the presenters at the public meeting expressed strong concerns that the Agency did not adequately address Environmental Justice in the rulemaking. In response to these concerns, OSWER has committed to using this opportunity to conduct a more rigorous and thorough analysis of the Environmental Justice impacts of the rule. In addition, during the July 21, 2009, National Environmental Justice Advisory Council Meeting, OSWER Assistant Administrator Mathy Stanislaus explained that EPA will involve all interested

[10] Robert B. Bullard, PhD et al., *Toxic Wastes and Race at Twenty, 1987-2007, A Report Prepared for the United Church of Christ Justice and Witness Ministries* (2007), p 52. http://www.ejrc.cau.edu/TWART%20Final.pdf.

[11] A copy of the transcript of the meeting and of the written comments can be found in the public docket (Docket ID No. EPA-HQ-RCRA-2009-0315) at www.regulations.gov. Video of the speakers at the meeting can also be viewed online at http://www.epa.gov/epawaste/hazard/dsw/meeting/speaker.htm.

stakeholders, and particularly those who may be potentially impacted by the rulemaking, in the development of this analysis.

VI. How Will the Results of the DSW Environmental Justice Analysis Be Used?

As EPA moves forward with the initial response to the Sierra Club petition, the revised Environmental Justice analysis will be one of the analyses upon which the Agency will rely in determining whether and, if so, how to revise the DSW regulations.

While the RCRA statute does not directly address Environmental Justice concerns, one of its core purposes is to protect human health and the environment from waste that "may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health and the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."[12]

To the extent an Environmental Justice analysis reveals potential disproportionate effects on minority or low-income communities from discarded hazardous secondary material, this result could affect how EPA uses its policy discretion in applying specific conditions or encouraging public involvement in implementing the definition of solid waste regulations. For example, EPA could analyze some of the factors associated with potentially affected communities, such as the ability to participate in decision-making or receive information, and the resulting environmental or public health impacts from discarded hazardous secondary materials.

[12] See RCRA section 1004.

Part 2: Methodology

VII. Baseline Assumptions for the DSW Environmental Justice Analysis

1. The development of a hazardous secondary materials recycling Environmental Justice analysis will be an iterative, collaborative process with participation from experts both within and outside EPA and from the interested public.

2. One of the most critical parts of the analysis is identifying the scope of the analysis, including the location of potentially affected communities. Early public participation will be a key part of appropriately characterizing the potentially affected communities.

3. At the same time that EPA is conducting the DSW Environmental Justice analysis and evaluating public comments on the rule, the DSW rule is also the subject of litigation with a wide range of parties involved.[13] EPA will take particular care to keep all stakeholders and parties informed about the analyses and the litigation and any interaction between them.

VIII. Scope of the DSW Environmental Justice Analysis

The DSW Environmental Justice analysis will primarily focus on the DSW rule promulgated on the October 30, 2008, which created conditional exclusions from the definition of solid waste. Hazardous secondary materials that meet the conditions and requirements of the rule are excluded from the definition of solid waste and, therefore, are not subject to RCRA hazardous waste regulations. A comparison of the RCRA hazardous waste requirements and the requirements of the revised DSW rule is presented in Table 1 in Section IX, and a more detailed description of the DSW rule can be found in Appendix A.

The DSW Environmental Justice analysis will also include a supplementary analysis of potential Environmental Justice impacts of other pre-existing hazardous waste exclusions for recyclable material. Many of these exclusions, which pre-

[13] The litigants are Sierra Club and the American Petroleum Institute (API), and the interveners are Environmental Technology Council, the National Mining Association, National Paint & Coatings Association, Synthetic Organic Chemical Manufacturers Association, Inc., American Forest and Paper Association Inc., Metals Industry Recycling Coalition, Alliance of Automobile Manufacturers, American Chemistry Council, American Coke and Coal Chemicals Institute, Treated Wood Council, Utility Solid Waste Activities Group, Edison Electric Institute, American Gas Association, and National Rural Electric Cooperative Association. Gulf Metallurgical has also filed a motion to intervene; the motion was opposed by API and, as of December 2009, the court has yet to rule on it.

date the 2008 DSW rule, are associated with hazardous secondary materials found at many of the damage cases in the record for the DSW rule. The supplementary analysis is discussed in more detail in Section X of this paper.

IX. Detailed Methodology Discussion

The following detailed methodology for the DSW EJ analysis reflects EPA's current thinking on the analysis and is offered for the purpose of discussion. We plan to revise the methodology based on the feedback we receive from stakeholders.

Stakeholders are welcome to provide feedback on any aspect of the methodology, and EPA is particularly interested in obtaining information on how best to characterize the potential hazards associated with reclamation of hazardous secondary materials under the DSW rule (Step 1 of the methodology, below) and how best to identify and characterize potentially affected communities (Step 2).

Step 1: Hazard characterization

The hazard characterization step of the DSW EJ methodology involves two aspects:

(1) Properly identifying what types of hazards are associated with hazardous secondary materials.
(2) Properly characterizing the likelihood of such hazards occurring under the DSW rule.

Types of Hazards

The best source of information on the types of potential environmental and public health hazards from the mismanagement of hazardous secondary materials sent to reclamation is the study of environmental problems associated with hazardous secondary materials discussed earlier. This study was prepared in support of the 2008 DSW rule. The goal of the environmental problems study was to identify and characterize environmental problems that have been attributed to some types of hazardous secondary material recycling activities that are relevant for the purpose of the DSW rulemaking effort.

Based on the environmental problems study, the most likely hazards to public health and the environment from hazardous materials recycling are (1) soil and/or

groundwater contamination (occurring at 77% of the recycling damage cases), (2) abandoned materials (occurring at 33% of the recycling damage cases), (3) sediment and/or surface water contamination (occurring at 17% of the recycling damage cases), (4) air releases (occurring at 11% of the recycling damage cases), and (5) fires or industrial accidents (occurring at 5% of the recycling damage cases).[14]

Stakeholders have suggested that one of the environmental hazards that the environmental problems study may under-report is releases of hazardous constituents to the air. The DSW Rule may result in exempting some facilities and generators from the hazardous waste facility air emission requirements.[15] While these facilities would still potentially be subject to Clean Air Act regulations, it is possible that air emissions would increase as a result. Thus, the DSW EJ analysis will include in its hazard characterization an examination of this issue.

Likelihood of Hazards Occurring

The central question of the DSW EJ analysis is how likely is it that the hazards described above will occur under the requirements and conditions of the DSW rule. Table 1 summarizes some of the key differences between the hazardous waste regulatory requirements and the requirements of the DSW rule.

[14] Percentages do not add up to 100% because a site may have more than one type of damage.
[15] 40 CFR parts 264 or 265, subparts AA, BB and CC.

Table 1: Comparison of RCRA Hazardous Waste Requirements with the DSW Exclusion Conditions[16,17]

Hazardous Waste Regulation Requirements: Hazardous Waste Generators	DSW Exclusion Conditions: Hazardous Secondary Material Generators
Cannot accumulate waste for more than 90 days without a permit or being in compliance with the interim status standards.	No permit required for storage even if store for more than 90 days; must recycle 75% of the hazardous secondary material within 1 calendar year.
Must meet specific technical storage standards for tanks and containers.	No specific technical standards; rather hazardous secondary materials must be contained and not released to the environment. Hazardous secondary materials must also be managed in a manner at least as protective as analogous raw materials, to the extent that there is an analogous raw material.
Waste must be packaged, marked and labeled according to DOT hazardous materials regulations prior to transport. All hazardous wastes are DOT hazardous materials.	Hazardous secondary materials must be packaged, marked and labeled according to DOT hazardous materials regulations prior to transport if it is a DOT hazardous material based on its hazard class.
Manifest is required.	No hazardous waste manifest, but records of all off-site shipments and confirmations of receipt must be kept for three years. DOT hazardous materials shipping paper requirements in 49 CFR Part 172 may apply if the material is a DOT hazardous material based on its hazard class.
Recordkeeping o Biennial Reporting o Exception Reporting o Three-year record retention	Recordkeeping: o Biennial notifications o Records of off-site shipments & confirmations of receipt o Three-year record retention
Exports o Notice & consent o Annual reports o Manifesting o Exception Reports	Exports[18] o Notice & consent o Annual reports

[16] Hazardous wastes that are burned for energy recovery or used on the land (i.e., "used in a manner constituting disposal") are not eligible for the DSW rule and remain subject to the pre-2008 hazardous waste regulations.
[17] In addition to the DSW exclusions described here, the DSW rule also includes a case-by-case petition process for persons to obtain a regulatory determination that their hazardous secondary materials are not solid waste.
[18] Exports are not eligible where the hazardous secondary material is controlled by the generator.

Hazardous Waste Regulation Requirements: Treatment, Storage, or Disposal Facilities (TSDFs)	DSW Exclusion Conditions: Intermediate and Reclamation Facilities
Must obtain Subtitle C permit.	Must either obtain Subtitle C permit and manage hazardous secondary materials in the permitted units or must pass an audit by the generator, who makes reasonable efforts to ensure their hazardous secondary material will be safely and legitimately recycled.
Must meet specific technical storage standards for tanks and containers.	No specific technical standards; rather hazardous secondary materials must be contained and not released to the environment. Hazardous secondary materials must also be managed in a manner at least as protective as analogous raw materials, to the extent that there is an analogous raw material.
Must have emergency coordinator, test and maintain emergency equipment, and have emergency plan.	No specific DSW requirements. OSHA requirements for emergency response plan, training, medical surveillance, and protective clothing in 29 CFR 1910.120(q) apply. EPCRA requirements for emergency planning and emergency release notification in 40 CFR 355 may also apply.
Must have personnel training plan.	No specific DSW requirements. OSHA requirements for hazard determination, hazardous communications, labels, material safety data sheets, and employee information and training in 29 CFR 1910.1200 apply.
Recordkeeping o Biennial Reporting o Exception Reporting o Three-year record retention	Recordkeeping: o Biennial notifications o Records of off-site shipments & confirmations of receipt o Three-year record retention
Must have financial assurance.	Must have financial assurance.

The requirements and conditions of the DSW rule described in Table 1 were intended to prevent damages from occurring EPA included an assessment of the countervailing risks from the DSW rule and of the conditions that were intended to

address those risks in Chapter 11 of the Regulatory Impact Analysis[19] of the final rule; a table summarizing that analysis is included in Appendix B.

However, stakeholders have raised the question of whether the DSW rule will be as effective as the hazardous waste requirements in preventing damages from occurring. For example, under the DSW rule, hazardous secondary materials no longer have to meet specific storage standards for tanks and containers, but instead must be "contained." Also, under the DSW rule, facilities may store hazardous secondary materials for more than 90 days without a permit, potentially leading to both longer storage times and a larger amount of hazardous secondary material in storage, possibly raising the risk of an accident. In addition, a hazardous waste manifest is no longer required to accompany the shipment, although the DOT standards still apply to the extent that the material is a "DOT hazardous material," and shipping records must be maintained for three years. The central question is whether the conditions of the DSW rule increase the likelihood of the potential hazards (e.g., soil and groundwater contamination, abandoned materials, fires or other accidents) of occurring from discarded hazardous secondary material, and if so, by how much?

For the analyses performed for the rule, EPA assumed full compliance with these conditions and requirements. However, some stakeholders have argued that compliance with the conditions of the DSW rule may not be as high as with the full hazardous waste regulations because oversight procedures (e.g., inspection schedules) may be different. The RCRA statute includes mandatory inspections for treatment storage and disposal facilities; thus, those facilities are likely to take precedence over excluded facilities operating under the DSW rule, although EPA has the ability to somewhat address this issue. In addition, comments from the states, in particular, highlight possible difficulties in enforcing a general "containment" standard and a concern that facilities may not comply with the notification requirement, which is designed to alert regulatory authorities of the facility's use of the DSW rule exclusions.

Two Possible Approaches to Hazard Characterization

Two possible approaches to hazard characterization are (1) a qualitative analysis or (2) a quantitative analysis.

[19] U.S. EPA *Regulatory Impact Analysis: EPA's 2008 Final Rule Amendments to the Industrial Recycling Exclusions of the RCRA Definition of Solid Waste* September 2008 (EPA-HQ-RCRA-2002-0031-0602)

Under the qualitative approach, EPA would describe the above compliance and oversight issues in more detail to evaluate their impacts and whether they could result in significant public health and environmental risks to communities, and particularly in minority and low income communities. In addition, such an analysis would include a qualitative comparison of the RCRA air emissions controls applicable under the pre-existing hazardous waste rules as compared to the Clean Air Act or other controls that may apply to facilities operating under the DSW rule.

Under the quantitative approach, the analysis could include an assessment of compliance rates and whether these rates differ for hazardous waste facilities and excluded hazardous secondary material reclaimers and intermediate facilities. In addition, EPA could choose a few example facilities and model the potential extent of damages. For example, in the case of fires or other serious accidents (which represent 5% of the damage cases), EPA could use the type of off-site release analyses used for facility Risk Management Plans (RMPs) to characterize how communities might be affected by those types of hazards. In addition, EPA could potentially model the air emissions from the DSW facilities as compared to air emissions as regulated under the RCRA hazardous waste regulations.

The quantitative approach has the advantage of providing more information than the qualitative approach, but it would also require more time to prepare, and the outcome of the quantitative approach would depend greatly on the specific assumptions. Ultimately EPA will need to determine, with the help of stakeholder input, if the additional time needed for such an analysis is worth the additional information that is likely to be obtained.

Possible Reductions in Hazards

In some cases, the 2008 DSW rule may result in a reduction of certain types of environmental and public health hazards. For example, as more hazardous secondary materials are sent to reclamation, the rule could result in reduced hazardous secondary materials sent to communities associated with hazardous waste landfills and incinerators, which could potentially impact communities around these facilities.

There is one area that has the potential for an absolute risk reduction—hazards from transportation. Since the 2008 DSW rule is likely to reduce (and, in the case of on-site recycling, eliminate) vehicle-miles traveled, transportation accidents are

likely to be reduced as well.[20] To the extent possible, the DSW EJ analysis will characterize likely reductions in hazards.

Step 2: Identification of potentially affected communities

Categories of Potentially Affected Communities

There are three main categories of communities potentially affected by the 2008 DSW rule.

First, there are the communities surrounding facilities that have currently notified that they will be operating under the 2008 DSW rule exclusion.[21] As of January 12, 2010, twenty-three facilities have submitted such a notification. (See Appendix C for a summary of the information on these facilities.) These facilities are located in New Jersey, Pennsylvania, and Iowa.[22] The locations for these facilities are known and will be included (along with any new facilities that notify) in the DSW EJ analysis.

Second, there are communities surrounding facilities that are currently managing regulated hazardous waste, but may choose to participate under the DSW rule in the future. Assuming full adoption of the DSW rule by all RCRA-authorized states, EPA estimated that about 5,600 facilities (including generators and reclaimers) in 280 industries and 21 economic sectors that are likely to participate.

For the purposes of the EJ analysis, EPA would focus on RCRA permitted facilities that are managing recyclable hazardous secondary materials (including intermediate storage facilities) and will assume that all could participate in the

[20] As explained the preamble to the 2007 DSW proposal (72 FR 14210), EPA estimated that transportation distances for hazardous secondary materials that are affected by the DSW rule to be reduced from an average distance of approximately 340 miles for disposal at hazardous waste landfills and between 400 to 520 miles for off-site hazardous waste recycling to 0 miles for on-site recycling (for about 9% of the affected facilities) and an average of approximately 50 miles for non-hazardous waste recycling (for about 91% of the affected facilities). Because, on an annual nationwide basis, 91% of the RCRA hazardous waste is transported by truck, transportation risk is predominantly roadway crash risks involving property damage crashes, personal injury crashes, or fatal crashes. Because of the fact that transportation accident risks positively correlate with travel distances, EPA estimated a minimum 85% to 90% reduction in baseline annual transport accident risk for affected materials, as a rough estimate, regardless of DOT regulatory status (i.e., 340 to 520 miles average transport distance baseline, compared to 0 to 50 miles hypothetical average post-promulgation distance).

[21] For the purpose of this discussion, the term "facility" includes any entity operating under the DSW rule, including hazardous secondary material generators, intermediate facilities and reclaimers.

[22] New Jersey and Pennsylvania are the only RCRA-authorized states which have adopted the rule. The rule is effective in Iowa (and in Alaska, certain territories, and Indian Country) because RCRA is federally administrated in those locations.

exclusion. EPA will also assume that facilities that generate recyclable hazardous secondary materials at large enough quantities to make it economically justifiable will switch to on-site reclamation under the DSW rule and include those facilities in the analysis.[23]

Third, there are communities surrounding new facilities that are not currently managing hazardous waste or hazardous secondary materials that may choose to begin reclaiming hazardous secondary materials under the DSW rule. The location of these facilities is unknown; the economic analysis for the final rule did not include any predictions on the size or locations of new recycling facilities. However, one question that has been raised is whether any such reclamation facilities are likely to be smaller, with fewer resources to invest in environmental protection, thus increasing the likelihood of damages occurring.

To help answer this question, EPA could use the location of the facilities in the damage cases as a surrogate to model the types of locations where these facilities are likely to be found. While the facilities involved in the damage cases are themselves unlikely to qualify for the DSW rule (because they would be unlikely to pass a generator audit or obtain financial assurance), the types of facilities they represent would have likely been subject to the same zoning restrictions and other siting considerations as any new DSW facility would be.[24] However, focusing on just facilities with environmental problems would likely skew the dataset, so these facilities could also be supplemented with a list of commercial non-hazardous industrial waste recyclers who have no reported environmental problems.

State Adoption Assumptions

Because the DSW rule is less stringent than the RCRA hazardous waste regulations, the rule is only effective if states and territories that are authorized to manage their own RCRA hazardous waste programs choose to adopt the new rule. As of December 2009, the rule is effective in Alaska, Iowa, Pennsylvania, New Jersey, many of the territories, and in Indian Country. The DSW rule is not effective in authorized states that do not adopt it.

[23] One of the uncertainties of the economic analysis was whether generators would invest in on-site reclamation. Based on public comments, the economic analysis assumed no significant switch to on-site reclamation. However, of the 22 DSW notifications that have been received to date, seven (32%) are for on-site reclamation so this scenario will be included in the EJ analysis.

[24] In addition, mapping the location of the damage case facilities will allow EPA to perform the secondary EJ analysis on other hazardous waste recycling exclusions.

However, for the purposes of the analysis, EPA will assume that all facilities in the groups identified above could participate in the 2008 DSW rule exclusions, regardless of whether the state is likely to adopt the exclusions. Although some states have indicated that they do not plan to adopt the exclusions, this is a decision that could (in theory at least) be reversed in the future, and it is difficult to predict which states will adopt the rule in the end.

As a sensitivity analysis, EPA will also examine how factoring an estimate of the likelihood of state adoption of the rule into the DSW EJ analysis would affect the universe of communities that are potentially affected.

Communities With Potentially Reduced Impacts

Finally, to the extent practical, EPA will examine facilities that are potentially affected by the DSW exclusion because less hazardous waste will be sent there, such as hazardous waste incinerators and landfills, and how this decrease could potentially reduce the environmental impact to the communities that surround those facilities.

Step 3: Demographics of potentially affected communities

Once EPA has modeled the locations of the facilities in potentially affected communities (as described in Step 2), EPA will analyze the demographics of the communities surrounding the facilities, including the percent people of color[25] and poverty rates using an "areal apportionment method" for characterizing these communities. [26] Under this method, every census tract that is at least partially inside the specified distance (e.g., 3 km) will be given some weight in determining the characteristics of the potentially affected community. For example, if 20% of a census tract is captured, then 20% of its population will be used. The sum (or aggregate) of these apportioned populations will then be used to determine the characteristics of the potentially affected communities (or "host communities"). However, we are interested in learning whether there are other methodologies for characterizing communities that should also be considered as part of the analysis.

[25] For the purpose of this analysis, "people of color" means those persons who have identified themselves as African American, Hispanic or Latino, Asian or Pacific Islander, or Native American in the most recent U.S. Census.
[26] The discussion of the assumptions for the areal apportionment method is based on the work of Dr. Paul Mohai and Dr. Robin Saha as documented in *Toxic Wastes and Race at Twenty 1987-2007,* A Report Prepared for the United Church of Christ Justice and Witness Ministries, March 2007.

The characteristics of the potentially affected communities will then be compared to the characteristics of non-affected areas (i.e., metropolitan areas that lie beyond 3 km from a facility managing hazardous waste or hazardous secondary material).

Finally, EPA will include a separate analysis of any facilities potentially located within Indian Country,[27] regardless of the distance to the nearest population. Because the RCRA hazardous waste program is administered federally in Indian Country, the DSW rule is in effect there. While there are currently no facilities in Indian Country using the DSW rule, EPA will coordinate closely with the Tribes to ensure proper identification of any facilities that may take advantage of the DSW rule exclusion there.

Step 4: Identifying other factors that affect vulnerability in potentially affected communities

In order to understand the potentially affected communities better, EPA will also look at other factors that may impact a community's risk profile. These include factors that may increase the likelihood of damages, or the likelihood that a facility is sited within a community, or the likelihood of health risks in the event of releases.

The amount of detail that the Agency will be able to capture will depend on the availability of time, resources and data. In most cases, these factors would be part of a qualitative discussion, because it may be difficult to translate many of these factors into actual health impacts.

Factors EPA will investigate are:

- Susceptibility of the community (e.g., higher numbers of children, higher disease rates);
- Ability of the community to participate in decision-making or receiving information (e.g., lack of information, language barriers, lack of social capital);
- Ability of the community to prepare for or cope with impacts (e.g., inability to evacuate during an emergency, such as a chemical accident);

[27] Indian Country includes: (1) all land within the limits of an Indian reservation under the jurisdiction of the United States government; (2) all dependent Indian communities, and (3) all Indian allotments still in trust, whether they are located within the reservation or not.

- Ability of the community to recover from environmental insults (e.g., lack of access to health care, lack of financial resources);
- Potential impacts with land use in the community (e.g., availability of recreational and other enrichment opportunities);
- Cumulative impacts, which may include all or a combination of the above, as well as other factors;
- Distribution of environmental burdens (e.g., location of other potential sources of pollution, such as Superfund sites or hazardous waste facilities, within the same community); and
- Compliance rates, particularly comparing facilities subject to the DSW rule to facilities subjection to the hazardous waste regulations.

Step 5: Information synthesis: assessment of disproportional impact

Once the above analyses are complete, EPA will evaluate all of the information and make an overall assessment of disproportionate impact. A key part of this assessment will be to properly characterize the nuances of the results of the analyses and avoid creating a "one-size-fits-all" expectation for such evaluations. This step will also include consideration of the uncertainties and variability in the Environmental Justice analysis.

Step 6: Identification of potential preventative and mitigation strategies

After completion of the DSW EJ analysis, EPA's next step will be to decide what steps might be needed to take in response. Final decisions will be made in the larger context of EPA's response to the Sierra Club's petition on the DSW rule. That decision-making process will take into account the DSW Environmental Justice analysis, and EPA's evaluation of all of the other issues that were raised at the public meeting and in the written comments. As part of that decision-making process, the public will have the opportunity to formally comment on both the DSW EJ analysis and EPA's tentative decision on revising the DSW rule.

This part of the DSW EJ analysis will identify potential strategies that could be used to prevent non-compliance with the rule and mitigate any disproportionate negative impacts to minority or low-income communities identified in Step 5. Possible options could come from a wide range of actions including, for example, particular revisions to the DSW rule, changes in regulatory implementation programs, changes in regulatory oversight programs, increased availability of information, and increased public participation opportunities.

X. Supplementary Environmental Justice Analysis: Other Hazardous Waste Recycling Exclusions

The primary purpose of the DSW Environmental Justice analysis is to provide EPA, interested stakeholders and the public with information on the potential for disproportionate impacts to minority, low-income, and Tribal populations from the DSW rule. This information will be used by EPA as the Agency responds to Sierra Club's administrative petition.

However, an Environmental Justice analysis may also look at existing disproportionate impacts of the pre-existing regulations, whenever such an examination is practical. As discussed earlier, the DSW rule does not address existing hazardous waste recycling exclusions, most of which have fewer conditions than the DSW rule. Many of these exclusions are also associated with the damage cases associated with the environmental problems study that was conducted in support of the rule. Table 2 includes a partial list of recycling exclusions that appear to be associated with at least some of the damage cases.

Table 2: Examples of Other Hazardous Waste Exclusions Related to Recycling

40 CFR Citation	Materials Affected	Type of exclusion
261.2(c)(3)	By-products and sludges exhibiting a hazardous characteristic	Not a solid waste when reclaimed – no conditions
261.2(e)	Materials used or reused as ingredients, as an effective substitute for ingredients or returned to the original process.	Not a solid waste – no conditions
261.4(a)(13)	Processed scrap metal, unprocessed home scrap metal, and unprocessed prompt scrap metal being recycled.	Not a solid waste – no conditions
261.6(a)(3)(ii)	Scrap metal that is not excluded under 261.4(a)(13)	Solid waste, but not subject to hazardous waste regulations – no conditions

40 CFR Citation	Materials Affected	Type of exclusion
261.7	Residues of waste in "empty container" (e.g., a drum with no more than one inch of hazardous waste remaining)	Solid waste, but not subject to hazardous waste regulations – no conditions beyond the definition of "empty"
266.70	Precious metals used for precious metals recovery	Solid and hazardous waste– reduced regulation
266.80	Lead acid battery	Solid and hazardous waste – reduced regulation
273	Universal Waste: Batteries, pesticides, mercury-containing equipment, lamps	Solid and hazardous waste – reduced regulation
279	Used Oil	Alternative regulatory structure for used oil

Thus, as time and resources allow, EPA also will conduct a supplementary Environmental Justice analysis of other hazardous secondary material recycling exclusions, following the same steps described above and using the information from the damage cases. While this information would not directly be used in responding to the Sierra Club petition, which addresses the 2008 DSW rule, it could provide information that EPA could use to make decisions about future efforts to improve the definition of solid waste or other provisions of the hazardous waste recycling regulations.

Appendix A: Description of the DSW Rule Exclusions

Under the DSW rule, EPA promulgated a conditional exclusion from the Subtitle C hazardous waste regulations for persons who generate or reclaim hazardous secondary materials. The regulation established streamlined requirements for the following hazardous secondary materials:

- Materials that are generated and transferred to another company for legitimate reclamation under specific conditions;
- Materials that are generated and legitimately reclaimed under the control of the generator (i.e., generated and reclaimed on-site, by the same company, or under "tolling" agreements); and
- Materials that EPA or an authorized state determines to be non-wastes through a case-by-case petition process.[28]

More specifically, a generator of an excluded hazardous secondary material that is transferred to another company for legitimate reclamation must either send it to a permitted RCRA hazardous waste reclamation facility or must perform an audit of the reclaimer (and any intermediate facilities) every three years. While the regulations contain no specific standards in conducting the audit, the regulations make clear that the audit documentation must demonstrate that (1) the reclamation is legitimate, (2) the reclamation facility (and any intermediate facilities) has notified EPA that they are operating under the DSW rule and that they certify they have appropriate financial assurance, (3) the reclamation facility (and any intermediate facilities) has no formal enforcement actions and is not a significant non-complier, or has otherwise demonstrated that the hazardous secondary material will be managed properly, (4) the reclamation facility has the equipment and trained personnel to recycle the hazardous secondary material safely, and (5) the reclamation facility will safely manage any residuals from the reclamation operations.

The generator may use any credible evidence available in performing this audit, including information gathered by the generator, information provided by the reclaimer or intermediate facility, and/or information provided by a third party, in lieu of personally performing an assessment. For example, the hazardous secondary material generator might hire an independent auditor to review the operations, produce audit reports as a consortium of generators, or rely on an assessment of a recycler or intermediate facility by a parent corporation or trade association that is used by several generating facilities.

The audit must also include a certification by the generator that states "I certify in good faith and to the best of my knowledge that, prior to arranging for transport of excluded hazardous secondary materials to [insert name(s) of reclamation facility and any intermediate facility], reasonable efforts were made in accordance with §261.4(a)(24)(v)(B) to ensure that the hazardous secondary materials would be recycled legitimately, and otherwise managed in a manner that is protective of human health and the environment, and that such efforts were based on current and accurate information."

[28] This particular exclusion will not be discussed in the Appendix since the decision on whether or not to exclude the material from the DSW regulations must be based on a case-by-case decision.

Reclaimers and intermediate facilities must have adequate financial assurance to ensure that there would be enough funds to dispose of the maximum possible volume of hazardous secondary material as hazardous waste in the event they could not reclaim it. This financial assurance could take the form of a trust fund, a surety bond, letter of credit, insurance, or a financial test and corporate guarantee, and must be re-calculated annually. Reclamation facilities operating under the DSW rule are required to have sudden accidental coverage for bodily injury and property damage to third parties for all units, and non-sudden accidental coverage (e.g., coverage for long-term releases to soil or groundwater) for land-based units. These facilities must also be able to demonstrate that they are managing the hazardous secondary materials in a manner that is as least as protective as that used for analogous raw materials and that any residuals from the recycling process will be managed in a manner that is protective of human health and the environment.

Similar to the way financial assurance works for hazardous waste facilities, the DSW financial assurance requirement does not include the costs of corrective action in the case that materials are mishandled unless there is an indication that such contamination exists (in which case the DSW facility would likely be out of compliance with the conditional exclusion and potentially subject to the RCRA hazardous waste corrective action requirements).

Generators, intermediate facilities and reclaimers must keep records of all shipments of excluded hazardous secondary materials and confirmations of receipt indicating that the hazardous secondary materials arrived at the reclamation facility (and any intermediate facilities). These records are kept at the facility and are subject to inspection, but do not accompany the shipment or get sent to the regulatory authority. Shipments are potentially subject to the DOT hazardous materials shipping requirements in 49 CFR Part 172 (which include shipping papers, labeling and placarding requirements).

Generators, intermediate facilities and reclaimers also must make sure that the hazardous secondary material is contained, that the recycling is legitimate, and that at least 75% of the material is recycled annually (also known as the “speculative accumulation” condition).

On the other hand, generators who reclaim hazardous secondary material onsite, within the same company, or under specific toll manufacturing agreements must meet the same containment, legitimacy, and speculative accumulation conditions that are required for generators who transfer their hazardous secondary materials to another company for reclamation.

Finally, all parties who participate in the DSW rule exclusions must first notify EPA using the RCRA Site ID form. This notification must include the facility information, types and quantities of hazardous secondary materials to be reclaimed, which exclusion they will be managed under, and whether they will be managed in a land-based unit. The notification information must be updated biennially.

Appendix B: Historical Causes of Industrial Recycling Damages Involving Hazardous Secondary Materials and the Definition of Solid Waste (DSW) Final Rule Conditions that Address Them			
A	**B**	**C**	**D**
Primary cause of historical recycling environmental damages	**Historical occurrence in 208 recycling damage cases (1982-2005)**	**Hazardous Secondary Materials Reclaimed Under the Control of the Generator**	**Hazardous Secondary Materials Transferred to another Facility for Recycling**
1. Mismanagement of recyclables	40% (81 cases)	• No speculative accumulation (i.e., 75% of material must be recycled each calendar year). • Materials must be contained • Generator initially, annually & upon change notifies USEPA of offsite recycling shipments. • Generator maintains offsite recycling shipment records (receipts). • Legitimacy must be considered: in particular, Factor 3: manage DSW-excluded material as valuable commodity, or as analogous raw material, or contained (40 CFR 260.43).	Same as Column C plus: • Generator documents that the recycler intends to legitimately recycle the material. • Generator documents that there is credible evidence recycler will manage materials safely based on environmental violations history. • Generator maintains offsite recycling shipment records.
2. Mis-management of recycling residuals	34% (71 cases)	• Materials must be contained. • Legitimacy must be considered in particular Factor 1: in cases where a hazardous component of the secondary material is not being used in the recycling process, the recycler is responsible for management of any hazardous residuals of the recycling process (40 CFR 260.43). • RCRA Subtitle C hazardous waste regulations still apply to residuals either exhibiting 40 CFR 261 subpart C hazardous characteristics or meets 40 CFR 261 subpart D hazardous waste listing descriptions.	Same as Column C plus: • Recycler has financial assurance for site closure. • Generator documents that the recycler has permits to manage residuals, or there is credible evidence that recycler will manage residuals safely.
3. Abandoned materials	14% (30 cases)	• Materials must be contained. • No speculative accumulation (i.e.,	Same as Column C plus: • The generator documents that the recycler has

Appendix B: Historical Causes of Industrial Recycling Damages Involving Hazardous Secondary Materials and the Definition of Solid Waste (DSW) Final Rule Conditions that Address Them			
A	**B**	**C**	**D**
Primary cause of historical recycling environmental damages	**Historical occurrence in 208 recycling damage cases (1982-2005)**	**Hazardous Secondary Materials Reclaimed Under the Control of the Generator**	**Hazardous Secondary Materials Transferred to another Facility for Recycling**
		75% of material must be recycled each calendar year). • Generator initially, annually & upon change notifies USEPA of offsite recycling shipments. • Legitimacy must be considered; in particular Factor 3: manage DSW-excluded material as valuable commodity, or as analogous raw material, or contained (40 CFR 260.43).	financial assurance for site closure.
4. Fire or accident	5% (11 cases)	• Materials must be contained. • No speculative accumulation (i.e., 75% of material must be recycled each calendar year). • Legitimacy must be considered; in particular Factor 4: product of recycling process does not contain hazardous constituent concentrations or exhibit a hazardous characteristic. (ignitability, corrosivity, reactivity, toxicity) (40 CFR 260.43). [Note: Although not counted in this exhibit as a condition of this DSW exclusion, other regulatory fire and accident prevention requirements apply, such as OSHA workplace standards & local fire codes.]	Same as Column C plus: • The generator documents that the recycler has equipment & trained personnel for safe recycling. • Recycler must have liability insurance for accidents.
5. Sham recycling	3% (7 cases)	• Legitimacy must be considered; in particular Factor 1: DSW-excluded material must provide a useful contribution to the recycling process (40 CFR 260.43); Factor 2:	Same as Column C plus: • The generator documents that the recycler intends to legitimately recycle the material.

Appendix B: Historical Causes of Industrial Recycling Damages Involving Hazardous Secondary Materials and the Definition of Solid Waste (DSW) Final Rule Conditions that Address Them			
A	**B**	**C**	**D**
Primary cause of historical recycling environmental damages	**Historical occurrence in 208 recycling damage cases (1982-2005)**	**Hazardous Secondary Materials Reclaimed Under the Control of the Generator**	**Hazardous Secondary Materials Transferred to another Facility for Recycling**
		recycling process must produce a valuable product (40 CFR 260.43); Factor 3: generator & recycler manages secondary materials as a valuable commodity (40 CFR 260.43); and Factor 4: product of recycling process does not contain hazardous constituent concentrations or exhibit a hazardous characteristic (40 CFR 260.43).	
6. Unknown causes	4% (8 cases)	Not analyzed	Not analyzed

Appendix C: Summary of Definition of Solid Waste Final Rule Notifications (as of January 12, 2010)

Under the DSW final rule (73 FR 64668), facilities must notify their regulatory authority prior to managing hazardous secondary materials under the DSW rule and every other year thereafter. As of January 12, 2010, EPA and states have collectively received notifications from 23 facilities. EPA is providing this *Summary of Definition of Solid Waste Final Rule Notifications* to enable public access to the information received from these notifications. Note: The information from the notifications is reported as it was submitted by the companies.

State	# of facilities that have submitted a DSW notification
Iowa	10
Pennsylvania	8
New Jersey	5
TOTAL	**23**

Facility Type	# of facilities[29]
Generator-controlled exclusion, reclaiming onsite	9
Generator-controlled exclusion, reclaiming within same company	5
Generator-controlled exclusion, tolling	0
Transfer-based exclusion, generator transferring offsite	9
Transfer-based exclusion, reclamation facility[30]	3
Transfer-based exclusion, intermediate facility	0
Transfer-based exclusion, generator exporting HSM	0
Transfer-based exclusion, reclamation facility importing HSM	1

Hazardous Secondary Material Type	# of facilities[31]
Solvents (F001-F005, D035, plus D001)	14
Electric arc furnace dust (K061)	2
Spent pickle liquor (K062)	2
WW treatment sludges; plating bath residues from electroplating operations (F006;F008)	3
Ignitable and/or corrosive (only) (D001, D002)	5
Characteristically toxic for metals (D004-D011)[32]	3
Other characteristically toxic (D012-D043, except D035)	1

[29] Some facilities notified they are operating as multiple facility types and thus are counted more than once in this column.
[30] Three reclaimers have notified under the rule (INMETCO Ellwood City, PA; Safety-Kleen Linden, NJ; and Veolia Middlesex, NJ). All have notified they have financial assurance.
[31] Some facilities notified they are managing multiple types of hazardous secondary materials and thus are counted more than once in this column.
[32] May also be ignitable or corrosive.

List of Facilities that have Notified under the Definition of Solid Waste Final Rule[33]:

EPA ID	Name	City	State	NAICS Description	Facility Description	Waste codes for Hazardous Secondary Material	Estimated Annual Quantity	Start Date
IAD005286539	Iowa Mold Tooling Company Inc	Garner	IA	Construction Machinery Manufacturing	HSM Generator transferring offsite	F003;F005;D001; D035	60 tons	Mar-09
IAD043490150	Curries 9th Street Facility	Mason City	IA	Metal Window and Door Manufacturing	HSM Generator reclaiming onsite	D001;D035;F005	5.4 tons	Jan-09
IA0000990762	Iowa Contract Fabricators Inc	Riceville	IA	Motor Vehicle Body Manufacturing	HSM Generator transferring offsite	F003;F005;D001; D035	40 tons	Mar-09
IAR000007377	Siegwerk USA Co	Des Moines	IA	Printing Ink Manufacturing	HSM Generator transferring within "same company"	D001	125 tons	Mar-09
IAD078096732	Siegwerk USA Co	Des Moines	IA	Printing Ink Manufacturing	HSM Generator reclaiming onsite; Reclaimer receiving HSM from within "same company"	D001	250 tons	Mar-09
IA0000362905	Curries 12th St NW Facility	Mason City	IA	Metal Window and Door Manufacturing	HSM Generator reclaiming onsite	D001;D035;F005	15.4 tons	Jan-09
IAD000678094	John Deere Engine Works	Waterloo	IA	Other Engine Equipment Manufacturing	HSM Generator reclaiming onsite	D001	2 tons	Aug-09

[33] No facility has notified they are using land-based units.

EPA ID	Name	City	State	NAICS Description	Facility Description	Waste codes for Hazardous Secondary Material	Estimated Annual Quantity	Start Date
IAD007276728	Vogel Paint & Wax Co Inc	Orange City	IA	Paint and Coating Manufacturing	Managing under 261.2(a)(2)(ii)	D001;F003;F005	225,000 gal/yr	Feb-09
IAD000805168	John Deere Waterloo Works	Waterloo	IA	Farm Machinery and Equipment Manufacturing	HSM Generator reclaiming onsite	D001;F003;F005	100 tons	Oct-09
IAD069624500	John Deere Des Moines Works	Ankeny	IA	Farm Machinery and Equipment Manufacturing	HSM Generator reclaiming onsite	F005	75 tons	Nov-09
PAD980829287	Johnson Matthey Emissions Control Technologies	Wayne	PA	All Other Motor Vehicle Parts Manufacturing	HSM Generator reclaiming onsite; Reclaimer receiving HSM from within "same company"	D002;D005	530,000 gallons	Dec-08
PAD003043353	Cherokee Pharmaceuticals, LLC	Riverside	PA	Medicinal and Botanical Manufacturing	HSM Generator transferring offsite	D001;D002	200 tons	Jul-09
PAD087561015	International Metals Reclamation Company, Inc	Ellwood City	PA	Nonferrous Metal (Except Aluminum) Smelting and Refining	Reclaimer receiving HSM from offsite	K061;K062;F006; D001;D002;D003; D004;D005;D006; D007;D008;D009; D010;D011	31,000 tons	Jun-09
PAR000519322	Johnson Matthey Emissions Control Technologies	Smithfield	PA	All Other Motor Vehicle Parts Manufacturing	HSM Generator transferring within "same company"	D002	14,000 gallons	Aug-09

EPA ID	Name	City	State	NAICS Description	Facility Description	Waste codes for Hazardous Secondary Material	Estimated Annual Quantity	Start Date
PAD002344315	Carpenter Technology Corporation	Reading	PA	Iron and Steel Mills	HSM Generator transferring offsite	K061;K062;F001;F008	5,103 tons	Jul-09
PAD003025418	BAE Systems, Land & Armaments	York	PA	Military Armored Vehicle, Tank, and Tank Component Manufacturing	HSM Generator transferring offsite	D001;F003	40 tons	Sep-09
PAD981037377	Triangle Circuits	Oakmont	PA	Bare Printed Circuit Board Manufacturing	HSM Generator transferring offsite	F006	25 tons	Jan-10
PAD980550412	Lonza, Inc.	Conshocken	PA	Medicinal and Botanical Manufacturing	HSM Generator transferring offsite	D001;F003	3,700 tons	Jun-09
NJD002338267	Aluminum Shapes LLC	Delair	NJ	Secondary Smelting and Alloying of Aluminum	HSM Generator reclaiming onsite	D001;F005	10,000 gallons	Jul-09
NJD002182897	Safety-Kleen Systems, Inc (Linden Facility)	Linden	NJ	Hazardous Waste Treatment and Disposal	Reclaimer receiving HSM from within "same company"; HSM Generator and Reclaimer of Imported HSM; Reclaimer receiving HSM from offsite	D001;D008;D018;D035;D036;D039;D040;F001;F002;F003;F005;	23,482 tons	Jun-09
NJD064344575	Siegfried USA Incorporated	Pennsville	NJ	Medicinal and Botanical Manufacturing	HSM Generator transferring offsite	D001;F003	1,700 tons	Aug-09
NJD002454544	Veolia ES Technical Solutions LLC	Middlesex	NJ	Hazardous Waste Treatment and Disposal	Reclaimer receiving HSM from offsite	D001;F003	40 tons	Sep-09

EPA ID	Name	City	State	NAICS Description	Facility Description	Waste codes for Hazardous Secondary Material	Estimated Annual Quantity	Start Date
NJD002482545	Viking Yacht Company	New Gretna	NJ	Boat Building	HSM Generator transferring offsite	D001;F003	70 tons	Dec-09