United States
Environmental Protection
Agency

Solid Waste and
Emergency Response
(OS-305)

EPA530-R-92-021
July 1992

EPA

RCRA Implementation Study Update:

The Definition of Solid Waste

Printed on Recycled Paper

NOTE: Any policy or regulatory options described in this report are preliminary and do not reflect final positions of the U.S. Environmental Protection Agency.

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UPDATE:
THE RCRA IMPLEMENTATION STUDY

In July 1990, the Environmental Protection Agency (EPA) completed an analysis of the nation's hazardous waste management program under the Resource Conservation and Recovery Act (RCRA). Entitled The Nation's Hazardous Waste Management Program at a Crossroads: The RCRA Implementation Study, this analysis represented the Agency's effort to take a thorough, objective view of how well the program achieves its goals of protecting human health and the environment and encouraging the recovery of resources.

An essential goal for the Agency is to develop clear, concise regulations. To this end, EPA is evaluating major regulations to examine their ease of implementation, enforceability, and environmental impact. As a starting point for this effort, the Agency is reexamining its definition of solid waste, which is the subject of this updated report. This definition is crucial to the hazardous waste management program, since it determines which materials are subject to RCRA controls. The attached report presents EPA's preliminary approaches to developing a better definition.

CHAPTER 1: CONSERVING AND RECOVERING RESOURCES

Summary

As the United States enters the 21st century, many of us are beginning to question our habits of consumption. We can no longer afford to squander our material or energy resources. American companies are trying to prevent pollution at its source by reducing the waste that they generate. Many private citizens now take environmental concerns into account when they decide whether or not to buy a particular product. States are changing their laws to conform to their constituents' desire to recover resources instead of throwing them away.

In spite of these efforts, many human activities will inevitably continue to generate waste. Waste is both a problem that we must deal with and a potential source of valuable materials that we can use again. Reusing materials saves time and money and contributes to our economic vitality. Many industrial and commercial operations depend on using recovered materials. Technologies to recover resources can also bring about markets to move these resources to those who can use them. Recovering resources gives entrepreneurs many opportunities to seek out and develop markets.

If we can extract materials from wastes and use them again, we will depend less on foreign sources of raw materials; we can create more American jobs. If we reduce imports, and even increase exports of recovered or reclaimed materials, we can have a positive effect on the United States balance of payments. We must respond to this challenge if we are to compete successfully in the world economy.

Leaders must ask what they can do to respond to this challenge. Entrepreneurs will decide if the potential profits of a venture outweigh the risks, and will make their investment decisions accordingly. The most important role the government can play in this national effort is to take a hard look at obstacles that entrepreneurs face. It should ask whether the myriad of laws and regulations are unnecessarily impeding new and useful ideas. For example, EPA has promulgated stringent regulations over the past eleven years to control recycling of hazardous wastes. These materials, <u>if not managed properly</u>, can cause serious harm to human health and the environment. However, the cumulative effect of the federal RCRA program, other EPA programs, and state and local controls is that an entrepreneur confronts a bewildering maze of restrictions. He must ask the government's permission (sometimes several times) for many or most of his plans. Getting this permission takes a toll in time and frustration and creates tremendous uncertainty. Jobs and potential profits may be lost if the permission is not granted. In addition, recoverable materials may be lost or destroyed through treatment and disposal.

Government programs to prevent waste mismanagement can affect recycling in different ways. Some industries adapt to new regulations relatively easily, while others are profoundly affected. The cost of complying with requirements can cause some companies or industries to shift from recycling to disposal, or vice versa. Entrepreneurs who are considering resource recovery must invest a good deal of time in learning the Subtitle C regulations, since those regulations will often affect the operation's chances of success. Some of these entrepreneurs will proceed with their plans to recycle hazardous waste (such as solvents) at highly-regulated facilities. Others may decide to conduct the recycling outside of EPA's jurisdiction or under special exemptions in the regulations. Others may simply abandon their recycling plans, which means that potentially valuable resources in their wastestreams will not be recovered.

The purpose of this report is to generate discussion about how the RCRA program should apply to recycling, and how best to encourage recycling of hazardous materials that also is protective of the environment. The report includes a brief description of the statutory mandate of Subtitle C. It also discusses the Subtitle C requirements that companies have repeatedly mentioned as being significant barriers to recycling. Through this report, EPA hopes to get answers to many questions. If all regulatory barriers to recycling were removed, what would happen? Would new recycling operations start up, reducing the demand for virgin materials? Would new jobs be created to process secondary materials? Can recycling operations be safely conducted without heavy government oversight? If recycling becomes easy, will industries still try to reduce waste production?

To accomplish its goals, EPA needs to balance two different and sometimes conflicting Congressional mandates: to protect human health and the environment and to encourage recycling. The Agency developed the regulations for recycling hazardous waste with the primary purpose of protecting human health and the environment. Resource recovery has generally been a secondary consideration. This report is aimed at putting the two goals on a more equal footing. We want to investigate ways to tailor regulatory standards for some recycling activities to encourage recycling, without sacrificing protection of human health and the environment.

EPA has developed three tentative options to achieve this end. These options are:

- Redefine "solid waste" so that it conforms more closely to materials that actually pose waste disposal problems. Many secondary materials would be conditionally excluded from the definition of solid waste, or subject to varying degrees of control depending on the generating or managing industry's past performance. Secondary materials burned for energy

recovery or placed on the land would be wastes unless that is their normal manner of use.

- Make incremental, relatively narrow exceptions to the current definition (such as variances) to reduce situations where the regulations result in environmentally irrelevant distinctions.

- Develop tailored controls for selected kinds of recyclable secondary materials and processes.

These options are discussed in more detail in Chapter 5.

RCRA Jurisdiction

A difficult issue in the RCRA program is jurisdiction: how to decide when materials are subject to RCRA controls. The hazardous waste program under Subtitle C covers materials that are defined as "solid wastes" in section 1004(27) of RCRA, and that are listed or identified by EPA as hazardous. This report addresses Subtitle C wastes, but the reader should note that solid wastes are also regulated under Subtitle D of RCRA. Whether a material is a solid or hazardous waste is also relevant to the use of authority under section 7003 of RCRA to remedy situations which may present an imminent and substantial endangerment to human health and the environment. However, the reader should note that the Agency has always interpreted section 7003 more broadly than the regulatory definition of solid waste.

The definition of solid waste in section 1004(27) of RCRA is:

> . . . any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities
> . . . [emphasis added]

This definition sets the boundaries of the RCRA program. Because the term "discarded" is not defined in the statute, it is sometimes difficult to decide whether or when recycled materials have been "discarded" in such a way that they may appropriately be considered solid wastes. Some provisions of RCRA (such as sections 3004(l), (q), (r), and 3014) command EPA to regulate particular recycling activities. Additional guidance is found in the legislative history, which indicates that Congress generally did not intend for Subtitle C to cover production processes, and also indicates that Congress' ultimate aim was to prevent hazardous materials from becoming a disposal problem. Over the past ten years, EPA has reviewed the statutory language and legislative history of RCRA, and has constructed an interpretation of "solid waste" at 40 CFR 261.2.

Reexamining the Definition of Solid Waste

RCRA's jurisdiction over recycling depends on how the term "solid waste" is defined. The current definition at 40 CFR §261.2 interprets the statutory term "discarded" and classifies materials destined for recycling as wastes or non-wastes. EPA has established these broad classifications by evaluating the degree to which a particular recycling activity resembles waste management (which would normally involve discarded materials) or production (which would not normally involve discarded materials). Thus, if a material is burned for energy recovery or used in a manner constituting disposal (for example, applied to the land), that material is considered to be discarded because these activities are quite similar to managing a waste. If a material is used as a substitute for a commercial product or as a feedstock for an industrial process, it would not be considered discarded because these uses resemble production of new materials rather than waste management.

Reclamation activities, which are a subset of all recycling activities, frequently have aspects to them that resemble both treatment and production. The Agency has historically classified these activities according to the type of material (sludge, by-product, or spent material) that is reclaimed (for examples of this kind of classification, see 40 CFR 261.2(c)-(e)). If a recyclable material is classified as a solid and hazardous waste, it is subject to the requirements of 40 CFR 261.6, which are similar to requirements for generators, transporters, or storers of hazardous wastes. These requirements typically apply up until the point recycling begins, although in some cases the recycling activity is regulated as well (for example, burning for energy recovery, use constituting disposal, and certain reclamation activities involving emissions of volatile compounds).

The current rules, adopted in 1985, have many useful features and mark a significant improvement over the 1980 rules that they replaced. However, they arguably do not strike the best balance between protecting human health and the environment and encouraging recycling. In some respects they may be deficient in achieving either of these objectives.

Recent Public Forums

After EPA completed its initial RCRA Implementation Study, the Agency conducted several forums to discuss its findings. Representatives from State environmental agencies, industry, other Federal agencies, environmental groups, and Congressional staff attended these forums. Full summaries of these meetings are contained in Appendix B of this report.

Virtually everyone who attended the forums agreed that EPA

should encourage (or at least not discourage) "environmentally sound recycling." However, considerable differences arose over how to define that phrase. EPA believes that special regulations for environmentally sound recycling could provide incentives for entrepreneurs to expand available recycling technologies, while also encouraging careful management practices. The marketability of a particular recycled material could influence whether its recycling was conducted in an "environmentally sound" manner. If a recycled product becomes more difficult to sell because of a decline in public demand, the recycling activity may be managed less carefully, with possible negative consequences for human health and the environment. If the regulations governing recycled materials are revised, the Agency may wish to take this possibility into account.

While acknowledging that recycling should be encouraged, attendees at the forum expressed dissatisfaction with the results of the current regulatory definition of solid waste and the regulation of secondary materials (i.e., solid wastes that either exhibit a hazardous characteristic or have been listed by EPA as a hazardous waste).

The state environmental officials generally disliked the fact that the current regulations contain exemptions that are "self-implementing": they allow facilities to decide by themselves that their activities are exempt, without notice to regulatory agencies. Thus, environmental problems may occur before these agencies can take steps to prevent or mitigate them. However, the state officials also believed that the regulations over-control some low-risk activities. For example, a secondary material is often used in a way similar to the way a virgin material is used, and may be composed of similar raw materials. In spite of these similarities, the RCRA regulations require stricter controls for the secondary material (and often no controls at all for the virgin material). This difference may cause facilities to use virgin rather than secondary materials in production, thus resulting not only in additional risks associated with extracting and developing the virgin materials, but also lost opportunities for recovery and reuse of materials.

Participants from other organizations (regulated industry, waste treatment, environmental groups, Congressional staff, and other Federal agencies) expressed differing opinions about the regulations. Some believed that the RCRA program should control <u>all</u> hazardous secondary materials; for example, that EPA should regulate the levels of toxic constituents in products composed of recycled materials. Others believed that recycling should <u>never</u> be regulated as waste management. A more commonly expressed view was that at least some forms of recycling are waste management and should be regulated under Subtitle C or some other authorities. Some participants showed concern about the "stigma" of having their wastes designated as hazardous, even though the handling of some

"non-hazardous" wastes posed similar environmental risks.

The participants identified several specific problems with the current regulations (discussed in more detail in Chapter 3). These were:

- The "derived-from" rule, which provides that treatment residues of listed hazardous waste (including residues from recycling) are themselves hazardous. This rule can cause low-risk wastes to be regulated unless the operator of a recycling facility chooses to go through the lengthy delisting process.

- Facility-wide corrective action requirements, which discourage new recycling activities at older sites with past environmental problems.

- Permitting and the permitting modification procedures, which delay new recycling activities at both new and older sites.

Participants also identified certain problems with implementing the regulations (described in more detail in Chapter 4). The principal problems were:

- The difficulty of determining in advance how a waste is actually likely to be handled. This difficulty is exacerbated by the "self-implementing" nature of the exemptions described above, which allow exempted parties to operate without the knowledge of regulatory authorities and to claim exemptions where these are not justified (for example, where "recycling" is actually hazardous waste treatment).

- Inconsistent regulatory interpretations in different states. This can affect interstate transport and recyclers competing in interstate commerce.

In summary, the majority view among interested parties is that EPA should use its regulatory authorities to encourage environmentally sound recycling, and that the current regulations are difficult to implement and in some cases may discourage such recycling.

Besides regulatory impediments, many other factors affect "recyclability." Chief among these are technical, practical, and logistical barriers, and shifts in market demand for various recycled products. The Agency's power to modify these other factors is very limited, but EPA believes that by identifying unneeded regulatory barriers and trying to address or remove them, we can still play an important part in encouraging environmentally sound recycling. Following is a brief discussion of three principal regulatory impediments that we have identified, with some tentative suggestions for change.

Regulatory Barriers

The first impediment is that the definition of solid waste in both over- and under-inclusive. It sometimes causes potentially hazardous materials to go unregulated, while other materials that present minimal hazards are fully regulated. This impediment is in part a result of the difficulty in categorizing all materials as either "wastes" or "non-wastes," which is called for under the current definitions in the statute and the regulations.

The second impediment is that too many critical distinctions (such as that between whether a recycling activity resembles production or waste management) do not correspond to actual differences in environmental risks. The result is that activities or materials which may pose the same environmental hazards (such as listed and unlisted sludges being reclaimed) are nevertheless treated differently. The ensuing economic consequences track the differences in regulatory status, not the environmental hazards involved.

The third impediment is that the regulations are too complex. This is because some provisions were crafted to address legal or procedural issues or policy distinctions rather than for ease of understanding.

Two recent opinions by the U. S. Court of Appeals for the D.C. Circuit may suggest one avenue for resolving these impediments. (See Appendix A). In those opinions, the court indicated that it will adopt a more pragmatic approach towards interpreting Subtitle C jurisdiction. Under that approach, materials would be considered solid wastes unless they are recycled in a truly continuous fashion and unless they do not constitute a waste disposal problem. EPA would thus have the discretion to set out conditions (such as management practices) under which materials or activities would be excluded because they are not part of the waste disposal problem. Once the Agency establishes these conditional exclusions, persons operating in conformance with the conditions would not be considered to be managing a solid waste. This approach would be an incentive to recycling activities that are now discouraged from operating by such features of the hazardous waste rules as permitting, facility-wide corrective action, and the derived-from rule.

This avenue would bring about changes in an incremental fashion. A simpler, more sweeping approach would be, for example, to define a solid waste as any material which escapes into the environment or has the realistic potential for doing so. EPA might include whole classes of secondary material management units within RCRA (such as land disposal and combustion units) and exclude certain others if the materials in them were securely contained (such as tanks and various non-combustion units). This approach would eliminate some of the most complicated features of the

current rules. For example, the Agency would distinguish between different ways of recycling secondary materials only if the potential for release to the environment were different. The approach would also further RCRA's goals of waste minimization and pollution prevention, since release-free, secure processes would be encouraged because they would not be regulated.

In addition, interpreting the statutory term "discarded" to mean actual release or significant threat of release is arguably consistent with a normal understanding of the term, and also has support in the most recent court cases interpreting RCRA jurisdiction over solid waste. Under this approach, many management units that are traditional RCRA targets (such as land disposal and combustion units) would still be managing wastes, as would insecure storage units. On the other hand, truly closed reclamation systems, such as those presently excluded at 40 CFR 261.4(a)(8), would not involve waste management if volatile emissions were adequately controlled.

The simplified approaches described above would only be feasible if regulatory flexibility were built in to address site-specific circumstances that did not fit the general rules. This flexibility is necessary both to protect human health and the environment and to encourage resource recovery.

These approaches offer a glimpse of a simpler regulatory scheme which would be more favorable to recycling while also offering full environmental protection. However, some will inevitably argue that the approaches cannot be adopted under the current statutory mandate, and that Congress must amend RCRA before these changes can be made. In spite of this view, the Agency believes that this report is useful as a starting point for updating the definition of solid waste and the hazardous waste recycling provisions. Our ultimate goal is to encourage environmentally sound recycling and to organize the regulations around more practical, environmentally- based distinctions.

The remainder of this report will discuss resource recovery as a goal of the RCRA program, perceived regulatory impediments to that goal, implementation issues, and ways to change the program that address these topics.

CHAPTER 2: RESOURCE RECOVERY AS A RCRA GOAL

Section 1003 of RCRA states that its objectives are
" to promote the protection of health, and the environment and to conserve valuable material and energy resources by . . . assuring that hazardous waste management practices are conducted in a manner which protects human health and the environment; . . . requiring that hazardous waste be properly managed in the first instance thereby reducing the need for

> corrective action at a future date; . . . [and] minimizing the generation of hazardous waste and the land disposal of hazardous waste by encouraging process substitution, materials recovery, properly conducted recycling and reuse, and treatment . . . "

The question of how best to carry out this goal raises several issues, which are discussed below.

General

Over a period of eleven years, the Agency has established the RCRA Subtitle C program to control hazardous waste management. The program has evolved in response to EPA's determination that certain waste management practices need controls, and also in response to specific Congressional directives (for example, the section 3004(q) program for burning hazardous waste). In addition to safe management of hazardous wastes, Congress also defined RCRA's objectives to include minimizing waste generation and land disposal.

In the past, the Agency has considered the general effects of Subtitle C regulations on recovery, recycling, and reuse of materials. However, EPA has not yet evaluated particular provisions to determine precisely how they affect the regulated community's decisions about process substitution, recovery of materials, recycling, and reuse.

When making regulatory decisions, the question for EPA is how much weight should the Agency give to resource recovery? In the May 19, 1980 preamble to the hazardous waste regulations, EPA stated that:

> . . . Although promoting waste re-use and recovery is certainly one of the goals of RCRA, Subtitle C does not require EPA to consider resource recovery implications in establishing hazardous waste management standards; nor does it suggest that promoting resource recovery should take precedence over assuring proper management of hazardous waste . . . [45 FR 33092, May 19, 1980].

Tailored Controls for Recycling

Should the RCRA regulations be tailored to distinguish between recycling operations and simple treatment and disposal? Some materials can be recycled quite safely, while their treatment and disposal poses substantially increased risks. At times, the reverse is true as well. An ideal regulatory scheme would adequately protect human health and the environment no matter which option were chosen. This would allow other factors, such as economics, to be taken into account by the waste manager.

An example of this ideal scheme is a material consisting of iron filings and lead shot. Recycling this material could involve a magnetic separation technique which generates no lead-containing dust and which is quite safe if the separation occurs in units that contain the material completely. The iron filings could be used as a feedstock in steel production and the lead shot could be reused directly with no further processing. Alternatively, a non-recycling treatment technique might involve adding a binder material to "fix" the lead shot in place and render it immobile, with later disposal in a landfill. However, the treatment-with-disposal technique could result in greater environmental harm because of possible leaching of the lead.

To tailor controls for recycling this material, EPA could consider such factors as containment of the waste during separation and possible controls on airborne lead particulates. For treatment-and-disposal, EPA might consider controls such as specifications for the binder material, containment of the waste while the binder is added to it, possible air emission controls, and land disposal restrictions. The Agency could then impose RCRA controls for this lead shot and iron filings waste to ensure equivalent protection of human health and environment under either management technique. The regulated community would then base its decision about whether to recycle or treat and dispose on other factors than the RCRA regulations.

A second example is a used solvent that is recycled by filtration, and then reused with no other processing. Alternatively, the treatment technique for the used solvent could be incineration, with subsequent disposal of the incinerator ash. If the only material incinerated was the used solvent and the combustion conditions were good, very little ash might result from the incineration. Even if the potential for volatilization of the solvent were similar in both cases (except during actual burning), incineration may pose a greater danger to the environment because of possible emissions of incomplete combustion products and metals present in the used solvent.

To tailor controls for recycling the used solvent, EPA could consider such things as the need for containment of the waste before and during filtration, the need for air emission controls to capture the volatilized solvent, and restrictions on where the filter cake could be disposed. For treatment-and-disposal, EPA could consider such things as the need for containment of the solvent before incineration, air emission limits on the incinerator emissions, and and restrictions on where the incinerator ash could be disposed.

A third example is recycling of solder drosses skimmed from the surface of molten tin-lead solder. These drosses could either be recycled by melting them to separate the usable solder from the lead and tin oxides that are present in the dross. Alternatively,

they could be treated and disposed by being bound with a binding agent placed in a landfill. For recycling, EPA could evaluate such things as the need for containing the solder drosses before and during recycling, the potential for air emissions from recycling, and necessary controls on disposal of any residues from recycling. For treatment-and-disposal, EPA could consider such things as the need for containment before and during treatment, the effectiveness of the binding material, the potential for air emissions from the treatment process, and necessary controls on disposal of the treated wastes.

If the Agency pursues such an approach, we would consider many questions. Which criteria would EPA use to select hazardous wastes for this kind of tailoring? If the Agency attempts to use net risk reduction as a criterion, will it have enough data to compare the risks of recycling and treatment for the same material? Under this approach, an industry requesting special controls would have to provide information to assist EPA to make such a comparison. If risks appear to be similar for both management techniques, should the Agency still provide a regulatory preference? If so, why? Are some materials of strategic value to the United States, making their recovery a national priority even if recycling poses greater risks than disposal?

Universal Waste

Finally, some wastestreams do not fit well into the control structure imposed on most hazardous wastes. Many of these wastes, such as used oil and batteries, are ubiquitous and are often found in household and commercial facility wastestreams. Large portions of these wastestreams are either excluded from regulation under the household waste exclusion, or exempt under the conditionally exempt small quantity generator regulations at 40 CFR 261.5. EPA refers to these wastes as "universal wastes," as a term of convenience. Other wastes which may be hazardous in some cases and which are typically found in non-industrial settings are light bulbs (including fluorescent or mercury-vapor lamps), automotive fluids such as used antifreeze, other automotive components such as used oil filters and glass, rags or wipers used to apply solvents or clean up spills or contaminants, used refrigerants from air conditioning and refrigeration systems; pesticides; photographic supplies and materials, pharmaceuticals, dry-cleaning cartridge filters, reagent-grade laboratory chemicals, mercury-containing thermometers, pressure gauges, and switches, and paint application wastes.

Because the RCRA regulations exclude or exempt many of these wastes, they frequently are disposed rather than collected for recycling. Recycling technologies exist for valuable resources such as certain kinds of batteries and used oils. However, the price of virgin materials can determine the availability of an infrastructure to collect and transport the wastes to recycling

facilities. Recycling can also be affected by the cost of complying with additional hazardous waste management and permitting standards. State and local officials are now targeting many of these materials under special programs designed to encourage collection, including manufacturer "take back" programs. Some have suggested that allowing special regulations or conditional exemptions for certain kinds of recycling would encourage development of a recycling infrastructure. These special controls might ultimately lead to recycling of (and the appropriate level of control over) the excluded portions of the wastestreams, thus encouraging recovery of the valuable resources now being thrown away.

CHAPTER 3 - REGULATION OF RECYCLING: CONTROL AND POTENTIAL IMPEDIMENTS

Requirements imposed on recycling can affect a company's decision about whether to recycle or dispose of its waste materials. Following is a discussion of regulatory provisions that some have cited as barriers to recycling.

RCRA Subtitle C regulates hazardous wastes, which are a subset of "solid wastes." In order to be a hazardous waste, a material must first be defined as a "solid waste." EPA originally defined materials as "solid wastes" if they were either: 1) a garbage, refuse, or sludge, or 2) other waste materials that are discarded, or (for certain materials) sometimes discarded.

In January 1985, EPA refined the original regulatory definition of solid waste so that some recycling activities (such as those that are similar to normal production processes) are not covered by waste management requirements, and so that materials recycled in these ways are not wastes. However, some recycling operations, such as burning a material or placing it on the land, closely resemble managing a waste. The Agency therefore decided in 1985 that hazardous secondary materials recycled in these ways are "solid wastes."

The January 1985 regulation contains a three-part definition of solid waste:

The **first part** states that materials that are abandoned by being disposed, burned or incinerated (or accumulated, stored or treated before one of these activities) are always solid wastes (see 40 CFR § 261.2(a)(2)(i)).

The **second part** states that recycled materials are solid wastes when recycled in certain ways, and are not solid wastes when recycled in other ways (see § 261.2(a)(2)(ii)).

The **third part** states that certain "inherently wastelike" materials are always considered solid wastes, even when recycled (see § 261.2(a)(2)(iii)).

The regulated community generally has not expressed serious disagreement with EPA's jurisdiction over materials in the first and third parts of this definition. The second part of the definition, however, has been the subject of considerable debate and legal challenge.

The second part defines certain recycling activities as waste management. Any secondary material that is not a commercial chemical product being used as intended is regulated as a solid waste if it is recycled in the following ways:

Burning for Energy Recovery, or Use to Produce a Fuel

This activity is considered waste management when the material is used for its energy value. To distinguish between using a material for energy versus burning it to destroy it, EPA has issued a statement of enforcement policy (see 56 FR 1157 (March 16, 1983) and 56 FR 7149, 7183 (February 21, 1991)).

Use in a Manner Constituting Disposal

This activity is considered to be waste management when a material is recycled by being placed on the land either directly or after incorporation with other materials. Different classes of this kind of reuse are:

- Use in fertilizers, pesticides, or to alter the physical structure of soils.
- Use to build marine habitats such as coral reefs.
- Use as an anti-skid material or for suppressing dust on road surfaces.
- Use as landfill cover material.
- Use as a construction material: as an ingredient in concrete or other paving materials, as highway fill, road base, building or residential fill material, or as construction material for retaining walls, levies, and berms.

Speculative Accumulation

This activity is considered to be waste management when materials are accumulated with the intention of recycling them, but are stored for a long period of time before the recycling takes place.

For all three of the above recycling activities, commercial chemical products that are normally used in these ways are not solid wastes. All other secondary materials (e.g., by-products, spent materials, sludges), are solid wastes when recycled in these ways.

Reclamation

In addition, a fourth kind of recycling is considered to be waste management only when certain types of secondary materials are recycled by that technique. The technique is known as reclamation, and it involves processing to recover a usable product, or regeneration. Under the current definition, some materials undergoing reclamation are considered to be wastes (e.g., spent materials), while others are not (e.g., by-products).

Finally, some recycling activities are not defined as waste management, regardless of the material recycled. These are:

- Use or reuse of secondary materials as ingredients in production processes (for example, using chemical industry stillbottoms as feedstock).

- Direct use or reuse as an effective substitute for a commercial product (for example, using hydrofluorsilicic acid, which is an air emission control dust, to fluoridate drinking water).

- Return of secondary materials to their original primary production process, without prior reclamation (for example, returning spent electrolyte from primary copper production to the copper production process from which it came).

In all of these activities, the material involved is not considered a solid waste. However, there are four important exceptions: if the material is being used to produce a fuel, or to produce a product that will be applied to the land, or is being accumulated speculatively, or is inherently wastelike, it <u>is</u> a solid waste. Furthermore, in order to be excluded from the definition of solid waste, the material must be <u>legitimately</u> used or recycled, not merely treated or disposed of under the guise of recycling.

Determining whether a given material is a solid waste has enormous implications for its management. A determination that the material is <u>not</u> a solid waste can mean that virtually no controls are imposed on its transport, handling, storage, and final disposition. On the other hand, a determination that the material <u>is</u> a solid (and hazardous) waste can mean that its transport is strictly controlled, as are its handling, storage, and final disposition.

This all-or-nothing feature of the regulations (and to some extent, the statute) means that EPA must establish its authority (i.e, determine whether a material is a solid waste) before it can even inquire about safety. If a secondary material is not a solid waste, it may go unaddressed even if it presents serious health and safety risks. This emphasis on a threshold determination of waste versus non-waste places an imprimatur on definitional language and diverts attention from environmental hazards. Furthermore, the possibility of tailored standards at an intermediate level of control is not able to be pursued.

On the other hand, some parties claim that the current definition of solid waste regulations may sometimes discourage recycling. Industrial facility owners who must choose between using virgin raw materials or a hazardous waste for some purpose may select the virgin material even when two materials are equally

suitable for the purpose. In some cases, the virgin and hazardous waste materials are physically or chemically different, i.e., the waste may pose more of a hazard than the virgin material. In other cases, there are few or no differences between the virgin and hazardous waste material. In the latter case, choosing a virgin material rather than a recyclable hazardous waste may result from reluctance to comply with hazardous wastes requirements.

For example, a primary metal smelting facility may choose to process virgin ores exclusively. This facility is subject to various regulatory requirements and guidelines imposed under federal and state laws. However, if the facility chose to accept metal-bearing hazardous wastes to use in its smelter, not only would it likely become subject to RCRA requirements for storing hazardous wastes before their use, it would also become subject to the extensive corrective action requirements solid wastes previously disposed of. In addition, its smelting process residues might become regulated hazardous wastes, with extensive management requirements. This would be the case even if the risks posed by the facility and its residues were unaffected by accepting the secondary material.

Even if it is true that some RCRA regulatory requirements discourage recycling, it does not necessarily follow that materials with recycling potential should be excluded from RCRA just to make recycling easier. While other EPA programs (the Clean Air Act, the Clean Water Act, and the Toxic Substances Control Act) can provide some control over industrial processes, the materials captured by the RCRA waste listings and characteristics tend to be materials contaminated by toxic constituents or collected by air and water pollution control devices. They frequently are concentrated sources of unwanted toxics created in the manufacturing process. As discussed further later in this chapter, conditional exclusion from jurisdiction may balance control with encouragement of recycling. But the need still remains to control secondary materials that may pose a serious hazard when mismanaged.

Regulation of Hazardous Wastes that are Recycled

The current hazardous waste regulations contain several special provisions for hazardous wastes that are recycled. For example, reclaimed hazardous waste from small quantity generators is exempt from manifest requirements under certain conditions (see § 262.20(e)). If they were destined for disposal, the same hazardous wastes would require a manifest for transport off-site. A shipment of hazardous scrap metal that is destined for recycling need not be manifested, and its storage before recycling is not regulated under RCRA. A shipment of the same material that is destined for disposal must, in certain cases, be manifested and sent only to a "designated facility" (generally defined as a permitted or interim status hazardous waste facility). From these examples (which are illustrative rather than exhaustive), it is

apparent that special provisions for recycling may act to encourage recycling instead of disposal. These special standards or exemptions reflect judgments by the Agency about the hazard posed by the given material in a recycling (as opposed to disposal) situation, and the environmental benefit to be gained from recycling rather than disposal.

In addition to the examples mentioned above, certain provisions in the RCRA hazardous waste regulations explicitly mandate recycling (as opposed to disposal, or treatment that is not recycling). Under RCRA Section 3004(m), Congress directed EPA to develop treatment standards that minimize threats to human health and the environment for each hazardous waste. The treatment standards must be met before the waste is land disposed. EPA judged certain recycling techniques to be the best demonstrated available technology for some hazardous wastes, and based treatment standards on the performance of these technologies. Examples of these technologies are extraction of oil from petroleum waste and thermal recovery of metals.

In theory, recycling has clear social advantages over treatment or disposal. Usable substances that would otherwise be discarded or released into the environment can be reclaimed or used. Recovering and reusing a material seems intuitively preferable because it slows down the exhaustion of our finite resources. Recovery allows us to retain and use resources here in this country, rather than relying on materials from other countries. It may also cause fewer health and environmental problems than disposing of large volumes of wastes and relying on the production of virgin materials and products.

On the other hand, recycling hazardous wastes is <u>not</u> always an environmentally benign practice. EPA believes that some recycling operations should be regulated because of documented environmental harm caused by improper recycling practices. See the damage cases in Appendix C to this report (Environmental Damages Caused by Hazardous Waste Recycling Practices), as well as the damage cases listed in the appendix to the January 4, 1985 final rule (50 FR 658-661) (reprinted in Appendix D to this report).

The most frequently mentioned impediments to recycling are:

- The "derived-from" rule.
- The "stigma" attached to being designated as a hazardous waste.
- Permitting requirements.
- Facility-wide corrective action.
- Financial assurance.

- Liability concerns.

These issues are described below. Some of these potential impediments do not result from actual controls on recycling, but from some ancillary activity, such as storage before recycling. Examples are corrective action, the derived-from rule, and permitting procedures.

The Derived-from Rule

The "derived-from" rule (40 CFR 261.3 (c) and (d)) states that residues generated from treating, storing, or disposing of hazardous waste are themselves hazardous wastes, and are subject to hazardous waste regulatory controls. Residues from treating or recycling listed hazardous wastes remain listed hazardous wastes unless they are delisted. However, residues from treating or recycling hazardous wastes that are hazardous only because they exhibit a characteristic are hazardous only if the residues themselves exhibit a characteristic.

EPA promulgated this rule because residues from hazardous waste treatment, storage or disposal may still pose a danger to human health and the environment. Sludges formed by treating hazardous wastewaters contain higher concentrations of toxic constituents than did the original wastewaters. Similarly, incineration ash often contains metals and undestroyed organic constituents (see, for example, 45 FR 33096 (May 19, 1980)). Therefore, EPA has assumed that residuals from listed wastes are hazardous until shown to be non-hazardous.

These residues may be wastes intended for disposal, or they may be part of a product that EPA continues to regulate under RCRA because it still contains wastes. We use the term "waste-derived" product for this latter category because the hazardous waste or residue is often sold as a commercial product. Such products include hazardous wastes used in a manner constituting disposal (regulated under 40 CFR Part 266, Subpart C) such as fertilizers made from emission control dust from primary steel production in electric furnaces. Waste-derived products also include hazardous waste fuels (e.g., fuels consisting of spent solvents and virgin fuels such as gasoline or number 2 fuel oil).

The derived-from rule may affect the viability of recycling these residues or products. Two cases are described below.

Case 1 - Recycling listed hazardous wastes results in a "derived-from" residual.

In some kinds of recycling, a production process that ordinarily uses only virgin raw materials will combine these materials with small amounts of a hazardous waste. For example, a primary copper smelter may also process listed wastewater treatment sludges from the electroplating industry. This reduces the amount of virgin copper ore needed to operate the smelter, thereby conserving a valuable mineral. Under the derived-from rule, residuals from the smelter are considered to be a listed hazardous waste, even if introducing the waste had no effect on the resulting residual.

EPA recognizes that some recycling may produce non-hazardous residuals. The Agency is interested in ways to identify such residuals efficiently and to avoid regulation of them, thus lessening the negative impact of the derived-from rule on recycling. Some ideas we are considering include concentration-based exemptions, priority delisting, and "class delisting". These ideas are discussed below.

The Agency has published a proposed regulation that would allow certain hazardous wastes (including residues) to be exempt from Subtitle C regulation if they contained less than a specified concentration of hazardous constituents (see 57 FR 21450, May 20, 1992). This initiative could, if finalized, alleviate concerns about the potential effect of the derived-from rule on recycling activities. In the delisting program, EPA is considering giving priority to petitions for delisting recycling residues. This approach could speed up review of delisting petitions for such residues, as well as decisions to delist if such decisions are justified.

EPA is also considering a new program to identify wastestreams that are subsets of waste codes. Examples of such a subset are wastestreams that would each meet the F004 listing description but that are generated by different facilities, possibly in different industries. The wastestreams would be sufficiently similar in composition and contaminant types to allow "class delistings." Under this approach, EPA would identify the kinds of recycling processes that are likely to produce residues with low levels of toxic constituents, and then would consider rulemakings to exclude the residues from the derived-from rule. (See, e.g., the current exemption at 40 CFR 261.3(c)(2)(ii)(A) for waste pickle liquor sludge from lime stabilization (49 FR 23284, June 4, 1984)). EPA can currently delist these residues at the request of individual generators, but class exemptions may speed up the process. As a variation on this approach, the Agency could rescind the exemptions if the generator failed to meet certain pre-established testing conditions.

One class of residues that might be eligible for a class delisting would be certain smelter slags derived from burning hazardous wastes in boilers and industrial furnaces. The current regulations allow certain conditional exemptions from emissions standards for these boilers and furnaces. One way for a smelter to be conditionally exempt is to accept only hazardous wastes with organic Appendix VIII constituents in concentrations of 500 parts per million or less (see 40 CFR 266. 100(c)). The smelting process is likely to destroy the low levels of organic toxic constituents present in the hazardous wastes that are accepted under this condition. The slags may be no different than slags from smelters which process no hazardous waste at all.

Case 2 - Recycling results in regulated waste-derived products.

Some hazardous secondary materials are incorporated into products that are placed on the land, even where land placement is not the ordinary use of the material. Examples include using metal-bearing sludges as ingredients in aggregate, and using metal-bearing hazardous wastes as micronutrient ingredients in fertilizers.

The derived-from rule was intended to maintain control over the hazardous constituents in a waste. However, the rule may also discourage the incorporation of hazardous wastes into products because it classifies the resulting "waste-derived product" as a hazardous waste. For example, the derived-from rule may overregulate some waste-derived products that have very low levels of toxics. In some cases, similar products manufactured with raw materials could contain comparable levels of hazardous constituents from non-waste sources. This could put manufacturers of waste-derived products at a competitive disadvantage, even though their products are essentially identical to those made only of raw materials. In other cases, certain waste-derived products may not be hazardous in their intended use.

As discussed above, the Agency has developed a proposal that would set concentration-based exemptions from Subtitle C regulation for certain hazardous wastes, including recycling residues and waste-derived products (see 57 FR 21450, May 20. 1992). These exemptions would provide a way (besides the delisting program) for waste-derived products that do not pose a significant hazard to exit from the Subtitle C system. In addition, EPA is considering establishing notification requirements to obtain more information about waste-derived products and the levels of hazardous constituents they contain, and to provide a way to restrict their uses if appropriate.

EPA might also choose to give priority to petitions for delisting waste-derived products, like the approach described above recycling residues destined for disposal. In addition, EPA is

considering whether, in evaluating delisting petitions for waste-derived products, comparisons to the risk levels posed by similar products manufactured using virgin materials are appropriate.

Finally, another consideration frequently raised by concerned parties is the so-called "stigma" affecting the marketability of products made using hazardous waste ingredients. When virgin materials are used, the product often is perceived by the public as safe, while an identical product manufactured using hazardous waste ingredients may be incorrectly perceived as posing an increased risk. If it is appropriate for the federal government to attempt to "level the playing field" for waste-derived products, EPA could use several approaches to counteract these perceptions. Examples of such approaches are public education efforts, using special terminology for hazardous wastes that are recycled, or other strategies when EPA has evaluated the relative risks of the two types of products and found them to be similar.

Permitting

Facilities that treat, store, or dispose of hazardous waste must operate under terms of a permit addressing conditions at the facility or under self-implementing technical standards during "interim status," a type of interim permit. The current regulations require permits for storing hazardous waste before recycling, while the recycling process itself may be exempt from regulation (see 40 CFR 261.6(c)(1)). This has resulted in a some recycling facilities arranging operations so that hazardous wastes are not stored before the wastes are recycled. However, for certain wastestreams, storage before recycling is not regulated, or is subject to minimal regulation. For example, storage of hazardous wastes containing precious metals that are reclaimed is subject only to recordkeeping requirements to prove the materials are not accumulated speculatively. Moreover, tank or container storage preceding on-site recycling normally would not require a permit due to the 90-day accumulation provision in 40 CFR 262.34. Other recycling facilities (such as boilers and industrial furnaces that burn hazardous waste for energy recovery) are subject to full permitting of both the storage and recycling processes.

A RCRA permit ensures that hazardous waste management units are designed and operated to conform with the standards of 40 CFR Part 264. The permitting process also allows the public to participate in selecting sites for facilities, in decisions to grant or deny a permit, and in decisions about the facility's operating conditions. In addition, facility-wide corrective action is tied to the obligation to obtain a permit.

The permitting process can easily discourage hazardous waste recycling. Preparing and processing complicated applications and attendant delay from citizen participation in the process is obviously an impediment for new facilities requiring a permit

before they can commence operation. Such factors are also bothersome for existing recycling facilities because they must often compete with manufacturers using raw materials who do not have to absorb permit-related expenses.

On the other hand, permits can also promote recycling. Some parties have stated that generators often will send their hazardous wastes only to permitted facilities in order to reduce potential liability and to assure themselves that the wastes will be handled properly. Removing the requirement for a recycler to obtain a permit could therefore potentially reduce the amounts of waste recycled if generators choose to send waste only to permitted treaters and disposers.

EPA is considering ways to reduce the disincentives to recycling which are inherent in the permitting process. Without changing the current regulations, EPA could modify its implementation scheme to encourage recycling. For example, EPA may consider giving priority to recycling facilities when permit applications are processed. One such approach would give national priority to recyclers from particular industries. Another would allow states or EPA Regions to establish their own priorities on a case-by-case basis. Still another approach would classify similar recycling activities and rank the classes in order, so that all recycling facilities would be given the same national priority as others in the same class. However, these approaches might not be consistent with the Agency's current policy of permitting priorities based on statutory deadlines and potential risks posed by activities at the facility. The Agency's discretion is also limited by statutorily mandated permit deadlines. Finally, states with authorized hazardous waste programs may set their own permitting priorities, within general guidelines. Such states may not consistently follow any priority plans that EPA develops.

Another approach would require changing existing regulations. EPA is considering developing regulations that would specify certain recycling practices that do not require the full facility-specific oversight and approval of the Part B process to assure conformance with management standards. EPA could develop such regulations for a particular recycling process (such as solvent recovery by distillation), or for wastestream-process combinations (such as recovery of silver from spent photographic fixer solutions, or storage of nickel-cadmium batteries collected before reclamation).

EPA is considering four general approaches to accomplish this result. They are:

#1. Conditional exclusions from the definition of solid waste.

#2. Conditional exemptions from regulation.

#3. Permits-by-rule.

#4. Class permits.

Each of these approaches is discussed below.

Approach #1.

The first approach grows out of language used in case decisions on RCRA rendered by the D.C. Circuit Court. Under this approach, EPA would determine what a discarded material is by assessing whether the material, as managed before and during recycling, is "part of the waste disposal problem." Under this "conditional exclusion" approach, EPA could state in advance which circumstances would be considered to be part of the waste disposal problem and which would not. For example, EPA could state that managing hazardous secondary materials in the following ways would not consitute discarding:

- in units conforming to tank and container standards;
- at facilities operating under financial assurance and contingency planning conditions; and
- where the recycling operation itself did not involve an element of disposal

Materials being recycled under these conditions would not be solid wastes. To comport with the "continuous process" discussion by the court, it may be necessary to specify that the recycling occur within the same company, or a company utilizing a similar process. EPA might also limit this approach to recycling activities with a record of safe operation to provide further assurance that their operations will not be part of the waste disposal problem. The current regulations already allow some recycling facilities to apply for exclusions if they make certain showings (see 40 CFR 260.30 and 260.31).

However, conditional exclusions also present difficulties. A large number of conditions would be indistinguishable from a regular permit. Implementing this scheme could also prove difficult. Secondary materials can easily be transported from generators to processing facilities. Notification, tracking and recordkeeping are therefore needed for safe operation and effective oversight of recycling operations. Imposing such requirements if the materials are not defined as solid wastes poses legal difficulties. There is also the question of enforcing the conditions: does any deviation mean that the facility has fallen into Subtitle C?

Approach #2.

Under conditional exemptions from regulation, facilities managing materials in certain ways would still be managing solid and hazardous waste, but would be subject to reduced requirements and no permit. Some current regulatory provisions already incorporate this approach. See, e.g., the exemptions at 40 CFR 261.6(a)(3), and the "90-day" rule of 40 CFR 262.34. EPA could consider allowing either complete or conditional exemptions from regulation to recycling processes or process and waste combinations. We would consider this approach (as well as Approach #1 above) for recycling that did not involve land placement or combustion. Under this approach, there would be no limitations of authority on tracking and other requirements. However, to the extent that facilities are treating or storing hazardous waste under a conditional exemption, "permit-by-rule" issues, discussed below, are raised.

Approach #3.

Under the "permit-by-rule" approach, facilities managing materials in compliance with applicable requirements would be deemed to have a RCRA permit. This approach is specifically authorized under Subtitle C for used oil recyclers (see proposed 40 CFR 270.60(d), November 29, 1985 (50 FR 49212)). Some "permits-by-rule" currently apply to certain hazardous waste management activities (see 40 CFR 270.60). These are largely facilities subject to another EPA permitting program which provides the procedural safeguards (such as Section 3004(u) corrective action and Section 7004 public participation) that a Subtitle C permit would provide. EPA has viewed these safeguards as a necessary prerequisite to granting permits-by-rule. EPA will evaluate whether any other hazardous waste recycling activities are regulated under other environmental laws such that the Agency could develop a permit-by-rule approach for RCRA Subtitle C permitting requirements.

Approach #4.

Under a class permit system, specified facilities managing wastes in compliance with certain requirements would apply for a RCRA permit under a streamlined system. The system would be based on national findings of what should be included in permits for these facilities, which reduces the need for case-by-case review. EPA proposed such an approach on July 20, 1984 (49 FR 29524) for generators storing their hazardous wastes in containers and above-ground tanks, but has not finalized the proposal. It may be possible to select certain recycling processes, or process and waste combinations, that would benefit from a similarly streamlined permitting procedure. EPA will investigate the number and types of facilities that could benefit from this approach.

Some of the possible approaches raise another question: even if the regulatory controls can be applied without the full Part B

permitting process, RCRA statutory provisions seem to direct the permitting process to incorporate facility-wide corrective action and public participation. Corrective action requirements are discussed in the following section. Concerning the Section 7004(b) requirement for public participation, the approaches described above could be modified to address this requirement. For example:

- In the current regulations, variances from the definition of solid waste are granted to particular facilities under the procedures of 40 CFR 260.33. Public hearings or opportunities to comment exist when these procedures are followed. Conditional exclusions from the definition of solid waste (which would also be facility-specific) could also be developed to include an opportunity for public comments or hearings.

- Under conditional exemptions from regulation, the exemption could include opportunities for public comment. As an example, precious metals reclaimers, exempt from most hazardous waste requirements under 40 CFR 261.6(a)(2)(iv) and Part 266, Subpart F, can nonetheless be regulated on a case-by-case basis (with public input) under 40 CFR 260.41.

- "Permits-by-rule" could be issued with requirements that the permittee comply with the local public notice requirements of Section 7004(b)(2). This approach would facilitate citizen suit enforcement. In addition, facilities obtaining RCRA permits-by-rule are generally subject to other EPA permit programs that require public involvement (e.g., the Safe Drinking Water Act underground injection program).

- The proposed class permit for hazardous waste tank and container storage by generators did not propose to change the process for public participation in hazardous waste permit decisions. Likewise, a class permit for recycling activities could also include the current public participation requirements for full permits.

EPA notes that if one or more of the approaches discussed above are pursued, we would have to address whether non-recycling treatment facilities with similar characteristics should be allowed under the same expedited regimes. Unless for policy reasons we wish to place treatment without recycling at a competitive disadvantage, it appears that the characteristics of the facility or its operation may be more important in determining whether a permit is necessary, rather than whether any recycling occurs. An issue that is closely related to permitting is facility-wide corrective action. This is discussed below.

Facility-wide Corrective Action

RCRA Sections 3004(u) and 3008(h) require corrective action

for releases at hazardous waste management facilities with permits or interim status. Specifically, interim status facilities may be ordered under Section 3008(h) to clean up hazardous waste releases. Permits issued after November 8, 1984 also require corrective action for releases of hazardous wastes or hazardous constituents from all solid waste management units at hazardous waste treatment, storage, or disposal facilities, regardless of the time at which waste was placed in the unit. The authority under RCRA Sections 3008(h) and 3004(u) extends to the entire facility. Complementary authority in Section 3004(v) extends corrective action to releases that have migrated beyond the facility boundary.

This broad authority may significantly affect a recycler's decisions about managing hazardous waste. A facility located on heavily industrialized property may conduct its hazardous waste management operations in such a way that it does not need a RCRA permit and is therefore not subject to facility-wide corrective action requirements that could include all waste disposal sites from prior eras. The facility may even decide not to recycle at all. In contrast, a facility located at a new, nonindustrial site may not be as concerned about the possibility of facility-wide corrective action, and may be more likely to conduct operations that require a permit.

Some parties have stated that the potential for RCRA corrective action orders or permit compliance schedules are a major consideration in deciding whether to recycle hazardous wastes. For example, a primary smelter could be required to conduct full facility-wide corrective action if any hazardous waste is accepted at the site for metal recovery. Once the cost for this requirement is taken into account, there may be no net cost savings from using hazardous waste as a substitute for virgin ore. Because corrective action is linked with permit requirements, the regulatory provisions that allow recycling to occur without a permit (such as 40 CFR 261.6(c)(2)) encourage facilities to arrange their waste management operations so that a permit is not required (for example, storing wastes before recycling them). Conversely, recycling operations that must be conducted with a permit may not occur at many facilities that are concerned about corrective action requirements.

An example of the effect of RCRA corrective action requirements could be shown by a solder reclaimer who operates a facility which recovers residual materials from soldering processes for their lead and tin values. If the residual soldering materials are categorized as RCRA hazardous wastes, the facility would become subject to RCRA corrective action requirements if it stores the residual soldering materials before recovering them. The owner or operator of the facility may place materials received from off-site directly into the recycling process, or arrange operations in other ways to avoid the need to obtain a RCRA permit. If they obtained a RCRA permit and were subject to corrective action, they could

incur clean-up costs that might be large enough to make further operation economically impossible.

Another example is shown by the practice of recycling "cupels" from fire cupel assay analyses on precious metal ores. Cupels are containers used by commercial laboratories to hold ore samples while assaying the ore for its precious metal content. Once the assay is finished, a cupel may be classified as a RCRA hazardous waste because of its lead content. Technology is available to recycle the cupels (in smelters). However, the primary smelting facilities that could recycle cupels would be subject to RCRA corrective action requirements if they store the cupels (received from off-site commercial laboratories) before inserting them into the smelters. Since the cupels may constitute only a small fraction of the inputs to the smelter, the smelter operator may not accept the cupels because of the accompanying RCRA corrective action requirements. The cupels would then be disposed instead of recycled.

Under the current statute, EPA is significantly limited in its discretion to modify the corrective action requirements for hazardous waste management facilities. The requirements are not based on the likelihood that a particular facility will pose a hazard. Rather, any facility that must obtain a permit under RCRA Section 3005 must comply with corrective action requirements. However, facilities that are not required to obtain a hazardous waste permit (such as facilities whose operations do not bring them under RCRA Subtitle C jurisdiction) are not subject to the corrective action requirements of RCRA Sections 3004(u) or (v). Thus, by exempting certain recycling operations from permitting through conditional exclusions, or other means discussed in the preceding section, the RCRA Subtitle C corrective action requirements would not apply.

EPA may be able to develop a conditional exclusion or exemption program under which recyclers would be subject to corrective action only under some circumstances. For example, based on an industry's past practices, EPA might identify by rule certain kinds of recycling activities by rule that are unlikely to be located at sites requiring corrective action. Generally, Section 3004 requires EPA only to regulate facilities "as necessary to protect human health and the environment." EPA might therefore craft conditional exemptions or permits-by-rule, which could include a mechanism to require corrective action on a case-by-case basis to guard against any releases from the class of facilities exempt from full corrective action. The Agency proposed this type of mechanism for used oil recyclers (see proposed 40 CFR 270.60(d)(3), 50 FR 49258, November 29, 1985)). EPA notes that in these situations it would retain CERCLA Section 106 and RCRA Section 7003 authorities. EPA will investigate whether there are types of facilities that are unlikely to be located where corrective action is necessary, and how an effective scheme for

limiting corrective action requirements might be developed.

Another rationale for limiting corrective action requirements at recycling facilities is that the objectives of RCRA Section 1003 might be furthered if increased amounts of hazardous waste were recycled. Some would argue that hazardous waste recycling operations should comply with the same rules as other treatment facilities, in order to have a level playing field for all waste processing operations. In addition, new hazardous waste facilities could come into being that are willing to comply with corrective action, permitting and other regulatory requirements. For example, there is currently excess capacity for burning hazardous waste fuels, even though the burning units are subject to full Subtitle C controls.

On the other hand, owners of some facilities (notably those producing recoverable metal-bearing wastes) appear to be dissuaded from initiating recycling activities because of the possibility of facility-wide corrective action, even though sufficient recycling capacity exists. Building new capacity instead of using existing capacity is expensive, and would delay the recovery of resources during the time needed to finance, construct and permit a new facility. Industries within the United States are handling this situation to some extent by exporting metal-containing hazardous wastes abroad.

The Agency is aware of the advantages of a level competitive playing field. However, while the statute and legislative history express a strong preference for properly-conducted resource recovery over conventional treatment, RCRA Sections 3004 and 3005 do not explicitly allow regulatory preferences based on resource conservation or recovery goals.

Financial Assurance

RCRA Section 3004(a)(6) gives EPA the authority to require owners and operators of hazardous waste treatment, storage and disposal facilities to maintain financial responsibility for the facility's operation. EPA has determined that financial assurance for the facility's closure and post-closure periods is necessary, as well as liability coverage for sudden accidental occurrences (and, in some cases, for non-sudden accidental occurences). The amounts of closure and post-closure financial assurance are based on estimates of closure costs and maintenance during the post-closure care period. The regulations establish the amounts of liability coverage at $1 million per occurrence for sudden accidents, with a $2 million annual aggregate. Several financial mechanisms can be used to meet the financial assurance requirements (see 40 CFR Part 264, Subpart H, and Part 265, Subpart H, for further information).

Many parties have stated that the financial assurance

requirements discourage recycling because of the large monetary "cushion" required of hazardous waste facilities that must obtain permits. In addition, many of the financial assurance mechanisms (such as the letter of credit) must be provided by another party. Interestingly, many of those who say that financial assurance is an obstacle to recycling relate that difficulties in obtaining financial backing are often due to the lack of an existing permit. They also state that third parties providing the mechanism for financial assurance are more likely to provide the mechanism if a permit has been issued. Generators have also indicated that they would not send hazardous waste to facilities operating without adequate financial assurance. Those who describe financial assurance requirements as an obstacle to recycling state that a permit that would be easier to obtain than the full RCRA "Part B" permit would be useful in locating and constructing hazardous waste recycling facilities.

EPA would welcome further discussion about whether the financial assurance requirements significantly discourage recycling, and whether streamlined permitting procedures would make it easier for a recycler to obtain financial assurance. As described earlier in this chapter, recycling hazardous wastes can sometimes pose significant health and environmental risks. Lack of financial assurance contributed greatly to the dozens of abandoned hazardous waste recycling facilities on the National Priorities List of the Superfund Program. Facilities that conduct hazardous waste recycling may not always have the financial resources necessary to conduct clean-ups of releases. EPA would therefore carefully evaluate any proposals to reduce financial assurance requirements.

EPA will also investigate whether different financial standards for recyclers might be justified and what types of coverage are necessary. It is important to note that many larger problems at recycling facilities resulted from over-accumulation and mishandling of potentially recyclable materials. EPA also is interested in ways to impose full financial responsibility requirements, on a case-by-case basis, on facilities which could be conditionally exempted from financial responsibility requirements. EPA believes that if facilities are exempted from these requirements under one of the mechanisms discussed elsewhere in today's report, some case-by-case "override" mechanism should be available to impose stricter requirements on a facility whose financial status merits closer oversight.

Liability

Many parties have said that liability imposed on handlers of hazardous waste is an impediment to recycling. Examples of these impediments are potential financial liability under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), potential criminal penalties under RCRA, and

liability under State laws.

EPA notes that CERCLA liability extends to all hazardous substances, not just the subset of hazardous substances identified as hazardous wastes under RCRA. Further, concern about liability often brings about more careful handling of hazardous substances. However, some parties have stated that intermediaries in recycling networks (such as scrap dealers who aggregate batteries for shipment to battery smelters) may incur CERCLA liability for handling the materials since they are arguably "arranging for treatment or disposal" of hazardous material. Potential liability costs may be so high that intermediaries may decide not to handle hazardous materials, or to charge high fees to generators. Either result could make collecting and processing hazardous materials (especially the "universal wastes" discussed earlier) more costly. These increased costs could in turn lead to more frequent disposal in non-regulated, less secure facilities.

Facilities may choose not to use hazardous waste as inputs to their processes or as products because of these liability concerns. If it is an appropriate role for the federal government, EPA will investigate mechanisms to ameliorate these concerns. For example, would development of EPA standards for hazardous waste-derived products to ensure that the products are not hazardous reduce concerns and open markets?

CHAPTER 4 - IMPLEMENTATION ISSUES

Definition of Solid Waste

The regulated community has stated that it is often difficult to determine when materials are "solid wastes" under the regulatory definition. Difficulties arise because parties may claim that they intend to conduct an activity outside the scope of RCRA, which may or may not be considered legitimate by the appropriate regulatory agency. The regulatory definition is also very complex, and the definition may vary from state to state, causing a regulated hazardous waste to cease being regulated when it crosses a state border. Interpretations among states may also vary, so that one state agency may consider a material to be a hazardous waste, while another reaches the opposite conclusion.

"Intent" in the Regulations

Some persons have argued that if a person intends to recycle a secondary material, then that material is not a solid waste because it is not "discarded" or intended to be discarded. This argument contains two assumptions: (1) recycling is not under RCRA jurisdiction and (2) intent is the determining factor in defining recycling (and therefore RCRA jurisdiction). The Agency does not agree that all recycling is outside of RCRA jurisdiction. In the 1985 and 1980 rules, as well as all of the Agency's subsequent policy statements, EPA has defined some secondary materials as solid wastes regardless of whether they are recycled. The Agency has also sought to reduce reliance on a person's subjective state of mind (intent) when determining RCRA applicability.

Nevertheless, the current rules do not totally eliminate considerations of intent from decisions about whether a material is a solid waste. Because current rules contain exemptions and exclusions, some parties may claim that they are engaging in non-regulated conduct, or that they intend to do so. This possibility inevitably raises implementation difficulties.

These difficulties are compounded by the self-implementing nature of the exclusions from the definition of solid waste. Parties who are recycling materials in such a way that they are not managing wastes need not notify EPA (or, in some cases, an authorized state) of their recycling activities. They are, however, required to keep records documenting their claims that they are not regulated (see 40 CFR 261.2(f)). Since regulating agencies may not even be aware of a facility's existence, serious environmental problems may develop that could have been addressed with earlier awareness.

The Agency is considering ways to further reduce reliance on intent when determining RCRA applicability, or ways to ascertain

intent through objective and verifiable means. Some parties have suggested ways to simplify the process of determining when a material is a "solid waste," and reduce the reliance on determining a person's intent. For example, one way would be to distinguish between "products" and "secondary materials," including all of the latter within RCRA jurisdiction and excluding the former.

Some parties have suggested that EPA should consider the value of a material when deciding whether to regulate that material. In the past, EPA has rejected the notion that a material's value should be a major factor in determining whether it is subject to RCRA controls (see 50 FR 617, January 4, 1985). However, the Agency has considered the value of materials when establishing controls on how the materials are managed (for example, the reduced regulatory requirements of 40 CFR Part 266, Subpart F for precious metals that are reclaimed). EPA is aware that the value of a material affects how carefully it is managed, but the Agency continues to believe that a pure "value test" is inappropriate in deciding whether something is a waste. This is especially true in light of recent market shifts in which increased costs for land disposal may allow recyclers to charge processing fees based on otherwise applicable disposal charges. Further, many materials which can be recovered from hazardous waste often fluctuate in price, making it difficult to determine the value of a material.

A more promising way to simplify the applicability of RCRA is to make more of the key distinctions turn on environmental rather than legalistic issues grounded in an intent test. For example, as noted earlier, the existing regulations distinguish between unlisted sludges or by-products being reclaimed (which currently are not defined as solid wastes), and listed sludges or by-products being reclaimed (which currently are defined as solid wastes). However, the risks posed by listed sludges and by-products, in comparison with characteristic sludges and by-products, may be quite similar. The two 1990 opinions from the D.C. Circuit Court indicate that Subtitle C jurisdiction might be defined to better capture those activities which pose the greatest environmental risks. A revised definition of solid waste could include characteristic sludges and by-products being reclaimed under certain conditions, for example, when such materials are managed in land-based units (and thus are part of the "waste disposal problem").

Other environmental criteria might be used to define when sludges (or other materials) are <u>not</u> part of the waste disposal problem. In fact, certain management activities should perhaps <u>always</u> be classified as hazardous waste management, such as storage in a surface impoundment and other types of land placement. Variances might be established for those few materials that are products or truly "in-process" materials that are managed in this way.

Sham Recycling

Another difficulty in implementing the definition of solid waste is that parties frequently "recycle" their hazardous wastes in ways that avoid waste management costs but do not significantly recover energy or material values. The recycling may also be intended actually to treat the waste - so-called "sham recycling." Because the costs of handling hazardous wastes are significantly greater than for non-hazardous wastes, some handlers of hazardous wastes see unregulated recycling - whether legitimate or not - as a way of avoiding high disposal costs. Thus "recycling" activities may occur in which hazardous waste contributes little value to the final output, or is actually disposed of during the recycling activity. An example is the direct use of a hazardous waste as an ingredient in certain consumer products in which hazardous constituents are in effect treated, while contributing nothing to the final product.

Sham Criteria

EPA has discussed sham recycling criteria in various preambles (see 50 FR 638, 648-9, January 4, 1985, and 53 FR 526-7, January 8, 1988) and in guidance to the Regions. These criteria include consideration of the similarity of the secondary material to an analogous raw material or product, the degree of processing required to produce a finished product, the value of the secondary material, whether there is a guaranteed market for the end product, whether the secondary material is handled in a manner consistent with the raw material it replaces, and other relevant factors, such as whether toxic constituents present in the secondary material are necessary for the product, or merely present as contaminants. The sham recycling criteria are discussed in an April 26, 1989 memorandum from the Director of EPA's Office of Solid Waste to EPA's Hazardous Waste Management Division Directors in Regions I - X (see Appendix E.) EPA developed these criteria to establish an objective way of defining "recycling" that merits reduced regulatory controls.

The recent regulations for boilers and industrial furnaces provide objective criteria for certain types of recycling (see 40 CFR 266.100(c), 56 FR 7208 (February 21, 1991)). Some parties have suggested that criteria be established in the regulations. If the Agency incorporated sham recycling criteria into the regulatory definition of solid waste, would implementation of the definition become easier? Are there other criteria that EPA and authorized states should use when deciding whether a recycling activity is a "sham?"

Other parties have suggested that a focus on "sham" vs. "legitimate" criteria is misplaced. The criteria EPA has used are partly based on the marketability of a material, and even on the sources of income a facility receives. For example, EPA has

historically believed that levels of hazardous constituents in waste-derived materials which are used as effective substitutes for a product should be compared to constituent levels normally found in similar products which are non-waste-derived. While not automatically ensuring that a product is safe, this comparison at least ensures that introducing a hazardous waste substitute does not make a product more dangerous than it would otherwise be. The disadvantage of this approach is that higher concentrations of hazardous constituents in the waste-derived product does not necessarily prove that there is a significant risk in either the recycling process or the recycled product.

Determining whether a particular recycling scheme deserves less stringent controls is related to the larger question of whether to give regulatory preference to recycling activities in general. If EPA decides that there is no reason to reduce regulatory requirements for recyclers, we may begin to regulate facilities that are now exempt. If we decide to give regulatory preference to recyclers, the "legitimacy" issue is of great importance.

The presumption that recycling generally poses fewer risks than treatment or disposal may not be true in some cases. Should recycling risks be compared to treatment or disposal activities, or to production activities? If EPA compares recycling to production activities, what criteria could be used to define recycling activities so that they receive (or continue to receive) special regulatory treatment? What factors predict a material's potential for release to the environment? Are economic or financial considerations appropriate criteria in certain circumstances?

Verification

One way to improve implementation is to require that parties who claim to be unregulated must register or verify their claim. Under the current federal regulations, parties who claim not to be subject to regulation must keep records documenting the reason for their claim; however, they need not notify EPA or an authorized state that they are not subject to regulation. This lack of notification can cause problems when enforcement responses are needed and it is difficult for EPA or the authorized states to locate violators. Some parties have suggested a notification requirement to make EPA Regions or state hazardous waste agencies aware of a facility's existence. The Agency could also require parties to submit a certification stating that their activities (and the materials they manage) are legitimate and eligible for the regulatory exemption or special provision they are claiming. Such certifications could be periodic, signed by responsible persons "under penalty of law," stating that the person has made necessary inquiries and has determined that the facility is complying with all applicable requirements (such as the determination under 40 CFR 262.11 of whether a waste is hazardous). These submissions (or at

least a documentation of the reason for the claim, without actual submission) would greatly enhance regulatory enforcement. EPA will investigate whether such notification requirements should be imposed as conditions of being excluded from the definition of solid waste.

Another way to address this issue would be to establish a procedure under which the Agency could address situations on a case-by-case basis. For example, EPA could (through rulemaking) allow Regional Administrators and Directors of authorized state programs to find, on a facility-specific basis, that a material is inherently waste-like. This authority would be similar to the authority generally available to the Administrator at 40 CFR 261.2(d). Alternatively, even if recycling is legitimate and meets the terms of an exemption, the implementing agency could find that additional controls should be applied because of facility-specific circumstances, such as those currently established at 40 CFR 260.41 for precious metal-bearing wastes being reclaimed.

Inconsistent State Regulations

An authorized state which implements the RCRA Subtitle C program need not adopt in toto the federal definition of solid waste. Under RCRA Section 3006(b), authorized states (i.e., those approved to operate a state hazardous waste program in lieu of the federal program) must have state programs that are equivalent to the federal program, and consistent with the federal program. An authorized state may regulate more wastes than those covered by the federal program, or may regulate the wastes more stringently than provided for by the federal regulatory requirements.

In some situations, one state (with regulations identical to the federal definition of solid waste) does not regulate a material that is being recycled (such as a characteristic by-product that is being reclaimed). Another state (with regulations that are broader in scope than the federal definition of solid waste) regulates the same material exactly as a hazardous waste would be regulated. This inconsistency complicates how the material is handled in interstate transport.

These inconsistencies arise for several reasons. For example, Section 3006 of RCRA gives an authorized state a specified time to adopt EPA rule changes that are more stringent; however, the same provision does not require an authorized state to adopt changes that are less stringent. In addition, some authorized states still operate under the 1980 definition of solid waste, pending authorization for the 1985 definition. (If EPA revises the definition of solid waste again, there may be three different categories of definitions which are operable throughout the United States)

Some of these inconsistencies are inevitable under the

American system of federalism, and are a direct outgrowth of the scheme Congress wrote into RCRA Subtitle C. These inconsistencies cannot be eliminated without major changes to the long-standing balance of power between states and the federal government, and without statutory changes to RCRA.

Inconsistent Interpretations Between States

A similar problem arises when two authorized states have the same regulations but interpret them differently. In recycling situations, materials often must be classified into "spent materials," "sludges," "by-products," or "scrap metal" (terms that are defined in the regulations). The recycling activity must also be classified. These classifications (which are not always easy to make) determine whether the material is a solid waste. (Exclusions and exemptions are available in 40 CFR 261.2(e), 261.4, and 261.6.)

For example, one problem arises in classifying skimmings (also called "drosses") that form during wave soldering operations, and that are skimmed off the surface of the molten solder bath. The drosses could be classified as "by-products," and thus would not be regulated as RCRA hazardous wastes when reclaimed. However, another reading of the regulations might classify at least some of them as "spent materials" which would be regulated as RCRA hazardous wastes when reclaimed.

A material that does not clearly fit into one of these classifications or exclusions may be interpreted as a regulated material by one state, and an unregulated material by another state. National companies may find identical materials being regulated differently in states with identical regulatory language. The problem is even more complicated in interstate transport situations. Even if a move towards national regulatory consistency is made, state regulatory authorities will always have to make some some site-specific determinations. EPA is considering developing training materials specifically designed for states to address the consistency problem. In addition, EPA is exploring the feasibility of states coordinating with each other when making site-specific determinations. For example, EPA could provide a forum for state agencies and Agency staff to discuss application of the regulations to specific situations. One way to bring the states together might be to hold periodic telephone conferences among the states in each Region and publishing the summaries nationally, or through a periodic national summary of issues raised by individual states.

Hazardous Waste Recycling Regulations

Some of the problems with implementing the hazardous waste recycling regulations are similar to the problems with implementing the definition of solid waste - inconsistent regulations among states, inconsistent interpretations of identically-worded

regulations, and a lack of notification by exempt parties. Each of these problems, and possible solutions, was described above. The problems that appear to be most significant are permit exemptions for facilities without storage and waste-derived products placed on the land. These are discussed below.

Exemption for Facilities Without Storage

The regulations at 40 CFR 261.6(c)(2) provide reduced requirements for recyclers who do not store hazardous wastes before recycling them (use of the manifest and notification). If such facilities are required to obtain permits for other operations (such as a hazardous waste landfill or incinerator) they must also comply with air emissions standards in Parts 264 and 265. However, these facilities need not obtain RCRA hazardous waste permits for their activities. This exemption applies to recycling facilities managing hazardous wastes other than those provided with special recycling exemptions in 40 CFR 261.6(a). Storing wastes before recycling is fully regulated and requires a permit (see 50 FR 618 and 650, January 4, 1985) because the Agency has determined that regulation of such storage is necessary to protect human health and the environment. In practice, hazardous wastes can be received at a facility and held for a short time before being placed in the recycling unit (for example, while the transport vehicle is unloaded). EPA interprets the "no prior storage" requirement to be a site-specific determination that is made by the regulating agency. The Agency is aware that authorized states vary in their interpretation of this regulatory provision.

This exemption from permit requirements means that direct off-loading to a recycling unit is not regulated. In contrast, an identical operation at a facility that must store wastes before recycling them requires a full Part B permit. In addition, the facility that stores before recycling must comply with general facility requirements (such as waste analysis, employee training, contingency plans) while the facility that does not store wastes before recycling them is subject to none of these requirements. The community may not be involved in the siting of the facility (other than through local zoning oversight). Although Clean Air Act or Clean Water Act controls may cover some "non-storing" facilities, facility-wide corrective action or RCRA air emissions controls would not be required, as they would be at a nearly-identical facility that must store hazardous wastes before recycling.

EPA will investigate whether the current situation is acceptable or whether there are unacceptable risks to human health and the environment, and, if so, possible ways to reduce the risk. For example, are limited requirements for these facilities appropriate? Such requirements might be similar to those imposed on generators who accumulate hazardous wastes under the conditions of 40 CFR 262.34, or similar to the general facility standards of

Parts 264 and 265, Subparts A-E). Does the public need to participate in siting these facilities? Should EPA Regions or authorized states impose permitting requirements on these facilities on a case-by-case basis? EPA believes that certain situations (such as direct transfer of hazardous waste fuels into industrial furnaces) always warrant regulatory control. The Agency has therefore promulgated specific standards for those situations (see 40 CFR 266.111, at 56 FR 7226, February 21, 1991, and the accompanying preamble discussion at pp. 7195-6).

Coverage of Waste-Derived Products Placed on the Land

Some parties have questioned the current regulatory exemption for hazardous waste-derived products used in a manner constituting disposal (i.e., placed on the land). This exemption allows for the conditional use of hazardous waste-derived products placed on the land. As discussed in the January 4, 1985 rulemaking (see 50 FR 627-629), the Agency was not then prepared to regulate hazardous waste-derived commercial products that are placed on the land. For this reason, EPA provided an exemption from substantive regulation until the Agency could develop an appropriate regulatory mechanism to determine whether such use of hazardous waste-derived products would protect human health and the environment.

Under the January 4, 1985 rulemaking, hazardous waste-derived products that are placed on the land are fully regulated unless: 1) the product is a commercial product (i.e., produced for the general public's use), and 2) in the course of producing the product, the hazardous wastes have undergone a chemical reaction such that they are chemically transformed (i.e., inseparable by physical means). An exception was made for fertilizers, which by their nature release constituents into the environment. While not automatically protecting human health and the environment, this approach did provide some assurance that hazardous wastes would be used to produce legitimate products with decreased risks, instead of being disposed of under the guise of a product made from hazardous wastes.

On August 17, 1988, the Agency promulgated the Land Disposal Restrictions for First Third Wastes (see 53 FR 31138-31222). The Land Disposal Restrictions prohibit placing certain hazardous wastes on the land unless treatment standards based on the best demonstrated available technology (BDAT) for treating those particular wastes are met before such placement. After these regulations were promulgated, EPA reconsidered whether to regulate hazardous waste-derived products used on the land. The Agency modified the conditions of the exemption at 40 CFR 266.20(b) by requiring waste-derived products to meet the applicable treatment standards for the hazardous wastes contained in the product before the product was placed on the land. The earlier exception for fertilizers was maintained only for zinc-containing fertilizers produced using hazardous waste K061. Although this change further

ensured that the hazardous wastes contained in such products would not pose significant risks to human health and the environment, the Agency has not made a final determination that these controls are the most appropriate regulatory approach.

Some parties have stated that the conditions of this exemption are still inadequate. Wastes meeting BDAT levels are still subject to regulation and must be disposed of in Subtitle C landfills, unless they are determined to no longer be hazardous. However, when used in a "product," the waste could eventually be placed in other locations (for example, if the product is used as fill material at a housing construction site). Some have suggested that the Agency has allowed the Land Disposal Restriction treatment standards to act as surrogate "delisting" levels when used in a "product" (which EPA has never defined). However, the treatment standards were based on the performance of the best treatment technology available for a particular waste, rather than on health considerations. The treatment standards did not include considerations of possible routes of exposure other than those that are likely from a land disposal unit.

In addition, the exemption for hazardous waste-derived products used in a manner constituting disposal is self-implementing. Under 40 CFR 268.7(b), land disposal restrictions notifications and certifications that the applicable treatment standards have been met are sent to the regulating agencies, EPA and the State regulatory agencies do not have an opportunity to review and approve of the activities.

To address this issue, the Agency is considering possible changes to the current exemption for hazardous waste-derived products. For example, EPA could require that producers of all such products notify the Agency of their activities and provide two demonstrations. The first demonstration would be that the product is a bona fide, genuine product. This demonstration would be made by showing that the waste-derived product does not contain higher levels of hazardous constituents than those normally found in similar non-waste-derived products, and by showing that the performance of the product is similar to that of analogous non-waste-derived products. The second demonstration would be made by showing that use of the product is protective of human health and the environment, considering the relevant routes of exposure. It has been suggested, however, that the first demonstration is irrelevant and counter-productive (see the letter from the Office of Management and Budget in Appendix G).

EPA is interested in learning of any other concerns about placing hazardous waste-derived products on the land, as well as ways that EPA can appropriately control these wastes. Does it matter whether a use is "legitimate" if that use poses no risks to human health or the environment? Finally, EPA will explore whether a risk to human health and the environment is posed by hazardous

waste-derived products that are not used in a manner constituting disposal. Examples of such products are aggregate used to make ceramic tiles, abrasive for grinding wheels, or roofing shingles. The Agency notes that if legitimate hazardous waste-derived products are not placed on the land, then they are not solid wastes. EPA would probably have to add conditions to the exclusions at 40 CFR 261.2(e), or use TSCA authorities.

CHAPTER 5: A PLAN FOR CHANGE

Need for Change

As the previous chapters illustrate, the issues surrounding RCRA regulation of recycling are many and complex. Almost everyone urges EPA to make changes, and there is a clear consensus that the rules and definitions should be made simpler and more "user friendly." However, opinions vary widely about which changes the Agency should make, or even whether EPA should make any changes that are specific to recycling.

- Some would take recycling activities completely out of Subtitle C and establish less stringent requirements. Such requirements might include keeping records relevant to the "legitimacy" of the recycling operation, submitting periodic reports, and operating under general performance standards such as spill clean-up. Under this approach, permitting procedures would be simpler or self-implementing. Residues from recycling would be regulated only if they exhibited a hazardous waste characteristic or were themselves listed as hazardous wastes; the "derived-from" rule would not apply. This approach, according to its supporters, would encourage the maximum amount of recycling. See, for example, the proposal of the Coalition for Business Recycling in Appendix H.

- Others suggest instead that recycling should be controlled under Subtitle C. Under this approach, improvements would occur by making certain administrative changes to the program, such as class permits or expedited delistings. Supporters of this view do not necessarily agree that recycling should be encouraged by preferential regulation. They believe that the land disposal restrictions and market forces will lead to increased recycling in any event, with recycling having a market advantage over treatment when it recovers valuable material at a reasonable cost. Supporters of this view also argue that needed improvements to the Subtitle C program (such as lessened transaction costs) should not be available only for recyclers.

- A third option would leave many or most of the regulations in

place, but make certain changes to encourage recycling. These changes might include modifying or expanding variances from Subtitle C coverage, developing "special collection system" rules for universal hazardous wastes, developing generic delistings that would enable truly non-hazardous wastes to leave the regulatory system easily, and simplifying terms and definitions.

Plan for Change

EPA has concluded that we should revise the definition of solid waste and the regulation of recycling under RCRA. In the course of making these changes, we may find that we can make more general changes to the RCRA program, but early improvements to foster environmentally beneficial recycling are a higher priority. We believe that a plan for change should have the following preliminary goals:

- The definition of solid waste should be easy to understand by regulators and the regulated community;
- Decisions about which materials are regulated and how they are regulated should depend on environmental considerations;
- The regulations should strike a balance between protecting the environment and encouraging recycling.

The Agency has developed three very general approaches that would move the regulations in this direction. Each is discussed below.

1. Two-tiered approach. EPA could use the logic of the court cases discussed above to create a scheme with two tiers of materials based on how the materials are managed. First, EPA might craft a common sense definition of "waste" that includes any material stored, handled, disposed of, used on the land, or burned for energy recovery, regardless of any intent to "discard," and regardless of whether the materials are listed or not. Since some primary products and raw materials are produced specifically for such uses, EPA could publish a list of excluded materials such as pesticides registered under FIFRA, fossil fuels, etc. Materials spilled or leaked and not recovered would also be wastes once spilled, even if not originally intended for land placement or burning. Materials in the first tier would generally be subject to full RCRA controls if hazardous, although exemptions for waste-derived products that were placed on the land or used as fuel could be appropriate if the product met certain protective levels of toxic constituents.

In the second tier would be certain secondary materials bound for uses or processes other than land placement or burning for energy recovery. These materials may or may not pose environmental

problems. Some materials bound for energy recovery or use have been managed poorly in the past, such as spent solvents. If they are hazardous, regulatory controls for these materials might be necessary to prevent further mismanagement. Other materials might not pose problems unless they were burned or placed on the land, but controls might be needed to ensure that the materials were not disposed of in this manner. Under this approach, EPA would designate all or some secondary materials as "wastes" unless they were managed under certain conditions. These conditions might include notification, tracking, or certain operating conditions, but would not be as extensive as full Subtitle C regulation.

If the Agency adopted this scheme, materials might be added or removed from the second tier of conditional controls depending on how well or poorly a particular industry had managed its wastes over a period of time. EPA would also consider a case-specific mechanism to bring individual facilities under Subtitle C control if they conduct activities which pose significant potential for environmental harm.

2. Technical Improvements to Current Regulations. A second option would be to leave many or most of the regulations in place, but make certain amendments which would allow some secondary materials to come under more appropriate levels of control. For example, EPA might modify some of the variance procedures in 40 CFR §§260.31 and 260.32 to allow more facilities to be eligible, or it could allow variances for any person who could show that his operations were not "part of the waste disposal problem." The Agency could establish new exclusions in 40 CFR §§261.2 and 261.4, or it could expand existing exclusions (for example, the "closed loop" exclusion at 40 CFR §261.4(a)(8)). EPA might also examine existing exclusions to make sure current conditions ensure adequate protection, and might establish case-specific mechanisms under which individual facilities could be brought under Subtitle C control if they pose environmental problems.

3. Target Special Categories of Recyclers. Finally, a third option would be to develop streamlined controls for certain kinds of recyclable secondary materials. Under this approach, EPA might develop special requirements for metals bound for reclamation or solvents bound for use as fuel in cement manufacture. The Agency would first have to establish criteria for selecting materials and deciding whether they pose serious disposal problems, whether they replace primary materials whose extraction and processing pose high environmental costs, or whether they are generated in large volumes. EPA would also have to decide which controls were appropriate, such as conditional exclusions, generic delisting, and class permits. Under this approach, recyclers and treatment, storage, and disposal facilities would be subject to the same standards. If controls changed for recyclers, the Agency would eventually consider changes for treatment, storage, and disposal facilities as well. Recycling could be encouraged by being the

subject of early action by the Agency, and so could receive a temporary preference over treatment and disposal.

SUMMARY

This report summarizes our preliminary ideas about reducing barriers to recycling and resource recovery, while still protecting human health and the environment. In moving towards that goal, we hope to make the RCRA regulations conform more closely to the environmental concerns that we all share. Our general approach emphasizes tailored controls for particular industries, processes or wastes which pose a hazard in some circumstances but not in others. As a first step, we have identified the following areas for the development of tailored regulations:

- Waste derived-products (such as building materials and fertilizers) that use hazardous wastes as ingredients.

- Metals reclamation, with emphasis on regulatory provisions related to permitting, derived-from intermediate materials, and slags.

- Universal wastes, such as batteries, pesticides, used oils, household hazardous waste, waste from small quantity generators, and antifreeze.

- Low-risk storage, with emphasis on issues related to tanks, containers, onsite and offsite storage, unregulated processing, "closed loops", 90-day accumulation, "no" storage recycling facilities, and transfer facilities.

We believe that this report is a useful starting point for making the RCRA program more risk-based and easier to implement.

NEXT STEPS

The ideas in this report are tentative and preliminary. To help us develop more finished options, we plan to convene a group under the Federal Advisory Committee Act (FACA). This group will assist us in defining regulatory choices so that we can then decide which suggested revisions merit inclusion in a Federal Register proposal. We expect the FACA committee to consist of representatives from trade groups, environmental groups, the hazardous waste treatment industry, Congressional committees, academia, state and local governments, the Office of Management and Budget, and other interested federal agencies. We expect the committee to consist of approximately twenty members, who will participate in 8-10 meetings. Through discussions and exchanges of opinions among participants, we hope to further clarify the problems to be addressed and the most reasonable solutions.

RCRA Implementation Study Update

Appendix A

Discussion of Recent Court Cases

The Circuit Court of Appeals for the District of Columbia Circuit has addressed the regulatory definition of solid waste in three principal cases.

The first case, American Mining Congress v. EPA (AMC I), 824 F. 2d 1177 (D.C. Cir. 1987), held that EPA's jurisdiction did not extend to some cases involving continuous processing of a material by either a single plant or possibly within a generating industry. 824 F. 2d at 1193. EPA's interpretation of that decision can be found in the January 8, 1988 proposed revisions to the definition of solid waste (53 FR 519).

Decisions in two more recent cases further clarified the scope of the Agency's jurisdiction. The first case is American Petroleum Institute v. EPA (API), 906 F. 2d 729 (D.C. Cir. 1990). That case addressed EPA's authority to regulate an air pollution control dust from primary steel production in electric arc furnaces (K061), when the dust is used as a feedstock in a secondary industrial process. The case also addresssed EPA's authority to regulate the residue from the secondary process.

In the First Third Land Disposal Restrictions Rule (53 FR 33162-64 and 31198-99) EPA had indicated that RCRA jurisdiction did not apply to the K061 waste when placed in a high temperature metals recovery unit, because the waste was not significantly different from the analogous raw materials that would otherwise be placed in the furnace. The K061 waste was considered "indigenous" to the high temperature metals recovery unit. Under the Agency's approach, the K061 waste would lose its status as a regulated hazardous waste when it entered the furnace; therefore, the residues from the reclamation process would not be derived from the treatment of a hazardous waste. Thus, a treatment standard of "no land disposal" was promulgated for the residues from high temperature metals recovery of K061 waste.

The API court, however, held that the recycling was not conducted as part of an "ongoing manufacturing or industrial process" within "the generating industry. . . ", and therefore could be within the scope of Subtitle C. The first American Mining Congress decision thus did not apply. Since the only reason the Agency had given for not providing a treatment standard rested on an unduly restrictive view of its jurisdiction, the court remanded the issue with instructions that the first American Mining Congress decision did not bar regulation of the slag from the recycling process. 906 F. 2d at 740-42.

The second recent case is American Mining Congress v. EPA (AMC II, 907 F. 2d 1179 (D.C. Cir. 1990). The court there found that EPA's assertion of RCRA jurisdiction over certain mineral processing wastes was correct, and rejected petitioners' claim that the materials were not "discarded". The petitioners claimed that sludges from wastewaters that are stored in surface

impoundments and that may at some time in the future be reclaimed are not "discarded". The court rejected this claim, stating that the holding of AMC I was that "only materials that are destined for immediate reuse in another phase of the industry's ongoing production process and and that have not yet become part of the waste disposal problem" are not solid wastes. 907 F. 2d at 1186. Moreover, the court held that the term "discarded" in the statutory definition of solid waste was ambiguous and therefore within the Agency's discretion to interpret.

RCRA Implementation Study Update

Appendix B

Summaries of RCRA Implementation Study Meetings on the Definition of Solid Waste

DEFINITION OF SOLID WASTE: INTEREST GROUPS
RICHMOND, VIRGINIA
DECEMBER 5-7, 1990

OVERVIEW

EPA met with representatives from industry, industry trade associations, environmental interest groups, congressional staff, and other Federal government agencies to solicit input regarding issues related to the current definition of solid waste and hazardous waste recycling regulations. The meeting was organized into four sessions designed to identify issues and suggestions for change.

Sylvia Lowrance, Director of the Office of Solid Waste, opened the meeting on December 5, 1990 by welcoming the group and offering some perspective on EPA's goals for the meeting. David Bussard then discussed current EPA activities, and the process the meeting would follow. He briefly reviewed EPA's goals for considering changes to the current definition of solid waste and the hazardous waste recycling regulations and presented three broad theories which have been suggested to the Agency for defining jurisdiction over hazardous waste recycling. The theories were:

- If a material is recycled, it is not a waste;
- Recycling is one type of waste management;
- Some recycling is waste management and some is not.

OSW staff then presented a brief overview of the current status of the program. This discussion was followed by a presentation of schematics representing several typical recycling scenarios which demonstrate how the current regulations apply to hazardous waste recyclers and potential issues posed by each scenario.

The group then divided into six small groups for the first of four small group discussions. On Wednesday afternoon, during the first session, participants identified issues related to the definition of solid waste. (These small group discussions, and those conducted Thursday and Friday morning, are summarized in detail on the following pages.)

The three small groups continued their discussion of issues the following day. Upon the conclusion of these discussions, each small group summarized key issues and presented summaries to the full group. After lunch on Thursday, the small groups discussed the goals and theories that serve as the basis for the definition of solid waste.

On Friday morning, the small groups presented summaries of their ideas on goals and theories to the full group. This was followed by small group discussions on recommendations for resolving problems with the current definition, and presentations by each small group of their final recommendations.

Sylvia Lowrance closed the meeting at lunch on Friday, December 7, 1990, by reviewing some of the recurring themes and issues that were discussed at this meeting and at the Regional and State meetings held earlier on the same topic, and expressed her appreciation for the group's participating and providing EPA with their ideas and perspectives.

Meeting Summary for the Definition of Solid Waste

Meeting III: Interest Groups

GROUP A

WEDNESDAY, P.M.
First Small Group Session - Discussion of Issues

At the outset, the group's facilitator posed the question, "Given your experience, what are issues and problems that exist with the current regulatory definition of solid waste?" The responses of the group members varied. An overriding concern was the complexity of the current definition and the need for a regulatory structure that encourages recycling.

A participant pointed to the application of the mixture and derived-from rules as a problem and used the example of slags generated from specialized metals production. Under the current definition of solid waste, the slag would be considered "derived-from", and regulated when used in road aggregate. The participant suggested that the slag be judged on its own merits rather than by application of the derived-from rule. Many group members supported this position.

Many in the group also objected to applying the derived-from rule to residues resulting from recycling operations. A participant stated that recycling should be viewed as an industrial process and any residues that are generated should be analyzed based on their own merits. A participant suggested the adoption of a reasonable de minimis level, below which a material would not be regulated. This individual also saw the current permitting requirements as a problem, a point which had wide support.

A participant referred to the unnecessary complexity of the current regulatory structure and the way waste/reuse activities are cross-classified by material type. A participant suggested that materials be classified in terms of the problems they cause rather than material type. This individual went on to say that recycling could be encouraged more effectively by regulating it on a more industry-specific basis.

A participant stated that RCRA and the definition of solid waste have created economic disincentives to recycling; it is often cheaper for industry to use virgin materials.

Several participants made the point that the regulation of recycling operations is not based on environmental concern and there is currently no regulatory benefit associated with protecting human health and the environment. As an example of

the latter, a participant cited a well-lined surface impoundment. From a regulatory standpoint, there is currently no benefit associated with good housekeeping practices.

A participant suggested that there is a need for a clear distinction between hazardous waste treatment/disposal and legitimate recycling. A participant saw the need to distinguish between waste recycling and materials processing operations and stated that in-process materials should never be regulated as solid wastes. This individual suggested that regulation of secondary materials be dependent on the management/mismanagement of those materials. For example, K061 in a waste pile should be regulated as a waste, whereas K061 going to a smelter should not be considered a waste.

A participant stated that product stewardship programs are hindered by the definition of solid waste, and referred specifically to drum residues and off-specification products. This position was strongly supported by others present. Among these individuals, the consensus was that manufacturers should be able to reclaim useable materials from their products without regulation.

A participant stated that financial responsibility should be a key consideration for recycling facilities. The great number of recycling facilities that have become Superfund sites is largely attributable to the fact that many recyclers in the past were very small operations or sham facilities with no financial backing. A participant agreed, saying that this proves that recycling is not an inherently hazardous process. Past environmental problems caused by recyclers were due to a lack of capital and the total lack of regulation by EPA at that time.

A participant referred to a range of materials that should be regulated that are currently escaping regulation, and cited used oil as an example. Several group members saw the state variations in the definition of solid waste as a contributing factor in the complexity of the current program. A participant specifically mentioned the inconsistency among states regarding the approval of beneficial use of materials.

A participant pointed to the lack of a concise body of regulations and guidance. Under the current program, Agency policy can be found in fragmented preambles, interpretive letters, Agency memoranda, guidance documents, etc., instead of being part of one consolidated source. This only adds to the confusion and complexity of the current definition.

Two exclusions in the current definition were recognized by the group as being too narrow. Specifically, the majority of representatives agreed that 40 CFR 261.2(e) should be broadened to allow reclamation prior to reinsertion into the manufacturing

process. One participant suggested that the definition of reclamation is too broad and should be more clearly distinguished from that of "incidental processing".

The other exclusion the group discussed as being too narrow is the closed-loop exclusion in 40 CFR 261.4(a)(8). Several participants indicated that they would like to see this exclusion broadened to encompass off-site movement of waste to a recycling facility. A participant stated that this notion destroys the concept of closed-loop in that off-site shipment of waste breaks the loop.

The group also discussed the possibility of creating a new subtitle under RCRA for the regulation of recycling. Several participants favored this approach because under another subtitle, recyclers could avoid the stigma of Subtitle C regulation.

Upon ranking all the issues discussed in terms of importance to the group members, the following three issues received the greatest number of votes: the regulatory structure is not focused sharply enough on environmental concern; the current program does not promote recycling; and, there is no distinction in the current program between hazardous waste treatment/disposal and legitimate recycling.

THURSDAY, A.M.
Second Small Group Session - Discussion of Goals

The group reconvened on Thursday morning to discuss goals for the definition of solid waste. All group members agreed that EPA's goal of protecting human health and the environment was necessary and proper. A participant suggested that a way to achieve this goal is to try to exclude those processes where direct reinsertion takes place and no land placement occurs.

Another goal that was discussed and agreed upon was the promotion of recycling. Several group members encouraged the institution of incentives to recycling, and in particular, equal treatment of waste-derived products as compared with virgin-based products. Several participants agreed that waste-derived products pose no greater risk than products formulated from virgin materials, and that the regulation of waste-derived products should be based on the characteristics of the products themselves, not the regulation of the secondary materials from which they are made.

There was general agreement in the group on the fact that the derived-from rule should not operate for waste-derived products. The participants discussed the current regulation of waste-derived products that are applied to the land. Under 40 CFR Part 266 Subpart C, such a product can be applied to the land if the

hazardous constituents are physically inseparable and the BDAT standards have been met. However, group members pointed to the fact that the regulation of these products varies from state to state.

A participant prompted considerable discussion regarding the possibility of developing Toxic Substances Control Act (TSCA) to encompass the virgin products that are currently not regulated. There was considerable agreement among group members that RCRA should regulate wastes and not products.

A second goal that was agreed upon was a slightly amended version of EPA's fourth goal. This was to simplify the regulatory structure, including permitting, in order to improve implementation and enforcement. The majority of group members agreed that if EPA revamps the regulatory program, the market will not require any work.

The group generally supported the other two goals that EPA had set forth, those being to promote recycling and to clearly define jurisdiction. There was disagreement over the issue of exactly what the jurisdictional test should be.

THURSDAY, P.M.
Continue Second Small Group Session - Discussion of Theories

The group discussed the three theories put forth which was explained by EPA in the opening session on recycling. The group favored a theory that fell somewhere between theories 1 and 3. Theory 1 states that if a material is recycled, it's not a waste. Theory 3 holds that some recycling is waste management and some is not.

A participant suggested that EPA define a waste as something that has outlived its useful life and is being permanently disposed. This individual saw recycling as wholly separate from waste management, as recycling deals with recyclable materials, not wastes. A participant supported theory 3 and suggested that regulation of recycling operations be dependent on whether a specific operation is more like a manufacturing process or a waste management process. This participant went on to say that some recycling operations have no element of discard, while others certainly do.

A participant suggested that EPA regulate on- and off-site recycling the same. Another participant had the same concern and posed the question of whether transport over a certain distance rendered a material waste-like, and therefore, subject to regulation. This rekindled the discussion of expanding the closed-loop exclusion to encompass off-site transport. A participant asserted that the closed-loop exclusion was

structured around the premise that releases of hazardous constituents would be prevented by employing closed conveyances, and that the off-site transport of waste totally opens the loop.

A participant suggested that portions of recycling operations that closely resemble waste management could be regulated but regulation of the entire recycling process is unnecessary. This participant used the example of surface impoundments employed as part of a recycling operation. These units are similar to conventional waste management units and thus, could be regulated separately from the recycling process itself.

Some members of the group agreed that they could support theory 3 only after it underwent some modification. Some participants favored the following: recycling is not waste management, but some recycling needs to be regulated to protect human health and the environment under a new program that does not prejudice the use of waste-derived products as opposed to virgin-based products.

FRIDAY, A.M.
Third Small Group Session - Specific Recommendations for Redefinition of Solid Waste

During the last small group meeting, Group A discussed specific recommendations for revising the current definition of solid waste. A participant suggested that under current statutory authority, if some types of off-site recycling are not going to be regulated as treatment, storage, and disposal facilities (TSDFs), a regulatory fix is in order to develop some new management standards.

This revived the discussion of what to employ as a jurisdictional test to determine what is regulated and what is not. A participant proposed five basic management standards that, when met, would render a material <u>not</u> discarded, and therefore, not a solid waste.

They are as follows:

1) Notification by the generator of recyclable materials <u>and</u> by the recycler;
2) Storage standards set by EPA for both on-site and off-site;
3) Prohibition of speculative accumulation;
4) Tracking of off-site shipments of recyclable materials by a bill of lading or shipping paper; and
5) Recordkeeping for inspection purposes.

It was immediately noted that these standards do not deal with the issue of residues. The same participant who proposed the five basic standards stated that this issue would disappear by

meeting the standards and thereby freeing a material from the definition of solid waste. If something is not a solid waste, nothing can be "derived-from" it.

A participant brought up the issue of recovering energy from waste as opposed to materials recovery. He suggested that EPA set fuel specifications for the constituents in 40 CFR Part 261 Appendix VIII. This idea was not supported by the group but there was some agreement on a suggestion that EPA set generic guidelines on how to define recycling in terms of energy recovery. The group agreed that materials recovery should be handled separately from energy recovery.

Discussion turned to the issue of a definition of "recycling". A participant questioned whether there should be a strict definition or a general one, in which case the Agency would decide on a case-by-case basis. The individual who had suggested the standards replied that they were not intended to definitively bring an activity in or out of the definition of recycling. Rather, the standards would apply to those operations that had been deemed legitimate recycling.

The facilitator asked the group what types of processes would be totally exempt under this proposal. The group agreed that the existing exclusions from the definition of solid waste (closed-loop and direct reinsertion) would still operate. In other words, if a process met the criteria of closed-loop, the new management standards would not apply and that process would still be free from RCRA regulation, including the requirement to notify EPA. A participant wondered how EPA knows who is claiming exclusions like closed-loop without a notification. An EPA representative answered that states can require notification from facilities otherwise exempt under the Federal program. There was no agreement in the group on this issue. Some thought some form of notification should be required for facilities claiming across-the-board exemptions like closed-loop, and others thought notification was unnecessary.

All participants agreed that some storage standards should be set by the Agency. A participant recommended that these standards be less stringent than the storage requirements currently in Part 264 in order to encourage recycling. The group discussed the concept of regulatory stringency being linked to the potential of a particular practice to become part of the waste disposal problem. For example, storage in tanks is generally viewed as being more benign, in terms of environmental concern, than storage in surface impoundments. The majority of participants favored a regulatory approach that would bring into consideration the potential for mismanagement associated with each hazardous waste management technology.

The prohibition of speculative accumulation was agreed upon by all group members. In terms of the tracking requirement, most favored some form of tracking other than a manifest, but all agreed that if it had to be a hazardous waste manifest, they would not balk at the requirement. Finally, all members thought that recordkeeping was a necessary component of a successful program.

At this point, the facilitator asked if there was anything else that should be required under these proposed standards. A participant replied that financial assurance would be necessary. There was general agreement among group members on this point. One participant added that generators and collectors are a special problem because many of them are small and lack capital. It was generally accepted that recyclers should be required to demonstrate financial responsibility as well, not only for cleanup, but for closure too.

It was suggested that a closure plan be required as well. A participant was concerned that the requirements for financial responsibility and closure would kick in post-closure and corrective action requirements, and in essence, become a permitting program without a permit.

Another participant countered that generators should be assured that the recyclers to whom they send recyclables will close properly. A different participant suggested that if the management standards are met, one would not have to worry about financial responsibility and closure. Under this scenario, one would be subject to those requirements only if the material being handled slipped back into the definition of solid waste through mismanagement. There was debate on this position and a solution was never reached on the issues of financial assurance and closure.

The facilitator then raised the question of whether certain activities would be ineligible for the new program, i.e., still subject to Subtitle C. A participant answered that there is a need for a revised definition of recycling/reclamation so that sham operations would not qualify. This individual put forth a two-part jurisdictional test to be applied to recycling processes to determine whether the material being reclaimed is or is not a solid waste. Roughly, the test would require 1) some continuity of process, and 2) that the process qualify as not being part of the waste disposal problem. If a particular recycling operation satisfied these criteria, there would be no element of discard, and therefore, the material being managed would not be a solid waste.

In the end, it was generally agreed that the proposed management standards put forth by the group were basically conditional exemptions from full Subtitle C regulation. In addition, many

participants agreed that a legislative amendment would give much more flexibility for developing a new program to regulate recycling.

The group summarized their recommendations in the form of the management standards and jurisdictional test for the large group before breaking for lunch.

Meeting Summary for the Definition of Solid Waste

Meeting III: Interest Groups

GROUP B

WEDNESDAY, DECEMBER 5, 1990, P.M.
First Small Group Session - Discussion of Issues

The group's facilitator asked the group to identify issues posed by the present definition of solid waste.

The following question was raised: Is the group examining issues pertaining to hazardous or solid waste recycling, since the issues are different? The response was that our focus is primarily on hazardous waste recycling but there could be implications for solid waste.

One participant asked if anyone in the group could define recycling at the outset, since there is no RCRA definition. The response was that recycling is essentially use, reuse or reclamation.

The group generated a list of 24 issues, which are identified below:

1) Is EPA examining hazardous or solid waste recycling, or both?

2) What is the rationale for the present definition of solid waste (what criteria determine if an activity is recycling, and if a material is being recycled? Do these criteria include assessments of the value of secondary materials; do they include consideration of environmental consequences, etc.)?

3) The present definition regulates materials that are not wastes.

4) The present regulations do not encourage recycling. They actually provide disincentives for recycling.

5) RCRA is overused as a vehicle to regulate bonafide products (e.g., cement) made from hazardous wastes, and it is inappropriate in this role (RCRA was described as a "multi-faceted flogging vehicle"). In many cases the contents of the products are the same as those produced from virgin materials, yet RCRA extends jurisdiction based solely on the fact that the fuel used to make the product contains hazardous waste. Further, cement kilns cannot obtain local air permits, this capacity is non-existent.

6) The derived-from rule is applied to products regardless of the characteristics of the resulting product. This blind application is inappropriate.

7) Do product standards address hazardous waste concerns?

8) It is difficult to define reclamation; why does it trigger regulation when a material continues to have value and is reused? (An example is steel dust compressed into brick versus reuse in metals recovery.)

9) Should secondary materials destined for reuse after reclamation be defined as solid waste?

10) The definition of solid waste should not include dirt being moved at a facility during remedial investigation (improper application of the contained-in policy). Contaminated soil should be regulated, but uncontaminated soil should not be regulated. Examples were cited in Wisconsin and Pennsylvania where any soil being moved is subject to regulation. Regulating soil without considering risk provides a disincentive to conducting remedial actions.

11) Products should not be regulated under RCRA. They should be regulated, if at all, under other statutes (e.g., TSCA). RCRA jurisdiction has been stretched too far. There is enough waste to regulate under RCRA. Also, a generic rulemaking approach tends to over- or under-regulate. It was also noted that TSCA considers economic factors, while RCRA does not, and that to appropriately evaluate products some economic factors need to be considered.

12) EPA should use a broad definition of solid waste and offer a way to avoid regulation of bonafide products (e.g., de minimis).

13) When used oil was proposed to be listed, the industry realized that the ripple effect of regulation would destroy the used oil recycling business. The definition needs to have some flexibility so that only those materials or practices that pose serious problems are regulated, and beneficial recycling is not burdened with unnecessary regulation.

14) In the mining industry, many materials are regulated as wastes that are not viewed as wastes by the industry. The definition of solid waste in Part 261 only applies to hazardous waste, not non-hazardous solid waste, which raises a question about industrial D wastes. Regulation as a hazardous waste would destroy parts of the mining industry. There should be a definition of non-hazardous solid waste. In addition, a stigma attaches to mining materials when they

are defined as wastes, and there is potential liability if these wastes are determined to be hazardous, since they are placed on the ground. EPA needs to clarify the definition of use constituting disposal.

15) EPA needs to clearly define sham recycling and legitimate recycling.

16) The regulations impose a stigma on the recycling industry by identifying secondary materials as solid and hazardous wastes. As a result, recycling is viewed as waste treatment.

17) The closed-loop exemption is too narrow. Does material have to go back to the point of origin to be considered closed-loop? The exemption should allow units such as open tanks and consider off-site applications, if there are not significant releases to the environment.

18) EPA should focus more on the practical reality than on the theoretical basis (e.g., theology) of RCRA. The Agency should use a broad definition and some type of "no action decision" process that is fast and certain. The cement kiln industry is hurt by the fact that they are not regulated. States withhold air permits because they view the unregulated activity as potentially harmful. The public also develops a negative perception. Much of this, however, will be addressed by the boiler and industrial furnace (BIF) rules.

The group briefly discussed generic rules, and how they don't account for each specific situation. Members suggested using categorical standards that would address recycling industries. Expedited case-specific evaluations and exemptions were also suggested.

19) EPA should not regulate intermediate management of secondary materials. Presently, virgin materials and "wastes" that contain the same constituents are regulated differently.

The group briefly discussed the definitions of treatment, disposal, and recovery. They agreed that all of these key terms require clarification.

20) The definition of discarded material is flawed, because it includes materials that are recycled.

21) Many of the recycling National Priorities List (NPL) sites have resulted from historic practices. EPA should identify current practices that pose risks to human health and the environment. It was noted that even recent cases indicate that storage and disposal on-site cause the majority of problems.

22) EPA must consider the implications that regulating recycling would have on secondary materials export.

23) The entire definition is too complex. The uncertainty is a disincentive for recycling. Also, EPA should encourage product stewardship and allow spent materials to be returned to manufacturers (case studies B and C in the Chemical Manufacturers Association (CMA) paper). Reclamation should not always trigger RCRA jurisdiction.

24) Burning for energy recovery should not disappear once the BIF rules become final. Cement kilns are conserving resources through recycling.

The facilitator asked the group to think overnight about which of these issues are the most important issues concerning the definition of solid waste.

THURSDAY, DECEMBER 6, 1990, A.M.
Second Small Group Session - Discussion of Issues (Cont.)

The facilitator asked the group to consolidate similar issues, and to discuss the relative importance of the issues they had identified.

The group discussed case-specific regulations versus generic rules. It was noted that a case-specific approach may be extremely complex, and take a long time to fully develop, but that this complexity reflects the real world situations EPA is trying to regulate. Others in the group felt that case-specific evaluations are not realistic, but that some categorical standards might be feasible.

The group also discussed the concept of value, and how this affects the definition of solid waste. Participants suggested that materials that are now defined as wastes still have value to those that recycle the material, and that this value promotes proper management. An EPA representative noted that while secondary materials can have value, the group must also consider what environmental risks a material poses. A participant suggested that EPA wait until a material is a waste (is not reused) to define it as a waste. The participant pointed out that regulating the management of secondary materials and regulating them as wastes are different. The participant also noted that a great deal of material is regulated by the Department of Transportation (DOT) rules when shipped, and that industry accepts regulation but is aware of the stigma of labeling the material a waste, and of the overregulation imposed by Subtitle C.

An EPA representative added that with respect to recycling, many recyclers are paid for accepting the secondary materials they recycle. This raises the question of whether these materials have value to the recycler (usually value is paid for), and whether value will ensure proper management in this type of situation.

A participant posed an example of shipping a 55 gallon drum of virgin toluene to facility A, where it is used. When it is shipped back to the generator it is considered a waste even though it poses no more risk to the public than when it was first shipped.

One participant suggested that EPA not identify a material as a waste until it is truly disposed. Products should not be regulated under RCRA. There was a question of whether intent to dispose would become the basis for regulation.

An EPA representative noted that from an enforcement perspective, intent to dispose is not a useful regulatory standard.

The participant offered an example where a spent solvent is generated; 95% is recovered and the remaining 5% is sent to a cement kiln, so all of it has been reused. It should never be a waste. An EPA representative asked how, if this material is not regulated as a waste, EPA will know if this material is being managed properly. The participant recognized that there are problem facilities, but noted that in the solvent industry many of these resulted from past practices that are not now common. It was noted that RCRA may be responsible for improved practices.

A participant indicated that EPA should deregulate recycling, yet keep some measure of control over recycling practices. For instance, batch hauling agreements and tolling agreements where the generator retains ownership of the material should not be regulated because there is an incentive for the material to be properly managed. Commonly owned off-site facilities may fit into this category. Such practices should be subject to speculative accumulation limits.

An EPA representative noted that speculative accumulation limits are also difficult to implement. One response was that the burden of implementation is a different issue.

A participant stated that one way to encourage recycling is to remove the stigma of labeling secondary materials as wastes, and make the alternative to recycling a strict regulatory scheme with penalties.

Group members generally agreed that EPA does face implementation and enforcement difficulties, but that does not justify blindly applying RCRA to recycling. The single biggest problem

encountered by recyclers is the regulation of materials that are to be reused or reclaimed as wastes. These materials may warrant some level of regulation, but this may need to be outside of Subtitle C. Perhaps these materials could be labeled as materials to be recycled.

An EPA representative asked if the recycling market can be self-policing (e.g., market driven). A participant did not see this as promising. Another participant noted, however, that the industry is starting to take back used motor fuel, and starting to police itself better.

A participant noted that CMA has developed an initiative on responsible care, which is a self-policing code of management practices. Following the code is a condition of membership in the organization. Practices include items such as self-evaluations, evaluations of contractors practices, and examining past practices to identify environmental concerns. This is commitment to improving the practices of the industry.

Other members noted that it takes time and money to change the thinking and practices of corporate America.

A participant noted that Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) liability also drives waste management practices in the "right" direction. Other members of the group were not sure market incentives would be any better.

A participant noted that several Congressional bills (Heinz-Worth/Torres) contain provisions that would create market incentives (credit systems, etc.) to promote the recycling of difficult commodities.

One participant stated that used oil collectors presently pay 10-13 cents per gallon for used oil. They do not recover any value from this oil until it is reprocessed. If regulations drive the cost of management up, recycling will decrease. Naturally, the economics vary as markets fluctuate. Some materials, such as used oil, may not be best regulated under Subtitle C. Subtitle C substantially changes the economics of recycling.

A participant indicated that industry is concerned about the impact of regulation on the ultimate products (e.g., cement made using hazardous waste-derived fuel). The participant asserted that no cement kilns that burn hazardous waste fail to meet existing product standards. The same participant did not feel that using cement as building materials is disposal on the land, and added that the derived-from rule is a significant burden from this standpoint.

The group was then asked to select the issues they felt were most important. These are listed below:

1) The current approach regulates materials that are not discarded. Materials that are recycled should not be regulated as though they are discarded. Interim management of secondary materials should not be regulated the same as discarded materials.

2) Revisions to the definition need to reflect corporate America's increased environmental awareness, and should be based upon the risks and problems that exist today.

3) The current definition creates disincentives to recycling.

4) The derived-from rule inappropriately subjects recycled materials to RCRA jurisdiction.

5) Reclamation should not serve as a regulatory trigger in all instances; there are situations where this discourages beneficial recycling.

6) The EPA needs to define value, and the role it plays in fostering beneficial, yet safe recycling. Economic value is not adequately considered under the present rules.

7) EPA needs to define sham and legitimate recycling.

8) All regulatory definitions affecting recycling should be clarified.

Participants also voiced several other issues, including: EPA should be proactive in RCRA reauthorization to drive this issue toward resolution; the closed-loop exemption is too narrow and EPA should evaluate what is closed (open tank issue), the need to return to the point of origin, and off-site possibilities. It was also reiterated that the present definition is simply too complex.

An EPA representative mentioned that an important issue is how to ensure that recycling is protective yet still provide an incentive to recycle.

A participant suggested that the rules be structured to exempt recyclers who comply with appropriate management standards (conditional exemption). The group generally agreed that hazardous wastes that are recycled (with the possible exception of waste-derived products) should be regulated, but not as wastes. The following issue was posed: How, if these materials are no different from hazardous wastes, can EPA justify imposing different management standards, and what standards will encourage

recycling? One response was that the stigma alone is a big problem.

A participant noted that there is a difference between regulating a material as a Federal hazardous waste versus a state hazardous waste. California regulates used oil as a hazardous waste until it meets certain specifications.

A participant stated that RCRA has made it so expensive to dispose of hazardous wastes that it has created a need for a recycling market. As recycling costs approach those of treatment and disposal, recycling will die.

One thing that EPA is missing is data concerning the volume of secondary materials that are recycled, and the risks, management, and impacts of recycling these materials, compared with those posed by treatment and disposal.

A question was raised concerning how the derived-from rule applies to residues from the recycling process. Does it apply or should the residues be evaluated based on their own merits? The group did not agree on a position with respect to this issue. It was noted that fully characterizing these residuals would require a long time. A participant indicated that one approach is to rely on the derived-from rule, with a modified delisting process to determine if recycling processes generate hazardous waste. Another participant suggested that another approach is to rely upon de minimis-type standards for both products and residues.

End Morning Session

THURSDAY, NOVEMBER 6, 1990, P.M.
Third Small Group Session - Discussion of Goals and Theories (Started discussion of solutions)

A representative of EPA suggested that, given the imbalance of the group (mostly comprised of industry representatives) the group should keep in mind the concerns of the environmental groups. These concerns are real considerations that Congress and EPA must balance when making decisions relating to this issue.

It was pointed out that the group is sensitive to these concerns; no one in the group has advocated complete exemption from the rules, only reasonable regulation under a program that focuses on recycling. A participant noted that there is a significant cost in killing the recycling industry, yet the group members accept the fact that they are looking to achieve a balance.

A participant suggested that industry in general should be more proactive in advocating their own positions and how these are compatible with protecting the environment.

The facilitator asked the group to examine the goals for the definition of solid waste that EPA has presented, including:

- Protecting human health and the environment;
- Promoting environmentally sound recycling;
- Clearly defining jurisdiction; and
- Simplifying the definition to ease implementation,

and comment on whether these are correct, and if there are other goals EPA did not identify.

A participant asked if the group should establish priorities for the goals. Another group member responded that Congress has made it clear that protection of human health and the environment (HHE) is the number one priority. Another issue was identified regarding what EPA is protecting HHE from. This raises the issue of the scope of jurisdiction of RCRA, and begs the question of whether recycling is within that scope.

A participant said that waste is waste, and the issue becomes how to regulate different wastes and different uses.

Both an EPA representative and a participant noted that recycling can be a means of protecting HHE.

A participant read portions of the national policy from RCRA, Section 1003.

A participant suggested that pollution prevention is a possible goal.

Several participants indicated that reducing the need for disposal is an important goal of the definition, as is reducing the demand for natural resources.

A participant added that the overall impact on the economy is also a concern; EPA should not burden business with excessive regulation that unnecessarily restricts recycling.

In response to a question, the facilitator indicated that beyond the statutory requirements there is no intended order of priority for the goals the Agency has identified.

A participant asked if we are looking at net savings in terms of energy and resources. The participant noted that it is cheaper to recycle than to produce products from virgin materials, and that it is important to consider the net effect of recycling on the economy. The participant also argued that since recycling generates products, there should be an element of cost considered in regulating recycling.

The participant stated that since the objectives and goals are specified in the statute (Section 1003) the group does not have much latitude to change these. One response was that the groups objectives, although perhaps more detailed, are consistent with statutory objectives. Cost, if considered, was identified as a new consideration.

A participant suggested an additional goal - if EPA satisfies all the other goals - the Agency should seek the least cost solution to regulating recycling. This approach is part of the amended Clean Air Act (CAA). An EPA representative noted that the Agency now performs RIAs to identify the most efficient regulatory approach to a problem. OMB also reviews cost concerns during the rulemaking process. It was noted that businesses also find least cost solutions (although they are constrained by the regulatory decisions that have already been made). The participant suggested that if "least cost" analysis is occurring now, the group should not have a problem including it as a goal.

A participant introduced the concept of a flexible regulatory program as a goal.

A participant noted the difference between cost-benefit (benefits outweigh costs) and cost-effective (least costly means of achieving goal), and indicated that he supported making cost-effectiveness a goal, once the other goals have been satisfied.

The facilitator asked the group if simplifying the definition is consistent with recommendations for case-specific evaluation. The group discussed the EPA/state viewpoint versus the regulated industries viewpoint. It was suggested that site-specific evaluations provide industry with certainty, although they impose a significant burden on EPA. For industry, simplifying the definition means establishing a clear line of who is regulated and how, while for EPA simplifying the definition means developing generic rules that establish this same clear jurisdictional line.

A participant did not agree with simplifying the definition. The participant felt that site-specific, risk-based analysis is necessary before beneficial recyclers will be exempted from regulation. The participant also suggested that EPA develop an expedited procedure for performing such analyses.

An EPA representative pointed out that case-specific evaluation is very much like requiring a permit.

A participant added that the waste definition is EPA's jurisdictional hook, and that EPA wants control over materials they believe may pose a problem. Several members indicated that while they do not object to EPA jurisdiction in the recycling industry, they prefer a different or separate regulatory scheme

for recycling. The participant added that certain processes don't fit the preventative scheme of RCRA. The group recognized that recycling must be regulated to some extent to satisfy environmental interests, and because some practices do pose potential risks.

The facilitator asked the group to discuss the three theories presented by EPA:

- Recycling is not waste management;
- Recycling is waste management; and,
- Some recycling is waste management and some is not.

A participant indicated that recycling is waste management (unless the material is abandoned), but that it should be regulated.

A participant suggested that closed-loop recycling is not waste management. This individual also noted that RCRA jurisdiction is based on defining a material as a waste and that there is a difference between a "RCRA waste" and the normal concept of waste.

The facilitator then asked for volunteers to argue the three theories, even if individuals did not personally ascribe to those points of view.

Advocates for theories 1 and 2 started the discussions, and were joined by advocates of theory 3.

Theory 1 - Materials that can be used again are not waste; waste is something you throw away.

Theory 2 - Not true. You are just hiding the element of discard when you recycle by storing on the ground, burning materials, or generating waste-derived products.

Theory 1 - Materials thrown on the ground may be wastes, but materials that are reused are not wastes.

Theory 2 - There is risk associated with recycling hazardous materials. Hazardous constituents leach to ground water when stored on the ground, are released to the air when burned or distilled, and remain in products. These activities and products should be regulated.

Theory 1 - Solvent stills are totally enclosed. Only still bottoms remain, and these are sent to a cement kiln to be mixed as fuel.

Theory 2 - How are secondary materials stored prior to recycling?

Theory 1 - In drums or tanks. Those materials that are stored on the ground (coal ash) have the same constituents as ordinary soil, and when they are used the constituents are bound up so they cannot be released. The process conserves natural resources, energy, money, and land required for disposal.

Theory 2 - Doesn't the storage of waste materials on the ground pose the likelihood of contaminating ground water?

Theory 1 - Our material is very similar to naturally occurring soil. The only reason our material is regulated is that it is <u>defined</u> as a waste - virgin products with the same composition are not regulated.

Theory 2 - Are you suggesting that we need some product specifications for these types of materials?

Theory 1 - Yes, similar virgin products should meet specifications if our recycled product is required to meet such requirements.

Theory 2 - It doesn't matter what you call it, you are managing the material to protect the environment, and that is waste management. Coal ash stored on the ground is clearly a waste.

Theory 1 - In certain operations the coal ash comes straight out of the plant into a silo, onto a truck, and is sent off-site to be used to make Portland cement. Here, it is a product. Yet some states require us to get a permit, and would even require a permit for the cement manufacturer.

Theory 2 - How are you sure your storage is safe?

Theory 1 - Our facility is inspected.

Theory 2 - Not if your facility is not regulated (e.g., you do not manage a waste).

Theory 1 - We should be regulated, but only based on our activity, and in a manner that is fair compared to other products. Further, materials that we bring in and sell or reuse directly (products to be recycled) should not be regulated as wastes.

Theory 2 - You accept that the secondary materials you receive contain hazardous constituents?

Theory 1 - Yes, but so do the other 100,000 gallons of virgin product we store on-site. There is no RCRA regulation of that. The disparity of regulation is almost comical. A lot of problems arise where we have to compete with virgin materials. Both recycled and virgin products contain the same materials, compete for the same market, and are used for the same purpose, yet they are regulated quite differently - so differently that the economic viability of the recycled product is threatened.

Theory 3 - Waste is material that has no further use to the generator - it may have value to some, but it has no use to you.

Theory 1 - Are you saying that materials that I cannot reuse, but someone else can, are wastes?

Theory 3 - Yes.

Theory 1 - No, these are by-products. Your approach would extend RCRA to all production facilities across the U.S. We accept that our facilities should be licensed because some of the materials we generate (e.g., residuals) are hazardous wastes.

Theory 3 - If your facility is regulated (e.g., permitted) what difference does it make whether the material is called a waste or not?

Theory 1 - We have not defined what is recycling or what operations would be subject to any regulatory requirements. It may be helpful to identify certain types of beneficial recycling that do not need regulation as a waste.

Theory 2 - How do we ensure that the environment is protected?

Theory 1 - Product liability and CERCLA liability exist to ensure that products are safe and recycling operations do not pose environmental problems.

Theory 3 - So the government (taxpayers) picks up the tab after the damage is done. What do you gain compared to current regulation as a waste if recycling facilities must be licensed in a manner other than under Subtitle C?

Theory 1 - Lack of stigma and no derived-from rule.

Theory 3 - In some cases the derived-from rule should not apply, but that is exactly why theory 3 is the proper approach. In some cases the residual wastes are worse than the wastes from the virgin product.

Theory 2 - With different standards for different operations, how can the public be sure they are adequately protected?

The example of Times Beach was raised (liquid sulfide sold for dust control contained dioxin and caused substantial environmental and human health impacts). How do you avoid this type of situation?

Theory 1 - We cannot prevent all accidents.

Theory 2 - If a product must meet health-based standards, then situations like Times Beach would not occur. Other situations, such as transport, can always pose some risk.

Theory 3 - We do not want to regulate all recycling, only recycling that poses significant problems.

The facilitator asked the group to select the theory that they supported.

Several members of the group wanted it made clear that although they do not believe recycling is waste management, they do believe recycling should be subject to some degree of regulation. Theory 1 was modified to reflect this position (see below).

Other members expressed the idea that only certain types of secondary materials management or reuse require regulation, but true recycling does not, and therefore EPA should clearly define beneficial or true recycling and subject other forms of recycling to regulation. Theory 2 was modified to represent this viewpoint (see below).

Finally, several members favored theory three, noting that effectively there is little difference between the group's modified theory 2 and EPA's theory 3.

The group thus supported the following theories:

1) Recycling is not waste management, however, it should be subject to appropriate management standards.

2) Recycling is not waste management (and should not be subject to regulation), however, recycling must be clearly defined (activities that are not truly recycling should be subject to regulation).

3) Some recycling is waste management and some is not (some recycling should be regulated and some should not).

The group felt that regulating recycling as something other than waste management helps escape the stigma associated with the term waste, and the burden imposed by RCRA on wastes.

The facilitator asked the group to move on to examine solutions/changes to the definition of solid waste. The facilitator asked the group to generate a list of suggested changes to the present definition that they would make if they were the EPA Administrator. These are listed below:

1) Modify the derived-from rule so that waste-derived products are not automatically considered hazardous waste (establish de minimis caps for specific constituents; create an expedited delisting procedure).

2) Modify the definition of solid waste such that reclamation does not automatically trigger regulation of a material as a waste (exempt all on-site reclamation; exempt reclamation when it does not pose adverse health risks).

3) Create an EPA recycling program that encourages hazardous waste recycling and is separate from the current hazardous waste regulations. Study the problems that recycling poses (both hazardous and solid waste). Encourage sound recycling, but tailor a program to the real risks posed.

4) Amend the definition of secondary material to exclude materials that are part of an ongoing commercial process (AMC opinion).

5) Incorporate a distinction between on-site and off-site reclamation. On-site reclamation of useful materials should be subject to reduced requirements, if regulated at all.

6) Develop a clear demarcation of what is regulated and what is not, and once EPA decides what is regulated, the Agency should develop some continuum of regulation for recycling activities.

7) Exclude waste-derived cement that meets national product standards such that it does not pose an unreasonable risk to human health. If it meets the standards, it should not be a solid waste. EPA should examine all the data, and exempt those products that meet the appropriate standards.

8) Establish a separate subtitle for secondary materials that are reused. Collect information on secondary materials, uses, and risk, and formulate appropriate requirements (e.g., interim storage requirements).

9) Develop an opt-in system where recyclers are subject to Subtitle C unless they make some demonstration such that they can opt-into a reduced regulatory scheme.

10) Define sham recycling and clearly regulate it as waste management.

11) Revise the present definition to read "materials are solid wastes if they are abandoned by being (A) disposed, or (B) incinerated without energy or useful product recovery."

12) Materials are not solid wastes if they are recycled in accordance with separate recycling regulations. Used oil that is managed in accordance with applicable provisions of Part 266 should not be a solid waste.

13) Clarify that by-products are wastes if they are discarded, but are products if they are reused. Define reuse and disposal.

14) Define recycling such that sham recycling is clearly excluded. Clearly define sham along the lines that those who do not use materials in a manner consistent with the use of virgin materials in a manufacturing process are not performing legitimate recycling.

15) EPA should take action to revise the definition quickly to avoid statutory changes and the uncertainty of RCRA reauthorization.

16) EPA should establish a clean fuel standard.

17) EPA should encourage product stewardship by allowing customers to return used materials to a generator for reclamation without regulating the material as a solid or hazardous waste.

End Thursday small group session.

FRIDAY, DECEMBER 7, 1990, A.M.
Small Group Report to Large Group

Group B reported to the large group on their goals and theories discussion outlined above.

Fourth Small Group Discussion - Discussion of Solutions (Cont.)

The facilitator asked the group to continue identifying suggested changes to the definition, and to openly discuss these suggestions.

A participant suggested a framework for revising the definition of solid waste based on a continuum of regulation, ranging from no regulation to full Part B permitting. The participant's framework would not regulate closed-loop recycling, materials used on-site, or those directly reinserted into a process. The framework would establish minimum requirements for materials stored off-site, and evaluate waste-derived products. The participant suggested that the group focus on determining which controls are appropriate, rather than how these will be implemented. The participant also asked whether the solution is to remain under Subtitle C or not.

A participant suggested that the group pull suggestions from the issues and solutions to build an overall solution or framework.

A participant noted that used oil is regulated (secondary materials/recovered materials) under Part 266. The participant asked if the group's objective is to remove the regulation of recycled materials from Subtitle C.

One participant reminded the group that now, if a material is not a waste, it is not regulated. The group needs to define what are secondary materials, identify what is a product and what is a waste, and what are appropriate requirements for recycling and for products. The group should not focus on what subtitle these materials should be regulated under until we identify the substantive requirements for these secondary materials and activities.

A participant suggested that one approach to developing a continuum is to create a process with some presumed level of regulation, and the opportunity for generators to demonstrate that they warrant less regulation than the baseline. This approach is protective but provides relief where justified, and it places the burden of making a demonstration on the facility (an analogy was offered of a process-specific delisting). It was added that this may be done on a class or category basis, and that product specifications could also be developed.

Members of the group asked if this approach continues to regulate wastes under Subtitle C. They also noted that it provides that secondary materials are wastes - which they identified as a problem.

A participant noted that EPA has to define terms, particularly sham recycling. They also have to develop criteria for sham

recycling, and other criteria that identify what is a waste. This would entail developing a regulatory definition of what constitutes a secondary material.

The participant noted that this approach maintains EPA's present jurisdiction over wastes, but that EPA would still have to rely on some other authority for protection from waste-derived products. The participant responded that products could be regulated under some other authority, such as TSCA.

A participant noted that an opt-out process still deals in waste. The participant indicated that developing such a procedure (similar to a process-specific delisting procedure) would be a substantial undertaking for EPA, and asked what we are gaining by developing such a procedure (e.g., stigma remains a problem). The participant also noted that we still have to address residuals.

A participant added that EPA may have to undertake examination of recycling operations case-by-case.

A participant stated that one approach to drawing a jurisdictional line can be characterized as distinguishing manufacturing from waste management. The participant indicated that closed-loop recycling without reclamation should not be regulated, nor should on-site reclamation without storage. Storage for less than 90 days requires some regulation, whereas storage for more than 90 days may require permits. The participant felt that storage on the ground in waste piles also may require permits. It was reiterated that there is a lot to talk about, and that the group should focus on standards, not semantics.

A participant indicated that EPA's current "Strawman" approach (draft approach for regulating mining wastes) would regulate waste piles.

A participant noted that RCRA reauthorization is a crapshoot, and we don't know what kind of changes will result.

One participant stated that it is difficult to decide on specific requirements when we don't know with which materials we are dealing.

Participants raised the issue of corrective action. It was generally felt that corrective action is an important issue, because it is a burden to industry, yet serves an important function. This issue was not resolved.

A participant suggested identifying secondary materials and establishing a separate regulatory framework for these materials, including standards. EPA should also identify bonafide uses of

these materials. For example, EPA could impose some storage requirements and transportation requirements (depending on the materials and their use - and recognizing a continuum of risk). Requirements could range from Subtitle C to no requirements. The participant agreed there is a need for a level playing field. Within this framework can we provide incentives for recycling (e.g., credit system, grants, etc.)?

A participant asked why a secondary material that is the same as a virgin material should be regulated. One response was that exempting these materials leads us down a slippery slope, towards exempting problem materials because not all problem materials are regulated.

It was noted that the group has examined the appropriate requirements for different parts of the recycling process. The group then looked at the generic on-site recycling diagram to identify the requirements they felt were appropriate at each stage of the recycling process. They generally agreed that the continuum concept represents a reasonable approach to revising the definition, although many specifics were not discussed and consensus on exactly how the continuum would be structured was not reached.

A participant said the key is to identify at what point a waste is generated. The participant then examined what generators would not be regulated. The participant suggested exempting direct reuse (no reclamation), reuse as feedstock, and closed-loop with reclamation (provided the loop does not have to be all piped or closed tanks, other on-site uses are allowed, and possibly off-site closed-loop allowed where it involves the same company).

For storage of less than 90 days, the same participant suggested no requirements, but there was not agreement on this. It was also suggested that storage not be regulated if there is no potential for migration (e.g., storage in tanks). The participant suggested regulating storage if it is for more than 90 days. The participant noted that storage after reclamation should be exempt because the value of the product ensures proper management, and would prohibit speculative accumulation.

The same participant suggested DOT regulation of transportation if waste is sent to different facilities of the same company, or is subject to batch tolling agreements (generator retains ownership).

The group was not in agreement on this approach and they also discussed the level of regulation appropriate for pile and tank (including aboveground, underground, covered, etc.) storage. One participant suggested presenting more general ideas.

The group generally agreed that notification be required for recyclers. Tracking recyclable materials was discussed and the group did not want to use a hazardous waste manifest to track these materials (a generic tracking form was more acceptable). It was suggested that packaging could be covered by DOT requirements, that recordkeeping and reporting are related to tracking, and that storage standards may be applicable if storage is for greater than 90 days. Again, there was not full discussion of each approach or consensus on these suggestions.

A participant suggested a generic framework that incorporates many of the concepts the group discussed throughout the meeting. The participant offered a diagram of this approach and this was used as a partial basis for the group's final presentation on solutions.

Several group members noted that waste-derived products pose problems. They agreed that it is very complicated to evaluate product risk versus its competitiveness with virgin products. They recognized that this relates to one aspect of the sham recycling issue (sham product). It was also noted that RCRA is not a product statute, and that reuse, to the extent it does not pose undue risk, is beneficial.

End Friday morning small session.

Presentation to large group on solutions.

Group B generally took the position that EPA should not regulate secondary materials as wastes. The current system imposes a stigma on materials that are recycled. The group recognized the jurisdictional issue, but felt that the stigma issue is a significant problem.

The group recognized some need for a continuum of control based on risk. It was not clear exactly how this extends to products.

The group believed it is important for EPA to clearly identify secondary materials, as well as the risks associated with their recycling and management, and then to establish standards for their storage, transportation and the management of residuals. These standards may require a separate subtitle to clearly define the requirements and to adequately distinguish between recycling and waste management activities.

The group attempted to develop a general framework for revising the definition, and while there was not complete consensus and several issues were not fully discussed, this general framework

(based on the continuum concept) would start by exempting certain activities that are like manufacturing. These include:

- On-site direct reinsertion into a process without reclamation;
- On-site reclamation in closed loop;
- On-site recycling with storage in tanks for less than 90 days;
- No speculative accumulation would be allowed; and
- Extend closed-loop to off-site recycling provided the material is returned to the generator, or subject to batch tolling agreements.

This framework would use DOT requirements to regulate transportation.

Finally, the group identified the following 14 recommendations:

1) Modify the derived-from rule such that products are not regulated as hazardous wastes. Consider developing de minimis caps for specifying constituent levels in the products, creating an expedited delisting procedure, and exempting products that meet certain testing standards.

2) Establish a RCRA recycling program. There was no clear consensus whether this should be under Subtitle C or a new subtitle.

3) Establish a secondary materials recycling program such that facilities opt into the program (and out of Subtitle C) if they comply with the standards.

4) Some participants recommended quick action by EPA to avoid statutory changes.

5) Amend the definition of secondary material to exclude materials that are part of an ongoing process.

6) Distinguish between on- and off-site reclamation, and do not blindly use reclamation as a trigger for RCRA jurisdiction.

7) Some wanted to revise the definition to exempt recycling, and only include materials that are abandoned or incinerated without energy recovery.

8) Regulate by-products as wastes when disposed, and as products when reused.

9) Encourage product stewardship through allowing the return of secondary materials to the generator for regeneration without designating them as a solid waste.

10) Establish a clean fuel standard.

11) Overall, use a risk-based analysis based on management to establish appropriate requirements for recycling.

Two questions followed the presentation:

1. Would the group support tracking materials sent for closed-loop recycling off-site?

The response was yes, under DOT requirements.

2. What was the issue behind establishing a separate subtitle for regulating recycling?

   The response was that there is a significant stigma associated with a secondary material being defined as a waste and regulated under Subtitle C. To maintain jurisdiction and avoid this stigma, the group favored creating recycling regulations under a separate subtitle.

Meeting Summary for the Definition of Solid Waste

Meeting III: Interest Groups

GROUP C

WEDNESDAY P.M.
Small Group Session Discussion of Issues

The purpose of the opening session was to identify and discuss the group members' issues with the current definition of solid waste and recycling.

Before the beginning of the issues identification and discussion session, questions were raised about the focus of the discussion as it relates to hazardous wastes (Subtitle C) or non-hazardous wastes (Subtitle D). In response, an EPA representative noted that the focus would be on hazardous wastes, but other concerns and objectives for non-hazardous wastes are important and would also be addressed.

The facilitator then requested that members of the group identify their top three or four issues or problems with the definition of solid waste (and hazardous waste) recycling regulations. A summary list of the issues that were identified is attached.

The following is a detailed summary of each of the issues as they were presented by each of the group members:

A. The current regulations focus on manufacturing activities (e.g., chemical manufacturing, petroleum refining), however the interpretation of the regulations also brings in non-manufacturing activities such as laundering and dry cleaning. As a result, the current exemptions apply only to manufacturing activities and not "other" activities (e.g. "... reinsertion into a <u>manufacturing</u> process ..." as opposed to an <u>industrial</u> process).

B. Precious metals should not fall under the scope of RCRA but should be regulated under a different system. For example, hazardous waste transport regulations are inappropriate for precious metal wastes destined for recovery/recycle. Although the market value fluctuates, the resulting value of wastes are great enough that there will always be a market for these materials (e.g., silver - $150,000/ton is the lowest value).

C. When is a material discarded, and where is the point of generation for a discarded material? e.g., use of a corrosive waste to neutralize in another part of the same

process - is it hazardous waste treatment or "beneficial use"? If a characteristic wastewater is mixed with other process waste waters and segregation is not possible, how far up the pipe do you go to determine the point of generation?

D. Reclamation does not fall within the definition of discarded; e.g., incidental energy recovery brings wastes under regulation. When batteries reach secondary smelters, they become hazardous wastes. At this point, when reclamation of the batteries begins, storage of lead is considered land disposal; batteries cannot be stored in tanks.

E. Land Disposal Restrictions (LDR) prohibitions create recycling disincentives because of the restrictive storage regulations. Storage prior to transport to a recycling facility in a timely manner is difficult. This is partly due to generator concerns about sham recyclers and making sure that the receiving facility is legitimate.

F. Potential for mismanagement and environmental contamination across the board. A number of current operating activities are not regulated and more comprehensive coverage is needed. A cement kiln may handle a waste in an environmentally sound manner, but mismanagement of this same waste can lead to serious environmental damage.

G. The regulations are so complex and ambiguous, enforcement implications make it difficult to distinguish the scope of the regulations which many times leads to interpretation problems.

H. The current definition diverts management from recycling to land disposal. For example, spent potliner from the aluminum industry has a fuel value but also has high fluoride content. The mineral wool industry typically uses coke for fuel, but spent potliner can be used as a substitute and the fluoride actually aids the process by keeping the molten material fluid. Its use reduces coke consumption and reduces sulfur dioxide emissions. Because the potliner is a hazardous waste and subject to the storage requirements and the derived from rule, and since the mineral wool furnace would be regulated as a RCRA unit if it used the potliner, spent potliner cannot be used a fuel. Furthermore, hazardous waste incinerators will not accept potliners because of slagging.

I. The definition of reclamation is too broad such as including dewatering. (No discussion followed this issue.)

J. Inflexible application of derived-from and mixture rules. Some mineral processing companies are discouraged from employing recycling capacity to avoid burdens of Subtitle C.

K. The burdens of recycling under Subtitle C also affect co-location of integrated facilities (mines, mills, and smelters). If recycling were present, permitting burdens, including corrective action for all Solid Waste Management Unit's (SWMU's) would apply to all operations (mines and mills). Recycling is discouraged if it involves a Subtitle C permit and corrective action.

L. There must be other mechanisms to regulate other than RCRA. The precious metals industry has proposed alternative regulations for establishing industry protocols that do not require permitting, however violators would fall under RCRA regulation.

M. More emphasis needs to be placed on enforcement of the strong/broad program that already exists rather than developing more regulations. You cannot write a rule to get the "bad guy" because they will always break the rules.

N. The closed loop interpretation is too narrow. An ongoing industrial process with a break in the action will bring the material under regulation as a hazardous waste.

O. Speculative accumulation interpretations need clarification. For some processes, more than a year is sometimes required to process materials that would otherwise meet the recycling criteria. The time factor brings the materials under regulation. The speculative accumulation interpretation should be more flexible and consider the nature of the process.

P. What should EPA do about waste-derived products? The Agency needs to make a decision on making a cut from the derived-from rule, both administratively and procedurally. Although there are markets for waste-derived products, existing product specifications do not address common law/liability aspects (levels of hazardous constituents). For example, cement specifications are primarily strength, flexibility, etc., but there are no standards for metals such as lead, cadmium, and arsenic.

Q. Expand exemptions to include solid waste products. Some solid wastes generated by the paper industry can be used as a product, but because they are labelled solid wastes, they are disposed. Examples include log flume grit, which can be used as a soil and has been used as cover material in some states; used bark which has BTU value (since the bark is considered a solid waste and the burning unit would be a

solid waste incinerator that would require a permit; the bark is disposed). Other types of bark could be used as mulch but because it is a solid waste and because of liability issues, no one will take it and it must be landfilled. Also, a facility wanted to burn used Christmas trees, but the State rejected these activities because it would constitute solid waste incineration and a permit would be required.

R. The regulated community and some of the States do not understand the regulations. One state said RCRA did not apply to spent potliner because it was being sold as a product. The State had misinterpreted the definition of solid waste and as a result was more lenient in regulating the wastes. The current regulatory process of regulating by preamble and by memorandum only adds to the confusion for the regulated community. [A participant of the group noted that even if the definition of solid waste were perfect, the fact that no one understands it is a major problem.]

S. The restrictive nature of the current closed-loop exemption. The current definition of closed-loop recycling is too narrow, there are some materials that can be recycled on-site but do not allow the use of closed pipes. Some of the interpretations of closed-loop are not clear. How are batch processes handled?

T. The current regulations are based on mismanagement scenarios which are not appropriate for some wastes. For textiles and laundering operations, soiled materials (i.e., clothing and rags) that contain hazardous constituents are considered hazardous; the Agency's reasoning being they could get dumped improperly and create an environmental problem. EPA should use reasonable mismanagement scenarios based on current and/or probable scenarios, and not on pre-RCRA historical mismanagement practices or extreme/absurd worst-case scenarios.

U. The all or nothing approach, with the exception of Part 266. For spent potliner, all reuse possibility is cut off because it falls under regulation. If spent potliner were not a solid waste, the material would be completely out of the system. These types of materials should be regulated but more flexibility should be allowed for increasing recycling/ reuse possibilities possibly by using a subset of management standards.

A point was discussed that the current regulations add another layer of regulation on recyclers because they need permits for their "product" [raw material] storage that virgin materials industries do not have to comply with. This point was not made

into a specific issue, but was added as an illustration to some of the points raised during the discussion.

THURSDAY, A.M.
Small Group Discussion of Issues (continued)

During this session, the group continued their discussion of issues. The following is a continuation of a detailed summary of each of the issues as they were presented by each of the group members:

V. Concept clarification of spent and discarded material should be addressed. The current definition brings a lot of materials under regulation. Because a material is spent, does it really need to be regulated as a solid waste? How much do you want to regulate the potential of a material to pollute? A point was raised that if there is a potential for pollution, there should be regulation. If one facility recycles, and another disposes the same material, how should the material be regulated? For reusable textiles, items do not get disposed, but because reclamation is required these materials fall under regulation. There is a burden on the person handling the materials. The broad definition of reclamation may also be included under this issue.

W. Consolidation of issues B, D, E, H, I, K, and L. All of these fall under the issue of recycling disincentives. A participant noted that this issue should also be broken down into two parts: 1) some regulations are not appropriate, such as requiring precious metal wastes to be stored in tanks; and 2) elements of the rules that actually discourage recycling such as permitting and corrective action.

X. Consolidation of issues G, P, and R. These points all address the confusion/interpretation issues and the complexities of the explicit exemptions versus explicit inclusions. Complexity is increased with either approach and the burden is placed on EPA.

A newcomer to the group raised concerns that generic issues such as the mixture rule and the derived-from rule make the definition of solid waste more complex. To get rid of the complexity a specific approach is required, but that makes matters more complex for the Agency to evaluate all of the individual issues. The trend to increase or expand the scope of regulations and try to capture everything dictates to industry how to run their manufacturing processes.

The group proceeded to discuss criteria for determining what is a waste, which centered around the criteria of what is "spent" or "discarded". A tiered approach was suggested where basic minimum

standards should be set within a broad regulation. The Agency could develop more stringent tiers that may include full Subtitle C. The first tier would consist of "less than Subtitle C" regulations and be a "safety net" so that nothing falls through the cracks.

The tiered approach may require that some degree of hazard be evaluated to develop the tiers. One member raised an issue that this approach may not be satisfactory because a degree of hazard may not be appropriate. The burden of what constitutes recycling falls on the Agency and it would be difficult to set protective minimum standards for the first tier.

Y. Consolidation of issues A, I, S, N, and O concerning the scope and definition of solid waste and recycling. These issues include the inappropriate application of the regulations for some wastes (A), the broad coverage of reclamation (I), the restrictive scope of closed-loop (S, N), and the narrow scope/inflexibility of speculative accumulation (O).

The facilitator instructed each of the group members to review the issues that had been discussed and identify the three of greatest concern. All the votes were tallied and the top five concerns were selected. Because the group had only one representative from the environmental community, priority issues of concern to such groups were included in the top issues. The following five issues were identified:

- Disincentives/regulations inappropriate for recycling (W)
- Confusion and complexities (X)
- Potential mismanagement -- need a better way to distinguish potential hazards (F)
- Definition and scope of spent and discarded materials (V)
- Problems with interpretations and applicability with respect to waste-derived products (P)

After the top five issues were determined, a participant commented that the issues were overly broad, did not lead to obvious solutions and that the real issues are not really presented by the list. The facilitator explained the overall process by identifying the next steps of discussing the goals and objectives, discussing the recommendations, and considering the issues and goals/objectives identified in the previous steps. The groups issues were presented to all meeting participants at the plenary session.

THURSDAY, P.M.
Small Group Discussion -- Discussion of Goals and Objectives

The facilitator explained that the purpose of this session was to discuss the goals and objectives identified and presented by the Agency and to discuss how they should be modified with respect to the group's concerns.

The group discussed only two of the goals: clearly define jurisdiction, and simplify regulatory structure to improve implementation. The discussion then shifted to proposing additional goals and objectives and identifying problems of the current regulation with these goals in mind.

Jurisdiction was discussed first. A clarification of jurisdiction was requested and an Agency representative responded. With regard to regulatory standards specific to recycling, there is a continuum of possibilities ranging from regulating all recycling, to permit-by-rule or setting minimum management standards, to not regulating any recycling. There should be some reasonable method of determining where jurisdictional boundaries fall for specific cases. The following issues and comments were raised during the discussion:

- Definition of "discarded" should help define the jurisdiction. If the material is not discarded, it should not be regulated.

- If a material is in the system, but gets out, how does it come back into the system (how does/should jurisdiction apply?) if it is mismanaged? There should be some minimum reporting/monitoring requirements so that no one is completely out.

- Defining jurisdiction and simplifying the regulatory structure to improve implementation cannot be done separately.

- Establishing a broader jurisdiction than what is currently in place would have to be established by Congress.

- Some members did not object to a broad jurisdiction, only to the application of that jurisdiction. Full regulation is not required in some cases.

- Other members objected to a broad jurisdiction because in most cases, full regulation was applied that imposed unfair and unnecessary burdens, particularly on small businesses. There are some activities that come under regulation that should not be regulated because of the broad authority. Small businesses do not understand

the regulations and have to hire outside consultants to help them comply with the regulatory requirements.

- There are paperwork burdens on EPA resources, but some reporting requirements are necessary to have a paper trail for enforcement purposes.

The discussion then shifted to the subject of simplifying the regulatory structure and interpretation. The group's discussion focused primarily on the types of interpretation problems that occur because of the current regulatory structure. The major issues that were raised included:

- The regulatory structure needs to be improved to minimize the need for interpretations. Make the regulations clear enough for the regulated community to understand.

- Better coordination with the States is required. Some states may develop regulatory interpretations that are different from EPA. One member suggested that all internal EPA Headquarters interpretations and memoranda should be published and made available to the regulated community.

- One suggested approach was for EPA Headquarters to set policy and general interpretations and let the states and Regions implement the rules.

The discussions then focused on the need for some regulations to be developed and to establish "credibility" for certain types of processes.

- There are some recycling industries that would benefit from regulation such as large-scale businesses that have the resources to operate and comply with regulations.

- Other recycling industries, such as cement kilns, want to be regulated to gain credibility. If EPA sets some minimum standards (e.g., metal feedstock limitations, emissions standards, etc.), the kilns can comply and be allowed to operate with EPA "approval". Others mentioned that the regulations could be viewed as a sign of credibility.

- An opposing viewpoint noted that the "NIMBY's" (Not In My Backyard) and "NOPE's" (Not On Planet Earth) would resist these processes despite EPA permitting and "approval". A RCRA Subtitle C permit can be a stigma.

- It was suggested that EPA adopt a long-term commitment for public education to help alleviate these attitudes and the stigma attached to Subtitle C regulations. The educational burden falls on the Agency because the public will not believe industry.

Additional goals and objectives were proposed:

- Develop regulations based on current and realistic mismanagement incidences, not on pre-RCRA management practices.

- Conduct periodic reviews of the regulatory structure and the development process.

- Strive for more cooperation/collaboration between all interested parties to minimize court confrontations. (Eliminate the "see you in court" attitude.)

The next topic of discussion was to identify problems with the current Subtitle C program.

- Some group members identified the "stigma" of operating under Subtitle C, which included the costs of operating under the requirements of the current regulations.

- Some regulations are technically inadequate. For example, if 1% F006 is used in the feedstock for a smelter for recovery, the slag becomes hazardous waste by the derived-from rule. There is no environmental risk if the F006 goes from the generator directly to the smelter (no element of storage), and the slag should be evaluated as a process waste.

- How can the Agency determine what is a legitimate recycling process?

- The Subtitle C corrective action and financial assurance requirements are disincentives for recycling. Along the same lines, the permitting process needs to be streamlined to reduce the time required to obtain a permit. It was pointed out, however, that as long as public hearings are conducted, the time factor cannot be avoided.

- One group member reiterated the concern about the restrictive speculative accumulation regulation. The material (mixed radioactive wastes) may require storage for more than a year before the recycle/recovery process is ready to accept the material.

Discussion of Theories

The next topic of discussion covered theories on solid waste jurisdiction over recycling which have been put forward to the Agency. EPA presented these theories at the beginning of the conference. The theories discussed were:

1) If a material is recycled, then it's not a waste.

2) Recycling is one type of waste management.

3) Some recycling is waste management and some isn't.

The facilitator directed the group members to debate these theories. (Note: During this discussion, there was no representation from any environmental group.) The central topic revolved around the issue of the definition/interpretation of "discarded". The following points were presented during this discussion.

- The recent court decisions (AMC II) focus on the definition "discarded".

- If a material is recycled, it is not discarded and its market value diminishes the environmental hazards. Management problems of materials with a market value should be regulated, but not necessarily under RCRA.

- It is necessary to track hazardous material. The cradle-to-grave approach will cover any potential environmental threat, therefore some sort of regulation is required.

- Situation: A listed waste is generated but it is also a marketable product. If the material is used as a raw material at the front end of the process, the elements of discard are gone. However, the Subtitle C storage requirements for this material offset any recycling incentives.

- Market fluctuations will affect the elements of discard for some materials. For example, when the price of scrap steel goes up, junk cars come off the street; when the price of scrap steel goes down, junk cars remain/accumulate on the street.

- The threat to human health and the environment should be the final test. Cannot really use an economic test to ultimately determine waste versus product because of volatile markets.

- Residuals generated from the recycle/reuse of materials should be evaluated on their own merits for hazard, and not automatically considered hazardous from the derived-from rule.

- Some criteria need to be developed to determine the difference between disposal/discard and legitimate recycling. One approach would include a multi-media evaluation to develop the definition of discard/recycle.

The general viewpoint was that legitimate recycling is not waste treatment or management and that residuals generated from legitimate recycling should be evaluated as waste on their own merits. There were some opinions that materials that are legitimately recycled should maintain some regulation such as tracking because of the potential threat to the environment. Some preventative mechanisms similar to corrective action, financial assurance, and enforcement tools may need to be in place to protect human health and the environment.

Several participants suggested that theory 3 (some recycling is waste management and some is not) is probably the answer, however the present approach and the theory still require much work.

The facilitator then directed the discussion to the topic of recommendations for setting criteria for fixing the system or designing a new system. The relatively short discussion centered around two main issues: risk evaluation and recycling criteria.

One concern consisted of the approach for assessing the degree of hazard or risk. One member suggested evaluating whether the element of discard for materials poses a human health or environmental threat. Different types of risk scenarios were suggested including absolute risk versus incremental risk.

The second issue focused on developing regulatory language for sham/legitimate recycling criteria. Several approaches and elements were suggested:

- Self-implementing standards.

- Tiered management standards for various levels of risk.

- Element of discard determined by economic and market trends.

- Element of discard determined by materials management.

FRIDAY, P.M.
Small Group Discussion -- Discussion of Recommendations

During this session, the group discussion on identifying and developing recommendations for revising the current system continued. Two participants were not present for this session. The facilitator asked each of the members to make three recommendations for modifying the current system.

Two basic approaches were proposed: (1) "fixing" the current system, and (2) developing a new set of regulations for recycling ("Subtitle E"). Overall, the group agreed that Subtitle C regulations provide disincentives for recycling.

"Fixes" Within Current Regulatory System

Because of the time constraints and the fact that the majority of the group members wanted to discuss the second approach in more detail, the discussion for this first approach was not addressed at length. The "fixes" that were identified included the following:

- Expand/clarify closed-loop exemption. Allow some reclamation, some accumulation, and consider batch processes.

- Hard look at enforcement of "sham" recyclers. Develop a tough policy to discourage sham recycling.

- Develop a new system (Recycling Subtitle/Section) with appropriate controls. Determine sham/legitimate definitions, licensing/permitting requirements, management standards, and self-implementing regulations.

- Develop explicit definitions for solid wastes, or expand the specific exemptions. Exclude obvious "marketable commodities" from the definition of solid waste (e.g., used oil, slags, scrap metal, overburden from mining).

- Implement a self-implementing concentration-based automatic delisting to help determine a degree or threshold of hazard.

- Revise/revisit §266.

- Evaluate industry-specific categories of secondary materials (e.g., K061, used oil, spent potliners); develop a specific regulatory approach rather than a generic application of Subtitle C. However, the burden

falls on the Agency to develop these categorical standards. The process may be facilitated by promoting regulatory negotiations between industry, environmental groups, and EPA. This would eliminate a lot of the litigation over the regulations.

- Streamline rulemaking procedure. Currently rulemaking is an available tool, however, in its present form it is not effective.

- Multi-media evaluations within regulatory approach and development. This approach would minimize the transfer of hazardous constituents from one media to another.

Recycling Subtitle

The subject of a separate set of regulations was discussed at length. There was some disagreement within the group concerning generator responsibility. One party held that once the material left the original generator for recycling, the generator is not held responsible for assuring that the material is legitimately recycled. The recycler has the ultimate responsibility for the waste. The opposing view maintained that some sort of responsibility must remain with the generator for the wastes to be properly recycled; the cradle-to-grave concept must remain otherwise the system will not work.

Another point of contention revolved around recycling permitting/licensing. The group members called for a streamlined procedure with less burdensome requirements. Some group members insisted that some preventative measures such as some form of corrective action and financial assurance requirements are needed to protect the environment. However, other members of the group maintained that any permitting requirements that resemble Subtitle C would be a disincentive for recycling.

The main criteria to be evaluated for these "recycling regulations" are as follows:

- Articulate difference between "sham" and "legitimate" recycling. Legitimate recyclers would fall under a new/separate set of regulations that are less burdensome than Subtitle C (disincentives removed), and sham operations would fall under full RCRA (Subtitle C) regulation. One group member suggested that the Agency's current criteria may be adequate or at least provide a guideline.

- EPA licensing of off-site recyclers (streamline "permitting" process, notification). This would allow

generators to know that the recycling process is legitimate.

- The permit/license should be "reasonable," with a lower burden than full Subtitle C.

- The permitting/licensing process should have certain assurances incorporated into the system so that the generator will have a certain level of confidence that the waste will be recycled properly; permit-by-rule may not assure generator knowledge.

- The permit/licensing process should also be streamlined to reduce disincentives to recycling. For example, the application for a license could function as an interim license. Furthermore, reduced corrective action and financial assurance requirements should be implemented.

- Some evaluation of waste-derived products will have to be made to determine legitimate recycling to grant a license. One suggestion was to flag certain recycled materials as hazardous. There are regulations governing the commerce of hazardous materials.

- Residuals generated by the recycling process should be evaluated for hazard by its own merits rather than a derived-from rule determination.

- Recycling facilities should not have to comply with SWMU corrective action out, but only have to comply with corrective action requirements for "future" releases. EPA should use authorities under CERCLA and RCRA §7003 for clean-up of past releases. Also, EPA should reform the current Subtitle C financial assurance requirements.

GROUP C
LIST OF ISSUES

A. Narrow scope/focus of current program (manufacturing versus other activities).

B. Precious metals should not be regulated under the current RCRA system (e.g., current hazardous waste transport requirements are inappropriate for precious metals industries).

C. Concept of "discarded" and point of generation of "discarded."

D. Reclamation should not necessarily be within definition of "discarded materials (LDR prohibitions for storage in "non-tank" units).

E. LDR program provides disincentives for hazardous waste recycling (e.g., storage - see D)

F. Potential for mismanagement and environmental damages - need a better way to distinguish/regulate potential hazards.

G. Complexities of current regulations lead to problems in interpretations.

H. Current definition discourages recycling and many times recyclable materials are disposed (e.g., discouraging fuel substitution value of spent potliners).

I. Broad definition of "reclamation".

J. Inflexible application of derived-from and mixture rules.

K. Subtitle C permits and corrective action discourage hazardous waste recycling.

L. There is a better way than RCRA.

M. Need more emphasis on enforcement of strong (broad) program rather than development of overly strict regulations to get bad guys.

N. Current closed-loop interpretations are too narrow.

O. Need more flexible "speculative accumulation" rule.

P. Problems with interpretation and applicability of waste-derived product rules (can expand this problem to municipal

solid waste recycling and products derived from municipal solid waste).

Q. State permitting of municipal solid waste incinerators and recycling options.

R. "Confusion factor" - not many people understand definition of solid waste --problems with interpretation of regulations (regulation by preamble and memorandum). See G.

S. Restrictive nature of current "closed-loop" exemption.

T. Regulation based on past mismanagements (instead of current/probable mismanagements).

U. All or nothing approach (with exception of §266).

V. Use of spent and discarded (recognizable product)
- issue of "reusable" materials
- need to emphasize hazard or potential hazard.

W. Disincentives to recycling. Regulations (Subtitle C) not appropriate for recycling activities, (B, D, E, H, I, K, L).

X. Confusion, complexities explicit exemptions (versus explicit <u>in</u>clusions), (G, P, R).

Y. Scope/Definition of recycling or solid waste (fix within current system; regulatory revisions).
- too narrow (restricted to manufacturing), A
- Broad coverage of reclamation, I
- Restrictive scope of closed-loop, S, N
- Narrow scope of speculative accumulation, O.

GROUP C
RECOMMENDATIONS

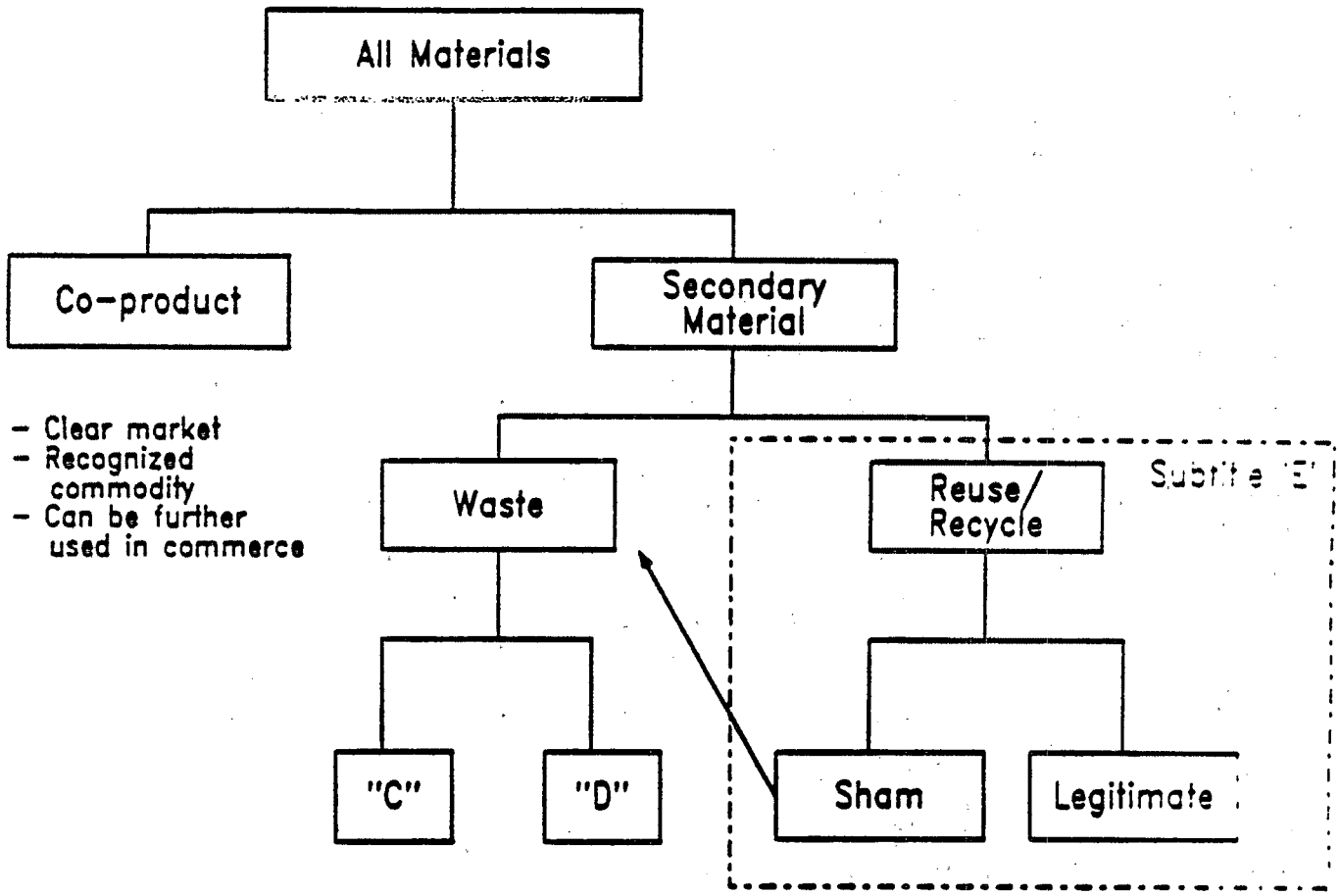
The group provided the following recommendations:

<u>"Fixes" within current regulatory system</u>

- Expand closed-loop exemption - allow some reclamation and some accumulation
- Hard look at enforcement of "sham" recyclers
- New subtitle for recycling activities
- Explicit definitions - exclude "marketable commodities" from the definition of solid waste (e.g., used oil, slags, scrap metal)
- Concentration-based delisting (self-implementing)
- Revise/revisit Part 266
- Evaluate industry-specific categories of secondary materials (e.g., K061, used oil, spent potliners) --> specific regulatory approach, rather than generic application of Subtitle C
- Streamline rulemaking procedure
- Multi-media evaluations within regulatory approach and development

<u>Recycling Subtitle</u>

- Articulate difference between "sham" and "legitimate" recycling
- EPA licensing of off-site recyclers (streamline "permitting" process, notification)
- SWMU's out; corrective action for "future" releases; reform financial assurance (CERCLA and RCRA §7003 for clean-up of past releases)
- (See diagram)


All Materials
Co-product
Secondary Material
- Clear market
- Recognized commodity
- Can be further used in commerce
Waste
Reuse/ Recycle
"C"
"D"
Sham
Legitimate

Meeting Summary for the Definition of Solid Waste

Meeting III: Interest Groups

GROUP D

WEDNESDAY P.M.
First Small Group Session - Discussion of Issues

The facilitator asked the participants to generate issues related to the definition of solid waste and recycling of hazardous wastes.

A participant suggested that EPA leave the regulatory system as it is, a "no-action" approach.

Other issues raised are categorized as general and specific. The general issues raised were: 1) a Subtitle C permit is a disincentive to recycling, 2) an inequitable situation exists because hazardous wastes are regulated differently than hazardous secondary materials; some hazardous secondary materials being recycled pose different risks than hazardous wastes being treated, 3) the current regulations need to be clarified, and 4) an alternate, graduated regulatory system needs to be developed to eliminate the current "in/out" regulatory scheme.

The specific issues were: 1) definitions of terms related to "solid waste" need to be revised, 2) regulations for waste-derived products need to be revised, 3) transportation regulations are a disincentive.

The first general issue discussed was regarding the permit disincentive. One participant suggested that EPA require a permit for only some recycling facilities, letting others operate without a permit. This would encourage more facilities to recycle. This same individual mentioned that recycling was an ancillary operation to their business and not the major operation. The Subtitle C permit was enough to discourage their company from recycling because of the cost involved in obtaining and maintaining a permit. Another participant agreed that the "C" permit is a disincentive to recycling. The participant knew of one facility that shouldered administrative costs in excess of $100,000 over a period of at least 2 years before acquiring a "C" permit.

The second general issue raised was the inequity created by different regulations for hazardous waste and hazardous secondary materials. In other words, some hazardous wastes are regulated too stringently, and some secondary materials are not regulated sufficiently. For example, one participant stated that the hazardous waste regulations bear no relation to the degree of

risk posed in certain situations. The participant stated that the derived-from rule provides overregulation in some circumstances. The participant also provided one example involving sludges. The participant mentioned that a few years ago, sludges were looked upon as having value; today, they do not have that status. There is a need to examine the actual threat presented by sludges.

A participant stated that procedures and environmental standards (regulations) are not currently based on the risk presented by the material and the manner in which it is used. This should be changed to accurately reflect the risk posed. Another participant mentioned that the use-constituting-disposal regulations did not accurately reflect the degree of risk posed by waste-derived products that may be placed on the land. The regulations should allow these products to be used, without attaching the title "hazardous waste" to the product; i.e., drop the derived-from principle. Another participant asked if recycling and waste treatment should be regulated in the same manner. Do they pose the same risk, or is each category composed of activities that pose varying degrees of risk? Shouldn't the regulations accurately reflect the degree of risk posed? One participant suggested that not all types of recycling are benign; therefore the degree of regulation should accurately reflect the risk presented by the material and in the manner it is recycled.

The third general issue was the need for clarification of the current regulations. The participant suggested that there was a need to focus on an implementable, comprehensible, and enforceable definition of solid waste. Generators and recyclers need a clearer definition to follow. This participant also suggested that there is a need to eliminate Table 1 in Section 261.2, to create a clearer regulatory scheme.

The fourth general issue was the need for the elimination of the current "in/out" regulatory scheme. Some participants believed that it should instead be a graduated regulatory scheme (still excluding closed-loop recycling) where most recyclers had to follow some requirements ranging from limited standards to full permits. One participant stated that the "bad" guys, or sham recyclers who should be regulated ("in") have created a bad name for valuable (environmentally advantageous) technologies such as thermal treatment. A system which has clear "in/out" jurisdiction would change this situation.

The first specific issue raised was that the definitions of terms surrounding the definition of solid waste should be revised. One example was the lack of distinction between solid waste and product. At what point does a waste cease to be a waste? One participant emphatically requested that the definition of "secondary material" be revised/clarified. Another participant suggested that "legitimate recycling" be defined as recycling

where there is a proven market for the product. (Government creation of a market will not work.) The facilitator asked the participant if the government or the potential sham recycler should be the party who determines whether a legitimate market exists for a given "product." The participant thought that the responsibility for determining a legitimate market should be the recycler's.

A participant mentioned that a lot of sham recyclers are energy recovery facilities or material/feedstock "substituters."

The second specific issue brought up was waste-derived products. One participant thought that the use-constituting-disposal regulation was not logical. The regulations apply to waste-derived cement that would eventually be used on ground-level but not to cement that would be used in building a second story. The same participant mentioned that products, whether or not derived from waste, should be regulated based on their own merit. There should be another method to determine if a waste-derived product is to be considered a product or a waste, other than the "derived-from" rule, (and other than the provision for a constituent becoming physically inseparable from the product and the product meeting LDR standards.)

A discussion regarding the nature of waste-derived products ensued. A participant explained that toxic heavy metals (such as lead and cadmium) are released from the cement as buildings deteriorate. This is a concern that is an even higher priority than the concern of leaching metals. In addition, lead is dangerous to the person who inhales lead particles. A second participant stated that the Occupational Safety and Health Administration (OSHA) has set lead levels for the 8-hour work day. The first participant stated that OSHA lead levels are for workers in a fairly controlled environment, within an 8-hour work-day. The participant went on to say that OSHA lead levels are totally inadequate. Another participant mentioned that metals are ordinarily added to cement as part of the production process. The American Society for Testing and Materials (ASTM) regulates the amounts going into the product. The first participant replied that the ASTM levels are not strict enough.

A third specific issue raised by a participant was that the transportation regulations are a disincentive to companies with new recycling technologies.

A fourth specific issue was raised by a participant. The participant mentioned that if certain types of recycling are left unregulated under Subtitle C, then a credible Subtitle D program should be established.

THURSDAY A.M.
Small Group Discussion of Issues Continues

The issues brought up the previous day were rehashed, and discussed in more detail. At the end of the morning session, the issues were prioritized. The issues discussed were:

- Should recyclable materials be called wastes?
- Permit issues. Corrective action, financial burden, "seal of approval," self-implementing standards, length of time to acquire a permit, pre-construction ban, and constantly changing regulations are a disincentive to getting a permit.
- Create a graduated regulatory system.
- Use the degree of risk to determine appropriate regulation.
- Closed-loop recycling.
- Indigenous principle.
- Off-site recycling.
- Use constituting disposal.

The first issue involved the suggestion that a secondary material should not be labeled as a waste until it is examined to determine its recycling value.

The second issue discussed involved all the problems with the Subtitle C permit process. One person suggested that on-site recyclers should not be required to obtain any permit. Another participant explained that corrective action is a great disincentive to obtaining a permit because of the threat of having to clean up Solid Waste Management Units (SWMUs). The participant's facility is 18 square miles. The participant did not want to subject the facility to the possibility of having to remediate any potential SWMU leaks or spills.

Another participant knew of one site that was burning hazardous waste for energy recovery and being paid by generators to do it. Because of the tremendous financial burden imposed by the (storage) permit, the facility must continue to be paid for taking and burning waste from generators. The economics, in this situation, are dictated by the permit and its financial burden.

An EPA representative asked what was taking so long in the RCRA permit process. The participants responded that the Agency review and public hearings consume the most time. One

participant knew of one incinerator that took nine years to permit. This led to a discussion of a proposed self-certification process for some facilities, such as recyclers, but not necessarily for landfills or surface impoundments. For example, a facility will be subject to some regulations (not full "C" permitting requirements), and will provide the regulations to the facility, let the facility have the burden of complying and proving that their facility is only subject to the modified standards for reasons X, Y, Z. One participant stated that in California and Wisconsin, there are "special waste" categories that are similar to a "C-" and "D+" program. The burden rests with the regulated facility to prove that their operation belongs under the "C-" or "D+" program.

The discussion of self-certification led to the topic of the pre-construction ban. Some participants felt that certain facilities such as recyclers with operations inside buildings, and perhaps incinerators, should be allowed to self-certify and build their facility. This would replace the current system of the pre-construction ban where a facility cannot begin construction until their permit is in hand. One participant mentioned that many times under other EPA programs, the Agency has allowed a company to build a facility before getting its permit. When this happens, EPA often feels pressured to grant the permit, because of the company's huge capital investment. Other participants stated that self-certification has worked in other programs such as TSCA. Facilities built for managing PCB waste have been built "pre-permit" and that has worked. A participant mentioned that self-certification would not be feasible for landfills and surface impoundments because of the difficulty involved in attempting to change anything once it was built (i.e., ground-water monitoring wells). The participant pointed out that self-certification might be feasible for incinerators if the company built-in the potential for changes to the structure. For example, adding more air emission control devices may be feasible.

The next issue discussed was the possibility of a graduated system of regulation. This would involve a spectrum of regulation from the full Subtitle C permit to the imposition of certain management standards. One participant suggested placing the recycling of hazardous secondary materials under Subtitle D.

The next issue discussed was the need to regulate based on the degree of risk presented. This was only mentioned briefly.

The closed-loop recycling issue followed next. The participants disagreed on how the closed-loop should be modified, if at all. A participant stated that the modification proposed in the January 8, 1988 Federal Register allows too broad an interpretation of closed-loop recycling. The regulated community may read into that and reuse the secondary material for an

illegitimate use. Other participants disagreed, supporting a modification of the closed-loop principle. Another participant stated that there was substantial inequity in the way some recycling processes were regulated. Some recyclers store before recycling, and therefore cannot qualify for the closed-loop exemption because the storage unit is not hard-piped to the recycling unit. However, the process is similar to closed-loop recycling. This participant believed that the residues generated from the recycling process should not be regulated. The EPA representative asked if the closed-loop issue was a definitional issue or a management standards issue. One participant responded that it was both. The representative added that this was the reason to create broader regulations: the current definition has only a few "definitions" that create the in/out or regulated/not regulated situation.

The indigenous principle was briefly mentioned by a participant. The participant suggested that the indigenous principle was too complicated and that the regulations would be sufficient without it. Instead, the participant suggested a broad spectrum of regulations that would cover most types of recycling, with processes that historically fit into the "indigenous principle" subject to only a few minor regulatory standards.

THURSDAY P.M.
Small Group Session - Discussion of Three Theories and Application to Specific Recycling Schematics

The facilitator presented the three theories regarding the definition of solid waste, and asked the participants to choose the theory that most closely reflected their opinions.

The group did not reach a consensus. Most participants chose theory 1, stating that recycling is <u>not</u> waste management and others chose theory 2, stating that recycling is waste management, with some exceptions (such as closed-loop recycling). The proponents of theory 1 expanded the theory to state that "things" produced are either <u>products</u> or <u>secondary materials</u>. Secondary materials are either recycled or managed as a solid waste. If they are recycled, they are not called "solid wastes," but are labeled as "recyclable materials." This type of system would provide the generator the opportunity to determine the value of the secondary material <u>before</u> it is labeled as a waste. Depicted graphically, it appears as:

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                    Things generated
                            |      ------ Product
                            |
Solid Waste --- --  Secondary Material
                            |
                            |
                    Recyclable Material
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The discussion then proceeded to the topic of regulation based on degree of risk. An EPA representative asked the group how storage before recycling should be regulated. Two participants responded that regardless of whether the storage is prior to recycling <u>or</u> prior to treatment, the storage standards should be based on the risk involved from that type of storage. Several group members agreed that regulations, in general, should accurately reflect the degree of risk presented based on the material itself and the way in which it is used. One participant argued that recycling processes that pose similar risks as treatment should not necessarily be regulated in the same ways as treatment under RCRA because these recycling processes (similar to production processes) are already covered by other laws. For example, financial assurance and corrective action should not apply to recycling operations that are similar to production processes; instead, they should only apply to other treatment, storage or disposal facilities.

The facilitator asked if there were any other parameters (other than risk) which should determine the degree of regulation, such as value. The participant stated that value should not be a factor in determining how a secondary material is regulated because values of materials fluctuate constantly. Value is not a sufficiently objective test. The participant provided the example of lead values, which have varied over 400% in the last twelve years.

This led to a discussion regarding the jurisdiction of RCRA. Most of the group agreed that if the CWA or CAA left a loophole open that RCRA could possibly cover, then RCRA should cover it.

Discussion of Solvent Recycling Schematic -

The facilitator brought the participants' attention to the individual schematics (posters) in the room. The facilitator asked the participants to attempt to apply their "new" theories to the specific scenario of solvent recycling.

The discussion revolved around the off-site recycling of solvents. Transportation was discussed. Most, although not all, participants agreed that it would be too difficult to enforce

solvent reclamation and transportation standards based on the "intent" of someone to recycle. Therefore, a paper trail, perhaps a manifest designed specifically for recyclable materials, should be required. One participant commented that a "manifest" would not be an impossible imposition on industry, and was acceptable.

The EPA representative asked if a notification from the recycler should be required. Some participants thought that a notification would be proper. However, two participants thought that the manifest would be sufficient, and a notification would not be necessary.

Storage regulations/standards were the next topic. A participant thought that there should be a time limit for storage of secondary materials that are to be directly reused. Others mentioned that storage, in general, should be regulated based on the quantity of material being stored. The participants suggested permit-by-rule as an option for storage at recycling facilities.

The group then discussed the topic of waste-derived products and the suggestion of providing product standards/specifications. One participant suggested that EPA develop product standards for waste-derived products. Another participant asked what would occur if EPA's standards for waste-derived products were different than ASTM standards for a product made from raw materials. The participant stated that this would be unfair. The participant stated that different standards developed by EPA might be necessary to catch the sham recyclers. One participant agreed that ASTM provides some product standards, but not very many. Other participants suggested using TSCA standards. One participant commented that TSCA was ineffective. Another participant suggested developing different specifications for industrial-use and commercial-use products.

The participant commented that comparing a waste-derived product to a raw material-derived product is not a sufficient test to determine if legitimate recycling has occurred. The participant provided one example of lead slag that is sold as air blasting abrasive. The participant believed that there was too great a health risk involved in this kind of use. In this circumstance, even if lead was similar to what is normally used as air blasting abrasives, it was too dangerous, in the participant's opinion.

A participant suggested that facilities be required to self-certify their own products. The participant suggested that there need to be product standards for waste-derived products, but for purposes of implementation, facilities could self-certify the quality of their products.

One participant disagreed with the establishment of product specifications, stating that sham recyclers could take advantage of that kind of system. The participant pointed out that an inherent incentive to perform legitimate recycling exists in the desire of the manufacturer to create a quality product. These manufacturers are aware of the "product liability" that exists if they do not turn out a quality product. Another participant responded that it is not enough to try to depend on the tort system to catch sham recyclers. In addition, if too much hazardous waste recycling is encouraged, there will be an increase in hazardous constituents in more products. High metal levels are a problem with used oil, and are also a concern with the recycling of solvents.

Other participants suggested that product standards may not be necessary because consumers will automatically demand a high-quality product with legitimate ingredients. A participant responded by saying that relying on consumers is inadvisable because the elements that make a product useable can be contained in a product <u>in addition</u> to hazardous constituents that do not belong.

An EPA representative mentioned that EPA could control waste-derived products in many ways; three of which are: 1) product specifications, 2) a Material Safety Data Sheet (MSDS), or 3) an override authority.

The participant questioned, if product specifications were developed, would testing of the products be required, and how often would it be required. One participant suggested that the testing should not be required very often because this would discourage the use/recycling of secondary materials.

The next topic raised was the applicability of corrective action to recycling facilities. No consensus was reached on this topic. One participant stated that corrective action should only apply to <u>parts</u> of the recycling facility. The participant stated that it is illogical to require corrective action for a recycling process that is located inside a structure/building. Two other theories were proposed. The first, presented by the participant, was that corrective action be required only for the recycling operation at the facility. This would eliminate the potential requirement to remediate SWMUs at the facility. One participant asked the group if they thought that recyclers would still be inhibited if the first theory was imposed. One participant commented that it may not be relevant, because many states are already requiring remediation. The second theory, presented by a participant, was that corrective action be required only for future releases, not past releases.

The next topic discussed was residue from recycling operations, specifically, cement kiln dust. A participant stated that cement

kiln dust is different from ash (derived from hazardous waste incineration). The participant stated that the cement kiln dust, which is captured in the electrostatic precipitator, contains only 0.5% of the total constituents burned. The participant commented that EPA has not yet completed the study of cement kiln dust called for in the RCRA statute; therefore, EPA does not have a complete idea of the normal constituents in cement kiln dust. Another participant stated that his association supports the creation of management standards for cement kiln dust and will work with EPA to establish them.

In response to the discussion on residues, participants commented about the derived-from rule and upcoming de minimis rule. Most agreed that the derived-from rule is not entirely appropriate for many situations and that the de minimis rule will substantially improve the situation. However, one participant raised the point that a problem with dilution would occur if de minimis levels are promulgated.

FRIDAY A.M.
Small Group Discussion - Developing Solutions

This discussion centered around the metal-bearing sludge schematic. The group attempted to propose new regulatory standards for this schematic, consistent with the new framework they had developed. The discussion expanded to issues broader in scope than the metal-bearing sludge schematic.

The major issue addressed was storage. Participants suggested that recycling facilities accepting waste from off-site be subject to substantive standards, but not permitting requirements. They suggested allowing 90 days for storage before a more stringent requirement would apply. Two other participants suggested an even longer time frame for storage before recycling. Another participant suggested that uniform storage standards should be implemented, but with varying time frames for storage based on the risk presented by the secondary material.

A participant from the mining industry explained how a certain smelter operation worked. The participant added that there is no "storage" involved in the operation. Waste materials containing metals are deposited directly into a bedding plant (the first step in the smelting process). Raw materials or waste materials are deposited into the bedding plant where fluxes and concentrates are added. The feedstocks are then fed into a second bed and finally a third bed. The material is moved to the dryer and then to the furnace for smelting.

The facilitator directed the group's attention to a conflict within the current regulations regarding the storage of intermediate materials during recycling. Although this occurs

many times, as in the process of recycling lead-acid batteries, the Land Disposal Restrictions directly conflict. Land Disposal Restrictions require treatment to meet a certain standard before placement on the land. The participant suggested that LDR standards not apply to recyclable materials when the materials are stored for a limited time.

In conclusion, the group suggested that secondary materials being recycled be called "recyclable materials" and not solid wastes. They suggested that there be a continuum of standards established that would apply to various recycling activities, based on the risk presented. Few, if any, of these recycling facilities would be required to have a permit. Some facilities, but not all, would comply with corrective action (a modified type of corrective action), and financial assurance requirements.

Meeting Summary for the Definition of Solid Waste

Meeting III: Interest Groups

GROUP E

WEDNESDAY P.M.
First Small Group Session - Discussion of Issues

The group's facilitator asked the group members to identify those issues that they considered the big issues related to the definition of solid waste and hazardous waste recycling and the current regulatory program. Group members were asked to identify broad, rather than industry-specific issues.

The issues that participants brought up were diverse. One participant suggested that certain materials identified as wastes should be classified as products/commodities. For example, even though blast furnace slag is bought and sold and the United States is the largest net importer of the material, it is regulated as a solid waste at the point it touches the ground. The participant expressed concern with this designation and felt that the definition was overly simplistic. Several participants agreed that market value should be used to determine when a material is subject to regulation. A participant felt that land placement should not necessarily constitute classification as a solid waste.

A participant suggested that the current listing process is arbitrary. The participant questioned the hazardousness of some of the wastes that are presently listed.

Several participants expressed concern regarding EPA's nebulous expression of what recycling is. A participant questioned whether EPA wants to treat recycling as waste management, manufacturing or as some combination of the two, implying that this is the crux of the matter. The participant commented that the complexity of the current program (i.e. wastes are treated differently in different processes and for different uses) leads to confusion.

One participant added that the definition of spent material is unclear. Another participant argued that the current definition of solid waste with respect to speculative accumulation discourages recycling of wastes generated in small quantities. To accumulate sufficient quantities for recycling, wastes must be accumulated over a period of time. The participant noted that because there are few treatment methods for mixed waste (hazardous/radioactive), the waste triggers many other problems if it is not recycled within the limits of the speculative accumulation provisions, and is classified as a solid waste.

Several group members agreed that the current derived-from rule is problematic for recycling residues. A participant argued that the derived-from rule contradicts environmental goals by requiring that non-hazardous wastes, derived from hazardous wastes, be landfilled. Several participants agreed that these materials should be considered on their own merits.

A participant noted that RCRA does not address cross-media contamination (or at least, potential for contamination) caused by compliance with other environmental laws and regulations. Another participant stated that approximately 80 percent of RCRA wastes result from compliance with the Clean Air Act and the Clean Water Act. One participant questioned whether these materials should be given some type of special status.

A participant argued that the fundamental issue is that all materials cause environmental damage when mismanaged. Therefore, RCRA makes an illogical distinction in only covering wastes. The participant argued that RCRA regulations are based on the status of a material (i.e. waste or non-waste) when this status does not necessarily reflect environmental risk. The same participant added that part of the solution would be to simplify the current definition of solid waste by expanding it. The participant suggested that essentially all materials could be classified as waste and then evaluated on the basis of risk. An EPA representative suggested that there are consequences to this scheme. For example, mining materials high in lead would be treated as high in risk and regulated heavily. The participant does not necessarily support a materials management hierarchy but wished to raise the question of whether or not we want RCRA to be the one piece of legislation that handles all environmental threats. A participant concurred that RCRA may have overstepped its intended boundaries by trying to protect against damages from materials that are essentially the same as products.

A participant responded that perhaps Congress had done a better job than given credit for in defining waste as discarded materials. The participant explained that although "wastes" and "non-wastes" can have the same level of toxicity, the potential exposure to the environment, which is dependent upon the release of materials to receptors, must also be considered in assessing environmental risk. The potential for exposure is substantially increased when the material has no value (it is typically disposed). The group member argued that recycling results in a material that has value and that the recycled material should be regulated as a product. The participant suggested that materials (both entering and exiting the recycling process) should be evaluated on a market value basis.

A participant indicated that the complexity and inflexibility of the current permit process is a major issue for commercial off-site recyclers. The participant added that the current

regulatory system discourages recycling by placing too many burdens on the recycler. A participant noted the lack of consistency in the states and regions with respect to granting variances.

A participant felt that the delisting process is time consuming, costly, and unresponsive to industry's needs. The participant suggested that delisting is not a good alternative for exempting a particular material. Another participant added that the current delisting process is unresponsive because we expect too much from it. We expect the delisting process to remove all wastes that should not be in the system. The current all or nothing structure of the Federal program (waste/non-waste, storage/not storage) results in the expenditure of excessive time and money for defining boundaries. Implementation of a gradational regulatory program will reduce the time spent assessing boundaries and will allow attention to be given to the appropriate issues.

A participant was concerned with the current regulations as they apply to the storage of non-liquid hazardous waste prior to being recycled or reclaimed. The participant did not feel that it was being treated equitably with the storage of liquid waste. Additionally, the participant suggested that in cases where materials recovery occurs along with energy recovery, burning for energy recovery should not necessarily classify a material as a solid waste.

A participant felt that a major issue with respect to hazardous waste recycling is how to define "legitimate" recycling versus "sham" recycling. An EPA representative indicated that it is easy to define recycling but that it is not as easy to define it in a way that enforcers and implementors can apply it in the field.

A participant explained that perhaps we need to look at recycling differently. Presently, we focus on a single component of a multi-component problem. The participant suggested that we need to implement a life-cycle evaluation into our decision-making so that the overall environmental impact of a particular situation can be assessed. The same participant provided an example, saying that we may make a decision based on the level of toxicity in two different kinds of waste instead of factoring other possible environmental implications, such as the need to dig up virgin materials, into the decision.

The group then discussed how the issues that they had enumerated could be grouped to facilitate further discussion. The group divided the issues that they had raised into several tiered categories including "big picture," or macro issues, problems specific to the current regulatory program (e.g., the derived from rule), and issues related to the complexity of the current

system. The issues in each category that the group formed are summarized below.

"Big Picture" Issues

- Certain materials identified as wastes should be classified as products or commodities.
- How does EPA want to view recycling ? (As waste management, manufacturing, or some combination).
- Attempting to classify a material as waste or non-waste does not necessarily reflect potential environmental damage.
- The "all or none" structure of the current program results in expenditure of large amounts of time and money in defining boundaries (waste/non-waste, storage/non-storage).
- An overall environmental impact evaluation should be used in decision-making.

Specific Problems

- The derived-from rule is problematic for recycling residuals.
- Legitimate and sham recycling must be clearly defined, such that enforcers/implementers can apply the definitions in the field.
- The definition of spent material is unclear.
- The speculative accumulation concept hinders recycling when small quantities are generated.
- The delisting process is not a good alternative for exempting the material.
- Storage of non-liquid hazardous waste prior to recycling is not equitable with the storage of liquid hazardous waste.
- In cases where materials recovery occurs along with energy recovery, burning for energy recovery should not necessarily classify a material as a solid waste.

Complexity Issues

- The regulations are too complex.
- The permit process is inflexible, particularly for off-site recyclers.
- There is a lack of consistency in the states/Regions in dealing with variances.

THURSDAY A.M.
Second Small Group Session - Discussion of Issues

The facilitator asked the group to identify what specifically in the Subtitle C program is burdensome to recyclers. Several of the participants expressed concern in discussing small issues without knowing what direction the full regulatory program will take in the future. The facilitator responded that the discussion of goals and theories later on would address the group's big picture issues. The group agreed to discuss further the specific problems with the current program and focused on the burdens of listing, permitting, and the derived from rule.

Listing

A participant reiterated that the listing process is burdensome. Another participant explained that the burdensome issue is that listing, in combination with the derived from rule, reduces the value of secondary materials because secondary materials derived from a listed waste are automatically considered hazardous regardless of their own waste characteristics. Additionally, the recycler receives no credit for reducing the toxicity of the residual and/or making the waste more amenable to recycling. The participant commented on a process that reduces the metal content of wastes from the steel industry. An inert slag is produced that, to date, has been acceptable for use in road construction and railroad ballasts. However, the participant was concerned that more regulations and/or litigation would require the industry to manage the slag as a hazardous waste and thereby dispose of it rather than reuse it. Several group members agreed that they would like the system to allow residuals to be reevaluated on their own waste characteristics.

Permitting

Many group members agreed that the current permitting process is burdensome for recyclers. One participant added that the permit process and the overall complexity of the regulations strain the recyclers' resources, especially with respect to the small

recycler. It becomes cheaper, when all factors are considered, to dispose of the wastes rather than recycle them. Several participants commented that even the permit modification process for storage is burdensome.

The participant stated that one of the biggest issues is that the permitting process triggers facility-wide corrective action which is again a disincentive to recycling. A facility is more likely to send their wastes off-site for disposal than to set up some type of reclaiming process and be subject to corrective action. Although corrective action is only triggered when contamination is from a solid waste management unit (SWMU), the facility is faced with the burden of proving that a SWMU was not the source of contamination. Therefore the cost of conducting corrective action is going to be prohibitive.

The participant added that small, potential recyclers are not going to be able to afford to attend to the requirements of the permitting process. Another participant added that the excessive paperwork of the current hazardous waste recycling regulatory system discourages small businesses from going into recycling.

A participant expressed concern that the current breadth of storage permits is overly broad and that there are some cases where the requirement to obtain a storage permit is unnecessary. For example, facilities like lead-acid battery reclaimers need a storage permit for the storage of uncracked batteries. The participant questioned why the rules do not provide, in some limited fashion, an interim storage requirement or exemption similar to the 90-day provision for generators.

A participant commented that the current permitting process fails to allow owners/operators to identify priorities in corrective action. Facilities are unable to direct their resources to the most hazardous sites first but must devote equal attention and resources to all permitting/corrective action initiatives. This inevitably leads to a situation where there is not enough money devoted to any one site. One participant suggested that perhaps permitting and corrective action should be separate requirements.

A participant commented that the combination of classifying a recycler as a Treatment, Storage and Disposal facility (TSD) and requiring public comment make siting difficult. The public would be much more amenable to having a recycling facility in their town rather than a TSD, but the permitting process essentially labels a recycler as a TSD. Another commenter agreed that the stigma of a hazardous waste designation makes siting extremely difficult.

A participant noted that the length of the permitting process is a problem. Staff turnover in state and regional offices leads to different people revisiting the same issues, extending the time

it takes to process a permit. Another participant added that a facility's permit is often split in half, and a facility must go to the state for the base RCRA program and to EPA for the HSWA program. Therefore, dual regulation of the program also contributes to the lengthy permitting process. Another participant commented that dual regulation is further complicated for RCRA/CERCLA sites.

Derived-From, Mixture, Contained-in Rules

A participant asked why the Agency has not considered eliminating the derived-from, mixture, and contained-in rules and instead, implementing a de minimus rule. Many participants agreed that these rules both bring materials into and keep materials in the program that are innocuous. Another participant added that the rules mistakenly label materials hazardous that are not hazardous by their waste characteristics. A participant argued that these rules ignore the fact that recycling often extracts the hazardous components from a material.

A participant argued that once you buy into listing, these rules seem appropriate. The participant added that these three rules are there to protect the listing program and that the listing program was implemented to jump start RCRA when it began. However, now wastes mainly enter the program by being a hazardous waste by characteristic.

An EPA representative explained that without the mixture rule, people would be able to attain a prescribed concentration level by diluting their wastes. Such actions do not necessarily reduce the toxicity of a waste. The EPA representative suggested that the derived from rule is similar, but approaches toxicity from an environmental loading perspective. More importantly, it recognizes that residuals may still pose threats to human health and the environment even after treatment. Another EPA representative added that these rules ease enforcement. One participant asked how the mixture rule prevents dilution with respect to characteristic wastes. An EPA representative responded that although the mixture rule does not really work with characteristic wastes, the land ban regulations minimize potential problems of dilution of characteristic waste.

The participant added that the rules keep materials (both hazardous and nonhazardous) in the system that no longer require a regulatory system. For example, in the precious metals reclamation industry a platinum or carbon catalyst material is generated that contains a residue of a listed organic solvent (e.g., trichloroethylene) used to wash the catalyst material. The material is sent to a refiner who burns it to concentrate the platinum and ends up with a drum of platinum concentrate ash, which still carries the listing code, worth several thousand

dollars. The drum is then sent to a refiner in England for further refining. The participant commented that there is no need for regulation for materials that have a high market value because the value ensures that releases will be minimized. The participant reiterated that the current program does not allow for a release from the system based on market value. Group members agreed that there is controversy over the waste/product status of a material.

THURSDAY P.M.
Third Small Group Session - Discussion of Goals and Theories

The facilitator asked the group to discuss EPA's goals in redefining solid waste and the three theories presented by OSW in the initial presentation for defining solid waste when materials are recycled. The facilitator suggested that dealing with these goals and theories would bring the group back to the "big picture" issues brought up by group members in the earlier sessions.

Discussion of EPA Goals

Protection of Human Health and the Environment

The group agreed that protection of human health and the environment is a good goal for the Agency. The group discussed the present connotations of the goal. A participant noted that this goal has become a cliche and gets into the issue of whether you ignore all other considerations in achieving this goal. Another participant added that "protection of human health and the environment" is no longer simply a statement of a goal; the phrase connotes that considerations outside of human health and the environment are ignored. Yet another participant added that as one goal it is unquestionably the abiding goal; however, the goal should not be equivalent to zero risk. The participant agreed that a goal synonymous with zero risk is unworkable. Another participant reminded the group that protection of human health and the environment is a statutory goal.

A participant commented that dictating a life-time exposure level of 10^{-6} without regard to cost is a misplaced goal. This participant added that protecting human health and the environment with a numerical strategy without addressing other factors is problematic. Several participants commented that the goal should be qualified. Another participant suggested adding "to the extent that it is do-able, practical and economical" or "to the greatest net extent feasible by means of waste minimization, recycling, and waste treatment and disposal." A participant added that the environmentalists would say this

suggestion is a major retrenchment from protection of the environment.

The group discussed the implications of having tough regulations to get industry to minimize its wastes as a way of achieving the Agency's goals. Several group members agreed that this tactic works to some extent because industry wants to avoid the burdens of the regulatory program. Other participants were concerned that those facilities whose materials cannot be reduced will be faced with an unfair burden.

The group agreed that they do not believe the goal should mean zero risk, but that protection of human health and the environment is an essential goal.

Promote Environmentally Sound Recycling

The group agreed that EPA should seek to promote environmentally sound recycling through the definition of solid waste. One participant suggested that the words "environmentally sound" be removed from the goal because it is stated in the first goal and because recycling implies environmental soundness. Other group members disagreed and felt that the goal should not be altered.

Clearly Define Jurisdiction

The group initiated the discussion by talking about "adequately" defining jurisdiction rather than just "clearly" defining jurisdiction. A participant suggested that we may need a jurisdictional basis that does not depend upon distinguishing between a waste and a non-waste. Another participant suggested that one of two things could be done. Either the definition of waste could be broadened to include all materials that have been used once or the jurisdiction of RCRA could be expanded to include not only wastes but secondary materials. One would require a regulatory change and the other a legislative change. A participant commented that regulatory alterations would not solve the program's problems. One participant added that presently EPA does not have the legal authority to provide the best solutions and therefore the statute needed to be changed. The participant suggested that although RCRA does not have the jurisdiction, EPA does through other statutes. Additionally, some problems are covered by the regulations of other Federal agencies. An EPA representative asked the group if it made good policy sense to have a material regulated under numerous statutes with several agencies potentially having regulatory control over the management of that material.

The participant summarized that what is being examined is a trigger for government action to solve an environmental problem, and that clearly defining the jurisdiction of RCRA is only a small part of that. A participant suggested that perhaps the

goal is to organize a multimedia approach. The participant questioned whether we had lost sight of the statute's original jurisdiction over discarded material. It is not within RCRA's scope to expand the framework to include all materials with potential environmental harm. An EPA representative commented that to some degree, Congress did intend for EPA to regulate hazardous waste recycling.

The group agreed that regardless of where the jurisdiction lies, it must be clearly defined. The group also agreed that EPA's goal of simplifying the regulatory structure to improve implementation was obvious as noticed by the used oil and Small Quantity Generator (SQG) language.

Discussion of Theories

The facilitator asked the group to think about how recycling should be defined and to decide which of the three theories most appropriately defined recycling.

One participant commented that there must be a clear distinction between recycling and waste management. It must be clearly stated that those materials associated with recycling are not wastes but secondary materials. The participant suggested that secondary materials be removed from the definition of solid waste and regulated under a separate regulatory structure. An EPA representative asked whether in this regime recycling would be given a preferred status over treatment and disposal. The participant understood the drawbacks to such a regime (i.e. similarities between some treatment and recycling processes), but felt that EPA must clearly define one discipline from the other and address each of them in ways that most benefit the environment.

One participant commented that he did not believe that it was ever Congress' intent to regulate recycling under RCRA. However, if you adopt the approach that if it is recycled then it is not a waste, the statute becomes almost unenforceable. All facilities producing hazardous waste could claim that their wastes are destined for recycling. Then it becomes the Agency's burden to determine a facility's intent for a given material.

An EPA representative questioned the efficacy of regulating a recycling process and a treatment process that are essentially the same under two separate sets of requirements. The group discussed the relative risk of storing at a recycling facility versus storing at a treatment facility. A participant argued that the economics make the difference (i.e. material will be handled as a valuable commodity, and therefore the recycler will be more likely to securely store it). Another participant added

that the group is not arguing for the relaxation of the basic generator requirements.

An EPA representative questioned whether perhaps the scope of RCRA should not be expanded but that some things (e.g., legitimate recycling) be treated differently. One participant provided the analogy of a material entering under Subtitle D and then, if hazardous, going to Subtitle C. Another participant commented that given the current jurisdictional regime, the Agency had to expand the definition of solid waste to ensure that environmental risks from recycling were minimized.

The EPA representative suggested that a regulatory structure is often not designed to govern the activities of those facilities that act within the regulatory structure. They have been designed in response to significant problems and to eliminate recurrence of such problems. The EPA representative noted that the group appeared to agree that the current definition of solid waste and the regulatory program are problematic. The EPA representative added that there could be potential problems associated with establishing a separate subtitle for recycling because it would make the distinction between legitimate and sham recycling even more important. One participant concurred and added that developing a new subtitle simply exchanges one boundary definition problem for another (waste/non-waste for legitimate/sham recycling).

A participant suggested classifying secondary materials as solid waste but tailoring a separate management program specifically for these materials. A participant added that this type of regulatory change would appear to environmentalists and the public to be backing down from the strictness of the current program; everything would still be labelled a waste but some wastes would be treated less stringently. One participant countered, stating that removing certain operations from under the jurisdiction of RCRA will disturb the public. Some facilities will go from being RCRA Subtitle C permitted facilities to facilities not subject to Subtitle C, and this will appear to the public to be a weakening of standards.

The facilitator asked the group to vote on one of the three theories presented by OSW. The group generally agreed that recycling should continue to be regulated under RCRA and that most other alternatives were unlikely to be implemented. A participant felt that defining the boundaries of legitimate and sham recycling would be possible and that recycling should be removed from Subtitle C jurisdiction. Another participant agreed that secondary materials should not be identified as wastes and that recycling should be regulated under a new RCRA subtitle.

One participant commented that the group was having a hard time choosing a theory because none of the three theories work very well. The group reworded the three theories to read:

(1) If it is recycled, it is not a waste; it is a secondary material, for which a separate RCRA regulatory structure should be designed.

(2) Recycling is one type of waste management that deserves a separate set of regulations.

(3) Some recycling is waste management, some is not.

A participant suggested that the first theory was a possibility but that the second theory would be easier to implement politically because it would not require any court cases to be overturned. One participant commented that although the first theory would be admitting that the current statute needs modification, it would not be unusual to say this.

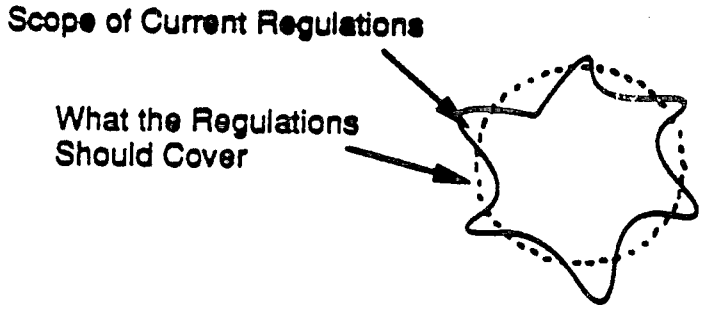
A participant clarified that the second theory does not require that a separate category be created for secondary materials. The theory starts with full Subtitle C regulation and reduces these requirements for recycling. The benefit of this theory is that all materials are kept in one system and no waste is lost between programs. The first theory would establish a different subtitle using bits and pieces from Subtitle C. The benefit to such a program would be that secondary materials would no longer be labelled wastes and that derived-from and mixture rule problems would be avoided.

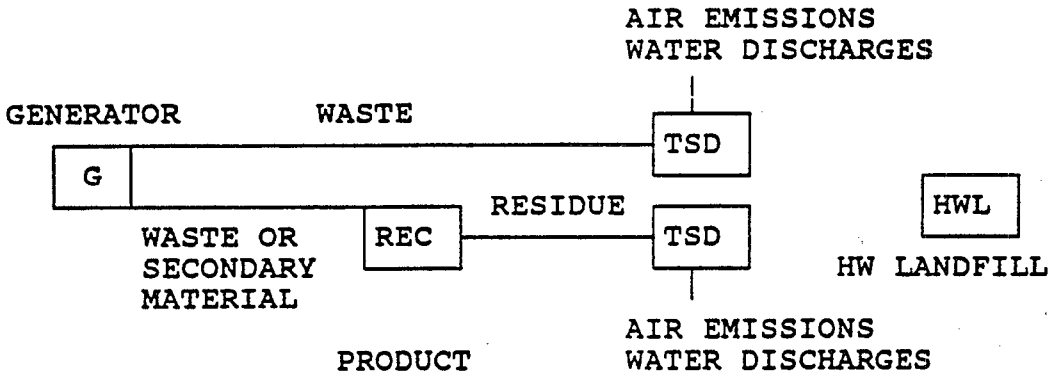
One participant commented that a disadvantage to keeping all materials in one system would be that the distinction between a secondary material and a waste would have to be made again and again. Additionally, if Subtitle C needed to be changed, the new subtitle would be unaffected. A participant argued that there would be some levels of equal treatment between the two subtitles, and therefore, if Subtitle C were changed, the new subtitle would also have to be modified. The first participant explained that in a system of two subtitles, all materials would start through Subtitle C with respect to the definition of solid waste but before they reached the listing process there would be a mechanism that places secondary materials into the new subtitle. If a recycling facility fails to meet the new subtitle requirements, the penalty would be Subtitle C regulation.

THURSDAY P.M.
Fourth Small Group Session - Discussion of Theories (Continued)

The group decided to discuss several different ways to regulate solid waste. A participant volunteered to present several models.

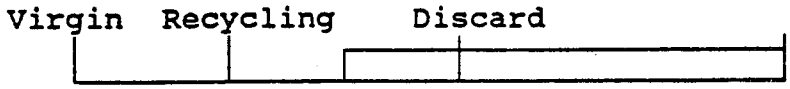
The participant reiterated the group's consensus that the current definition of solid waste is both under and over inclusive. He presented the following diagrams:





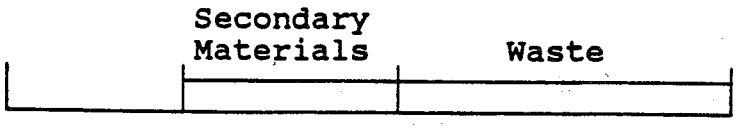
The primary focus of the diagram was whether materials to be recycled should be classified as wastes or as secondary materials, and how that decision affects the classification of recycling residues.

There is a continuum between virgin materials, secondary materials and waste. Presently, EPA regulates those materials that are discarded and some of what is recycled. (In the following diagrams, what is boxed is regulated)



Theory 1 says that we will take the same spectrum of materials and simply carve it up a different way. In this scheme, everything that is recycled is called a secondary material but is potentially subject to regulation and everything that is discarded is called a waste. By expanding the jurisdictional scope of RCRA to include secondary materials, we are narrowing the scope of what is called a waste back to what is actually discarded.

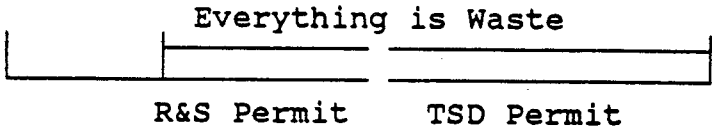
(1)



More materials would be subject to control under this scheme; however less material will be considered waste. Group members agreed that this system is more tailored than the current system.

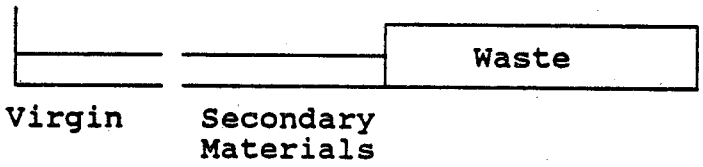
A second scheme would label all secondary materials waste and have two types of permits; one for TSDs and one for recyclers. The requirements for each of the permits could be tailored in a similar fashion and the difference may be only semantic.

(2)



A third model limits waste to what has been discarded. All other materials, both virgin and secondary, are covered in a materials safety/storage subtitle. A new statute would need to be developed to implement this scheme. A participant suggested that industry has never agreed with this model because it goes further up the production process than any of the other alternatives.

(3)



Several group members were uncomfortable with the third scheme. One participant commented that he thought the scheme was unwise because it built directly upon SARA Title III and expanded the regulatory regime into every area of society. Another participant questioned how materials would be distinguished in such a system. An EPA representative suggested that they would be distinguished as they are under Subtitle C. Another participant suggested that he had brought this approach up not necessarily because he advocates it but because some states are going in this direction.

The group then discussed how residues and products from a recycling/reclamation facility would be dealt with. One participant presented an example. Under model 1 a metal finisher generates a cyanide metal plating bath listed because of the cyanide. The plating bath goes to a reclaimer who decants the cyanide bath and is left with a sludge that is processed to remove valuable metals. The decanted cyanide solution is then sent to a TSD. The participant questioned what difference it meant to the protection of human health and the environment, at that stage, whether this solution was characteristic or listed. Several group members noted that if it was not listed it might not be caught by the regulatory program. Several participants suggested that this residue would have to be listed again (because the plating bath was designated a secondary material rather than a waste) so that recyclers are not converting listed hazardous wastes into Subtitle D wastes. The group generally agreed that the residues should be listed based on their own characteristics.

On the product side, the group felt that the derived from rule is keeping many materials in the system that should be out. An EPA representative asked whether a problem arises in the absence of a de minimus rule for products. The group agreed that it does. However, a participant noted that although the de minimus rule is great in theory, it may not result in many materials getting out.

In examining the first scheme, in which a waste going to a recycler/reclaimer loses its listing, the group questioned what the Agency would want the status of post-recycled material to be. An EPA representative explained that there could be two points of view. From an implementation/enforcement point of view, the post-recycled materials should assume their pre-secondary material listing. From an environmentalist point of view there is concern that some residues will be missed such as cyanide waste, unless relisted, because they will not be picked up by the characteristics.

A participant noted that if any of the schemes suggested today were implemented, there would have to be an increased effort on the Agency's part. Another participant noted that the second scheme would not be as intensive an effort as creating a new category for secondary materials because the material entering and exiting the recycling process would still retain its initial listing. The derived-from rule problems would then be solved separately. The first participant argued that this does not address the issue of the perception of the material as a waste rather than a secondary material. The participant expressed concern that unless one makes a clean cut in the regulatory scheme there will be no clear distinction between wastes and secondary materials.

A participant noted that the model where a hazardous waste listing determination carries through to the recycling process would be an appealing approach to the Agency. This model would deal with the perceived loop holes of the first scheme (where generators may claim that all of their wastes are going to a recycler to avoid the Subtitle C regulations) because it is based on the theory that all listed wastes are necessarily hazardous, and therefore all residues derived from processing or recycling the waste are hazardous.

A participant noted that if we are going to carry the listing through, the derived-from rule must be solved. If we do not solve the derived-from rule issue, we will be impacting the listing program. The group discussed the potential burden of recharacterizing and relisting all materials from all recycling/reclaiming processes. The facilitator asked the group whether there is enough homogeneity in the recycling industry to be able to easily examine these residue streams; or is there so much variation that reevaluation of these materials is an impossibility. Another participant suggested that many of the residues would be similar to those from the manufacturing process and would therefore take less effort to classify. The participant suggested that perhaps the universe of technologies in the recycling/reclaiming industry is not as large as many perceive it to be.

The group concluded that designing a way to reach the Agency's goals is very difficult.

The group presented the major topics of Thursday afternoon's discussion to the full group.

FRIDAY A.M.
Fifth Small Group Session - Discussion of Solutions

The facilitator asked the group to make suggestions for solutions to the current regulatory program. The group began the session by discussing what their recommendation would be for the treatment of materials going to a recycler/reclaimer. Several participants agreed that a different subtitle needed to be established. The group suggested that an administrative package be prepared for Congress calling for a new subtitle for recycling. The subtitle would be created with input from industry, environmental groups and the states.

The discussion returned to the viability of conducting risk evaluations of all recycling processes. A participant questioned what the perceived risks were in recycling. One participant responded that a determination of risks is difficult because of the diversity in the recycling industry. Two participants disagreed. One of the participants added that the myth of

complexity in the recycling industry must be dispelled. The same participant suggested that there are probably twenty general types of processes and that evaluating these for risk will not be a daunting task. The group agreed that some sort of information-gathering effort should be undertaken to measure current recycling processes.

Following the morning break, the group decided to move on to discussing solutions. The group developed a list of 13 recommendations. These are briefly summarized below.

- Ensure that risk assessment of recycling processes is included in the development of further regulations.
- Implement a manifesting system for recycling.
- Develop storage standards for recycling. Increase speculative accumulation time period for recycling facilities.
- Develop a series of standards focused on risk. This risk could be based on a product's characteristics.
- Eliminate the derived from rule for products and residuals of recycling.
- Modify Subtitle C financial insurance for recycling facilities.
- Implement a strong enforcement program for public assurance and to eliminate sham recycling. Mechanisms could include administrative, civil and criminal penalties as well as a shift to Subtitle C regulation for sham recyclers.
- Treat on-site and off-site recycling equally.
- Do not use closed loop recycling in distinguishing between recycling and disposal.
- Implement a distinction for manufactured products which are not physically changed until they reach the reclamation facility: (a) during the collection and transportation process and (b) subject to regulations that ensure tracking and no improper disposal.
- Allow demonstrable market value to exclude materials from regulation.
- Regulate transportation under DOT standards. Preempt states on the transportation of secondary materials.

Exempt secondary materials from interstate transportation prohibitions.

The group summarized their specific recommendations to the large group.

Meeting Summary for the Definition of Solid Waste

Meeting III: Public Interest Groups

GROUP F

WEDNESDAY P.M.
First Small Group Session - Discussion of Issues

The facilitator started the session by reviewing the meeting process and schedule. Introductions were given, and the facilitator presented the first question, which was, "Given your expertise, what are the primary issues that need to be addressed in the current regulatory framework?" The first concern raised by a participant was that regulation of a listed waste that is recycled is currently too burdensome. An example of K061 electric arc furnace (EAF) dust that is sent to a recycler was given. The recycler is able to use the materials from the dust; therefore, the EAF dust is a valuable by-product. The manufacturer of the dust should not have to manage the dust as hazardous waste, and the derived-from rule should not apply in cases such as this. There is a problem getting hazardous recyclable material from the generator to the recycler. The question of "how closed is closed loop" was raised.

One participant was concerned that the same laws which apply to virgin materials do not apply to comparable recyclable materials. This differentiation creates a solid waste "stigma" that inhibits recycling. As an example, coal ash is a large volume, inert material that is becoming harder to recycle because of the differentiation. The coal ash cannot compete in the markets because of the stigma. There should not be a distinction between manufacturing and recycling. As an example of a problem, coal ash is recommended for use at Superfund sites as a stabilizing material; however, some view this as a disposal mechanism for the ash, rather than as a use. This raises liability questions as well.

Another participant stated that the derived-from and mixture rules inhibit recycling; waste should be judged on its own merits. As an example, smelter slags pass the TCLP test, but are deemed hazardous because they are derived from hazardous waste. The industry should not rely on delisting as a mechanism to get out of the Subtitle C system, because the program does not work efficiently. The member refuted the EPA examples of NPL sites that were once recycling sites and suggested that historically these sites were probably used as disposal sites as well.

A participant proposed that recycling processes should be regulated to protect human health and the environment. Recyclers should be regulated as manufacturers are. Materials that harm

human health and the environment should be regulated, regardless of whether they are recyclables or by-products. Recycling should not allow a regulatory loophole for disposal. Several other members agreed, but added that currently manufacturers and recyclers are not treated equally, because manufacturers can use hazardous virgin materials that are not regulated, while hazardous recyclable materials are regulated. These members wanted to see more equity in the marketplace. A pickle liquor example was given to show inequity. A firm in Milwaukee uses pickle liquors for cleaning boilers, but will not buy by-product pickle liquor from metal processing plants. Instead, the company pays to make the pickle liquor, because the utility commission does not want to accept the liability for using what was deemed a Subtitle C waste. Another participant commented that the regulations should encourage recycling. For example, recycling car batteries is much better than open dumping. One participant agreed but stated that the process of recycling may also create waste which should be regulated.

Another issue raised by a participant was that definitions for recycling are unclear, such as for reclamation (passive filtering) and in process. He provided an example for a closed-system wood cell injection of pesticides to replace water and air in wood. The replacement produces a material that should be regulated. However, this material is not discarded. The material goes to a sump, the excess pesticide is filtered, and the filtered material is pumped back into the system. The process involves on-site recycling, but involves a reclamation by passive filtering; therefore, the material is defined as a hazardous waste. The member raised the questions, "should passive filtering and settling be considered closed loop?", and "when does a material become a waste?". An EPA representative posed a question regarding the design standards of the sump and how long material stays in the sump prior to filtering. The participant answered that the sumps could probably meet RCRA tank standards and could be cleaned out as often as EPA wanted them cleaned out. The accumulation is only temporary as opposed to speculative.

A participant raised the inequity issue, and stated that secondary materials that are recycled are considered waste while primary materials are not. Lead plates from car batteries are considered wastes. The percentage of lead in those plates is at least as high as the raw material which is mined. However, because the lead is from battery plates, it is considered a secondary material and is regulated as a hazardous waste. EPA pointed out secondary materials that are recycled are not always considered wastes. "Secondary material" was identified as a term that required a clearer definition. Many in the group agreed that the risks associated with primary manufacturing and recycling are often the same, and the two should be regulated equally.

The next issued raised by a participant was that risk assessment has little or no bearing on the level of regulation for recycling, and there should be a continuum of regulation for recycling. The current RCRA program is a disposal program rather than a recycling/reuse program.

Another issued raised was that more flexible storage regulations are needed for hazardous wastes that are not amenable to tank or container storage prior to recycling. The member suggested that performance requirements, rather than minimum technology requirements, are needed for large volume materials that are stored in surface impoundments prior to recycling. The materials are not land disposed, but rather only temporarily stored until they can be recycled. He suggested that a 90-day storage requirement could be implemented for storage other than in tanks/containers.

A participant commented that the regulations are too complex and too hard to understand and enforce. Simplifying the regulations and removing the "legalese" should improve the understanding and compliance.

A participant again raised the issue of determining when materials become wastes. For example, the Federal agency has many materials that are no longer used, and is required by law to determine if the materials can be recycled/reused. This determination process is difficult when materials are identified as wastes too early in the process.

The issue of liability was again raised. A participant proposed that there was a lack of recognition of product and environmental liability for wastes as opposed to primary materials. He stated that people do not want to use waste-derived materials. An example was provided by the participant that bought batteries and scrap metal from a scrap processor. The smelting facility was later named as a NPL site, and the scrap processor was named as a Potentially Responsible Party (PRP), because the processor provided a hazardous substance to the smelting facility. However, a facility that supplied ore to the smelting facility was <u>not</u> named as a PRP. The presumption under CERCLA is that if a material is a waste under RCRA and is sold to a facility, the act constitutes disposal. Another example of product liability was provided by the participant for bottom ash as a base for roads. The ash presently can be used under roads; however, if in the future the ash is deemed a hazardous waste, the ash provider will be responsible for digging up the road and removing the ash. There is no incentive for the ash provider to sell ash for this purpose.

Another issue raised was that corrective action at integrated facilities for non-hazardous units is burdensome.

A participant suggested that the variance process is burdensome to the Agency and to petitioners. Some members suggested that a self-implementing variance process would be helpful. Perhaps the Agency could look at an industry variance, where the Agency approves a variance except for site-specific waste management options. This process could speed up the variance petition-review process. EPA indicated that the Agency generally cannot categorically give variances; they need to be site-specific to address all relevant factors.

One participant questioned why some recycling activities were regulated while others were not. Several examples were provided, including reclamation vs. reuse, energy recovery vs. disposal, on-site vs. off-site, listed vs. characteristic, and closed loop vs. almost-closed loop. EPA clarified that not all reclamation falls within the definition of solid waste. Another participant stated that resource conservation and recovery should be encouraged. The applicability of the current regulations to recycling is hit or miss. Recycling should be looked at singly and not in relation to disposal, which is the current focus of RCRA. One participant questioned whether the regulations and statute were flexible enough to treat recycling and treatment and disposal separately. One member answered that for batteries, EPA has the authority to regulate recycling and waste separately. The participant suggested that the difference is implicitly stated. If a program regulates disposal and discourages recycling, then the regulations are refuting the congressional goal of resource conservation and recovery. He stated that one current theory proposed by those that want tighter hazardous waste rules is that if disposal of hazardous wastes is more expensive, there will be a higher level of environmental protection. Disposal facilities can pass the rate increases to those disposing of waste. However, recyclers do not have anyone to pass the charge to. Recyclables are put into an unfair position to be in direct competition with virgin materials. In other words, recycling can be stifled by rate increases, but disposal can never be stifled. From this discussion, a separate issue arose. Some participants concluded that the RCRA program is almost entirely oriented toward disposal; recycling is not actively encouraged.

One participant offered that materials should not be regulated just for regulation's sake. The complexity/bureaucracy of the current system hampers safe/beneficial recycling and fails to consider environmental and cost benefits. The member suggested that the regulations should show a preference for a recyclable material as opposed to one destined for disposal. Again, the idea of a self-implementing variance was raised. The member noted that recyclers cannot show the benefit of recycled hazardous materials, because the materials are already deemed as "wastes" and are caught in the maze of regulations. An example was provided by a participant, which explained that there are

acid beds in Pennsylvania resulting from mining. Coal ash, which has a pH greater than 12, could be used to fill and neutralize these beds, but legally cannot be used for this purpose, because the ash exhibits the corrosivity characteristic.

The participant suggested that forcing recycling into a system it was not designed for is ineffective, and perhaps other statutes may or may not be better suited.

Another issue initiated by the participant was that EPA is weak at characterizing risk and setting appropriate management standards. The implementation of risk characterization is difficult, and the TCLP is an example of this difficulty. One member questioned why stabilized wastes must be ground to run the test.

One participant stated that the statute may be too inflexible to allow EPA to accomplish a workable recycling program. EPA questioned whether case-specific decisions could be in the statute; a translation from the statute to the regulations is needed. Industry-specific standards are less expensive than site-specific standards.

A participant stated the issue of an unclear line between recycling and treatment. Another participant added that EPA tries to pull too much under its current recycling abilities; the regulations should be more specific.

THURSDAY A.M.
Continuation of First Small Group Session - Discussion of Theories

The group started this session by grouping the issues that were similar. The first suggested grouping encompassed six of the stated issues. This combined issue stated that the current definition and regulatory requirements inhibit recycling. The bullets under this issue were grouped into three different categories: scope, implications, and implementation. The "scope" bullets were for the derived-from rule, mixture rule, and the definitions of solid waste, reclamation, in process, and secondary materials. The "implications" bullets were for corrective action requirements and permitting, while "implementation" described the complexity of the current regulations.

A second grouping combined two issues into the statement that secondary materials are unable to compete with virgin materials because of the stigma of being labelled "waste" and because of the environmental and product liability associated with the "waste" label. The participant questioned the arbitrariness of the recycling regulations, and questioned why recycling materials

on site was different than recycling the same materials across the street. EPA should either regulate both primary materials and recyclable materials, or regulate neither. One participant stated that the residuals should be tested and judged on their own merits, rather than judged by where they came from. Non-hazardous industrial wastes should be sent to Industrial Subtitle D sites.

Other issues were combined, without rewriting the issue statements. One of the earlier issues was amended to say that recycling processes should be regulated to protect human health and the environment by considering risk. An EPA representative stated that the Agency currently considers risk in regulation. A participant questioned how EPA could possibly change its policies to regulate all different processes fairly while still being protective of human health and the environment. EPA must regulate to avoid potential risks. The regulatory process must be overly protective to encompass all possible scenarios that can harm the environment. Enforcement would become even more difficult if there were different regulations for every different process. One participant stated that the current EPA goal of protection of human health and the environment is right, but the process to achieve the goal is wrong. More flexibility is needed in the protection of human health and the environment. A participant stated that EPA should have the burden to show real proof that their regulations protect human health and the environment rather than just the potential for risk.

The group then voted for and ranked the combined list of issues. The top four issues were:

1) The current definition/regulatory requirements inhibit recycling
   - o scope (definitions)
   - o implications (permitting, corrective action)
   - o implementation (complexity)

2) Inequity (market place competition, stigma, liability)

3) Recycling processes should be conducted to protect human health and the environment

4) RCRA program is geared toward disposal; recycling is not actively encouraged and does not fit well into the system

A minority issue was added to the list:

5) The complexity of the current system hampers safe/beneficial recycling (no cost/environmental benefit considerations)

A participant questioned what a new Subtitle E would accomplish and noted that industries are not going to escape being regulated. The group agreed that industries should be regulated, but more fairly. Recyclers do not handle the same volume or waste that chemical waste management companies do, yet recyclers are subject to the same regulations. One participant suggested that a tailored regulatory system for recycling is needed, but that it needs to be in the proper arena. The economic and market nature, as well as the environmental value of recycling as compared to disposal, should warrant different treatment and regulations. The participant suggested taking the Subtitle C regulations and moving them into a recycling subtitle. The group largely disagreed with this approach, and stated that recyclers cannot obtain environmental liability insurance for recycling hazardous waste. One participant provided California regulations as an example. California issues resource recovery permits to recyclers that are exactly the same as hazardous waste TSD permits. This distinction in permits gets rid of the "not in my backyard" (NIMBY) syndrome, because people do not mind resource recovery units as much as they mind disposal facilities. A new subtitle will not make the problem go away, but will address the stigma.

THURSDAY P.M.
Second Small Group Session - Discussion of Goals and Theories

The facilitator opened the session by asking for comments on the issues that the other groups presented in the first plenary session. An EPA representative stated that discussion among some participants and meeting facilitators during the break indicated that minority views in some of the groups were not being adequately represented at the plenary sessions. Even though the environmentalists are not well represented, the group needs to recognize and discuss the potential environmental risks that are involved with recycling.

The facilitator then presented EPA's current four goals: 1) protect human health and the environment, 2) promote environmentally sound recycling, 3) clearly define jurisdiction, and 4) simplify regulatory structure to improve implementation. She asked the group to elaborate on these goals or to present additional goals.

One participant proposed that a goal should be to regulate to the risk, which should preclude overregulation. Another stated that

the risk assumptions used by EPA are too protective and are not realistic. For example, his organization performed an independent analysis of the burning and blending rule for one compound. EPA's proposed number was calculated to be more than 395,000 times too stringent for the stated assumptions. An EPA representative mentioned that the Agency is currently examining its current risk assumptions. A participant noted that human health and the environment should be the starting point for risk assumptions. After this point, materials should be regulated according to the risk that they pose. The Agency should remember that disposal is definitely worse than recycling. A participant countered that regulating to the risk will not meet goal four. Regulating to the risk essentially means establishing risk-based standards. The Clean Air Act contained an air toxics provisions that required risk-based regulation of air toxics, until the recent set of amendments were enacted. In the eighteen years of the program, only eight pollutants were regulated. Congress recognized the deficiency, and changed to a technology-driven approach. Congress realized that not all risks would be controlled with a technology-based standard, and added an additional residual risk-based step. One participant stated that regulate to the risk means a continuum of control, rather than overregulation. Regulate to the risk does not mean regulating on a case-by-case basis. The current regulations only provide increased costs to recyclers without providing additional protection of human health and the environment. Another participant countered that the combination of goals one and two assure that there will not be any overregulation.

One participant suggested that a goal should be to maximize the amount of materials recycled. Another participant wondered if a maximization goal could adversely affect small companies that recycle on site, and asked for a clarified definition of "maximize". The first participant stated that the goal is a positive goal that encourages recycling. In other words, this goal is the same as EPA goal two, but without "environmentally sound." If EPA goal one is met, then goal two should not need to contain the phrase "environmentally sound." An EPA representative suggested that the member was saying that because a recycling process is regulated, it is inherently environmentally sound; another participant interpreted the statement to be advocating uncontrolled land disposal. The EPA representative added that the recycling process must be environmentally sound - residues must be handled in an environmentally sound manner, and recyclers must insure that products which contain recycled materials do not contain high levels of unwanted contaminants. The first participant countered that recycling should not be singled out to be environmentally sound when there are manufacturing processes that should also be environmentally sound. Again, the problem is an equity issue. A participant stated that recycling is part of the solid waste solution. Recyclers need some regulation, but EPA must determine

the level of risk that they are willing to assume in order to promote recycling. Another participant stated that her association supports environmentally sound recycling, and should be regulated in some way; she stated that she does not understand the problem with the phrase "environmentally sound." The first participant stated that the phrase makes recycling seem inherently unsound. Another participant suggested that EPA define "environmentally sound."

Several members suggested that the group was talking about two distinct goals - promote recycling and promote environmentally sound recycling. One of EPA's goals should be to substitute recycling for disposal. A participant disagreed and presented an example. A hazardous waste cement kiln produces a cement with contaminants that in time leach from the cement. Children are then exposed to the contaminated leachate. EPA should not be proud of this recycling option simply because materials were not disposed. EPA wants to encourage recycling, but not at the expense of creating worse problems.

A participant suggested that EPA needs to clarify the definitions between "use" and "disposal." A participant stated that the argument is over a continuum of risk from sham recycling through legitimate recycling. Because there is a continuum of risks, there should be a continuum of flexible controls for the varying risks. The system should be more specific for particular types of recycling, and this could directly oppose EPA's fourth goal. A participant questioned the problem with the current system (the complexity of the paperwork, permitting problems, air emission controls, and/or secondary containment problems). One participant explained that the problem is a trigger that says yes/no, a material is/is not a hazardous waste. This system is fine for disposers, but not for recyclers who cannot compete with virgin materials. One participant stated that practically all of the Subtitle C provisions cause problems for recyclers, including permitting, the derived-from rule, the mixture rule (with respect to residues), corrective action, financial assurance, etc. The group decided to define options for EPA goal two: 1) leave the goal as stated, 2) delete "environmentally sound," and 3) add a goal to define environmentally sound.

One participant asked if the Senate is going to require Subtitle C permits for recycling. Another participant responded that the issue is still unresolved.

A participant stated that hazard identification is currently a black and white issue. The wood preserving process mentioned earlier is not closed loop simply because of the passive filtering step. One participant stated that large volumes of waste get needlessly caught in the system. The delisting process was suggested as an answer to this problem. The majority of the group thought that delisting was too rigorous, overstringent, and

not a workable solution. One participant provided an example. EAF dust (K061) is recycled, and zinc is reclaimed from the dust. There is a remaining slag that does not resemble EAF dust but must be managed as such because of the derived-from rule. An EPA representative questioned whether these recyclable materials should be manifested for transportation. The participant responded that manifesting is not a problem. The problem is that the receiving facility needs a permit to accept the hazardous material.

One group member stated that if a material is never destined for disposal, then it should not be called a waste regardless of how it is stored. EPA responded that the court has upheld the Agency's position on this subject, and questioned whether further examples of the problems with the derived-from rule could be provided. One person stated that the residuals from recycling processes should be judged on their own merits. One individual questioned how recycling facilities should be regulated (if at all) if only the residues are regulated. Another answered that the facilities should be regulated but under some system other than RCRA. The participant stated that recyclable material usually is not comprised of only one contaminant; usually the material is a "waste soup," whereas virgin materials in manufacturing processes may have distinct, known contaminants. A participant countered that sometimes recyclable materials are homogenous and sometimes virgin materials have contaminants. For example, crude oil is a complex mixture with many different contaminants. Smelters have certain recipes that must be followed for the processes to function. An EPA representative questioned whether the public could be exposed to more contaminants simply because products are made from recycled materials rather than virgin materials (i.e., asphalt). The participant responded that if the contaminants add harm, they should not be used. EPA responded that the addition of harm is not a simple determination, because something which seems benign now, may be harmful later. One member proposed that product specifications could be used that establish levels for particular contaminants in products.

A participant stated that EPA goal four was impossible. The participant responded that the goal may be difficult, but should always be kept in mind when developing regulations. A participant strongly recommended that simplification be kept as a goal because it is the most tangible of EPA's stated goals. An EPA representative stated that clarity in the regulatory language is important for the regulated as well as the regulating community. One participant suggested that the British system provides a good example. Facilities are allowed to choose either design or performance standards, whereas in this country, facilities must meet both standards. A choice between the two could help small companies. A participant stated that Congress may not have the necessary technical expertise to identify all of

the answers for EPA, so the statutes should provide the flexibility to cover the lack of knowledge. A participant suggested that risk-based standards encumber Congress, so Congress will probably keep using technology-based standards, which simplify options for the Agency.

One person suggested that a goal should be to modify the regulatory structure. The participant agreed with EPA's four goals, but did not believe that the present system meets these goals.

Another participant suggested that a goal to minimize "gaming" of the regulations so that facilities are not jumping in and out of subtitles be added. The participant amended this goal to read "add flexibility by adding a new category to ensure that changes do not allow for 'gaming' within the process."

The group then discussed the final list of goals that was generated and decided that an additional goal should be to promote regulatory flexibility. The group also decided that one of the goals should be to "optimize" the amounts of materials recycled rather than to "maximize."

THURSDAY P.M.
Continuation of Second Small Group Session - Discussion of Goals and Theories

The facilitator opened this session by suggesting that the group clarify EPA goal two. The group did not agree to add manufacturing to this EPA goal. One participant stated that everything in manufacturing is already regulated. Other group members disagreed and provided an example. Corrective action is not required for a release from a pipe from a generator. Cleanup could be required under Superfund, but RCRA does not allow EPA to control processes to prevent releases. The Clean Water Act controls releases to surface water and the Clean Air Act controls releases to air, but nothing controls releases to ground water. The earlier speaker argued that EPA cannot regulate to the level of no risk to the environment, or all industries will have to go out of business. The respondent clarified that he was not suggesting overregulation; he was only noting that all aspects of manufacturing are not regulated, as was stated earlier.

The facilitator questioned whether the group wanted to remove "environmentally sound" from goal two. The majority decided against the deletion, but agreed that the discussion of the issue should be presented at the second plenary session.

One participant spokesman noted that none of the listed goals address the inequity issue. The participant suggested that EPA promote affirmative action for recycling. One person suggested a

goal to promote resource conservation and recovery, and the group largely agreed. Another suggested that the goals be restructured so that goal one was resource conservation and recovery, while all other listed goals were a subset of this goal. The group disagreed with this concept, but agreed that "leveling the playing field" was an important goal that should be added. The member who raised the point was concerned that this was not a legitimate goal for all recyclers, and noted, for example, that quality scrap copper is difficult to locate. The participant suggested that in the case of scrap copper, there is no inequity. Others suggested that there is inequity on both sides of the issue. There are some generator requirements under RCRA that generators currently are not compelled to meet, such as manifesting, record keeping, training, and emergency equipment planning. The group agreed that there were different facets of leveling the playing field, such as virgin vs. recyclable materials and recyclers vs. treaters, and agreed that the "leveling" should not be to the lowest common denominator. An example of this concept was provided by the participant. If virgin materials and recyclable materials were subject to the same regulations, treaters could argue that they have materials that are similar to recyclable materials, and their materials destined for treatment and disposal should not be regulated by stricter regulations than those which are used for feedstock. The group agreed.

One participant stated that "regulate to the risk" should be listed as a goal. The group agreed to present this goal as a minority opinion.

The facilitator then presented the format for the discussion of theories of recycling. The three theories which were presented by EPA were: 1) if it's recycled, it's not a waste, 2) recycling is one type of waste management, and 3) some recycling is waste management and some is not. One group member was chosen to support theory one in a debate, while another was chosen to support theory two. (The positions that these group members supported do not represent their personal opinions.) In support of theory one, the participant stated that Congress meant that a material is a waste only if it is disposed of or intended for disposal. For example, heap leach piles of low grade ore should not be considered waste piles. The ore is not of high enough quality to put directly into processes, so the leach piles are used to collect gold. Arsenic is used to leach the gold from the ore over a synthetic liner. The gold concentrate is then sent to a processor. The ore processors do not allow the leachate to spill or leak because of its high economic value.

He added that material that is stored for future processing should not be considered waste, because it is not intended for disposal. In some cases, speculative accumulation resembles disposal, and these particular situations should be regulated.

Finally, he noted that secondary materials are very similar to virgin materials. A recycled solvent is the same as a virgin solvent, but is subject to secondary tank requirements. This distinction puts secondary materials at an economic disadvantage.

One participant countered that heap piles are treatment processes. The material has hazardous waste characteristics, and should be regulated as a waste. There is a potential for accidental spillage during transport. The spilled material could potentially leak into a public water system and cause harm. If there is a distinction between manufacturing and recycling, then there should also be a distinction between recycling and treatment. Treatment of materials presently is regulated very closely. If recycling was not regulated at all, treatment facilities could reduce their current standards which would result in increased environmental risk.

In response to the solvents example, the participant noted that recycled solvents are partially degraded, and are not as pure as virgin solvents, nor do they have the same economic value as virgin solvents. Again, unregulated recycled solvents could be handled and treated unsoundly. Before recycling, spent solvents are very waste-like in nature, and do not really become valuable until after the distillation process. The facilitator then called an end to the debate.

One group member commented that the heap leach example was not an appropriate recycling example.

He presented three different problems to the group: 1) some people say that there is no such thing as a worn-out solvent, 2) some people claim that the valuable ore in a heap pile is not different from the mineralization that surrounds it, and 3) sulfuric acid is the largest volume chemical manufactured in the United States, yet it is handled as a virgin material. He elaborated on problem one, and stated that after distillation, there is chemically no difference between virgin and distilled solvents. Distillation is a physical separation, and not a chemical treatment. Perhaps EPA could use grade specifications to compare recycled and virgin solvents. Another participant commented that the process of recycling spent solvents should be regulated, because of potential air releases, spillage, and contamination of soil and ground water. A participant cited an example. The spray paint industry will not use recycled solvents, because of not knowing exactly what constituents are in the mixture. The exact composition is needed for paint to spray effectively. One participant stated that it should not matter whether solvents are virgin or from secondary processes, and perhaps industries that buy solvents do not need to know where the solvents are from. Another participant commented that solvent recycling is a value-adding process that costs someone to take the material from a waste-like composition to a marketable

solvent. If the process is not regulated, a company might be tempted to accept the recyclable material for a fee and to illegally dispose of the material without recycling it or to use the material in an unsafe practice. Therefore, some sort of regulation is necessary.

The same group member stated that he provided the sulfuric acid example to show that industries handle the acid safely every day without being forced to by the regulations. All of the potential "ifs" (i.e., might spill the material, it might go into the ground water) add to overregulation. Others disagreed with this opinion, citing overwhelming documentation of chemical accidents. The accident prevention requirements in the Clean Air Act cite numerous examples of accidental releases due to spills, explosions, etc. Therefore, the recycling process should be regulated to avoid potential and expected accidents. The other member noted that there are many more success stories than accidents, and that accidents are never intentional. The respondent countered that some companies have histories of routine "accidents". The other member suggested that these irresponsible operators should be punished. A participant stated that materials do not need to be wastes to be controlled; recycling can be regulated, but should not be regulated under RCRA.

One participant did not feel that any one theory could be chosen because of so many diverse situations. He did not agree that theory three was a well written combination of the first two theories. He suggested a fourth theory, stating that material destined for recycling is not a waste, while material destined for disposal is a waste. Additionally, recycled materials should be properly controlled. One participant questioned whether this theory statement meant EPA should regulate the recycling process. Another participant agreed, but stated that the recyclable material should never be called a waste. Another participant suggested that EPA theory one be amended by adding the caveat that the recycling process should be regulated, but without calling the recyclable material a waste. Many in the group agreed with this suggestion. However, the participant stated that regulation could only mean specifying performance or design standards.

An EPA representative questioned whether this scheme would remove or add to the complexity of the present system. In addition, she noted that EPA has had trouble in the past with intent-based schemes. A participant stated that EPA needs to make presumptions about the material and its handling.

A participant suggested that there should be a recycling manifesting system. The manifested material should be tracked its destination to determine if the material was recycled or disposed. For this program to work, EPA would need to determine

criteria for real recycling. He provided the example of a facility which tries to make kryptonite. This process is speculative and is basically sham recycling. The participant suggested that this theory proposed a "value" test for products, and establishing value is difficult. Perhaps the Agency could look at how the facility that is accepting recyclable materials is making its money. For example, profits could come from tipping fees, from disposing of material, or from a new product. One group member noted that this process would not work for smelters, because smelters charge smelting fees for virgin and recycled material. Others agreed that this process could be easily cheated. A participant noted that defined materials that are accepted as recyclables should not cause a problem for a value test. However, marginal materials are more difficult to prove a value for. Another participant stated that coal ash is one of the marginal materials. The material could have many uses, such as filler material and building material, if it were not labeled as a waste.

A participant questioned where using waste as a fuel would fit into the value test. The process is not considered recycling yet has an economic value. Another participant answered that this process, in addition to land application, is a specialty case that should be regulated differently. The processes have merit, but pose certain environmental hazards.

One of the group suggested three criteria for defining waste as fuel: 1) replacement of fuel in industrial processes, 2) boiler processes as those which need a net energy increase, and 3) define the function of materials going into the process. This type of recycling should be specially regulated. One way to do this would be to limit the percentage of recyclables going into the process. A participant stated that this system sounds very much like the current Subtitle C, with stringent permitting requirements. The person who offered the idea countered that EPA currently regulates the burning of fuels differently. There are now fuels that are not pure fuels (i.e., coal, oil) but are mixtures that contain waste. These mixtures may require special permits. A "reversed" inequity was described by the use of an example. If one company has a TSD permit and charges high fees to destruct waste, while another company recycles the same kind of material at a much lower cost, there is an inequity which favors the lesser regulated facility. The group member answered that a burn for fuel facility will sometimes meet the four nines criteria; sometimes there will not be a difference between the emissions for mixtures and virgin fuels. The difference is that disposal units accept anything for a price, while fuel buyers only buy specific materials. The EPA representative questioned what the fuel buyer does when the fuel has other contaminants in it that are incidentally destroyed as part of the burning process. A participant stated that there are three categories of facilities: 1) fuel buyers, 2) destroyers, and 3) recovery

facilities. The distinction between the categories should not be based on the emissions, because the air permits should limit all three.

The facilitator then asked the group to vote on the proposed theories which EPA had explained, which were: 1) if it's recycled, it's not a waste, 2) recycling is one type of waste management, and 3) some recycling is waste management and some is not. One participant was concerned that theory one dealt with products, while theories two and three dealt with processes. One group member suggested that theory one be amended to state that if it's recycled, it's not a waste; the material should be regulated, but should not be called a waste. Many of the group agreed, and the majority chose the modified theory one.

FRIDAY A.M.
Third Small Group Session - Discussion of Recommendations

The facilitator presented the final question for discussion by the group, which was, "If you were the Administer of EPA and could make any three changes to the definition of solid waste, what would your priorities be?".

A participant suggested that EPA should review the existing laws that apply to virgin materials, and strengthen them as appropriate to deal with the potential problems with recycled materials. He added that the regulation of recycled materials should not be within the RCRA framework.

Another group member recommended that recycling residuals be judged on their own merits, and added that the derived-from rule should be revoked.

One participant suggested that EPA create a separate RCRA subtitle for hazardous substances handling, which would include manifests and minimum standards or permits for all storage. The participant did not specify whether hazardous substances/materials would be defined as under CERCLA or DOT. The requirement for minimum standards or permits for storage could help with peculiar problems with ordnance and munitions, as well as mixed waste problems. She noted this scheme could cause some inconsistencies for corrective action, but was not sure what the problems or answers would be.

One participant recommended that EPA first redefine solid waste to deal with valueless materials that are discarded, abandoned, or intended for discard. He suggested that EPA then conduct a major study to identify/catalog all current recycling activities as well as to identify all present regulations that encompass recycling. Third, EPA should create a broad new pollution prevention subtitle (or request a new statute) to deal with

materials management that encompasses qualifying criteria and performance standards and documentation for resource recovery.

A participant suggested that EPA create a new set of design/performance standards for storage of material prior to recycling. These standards would be used in lieu of permitting. This system would allow generators of secondary materials to manifest only to facilities that meet the specified performance standards. He added that the battery recyclers could agree with the current definition of solid waste if this recommendation was implemented.

One member suggested that the word "discarded" be deleted from the present definition of solid waste, and replaced with "other secondary materials destined for disposal". He noted that intent of destination was an important part of this revised definition. The participant noted that there is presently an intent test for by-products. An EPA representative stated that the intent test has always been problematic in terms of enforcement. Secondly, the member recommended that there be a separate subtitle or statute for resource recovery. He did include "conservation" in this title, because conservation results from resource recovery. Under this recommendation, he stated that EPA should define "recycler" to clarify the "intent" problem. A participant questioned whether burning coal to make steam (which results in coal ash) was considered a recycling process under this scheme. The participant answered that burning coal is a production process and that some recycling takes place without processing. Another participant questioned how this scheme would affect small companies that want to recycle on site. The answer from the author of the idea was that EPA will need to define "closed loop".

A participant agreed with the previous commenter, and added that there should be either a separate subtitle or a new statute to address recycling. He suggested that the definition of solid waste be redefined to exclude materials in the recycling process and to distinguish disposal from recycling. This differentiation should be based on objective handling criteria rather than on intent. He noted that there should be a RCRA regulatory scheme to regulate materials in the recycling process with such requirements as manifesting, storage, and record keeping. He also suggested that a substantial amount of recyclable material would need to be used to make a product, and EPA would need to define "substantial". For example, reclamation of a small amount of gold from a mountain of material may be substantial, due to the economic value; but perhaps processes would need to reclaim 80 - 85% steel and iron from a material to be considered a substantial amount.

A participant suggested that recyclers be allowed to prove to the Agency that their processes are safe prior to being pushed into

the RCRA system. There should be a recycling program within RCRA that allows recyclers to demonstrate that their processes protect human health and the environment.

A participant suggested that EPA redefine secondary material and incorporate these materials into a performance-based program for recyclable materials. She suggested that the standards be used for categories of materials rather than individual materials.

FRIDAY A.M.
Continuation of Third Small Group Session - Discussion of Recommendations

An EPA representative opened this session by questioning whether a modification of the current statute is necessary to modify permitting, financial assurance, and corrective action for hazardous waste disposal facilities to regulate recycling differently. One participant suggested that the Agency could have problems including recycling in Subtitle C because of the human health and the environment issue. An EPA representative responded that different groups will have problems with recycling regulations, no matter which subtitle they are regulated under.

A participant recommended that EPA provide an alternative process for the delisting/variances program that allows industry-wide decisions rather than site-by-site decisions.

One of the participants then elaborated on his earlier recommendation. He listed a set of criteria to define "recycler". 1) He agreed that recycling needs a regulated program. 2) He suggested that recyclable products need to be returned to the economic mainstream. This criteria should instill public confidence in the program. 3) He suggested that the product must be a generally recognized or commodity product. 4) He suggested that the feedstock and product must have specifications of some sort which do not need to be ASTM specifications. A processor can only take defined recyclables as feedstocks. An EPA representative questioned the specifications for products such as aggregate. Aggregate specifications do not normally call for hazardous materials in the feedstock, but recyclable hazardous materials could potentially be used for this purpose. This question remained unresolved. 5) The definition of a recycler must address speculative accumulation. 6) There must be a rebuttable presumption for new products vs. disposal. Kryptonite was again used as an example. The production of kryptonite should be considered a disposal process until the producer can prove the value of the kryptonite.

He then presented a format for distinguishing materials and combustibles in the recycling subtitle. He defined three

categories of combustibles as boiler fuel, furnace fuel, and pyrometallurgical materials.

Another participant questioned how this scheme addressed on-site recycling of secondary materials. He stated that secondary materials must meet specifications. However, he has not yet addressed the closed-loop issue. If the material is going off site, the facility must determine and manifest where the material is going in order to determine whether the material will be recycled or treated and disposed.

One participant then elaborated on the scheme that he had proposed earlier. This scheme would be a tiered program depending on the type of recycling. The tiers would range from benign, such as bottle and can recycling, to potentially harmful to the environment, such as burning for energy recovery and use constituting disposal. In between these extremes, there would be a permit program, as discussed earlier. He basically agreed with the other participant's proposed program, but thought that the second criteria for defining a recycler (recyclable products need to be returned to the economic mainstream) should be quantified.

The facilitator summarized that the group had spent most of its time discussing a new subtitle, and questioned whether the group wanted to present any other positions at the plenary session. A participant stated that his recommendation to set design and performance standards for storage prior to recycling was within the current subtitle and could improve the recycling dilemma for his industry with only a minor change. The biggest obstacle is currently that smelters do not always have TSD permits, and therefore cannot recycle batteries in their processes.

A participant stated that permitting issues and the idea of "leveling the playing field" were not addressed in the recommendations. The same participant stated concern about corrective action issues, and proposed that if corrective action was not addressed in a new subtitle, everyone would try to call their processes recycling in order to escape corrective action. The group agreed that the report to the plenary should state that the group had concerns about corrective action for recyclers, but did not have time to discuss a recommendation.

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DEFINITION OF SOLID WASTE: STATE MEETING
OVERVIEW
ALBUQUERQUE, NEW MEXICO
NOVEMBER 29-30, 1990

The meeting was organized into three sessions designed to identify State issues and suggestions pertaining to the definition of solid waste and its application to hazardous waste recycling.

David Bussard opened the meeting with introductory comments on the purpose of the meeting, current EPA activities, and the process the meeting would follow. He then briefly reviewed EPA's goals and three broad theories which have been suggested for defining solid waste. These theories posed the ideas that:

- If a material is recycled, it is not a waste;
- Recycling is one type of waste management;
- Some recycling is waste management and some is not.

OSW staff then presented a brief overview of the current status of the definition of solid waste. This discussion included a presentation of schematics representing several typical recycling scenarios, including potential issues posed by each scenario. The group then divided into three small groups for the first of three small group discussions. The first of these addressed definition of solid waste issues encountered by the states. (These small group discussions, and those conducted Thursday afternoon and Friday morning, are summarized in detail on the following pages.)

After lunch, the groups continued their discussion of issues posed by the current definition of solid waste. Upon the conclusion of these discussions, each group summarized key issues identified for the full group. Following this presentation, the groups discussed various approaches to regulating recycling.

On Friday morning, the small groups presented ideas to the full group on the theories identified the previous morning. This was followed by small group discussions on recommendations for resolving problems with the current definition, and presentations of each small group's final recommendations.

Representatives of Headquarters closed the meeting by reviewing some of the recurring themes, problems and issues, and thanking the States for their ideas.

Meeting Summary for the Definition of Solid Waste

Meeting II: States

Group A

Thursday A.M.
First Small Group Session - Discussion of the Issues

The facilitator asked the group members to identify important issues related to the definition of solid waste and the current regulatory program. Group members were asked to identify issues pertinent to the overall program and to each participant's state program and to provide specific examples when appropriate.

Many of the group agreed that the complexity of the current regulations is a major problem. Several participants felt that the complexity of the regulations restrict the states' ability to consistently implement and enforce them. One participant explained that the complexity of the regulations combined with high staff turnover rates in state offices limit the ability of state technical staff to recognize violations. Furthermore, enforcement difficulties are encountered because court judges are having difficulty understanding the rules and, possibly as a result are rendering unfavorable decisions. Many state representatives felt that the complex Federal regulations cause "creative" interpretation by all involved parties. Several participants expressed concern that decisions being made at Headquarters concerning interpretation of the regulations are not being transferred to the states but are instead documented only in internal memoranda or letters to industry. They agreed that this lack of documented interpretations is causing inconsistency in Federal and state program implementation.

Many participants were concerned about the differences between individual state programs and between state programs and the Federal program. Several participants agreed that inconsistent regulatory definitions of solid waste between states are causing problems with interstate transportation of hazardous wastes. One participant noted that in one state, wastes not subject to the federal program but that are regulated in that state only are being shipped to bordering states. Some of the surrounding states have reacted by passing legislation stating that if a waste is hazardous in the exporting state, it will be considered a hazardous waste in the state accepting the waste. This type of hazardous waste management leads to difficulties because of the need to identify the state of origin. Many of the group members agreed that there needs to be national consistency.

One group member noted that EPA must make it clear whether or not the Agency is going to encourage states to have their own programs. Although the current statute encourages states to assume responsibility for the Subtitle C program and to tailor it to the needs of the state, states often must defend their program's differences. Several participants felt that EPA must work in partnership with the states to resolve the problems associated with a dual program.

Participants agreed that the state authorization process needs to be streamlined so that states can become authorized in a more timely manner. One participant suggested that the overall state program be examined rather than evaluating each and every component of the program individually to decrease the length of time for the authorization process.

Several group members felt that the current regulatory system is inconsistent in its designation of solid wastes. One participant felt that broadening the definition of solid waste (i.e., eliminating the exemptions) would reduce the problem. States have encountered many problems implementing and enforcing the current piecemeal regulations.

One participant questioned the legitimacy of exempting soil contamination from underground storage tanks (USTs) (i.e., from the Toxicity Characteristic final rule) and at the same time regulating other surface spills and contaminated media which may be less hazardous. Several participants agreed that some wastes that are currently listed do not pose a substantial threat to human health or the environment. Participants also agreed that some wastes are more or less hazardous than others. Participants consented that this puts some recyclers at a disadvantage because all recyclers must meet the same requirements. One participant suggested that a de minimis rule be developed for listed wastes and for wastes that fall under the mixture and derived-from rules. This would allow waste-derived products that are below certain concentration levels to be exempt from Subtitle C regulation. Several participants suggested that a risk-based management scheme be developed. Another participant agreed and suggested that perhaps the entire regulatory system needs to be revamped so that a risk-based management program can be instituted.

One participant explained that one state has a characteristic-based system for hazardous waste determination. Recycling is regulated although there are a few very specific exemptions. Because the state found that industry was attempting to stretch the exemptions, the state implemented several fixes. Exempt facilities must now prove that their operations are "safe and effective" and show evidence that they qualify for the exclusion, and generators must meet generator requirements and show that secondary materials have gone to a legitimate recycler.

Several participants felt that much of the program's complexity is caused by inflexibilities in the Federal system. One participant reasoned that the inflexibility is due to the current mentality that all hazardous wastes are equal. Participants agreed that the absence of a credible Subtitle D program also increases the pressure to categorize wastes as hazardous. One participant suggested that the Agency needs to look toward waste-specific management requirements as a solution. The participant explained that in one state flexibility is a key component of their solid waste management system. A continuum of management requirements are used, including permit-by-rule to variances, depending on the potential hazards posed by the particular waste and management practice to human health and the environment.

The group also discussed the economics of recycling. Participants agreed that regulating hazardous waste recycling is problematic because it covers a wide range of economic situations. One participant suggested that a less burdensome alternative to the full Part B permit program would more successfully deal with the wide range of economic situations of recyclers. There was a general consensus that the current permitting program is too costly and discourages many potential recyclers from operating.

Participants agreed that a better definition of legitimate recycling is needed as well as a clearer determination of when a recycled material is a "recycled material" as opposed to a "waste." The group generally agreed that some types of hazardous waste recycling need to be regulated, and disposal should not be encouraged.

One participant felt that a better definition of how to manage used oil is necessary. The group discussed the current regulatory status of used oil management. The group determined that it is difficult to interpret the current regulatory program for a characteristic-only waste.

The group also discussed enforcement issues related to the current hazardous waste recycling regulatory system. One participant felt that one of the biggest enforcement issues is burden of proof. Several participants commented that under the current program, the burden of proof often ends up on the state rather than on the generator or recycler. States have found that it is very difficult to obtain and interpret generator/recycler information and financial records. This makes it very difficult for states to establish proof and enforce against violators.

Several participants noted issues that they felt should be considered in changing the current regulatory scheme. One participant mentioned that the regulatory scope should not be broadened without increasing the amount of resources allocated to

the program. Another participant added that any improvements must be balanced against disruption to the current regulatory system. The participant acknowledged that if changes were to be made, they should be made quickly to minimize disruption. Another participant argued that the issues surrounding the definition are very complicated and urged EPA not to act rashly. Several participants agreed that the implications for current state programs and state program flexibility must be considered in making changes to the Federal program. Participants also agreed that possible effects on Subtitle D should be evaluated. In addition, participants agreed a new program must create incentives for pollution prevention to prevent inter-media transfer of wastes and to encourage recycling.

The group then reviewed the issues they had discussed throughout the morning and identified the five of greatest concern. These are:

- The differences between individual state programs and between state programs and the Federal program
- Lack of good definitions for "recycling" and "recycled materials"
- The complexities of the Federal program
- The inability to apply a hierarchy of waste management options to the current program
- The lack of flexibility in the Federal program and the lack of a credible Subtitle D program (both force creative interpretation and cause implementation and enforcement problems).

The group presented these issues to the full group.

Thursday P.M.
Second Small Group Session - Discussion of Theories

The facilitator suggested that the group choose the three issues that they felt were most important and discuss each one in greater depth and then discuss the three theories presented by OSW in the initial presentation for defining solid waste. The group felt that they had given enough attention to the issues in the morning session and agreed that the three theories were based on the existing system and therefore none of the three would eliminate the problems they saw in the current program. The group elected to spend the session discussing how they would like to see the program change.

Discussion of Changes to Current Program

One participant suggested that the first step in the regulatory program should be to identify those secondary materials that are hazardous to human health and the environment when recycled. The second step should be to determine what management practices for the identified secondary materials need to be regulated. One participant commented that such an approach would be advantageous because it is risk-based rather than based on the regulatory status of the material or the process. Participants agreed that this approach would then eliminate the need to make the distinction between a waste and a product and to determine when a material becomes a waste. One state representative noted that making this distinction is one of their state's biggest problems. For example, the municipal solid waste incinerators in one state are mixing their fly ash with their bottom ash in a quench tank to dilute the fly ash which tends to have higher levels of metals. These facilities can get away with this because EPA has determined that the ash is not a waste until it reaches the bottom of the tank.

The group agreed to set up a system for identifying and regulating solid waste and illustrate how the system would eliminate the problems with which the current regulatory program is faced. Initially, the group agreed that the first step would be to determine those materials that are wastes and to develop separate requirements for solid and hazardous wastes. One participant argued that distinguishing wastes from products was not a black and white issue. The group agreed and determined that they would identify all materials that should be regulated rather than identify only wastes for regulation.

One participant questioned whether remediation wastes would be separate from hazardous wastes under a new materials regulatory program. Several participants responded that if management requirements were risk-based, this determination would be unnecessary. The group then agreed that the second step under the new program would be to devise alternate management approaches for categories of materials based on risk. One participant noted that in a risk-based system the requirements that a facility must comply with should be determined by the management operation and the risk that the material poses. The group discussed how materials that are currently regulated under other statutes (e.g., TSCA, FIFRA) would be treated under a new materials-based program.

The group agreed that this scheme would eliminate RCRA and institute a hazardous materials hierarchy. Participants questioned their ability to convince legislators that the regulatory program needed to be revamped.

The group discussed how materials would be ranked. The group determined that hazardous materials would be scored on several parameters including ignitability; toxicity (acute and chronic), persistence in the environment, and bioaccumulation; carcinogenicity (teratogenecity, mutagenicity); corrosivity; reactivity; and quantity. The total score would then define the management requirements for a given activity. Scores would be grouped into hazard level categories to determine relative risk and to set appropriate management standards.

One participant developed a sample matrix for matching hazard levels with management requirements:

Hazard Level	Storage	Reporting	Transportation	Land Disposal	Processing
1 (High)	strict criteria and labelling	high-level, detailed	manifest, licensed hauler	no land disposal	TSD Permit
2					Permit-by-rule
3			shipping papers, commercial vehicles		
4 (low)	non-standard container	on-site record-keeping only	no tracking, common vehicles		Non-permitted

One group member asked whether EPA, the states, or the generator/recycler would determine a material's score. One representative explained that in their state (which has a similar program for hazardous materials), facilities are responsible for registering all hazardous substances.

An EPA representative asked the group if we might want to give recycling a regulatory break. One participant responded that recyclers should not get a regulatory break but perhaps a tax break. One participant questioned the status of production wastes in this system. One state representative responded that the state has regulations based on processes.

The facilitator asked the group if they saw any problems with the system and if the system would require excessive testing. The group responded that "knowledge of waste" could still apply and

therefore testing requirements would not be overly burdensome. Group members agreed that this system would be less complex than the current program. For example, the need for mixture and derived from rules would be eliminated. However, the group agreed that a common set of practices probably could not be developed for a given material because of the large number of processes to which the material could be subject.

The group decided that the permitting process would require some type of risk reduction plan. This plan would have to be completed by all hazardous materials "handlers." One participant questioned how a "handler" accepting a number of materials of varying hazard levels would operate his facility. Participants suggested that the facility could institute various levels of protection for a given process. For example, several levels of storage could be implemented to accommodate high to low risk materials.

Group members generally agreed that this system would promote pollution prevention. Incentives would include reduced liability insurance. One participant added that this system would promote standardization. Group members agreed that states would have the authority to implement more stringent requirements where appropriate. One participant commented that the system did not necessarily have to solve every problem. The participant suggested that states will still have enforcement problems although they would be somewhat different because the problems caused by the current exemptions would be eliminated.

Although some group members felt that a comprehensive risk-based management system could work, other members remained unconvinced.

Friday A.M.
Third Small Group Session - Discussion of Solutions

The facilitator asked the group to come up with specific recommendations to improve the definition of solid waste and the current regulatory program. The group developed a list of recommendations. Through further discussion, the group combined many of their recommendations. These are briefly summarized below.

- Develop clear and concise criteria for state authorization and eliminate capability review. Implement automatic authorization for new programs after a state has received base or HSWA authorization.

- Remove all current exemptions applicable to recycled solid waste that meet the criteria of hazardous waste. De-emphasize exemptions and concentrate on regulating secondary materials.

- Develop a mechanism to allow states to adopt less stringent regulations for recycling when justified by low risk.

- Implement a continuum of permitting approaches based upon risk, allowing permit-by-rule where applicable. Use risk analysis to determine use of permit-by-rule.

- Replace existing RCRA system with a new national hazardous materials management program which prescribes different levels of regulatory control based upon environmental risks. Examine existing progressive state programs as examples for improving the current Federal program. Promote new legislative language for the new act.

- Simplify the current regulatory structure, (e.g., do not distinguish between listed and characteristic hazardous wastes) and develop regulatory language that can be interpreted without a preamble.

- Develop clearer definitions and provide guidance on regulatory interpretations. Clearly define when storage begins at a recycling facility.

- Establish a public education campaign to inform the private sector of the program complexities EPA and the states are handling.

- Define legitimate recycling. Develop procedure/program for distinguishing between legitimate and sham recycling.

- Issue guidance on how to handle differences between state programs.

- Consistently apply corrective action to contaminated media program-wide and across programs (RCRA, CERCLA, etc.).

- Make burden of proof proactive for those facilities that claim they are subject to less stringent requirements. Require notification/certification prior to operation.

- Issue guidance for the interstate transport and manifesting of state regulated hazardous wastes.

- Develop minimum education/training requirements for recycling facilities and on-site recyclers.

The group's top five recommendations included eliminating RCRA and instituting a hazardous materials management act; removing all exemptions from the definition of solid waste; clarifying current statutory and regulatory language; removing the distinction between listed and characteristic hazardous waste; and improving the regulation of recycling by clearly defining legitimate recycling, allowing a continuum of regulation based on risk, and requiring certification for operation.

The group summarized these specific recommendations to the large group.

Meeting Summary for the Definition of Solid Waste

Meeting II: States

Group B

Thursday, November 29, 1990, A.M.
First Small Group Session - Discussion of Issues

The facilitator asked the group to spend a few minutes identifying issues they feel are important pertaining to the definition of solid waste. The following issues were identified by the group:

1) Economic considerations raised by OMB play a significant a role in EPA decisions, and this may conflict with protecting human health and the environment. This is true despite the fact that recycling is driven by economics.

2) Cement kilns pose a significant recycling issue. They raise two issues, energy recovery (clearly defined under present rules) and materials recovery (not clearly defined). There is also a separate issue of ash disposal.

3) The definition is too complex. The present rules are stretched and interpreted (e.g., mixture rule, derived-from rule, contained-in policy) to promote beneficial recycling, while regulating problematic or sham recycling. They are difficult to understand and enforce.

4) The present regulations impose different requirements upon secondary materials depending upon their use, even though they contain essentially the same constituents. For instance, one hazardous waste can be treated and landfilled, treated and delisted, sent for materials recovery, or recycled as a useful commercial product.

5) Identifying legitimate recycling is difficult. How can states document legitimate recycling - an example was given where in the process of reclaiming a portion of a bay, lead oxide was being hauled off, transferred to a broker, and reclaimed. The state had a difficult time documenting whether the recycling process was legitimate. While concentration-based regulation offers a possible solution, this approach may deter legitimate recycling because it may subject recycling to full Subtitle C regulation.

6) The goals of strict regulation under RCRA and pollution prevention are not always consistent. RCRA regulates residuals such that many are not reused to the extent they

could be. This points out a need for a waste/product distinction.

7) There is a lack of comprehensive and understandable definitions of solid and hazardous waste. The states cannot define what a waste is, or identify exactly how wastes (or secondary materials) should be regulated, and therefore they suffer a credibility problem when they have to enforce or apply their rules.

8) The lack of clear definition causes a substantial drain on state resources. Training people to understand the rules takes 2-3 years. Neither the regulated community nor the courts understand the definition, and as a result implementation, monitoring and enforcement take much longer than necessary and are less effective.

9) An adequate level of regulation is not achieved in many cases. For example, one state has had tremendous difficulty (5 year effort) completing an enforcement action against a firm that stores large amounts of waste-derived product on the ground. The state does not believe the court understands why this is not legitimate recycling. A second example concerned contamination from batteries, where ground-water at a landfill contained lead. In addition, many organic wastes are not regulated at all. The state believes they are in court contesting trivial issues (e.g., is a particular act placement on the ground), while significant problems are allowed to continue.

10) The source reduction component of pollution prevention should not be discouraged by relaxing the recycling regulations. Waste should be defined broadly, and regulated according to risk. There should be incentives for both recycling and source reduction.

11) Regulations should focus on wastes and management practices that pose the highest risks.

12) The complexity of the definition eliminates RCRA's effectiveness as a preventative statute. The courts do not understand the issues presented and often cannot render sound decisions. The issue of sham recycling is also significant, where people take anything and make anything to avoid the regulations. Also, few staff fully understand the definition.

13) It is difficult to explain how to identify solid or hazardous waste to a judge or jury.

14) An example of the rules creating disincentives is where oil patch production facilities are recovering residuals.

Sludge from this is now hazardous under the TC; however, production facilities remain exempt and can dump the material under the Bevill exclusion. Thus, the rules encourage disposal over reclamation.

15) States are sometimes forced to regulate units under RCRA where they would be better regulated under other statutes. For example, in one state, lagoons at facilities are not subject to NPDES requirements. Where these are a problem, the state must enforce against these units under RCRA. This focus on insignificant violations is not efficient.

16) It is important to encourage hazardous and solid waste recycling in any regulatory scheme. A lot of solid waste is managed at hazardous waste recycling facilities, and the recycling of this waste should not be discouraged.

17) Regional cooperation is important to promote recycling. Federal rules should promote consistency and regional cooperation. Regulations, including procurement rules, affect regional marketability.

18) There is a need to create markets for recycled materials, and eliminate subsidies for virgin materials.

19) Some hazardous waste is exempt from regulation, while some "nonhazardous" hazardous waste is regulated.

20) Where recycling starts and ends must be better defined. Storage also should be clearly defined. The definitions are too complex.

21) The present rules only address those facilities that voluntarily comply with the rules. We need a system to check those facilities that are not aware they are subject to regulation and those that simply have not complied (although regulating the latter group is quite difficult).

22) Sometimes the Subtitle D personnel must determine the status of a waste, and they are not well trained to do so. An example is a soil burner that was not considered to be hazardous - the Subtitle D staff believed the issue should be addressed by the hazardous waste staff.

23) To find out what is going on in the area of hazardous waste recycling a notification system should be developed.

24) The concept of <u>de minimis</u> is necessary to determine when a waste is no longer of regulatory concern. This would create a clear standard for what is, and what is not, regulated.

25) The definition needs more detail to clearly define complex situations (e.g., storage, spent materials). An example of a judge ruling that a battery was not spent because it was not "contaminated" was cited.

26) From an enforcement perspective, the complexity of the definition makes it very hard to win enforcement actions, and cause a substantial drain on resources when actions are pursued. Large companies have the staff, know-how, and money to find loopholes and litigate to exploit them. The courts are not in a position to help us.

27) An example was cited of contamination from a tank followed by remediation. Under the TC rule, the contamination is not necessarily regulated, but once remediation occurs the waste material is subject to Subtitle C. There does not appear to be any logical basis for regulating these situations differently.

28) Under the land disposal restriction program, wastes are regulated differently because they are characteristic. This is inconsistent.

29) Recycling is treatment that may or may not be better than normal treatment. Source reduction is preferable.

30) How to evaluate hazardous constituents in products. At what point is recycling not beneficial, and how do recycled products compare to virgin products.

The facilitator asked the group which of these issues were the most important.

1) Product standards are necessary for products made from recycled materials, and information must be made available to those who use the products. An example is waste-derived fertilizer. If farmers knew what is in the fertilizer they use, they might not buy it. They want the valuable constituents such as zinc, but do not always know about the other constituents that may be present in some waste formulations and go "along for the ride."

2) The regulation of cement kilns. One state has four cement kilns that recycle a large amount of hazardous waste. The state needs some assurance that hazardous constituents are not emitted in a manner where they pose a risk.

3) The issue of what is in the system, and what is out is important. This has to do with definitions, objective criteria, and to some extent, general complexity.

4) "Black box" recyclers should have to demonstrate they are legitimate, and not sham operations. They should have the burden of proof, not the agencies.

5) The burden of proving violations of the current definition bogs down the state agencies. Only notifiers and reported cases are pursued. Those who are not regulated (by their own determination) are not pursued. This has to do with the lack of clarity and the overall complexity of the definition.

6) Potentially inconsistent regulation of waste-derived cement from cement kilns, but not the waste (cement dust is subject to Bevill exclusions).

7) Aggregate kilns and the issue of sham recycling is a concern.

8) Standards for recycling processes and products take a long time to develop. Although generic or group standards could be developed, these also require the investment of time and resources.

9) Should recycling require a permit? If so, what kind (full, reduced, other) of permit?

The group discussed these issues and agreed that the concerns of complexity, defining who is in the system, how to regulate products, the utility and form of permits for recycling, and the need for something like the de minimis rule, were the central issues to improving the definition.

One state pointed out that they require resource recovery certifications from recyclers, which provides the state with information on what the facilities are doing.

LUNCH

Thursday P.M.
Continue Small Group Discussions

Following lunch, the small group discussed some of the issues raised in the morning session.

One participant suggested that the recent Science Advisory Board report on the direction of EPA programs should be used as a model to identify priorities in the area of recycling. This participant asked if the present definition is based on risks posed by specific materials and recycling technologies. A group member responded that while it is important to consider risk, we do not want to kill incentives to recycle. Another noted that a

comprehensive rule could be developed that was just as effective as a risk-based rule.

The issue of inter-media transfer of pollutants was raised. This was viewed as a problem for case-by-case applications of the rules.

Someone reiterated that source reduction should be a higher priority than recycling, although both are important.

The question was raised what is environmentally sound recycling? What practices or technologies does this encompass?

The issue of recycling facilities competing with treatment facilities was posed, since each may be regulated quite differently. Some wastes, management, or technologies may pose more risk than others. It is difficult to make the rules for recycling consistent with those for RCRA TSDs. Beneficial recycling is desirable, but only where it is safe. And to what extent must we be consistent with RCRA rules that are now established to protect health and environment?

The point was made that present regulations subsidize certain activities. It is very difficult to consider all of the risk associated with certain recycling activities, and thus, risk based rules may not be the best. It was added that RCRA is not equipped to evaluate individual recycling activities, and thus increased focus should be placed on pollution prevention. One response was that environmental protection is the goal, and we need to develop specific solutions if this exercise (e.g., the meeting) is going to be meaningful.

One participant noted that their state charges fees for generating hazardous waste, and that recycling and pollution prevention should be addressed separately.

Another asked where in the recycling process are problems posed? Where should we focus regulation?

Several members noted that where waste is taxed, there is an incentive for commercial facilities to recycle or source reduce. They noted that one approach for determining legitimate recycling is establishing specifications, such as those for energy recovery. Operations that do not meet specifications would be regulated (e.g., incineration).

Another state representative indicated they want the right to regulate any type of recycling activity, without having to rely on a risk assessment. Some effects are not well understood, such as constituent interactions and total loadings, so the state would like latitude to respond to perceived problems.

The idea of risk assessment was clarified to indicate that it could be done generally (e.g., generic rules), by identifying the wastes that comprise the largest volume of those recycled, or specifically, perhaps on a case-specific basis. Under a general approach, appropriate controls would be developed for specific wastes, thus specifically focusing a regulatory program on the most problematic wastes and processes.

One participant pointed out that the volume of waste we are aware of does not represent the amount of waste generated. The main problem this state faces is the amount of waste generated and possibly recycled that the state never knows about. In response to this, it was suggested that all recyclers be required to notify the state of their activities.

One member suggested regulating the inputs to recycling processes rather than the products from the processes.

Three or four state representatives indicated that they had authority to require facilities to perform waste reduction audits. This would provide information on recycling.

One participant suggested using a class permit based on some objective criteria to regulate recycling activities. Criteria for sham recycling also need to be developed.

One member stated that any regulations should preserve the value of secondary materials, so that there is an economic incentive to manage them well.

The point was raised that many recyclers do not know what they are getting for feedstock, or what is in their product. An example was given of metal-bearing sludge that contained chlorinated solvents. As regulators, the group generally agreed that all types of constituents are in the wastes that are recycled.

One participant suggested that rules could require generators to test their waste and provide information on its contents to recyclers. Another added that their state imposes a system where once a toxic is generated the generator must document the fate of the waste.

The facilitator asked the group if they wanted to discuss significant state problems. The group preferred to continue their discussion of issues and solutions.

Several comments were made suggesting an approach where waste subject to regulation is clearly defined, and requirements are developed to regulate these operations.

One participant noted that the present exemption for use as an ingredient in a manufacturing operation is abused by sham operations, and that in this sense the present definition is not adequate.

Another participant pointed out that under the present framework spent materials are always a waste when recycled, but that other materials are not wastes when recycled.

The point was made that in the present system waste appears and disappears at different points in the recycling life-cycle. This makes it difficult to know the regulatory status of a material. It was suggested that once a hazardous waste is generated, it should remain a hazardous waste until it is recycled into a product. Another group member noted that this may discourage recycling.

One participant suggested that we use economics to define legitimate recycling. Any recycling operation should operate at the same cost (or less) as a facility using virgin material. This gets at the issue of a valid substitute material versus a subsidized substitute material. This should work because generally it takes more energy to reuse a hazardous material.

Wastes that are used as substitute raw materials are a problem, and should not be totally out of the system. Solvents that are directly reused should be in the system until reused. Others felt that since it is generally beneficial when materials are directly reused without regulation, we should continue the current practice and provide a disincentive to generating waste (regulate waste/ do not regulate direct reuse).

It was suggested that some form of permit-by-rule (PBR) could be used to regulate recycling operations. Under this approach we would have to develop standards, establish jurisdiction, determine enforceability, and deal with the issue of corrective action.

One participant asked if we care how secondary materials are directly reused. Does direct reuse pose environmental problems? Or should we focus more on the recycling processes?

Another member asked if it is direct reuse if a recycler charges to accept the material. They noted that the recycler may be legitimate, but that the generator may not be. An example was posed of the waste oil containing other contaminants such as chlorinated solvents. It was felt that this type of improper mixing is going to happen, and that therefore either a generator should be required to test his or her waste, or the material should be regulated as a waste until it is actually recycled. It was also noted that we do not regulate recycling processes.

One participant suggested that using PBR would be akin to a conditional exemption; so long as the material was managed in compliance with certain requirements, the facility would not require a full Part B permit. This approach ensures environmental protection, while exempting the recycler from the burdensome portion of the Subtitle C system.

One participant suggested that we establish requirements for recycling all types of materials.

Another suggested that a secondary material be considered a product when it goes on-site of a recycler. Up to that point it is regulated as a solid waste. This eliminates the disappearing points for wastes in RCRA (e.g., RCRA glasses problem) and makes authority to enforce clearer. Further, when the material gets to the recycler, reduced regulation is an incentive to recycle.

A participant suggested that in-place, on-site reuse should exist. This might also include on-site reclamation in this setting. The other direct reuse situations addressed in the case law would also be exempted. An economic test could be used to determine what is a product versus a waste, and some conditional compliance scheme would serve to impose appropriate requirements on regulated recycling.

It was pointed out that some recycling is beneficial, and some is not, and the group has not identified how to distinguish between the two.

The group discussed using performance standards to impose requirements on recyclers. Such standards would not be prescriptive, yet would ensure adequate protection of health and environment. Group members suggested that such standards should be as specific as possible. It was noted that when a product is produced it is difficult to prove jurisdiction (sham and derived-from issues). Also, the recycling process may require regulation as well. An approach such as PBR only addresses certain problems (not product). Certain limits also should be placed on how some waste is recycled.

One participant suggested that we should look at listings and characteristics, and ask if recycling particular wastes is beneficial.

It was noted that recycling is evolving, and that at the federal level it is best to use general performance standards. Any prescriptive criteria will limit the development of new recycling technologies. Others felt that criteria or standards must be specific if they are to be implemented effectively.

One state representative suggested that EPA should identify those specific recycling processes that are legitimate, and that we

should only focus on major waste categories. The requirements of Part 266 are a start in this direction. It was also suggested that all recyclers be required to notify their state or EPA of their activity, and that each be evaluated on a site specific basis. The group recognized that this imposes a significant burden on the regulating authority.

The group discussed if wastes would ever be out of the system (not subject to RCRA jurisdiction) or if they would only be subject to reduced requirements.

It was noted that certain wastes, such as F006, seem to make up a large percentage of the decisions the agencies have to make (one estimate was 90%). One state suggested that wastes such as these should receive priority attention in determining what recycling is beneficial, and what requirements should apply. This approach would help states relieve the most problematic cases first, and reduce the expenditure of substantial resources. Another response was that it would still take EPA a long time to examine all recycling technologies.

The facilitator asked the group to focus on plausible solutions.

One participant suggested an approach where all hazardous waste is in the system until it is recycled into a product. This approach would include standards for the recycling process itself. The issues of sham recycling and what constitutes a product remain problematic in this approach.

One state representative brought up an example where a process was not sham recycling, but was incomplete recycling, such as where material is sent off-site for completion of the recycling process. Sometimes this involves export overseas. One response was that just because a secondary material is sent to someone, doesn't mean it is a product. Another participant added that according to EPA guidance F006 recycling (metals recovery) is not completed until the waste is smelted. So a situation of partially re-processing a material (e.g., decanting, precipitating, drying, and other preparation of the material followed by export for final recycling) followed by export appears to be the unregulated export of a hazardous waste. (Editors Note: Wastes which are partially reclaimed but which require further reclamation are wastes unless granted a variance.)

One state representative raised an issue of existing statutory authority not being adequately used by EPA or the states, and by default a lot of issues falling within RCRA jurisdiction. It was suggested that recycling problems be identified, and the appropriate statutory authority be identified and used to address them.

Friday Morning
Summary of Thursday Small Group Discussion

The group identified complexity as the primary problem with the present definition. They used the example of "RCRA glasses" and waste appearing (being regulated) and disappearing (going unregulated) without apparent rhyme or reason.

The group suggested that once a waste is generated it should be regulated as a waste until it is recycled, reused, or reclaimed. They would use reduced requirements (PBR) to impose the proper amount of regulation, while maintaining as much incentive to recycle as possible. The question of corrective action was not resolved, and is recognized as an issue. The group would look at products from the standpoint of are they legitimate (in the process sham recycling), do they pose a risk to human health and the environment, and would regulation eliminate beneficial recycling (can we maintain incentives to recycle). Product legitimacy would be evaluated based on one of two approaches: (1) use performance-based standards to ensure that a product is safe and useful; or (2) use a quantitative analysis where the cost of recycling would not be any higher than using virgin material (assuming zero cost of feedstocks to purchaser). Further, some recycling processes that result in major impacts would be specifically identified and regulated (possibly prohibited).

U and P wastes would be regulated without concern for the present sole active ingredient requirement (now states need to know the source of these wastes - although they cause a problem regardless of where they came from).

One participant noted that preambles do not help states implement the rules. States rely on rules, not preambles. Further, preambles are not law, and are not useful as evidence in court. Many states do not use preambles at all, only rules, and therefore the rules themselves must be complete and clear. Also, guidance does not give the states additional leverage if the rules are vague and unenforceable. In addition, guidance is not always available to the regulated community and sometimes even the states have problems obtaining guidance.

The definition must be simplified. Exemptions must be eliminated. Waste should be regulated until it is recycled. We should use generic permit standards for management requirements, waive corrective action requirements (if corrective action truly poses a significant disincentive to recycling), and define a product according to the existence of a market or an agreement to purchase the product. One group member noted that selling a product does ensure that it is a legitimate product; health standards may be needed for waste-derived products.

One member added that it is difficult to make decisions on a case-by-case basis. A possible solution would be to use a general regulatory scheme, with flexibility to make case-by-case decisions where they are needed. Another member agreed that case-by-case evaluation is too burdensome.

A participant observed that the need for reducing complexity and the idea of evaluating recycling on a case-by-case basis are not consistent. The same participant suggested that we let the market take care of product standards. We could require contract agreements to be in place and use these to ensure markets for waste-derived products. Where there is a contract in place, the recycling would be allowed as legitimate. Then use regulatory standards to make sure the recycling process itself is safe (produces a safe product).

Another participant reiterated that the best approach is to develop standards for recycling high priority (based on volume, risk, etc.) wastes. No standards that address hazardous constituents presently exist for concrete and fertilizer. EPA should specify BDAT-type standards for waste-derived products. We should know what happens to the hazardous constituents when they are recycled and remain in products. One member noted that BDAT-type standards may be too difficult to develop.

One member suggested that industrial furnaces should have to undergo trial burns, or some demonstration to prove they are clean. Class permits or standards are a possibility. Standards should address all emissions from recycling processes. It was reiterated that waste-derived products may meet product standards but still contain hazardous waste constituents (the standards don't address hazardous constituents). One suggestion was to use performance standards in combination with specific BDAT standards. With good performance standards, we would not need to develop quantitative standards.

One participant added that if waste fuel meets a specification and is used for energy recovery, it should be considered recycling. If not, it should be considered treatment.

A participant suggested that we should be regulating emissions of hazardous constituents. Another member responded by asking why then do we use Subtitle C to regulate recycling, why not regulate emissions of these constituents in all situations (e.g., production)?

It was noted that the marketplace doesn't address the disposal cost of hazardous waste (the fact that a recycler is paid something less than full disposal cost to take waste, and the recycler doesn't pay for virgin feedstock).

The group generally agreed that waste-derived products should have some sort of standards (some participants felt that this could be addressed at other stages in the recycling process). This is particularly true when the buyer of the product is not in a position to know of the content of the product. One option is to put the burden on the recycler to show that the product is not dangerous. Another suggestion was to require generators to provide information on what is in their waste, so the recycler is aware, and can make the purchaser or consumer aware of the product's content. Providing generator information also allows recyclers to structure their process so that the product is as safe as possible (e.g., better quality product).

Another approach was suggested that entails establishing a performance standard that would require all hazardous constituents to be necessary in any waste-derived product (prohibiting a product from containing any hazardous constituents that are not an essential part of the product). Or we could examine the fate of hazardous constituents in waste-derived products. Perhaps this would require setting standards for recycling processes. It was reiterated that waste-derived products may meet product standards but still contain hazardous waste constituents (the standards don't address hazardous constituents). One suggestion was to use performance standards in combination with specific BDAT standards. With good performance standards, we would not need to develop quantitative standards.

One participant added that if waste fuel meets a specification and is used for energy recovery, it should be considered recycling. If not, it should be considered treatment. Another participant suggested that we should be regulating emissions of hazardous constituents. Another member responded by asking why then do we use Subtitle C to regulate recycling, why not regulate emissions of these constituents in all situations (e.g., production)?

One suggested solution included: performance standards; fate tracking by facility; notification by all recyclers; and documenting the profitability of the operation. A member said that tracking the fate of constituents is impossible; at least impracticable. And that evaluating the validity of documentation involves a substantial leap of faith and is also quite involved. Nominal standards (clearly showing a material is either a solid waste or product, and imposing storage standards) would be better to solve the waste-derived product situation.

One participant suggested that it important in any approach to give states flexibility to determine priorities. They also raised the question of how to address recycling residuals.

One participant noted that the problem with performance standards is ensuring compliance, since they are generally self-implementing. How much monitoring or demonstration should be required where such standards are used?

It was noted that people argue with the states over simple matters (e.g., what is "on the ground" - sealer, road material on sand, etc.). States need clear rules and definitions to avoid the arguments.

It was noted that recycling is sometimes done solely to avoid treatment regulations. The fact that they are regulated differently raises an issue of equity.

Hazardous waste recycling is subsidized by the present regulations. An example is that cement kilns burning hazardous waste as fuels make more money from taking waste than from producing cement. The LDR rules drive waste to cement kilns. One participant suggested that it is better to burn than to landfill. Another added that the Burners and Industrial Furnaces (BIF) rules will address cement kilns.

The group agreed that the market for recycled products is important; both maintaining it to encourage recycling and using it to control the quality of products. It was noted that there is not always a market for recycled materials, sometimes materials are given away.

One participant noted that EPA and the Department of Energy (DOE) are undertaking an effort to develop standards for materials or products. Agencies and states can help determine what standards should be developed.

Another participant noted that PBR exists for wastewater treatment units, and it allows them to escape RCRA requirements. They emphasized that the current PBR provisions are based on compliance with permit requirements under some other statute. A question was raised concerning whether a regulatory program could be structured to function like PBR for recycling facilities (conditional compliance with self-implementing requirements)? The present PBR Underground Injection Control (UIC) (UIC wells, and Publicly-Owned Treatment Works (POTWs); §270.60) framework imposes corrective action requirements. This is viewed by some as a reduced Subtitle C permit. A question was raised about whether applying PBR to recycling facilities would require a statutory change.

A participant suggested that interim status (Part A) requirements could be used as a form of reduced permit requirements for recycling facilities. It was suggested that public hearings should be required for licensing recycling facilities. Other members suggested that the key is to avoid imposing Part B-like

requirements on those involved with hazardous waste recycling. EPA should develop management standards that focus on emissions and disposal-like practices. One member noted that any proposal that does not require permits for certain practices relaxes the requirements for recycling, and that he was not comfortable with this. The participant thus favored the current approach with respect to permitting.

One state noted that they required hazardous waste facilities to submit resource recovery certifications. They also suggested that EPA should develop a continuum of regulation, ranging from little regulation for certain on-site practices, to strict regulation for practices closer to waste treatment and disposal. EPA also should develop criteria (e.g., volume, toxicity, carcinogenicity, etc.) for deciding if permit requirements (or other regulatory requirements) should apply.

The facilitator asked the group if they could fix one thing in the current definition, what would it be?

One participant stated that they would require more public notice, would use PBR to permit recycling facilities handling waste not regulated now, and would permit recycling facilities through the use of some form of a reuse permit.

Another participant indicated that the Part B requirements are the primary problem in the current system. The same participant suggested that the approach set out in Part 266 (specific requirements for recycling various materials) is a better approach. It was also pointed out that if we continue to require permit requirements for storage, it can be argued that the recycling processes have the same need for regulation. It was noted that the permit system needs to be streamlined, and that perhaps recycling processes should be evaluated to determine if they need permits.

One participant added that in some states public participation is required to obtain a local land use permit to build a facility. Another added that recyclers shop for states with reduced requirements.

One participant indicated that storage permits should remain, and that a reuse permit or PBR should be developed for wastes out of the system now. In addition, full notification should be required, as should corrective action, and public hearings to the extent they do not unduly burden the process. One participant added that recyclers fear corrective action requirements for all solid waste management units.

The facilitator then asked the group to generate a list of suggested changes to the present definition:

1) Reduce the length of preambles; put the significant provisions in the rules.

2) Develop management standards for different types of recycling (e.g., Part 266); do not require full permits for recyclers.

3) Do not exempt wastes from regulation until they are recycled into a product.

4) Require notification for recycling/reuse to EPA/states. Regulate generators and transporters under present rules; develop recycling performance standards; require a viable market, and ensure that products are safe.

5) Reduce the complexity of the definition so that it is more defensible. Clarify sham and legitimate recycling. Create incentives to recycle.

6) Examine using an economic value test to ensure recycling is legitimate.

7) Do not impose the present system on non-hazardous wastes.

8) Eliminate U and P waste limits.

9) Identify problem wastes; develop BDAT standards for problem wastes; develop management practices for all recycling; require class permits for recyclers; issue corrective action permits for problem SWMUs.

10) Regulate all waste; do not exempt waste that is recycled.

11) Develop product specifications for waste-derived products.

12) Regulate hazardous constituents regardless of source; define when a by-product is generated and when it becomes a new product.

13) Clarify all definitions.

14) Use and reuse should remain unregulated.

Meeting Summary for the Definition of Solid Waste

Meeting II: States

Group C

Thursday A.M.
First Small Group Session - Discussion of Issues

The facilitator asked each participant to list the most important, specific issues/problems that surround the current definition of solid waste. While the answers were being written, one participant asked where EPA was going with the definition, and what the next steps would be. An EPA representative answered that one issue is in the process of being settled, and that is the K061 issue. EPA will be issuing a regulation pertaining to that topic. The EPA representative mentioned that there was a lot of flux in the Agency at this point, and that the EPA is dealing with a lot of issues. The participant asked about plans for the next 6 months. The EPA representative responded that the RIS represents an Agency commitment to do something with the definition. One objective is simplification, but there are other objectives.

In response to the facilitator's first request to list the most important issues needing to be resolved, the participants came up with many issues.

Several participants mentioned that Subtitle C permits were a disincentive to recycling. Two participants suggested that recycling facilities need TSD-like standards without the permits. The "new" standards would include some design standards, recordkeeping, manifests, training and closure requirements. One participant suggested permit-by-rule procedures. Another mentioned that new recycling standards should be implemented on the basis of risk posed by the particular recycling process.

One participant mentioned that some companies are discouraged from recycling because of the permit issue. These companies have new technologies for recycling of certain materials, but are discouraged from accepting the materials for recycling because a storage permit is needed. This participant recommended a "take-back" exemption from the regulations for manufacturers who sell products/chemicals and then are willing to take the materials back and recycle them.

One participant mentioned that the stigma of being called a "hazardous waste" sometimes discourages recycling. The hurdle of getting a permit (for storage) or the hurdle of attempting to get the variances listed in Section 260.30 was too much for the recyclers/waste exchanges. One participant mentioned that

regulated used oil, for example, would discourage the recycling process.

Two participants believed, however, that permits for recyclers are needed. They believe that a permit is good for the public image of the facility.

Participants mentioned that the regulations were too broad, too vague, and provided lots of loopholes. In addition, the regulations are too complicated. One example of a loophole is the domestic sewage exclusion, which is viewed by some people as a provision to dump almost anything down the sewer.

Several participants thought that the definitions related to the definition of solid waste were much too vague. In addition, some participants felt that the terms should be re-examined to determine if they are still appropriate and are still needed at this point in time. The definition of spent material received considerable attention. One participant stated that it is not clear under the current definition of "spent material" whether, when a material is spent for one purpose (but still can be used as is for another purpose), it may be used for another purpose without being subject to RCRA regulation.

For example, when a spent solvent is returned to a manufacturer for use as an ingredient in primer, is this a hazardous waste or still a useful material? Participants also agreed that the definition of "recycling" should be changed. For example, define "legitimate" recycling in the regulations. Include a requirement that states what percentage of the waste should be recycled in order for the recycling to be considered legitimate.

Other terms that participants requested to have re-defined are "closed-loop recycling," "by-product," and "co-product."

One participant mentioned that the variances in Section 260.30 were too involved, and too narrow. These should be broadened to allow more facilities to receive these exemptions.

One participant mentioned that siting facilities that require a permit is a problem due to the cost and time involved in the current permitting process.

Another participant stated that there is an unfair discrepancy between the regulation of wastes and the regulation of virgin materials. The recyclers of wastes are at a disadvantage due to the regulatory burden. This participant saw many spills of virgin materials on the roadway that caused environmental damage, and felt that something like a manifest for virgin "hazardous materials" might help the transporters operate more responsibly.

One participant stated that hazardous waste recyclers should be required to recycle all the hazardous constituents in the waste. For example, some aluminum smelters produce K088. This K088 can be reused in the mineral wool production process where the fluoride in the K088 is used as flux, and the waste provides heat value. The commenter was uncertain as to whether or not the cyanide in the waste could be destroyed in the process of reusing the waste. This participant believed that the process should be able to destroy the cyanide (hazardous constituent) for the process to be exempt from regulation.

Another issue mentioned was the need for more information on recycling facilities, even before the Agency decides to impose more or less regulation on them. For example, a notification form for recycling facilities that would be submitted to the states would help significantly, in improving accountability and documentation of each facility's activities.

Another participant stated that the value of recyclable materials needs to be considered in the regulations. Many people in the regulated community have difficulty understanding why something is considered a waste if another person pays the generator for that material.

The group facilitator then asked the participants to vote for their three priority issues. (Four top issues were finally chosen). The most important issues were:

- Improved definitions are needed.
- Unfair differential between regulations for wastes and regulations for virgin materials, when risk involved in managing both is virtually the same.
- Subtitle C permit is a disincentive to recycling of hazardous wastes.
- Value of a "waste" is not considered in the current recycling regulations.

Thursday P.M.
Continue First Small Group Session - Discussion of Issues

After lunch, the group continued the discussion of issues related to the current definition. Basically, the group "fleshed out" the top four issues.

The first issue regarding definitions was further discussed. Members of the group brought up the term "transfer facility," remarking that it should be more clearly defined. In addition, and related to that definition was the term "storage."

Participants stated that the definition of storage was very unclear, especially regarding the amount of time involved. For example, trucks hauling waste pull up to a TSD and either off-load right away or remain unloaded for periods ranging from 12 to 48 hours. As of this time, EPA HQ has not made a consistent policy on the subject. Any regulatory change in the definition of storage, to settle the time issue, would be more favored than a policy statement.

One participant interjected a comment on the issue of policy statements. The participant commented that it is impossible for states to regulate and more importantly enforce, based on policy. The commenter requested that important definitional changes be placed in the regulations.

Additional definitions that the group suggested should be altered included "commercial chemical product." The discussion then went into the frustration at the lack of regulatory power over indefinitely stored chemical products. For example, if a facility has a warehouse storing unused chemicals, stored in drums which are leaking, RCRA still has no jurisdiction over those. Perhaps a storage time limit should be imposed. Participants disagreed on the imposition of a time limit for storage of products, since some chemicals may be of value to a recycler in a year to two, based on fluctuating markets. This led to another discussion of a "materials" regulatory scheme, rather than a separate waste/product regulatory scheme.

The next definitions discussed were "use/reuse" and "recycling." One participant stated that some of the regulated community believes that even if only some of the hazardous constituents in a secondary material are reused, the material is not a waste, while others believe that all of the hazardous constituents in a secondary material must be reused for that material not to be identified as a waste. This concept involves both the definition of use/reuse and recycling.

When asked by an EPA representative if the regulated community should be allowed to recycle a material where only some of the constituents are reused, one participant responded with a "yes." The participant stated that reuse of only some constituents can be legitimate recycling. The other constituents that weren't recycled should be "accounted for" by the recycler. For example, if the recycler could separate the other hazardous constituents that weren't recycled during the recycling process, then make a determination as to whether these residuals were hazardous waste or not, and then manage them appropriately, the facility should not be a sham recycler. Sham recycling would be the addition of constituents to products where the constituents do not provide a necessary ingredient.

Another participant stated that there are sham situations, for example, where wastewater was used as a substitute for water, and where contaminated water and soil was used in the production of bricks. The same participant remarked that many of these facilities do a small amount of legitimate recycling and an extensive amount of sham recycling. Another person added that some people in the regulated community call stoddard solvents a type of "used oil." This participant stated that if the definitions of "recycling" and of "used oil" were improved, these difficult (sham) situations would not arise.

The discussion then revolved around other definitions needing improvement, such as "satellite accumulation" and "by-product." This turned into a discussion about what waste to count, as a generator. It was brought up that as soon as a hazardous waste was generated, no matter how you store it, it should be included in the monthly count. One person commented that the definition of by-product should be clarified. In addition, the commenters wondered why characteristic by-products that are recycled are exempt from being a solid waste. An EPA representative explained (EPA's historical reasoning) that they were exempt because the process of recycling them may be too similar to a production process, and therefore, EPA felt they did not have the jurisdiction to regulate them absent a case-by-case analysis such as the listing process.

The discussion proceeded to the second most important issue chosen by the group. This issue was the differential between the regulations for wastes and the regulations for virgin materials. One participant had seen instances where product chemicals were stored in warehouses and were leaking. The same participant advocated regulation of these chemicals. Another participant knew of a plant that sent waste sulfuric acid off-site for recycling. This plant was a generator under the auspices of RCRA, and presented few, if any, problems. On the other hand, there was another facility sending virgin hazardous materials (sulfuric acid and caustics) to a paper mill. There have been many problems stemming from the transportation of these virgin materials. There is less incentive for the transporter of the hazardous chemicals to be cautious than for the transporter of hazardous waste. The transporter of hazardous chemicals/ materials has no fee (the state requires that transporters of hazardous waste pay a fee), no manifest to complete, but they pose the same risk as the waste and should be regulated as the waste transporter is regulated. These virgin materials are regulated by other laws, but not to the same extent. The participant summed up by asking how a "level playing field" could be created, between wastes and materials regulation, in the context of Subtitle C.

One state representative mentioned that there was an abandoned asphalt plant in the state that left 4,500 drums of chemicals

(ingredients in asphalt) in storage. The drums were leaking. (It was not clear from the participant's comments whether the drums were located outside the buildings or not.) The participant agreed that abandoned chemicals should be regulated in some way, especially if causing environmental harm.

Two participants mentioned that there are regulations in their states that require corrective action when virgin chemicals are spilled, and cause environmental damage, specifically, ground-water contamination. One state has an amendment to its statute which states, "Waste is not deemed to be recycled (i.e., a product) until it has been sold." This is interpreted to mean that after hazardous waste has been recycled into a product, that product's storage will be regulated until it is sold, or, basically, taken off-site. The recycler of that product will have to follow the tank or container storage standards that are followed for hazardous waste management.

The discussion then proceeded to the third most important issue, that a Subtitle C permit created a disincentive to recycling. The group, almost unanimously, thought that a system of regulation, slightly less than full Subtitle C was preferred, for hazardous waste recycling. One participant mentioned that it was important to continue to impose management standards on recyclers of hazardous waste, but not to impose a permit. This participant mentioned that a lot of problems stem from used oil recyclers (i.e., spills). The same participant suggested a system for recycling facilities that involved no permit, but compliance with the following: waste analysis, notification, manifest, record-keeping, personnel training, contingency plans, emergency procedures and tank standards. Another group member commented that recyclers may terminate their businesses because a state may impose a permit on them.

Another participant commented that a state had a 4-tiered approach for recyclers of solid waste. This approach involved a permit program, a modified permit program, conditionally exempt facilities, and exempt facilities (such as tire recappers, asphalt recapping plants and paper boxboard manufacturers). A different participant mentioned that another state issues a permit in 90 days for "special waste" recyclers, which includes recyclers of industrial waste and some hazardous waste. Recycling facilities in the state consist mostly of oil recyclers, solvent recyclers, and etchant recyclers. Yet another participant commented that his/her state had a 3-tiered approach; a permit-by-rule, a registered permit-by-rule, and performance standards (for air emissions, water contamination and access control). One group member mentioned that his/her state <u>cannot</u> be more stringent than the Federal regulations, by order of state statute. One participant stated that some states can adopt regulation by reference, but some cannot.

The group then moved on to the fourth most important issue, which was the economic value of waste. The group members disagreed on the importance of the "value" of a material. Some participants believed that the value of waste should be considered in the determination of whether or not a secondary material is a waste. One person claimed that the January 4, 1985 rule talked around the issue of the value of a secondary material, so it's something EPA should consider. One group member commented that if a historical market was present for a particular secondary material, EPA could determine that the risk of a sham recycling situation is low, since there would be an established technology in place. These types of recyclers could go without permits. Another participant commented that if the regulatory agency makes it easy to recycle, then people will recycle. Others in the group had opposing opinions. Some felt that the economic value is not something that should be an issue in the regulatory structure, because the values of secondary materials are constantly changing. In addition, others felt that the materials that are recycled the most (have the most value) are the materials that are spilled the most. Materials will be spilled whether or not they have value.

One member mentioned that their state had a program that requires establishments that sell oil to take it back, after it is used.

The group then went on to discuss their goals for the definition of solid waste. The goal of "protecting human health and the environment" was agreed upon as one of the most important goals of EPA and the states. Subsequently, the group discussed the goals of "pollution prevention" and "recycling" simultaneously. (Pollution prevention was a goal that the group added and which did not appear on EPA's list of goals.) The members were wrestling with prioritizing the two goals and they hypothesized about whether the two goals could co-exist. One person commented that the goal of pollution prevention does not have much to do with the definition of solid waste. Another participant responded that the regulations for the definition of solid waste will affect whether or not people are encouraged to reduce their waste streams. We should make it easier to recycle for those recycling processes that pose less risk. We can still promote pollution prevention for other wastes. One participant responded that if recycling is encouraged by making it a less expensive endeavor than waste disposal, pollution prevention will no longer be the priority.

The discussion then turned toward financial incentives for encouraging (the goal of) "recycling." It was pointed out that some states have policies or regulations that create financial disincentives to dispose of waste (i.e., taxes) or financial incentives to encourage recycling. One person asked if the state and Federal agencies should encourage the recycling of lead in batteries or encourage the manufacturers not to use lead in the

production of batteries. Another group member responded that both pollution prevention and recycling could be encouraged by "front-end" techniques (maybe a tax) and "back-end" techniques (fees for disposal). However, it is important to remove the economic and regulatory barriers to recycling that preclude some businesses from initiating hazardous waste recycling, as well as implement incentives for recycling. One participant commented that disincentives to recycling are: 1) the upfront capital needed to start a facility, 2) the uncertainty caused by changing regulations, and 3) the unwillingness to put the virgin materials people out of business.

The next goal discussed was "clearly define jurisdiction." One group member stated that it would be much appreciated if the regulations were more clearly stated, not necessarily simpler.

The next goal discussed was brought up by a group member, and was in addition to the EPA goals already set. One member suggested that "promoting the economy" (consistent with all the other goals mentioned) should be a goal of the definition of solid waste regulations. One participant responded with a slightly different viewpoint, that companies that recycle will succeed anyway, because of a good public image; it may not be necessary for the EPA to actively promote businesses. Others in the group generally agreed that the goal of promoting the economy was important, however, it should be reworded to say: "EPA should try not to hamper business." Most of the group felt it was not EPA's job to directly promote the economy. A modified approach (that EPA should encourage industries if it is entirely consistent with their goals) was more acceptable to the group. For example, one person commented that if an industry is made smaller because we're recycling more, that is fine. Another commenter said that EPA should favor certain industries (such as those that reuse secondary materials) over others.

The final goal mentioned was also an addition to EPA's list. This goal was "preservation of natural resources." Most of the group agreed that this is important.

The next discussion dealt with the three theories on the definition of solid waste. The facilitator asked three members of the group to represent (role play) each of the three theories, whether they actually believed in the theory or not. Actual discussion of the theories among all the participants ensued.

<u>Role Play</u>:

Theory 1: I believe that certain secondary materials that are recycled should never enter the realm of "hazardous wastes." Look at closed-loop recycling. There is no health risk posed. Look at the reuse of certain materials where they are viable substitutes for

products. Look at the RCRA statute which tells EPA to encourage recycling.

Theory 2: Recycling is only one step in the whole waste management system. There's always some residual waste that poses some risk.

Theory 1: Aren't you sending a conflicting message by regulating recycling and creating a disincentive to recycling?

Theory 2: No, it's not a conflicting message and it's not ambiguous.

Theory 1: Why regulate waste management as a separate entity? Why not as a commercial product?

Theory 2: Products and wastes do pose some of the same risks. That's why when a product is recycled, it should be called waste management. It would be clear-cut, everything would be a waste whether recycled or disposed.

Theory 3: Some is, some isn't. The government can create different regulatory schemes or levels for different types of waste management. The burden should still be on the generator to determine if what he/she has is a waste.

At this point in time, the entire group joined in the discussion. One person pointed out the economic incentives/disincentives problem. Since the economic incentives sometimes fail, there may need to be regulatory incentives (such as the lack of regulation). For example, it may be cheaper to recycle hazardous waste as an ingredient in a product than to dispose of the waste. However, the recycling of the waste into the production process may be more expensive than using a virgin material (feedstock).

Another advocate for decreased regulatory control over recyclers stated that if the recyclers get away with little if any regulation, then there would be 90% "good" recyclers and 10% "bad" actors. If recyclers are regulated, you'll end up with much more waste disposed, i.e., close to 100% of the waste may be disposed. Yet another advocate for decreased regulatory control over recyclers said that recycling in itself is a good practice. Let's focus on the fraction of the waste that is not recycled, but disposed.

A voice of opposition came from the group, stating that all waste sent off-site for recycling should be manifested. In addition, 90% of the time, a generator has to pay a waste handler to take the waste to be recycled, i.e., the generator is not paid for the waste/commodity.

Friday A.M.
Third Small Group Session - Developing Solutions

The facilitator asked the group to take a few minutes to pretend that they were the Administrator of EPA and develop specific changes they would make to the current definition of solid waste in an attempt to improve it. Changes could be of a regulatory, policy, or statutory nature.

The group came up with 25 changes. Afterwards, they were grouped into three different categories.

Statutory Changes:

- Eliminate "waste" and go toward "materials" controls.
- Use "materials" controls, but have graduations of regulations based on risk posed by the material.
- Establish a tiered permit approach based on the risk presented by the recycling process.
- Establish a National Materials Policy related to natural resources preservation and protection of human health and the environment.
- Create regulations that make it easier to recycle on-site. Create a separate set of regulations for off-site recyclers, with no permit requirement.
- Have the Federal government create a minimum regulatory framework, and allow states to create the remainder of the program.
- Identify the worst hazardous constituents that are being used as ingredients in products and attempt to find less hazardous substitutes for those constituents (Toxics Reduction).
- Consider placing most hazardous waste recycling under Subtitle D rather than Subtitle C.
- Require facilities to create Risk Reduction Plans. These would be standards for the best management practices for each material.
- Exempt all materials to be recycled from the definition of solid waste if all materials are accounted for (i.e., recycled or caught in a residue to be handled properly, according to current regulations). Require recordkeeping and reporting.

Regulatory Changes:

- Require permits for all off-site recycling facilities.
- Redefine "recycling" to include only reclamation where there is no release of hazardous constituents in the accumulation, recycling, or end use of the product. Materials recycled in this manner would not be considered wastes.
- Eliminate the "sole active ingredient" qualification for P and U-listed wastes.
- Re-examine the exclusions from the definition of solid waste.
- Target certain wastestreams and encourage recycling for those. Base priorities for recycling on risk presented by the recycling process (i.e., low risk process would be encouraged).
- Call everything that will be recycled or discarded a solid waste.
- Redefine most terms currently used in the definition of solid waste regulations.
- Eliminate the definition of spent material.
- Create regulations with a strong incentive for recycling.
- Expand the criteria for defining a characteristic hazardous waste to include the new characteristics of chronic toxicity, carcinogenicity, and persistence in the environment.
- Amend (clarify) the definition of speculative accumulation.

Policy Changes:

- If making policy, issue it in the Federal Register where it is available for all.
- Conduct a major public education campaign to alert the public and the regulated community regarding recycling of hazardous wastes (in order to encourage more recycling).
- Review and study the European approach to waste management.

- Reaffirm the need to protect the environment.

The facilitator then placed the above recommendations into four groups:

1) Definitions

2) Permit Reform

3) Regulatory Framework - Materials Management vs. Waste Management, a Risk-Based Approach

4) Other Recommendations

The participants then split into four "subgroups" and refined the suggestions. They produced a summary of suggested changes to the definition of solid waste, for each category.

Summarized Suggestions for Change:

1) Definitions:

- Change the definition of "recycling" to "a material that is used, reused, or reclaimed in a process that does not allow unpermitted releases of hazardous constituents into the environment during accumulation, the recycling process itself, or its end use as a product." (Any material meeting this criteria would not be deemed a "waste.")

- Eliminate the definition of "spent material."

- When counting waste, a generator need not include materials that are recycled as in the new definition of "recycling."

- "Discarded" should not include materials that are recycled.

2) Permit Reform:

- Off-site recycling facilities should be regulated in the same manner that TSD's are regulated.

- With regard to on-site recycling, there should be no regulation of intermediate product (by-product) handling, where the by-product is reintroduced into the production process. In addition, there should be no regulation of materials returned to the manufacturer for reprocessing ("takebacks").

- The level of regulation for off-site recycling facilities should correspond to the level of risk posed by the recycling process. The facility itself would be required to prove that the risks that are posed by the facility are either high, medium or low, for example. Perhaps an expedited permit process or less stringent regulations could be imposed, based on risk.

- Permit-by-rule was considered.

3) <u>Regulatory Framework - Waste Management vs. Materials Management, a Risk-Based Approach</u>:

- A basic overriding principle must be established, which is: a National Materials Policy that provides for natural resource protection and protection of human health and the environment (a multi-media approach).

- Materials and wastes should be managed equivalently, based on risk and hazard.

- Set priorities for those materials that need to be regulated.

- Create categories for the regulation of materials and wastes based on the degree of hazard and risk.

- Decrease the level of regulatory control as the risk and hazard is reduced.

- Require the regulated community to develop facility plans on how to reduce the risk from products and wastes. Include source reduction in the plans.

4) <u>Other Recommendations</u>:

I. Outreach-

- Educate the regulated community through unbiased personnel. Assure confidentiality.

- States and EPA should create public education units, including a youth movement for education on hazardous waste recycling.

- Encourage the public to encourage companies to source reduce/recycle.

- Take a PROACTIVE stance.

II. Policy-

- Place policy changes in the Federal Register where they are available to all.

- Implement policy through permits and enforcement, and ultimately through state and Federal rules (through the omnibus authority for permits).

III. Study-

- Send a contingent of state and Federal personnel to overseas points (Europe, Japan, etc.) to observe and generate ideas about waste management (look at foreign successes and failures).

- Research; keep an open mind, research innovative technologies, remove some barriers to recycling.

- Research the regulations and preamble to clarify the Agency's basis and purpose for the regulations.

State Meeting
Definition of Solid Waste

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Definition of Solid Waste

Meeting with Environmental Group Representatives

December 20, 1990

A meeting was held with several representatives of national environmental organizations on December 20, 1990. The meeting was conducted as a follow-up to the Interest Group meeting held in Richmond on December 5-7 to address concerns expressed by many participants at the Richmond meeting that environmental groups were under-represented at that meeting.

The group was asked to discuss its views on regulating of waste-derived products. A representative of an environmental group asked if the Agency would be looking at waste-derived products beyond those that are applied to the land. An EPA representative answered that it is an open issue right now and that the Agency had not yet made such a determination. Another EPA official asked whether the person who posed the question was concerned with sham recycling issues. The environmental group representative responded that although sham recycling is the concern right now, waste-derived products must be considered more generically so that similar problems do not arise with other "products." Another national environmental group representative commented that, although it would not be the participant's first priority, some sort of delisting process for waste-derived products might be designed to remove the regulatory stigma for "safe" products. It was suggested that a more generic and streamlined approach might be developed along the lines of evaluating materials based on constituent concentration levels in the end product. An environmental group representative suggested that the Agency could use the same specifications for recycled products that they currently use for products made from virgin materials. Two environmental organization representatives agreed that this process would ensure that the risks associated with virgin and recycled products were identical. One representative of an environmental group mentioned that at the Richmond meeting, one of the discussion groups generally agreed that it would be plausible to have product specifications for reclaimed products to guarantee that the risks associated with recycled products and virgin products are similar.

Another environmental group representative commented that EPA must avoid allowing waste-derived products to become merely alternative disposal options for hazardous wastes. The same representative added that the organization the participant represented has discussed this with industry and that industry understands that, absent any control, cement could become a sink for large quantities of heavy metals. Industry representatives have indicated to the environmental organization that they want to assist in eliminating such practices.

An EPA representative commented that it seemed that one of the biggest issues associated with waste-derived products is the stigma issue, where waste-derived products are labeled hazardous wastes. One attendee suggested that, under the proposed regulatory alternative, once a material met product specifications, it would not have to be labeled a waste-derived product any longer. The same participant added that the tricky part would be determining what constituents need to be addressed in the product specifications.

An EPA representative asked whether there was reason to believe that we need to regulate everything right now, from aluminum cans to cement. An environmental group representative said that the organization the participant represented does not expect aluminum cans to have hazardous constituents and that there are already industry standards for aluminum.

An EPA official stated that it is one thing to have an industry-recommended specification and another to have an EPA specification that is enforceable within a regulatory program. One attendee suggested that an easy start could be to examine those commonly recycled products where what is being recycled is essentially the same as the virgin material. No other constituents are used beyond those used in the production of the virgin-material product. Then the next step could be where feedstock or ingredient substitutes that have been contaminated by other constituents are examined. The same participant added that, alternatively, if industry is concerned with stigma, the Agency could put the burden on industry to show that their "products" should not be considered hazardous wastes. Stigma may be a small price to pay to ensure a material is safe.

An EPA representative questioned if adequate product standards currently exist for virgin products, would it be okay to compare recycled materials against virgin materials. One meeting attendee suggested that for some materials, such as used aluminum beverage cans, an industry-wide standard is in place and is probably adequate. However, problems come in developing product specifications for materials that may encompass a wide variety of formulations, such as aggregates. Furthermore, EPA must guard against someone bringing in the world's dirtiest virgin aggregate to get a low standard set for recycled aggregates. The same participant suggested that a percentile standard could be set which would say that overall, waste-derived products are no less safe than virgin products.

Another EPA representative commented that most materials do not have product specifications, and it will be very rare that there will be enough data available to do a percent analysis for all waste-derived products. An environmental group representative asked if the Agency has a sense of how many different waste-derived products exist and would it be possible to develop

general categories for waste-derived products. The EPA representative replied that there are not too many products applied to the land, but there are well-established secondary materials industries, including the secondary smelting industry, secondary aluminum industry, and solvent reclaimers.

Another participant reiterated that the stigma problem did not seem that real. An EPA official reminded the group that a convincing argument can be made that the stigma of the proposed listing of used oil had a significant impact on the rerefining industry. Further, another EPA official suggested that if certain sectors of industry are using a hazardous waste and others are not, the virgin-material users may use the hazardous waste label against their competitors. While some sympathy was expressed about the stigma issue, one environmental group representative who initially raised the issue mentioned that when the discussion group the participant was in at the Richmond meeting discussed the stigma issue, in some cases, it came down to industry not wanting Subtitle C permitting and corrective action. The stigma issue may be used by industry in some cases to say "I do not want to be regulated under Subtitle C." Several agreed that stigma cannot stand alone as a reason for relief from regulation.

An EPA official asked the group if they had any reactions to the suggestion that a separate subtitle for hazardous waste recycling and secondary materials and/or some sort of permitting or corrective action relief be established. One environmental group representative commented that the group in which the representative had participated in Richmond had probably gone the furthest in suggesting that RCRA jurisdiction be extended to include all secondary materials, and the participant felt that this was a step in the right direction. A primary concern regarding this approach was the length of time it would take to address the hazardous waste recycling issues with a separate subtitle. The participant continued that, although sympathetic to the Agency's workload problems, it would be more practical to have Subtitle C apply to all secondary materials and then provide the Agency with authority to remove certain requirements for certain secondary materials. Another attendee agreed that broadening the jurisdiction of Subtitle C would be more effective than establishing a separate subtitle for secondary materials and would give the Agency more control. If a separate subtitle was developed, many facilities would attempt to get out of Subtitle C.

An environmental group representative added that some of the things that industry wants may not be environmentally sound, such as relief from corrective action. Several meeting participants noted that what industry seemed to want was relief from facility-wide corrective action. An EPA representative commented that the corrective action issue is the same issue for recyclers as it is

for everyone else. One attendee noted that it did not appear that anyone at either the meeting in Richmond or the meeting in Annapolis [Note: a separate meeting on RCRA Reauthorization] objected to EPA having cleanup authority.

An EPA official asked the group what they thought about class permitting for hazardous waste recycling facilities. One participant noted that while the organization the participant represented had "sort of" supported it in the Luken RCRA Reauthorization Bill, there may be a lot of problems with detailing the specifics. As a concept, two environmental group representatives agreed that they were not opposed to it, but that the specifics needed work.

An EPA representative asked the participants to comment on the public involvement aspect of class permitting. One environmental group representative responded that there must be some type of public involvement. The participant added that class permitting makes sense for more standardized facilities. Another EPA official asked whether the environmental groups would be comfortable having standardized answers for standardized questions from the public. An EPA official asked if when permitting is applied on a site-specific basis, whether or not public comment would be necessary for each facility.

An EPA official suggested that for the recycler the big question is whether recycling can begin without a permit. Because corrective action requirements are incorporated as conditions of the permit, this issue is complicated. Another EPA official stated that the Agency must have the authority to abandon a class permitting system for an individual permit regime if the former is unsuccessful in protecting human health and the environment.

An EPA official explained that the 1985 used oil management standards proposal was the only time in the RCRA program when the Agency proposed a comprehensive permit-by-rule program and that it was the Agency's best attempt at an enforceable permit-by-rule system. One environmental group representative added that in order to have meaningful dialogue we need to begin to look at a specific proposal and to evaluate the kinds of facilities that would be eligible for class permitting or permit-by-rule.

An EPA official noted that participants seemed to be concerned with a deviation from Subtitle C and the absence of precedents in dealing with something new. One participant added that if the Agency uses the pre-existing program as a base and takes away or modifies the negative aspects, there need not be a period of inactivity while the Agency creates a new subtitle.

An EPA official asked the environmental group representatives to restate their position on Subtitle C corrective action. One environmental group representative commented that something needs

to be done for a lot of different segments of industry. The participant was sympathetic toward those facilities that want to clean up but are waiting for a permit and have been put off because they are not a high-priority site. Furthermore, there may be room to set up a structure by which some of these cleanups can occur without a full permit. Another participant suggested that one solution may be to look at much more aggressive financial assurance for corrective action.

An EPA representative presented a scenario where a steel mill that is presently not in the Subtitle C system has the choice of sending its waste off-site for disposal/recycling or undertaking recycling on-site. A second EPA representative commented that this is a perfect example because some facilities in the steel industry would probably be high on EPA's permitting priority list. Therefore, these facilities are not going to recycle on-site because they know that corrective action is linked to permitting.

Another Agency official noted that the group's discussion, if carried to the extreme, was sounding like Superfund; if it is bad, it has to be cleaned up. The participants agreed. An Agency representative asked the group members if they have thought about how to modify the scope of Subtitle C. One environmental group representative suggested that everything, except products, should be a secondary material, and all secondary materials, potentially, should be regulated under RCRA. When hazardous and disposed, secondary materials should be regulated as hazardous waste. The participant added that a secondary material would be any material that was not a primary product or co-product (i.e., if the material needs to be processed further, it is a secondary material). An EPA representative asked how spent pickle liquor would be treated under this scheme. Pickle liquor is a type of waste that gets sold as a product. For example, it can be used as a wastewater conditioner. It is a traditional secondary material, but it goes to another facility for further processing.

An EPA representative suggested that most chemical intermediates and every drop of gasoline would be caught by this scenario. The environmental group representative who suggested the scheme responded that not many chemical intermediates would be caught because many chemical intermediates are considered products because they can be used in their intermediate form. An EPA representative commented that it would be very difficult to explain why certain materials fell within the definition of solid waste and why others did not. Another EPA official commented that a major issue becomes: do we set up generic rules and then depend on a process by process evaluation for specific requirements.

An EPA representative asked how secondary materials would be regulated under RCRA. Another EPA official suggested that secondary materials could be regulated as hazardous given triggers such as storage on the land. The EPA representative questioned how RCRA would apply to process ingredients.

Another attendee noted that facility owners/operators would not have to worry about whether a material is or is not a secondary material because if the material is hazardous it will be regulated as a hazardous waste. An EPA representative commented that the big question is whether all secondary materials/products should be regulated under RCRA.

An environmental group representative noted that the discussion group the participant was a member of at the Richmond meeting had discussed setting specifications for reuse of secondary materials. The participant added that the Agency had already done some of this already. An EPA official rebutted that, in reality, the Agency does not have a lot of product specifications, and the ones that they do have were very difficult and time-consuming to develop. Another agency official commented that a concern is whether there are large, not-so-diverse subsets for which generic product specifications could be developed, and how many subcategories would be needed.

The environmental group representatives were asked to raise other issues they wished to discuss. One environmental group representative suggested that a product must be defined in such a way that it captures those materials that the AMC is currently arguing about. The participant stated that materials that are stored must be monitored and questioned whether a more stringent time limit should be applied to materials stored on the land. The environmental group representative noted that although there are speculative accumulation requirements, speculative accumulation allows storage for one year, and in any event, the Agency should have management standards in such cases.

An Agency official commented that the group had been trying to narrow the definition by identifying the types of materials and management that should be regulated under RCRA. An environmental group representative stated that if we are talking about changing RCRA's jurisdictional definition to encompass all secondary materials, an argument can be made that it does not matter if you are opposed to expansively defining secondary materials. By expanding the definition of secondary material, the only addition to substantive management standards will be to subject tank storage of secondary materials to the Subtitle C tank standards.

The participants were asked how they felt about conditional exclusions where if you manage a secondary material in a certain way then it is not a waste. One environmental group representative questioned whether the Agency would be able to

exercise their inspection authorities under these cases. The same participant noted that some of the participant's work has highlighted the fact that unless a facility is in the system, there is no way to find out if it ought to be regulated. An EPA representative commented that there is probably some way that you could make the hazardous waste recycling regulations as enforceable as the current generator rules.

An environmental group representative suggested that this approach is similar to the scheme where everything is a secondary material. The problem of having almost everything be a secondary material or derived from a secondary material, and thus the RCRA universe growing exponentially was brought up. It was suggested that in such a case, permitting would be very burdensome on EPA. An EPA representative added that some type of conditional exclusion may help. Another environmental group representative asked how a conditional exclusion would work. An environmental group representative asked if a material would never be considered a waste if a facility stores a material in a tank and the tank meets the applicable standards, or if the facility stores the material in a waste pile and the waste pile meets applicable specifications. Several EPA officials explained that, conceptually, this would be true if it met the conditions of the exclusion, such as if it occurred on-site, met the time limits, and the material went back into the original process. Another EPA representative explained that the benefit of having conditional exemptions for a material versus regulating a material might include partially resolving the stigma issue, the corrective action issue, the level of government intervention, and potentially, the permitting issue.

An EPA representative asked the group what their concerns were with a management-based approach. One environmental group representative responded that if facilities do not do what they say they are doing, and they are not in the system, the facilities may escape regulation. Another participant commented that some concerns would be alleviated by notification requirements.

Group members were asked to highlight any other issues or ideas that the group thought were under-represented at the Richmond meeting. A representative of an environmental group noted that the biggest issue for the participant is that the problem will not be solved by developing a new subtitle for recycling. Another environmental group representative felt that a system (a new subtitle) could not be developed in the next five years. Both participants expressed concern that either such a system would never be developed, or it would never be as detailed and complete as Subtitle C has become.

An environmental group representative noted that there is a general sense in the environmental community that industry is insisting that to have recycling, compromises must be made. The participant believes that it is possible to have recycling without risking environmental damage.

An EPA representative asked the group if there were certain waste streams or industries that they might want to encourage to recycle because their primary production processes are so bad (and therefore the risks associated with disposal of the residuals are high). One participant commented that the organization the participant represented would not support a decision not to regulate hazardous waste recycling because the primary production process is bad.

An EPA official thanked all of the participants for attending the meeting and the meeting was adjourned.

Environmental Group Meeting
Definition of Solid Waste

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RCRA Implementation Study Update

Appendix C

Environmental Damages Caused By Hazardous Waste Recycling Practices

1.0 INTRODUCTION

In 1985, EPA identified in the Final Rule for the Definition of Solid Waste 82 incidents where mismanagement at recycling operations resulted in damage to the environment (50 FR 614 January 4, 1985). Many of the sites in the Appendix to the notice were derived from the Superfund National Priority List (NPL). Since that time, additional sites have been added to the NPL and many still pose a risk to human health and the environment today. The purpose of this document is to present a follow-up to the 1985 list in order to illustrate additional examples where damage has occurred as a result of recycling practices occurring since the 1985 rule. The examples provided in this document are only intended to illustrate that recycling practices have led to environmental damage. It is not intended to be an exhaustive list of such cases. The cases selected for inclusion in this document were selected based on type and dates of operation, and the level of damage to the surrounding environment. The mention of specific company names in this document is for informational purposes only and is not intended to represent an indication of fault or prejudice for one company over another.

2.0 METHODOLOGY AND RESULTS

There is no single source of information that contains a comprehensive listing of damage cases for hazardous waste recycling facilities. The primary source of information used for this document was a review of Superfund data for sites added to the NPL since 1985. The results and methodology used to review this information are outlined below:

The NPL consists of 1,187 sites in the United States with documented releases (or threats of release) of toxic chemicals to the environment warranting remedial action (55 FR 35502 August 30, 1990). Of the total number of sites on the NPL today, 649 sites were added to the list since the January 4, 1985 final rule. For the purposes of this document, all sites added to the NPL since 1985 were reviewed to determine: 1) if they included any on-site recycling operations, and 2) if the damage from these sites could be attributed to mismanagement at the recycling operations. An initial review resulted in a subset of 35 sites.

In many cases it is difficult to determine at what point in time environmental damage occurs on a site. For the purposes of this document, with the exception of catastrophic occurrences such as explosion, fire or flood, damage at a site was assumed to take place over the lifetime of the operation. Since the period of time required for any given site to be listed on the NPL typically extends well beyond the date of final operation, a subsequent review was performed to eliminate all sites not in operation after the January 4, 1985 rule. Environmental damage resulting from each of the 14 remaining sites was reviewed and is summarized in tabular format in Table 1 below.

Table 2: Environmental Damages Caused by Hazardous Waste Recycling Practices Since January 4, 1985

Types of recycling operation, wastes present, damages caused, or hazards posed	Source of information
1. **Alaska Battery Enterprises** (located in Fairbanks, Alaska) - battery parts and acid have been stored on an unpaved lot prior to reclamation of acid and lead. Wash-water, spills and waste water generated on-site were discharged to an on-site septic tank and drain field, and battery parts were buried on-site during operations prior to 1976. Both acid and lead have been found migrating off-site, threatening ground water supplies for 18,000 nearby residents. (CERCLIS ID No. AKD004904215).	Superfund National Priorities List (54 FR 13296 March 31, 1989)
2. **Standard Steel & Metal Salvage Yard (USDOT)** (located in Fairbanks, Alaska) - this site was used by different recyclers of PCB-contaminated electrical transformers, processing of military equipment and drums, and recycling of batteries. High levels of lead and PCBs have been found in ground water, and traces of tetrachloroethylene have also been found potentially threatening a stand-by drinking water supply for over 121,000 people. (CERCLIS ID No. AKD980978787).	Superfund National Priorities List (55 FR 35502 August 30, 1990)
3. **Interstate Lead Co. (ILCO)** (located in Leeds, Alabama) - improper operating and disposal practices at a lead-acid battery recycling facility have resulted in lead and cadmium contamination in ground water, surface water and ambient air in the area. The company has entered into two partial Consent Decrees with EPA to stabilize contamination, and is currently under reorganization under Chapter 11 of the Federal bankruptcy code. (CERCLIS ID No. ALD041906173).	Superfund National Priorities List (51 FR 21054 June 10, 1986)
4. **Lorentz Barrel & Drum Co.** (located in San Jose, California) - damage resulting from spills and overflowing sumps at this drum reconditioning facility is believed to have contributed to levels of trichloroethane, trichloroethylene, 1,1-dichloroethylene, and tetrachloroethylene detected in the ground water at this site. Operations prior to 1984 included discharging wastes directly to sanitary sewer. After 1984, liquid wastes were evaporated, drummed and disposed of as hazardous waste along with incinerator ash, residual liquids and sludges. Inspection at this site revealed soil and ground water contamination with metals, organics and PCBs. Contamination at this site threatens the drinking water supply of over 250,000 people. (CERCLIS ID No. CAD029295706).	Superfund National Priorities List (54 FR 41000 October 4, 1989)
5. **Peak Oil Co./Bay Drum Co.** (located in Tampa, Florida) - Peak Oil re-refined oil and disposed of wastes on-site in an acid sludge pond. Bay Drum Co., operating over the same twenty-year period, recycled drums and disposed of wash water in a holding pond at the site. Both surface water, ground water, sediments and sludges were found to be contaminated with PCBs, pesticides, solvents, and heavy metals. (CERCLIS ID No. FLD004091807).	Superfund National Priorities List (51 FR 21054 June 10, 1986)
6. **Kerr McGee Chemical Corp. (Soda Springs Plant)** (located in Soda Springs, Idaho) - this plant produces vanadium pentoxide from by-product ferrous-phosphate solids generated at the neighboring Monsanto Chemical Co. plant. The operation utilizes on-site ponds to store liquid wastes generated during the production process. On-site ground water monitoring has detected elevated levels of vanadium, arsenic, copper and silver that threatens the drinking water supply of 3,000 people in the area. (CERCLIS ID No. IDD041310707).	Superfund National Priorities List (55 FR 35502 August 30, 1990)

Table 2: Environmental Damages Caused by Hazardous Waste Recycling Practices Since January 4, 1985

Types of recycling operation, wastes present, damages caused, or hazards posed	Source of information
7. **Fort Hartford Coal Co., Inc., Stone Quarry** (located in Olaton, Kentucky) - since 1981 this site has been used to store secondary dross (a byproduct of aluminum recycling) from Barmet Aluminum Corp's smelter in Livia, Kentucky. A state inspection of the area in 1984 detected high levels of ammonia in an unnamed stream that originates in the waste and flows into the Rough River, and in 1986 an EPA inspection detected high levels of ammonia in the area around the storage areas. In 1988, EPA identified areas where the quarry roof had collapsed providing pathways for water to drain into the storage area. Runoff from the site presents a potential threat to the drinking water supply of 700 people in the area. (CERCLIS ID No. KYD980844625).	Superfund National Priorities List (55 FR 35502 August 30, 1990)
8. **H. Brown Co., Inc.** (located in Grand Rapids, Michigan) - this site operated as a facility for reclaiming nonferrous metals from lead and wet-cell batteries. Approximately 457,000 gallons of sulfuric acid containing lead, cadmium, iron, and zinc were poured directly onto the soil during reclaiming operations. This site ceased recycling operations in 1982, however the site continued to collect wastes and sell to other recycling businesses. (CERCLIS ID No. MID017075136).	Superfund National Priorities List (51 FR 21054 June 10, 1986)
9. **Industrial Latex Corp.** (located in Borough of Wellington, New Jersey) - chemical adhesives and natural and synthetic rubber compounds were manufactured at this location. Process wastes were drummed and either stored prior to disposal or buried in unlined trenches. Raw materials for the manufacture of latex adhesives and other rubber compounds were stored in underground storage tanks and waste solvents were stored in an aboveground tank prior to reclamation. Chemical wastes were flushed into an on-site sanitary septic system. Poor operational procedures, in conjunction with on-site waste disposal practices, resulted in widespread contamination of surface and subsurface soil. Toluene, xylene, ethylbenzene, and benzene were detected in soil samples taken during soil removal action in 1986. (CERCLIS ID No. NJD981178411).	Superfund National Priorities List (54 FR 13296 March 31, 1989)
10. **Cal West Metals (USSBA)** (located in Lemitar, New Mexico) - during 1979 to 1981 the company processed approximately 20,000 automobile batteries to recover lead. During 1982 to 1984, the company conducted research and development on various aspects of raw materials recovery and in 1985 reworked the waste piles from the battery recycling operation to recover lead. In an inspection in 1985, the state environmental agency found 300 drums containing lead oxide and sulfuric acid, unrecovered piles of battery pieces, and an evaporation pond on site. Lead, possibly coming from the uncovered waste piles, was detected in soils up to 400 feet downwind of the site. (CERCLIS ID No. NMD097960272).	Superfund National Priorities List (54 FR 13296 March 31, 1989)
11. **Mattiace Petrochemical Co., Inc.** (located in Glen Cove, New York) - this site received chemicals by tank truck for redistribution. M&M Drum Cleaning Co. also operated a drum reconditioning operation at the site. A state inspection revealed that drums containing volatile organic liquids were buried on-site and that waste water generated by the cleaning of drums was being discharged into subsurface leaching pools. Levels of 1,1,1-trichloroethane, ethylbenzene, and xylene were detected on-site in soil and shallow ground water. The property was seized by the state of New York in 1987. Contamination at the site poses threats to 44,000 people that obtain drinking water from wells within three miles of the site, and to tidal wetlands 500 feet from the site. (CERCLIS ID No. NYD000512459).	Superfund National Priorities List (54 FR 13296 March 31, 1989)

Table 2: Environmental Damages Caused by Hazardous Waste Recycling Practices Since January 4, 1985

Types of recycling operation, wastes present, damages caused, or hazards posed	Source of information
12. **Tri-Cities Barrel Co.** (located in Port Crane, New York) - this has been the site of a barrel reconditioning operation since 1955. The reconditioning process involves cleaning the interior of the barrels with sodium hydroxide solution. An incinerator is used at the site for disposal of flammable solids. Until 1980, waste water from the reconditioning was discharged into unlined lagoons and allowed to evaporate. This process has been stopped and waste water is currently stored in a holding tank and hauled off-site for disposal. Ground water on-site is contaminated with PCB-Aroclor 1242 and chlordane, and soil samples have revealed high concentrations of organic compounds. (CERCLIS ID No. NYD980509285).	Superfund National Priorities List (54 FR 41000 October 4, 1989)
13. **MW Manufacturing** (located in Valley Township, Pennsylvania) - copper is recovered from scrap wire on the site using both mechanical and chemical processes. Wastes stored on-site include 400,000 cubic feet of finely divided wire scraps, 50 drums, a 6,000 gallon tank, a 6-acre surface impoundment and a landfill holding 20,000 cubic feet of wastes. Spent chlorinated solvents have also been dumped on-site. Damage from the site consists of high levels of lead in nearby residential drinking water wells. (CERCLIS ID No. PAD980691372).	Superfund National Priorities List (51 FR 21054 June 10, 1986)
14. **Dixie Oil Processors, Inc.** (located in Friendswood, Texas) - this has been the site of several recovery operations, including an olefin washing and copper recovery operation as well as a conversion operation for liquid organic wastes from refining, chemical and petrochemical facilities to creosote, fuel extenders, and other petroleum products. Problems on site include contamination of soil and shallow ground water from storage of copper in barrels and six on-site lagoons, and contamination of a nearby creek from spills from the copper recovery operation. Elevated levels of lead, benzene, toluene, ethylbenzene, and copper have been detected in on-site wells. Contamination from the site threatens the drinking water supply of 140 people who obtain water from shallow public and private wells within three miles of the site. (CERCLIS ID No. TXD089793046).	Superfund National Priorities List (54 FR 41000 October 4, 1989)

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Appendix D

Damages Listed in the January 4, 1985 Final Rule

requirements are now being submitted to OMB for approval.

Lists of Subjects

40 CFR Part 260

Administrative practice and procedure, Hazardous materials, Waste treatment and disposal.

40 CFR Part 261

Hazardous materials, Waste treatment and disposal, Recycling.

40 CFR Part 264

Hazardous materials, Packaging and containers, Reporting requirements, Security measures, Surety bonds, Waste treatment and disposal.

40 CFR Part 265

Hazardous materials, Packaging and containers, Reporting requirements, Security measures, Surety bonds, Waste treatment and disposal, Water supply.

40 CFR Part 266

Hazardous materials.

Dated: December 20, 1984.

Alvin L. Alm,

Acting Administrator.

APPENDIX A.—SUMMARY OF DAMAGE INCIDENTS RESULTING FROM RECYCLING OF HAZARDOUS WASTES

Types of recycling operation, wastes present, damages caused, or hazards posed	Source of information
1. Resolve, Inc. (located in N. Dartmouth, Mass) stored spent solvent distillation bottoms in unlined lagoons prior to reclamation. Substantial groundwater contamination has resulted.	Superfund Interim Priority Site.
2. The Gold Coast Oil Facility (located in Miami) is a solvent and paint thinner reclamation operation. It also obtained drums of other miscellaneous wastes containing phenols, metals and other organic compounds. Nearly 3,000 of these drums have accumulated without their contents being recycled. In addition, still bottoms from the solvent reclamation operation were disposed of improperly. Substantial contamination of a drinking water aquifer has resulted.	Superfund Interim Priority Site.
3. Sapp Battery Salvage (in Jackson County, Florida) recovered lead from spent batteries. Damage to surface and ground water was caused by spillage of acid from the spent batteries, leaching from severed battery casings, and (to a lesser degree) from runoff from batteries stored prior to being recovered.	Superfund Interim Priority Site.
4. Seymour Recycling Corp. (located in Indiana) is an inactive waste recycling and incineration facility which overaccumulated inventory and eventually ceased operation, leaving over 60,000 drums of one-half million gallons of bulk waste. Wastes are toxic ignitable, and corrosive. Ground and surface water contamination resulted, and there also is danger of fire or explosion.	Seymour Recycling Corp. (N.D. Ind.) (RCRA § 7003 action); Superfund Interim Priority Site.
5. A waste processing company (located in New Jersey) operated an oil recycling plant which purchased waste oil for reclamation. Waste oil, some of it PCB contaminated, was stored in unlined settling lagoons. Filter clay from the settling operation was also used to build a road to the site. The site was abandoned, leaving all waste material in place in the unlined lagoons. Contamination of an aquifer used as a public water supply is suspected. (Some damage at the site also resulted from disposal of waste from the reclamation process.)	Superfund Interim Priority Site (known as Burnt Fly Bog).
6. The Chem-Dyne facility (located in Ohio) engaged in reclamation of spent solvents and other organic chemicals. It also blended these wastes and sold the mixture as a fuel. The facility overaccumulated huge amounts of these materials, and also mishandled materials that were processed. Materials present include phenol, naphthalene, polyvinyl chloride distillation waste, paint sludges, ink sludges, vanadium pentoxide, cyanide, methylmercaptan, silicate resins, freon, acetaldehyde, benzyl chloride, cumenes, asbestos, epichlorohydrin, arsenic, toluene diioscyanate, pentachloronitrobenzene, phthalate esters, and plastic and rubber industry resins. Clean-up costs are estimated at $3.5 million. The company presently is in receivership. Hazards posed by this site include human health, contamination of air and surface water, fish kills, noticeable odors, actual fire, explosions, spills and runoff, storm sewer problems, erosion problems, inadequate security, and presence of incompatible wastes.	*U.S. v. Chem-Dyne, Inc.* (§ 7003 and Superfund action); Superfund Interim Priority Site; Hazardous Waste Report; December 14, 1981, p. 15.
7. The Bridgeport Rental and Oil Services site (located in Bridgeport, New Jersey) stored waste oil in an unlined lagoon prior to recycling it. The waste oil is known to be contaminated with benzene, vinyl chloride, methylene chloride, trichlorethylene and toluene. Overflow and leaching from the lagoon has been documented; groundwater used as a human drinking water source from nearby wells is contaminated.	Superfund Interim Priority Site; *U.S. v. Bridgeport Rental and Oil Services* (§ 7003 actions).
8. Chemical Metals Industries (located in Maryland) engaged in the reclamation of precious metals primarily from various electroplating wastes, as well as other spent chemical reprocessing. Most materials were taken pursuant to tolling agreements. Waste materials were accumulated sloppily, resulting in spills of acid and metal-bearing wastes. The facility later was abandoned, leaving over 1,500 drums of unreclaimed wastes, many corroded or leaking. Over $350,000 in federal, state and municipal funds has been expended to date on clean-up.	Superfund Interior Priority Site; Hazardous Waste Report, January 25, 1982, p. 4.
9. The Chemicals and Minerals Reclamation Company (located in Cleveland) acted as a waste broker, receiving flammable organics, solvents, and resins prior to recycling or disposal. A massive fire resulted from unsafe accumulation of these materials. The facility closed after the fire, leaving waste inventory (over 1,500 drums) for clean-up.	*U.S. v. Chemicals and Minerals Reclamation* § 7003 action); Superfund Interim Priority Site.
10. The Midwest Solvent Recovery Company, a solvent reclaimer located in Gary, Indiana, stored spent solvents improperly in drums, tanks, and open pits. These materials were often flammable, in many cases incompatible (acids and cyanides, for example), and were badly overaccumulated. A fire of "tremendous size" (484 F. Supp. at 140) broke out at the reclamation site, and burned for a week before it could be extinguished. The company continued to operate for a number of years after the fire without any change in practice. Soil and groundwater contamination have occurred. A preliminary injunction ordering clean-up was eventually entered in the government's imminent hazard action.	*U.S. Midwest Solvent Recovery Inc.* (§ 7003 action).
11. Solvent Recovery Service (located in Connecticut) obtained a variety of chlorinated solvents for reclamation. These solvents were stored improperly in leaking drums. Wastes were also disposed in a lagoon on the site. Aquifer contamination has resulted and the local drinking water supply has been affected.	*U.S. v. Solvent Recovery Service of New England* (§ 7003 action).
12. Andover Sites (located in Andover, Minn.) are a group of five sites which operated as waste brokers. They accepted metal-bearing wastes, solvents, waste oils, paints, inks, and glues. A recycling market was found for some of this material but a great deal overaccumulated. Some of this material was ultimately dumped or burned improperly. Many drums still remain. Ground and surface water have been contaminated by metals and organic contaminants.	Superfund Interior Priority Site.
13. Fritt Industries (in Walnut Ridge, Arkansas) obtained sulfate and other wastes from generators and used them as an ingredient in fertilizer production. These materials, along with other process ingredients, are stored in large, exposed piles. An enormous fire occurred when the piles of wastes ignited; runoff from water used to fight the fire contaminated soil and surface waters.	Superfund Interim Priority Site.
14. The South Carolina Recycling and Disposal Company was a waste broker accepting volatile organic wastes and waste oils. These materials were accumulated improperly prior to reclamation or disposal. Among the compounds present are solvents, waste oils, acetaldehyde, methyl acetate, cyanuric acid, ethylene chlorohydrin, acetone cyanohydrin, trichloroethylene, mixed acids, sulfuric acid, mercuric oxide yellow, and other caustics and acids. Massive overaccumulation, fire hazard and actual fires, and groundwater contamination near drinking water wells resulted.	*U.S. v. South Carolina Recycling and Disposal Company* (Bluff Roads); (§ 7003 action); Superfund Interim Priority Site.
15. (" " ") accepts steel mill flue dust, pickle liquors, solvents, and acids for regeneration and material recovery. Some of these materials also are used as ingredients in fertilizers. The facility used surface impoundments and piles for storage. These storage facilities were unsecure and leaked heavy metals and chlorinated solvents. The facility also burns waste oil, spent solvents, and solvent distillation bottoms as fuels, creating air pollution problems. A local Air Pollution Control Agency has initiated action against the company to require monitoring of incoming wastes and of boiler flue gas emissions.	*Damages and Threats From Hazardous Material Sites*, EPA/430/9-80/004, p. 251; followup phone conversations with representatives of Ecology and Environment (EPA Superfund contractors); Superfund Interim Priority Site.
16. PCB contaminated waste oil was stored prior to recycling or road application. No market developed and the facility operator was unable to dispose of the contaminated oil. Over 24,000 gallons are accumulated, and the State probably will have to pay disposal costs.	*Damages and Threats From Hazardous Material Sites*, p.103.
17. The Laskin Greenhouse and Waste Oil Co. (located in Jefferson, Ohio) accepted waste oil and spent solvents for storage prior to use as fuels or for road oiling. Millions of gallons accumulated without being recycled, resulting in a substantial hazard. The boilers in which the waste oil was burnt were incapable of destroying the contained contaminants (including PCB's); resulting in air pollution. Approximately $1.7 million has already been expended; additional funds are to be allocated.	*U.S. Laskin Greenhouse and Waste Oil Co.* (§ 7003 action); Hazardous Waste Report, January 25, 1982, pp. 5–6, Superfund Interim Priority Site.
18. This facility (located in Illinois) engaged in petroleum reclamation from waste oil, and also reclaimed metal hydroxide sludges, spent acids and caustics, and miscellaneous sludges. These materials overaccumulated in pits, lagoons, and tanks. PCB's, phenol, and PAH's are found in the waste oil. Chromium, cadmium, and lead are also present; as are benzene, toluene, and trichloroethylene. Leaching and drainage to surface waters has caused extensive damage. Over $300,000 has been spent on clean-up to date.	*U.S. v. A&F Materials Co.* (§ 7003 action) Superfund Interim Priority Site.

APPENDIX A.—SUMMARY OF DAMAGE INCIDENTS RESULTING FROM RECYCLING OF HAZARDOUS WASTES—Continued

Types of recycling operation, wastes present, damages caused, or hazards posed	Source of information
19. This scrap metal reclaimer stored materials destined for reclamation in leaking drums. Some ongoing disposal occurred as well. Paint sludge, 465 resin flux, and miscellaneous oily materials were on hand, contaminating soil and possibly ground and surface water.	*U.S. v. Acme Refining Co.* (§ 7003 action).
20. The site (located in Tennessee) engaged in waste salvage and disposal operations involving improperly drummed and buried materials; most constituents that leaked or spilled appear to be chlorinated solvents, 1,2-Dichloropropane has also been found.	*U.S. v. Automated Industrial Disposal and Salvage Co.* (§ 7003 action).
21. The Dewey-Loeffel, landfill (located in Nassau County, New York) was used in an oil reclamation and storage operation. PCB contaminated oil was stored at the site. Ground and surface water in the vicinity have been found to be contaminated with PCB.	*Damages and Threats from Hazardous Material Sites*, p. 193.
22. (* * *) is a solvent and chemical recovery and waste recycling operation. It also separates out and resells acids, caustics, and poisons. Some on-going disposal occurs as well. Chemicals which have been present at the site include acetone, ether, benzene, ketones, acetaldehyde, aniline, methanol, chlorinated solvents, cyanides, HCl, H_2SO, formic acid, PCBs, beryllium, penthachlorophenol and caustics. The government's complaint alleges that damages and hazards include overaccumulation, improper storage (including unsafe storage in underground bulk storage tanks), mislabelling, fire hazard, soil contamination and possible water contamination. A preliminary injunction has been entered ordering the facility to comply with certain of the interim status standards for storage.	*U.S. v. West* (§ 7003 action).
23. Improper storage of spent solvents by this Ohio solvent recovery operation led to contamination of ground and surface water and air. PCBs, tetrachloroethene, toluene, MEK, and xylene are among the toxicants involved.	*U.S. v. Chemical Recovery Systems* (§ 7003 action).
24. This Indiana scrap metal recovery operation accepted steel drums containing flammable toxic materials. These drums were stored and handled improperly. Substances present include cyanide, asbestos, and paint residues.	*U.S. v. Ken Industries* (§ 7003 action).
25. This Indiana facility engages in solvent reclamation. Disposal of incoming materials and still bottoms also occurred. A large fire was caused by overaccumulation and storage. Compounds present include arsenic, chromium, cadmium, lead, mercury, nickel, selenium, antimony, cyanides, dimethylphenols, phthalate esters, naphthalene, and solvents.	*U.S. v. Fisher-Calo Chemicals and Solvent Corp.* (§ 7003 action).
26. Dioxin-contaminated waste oil was sprayed in horse show arenas, in Missouri, leading to poisoning of exposed individuals and livestock.	EPA Damage Incident Files.
27. Radioactive mining wastes are used as foundation fill for residential dwellings throughout Denver	Superfund Interim Priority Site (known as Denver radium site); also cited in Eckhardt Report).
28. Radioactive mining wastes are used as foundation fill for residential dwellings in Montana	Eckhardt Report.
29. Radioactive phosphate mining wastes are used as foundation fill for residential dwellings in Florida	Background Document 6 to EPA's 1978 proposed regulations.
30. Air pollution from solvent reclamation operations	Subtitle C Environmental Impact Statement, Vol. 11, p. J-1.
31. The American Ecological Recycle Research Corporation (located in Jefferson, Colorado) stores and reclaims solvents, waste oil, and other chemical wastes. Many of these materials are incompatible, including oxidizers and solvents, and cyanides and acids. These materials were stored together haphazardly, often in leaking drums. A large fire gutted portions of the facility, releasing toxic fumes and causing cyanide poisoning of firefighters. A continuing fire hazard and soil and water contamination threat remains.	*U.S. v. American Ecological Recycle Research Corp.* (§ 7003 action).
32. Air, ground water, and surface water contamination resulted from solvent recovery operations in Maryland (including volatilization of solvents from distillation units).	*U.S. v. Spectron, Inc.* (§ 7003 action).
33. Drinking water was contaminated because of improper storage of organic solvents at a reclamation facility	Minnesota State Damage File D2306.
34. The Schuylkill Metals Company (located in Hillsboro County, Florida) reclaims lead from spent batteries. Acid spillage from the battery cracking operations, acid and metal leaching from stored casings, and runoff from piled spent batteries have contaminated ground water in the area.	Interviews with officials of Hillsboro County Environmental Protection Commission.
35. The Chloride Metals Company (located in Tampa) is a secondary lead smelter reclaiming lead from spent batteries. Ground water is contaminated with acid and metals from the battery cracking operation (which recovers lead from smelting), and from runoff from piled casings and spent batteries.	Interviews with officials of Hillsboro County Environmental Protection Commission.
36. Reclamation of tetraethyl lead sludges stored in ponds prior to reclamation. Damage is from air pollution and from fumes in transit	§ 3004 damage incidents, also cited in H.R. Rep 94-1491, pp. 20-21
37. Metal reclamation of "waste stockpiled raw materials." Leachate from these piles contaminated public drinking water supplies with metals, closing a number of wells.	H.R. Rep. 94-1491, p. 18.
38. A company reclaims copper from "industrial wastes"; these materials are stored in cement-lined lagoons. The lagoons cracked contaminating the ground and surface waters.	H.R. Rep. 94-1491, p. 17.
39. The McKin Company (located in Gray, Maine) was used as a transfer station and processing point for contaminated waste oils prior to final shipment to re-refiners. Both waste oil from oil spills and fuel still bottoms are reprocessed. Evidence exists that wastes were spilled at the processing facility and leached into the underlying aquifer. Organic toxicants were eventually identified in ground water, residential drinking wells, and the public water system. The damage appears to be attributable to waste disposal as well as waste oil processing. Specific contaminants found include trichlorethane, trichlorethylene, acetone, xylene, dimethyl sulfide, trimethylsilanol, and alcohols. The state eventually ordered the facility closed.	*Damage and Threats From Hazardous Material Sites*, p. 14.
40. Mercury-containing sludges generated by a number of different companies were sent to a Mexican reclaimer for metal recovery. The wastes were abandoned before they reached Mexico. In most cases, the drummed wastes were unlabelled and unmanifested, so that it is difficult to pinpoint responsibility or determine the precise nature of the drummed materials.	*U.S.* v. *Monochem, Inc.* (enforcement action).
41. Damage resulted from burning waste oil and solvents as fuel in boilers and landspreading of PCB-contaminated waste oil, coupled with improper tank and pond storage.	Tel. comm. with state site insp. on May 4, 1981; Task Force Source Data Report.
42. The Southern Metal Processing Company (located in Alabama) a reclamation facility for acid and metal-containing wastes, allowed over 10,000 drums to accumulate; leakage from these drummed wastes polluted surface waters. A fire at the site injured two firemen.	*Damages and Threats Caused by Hazardous Material Sites*, p. 43.
43. Waste oil contaminated with organics (including carbon tetrachloride) was used as a dust suppressant. Well contamination resulted	EPA, New Hampshire State Damage File, Code D2315.
44. Use of cadmium-contaminated POTW sludge as a fertilizer for farm land	EPA, New York State Damage File, Code D2317.
45. Waste oil storage results in ground water contamination from organics. Site also was used for disposal	EPA, New York State Damage File, Code D2317.
46. (* * *) engages in solvent reclamation and waste brokerage operations. Paint residues (to a lesser degree) are also redistilled at this plant. Hazards posed by the site include contamination of ground water and soil, noticeable odors, risk of fire/explosion, spills/runoff, sewer/storm problems, and presence of incompatible wastes.	Telephone conversation with state site inspector on May 5, 1981; Task Force Source Data Report.
47. (* * *) was paid by waste generators to store waste oil on-site. Prior to reclamation operations, waste oils were carelessly stored in surface impoundments or bulk tanks resulting in waste oil leakage.	Telephone conversation with state inspector on May 4, 1981; Task Force Source Data Report.
48. (* * *) reclaims both solvent and waste oil. Huge drum inventory resulted with some drums being stacked up as long as two years. Surface water was contaminated when hazardous waste leached from containers with unbroken seals. Paint solids were stored so long that reclamation became virtually impossible (due to thinner evaporation and rain dilution). Hazards posed by the site include contamination of water supply, contamination of surface water, and soil contamination from spills and runoff.	Telephone conversation with state inspector on May 4, 1981; Task Force Source Data Report.
49. (* * *) is a reclaimed solvent distributing plant that packages solvents in drums and sells them. If a company switches from one solvent to another, a pipeline must be washed out with the new product. The solvent mixture wash would be drummed, sold to (* * *) where the solvents would be separated and redistributed. Hazards posed by the site include worker injury contamination of soil, and spills/runoff.	Task Force Source Data Report.
50. (* * *) is predominantly a solvent reclamation operation. Solvents are stored in drums and tanks prior to reclamation. (* * *) paid to return refined materials to the manufacturer. The site was investigated primarily because of a spillage problem from loading and unloading drums outside. Potential hazards on the site include contamination of air, water supply, and ground water, risk of fire and explosion, spills, leaks, runoff and inadequate security.	Task Force Source Data Report.
51. (* * *) is a solvent reclamation operation. The waste generator buys back the reclaimed waste. Pre-RCRA (* * *) piled wastes for long periods of time in the open on permeable soil. No labels were on the drums and toxic chemicals leached.	Telephone conversation with state site inspector on May 5, 1981.
52. An oil reclamation firm in Region V recycles oil for large manufacturing plants. The firm takes used oil, restores it to desired levels of purity, blends it with virgin oil, and finally sells it back to the dealer to be sold. Hazard description/incident includes human health hazard, contamination of surface water, soil, and air, noticeable odors, fire/explosion, spills, runoff, and erosion problems.	Telephone conversation with state site inspector on May 5, 1981, Task Force Source Data Report.
53. The Silresim Chemical Corp. (located in Massachusetts) engaged primarily in solvent reclamation, but also accumulated many other types of wastes. These materials overaccumulated and incompatible wastes were stored indiscriminately. An office fire triggered an explosion and a spectacular fire. The site is now bankrupt and over 30,000 drums, most containing unknown toxicants, remain $2.9 million has been spent on cleanup to date.	EPA Damage Incident Files, Superfund Interim Priority Site.

APPENDIX A.—SUMMARY OF DAMAGE INCIDENTS RESULTING FROM RECYCLING OF HAZARDOUS WASTES—Continued

Types of recycling operation, wastes present, damages caused, or hazards posed	Source of information
54. (* * *) a New Jersey facility recycling organo-tin compounds, presently stores approximately 500 drums in poor condition. A potential fire hazard also exists and site security is inadequate.	EPA, Region II officials.
55. (* * *) a New Jersey facility, operated an oil/solvent reclamation facility. The site was abandoned, leaving hazardous wastes for cleanup.	EPA, Region II officials.
56. (* * *) a New Jersey drum reconditioner, went out of business leaving approximately 3000 drums on the site. There is extensive soil contamination and runoff into an adjacent drainage ditch.	EPA, Region II officials.
57. Quanta, Inc. (located in New Jersey) received tainted waste oils and spent solvents which it blended into fuels. The fuel was sold to apartment buildings for burning. PCBs, metals, bromoform, and halogenated solvents are present at the site and in the fuels. The site now has been abandoned.	EPA, Region II officials. (This site was also the subject of ABC's "20/20" broadcast on waste oil).
58. The Ferguson site (located in Rock Hill, South Carolina) stored spent solvents prior to reclamation. The solvents were stored in corroded and leaking drums, and leakage from the drums contaminated soil and seeped into surface water. Toxic chemicals in the waste and surrounding soil including toluene, bis(2-ethylhexyl) phthalate, xylene, ethyl chloride, diethyl carbometoxy phosphate, alcohols, and toxic metals. The site eventually was abandoned leaving about 2,500–5,000 drums. $143,000 was spent so far for site cleanup, and cleanup is not yet complete.	U.S. EPA, *Remedial Actions at Hazardous Waste Sites, Survey and Cost Studies*, EPA 430/9–81–05.
59. Chromium-bearing wastes were used as a landfill cap at the Monument St. Landfill in Baltimore, Md. The wastes began to leach toxic metals, and the runoff contaminated soil and surface water.	Report of the House Committee on Energy and Commerce (May 1982).
60. Commercial-grade pentachlorophenol is burnt as a fuel in diesel trucks. Chlorinated phenols, burnt at low temperatures and short residence times, are likely to form chlorinated dioxins and dibenzofurans.	EPA, Region VII officials.
61. B + L. Oil (located in Newark, New Jersey) sold contaminated waste oil as fuel. The blended fuel contained phenolic compounds, volatile chlorinated hydrocarbons, and aromatic hydrocarbons. The company and its president both have been convicted criminally in the New Jersey state courts.	New Jersey Hazardous Waste News, April 1982. Conversations with New Jersey state officials.
62. Madison Industries (located in Old Bridge, New Jersey) manufactures zinc chloride and zinc sulfate from waste zinc and spent acids, which it obtains from other sources. These materials were accumulated improperly in large quantities, causing damage.	Transcripts of state enforcement proceedings.
63. Air pollution resulted from solvent and waste oil recovery operations conducted by Frinck's Industrial Waste facility (located in Pecatonica County, Ill).	Documents from Illinois Environmental Protection Agency.
64. The Old Inger Oil Refinery (located in Darrow, La.) operated an oil reclamation plant. Storage tanks overflowed into holding ponds which were later abandoned without cleanup.	Superfund Interim Priority Site.
65. York Oil Co. (located in Moira, New York) is an abandoned waste oil recycling facility. Lagoons used in the recovery of waste oil discharged into adjacent wetlands. The lagoons and wetlands remain contaminated with PCB-containing oil.	Superfund Interim Priority Site.
66. Enviro-Chem, a hazardous waste recycling facility in Indiana, was investigated by State officials after an employee died in a tank of hazardous waste. The officials found 21,000 barrels of hazardous waste at the site. The facility has been ordered to close down due to failure to remove sludge and contaminated soil from a pit, failure to provide adequate concrete pads for 14,000 barrels of hazardous waste being stored on the ground at the site, and failure to store hazardous materials in compliance with State fire marshal rules and regulations.	EPA, Region V officials.
67. American Recovery, a chemical waste reprocessing facility (located in the Baltimore area) has suffered a number of fires caused by explosions of accumulated wastes. The facility also was fined for violation of various state regulatory requirements.	EPA, Region III officials.

Note.—Summaries of § 7003 actions are based on allegations in the Government's verified complaints. The courts hearing these must decide ultimately whether these allegations have been proven. In citing these allegations, we are not seeking to prejudice the outcome of these actions. At the same time, these statements reflect the results of the Government's investigation of these sites, and the Agency believes the statements to be accurate. In many cases, we are citing these allegations to demonstrate that there is a need for regulation in this area, not to ascertain the potential liability of particular facilities.

In addition, certain sites are not named specifically in this Appendix, because the companies involved are the subject of ongoing enforcement investigation. These companies are indicated by (* * *) in the summary.

The Agency's task force source data report is a confidential compilation of inspections of damage sites by Federal and State Officials. It also contains reports of some § 3007 inspections whether or not the sites were causing damage.

APPENDIX B.—DEFINITION OF A SOLID WASTE DAMAGE INCIDENTS—ADDITIONS LIST

Damage Incident	Source
1. New Castle Steel (New Castle County, Delaware) recycles electric furnace dust. Run-off from the site is contaminated and there is potential for contamination of ground water.	National Priorities List. Aug. 1983.
2. The Arrcom Corp. (Rathdrum, Idaho) recycled waste oils containing solvents, prior to abandoning the site in January 1982. Remaining on-site are 17 partially filled storage tanks, the contents of which remain largely undetermined. Chloroform has been found in a soil sample. Wastes processed at the site may have included PCBs. EPA has collected soil samples to document leakage on site.	Do.
3. The Cross Brothers Pail Recycling (Pembroke Township, Illinois) recycled pails and drums at the site between 1961 and 1980. The operation involved burning out pail and drum residue using hazardous waste solvents as fuel, and then sand-blasting and painting. During these operations, soil and ground water became contaminated. Investigations by the State discovered over 10,000 5-gallon pails (mostly empty), 10 acres of contaminated soil, at least 10 covered trenches of unknown wastes, and a plume of contaminated ground water leaving the site.	Do.
4. The LaSalle Electrical Utilities Site (LaSalle, Illinois) manufactured capacitors using PCBs from the late 1940s to late 1978. The company reportedly used waste oils from this process to control dust in the parking lot until 1969. More than 1,000 parts per million PCBs remain in the soil throughout the site.	Do.
5. The Old Inger Oil Refinery Site (Darrow, Louisiana) reclaimed oil from refinery wastes in 1976. A spill in 1978 contaminated a large surface area. In 1981, Louisiana officially declared the site "abandoned." It has nine oil storage tanks, which have overflowed into nearby holding ponds and a swamp. Ground water and soil are contaminated by organic chemicals. This is the top priority site in Louisiana.	Do.
6. The PSC Resources Site (Palmer, Massachusetts) formerly owned by Phillips Resources, Inc., holds 34,000 gallons of waste. The inactive facility reclaimed waste oil from Massachusetts collection points. These products were then heat treated and sold as a base for lubricating oil, road spray oil, and fuel. After a spill in June 1982, EPA discovered several leaking tanks and containment dikes, as well as saturated soils. Surface waters, wetlands, and ground water are directly threatened by the waste. Trichlorethane and PCBs have been identified in an adjacent swamp.	Do.
7. York Oil Co. (Moira, New York) formerly recycled waste oils. Before the site was abandoned, it consisted of eight steel storage tanks, two buildings, and three lagoons. The berms of the lagoons have failed in the past, discharging PCB-contaminated oil into the adjacent wetlands that drain into Lawrence Brook. Analyses indicate 50 parts per million (ppm) of PCB in lagoon waters, over 500 ppm in lagoon sludge, up to 26 parts per billion (ppb) in ground water, and up to 350 ppm in solids.	Do.
8. The Arcanum Iron & Metal Site (Darke County, Ohio) has been in the scrap metal/recycling business since the early 1960s. It now recycles lead batteries. Large piles of battery casings, lead, and lead oxides are on the property, as well as standing pools of acid wastes. Acid overflow from this operation has killed both fish and vegetation in Painter Creek, downstream of the site.	Do.
9. The Metal Banks Site (Philadelphia, Pennsylvania) processed transformers and oil contaminated with PCBs there for a number of years until closing the operation in 1972. In 1977, EPA determined that periodic oil slicks found in the Delaware River adjacent to the site were contaminated with PCBs. The site was subsequently identified as the source of the slicks. A U.S. Coast Guard study revealed that up to 20,000 gallons of PCB-contaminated oil were in the ground water under the site and were leaking into the Delaware River.	Do.
10. In 1970, the road through Quail Run Mobile Manor (2 miles east of Gray Summit, Missouri) was sprayed with 25 barrels of dioxin contaminated waste oil. In 1974, soil was excavated to a depth of 2 feet from one road in the park. This was deposited in the area between the road and a lagoon. On February 2, 1983, EPA identified dioxin at the site. Analysis of soil samples detected 1.4 parts per billion (ppb), 14 ppb, and 23 ppb of dioxin. Additional sampling on March 9, 1983, revealed a range of levels from 6 ppb to 1,100 ppb.	National Priorities List Update, July 1984.
11. The Sand Springs Petrochemical Complex (near Sand Springs, Oklahoma) consists of three adjacent areas on the abandoned Old Sinclair Refinery, including a waste oil recycling facility, a solvents recycling facility, and the Sinclair Refinery acid pits—an original part of the Old Sinclair Refiner. The two recycling companies have been in business since the mid-1970s. Over the years, hazardous substances were stored or disposed of in drums, tanks, and unlined pits, or were simply buried on-site. These substances include volatile and nonvolatile organics, acids, caustics, chlorinated solvents, and sludges containing heavy metals. Poor operations have contaminated local ground-water, and there is the potential for contaminants to leave the site in run-off.	Do.
12. Waste Research & Reclamation Co. (Eau Claire, Wisconsin) has recycled oil and solvents from industrial sources since 1975. The techniques used to handle and store drums allowed wastes to spill on the site. Run-off from waste processing has been collected in unlined impoundments. Organic solvents from the site contaminate ground water.	Do.

APPENDIX B.—DEFINITION OF A SOLID WASTE DAMAGE INCIDENTS—ADDITIONS LIST—Continued

Damage Incident	Source
13. The NL Industries site (Salem County, New Jersey) recovers lead from spent automotive batteries and separates the plastic from the rubber casings. As a result of improper storage of batteries on the site and other factors relating to their processing, ground water, surface water, and soils are extensively contaminated with various heavy metals.	National Priorities List Aug 1983.
14. Scientific Chemical Processing, Inc. (Carlstadt, New Jersey) recovered and recycled various chemical wastes. As a result of a State Order, the company ceased operations in 1980. About 375,000 gallons of hazardous substances are stored on the site in tanks, drums, and tank trailers. Soils are extensively contaminated, run-off from the site is contaminated, and ground water contamination is likely.	Do
15. In 1983, the State of Indiana filed suit against Norman Poer, an individual who contracted with Inmont Corporation to purchase what he was told was paint and solvent, in an attempt to recycle them to produce low grade paint. When Mr. Poer was unable to sell or give away the paint, he abandoned it on a 5-acre field he owned in Jackson Township, Indiana. Ground water samples indicate that the well on site contains hazardous levels of arsenic and lead. In addition, further tests have indicated that the paint waste has elevated levels of lead and chromium and that the ignitability of the waste classifies it as hazardous. The barrels remain on site, leaking contents onto the ground.	National Priorities List Update, July 1984

For the reasons set out in the preamble, Title 40 of the Code of Federal Regulations is amended as follows:

PART 260—HAZARDOUS WASTE MANAGEMENT SYSTEM: GENERAL

1. The authority citation for Part 260 reads as follows:

Authority: Secs. 1006, 2002(a), 3001 through 3007, and 3010 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended [42 U.S.C. 6905, 6912(a), 6921 through 6927, and 6930].

2. Section 261.10 is amended by adding new definitions for "Boiler" and "Industrial Furnace" to appear alphabetically and by revising the definitions of "Designated facility" and "Incinerator."

§ 260.10 Definitions

* * * * *

"Boiler" means an enclosed device using controlled flame combustion and having the following characteristics:

(1) (i) The unit must have physical provisions for recovering and exporting thermal energy in the form of steam, heated fluids, or heated gases; and

(ii) The unit's combustion chamber and primary energy recovery sections(s) must be of integral design. To be of integral design, the combustion chamber and the primary energy recovery section(s) (such as waterwalls and superheaters) must be physically formed into one manufactured or assembled unit. A unit in which the combustion chamber and the primary energy recovery section(s) are joined only by ducts or connections carrying flue gas is not integrally designed; however, secondary energy recovery equipment (such as economizers or air preheaters) need not be physically formed into the same unit as the combustion chamber and the primary energy recovery section. The following units are not precluded from being boilers solely because they are not of integral design: process heaters (units that transfer energy directly to a process stream), and fluidized bed combustion units; and

(iii) While in operation, the unit must maintain a thermal energy recovery efficiency of at least 60 percent, calculated in terms of the recovered energy compared with the thermal value of the fuel; and

(iv) The unit must export and utilize at least 75 percent of the recovered energy, calculated on an annual basis. In this calculation, no credit shall be given for recovered heat used internally in the same unit. (Examples of internal use are the preheating of fuel or combustion air, and the driving of induced or forced draft fans or feedwater pumps); or

(2) The unit is one which the Regional Administrator has determined, on a case-by-case basis, to be a boiler, after considering the standards in § 260.32.

"Designated facility" means a hazardous waste treatment, storage, or disposal facility which has received an EPA permit (or a facility with interim status) in accordance with the requirements of Parts 270 and 124 of this Chapter, a permit from a State authorized in accordance with Part 271 of this Chapter, or that is regulated under § 261.6(c)(2) or Subpart F of Part 266 of this Chapter, and that has been designated on the manifest by the generator pursuant to § 262.20.

* * * * *

"Incinerator" means any enclosed device using controlled flame combustion that neither meets the criteria for classification as a boiler nor is listed as an industrial furnace.

"Industrial furnace" means any of the following enclosed devices that are integral components of manufacturing processes and that use controlled flame devices to accomplish recovery of materials or energy:

(1) Cement kilns
(2) Lime kilns
(3) Aggregate kilns
(4) Phosphate kilns
(5) Coke ovens
(6) Blast furnaces
(7) Smelting, melting and refining furnaces (including pyrometallurgical devices such as cupolas, reverberator furnaces, sintering machine, roasters, and foundry furnaces)
(8) Titanium dioxide chloride process oxidation reactors
(9) Methane reforming furnaces
(10) Pulping liquor recovery furnaces
(11) Combustion devices used in the recovery of sulfur values from spent sulfuric acid
(12) Such other devices as the Administrator may, after notice and comment, add to this list on the basis of one or more of the following factors:

(i) The design and use of the device primarily to accomplish recovery of material products;

(ii) The use of the device to burn or reduce raw materials to make a material product;

(iii) The use of the device to burn or reduce secondary materials as effective substitutes for raw materials, in processes using raw materials as principal feedstocks;

(iv) The use of the device to burn or reduce secondary materials as ingredients in an industrial process to make a material product;

(v) The use of the device in common industrial practice to produce a material product; and

(vi) Other factors, as appropriate.

* * * * *

3. In Subpart C of Part 260, add the following § 260.30:

§ 260.30 Variances from classification as a solid waste.

In accordance with the standards and criteria in § 260.31 and the procedures in § 260.33, the Regional Administrator may determine on a case-by-case basis that the following recycled materials are not solid wastes:

(a) Materials that are accumulated speculatively without sufficient amounts being recycled (as defined in § 261.1(c)(8)(B) of this Chapter);

(b) Materials that are reclaimed and then reused within the original primary production process in which they were generated;

RCRA Implementation Study Update

Appendix E

Memorandum dated April 26, 1989 from the Director of the Office of Solid Waste to Regional Waste Management Division Directors

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

APR 26 1989

OFFICE OF
SOLID WASTE AND EMERGENCY RESPO

MEMORANDUM

SUBJECT: F006 Recycling

FROM: Sylvia K. Lowrance, Director
Office of Solid Waste (OS-300)

TO: Hazardous Waste Management Division Directors
Regions I-X

It has come to the attention of EPA Headquarters that many of the Regions and authorized States are being requested to make determinations on the regulatory status of various recycling schemes for F006 electroplating sludges. In particular, companies have claimed that F006 waste is being recycled by being used as: (1) an ingredient in the manufacture of aggregate, (2) an ingredient in the manufacture of cement, and (3) feedstock for a metals recovery smelter. The same company may make such requests of more than one Region and/or State. Given the complexities of the regulations governing recycling vs. treatment and the definition of solid waste, and the possible ramifications of determinations made in one Region affecting another Region's determination, it is extremely important that such determinations are consistent and, where possible, coordinated.

Two issues are presented. The first issue is whether these activities are legitimate recycling, or rather just some form of treatment called "recycling" in an attempt to evade regulation. Second, assuming the activity is not sham recycling, the issue is whether the activity is a type of recycling that is subject to regulation under sections 261.2 and 261.6 or is it excluded from our authority.

With respect to the issue of whether the activity is sham recycling, this question involves assessing the intent of the owner or operator by evaluating circumstantial evidence, always

a difficult task. Basically, the determination rests on whether the secondary material is "commodity-like." The main environmental considerations are (1) whether the secondary material truly has value as a raw material/product (i.e., is it likely to be abandoned or mismanaged prior to reclamation rather than being reclaimed?) and (2) whether the recycling process (including ancillary storage) is likely to release hazardous constituents (or otherwise pose risks to human health and the environment) that are different from or greater than the processing of an analogous raw material/product. The attachment to this memorandum sets out relevant factors in more detail.

If the activity is not a sham, then the question is whether it is regulated. If F006 waste is used as an ingredient to produce aggregate, then such aggregate would remain a solid waste if used in a manner constituting disposal (e.g., road-base material) under sections 261.2(c)(1) and 261.2(e)(2)(i) or if it is accumulated speculatively under section 261.2(e)(2)(iii). Likewise, the F006 "ingredient" is subject to regulation from the point of generation to the point of recycling. The aggregate product is, however, entitled to the exemption under 40 CFR 266.20(b), as amended by the August 17, 1988, Land Disposal Restrictions for First Third Scheduled Wastes final rule (see 53 FR 31197 for further discussion). However, if the aggregate is not used on the land, then the materials used to produce it would not be solid wastes at all, and therefore neither those materials nor the aggregate would be regulated (see section 261.2(e)(1)(i)).

Likewise, cement manufacturing using F006 waste as an ingredient would yield a product that remains a solid waste if it is used in a manner constituting disposal, also subject to section 266.20(b). There is an additional question of whether the cement kiln dust remains subject to the Bevill exclusion. In order for the cement kiln dust to remain excluded from regulation, the owner or operator must demonstrate that the use of F006 waste has not significantly affected the character of the cement kiln dust (e.g., demonstrate that the use of F006 waste has not significantly increased the levels of Appendix VIII constituents in the cement kiln dust leachate). [NOTE: This issue will be addressed more fully in the upcoming supplemental proposal of the Boiler and Industrial Furnace rule, which is pending Federal Register publication.]

For F006 waste used as a feedstock in a metals recovery smelter, the Agency views this as a recovery process rather than use as an ingredient in an industrial process and, therefore, considers this to be a form of treatment that is not currently regulated (see sections 261.2(c) and 261.6(c)(1)). Furthermore, because this is a recovery process rather than a production process, the F006 waste remains a hazardous waste (and must be

managed as such prior to introduction to the process), and the slag from this process would normally be considered a "derived from" F006 waste. However, for primary smelters, the slag may be considered subject to the Bevill exclusion provided that the owner or operator can demonstrate that the use of F006 waste has not significantly affected the hazardous constituent content of the slag (i.e., make a demonstration similar to the one discussed above for the cement kiln dust). [**NOTE: In the supplemental proposal of the Boiler and Industrial Furnace rule noted above, the Agency will be proposing a definition of "indigenous waste" based on a comparison of the constituents found in the waste to the constituents found in an analogous raw material. Should the F006 waste meet the definition of an "indigenous waste," the waste would cease to be a waste when introduced to the process and the slag would not be derived from a hazardous waste.**]

Also, you should be aware that OSW is currently reevaluating the regulations concerning recycling activities, in conjunction with finalizing the January 8, 1988 proposal to amend the Definition of Solid Waste. While any major changes may depend on RCRA reauthorization, we are considering regulatory amendments or changes in regulatory interpretations that will encourage on-site recycling, while ensuring the protection of human health and the environment.

Headquarters is able to serve as a clearinghouse to help coordinate determinations on whether a specific case is "recycling" or "treatment" and will provide additional guidance and information, as requested. Ultimately, however, these determinations are made by the Regions and authorized States. Attached to this memorandum is a list of criteria that should be considered in evaluating the recycling scheme. Should you receive a request for such a determination, or should you have questions regarding the criteria used to evaluate a specific case, please contact Mitch Kidwell, of my staff, at FTS 475-8551.

Attachment

CRITERIA FOR EVALUATING WHETHER A WASTE IS BEING RECYCLED

The difference between recycling and treatment is sometimes difficult to distinguish. In some cases, one is trying to interpret intent from circumstantial evidence showing mixed motivation, always a difficult proposition. The potential for abuse is such that great care must be used when making a determination that a particular recycling activity is to go unregulated (i.e., it is one of those activities which is beyond the scope of our jurisdiction). In certain cases, there may be few clear-cut answers to the question of whether a specific activity is this type of excluded recycling (and, by extension, that a secondary material is not a waste, but rather a raw material or effective substitute); however, the following list of criteria may be useful in focusing the consideration of a specific activity. Here too, there may be no clear-cut answers but, taken as a whole, the answers to these questions should help draw the distinction between recycling and sham recycling or treatment.

(1) **Is the secondary material similar to an analogous raw material or product?**

- Does it contain Appendix VIII constituents not found in the analogous raw material/product (or at higher levels)?
- Does it exhibit hazardous characteristics that the analogous raw material/product would not?
- Does it contain levels of recoverable material similar to the analogous raw material/product?
- Is much more of the secondary material used as compared with the analogous raw material/product it replaces? Is only a nominal amount of it used?
- Is the seondary material as effective as the raw material or product it replaces?

(2) **What degree of processing is required to produce a finished product?**

- Can the secondary material be fed directly into the process (i.e., direct use) or is reclamation (or pretreatment) required?
- How much value does final reclamation add?

(3) **What is the value of the secondary material?**

- o Is it listed in industry news letters, trade journals, etc.?
- o Does the secondary material have economic value comparable to the raw material that normally enters the process?

(4) **Is there a guaranteed market for the end product?**

- o Is there a contract in place to purchase the "product" ostensibly produced from the hazardous secondary materials?
- o If the type of recycling is reclamation, is the product used by the reclaimer? The generator? Is there a batch tolling agreement? (Note that since reclaimers are normally TSDFs, assuming they store before reclaiming, reclamation facilities present fewer possibilities of systemic abuse).
- o Is the reclaimed product a recognized commodity? Are there industry-recognized quality specifications for the product?

(5) **Is the secondary material handled in a manner consistent with the raw material/product it replaces?**

- o Is the secondary material stored on the land?
- o Is the secondary material stored in a similar manner as the analogous raw material (i.e., to prevent loss)?
- o Are adequate records regarding the recycling transactions kept?
- o Do the companies involved have a history of mismanagement of hazardous wastes?

(6) **Other relevant factors.**

- o What are the economics of the recycling process? Does most of the revenue come from charging generators for managing their wastes or from the sale of the product?
- o Are the toxic constituents actually necessary (or of sufficient use) to the product or are they just "along for the ride."

These criteria are drawn from 53 FR at 522 (January 8, 1988); 52 FR at 17013 (May 6, 1987); and 50 FR at 638 (January 4, 1985).

RCRA Implementation Study Update

Appendix F

Petition from the National Association of Solvent Recyclers

NASR

National Association of Solvent Recyclers
1333 New Hampshire Avenue, N.W. Suite 1100
Washington, D.C. 20036 202/463-6956

February 9, 1989

BY CERTIFIED MAIL

Honorable William Reilly
Administrator
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Petition for Rulemaking: Amendment to 40 CFR 261.6

Dear Mr. Reilly:

The National Association of Solvent Recyclers (NASR) represents 41 large and small businesses engaged in the recycling of used solvents through distillation and fuel blending programs. Many of our members operated recycling facilities long before the enactment of RCRA and the Hazardous and Solid Waste Amendments of 1984. In fact, a major reason these companies formed NASR was to foster improved operating standards within the industry and to cooperate with federal agencies in the development of regulations for the industry.

In the late 1970s, NASR members strongly supported EPA's RCRA program because regulation promised to bring uniform standards to waste management practices. Since then we have worked to promote regulatory awareness and compliance not only within our own industry, but in those industries we service as well. However, we have now become aware of facilities that recycle solvents without meeting the standards applicable to our members' operations, and we hereby petition EPA to clarify its regulations to bring these companies into the same regulatory framework in which NASR members operate.

Currently, all active NASR members have obtained RCRA interim or Part B permit status as storage facilities. It has been reported that the companies that have circumvented the RCRA regulatory system have done so by pumping used solvent directly from transportation tanks into distillation equipment, thereby conforming to 40 CFR 261.6(c)(2). Such companies need only comply with notification and manifesting requirements because

under the current definition of "storage" (40 CFR 260.10) these facilities allegedly do not technically store hazardous waste. Yet these companies manage large volumes of hazardous waste and pose the same type of risk to the environment that caused Congress and EPA to regulate storage facilities.

We believe that attempting to pump solvents directly from transport equipment to distillation equipment is more unsafe to health and the environment than pumping from stationary storage tanks. A recycler distilling solvent by pumping it directly from a 6,000 gallon tank truck through a flexible hose would typically require the tanker to be physically connected to a system exposed to elevated temperatures for up to 24 hours. The temperature and length of time both introduce hazards that are not present in normal unloading of a tank truck. These hazards include the danger of uncontained spills during unloading, violation of fire codes governing direct feed of solvent to an elevated temperature process system, and VOC excursions due to process upsets in the distillation step.

NASR knows of two facilities that distill solvents without RCRA storage permits, and there are probably others. We propose that EPA amend the RCRA regulations to state that spent solvent is deemed to be stored when it is sent off-site for recycling by distillation. Such an amendment would eliminate the incentive for solvent recyclers to engage in the potentially dangerous practice of pumping solvent from tankers directly into distillation process equipment. It would also provide a fair and uncomplicated resolution to the current problem of determining at what point, if ever, in the hazardous waste management process recycling begins.

These objectives could be achieved by amending 40 CFR 261.6(c): Requirements for recyclable materials. Section 261.6(c) identifies the regulations applicable to owners and operators of facilities that store materials before recycling and those that do not. We propose adding a new paragraph (3), following (c)(1) and (2), stating the following:

> 261.6(c)(3): Owners or operators of facilities that distill spent solvents are deemed to store these solvents prior to recycling and are regulated under all applicable provisions of Subparts A through L of Parts 264 and 265, and under parts 124, 266, 268, and 270 of this Chapter and the notification requirements under section 3010 of RCRA, except as provided in paragraph (a) of this section. (The recycling process itself is exempt from regulation.)

If EPA fails to address this issue, NASR members and other solvent recyclers who in good faith operate in full compliance

with the RCRA storage requirements will be at a severe competitive disadvantage with respect to operators who evade these requirements. Moreover, solvent recyclers that do not have storage permits, and those who undoubtedly will follow in their footsteps, will undermine through exploitation of a definitional loophole the premise of comprehensive hazardous waste regulation embodied in RCRA.

As interim status and Part B permitted storage facilities, NASR members comply with 40 CFR Parts 264 and 265 standards. The costs of compliance are substantial, particularly for the small businesses that comprise the majority of NASR's members. A brief survey of NASR members conducted August 26, 1988, provided the following information:

Average Annual Cost of:

RCRA Prescribed Personnel Training Programs	$ 15,921.00
Closure & Post-Closure Planning and Financial Responsibility Requirements	6,477.78
EIL Insurance Premiums	80,511.11
Additional Insurance Costs (Other than EIL Premiums) Due to Insured's Interim or Permit Status	52,070.00
RCRA Recordkeeping Costs	37,726.67
Average Total Annual Costs*	192,707.33
Average Total Costs Per Gallon of Manifested Hazardous Waste Received for Recycling, Reclaiming, Fuel Blending, Etc.	0.26

*This total does not necessarily reflect additional compliance costs, such as legal fees and administrative overhead.

We assume that solvent recyclers who do not have storage permits may incur some costs for safety training, insurance and record-keeping, but these costs do not approach the costs of RCRA compliance, which includes permitting costs (including legal and engineering fees), environmental impairment liability insurance costs, security costs and other overhead associated with compliance obligations. This savings not only creates a competitive

disadvantage for NASR members, but also discourages compliance with RCRA.

Beyond the issue of the impact of these solvent recyclers upon the businesses of NASR members is the fundamental issue of RCRA's purpose: "to promote the protection of health and the environment. . ." (RCRA Sec. 1003.) RCRA was designed to provide federal and state environmental agencies with the comprehensive system required to control environmental pollution. If the loophole that allows solvent distillation without a storage permit remains open, the RCRA system could return to the piece-meal regulatory scheme of the 1960s and 1970s. Furthermore, the perception among owners and operators of permitted facilities that regulations are easily circumvented or have been unfairly applied will diminish their confidence in the fairness of the RCRA system.

The present situation is unjust to solvent recyclers who have obtained storage permits, unsafe for communities surrounding solvent recycling facilities operating outside of the RCRA system, and untenable for EPA. NASR urges you to expeditiously take the necessary rulemaking action that would close this loophole. Adoption of the recommended amendment will ensure that all facilities that distill spent solvents meet the same requirements, that the public is fully informed and protected, and that the intent of RCRA is being fulfilled.

Should you have any questions or require additional information, please contact Barbara Wells, NASR's Executive Director, at (202) 463-6956. Thank you for your attention to this matter.

Very truly yours,

David Petersen

David Petersen
President

RCRA Implementation Study Update

Appendix G

Memorandum dated October 22, 1991 from James R. MacRae
to the EPA Administrator

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

OCT 22 1991

Honorable William K. Reilly
Administrator
Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Dear Mr. Reilly:

On August 5, 1991, the Environmental Protection Agency (EPA) formally submitted for the Office of Management and Budget (OMB) review a draft modification of the hazardous waste recycling regulations. There are three separate parts to the draft proposal.

First, EPA is proposing that currently-exempted manufacturers of recycled products must file a "notification" demonstrating that the manufacturing operation and product meet certain risk and "legitimacy" criteria. Manufacturers that satisfy these criteria will retain their exemption from full hazardous waste regulation. Second, EPA is proposing to adopt similar risk-based and "legitimacy" criteria in determining manufacturer eligibility for a variety of variances from full hazardous waste regulation for operations which reincorporate secondary waste materials into a production process. Third, EPA proposes new exemptions for collectors and transporters of certain "universal hazardous wastes"--that is, batteries and recalled pesticides--to encourage the recycling of these materials.

I am encouraged to find that for some parts of the draft proposal --specifically in the "closed-loop" recycling and the "universal hazardous waste provisions"-- EPA would adopt provisions that could encourage efficient and environmentally beneficial recycling practices. However, based on our review of the draft proposal, I am concerned that the criteria for determining "legitimacy"--for recycled products, recycled secondary materials, and recycling processes--will not contribute in any significant way to the protection of human health and the environment. Instead, these proposed "legitimacy" criteria will create an intrusive and burdensome process that will discourage efforts to recycle or recover hazardous wastes for socially beneficial uses. Since there is no specific statutory mandate for this approach, EPA has the discretion to consider other regulatory options, including risk-based options that focus on the risks posed by both the disposal and recycling of hazardous wastes. In my view, EPA should adopt such a risk-based option. Given these concerns, I believe the draft proposal is inconsistent with the requirements of Sections 2(a) and 2(e) of

Executive Order No. 12291. I am therefore returning the draft proposal for your reconsideration.

EPA's "Legitimacy" Criteria

EPA's proposal would require that firm's demonstrate the "legitimacy" of their activities in terms of recycling hazardous waste or incorporating secondary waste materials into the production process. To establish the legitimacy of their operations, firms must demonstrate that:

(1) the hazardous waste has properties and specifications that are similar to those of the replaced "raw" material;

(2) the hazardous constituents in the waste "legitimately" contribute to the production process;

(3) the concentration of hazardous constituents in the recycled products are at levels that are comparable to the levels found in similar products made with "virgin" materials; and

(4) the sale of the product generates a substantial portion of the firm's total revenues.

Firms that are unable to make this demonstration must comply with all Subtitle C (hazardous waste) regulations and their products will be treated as a hazardous waste under Subtitle C regulation.

The following sections outline in greater detail our concerns with the two key elements of EPA's legitimacy criteria--the product specifications for allowable levels of hazardous constituents and the "financial" test for sources of revenue. In addition, they also present our concern with the absence of a clear, objective method for weighing these criteria and the potential inconsistency of adopting such "legitimacy" tests for recycling in the first two parts of this proposal, while avoiding any such tests in providing an exemption for handlers of materials that EPA designates as "universal hazardous wastes" in the third part of the proposal.

Commercial Product Specifications - Under the provisions of this proposed rule, EPA would evaluate products containing recycled hazardous waste to determine if the product contains higher levels of any hazardous constituent than similar products derived from "raw" or "virgin" materials. In making this comparison, EPA must develop "product standards" for a wide variety of basic products that specify allowable levels of various hazardous constituents in the product. This approach will inevitably evaluate recycling activity inconsistently, stifle recycling innovation, and unnecessarily burden both the Agency and society.

First, these product standards are not risk-based; they instead are based on the levels of hazardous constituents in products derived from virgin materials. These product standards would apply, for example, to concrete destined for airport runways, skyscraper supports, roof tiles, and gym floors. However, the potential human exposure associated with these uses varies dramatically. For an equal level of protection of human health and environment, these uses may be able to accommodate very different concentration levels of "hazardous" material. Thus, even if recyclers could demonstrate that any potential exposure from the expected use of their concrete products is protective of human health and the environment, EPA would apparently classify these products as hazardous waste and subject them to full Subtitle C regulation if the hazardous constituent levels in the concrete exceeded the levels in products derived from "virgin" materials.[1]

In addition, since "virgin" concrete ingredients vary with local geologic conditions and since hazardous materials react differently with different minerals compositions, EPA must set either one conservative national standard or many regional standards for "acceptable" concrete. Setting a conservative national standard would be inefficient because it would eliminate potentially safe recycled products from the market in some regions.

Further, product standards would stifle the development and introduction of new products manufactured from recycled materials because products derived from recycled materials will likely contain at least some constituents that exceed the levels in products manufactured from virgin materials. If EPA establishes product standards, it will be very difficult to develop products that meet such stringent specifications for constituents.[2]

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[1]In fact, this policy could cause a perverse result if EPA designates a recycled product as a hazardous waste that actually results in lower aggregate health risk than an unregulated, "virgin" material. Concrete again can provide an example. Under this rule and the Subtitle C provisions, EPA could ban certain levels of minerals from concrete aggregate, barring primary or reclaimed production by-products (e.g., residues, sludges, ash) because they are classified as hazardous waste. However, a firm could legally make and sell concrete aggregate from mine tailings or other excavated material which contain the same or higher levels of the these minerals.

[2]Researchers are fabricating many new products from coal fly ash and municipal solid waste incinerator ash. Because these ashes are exempt from Subtitle C regulation, these activities would not be "sham" recycling under this proposed rule. Yet, similar products made from listed hazardous wastes (e.g., metal-

Finally, of course, the approval process will serve as a substantial barrier to innovation. The regulatory uncertainty and the likely delay in regulatory approval of applications will impose substantial burdens on innovators. In addition, developing these product standards and reviewing applications for new products and/or processes will require substantial EPA resources. EPA explicitly pointed to this difficulty in rejecting this approach as a part of its final definition of solid waste on January 5, 1985. Thus, EPA reported that: "We are not sure if it is technically feasible to develop such specifications,...and it would take years to work out this type of approach."[3]

EPA's Financial Test: Sources, Uses, and the Flow of Funds - As a second test, EPA would also require recyclers to demonstrate that a substantial portion of the revenues generated by the recycling process derives from the sale of the final product in a legitimate market--not from accepting the hazardous waste.

To carry out this test, EPA will require broad access to the financial records of manufacturers of recycled products to distinguish "sham" from "legitimate" hazardous waste recycling activity. Recyclers must report their revenue from accepting waste, the percentage of their income these payments comprise, and the value of their final product. Similarly, in providing an exception for secondary waste recycling, manufacturing firms must record how much a particular reclamation process adds to the final product's value. Finally, firms must maintain their daily financial records in a way that would allow EPA to track the revenues from reclamation or acceptance fees.

It is our view, however, that the nature and sources of the revenues derived from an activity are irrelevant in determining the "legitimacy" of an activity within an economic system. The key question is whether there are important externalities (i.e., risks) that are not addressed through regulation. If externalities are properly addressed, that should be sufficient--

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bearing sludges) which contain comparable levels of hazardous constituents may be deemed "sham" recycled products. Innovative recycling efforts include the following: Federal procurement guidelines which explicitly encourage the purchase of concrete formed with fly ash (40 CFR 249); concrete including coal fly ash that will pave the streets of Barcelona for the Summer Olympics in 1991 ("Environment Today," October 1991); and a boathouse made of concrete blocks composed of municipal solid waste ash (Christian Science Monitor, September 11, 1991).

[3]50 FR 628

the source and nature of revenues generated by the activity are irrelevant.

There are important recycling activities, for example, where the acceptance of wastes for reprocessing contribute a significant share to total firm revenues. In particular, firms that collect solid wastes for recycling, such as paper and glass, are currently receiving substantial revenues from disposers of these materials. Application of the "legitimacy" criteria outlined in this proposal could cripple the recycling of these materials.

Furthermore, the adoption of the financial test as a part of its "legitimacy" criteria will impose substantial burdens on firms carrying out recycling or incorporating secondary waste materials in their production process. In an earlier rulemaking, EPA specifically cited this substantial burden, stating that:

> The provision would require the Agency to evaluate the bona fides of complicated, numerous, and diverse financial transactions--which may intrude significantly into companies' legitimate business affairs. [4]

This intrusive regulatory approach can only serve to discourage EPA's avowed objective of increasing environmentally beneficial hazardous waste recycling and the incorporation of secondary waste materials into the production process.

Finally, reviewing these financial transactions would impose a substantial burden on the Agency. EPA has specifically cited, for example, the problems of enforcing such a provision in earlier rulemaking.[5]

Arbitrary Decision-Making Authority - Throughout this rule, the EPA Administrator and Regional administrators retain substantial discretion in weighing these several "legitimacy" criteria (that is, the hazardous waste concentration of a product, the financial structure, etc.) in determining whether an activity constitutes recycling. Even for any single criterion, EPA could evaluate products with similar environmental risks differently. As a result, both the recyclers and EPA may expend substantial resources in developing and reviewing exemption applications. Further, decisions on individual applications may be governed more by the specific circumstances and relationships with individual recyclers, than by any concern with protecting human health and the environment.

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[4] 48 FR 14481

[5] 48 FR 14481

For example, the proposed rule does not specify the additional concentrations of a hazardous constituent, if any, EPA would allow in a recycled product beyond the levels found in a product manufactured from virgin material. Similarly, the rule does not specify what percentage of income a recycler can receive from accepting wastes before it is labeled a "sham" operation. Without clear performance based standards, the uncertainties introduced by the regulatory process may represent a significant barrier to the development of new products and processes using recycled materials.

In addition, such an exemption process could threaten the integrity of EPA's regulatory process. An exemption from the stringent Subtitle C regulatory requirements confers a valuable economic right to successful petitioners. Such a system--if widely used--is subject to abuse if petitioners seek to influence the decision through the political process or by currying favor with officials within the regulatory agency. As a result, this approach not only is deleterious to the national interest, but in the long run could undermine the integrity of the regulatory process itself.

Inconsistency Between "Sham" and "Universal Wastes" Proposals - While the first two sections of this draft rule would establish major impediments to recycling, the last section proposes to relax Subtitle C provisions for those firms collecting, transporting, and storing materials that EPA has designated "universal hazardous wastes." In this section, EPA proposes to designate batteries and recalled pesticides as the first two wastes in this category.

Within this section, EPA specifically rejects limiting the scope of these exemptions to those universal hazardous wastes which will be recycled in favor of a more comprehensive exemption. EPA states that: "The standards set forth today would regulate specific types of hazardous wastes uniformly, regardless of whether they are destined for recycling or disposal...this simplified system will also allow EPA and State agencies to focus their resources on ensuring compliance, rather than on expanding the rules" (pp.108-9). There are, then, no "legitimacy" (or even "recycling") tests that handlers must contend with in obtaining an exemption from Subtitle C regulation.

Finally, because of the interdependence between use, collection, and recycling in these markets, EPA's proposed "sham" recycling regulations in the first two sections may interfere with its goal of promoting "environmentally beneficial recycling" of these "universal hazardous wastes."

Conclusion

The serious problems in this proposed rule stem from EPA's continued reliance on an unwieldy, artificial, and counter-productive regulatory approach to hazardous waste. Although EPA has included a risk-based exemption for products as the result of our review, EPA does not present a viable risk-based alternative to this cumbersome regulatory approach.[6] As a result, EPA's draft proposal may severely restrict innovation in this area and undermine its goal of promoting environmentally beneficial recycling of these materials. For these reasons, I am returning to you for your reconsideration EPA's draft modification of the hazardous waste recycling regulations. As always, my staff and I are willing to discuss these issues further.

Sincerely,

James B. MacRae, Jr.

James B. MacRae, Jr.
Acting Administrator
and Deputy Administrator
Office of Information
and Regulatory Affairs

c: Richard Morgenstern
Donald Clay

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[6]EPA's draft risk-based exemption for products will be of limited practical use because the corresponding recycling process must still satisfy the "legitimacy" criteria.

RCRA Implementation Study Update

Appendix H

Proposal of the Business Recycling Coalition

April 1991

BUSINESS RECYCLING COALITION

Principles for Recycling Legislation

The following is a Statement of Principles for Recycling Legislation that has been developed by the Business Recycling Coalition. While the Principles do not take the form of proposed legislative language, they can be adapted to serve that purpose. A number of key terms -- such as "secondary material" and "reclamation" -- are used in the Principles. Proposed definitions of these key terms are included in a section entitled "Definitions" that follows the Statement of Principles.

Statement of Principles

1. Congress and EPA should recognize fully the environmental benefits and the economic, employment, trade, and strategic advantages of materials recycling, and should confirm that such recycling ranks high as a preferred strategy for pollution prevention. Pursuant to this recognition, Congress and EPA should establish a regulatory regime that encourages, rather than inhibits, materials recycling, that is protective of public health and the environment, and that allows the development of new and innovative recycling technologies.

2. Waste treatment and/or disposal conducted under the guise of recycling (so-called "sham recycling") should be regulated under Subtitle C or Subtitle D of RCRA, depending on whether the waste is "hazardous" or not.

3. Materials recycling is not waste treatment or disposal. It is an industrial process that should be subject to the same environmental protection requirements as other industrial processes, *e.g.*, Clean Air Act and Clean Water Act emissions and discharge limitations. Materials recycling also should be subject to Subtitle C of RCRA to the extent that the process generates a listed or characteristic hazardous waste that is discarded.

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4. Recycled materials that are currently exempt from RCRA requirements should continue to be exempt. These exempt materials include scrap metal[1] and other secondary materials that are recycled by being:

(a) Used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed;

(b) Used or reused as effective substitutes for commercial products;

(c) Returned to the process from which they are generated, without first being reclaimed; or

(d) Circulated and reused within a closed-loop process, whether or not they are reclaimed within that process;

provided that the recycled material is *not* (i) accumulated speculatively, or (ii) identified by the Administrator as being inherently waste-like in nature.

As under current law, materials in this category should not be considered "solid wastes" and should not be subject to regulation under RCRA once they are identified as being destined for recycling in one of the ways described in paragraph 4(a), (b), (c), or (d) above.[2]

5. Secondary materials that are recycled by being "reclaimed" should be regarded as inputs to an industrial process and should *not* be defined or regulated as "solid waste" or "hazardous waste." Instead, they should be defined as "reclaimable materials" and should be subject to special regulatory requirements to be established under a new subtitle of RCRA.[3] The new subtitle would establish

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[1] Scrap metal is not subject to regulation as a hazardous waste under the current RCRA regulations. *See* 40 C.F.R. § 261.6(a)(3)(iv).

[2] Excluding the materials described in paragraph 4 from regulation under RCRA simply codifies § 261.2(e) of the current RCRA regulations and makes explicit the fact that materials that are reused within a closed-loop process (including materials referred to in 40 C.F.R. § 261.4(a)(8) of the current regulations) are not discarded and should not be regulated under RCRA.

[3] A secondary material that is processed or used in a way that does not meet the conditions set forth in the definition of "reclamation" should be deemed to be solid or hazardous waste, rather than a "reclaimable material," and should be subject to regulation under Subtitle C or Subtitle D of RCRA, as appropriate. Intermediate and in-process materials are not "secondary materials" under the definitional provisions of this Statement of Principles and, therefore, would continue to be excluded from regulation under RCRA.

Persons who generate, transport, or collect spent lead-acid batteries, or who store but do not reclaim them, should not be subject to regulation under RCRA. *Cf.* 40 C.F.R. § 266.80(a). However, persons who reclaim such batteries should be subject to the requirements of the new subtitle.

requirements for persons who generate, transport, or process hazardous "reclaimable materials."[4] The requirements could include the following:

- A requirement that the generator of a reclaimable material and the processor of a reclaimable material provide a one time notification to EPA that, in the course of their business, they generate and/or reclaim a reclaimable material. The notification could identify the material(s) involved and the manner in which they are being reclaimed.

- A requirement that if the reclaimable material is shipped to an off-site facility for reclamation, it be accompanied by a reclaimable materials manifest.

- A requirement that reclaimable materials be stored in accordance with standards promulgated by EPA.

- A requirement to maintain such records as the EPA Administrator reasonably determines are necessary to ensure that the reclaimable material is not being "accumulated speculatively" and that the reclamation facility is in compliance with the requirements of the new subtitle.

- A requirement to conduct such monitoring or other testing as the EPA Administrator reasonably determines is necessary to verify compliance with the requirements of the new subtitle.

6. A secondary material generated in a reclamation process should be judged on its own merits, rather than having its "hazard" status determined by reference to the reclaimable material that was processed at the reclamation facility. The "derived from" rule of Subtitle C of RCRA should not apply. Under the new subtitle, a secondary material produced in a reclamation process could be used as a product applied to the land, if it (i) does not exhibit any characteristic of hazardous waste identified by EPA and (ii) is not separately listed as a hazardous waste by EPA. If such a secondary material does exhibit a characteristic of hazardous waste or is separately listed as a hazardous waste by EPA, it would have to be managed as a hazardous waste under Subtitle C.

[4] A secondary material destined for reclamation would be deemed to be a hazardous reclaimable material, if it would have been deemed a hazardous waste if it had been discarded rather than reclaimed.

Definitions

For purposes of the foregoing Statement of Principles:

(1) The term "secondary material" means --

(a) a material (other than a product, co-product, and intermediate or in-process material) that is produced as an incident to an industrial process, including recycling; and

(b) a product or co-product the use of which has been completed.

By-products, residues, spent materials, obsolete consumer products, and scrap are examples of secondary materials produced as an incident to an industrial process.

(2) The term "co-product" means a material that is not the principal product of an industrial process but that can be used as a product or as a feed material for an industrial process.

(3) The term "intermediate or in-process material" means a material generated in an industrial process that is destined for further processing to produce a product, co-product, or an industrial raw material.

(4) The term "reclaimable material" means a secondary material that is destined for reclamation.

(5) The term "reclamation" means the recovery from a secondary material of product that is returned to commerce, either as an ultimate product or as a feed material for an industrial process, or the regeneration of a secondary material into a product that is returned to commerce. To qualify as "reclamation," the activity involved must meet the following conditions:

(a) The secondary material that is to be reclaimed must meet specifications, established by the reclaimer, relating to the reclamation process or to one or more of the products produced in the reclamation process.

(b) The secondary material that is to be reclaimed must be handled in a manner designed to minimize loss.

(c) The operator of the reclamation facility must maintain adequate records relating to the receipt and processing of the secondary material and to the sale or on-site use of the products produced.

(d) At least one product of the reclamation process --

(i) must be returned to commercial use (either as an ultimate product or as a feed material for an industrial process),

(ii) must be used in a way that does not solely involve application to the land, and

(iii) must meet specifications established for its use in commerce as a product or process feed material.[5]

[5] Where reclamation involves sequential operations, the reclamation process should be deemed to include products of the sequential downstream processes for purposes of determining whether the conditions of paragraph (d) are met.

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☆ U.S. GOVERNMENT PRINTING OFFICE:1992-617-003/67036