TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 21, 2006

VIA OVERNIGHT DELIVERY

Ms. Heather McMurray

Re: Public Information Act Request Regarding EPA's Analysis of ENCYCLE material leading to DOJ's Asarco multimedia consent decree
PIA No. 06.07.05.01

Dear Ms. McMurray,

In response to your e-mail request received by the Agency on July 5, 2006, enclosed please find a copy of the document referenced above, which may also be referred to as "EPA Response to Encycle/Asarco Settlement Statement."

If we can be of any further assistance, please do not hesitate to contact me at (512) 239-4113.

Sincerely,

Booker Harrison
Senior Attorney
Environmental Law Division

U.S. Department of Justice

Environment and Natural Resources Division

90-7-1-886

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July 31, 1998

By Hand

Peter J. Nickles
John T. Smith
Covington & Burling
1201 Pennsylvania Avenue, N.W.
P.O. Box 7566
Washington, D.C. 20044-7566

Dear Peter and J.T.:

Enclosed is the EPA's Response To the Encycle/ASARCO Settlement Statement. We look forward to meeting again on these issues after Encycle and ASARCO have an opportunity to review it.

Sincerely,

Michael D. Goodstein

Enclosure

CONFIDENTIAL: For Settlement Purposes Only July 31, 1998

EPA RESPONSE TO ENCYCLE/ASARCO SETTLEMENT STATEMENT

I. Summary

The basic position put forth in the Encycle/ASARCO settlement statement of June 9, 1998 ("the settlement statement") is that no penalties are appropriate for any activities that Encycle and ASARCO perceive to be covered by the Texas Water Commission ("TWC") letter of September 27, 1989 ("TWC letter"). Encycle and ASARCO contend that the letter from the TWC referencing the exemption in 40 C.F.R. § 261.2(e)(1)(ii) for use/reuse as an effective substitute for a commercial product ("the use/reuse exemption") covers the unpermitted management of hazardous waste, i.e., Encycle alleged metals concentrate products (Encycle alleged "products") at the Corpus Christi facility, and further covers the unmanifested shipment of Encycle alleged "products" to ASARCO's East Helena and El Paso smelters, and to other customers both domestic and international. Additionally, Encycle and ASARCO contend that the TWC letter also covers the failure of ASARCO to properly manage Encycle alleged "products" as hazardous waste at its two receiving smelters.

Even under Encycle and ASARCO's stated interpretation, however, the TWC letter cannot be construed to cover sham recycling. Therefore, the evidence of sham recycling is an appropriate starting point in this response to the settlement statement. As previously discussed and outlined below, Encycle's own business records provide compelling evidence of sham recycling. Numerous hazardous wastes with little or no recoverable metals value, were mixed into Encycle alleged "products". This activity constituted unpermitted treatment and storage of RCRA hazardous waste at Encycle. This practice led to further unpermitted storage, and disposal of RCRA hazardous waste at the smelters. The wholesale commingling of the sham hazardous wastes into Encycle alleged "products" rendered the alleged "products" and Encycle's alleged exempt recycling processes ineligible for any recycling exemption. For this reason alone, the analysis provided in the settlement statement is fatally flawed, and should be expeditiously reconsidered by Encycle and ASARCO.

In addition to the sham recycling evidence, a review of applicable law and the details of Encycle's operations compels the conclusion that even if it had been accepting only legitimate recyclables, the Encycle alleged "products" still could never have qualified for the use/reuse exemption referenced in the TWC letter. The use/reuse exemption is not available for wastes that

are being reclaimed. Because the alleged "products" were being reclaimed at smelters and other metals recovery facilities, Encycle and ASARCO should have concluded that none of the use/reuse exemptions were applicable to Encycle alleged "products". Importantly, in addition to the language of the regulation, pertinent explanations of the regulations by EPA were not only publicly available to Encycle and ASARCO during the relevant time period, but were provided to them by the TWC as early as 1988. Encycle and ASARCO had actual notice of EPA's relevant regulatory interpretations prior to receiving the TWC letter upon which Encycle and ASARCO so heavily rely.

Additionally, based on the information now available to the governments, including the information in the settlement statement, it remains clear that the submittals made by Encycle to the TWC about its operations, upon which the 1989 TWC letter was based, did not accurately describe the processes employed by Encycle. As previously articulated, and outlined below, the Encycle submittal upon which the 1989 TWC letter was based, completely omitted a description of the substantial direct mixing of unprocessed hazardous waste into its alleged "product". Nothing in the settlement statement effectively disputes these facts. As such, the TWC letter was inappropriately relied on by Encycle and ASARCO, because the application of the exemption to Encycle alleged "products" was legally erroneous, and also because the operations documented to the TWC were different than Encycle's actual operations.

II. Encycle and ASARCO Engaged In Extensive Sham Recycling

When EPA promulgated the new definition of solid waste in 1985, the Agency discussed the importance of determining whether a claimed recycling activity was legitimate or sham. To aid the regulated community and regulators in making such a determination, EPA articulated the "sham recycling criteria" - a list of factors that could be evaluated to determine whether an activity was recycling or surrogate disposal. 50 Fed. Reg. 614, 638-639, 646 n.36 (1985). The Agency has expounded on the criteria on other occasions as well. See e.g. 52 Fed. Reg. 16982, 17013 (May 6, 1987) and 53 Fed. Reg. 519, 522 (January 8, 1988). Encycle's historic operations fair poorly under most of the sham recycling criteria. The evidence pertaining to one of the factors is so compelling, however, it is not necessary to discuss the remainder of the factors. EPA has made clear that sham recycling, as opposed to legitimate recycling, occurs when the hazardous waste purportedly recycled contributes in no significant way to the production of the product allegedly resulting from the recycling. The 5th Circuit U.S. Court of

Appeals affirmed this position in United States v. Marine Shale Processors, 81 F.3d 1371 (5th Cir. 1996). There the Court held that EPA had properly refused to grant a Boiler and Industrial Furnace permit to Marine Shale after determining that the company was engaged in sham recycling. EPA's decision in Marine Shale was based in large part on the fact that the facility was burning "zero value" wastes, i.e., hazardous wastes that contained no material or energy value, and therefore, could not contribute to the production of the aggregate "product" Marine Shale claimed to produce. See Id. at 1381.

This principle applies equally to Encycle's operations. Obviously, metals cannot be recovered from hazardous wastes that contain virtually no metals. "If the waste does not in fact serve its alleged function in the process, then sham recycling is occurring." Marine Shale, 81 F. 3d. 1361 at 1365 (5th Cir. 1996). For use in its alleged "products", Encycle was purportedly only accepting wastes for metals recycling that could contribute in a significant way to the production of metal concentrates; that is, wastes that contained recoverable quantities of target metals. In its submittal to the TWC, Encycle represented that it was performing appropriate screening on wastes accepted by Encycle for incorporation into metals concentrates. See Letter from Cardenas to Reynolds of 7/12/89, at 2 a copy of which is attached as Exhibit E to the settlement statement (maintaining that Encycle had a procedure to determine whether a quality material can be reclaimed from the waste).

As shown in Exhibits A-1 and A-2, hereto, however, Encycle routinely accepted wastes with little or no metals values, and "blended" these wastes into its metals concentrates. The data in Exhibit A-1 is a summary of material movement tickets, also known as batch sheets ("MMTs") provided to the governments by Encycle. As confirmed by Encycle employees, the MMTs are management and process documents used routinely by Encycle. According to Encycle employees, as each load of incoming material is received it is assayed. The assay data is entered into a computer for use on the MMTs. At no time during any of the site visits by EPA investigators did anyone at Encycle state that the data on the MMTs do not fully and accurately reflect assays of the material in question.

After providing a number MMTs to the governments, and after a number of Encycle representatives provided statements to government investigators establishing the reliability of these records, Encycle and ASARCO contended in their settlement statement, for the first time that these Encycle records are somehow inaccurate. As a result, Texas investigators returned

this week to Encycle to review Encycle assay data. For the MMTs summarized on Exhibit A-1 we have confirmed that the assay data supports the data on the MMTs, where such data was available. Moreover, even in this preliminary review of Encycle assay data this week additional evidence of sham recycling was discovered. Exhibit A-2 is a summary of assay data for a number of specific generators showing waste loads which were accepted and processed at Encycle. This data shows that numerous loads of these specific waste streams had virtually no recoverable metals. From our preliminary review of Encycle material movement tickets and assay data, it can be determined that at least 247 shipments, totaling approximately 5,079 tons of hazardous waste that had virtually no metals value, were received and incorporated into Encycle alleged "products". This activity, plain and simple, was illegal treatment and disposal of hazardous waste, since the wastes could not have contributed in any significant way to the production of the metals concentrates.

In addition to accepting wastes with no significant value for mixture into its alleged "products", Encycle also mixed hazardous waste sludges generated from its wastewater treatment plant into its alleged "products". This is another form of sham recycling since these hazardous waste sludges had no recycling value. The sludges from the WWTP are hazardous wastes because they derive from hazardous wastes. 40 C.F.R. § 261.3(c)(2). Encycle has represented that its hydrometalurgical processes are designed to remove the metals from the wastes processed. Therefore, these sludges contained no significant metals value and must have been included for disposal purposes only. Since they had no legitimate recycling value they could have added no value to the alleged "products". Evidence obtained regarding the historic Encycle processes establish that all wastewaters generated from the hydrometalurgical processes flow to the pretreatment units in Facility 1. Wastewater is pretreated and residues which may arguably contain some metals values recovered. These residues are also mixed with the alleged "product". Pretreated wastewater is then discharged to the wastewater treatment plant, also known as the neutralization plant ("WWTP") for further treatment. Solids generated at the WWTP were put back in the processes while the effluent was discharged through NPDES outfall 001. See copies of Encycle's own process flow diagrams attached hereto as Exhibit B. Once these clearly sham wastes carrying listed waste codes were mixed with other potentially legitimate waste streams and into Encycle's alleged products, there was no question that the resultant mixtures were regulated RCRA hazardous waste.

The illegal treatment and disposal activities resulting from sham recycling could not possibly have been sanctioned by the TWC letter since the letter references a recycling exemption only available for legitimate recycling activities. The Texas regulation cited by the TWC in the 1989 letter, 31 TAC § 335.1(F)(ii), is based on federal regulation 40 C.F.R. § 261.2(e)(1)(ii). In the publication of the definition of solid waste on January 4, 1985, EPA articulated the criteria for legitimate recycling. 50 Fed. Reg. 614 at 638-639 (January 4, 1985). Also see, 50 Fed. Reg. at 646 n.36 (noting that "the wastes must contribute to the effectiveness of the waste-derived product" to be regarded as recycled). These criteria were reiterated on numerous occasions prior to Encycle's operations. See, e.g., 53 Fed. Reg. 17,578, 17,606 (1988) (explaining that recycling means that the hazardous waste legitimately contributes to the product) Also see, Memorandum from Lowrance to Hazardous Waste Management Division Directors EPA Regions I-X at 1-2 and attachment (April 26, 1989), a copy of which is attached hereto as Exhibit C (a major consideration in assessing whether an activity is sham recycling is whether the material truly has value). Moreover, in its 1989 letter, the TWC reiterated to Encycle that any exempt recycling must be legitimate: "[i]n order to exempt any waste from regulation as solid waste, TWC must be assured the method of managing and recycling the waste is legitimate, beneficial, allowable under current state and federal regulations, and assures the protection of the public health and the environment." TWC Letter attached as Exhibit A to the settlement statement at 5. Therefore, Encycle and ASARCO have no argument that the TWC letter somehow sanctioned sham recycling or that they were not fairly notified of the requirement that any recycling must be legitimate.

III. Encycle Alleged "Products" Do Not Qualify For The Use/Reuse Exemption Claimed.

The settlement statement accuses EPA of not clearly articulating its basis for determining that Encycle alleged "products" are not exempt from the definition of solid waste and are regulated hazardous wastes. Therefore, once again the governments shall articulate this basis here. There is no dispute that Encycle alleged "products" contain listed hazardous waste. There is further no dispute that Encycle alleged "products" are reclaimed at the smelters. As such, the Encycle alleged "products" are hazardous wastes until they are ultimately reclaimed. 40 C.F.R. § 261.2(c)(3) and Table 1 therein.

Encycle and ASARCO have claimed that Encycle alleged "products" are exempt from the definition of solid waste because

they are "used or reused as effective substitutes for a commercial product." 40 C.F.R. § 261.2(e)(1)(ii) and 31 T.A.C. 335.1(F)(ii). When the definition of solid waste was promulgated in 1985, however, it was made clear in the Federal Register publication that reclamation and use/reuse are mutually exclusive terms and that an exemption for use/reuse as an ingredient or as an effective substitute for a commercial product cannot apply when reclamation, such as metals recovery, is occurring.

In its proposed definition of reclamation in 1983, EPA had considered an exception that would have covered use or reuse of materials "as effective substitutes for raw materials in processes using raw materials as principal feedstocks (for example, sludges used as substitutes for ore concentrates in primary smelting)" This exception, however, was expressly excluded from the final definition of reclamation promulgated in 1985. Compare Proposed Rule at 48 Fed. Reg. 14472 at 14508, § 261.2(c)(1)(i),(ii),(iii) with Final Rule at § 261.2(e)(1)(i),(ii),(iii) at 50 Fed Reg. at 664. Note that the definition of reclamation was proposed essentially as promulgated, but that three types of reclamation were to be considered use/reuse (and carved out of the reclamation definition), and that there was no independent definition of the term use/reuse in the proposed rule. In the final rule, of course, the terms reclamation and use/reuse became independent, and as shown below, mutually exclusive.

The 1985 preamble to the final rule unambiguously explained the fate of the proposed exclusion (See 50 Fed. Reg. 614 at 633-634, and 637-641 (January 4, 1985)), and the resultant RCRA Subtitle C regulatory status of the wastestreams that might have otherwise qualified for the proposed exclusion. EPA "decided not to promulgate this exclusion as proposed, but rather to limit its scope to the closed-loop production situations..." Id., at 640. The preamble also states, "[t]he final regulations thus provide that the following secondary materials are wastes when reclaimed by either primary or secondary reclamation operations, unless the materials are returned to the primary smelting process from which they were generated without first being reclaimed: (1) [s]ludges and by-products that are listed in §§261.31 and 261.32[;](2)[a]ll hazardous spent materials..." Id. at 641 (emphasis added).

The preamble discussion of the final definition of solid waste provides unequivocally that the use/reuse exemptions are not applicable to materials that are reclaimed. In explaining the final definition of reclamation EPA states,

> Under the final rule, spent materials, listed sludges, and listed by-products that are processed to recover usable products, or that are regenerated -i.e., that are reclaimed - are solid wastes. If the material is to be put to use after it has been reclaimed, it still is a solid waste until reclamation has been completed. Thus, the fact that wastes may be used after being reclaimed does not affect their status as wastes before and while being reclaimed.
>
> 50 Fed. Reg. 614 at 633 (January 4, 1985)(Emphasis added)

In the discussion of the use/reuse exemptions the Agency made clear again that the exemptions do not apply to materials that are being reclaimed. The preamble provides a list of circumstances where "the nature of the material or the nature of the recycling activity indicates that RCRA jurisdiction exists." EPA concludes the list by stating " when a component of the material is recovered as an end product, the material is being reclaimed, not used." 50 Fed. Reg. 614, 638 (January 4, 1985) (emphasis added).

The preamble also elaborates on the distinction between use as a substitute for a commercial product and reclamation:

> When secondary materials are *directly* used as substitutes for commercial products, we also believe these materials are functioning as raw materials and therefore are outside of RCRA's jurisdiction and, thus, are not wastes. Examples are certain sludges that are used as water conditioners and by-products [sic] hydrochloric acid from chemical manufacture used in steel pickling. In these examples, the recycled materials are substituting for other commercial products, and material values are not being recovered from them.

Id. at 619-620 (underline added).

In light of the final promulgation of the rule, use/reuse can occur only if a component of the material (material values) is not recovered as an end product, otherwise the wastes are being reclaimed.

Any analysis under the use/reuse exclusions must therefore focus on whether reclamation of the wastes is occurring. Reclamation is defined as either recovery of a useful product or regeneration of a product for its original use. 40 C.F.R. § 261.1(c)(4). Recovery is defined as the recovery of distinct components of a secondary material as separate end

products. 40 C.F.R. § 261.1(c)(5)(I). Therefore, metals recovery through smelting is obviously reclamation.

Encycle and ASARCO base their reliance on the use/reuse exemption on the fact that Section 261.2(e)(1)(ii) (the commercial product use/reuse exemption) does not contain an express proviso disallowing the exemption for wastes that are reclaimed. Given the clear intent of the commercial product use/reuse exemption however, such a proviso was unnecessary. As backgound for the final rule, the April 4, 1983 preamble explained the exclusion to cover materials used "as substitutes for commercial products in particular functions or applications. An example is spent pickle liquor used as a phosphorus precipitant and sludge conditioner in wastewater treatment. This does not regenerate or recover the pickle liquors." 48 Fed. Reg., at 14488 (emphasis added). The explanation in the 1985 preamble cited above also states unequivocally that a secondary material must be directly used as an "effective substitute for a commercial product" and not undergo any type of preprocessing to be subject to the exemption. In light of this context, Encycle and ASARCO's semantic argument is unavailing.

Encycle does not produce a reclaimed "product" that would be free from RCRA regulation. Spent materials, or listed sludges or by-products (such as F006) were the majority of Encycle's feedstocks. See EPA's summary of waste received and processed at Encycle, a copy of which is attached as Exhibit D-1 hereto. There is no question that Encycle alleged "products" must undergo reclamation at the smelters if any actual metals recycling is going to occur. See EPA's summary of Encycle shipments to ASARCO smelters, a copy of which is attached as Exhibit D-2. These types of wastes are hazardous wastes under RCRA because they are destined for metals reclamation and they remain hazardous wastes until reclamation is complete. There is no question that Encycle's hydrometalurgical processes constitute, at best, only partial reclamation. No actual metals recovery takes place at Encycle, this occurs only at the smelters. EPA has clearly articulated that hazardous wastes that are only partially reclaimed or processed minimally, remain hazardous wastes until material recovery is complete. 40 C.F.R. § 261.2(c)(3). See also, 48 Fed. Reg. at 14489, which shows that as early as 1983, EPA clearly articulated that preparation for reclamation was not complete reclamation: "[w]e also caution that waste materials do not become products if they are merely processed minimally - *i.e.*, operations that leave materials unfit for use without further processing. For instance, a hazardous sludge remains a waste when it is dewatered and sent to a metal reclaimer or used in a manner constituting disposal." and 50 Fed.

Reg., at 634, which states that "reclaimed metals that are suitable for direct use, or that only have to be refined to be usable are products, not wastes. . . . The principle . . . does not apply to wastes that have been processed minimally, or to materials that have been partially reclaimed but must be reclaimed further before recovery is completed." (Emphasis added).

EPA interpretive memoranda available to the public during the relevant period reiterated this concept. For example, in 1989, the Director of the EPA Office of Solid Waste circulated a memorandum to each of her Regional Hazardous Waste Management Directors regarding F006 recycling which addressed these issues. The memorandum states: "For F006 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 [citations omitted]. Furthermore, because this is a recovery process, the F006 waste remains a hazardous waste (and must be managed as such prior to the introduction to the process)..." Memorandum from Lowrance to Hazardous Waste Management Division Directors EPA Regions I-X at 2-3 (April 29, 1989)(emphasis added). Exhibit C hereto. Also, in 1989, the Deputy Director of the Characterization and Assessment Division of EPA's Office of Solid Waste in discussing the exclusion in 40 C.F.R. § 261.2(e)(1)(ii)(use/reuse of a material as a substitute for a commercial product), stated, "This exclusion applies to materials which are used or reused without reclamation (see the January 4, 1985 Federal Register notice, 50 FR 637, 638)." EPA Memorandum from Straus to Ulrich at 2 (Sept. 12, 1989) a copy of which is attached as Exhibit E. Such memoranda have been publically available since the RCRA Policy Compendium was started in 1985.

Appropriately, the TWC cited to the pertinent Federal Register language in its first letter to Encycle of December 30, 1988: "If the material is to be put to use after it has been reclaimed, it is still a solid waste until reclamation has been completed. Thus, the fact that wastes may be used after being reclaimed does not affect their status as wastes before and while being reclaimed." The TWC letter further provided that according to the federal register notice, listed wastes that have been partially reclaimed, but must be reclaimed further, are not exempt from the definition of solid waste. See letter to Stephenson from Hatten at 1-2 (December 30, 1988). A copy of which is attached as Exhibit F. Again, these provisions from the Federal Register are equally applicable to both the ingredient and commercial product use/reuse exemption.

Therefore, in the 1985 to 1989 timeframe, Encycle and ASARCO were on <u>actual</u> notice from the regulations (including the definition of solid waste promulgated in 1985), the Federal Register preambles cited herein, and EPA interpretive correspondence in that period, and further, were expressly notified by the TWC letter of December 30, 1988, of EPA's regulatory interpretation. They were clearly on notice that under EPA's view, Encycle alleged "products" were not eligible for any use/reuse exemption. The analogous Texas regulations were based on the Federal regulations, therefore, Encycle and ASARCO were also on notice of EPA's stated position that Encycle alleged "products" could not qualify for the analogous Texas exemption.

Encycle's legal analysis provided to the TWC in its letter of July 12, 1989 was wrong because it omitted consideration of the pronouncements of EPA on these issues and did not consider the intent and meaning of the regulations incorporated into the Texas program, in light of these pronouncements. Encycle's analysis failed to consider that Encycle alleged "products", containing spent materials and listed by-products and sludges, were ultimately reclaimed at the smelters. As such, Encycle alleged "products" could not qualify for a use/reuse exemption. Even assuming that Encycle only accepted legitimate recyclables, the legal interpretation in the TWC letter, upon which Encycle and ASARCO rely, is erroneous. As provided above, the RCRA regulations distinguish between reclamation and use/reuse and make these mutually exclusive categories. This was overlooked in Encycle's analysis.

IV. Encycle and ASARCO Cannot Rely on the September 27, 1989 TWC Letter Because The Description of Encycle's Processes Was Inaccurate.

Encycle and ASARCO cannot rely on the TWC letter for the additional reason that Encycle failed to accurately document its processes to the TWC. In its submittal to the TWC on July 12, 1989, Encycle only documented hydrometalurgical processes and assurred the TWC that all wastes would be processed through the hydrometalurgical processes:

> E/TI produces metallic compounds from these wastes through a series of reclamation steps as shown in the general flow diagram (Attachment B). The waste streams are first subjected to pH adjustment and filtration (for corrosive wastes); alkaline chlorination for cyanide wastes; and a reduction step for chromium bearing wastes. Following these steps, the treated

stream goes through further pH adjustment and/or sulfide precipitation and filtration steps.

Letter from Cardenas to Beinke at 1 (July 12, 1989). A copy of which is attached as Exhibit E to the settlement statement.

Encycle further represented that "the process is an extensive one involving careful pH control and sequential precipitation." Id. at 2. There is no dispute that substantial amounts of hazardous wastes received by Encycle were put directly into "product" bins without any processing whatsoever at Encycle. See EPA summary of wastes received and processed by Encycle, a copy of which is attached as Exhibit D, and EPA process flow diagram which shows mixing and blending ("PMP") operations, a copy of which is attached = Exhibit G. Since the TWC letter was based on the representations that an extensive hydrometalurgical process was to be performed on all the wastes received by Encycle, it cannot be relied on to cover wastes that were not processed in this manner, or to otherwise "properly" processed wastes that were mixed with unprocessed wastes (in combination, approximately 8l3 of the feedstocks comprising Encycle alleged "products" during the period in question). See Exhibit D. In addition, the mixture of sham wastes into the process streams, or directly into alleged "product" divests the resultant mixtures of any exclusion the non-sham portion might have enjoyed.

Encycle and ASARCO contend that the TWC letter addressed the mixing and blending activities by providing, "the fact that a portion of the described process is performed at another location does not alter the status of Encycle/Texas Inc's. solids..." Exhibit A to the settlement statement at 4 (emphasis added). This language, however, cannot possibly be construed to cover the approximately one third of hazardous wastes received by Encycle that did not undergo any portion of the process documented to the TWC and which were mixed directly into "product" bins. In addition, the mixing activity, which provides no significant concentrating of metals in the waste being blended in, constitutes unpermitted treatment because it does not meet the definition of reclamation (it is not "recovery of distinct components of a secondary material as separate end products"). See 40 C.F.R. 261.1(c)(5)(i).

Encycle and ASARCO attempt to argue that Texas knew fully at the outset about the direct mixing of hazardous waste unprocessed at Encycle into its alleged "product" because of annual inspections under the storage permit, and other interactions with Encycle representatives. No evidence of this is provided in the settlement statement, however. Encycle and

ASARCO merely present a copy of an informal internal Encycle document and the self-serving, unsubstantiated speculation of a former Encycle President that this document "may" have been provided to Texas. Other weak attempts at proof on this point are references to inspection reports starting in 1994 that cite issues regarding the direct mixing operations. By then, of course the investigation that culminated in this enforcement action was commencing. As such, these references do not show acquiescence on the part of the state in the unlawful blending activities. Texas' position regarding these matters was confirmed in prior meetings with Encycle and further confirmed recently in the June 9, 1998 letter to the President of Encycle from the Hazardous Waste Director of the Texas Natural Resources Conservation Commission which states, inter alia, that "the available information indicates that the exemption provisions cited in the earlier letters are not applicable to the materials Encycle produces and Encycle's reliance on the letters has been misplaced." See letter from Hibbs to Mossholder (June 10, 1998), a copy of which is attached as Exhibit H hereto.

Encycle did not process hazardous wastes received as represented. It is therefore, not surprising that inspections by TNRCC and site visits by prospective customers did not initially disclose the RCRA violations associated with Encycle's operations. Encycle failed to properly screen wastes entering its process as outlined in Section II above (sham recycling) and did not process all wastes hydrometalurgically. This was inconsistent with its representations to the TWC. Additionally, Encycle did not specify to the TWC in it submittals that it was putting waste sludges with no recycling value back into its process from its wastewater treatment plant. For these reasons, Encycle and ASARCO cannot rely on the TWC letter.

V. Encycle and ASARCO Were On Notice of EPA's Regulatory Interpretation.

Agency promulgation of a regulation provides fair and adequate notice of the Agency's interpretation "[i]f, by reviewing the regulations and other public statements issued by the agency, a regulated party acting in good faith would be able to identify, with 'ascertainable certainty,' the standards with which the agency expects parties to conform." General Electric Co. v. United States EPA, 53 F.3d 1324, 1329 (D.C. Cir. 1995). The definition of solid waste, as promulgated by EPA in 1985, is 'reasonably comprehensible to people of good faith.' Id. at 1330 (citing McElroy Electronics Corp. v. FCC, 990 F.2d 1351, 1358 (D.C. Cir. 1993)). The preamble to the regulations in the

Federal Register states unequivocally that use/reuse and reclamation are mutually exclusive; that the proposed exclusion Encycle and Asarco might have been able to enjoy was expressly not promulgated, and that Encycle and Asarco's activities, when taken together, clearly constitute reclamation activities. See supra discussion at Part III. The preamble to a regulation should be considered in construing the regulation and determining the meaning of the regulation. Wiggins Bros., Inc. v. Department of Energy, 667 F.2d 77 at 78 (Temp Emer. Ct. App. 1981), cert. den., 456 U.S. 905 (1982). Also see, Kennecott Utah Cooper Corp. v. Department of Interior, 88 F.3d 1191, 1223 (D.C. Cir. 1996)(Court may infer that the agency intended the preamble to be binding if what it requires is sufficiently clear). The preamble is clear in stating that no use/reuse exemption is available if the material is reclaimed and in defining sham recycling. Taking into account the preamble language the only reasonable interpretation is that the use/reuse exemption cannot apply when reclamation type activities are occurring.

As stated above, Encycle and ASARCO had fair notice from the regulations. However, even if Encycle and ASARCO successfully argue that they did not receive fair notice from the promulgation of the regulations in 1985, Encycle and ASARCO did receive fair notice of EPA's interpretation from the TWC in 1988. The TWC letter of December 30, 1988, Exhibit F hereto, affirmatively stated that according to EPA's interpretation of the regulations Encycle alleged "products" were not exempt. Therefore, even if the language of the regulations and federal register notices were found to be ambiguous, Encycle and ASARCO had actual notice of EPA's interpretation the day it received the TWC's letter.

Similarly, Encycle and ASARCO have had fair notice from the regulations and other public statements by EPA regarding the distinction between sham recycling and legitimate recycling. See supra discussion at Part II. Moreover, the TWC letter of September 27, 1989, Exhibit A to the settlement statement, affirmatively stated that any claimed "recycling" must be legitimate.

VI. Encycle and Asarco's Proposal Does Not Appropriately Reflect The Gravity and Duration Of The Violations, And The Economic Benefit Resulting From The Violations

In light of the foregoing, it is clear that the central basis for ASARCO's proposal in the settlement statement of June 9, 1998 is flawed and the proposal should be reconsidered in its entirety. Nontheless, we will address a few points regarding the

Encycle and ASARCO penalty calculations and SEP proposals here to set the stage for further discussions.

A. Penalties For Encycle

With regard to the Waste Analysis Plan violations Encycle and ASARCO must consider the failure of Encycle's waste screening procedures in the evaluation of these claims. As a result, Encycle engaged in substantial sham recycling.

With regard to the other violations related to Encycle's alleged recycling activities, Encycle and ASARCO's analysis must be reevaluated in light of Sections I through V above.

B. Penalties For The ASARCO Smelters

With regard to the El Paso facility, Encycle and ASARCO contend that because Texas did not identify the Encycle alleged "product" as hazardous waste during inspections at El Paso, the governments should not seek a substantial penalty at El Paso. The Encycle wastes were handled at El Paso in the same way ore concentrates were handled, however. As such, the Encycle wastes were not easily identified at El Paso as hazardous wastes by inspectors who did not have the information that ASARCO had regarding the composition of the wastes. Likewise, at East Helena, although it was difficult for inspectors to identify the Encycle alleged "product" as hazardous wastes, once identified by EPA and State of Montana officials, the mismanagement of Encycle wastes at East Helena was included in the investigation of Encycle. Further action on the part of Montana was unnecessary. Since the key to confirming the regulatory status of Encycle wastes at the smelters was the investigation of Encycle's facility, it was appropriate for inspectors at the smelters to reserve citing ASARCO for violations associated with Encycle wastes until the full investigation was completed. The delay in enforcement action was not acquiescence, it was the period of time required for the full investigation to be completed.

With regard to economic benefit for each of the smelters, the economic benefit ("BEN") scenarios used by EPA (costs saved by not upgrading the smelters to lawfully manage the hazardous wastes received) is the scenario based on actual events, i.e., ASARCO actually managed hazardous wastes at the smelters. Encycle and ASARCO's BEN scenario, that the wastes would not have been received by ASARCO's smelters had they been identified as hazardous wastes relies on speculation. While it is true that the precise BEN enjoyed by ASARCO as a result of the subject

violations has yet to be determined, it appears that ASARCO benefitted substantially from the Encycle operation.

C. World Resources Company

ASARCO and Encycle have asked that the prior resolution of RCRA enforcement matters involving World Resources Company ("WRC") influence the governments in their position in this matter. While WRC's operations have some similarities to Encycle's operation, the WRC matters referred to in the settlement statement were substantially different than this one. Encycle and ASARCO cite to an administrative penalty assessed against WRC in 1991 as grounds for assessment of a minor penalty for the violations of Encycle and ASARCO here. That WRC administrative order predated the current RCRA penalty policy, and is therefore, not comparable, however. With regard to the administrative order with WRC in Arizona, the facts of that situation were substantially different than the facts presented here. In that matter, WRC was handling its "product" as hazardous waste. While WRC briefly suspended its manifesting, claiming they were informally authorized to due so by Arizona, once advised that manifesting was indeed required, WRC promptly returned to its prior hazardous waste handling procedures.

D. EPA And TNRCC Reactions To Supplemental Environmental Project ("SEP") Proposals

1. **Electrowinning:** Certain aspects of this proposed project potentially have merit as a SEP project under the Texas Natural Resource Conservation commission ("TNRCC") and the EPA SEP policies. The credit that Encycle can receive for the project, however, is limited. First, although both agencies wish to encourage efforts to develop and use experimental technologies, neither the TNRCC nor the EPA can subsidize the expansion or development of new business. This concern reduces the value of the proposed SEP significantly.

Second, while EPA is willing to give SEP credit for bench testing and pilot testing of new technology if there is some evidence that the technology will be successful, the TNRCC, believes that the environmental benefit of the assessment and testing of unproven technology is too intangible to qualify as a valid SEP project. Encycle's current proposal appears to be a purely experimental project which may or may not benefit the environment. It would be difficult to approve a SEP project without some measurable benefit to the environment.

The TNRCC and EPA would both like to encourage a modification to the proposal that would give the proposal more value as a SEP. For example, once the technology was installed and proven successful, the Agencies would entertain the possibility of giving some SEP credit if Encycle processed hazardous waste for small businesses not presently served by Encycle, free of charge. The Agencies might also consider SEP credit if Encycle promoted the technology or provided training on the technology to other recycling facilities.

2. **Demolition Projects**: Both the TNRCC and EPA believe that the value of these proposed projects is compromised by the fact that Encycle will benefit substantially from the demolition of the structures. The Agencies believe that Encycle probably would have performed the demolition for a number of reasons, including the elimination of facilities that are no longer in use, expansion of the facilities, and reduction of long term liability for the companies. To allow even minimal SEP credit for the demolition projects, Encycle would need to prove that the buildings are in fact contaminated and that there is a real possibility that the contamination will be released into the environment. In evaluating SEP projects, the TNRCC and EPA weigh heavily whether the project will improve the environment of the community where the violation occurred. As such, in addition to establishing proof of contamination, Encycle needs to provide evidence that the contamination has, or will, impact the community surrounding the facility. Many of the proposed demolition sites appear to be located in the center of the facilities, which reduces the likelihood of migration of contaminants off site. Thus, the projects provide little protection for, or environmental benefit to, the community.

3. **Mercury removal at East Helena**: At first blush, this proposal appears to have potential merit as a SEP. To make a final determination, however, EPA would need to have more information about the efficacy of the technology that would be installed. In addition, the Agency would need to be assured that the mercury removal was not required as part of the on-going clean-up activities at the site or under Clean Air Act requirements.

4. **Note For El Paso:** In the recent past, El Paso has been the subject of an enforcement action by the TNRCC which resulted in a SEP. When evaluating a respondents eligibility for a SEP, Texas' policy requires consideration of the facility's compliance history. During the settlement of the prior action, the TNRCC agreed to an on-site demolition project as a SEP. ASARCO is still performing this SEP. The fact that El Paso

is currently participating in the SEP program influences its ability to participate in the TNRCC SEP program again. While Texas has not decided at this time to exclude El Paso from consideration for the SEP program in this case, TNRCC is particularly concerned about any additional projects that credit ASARCO for improving its own facility. Considering the facility's compliance history, its involvement in the current RCRA enforcement action, and the TNRCC's concerns about protecting the integrity of the SEP program, the TNRCC will subject ASARCO's SEP proposals at El Paso to careful scrutiny. The TNRCC's primary focus in evaluating any SEP proposals by ASARCO for El Paso will be on securing a stronger, more direct benefit to the community. EPA would be particularly interested in an air quality SEP at El Paso.

5. Guidance on developing SEP's for this case: The focus of both the EPA and the TNRCC SEP policies is on encouraging projects that benefit the community where the violations occurred. While the proposed SEPs may have some beneficial environmental impacts, they do not benefit the surrounding community. This is particulary important in light of the concerns raised about contamination in neighborhoods near the facilities caused by facility activities. Both agencies would like to see, in Encycle's and ASARCO's SEP proposals, a stronger focus on benefitting the environment around the facilities.

E. TNRCC Response To Encycle and ASARCO Comments on State Penalty Calculations

Encycle and ASARCO's response to the TNRCC penalty component of the governments' Summary of Violations is self serving and misleading. Encycle and ASARCO imply that Encycle was ready to settle with the TNRCC for the demanded amount of $275,000. In fact, when the TNRCC determined to refer Encycle's violations to the Texas Attorney General, Encycle's settlement offer was considerably less than TNRCC's administrative penalty demand. In a letter from Keith Hobson to Ann Foster, dated November 21, 1995, ETI made a "low ball" offer of $22,500 to settle its penalty liability with the TNRCC. Encycle never moved off this figure, and arguably dropped its offer, when, on October 31, 1997 Mr. Hopson submitted a redlined version of TNRCC's administrative order which contained no penalty offer at all. As late as February 4, 1998, in a meeting with TNRCC, Encycle continued to dispute the amount of TNRCC's penalty demand, but made no new counter offer. Contrary to the implication of the settlement statement, the parties had resolved only one technical item - Encycle's proposed remediation approach to the lagoons - at the time TNRCC determined to refer the matter to the Attorney General's Office. Many questions remained regarding the other

items addressed in the Executive Directors's Preliminary Report.

Like any litigant, TNRCC can take a non-suit in any action it prosecutes administratively or through the Attorney General. Indeed, given the great gap between the TNRCC and Encycle on penalties and the relative lack of progress in resolving the technical issues at the Encycle facility, TNRCC was justified in exercising its discretion and referring the matter to the Attorney General for prosecution in connection with the pending federal action. The penalty demanded by the State of Texas reflects the fact that the Attorney General is authorized to seek a larger penalty than the TNRCC (up to $25,000 per day versus $10,000). Compare Tex, Health & Safety Code Ann. 7.102) with 361.251 (now Water Code 7.052). The penalty demanded by the State of Texas reflects this fact. TNRCC's penalty demand also reflects a modest additional penalty for a violation not previously considered by the TNRCC.

VII. EPA and TNRCC Corrective Action Requirements

A. Encycle Facility, Corpus Christi

Any settlement must include commitments by Encycle and ASARCO to complete ongoing corrective action at the Encycle facility and to perform additional corrective action as discussed. Here is additional information regarding the governments current position on corrective action requirements at the Encycle facility.

1. **Oversight:** Oversight of the corrective action at the facility will be conducted under TNRCC supervision with EPA concurrence.

2. **Risk Assessment:** Encycle and ASARCO may determine human health risk and all media cleanup levels at the Facility based on the most current version of the Texas Risk Reduction Rules under the following conditions:

   a. If clean-up levels are based on TNRCC's Risk Reduction Standard 1, EPA must concur on the background values used as the cleanup levels.

   b. If clean-up levels are based on TNRCC's Risk Reduction 2, Encycle and ASARCO shall insure that levels are fully protective of human and ecological receptors. Where appropriate, TNRCC reference values shall be adjusted in

accordance with provisions of the TNRCC Risk Reduction rules.

Throughout the risk assessment process, EPA will have its normal federal oversight responsibilities.

For assessment of ecological risk, Encycle and ASARCO shall use TNRCC's draft guidance for ecological risk assessment, provided that EPA concurs in the methodology and values used. For surface water, Encycle and ASARCO shall use Texas Ambient Water Quality Standards.

In recognition of the fact that TNRCC is currently in the process of revising its Risk Reduction Rules, Encycle and ASARCO shall use the approved version in place when the Work Plan is approved.

3. **Corrective Action Approach:** ASARCO and Encycle shall use a sitewide approach to corrective action as opposed to a unit-by-unit approach. A sitewide approach would involve corrective action on releases of hazardous constituents to all media (soil, air, groundwater, surface water and sediment) including all units and on-site/off-site areas which may have been impacted by those releases. The sitewide RFI shall, at a minimum, include investigation of media in, under, and nearby the units listed below.

- 01 Landfill
- East and West Lagoons
- Railroad Track Area
- Feed Tanks 1 and 2
- Road leading to and west of Building C
- Grain Elevator
- Former Sludge Drying Beds
- Reactor Clarifier
- Facilities 1, 2, 3 and 4
- West Cell House
- NOR 43

- Product Storage Building (Building "C")
- Product Storage Bins
- Building north of Facility 2
- Old Casting Building
- Outfall Number 002 off East Lagoon
- The Corpus Christi Ship channel in vicinity of the outfalls
- Any on-site or off-site waste disposal areas.

Encycle and ASARCO shall include investigative results of its current RFI being completed under its permit issued by TNRCC in its sitewide RFI.

4. Corrective Measures: Certain corrective measures at operating units at the facility may be deferred until final facility closure, if the RFI is completed immediately. However, the governments must retain the authority to determine which measures may be deferred depending on the results of the RFI and the risk assessment.

B. ASARCO Smelter, El Paso

Any settlement must include commitments by ASARCO to complete ongoing corrective action at the ASARCO smelter in El Paso and to perform some limited additional corrective action. ASARCO's cooperation regarding the July 1, 1998 site visit was greatly appreciated. The governments' requirements for additional corrective action at El Paso will be provided shortly.

VIII. Encycle Future Operating Conditions

Recycling is an important goal of RCRA and one of the objectives of the governments in this matter is to facilitate lawful recycling. As part of an appropriate overall settlement, the governments are willing to sanction continued operations at Encycle under a consent decree with appropriate conditions, until a permit application is acted upon. We believe Encycle has made substantial progress on redesigning its operations to conform to applicable law. Once the next version of the operating plan and waste analysis plan are received, more detailed discussions can occur regarding required operating conditions.

IX. Financial Considerations

Encycle and ASARCO have requested that the governments consider the financial conditions of Encycle and ASARCO as part of our settlement analysis. We have submitted a detailed request on July 23, 1998, to review financial information. This information should be provided as soon as possible. If Encycle can demonstrate a bonafide inability to pay, we can consider recommending that some portion of the penalty be paid with in-kind services utilizing Encycle's recycling capabilities.

TABLE I
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00%
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
JANUARY 1995
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
ASARCO, Inc. [Colorado]	03699	1	D002	9.5	1	9497	1/30/95	Pb 0.00	Na 1.43
Dupont Subine River	04127	1		23.6	1	9616	1/31/95	Cr 0.00	Na 0.01
Eaton Corporation	02251-91	1	D002 D007 D008	20.1	1	9461	1/13/95	Cu 0.00	Ag 0.021 Oz. Fe 0.06 Al 0.01 P 0.02 Au 0.248 Oz Ca 0.01 Na 9.73 Si 0.01
NASA/LBJ Space Center	00314-89	1	D007 D008	11.6	1	9464	1/04/95	Ni 0.00	Fe 0.01 Na 0.05 Ca 0.03 P 0.07
NASA/LBJ Space Center	00055-90	1	D007 D011	21.2	1	9459	1/06/95	Cr 0.00	Fe 0.02 P 0.01 Na 0.11
NASA/LBJ Space Center	00055-90	1	D007 D011	20.9	1	9458	1/06/95	[illegible] 00	Fe 0.01 Na 0.02

TABLE 1
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00%
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
JANUARY 1995
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
ASARCO, Inc. (Colorado)	03699	1	D002	9.5	1	9497	1/30/95	Pb 0.00	Na 1.43
Dupont Sabine River	04127	1		23.6	1	9616	1/31/95	Cr 0.00	Na 0.01
Eaton Corporation	02251-91	1	D002 D007 D008	20.1	1	9461	1/13/95	Cu 0.00	Ag 0.021 Oz Fe 0.06 Al 0.01 P 0.02 Au 0.248 Oz Ca 0.01 Na 9.33 Si 0.01
NASA/LBJ Space Center	00314-89	1	D007 D008	11.6	1	9464	1/04/95	Ni 0.00	Fe 0.01 Na 0.05 Ca 0.03 P 0.07
NASA/LBJ Space Center	00055-90	1	D007 D011	21.2	1	9459	1/06/95	Cr 0.00	Fe 0.02 P 0.01 Na 0.11
NASA/LBJ Space Center	00055-90	1	D007 D011	20.9	1	9458	1/06/95	[illegible] 0.00	Fe 0.01 Na 0.02

Table 1
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00%
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
FEBRUARY 1993
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
Cameron Forged Prod.	03362	1	D002, D008	7.3	1	5517	02/4/93	Zn 0.00	Ag 0.008 oz. Ca 0.03 Al 0.01 Au 0.223 oz Mg 0.04 Mn 0.07 Na 0.04
Sematech, Inc.	00034-90	1	D002	21.6	1	5253	02/17/93	Cu 0.00	Ag 0.023 oz. Si 0.01 Au 0.025 oz.

Table 1
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00 %
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
MARCH 1994
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
NASA/LBJ Space Center	00314-89	1	D002 D007 D008	16.1	1	7694	3/04/94	Ni 0.00	Al 0.02 Na 0.83
Sematech, Inc.	00034-90	1	D002	21.3	1	7683	3/03/94	Cu 0.00	Ag 0.033 Oz. Au 0.018 Oz P 0.01
Sematech, Inc	00034-90	1	D002	21.5	1	7755	3/18/94	Cu 0.00	Ag 0.033 Oz Au 0.017 Oz P 0.01

Table 1
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00 %
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
MARCH 1997
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]	
EG&G Defense Materials	05000	3	D004 D007 D008	73.5	2	13716	3/26/97	Cr 0.00	Fe 0.01 P: 1.78	Na: 4.07
EG&G Defense Materials	05000	5	D004	113.1	2	13634	3/14/97	Cr: 0.00	Na: 3.61	P: 1.35
EG&G Defense Materials	05000	4	D004	86.6	2	13548	3/12/97	Zn 0.00	Na: 3.45	P: 1.45
EG&G Defense Materials	05000	4	D004 D007 D008	85.1	2	13716	3/18/97	Zn 0.00	Fe 0.01 P: 1.93	Na: 4.25

Table 1
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00%
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
APRIL 1995
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
Aviall, Inc.	04175	1	D002 D007	0.4	1	9876	3/22/95	Cu: 0.00	P: 0.02
Eaton Corporation	02251-91	1	D002 D007 D008	20.7	1	10038	4/28/95	Zn: 0.00	Fe: 0.02 Al: 0.01 Na: 9.08
Quality Processing	00718-90	1	F006	20.0	4	9942	4/18/95	0.00	Ca: 0.14 Na: 13.89

Table 1
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00 %
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
MAY 1993
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
ASARCO, Inc. [El Paso]	03671	1	D004	23.1	1	5889	05/21/93	Zn: 0.00	Ag: 0.696 oz. Mg: 0.02 Ca: 0.11 Na: 3.99
ASARCO, Inc.	03671	1	D004	22.9	1	5841	05/14/93	Zn: 0.00	
ASARCO, Inc.	03671	1	D004	21.2	1	5886	05/20/93	Zn: 0.00	
ASARCO, Inc.	03671	1	D004	21.7	1	6393	08/17/93	0.00	Ag: 0.076 oz. Ca: 0.11 Au: 0.003 oz. Na: 3.88 Mg: 0.01
ASARCO, Inc	03671	1	D004	22.5	1	5916	5/26/93	Zn: 0.00	Ag: 0.477 oz. Ca: 0.12 Mg: 0.02 Na: 4.18
ASARCO, Inc.	03671	1	D004	19.1	1	6474	08/18/93	Zn: 0.00	Ca: 0.06 As: 0.07 Mg: 0.01 Na: 3.50
ASARCO, Inc	03671	1	D004	21.0	1	6475	08/12/93	Zn: 0.00	Ca: 0.06 As: 0.06 Mg: 0.01 Na: 3.43
ASARCO, Inc	03671	1	D004	21.7	1	5887	5/24/93	Zn: 0.00	Ca: 0.11 Mg: 0.02 Na: 4.71
ASARCO, Inc.	03671	1	D004	21.7	1	6477	08/14/93	Zn: 0.00	Ag: 0.078 oz. Ca: 0.11 Au: 0.003 oz Na: 3.87 Mg: 0.01
Cameron Forged	03362	1	D002	6.1	1	6471	08/11/93	Cu: 0.00	Ag: 0.027 oz Ca: 0.03 Au: 0.721 oz Al: 0.38 Mn: 0.03 Mg: 0.06 Na: 0.04
Cameron Forged	03362	1	D002	6.9	1	6556	08/27/93	Cu: 0.00	Ag: 0.028 oz. Ca: 0.03 Au: 0.734 oz Al: 0.36 Mg: 0.05 Mn: 0.03 Na: 0.05

Table 1 (continued)

WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00%
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
MAY 1993
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
Cameron Forged	03362	1	D002	7.4	1	5809	5/14/93	Cu: 0.00	Ag: 0.030 oz. Au: 0.923 oz. Ca: 0.03 Mg: 0.06 Al: 0.36 Mn: 0.03 Na: 0.04
NASA/LBJ	00314-89	1	D007 D008	15.4	1	5874	05/20/93	Cr: 0.00	Ag: 0.005 oz. Fe: 0.01 Au: 0.008 oz P: 0.02 Na: 0.25
NASA/LBJ Space Center	00314-89	1	D007 D008	14.4	1	5780	5/06/93	Cr: 0.00	Ag: 0.005 oz Au: 0.007 oz Fe: 0.01 Na: 0.25 P: 0.02
Sematech, Inc	00034-90	1	D002	20.1	1	6486	08/17/93	Cu: 0.00	Ag: 0.033 oz Si: 0.01 Au: 0.0159 oz
Sematech, Inc	00034-90	1	D002	21.9	1	5768	5/04/93	Cu: 0.00	Ag: 0.041 oz Au: 0.024 oz Si: 0.01

Table 1 (continued)

WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00%
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
MAY 1993
Encycle/Texas, Inc.

Table - 1
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00 %
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
MAY 1996
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
Dupont Sabine River	04127	1	[6]	13.9	1	11860	5/13/96	Cr 0.00	Fe 0.01 Co 0.01 P 0.10
Dupont Sabine River	04127	2	[6]	37.2	1	11861	5/08/96	Cr 0.00	Fe 0.02 Co 0.01 P 0.11
Dupont Sabine River	04127	1	[6]	15.9	1	11862	5/08/96	Cr 0.00	Fe 0.02 Co 0.01 P 0.12
EG&G Defense Mat	05000	1	D007 D008	22.8	1	11904	5/96	0.00	Na 5.04 P 0.04
EG&G Defense Mat	05000	1	D007	22.6	1	11906	5/13/96	Cr 0.00	Na 1.30 P 0.07

Table 1
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00 %
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
JUNE 1994
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [4]	Load [5] Number	Process Date	Principal Metals (% Average) [1]	Other Constituents (%) [6]
DuPont Sabine River	04127	1	[3]	22.9	1	8290	06/15/94	Cr 0.00	Fe 0.01 P 0.08 Co 0.01
DuPont Sabine River	04127	2	[3]	44.1	1	8328	06/22/94	Ni 0.00	P 0.02
DuPont Sabine River	04127	3	[3]	69.6	1	8329	06/23/94	Cr 0.00	P 0.01
DuPont Sabine River	04127	1	[3]	23.1	1	8330	06/24/94	Cr 0.00	P 0.04
DuPont Sabine River	04127	2	[3]	45.3	1	8293	06/16/94	Cr 0.00	Fe 0.01 P 0.08 Co 0.01
DuPont Sabine River	04127	1	[3]	24.1	1	8394	06/30/94	Cr 0.00	P 0.03

Table 1
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00 %
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
JUNE 1997
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
Corpus Christi Memorial	05421	1	D008	13.1	9	14237	6/16/97	0.00	Ca 1.19 Al 0.15 P 0.48
Dupont Sabine River	04127	3	[4]	57.3	1	14258 14259 14263 14268	6/24/97 6/19/97 6/17/97	Cr 0.00	P 0.01
Dupont Sabine River	04127	1	[4]	20.5	1	14272 14273	6/26/97	Cr 0.00	Fe 0.01 P 0.12
Dupont Sabine River	04127	3	[4]	59.6	1	14270 14271	6/26/97 6/25/97	Cr 0.00	Fe 0.03 P 0.11
Dupont Sabine River	04127	4	[4]	90.1	1	14268 14274 14275	6/27/97 6/24/97 6/18/97	Cr 0.00	Ag 0.0007 Oz. Fe 0.01 Na 0.01 P 0.06
Dupont Sabine River	04127	1	[4]	23.1	1	14204 14205	6/10/97	Cr 0.00	P 0.05
Dupont Sabine River	04127	2	[4]	46.2	1	14264 14265	6/20/97	Cr 0.00	Na 0.01
Dupont Sabine River	04127	1	[4]	20.5	1	14260 14261	6/18/97	Cr 0.00	Na 0.04
Dupont Sabine River	04127	1	[4]	21.2	1	14256	6/16/97	Cr 0.00	Fe 0.01 Na 0.01 P 0.06
Dupont Sabine River	04127	1	[4]	23.1	1	14257	6/16/97	Cr 0.00	Ag 0.008 Oz. Fe 0.01 Na 0.01 P 0.06
Dupont Sabine River	04127	1	[4]	22.5	1	14209	6/12/97	Cr 0.00	P 0.06
Dupont Sabine River	04127	1	[4]	20.5	1	14209	6/12/97	Cr 0.00	P 0.01

Table 1 - Continued
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00 %
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
JUNE 1997

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
Dupont Sabine River	04127	1	[5]	22.5	1	14209	6/12/97	Cr 0.00	P 0.06
Dupont Sabine River	04127	1	[5]	20.5	1	14209	6/12/97	Cr 0.00	P 0.01
Dupont Sabine River	04127	4	[5]	92.7	1	14202 14203 14207	6/11/97 6/09/97	Cr 0.00	Ag 0.008 Oz. Fe 0.01 Na 0.01 P 0.07

Table 1
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00 %
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
JULY 1995
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
Reliable Machine	03095-92	1	D007 D008	1.7	1	10357	7/08/95	Cr 0.00	Na 0.48
Rocky Mountain Arsenal	02936-91	1	F039	92.1	2	10465	7/14/95	Cu 0.00	Na 5.48 P 0.30
Rocky Mountain Arsenal	02936-91	1	F039	91.4	2	10466	7/13/95	Cu 0.00	Na 7.65 P 0.43
Rocky Mountain Arsenal	02936-91	1	F039	91.0	2	10485	7/13/95	Cu 0.00	Na 6.91 P 0.48
Rocky Mountain Arsenal	02936-91	1	F039	79.3	2	10469	7/14/95	Cu 0.00	Na 5.79 P 0.40

Table 1
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00 %
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
AUGUST 1996
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]	
NASA/LBJ Space Center	00055-90	1	D007 D011	20.9	1	12356	8/08/96	Cr 0.00	Na 0.47	P 0.01

Table 1
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00 %
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
SEPTEMBER 1994
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (>1%) [4]
ASARCO Columbus Plant	03072-92	1	D006	21.3	2	8780	9/12/94	Zn 0.00	Na 0.02
Eaton Corporation	02251-91	1	D002 D007 D008	21.3	1	8870	9/26/94	Ni 0.00	Fe 0.10 Na 11.56
NASA/LBJ Space Center	00280-89	1	D002 D004	0.1	1	8598	9/01/94	Pb 0.00	Ag 0.003 oz Mg 0.01 Na 0.00
Sematech, Inc	00034-90	1	D002	20.3	1	8862	9/16/94	Cu 0.00	Ag 0.008 oz Au 0.001 oz
Sematech, Inc	00034-90	1	D002	20.4	1	8938	9/27/94	Cu 0.00	Ag 0.008 oz Au 0.001 oz
Wyman-Gordon Forging	00087-89	1	D002 D007	19.9	1	8836	9/10/94	Ni 0.00	Fe 0.02 Cr 0.28 Na 0.09
Zenith Electronics	03703	1	D008	21.4	4	8906	9/23/94	0.00	Si 25.01

Table 1
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00 %
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
SEPTEMBER 1997
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
Dupont Sabine River	04127	2		44.0	1	14623 14625	9/10/97	Cr 0.00	Ag 0.006 Oz Fe 0.01 Na 0.01 P 0.07
Dupont Sabine River	04127	1		22.8	1	14610	9/09/97	Cr 0.00	P 0.02
Dupont Sabine River	04127	1		20.5	1	14628	9/11/97	Cr 0.00	Ag 0.005 Oz Fe 0.01 Na 0.01 P 0.06
NASA/LBJ Space Center	00055-00	1	D007 D011	16.6	1	14680	9/03/97	Cu 0.00	Na 0.08 P 0.01

Table 1
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00 %
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
OCTOBER 1995
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
Dupont Sabine River	04127	1		22.4	1	10823	10/5/95	Cr 0.00	Ag 0.015 Oz Fe 0.01 Na 0.01 P 0.06
Dupont Sabine River	04127	3		65.3	1	10827 10825 10830	10/10/95 10/06/95 10/11/95	Cr 0.00	Ag 0.014 Oz Fe 0.01 Na 0.01 P 0.06
Dupont Sabine River	04127	3		73.5	1	10824 10826 10829	10/5/95 10/06/95 10/11/95	Cr 0.00	Ag 0.016 Fe 0.01 Na 0.01 P 0.06
Dupont Sabine River	04127	2		45.9	1	10831 10832	10/12/95	Cr 0.00	Na 0.01 P 0.03
Dupont Sabine River	04127	1		14.1	1	10833	10/13/95	Cr 0.00	Ag 0.008 Oz Fe 0.01 Na 0.01 P 0.06
Dupont Sabine River	04127	1		21.7	1	10834	10/13/95	Cr 0.00	Na 0.01 P 0.03
Dupont Sabine River	04127	1		23.1	1	10828	10/10/95	Cr 0.00	Ag 0.015 Oz. Fe 0.01 Na 0.01 P 0.06
Sematech, Inc.	00034-90	1	D002	16.8	1	10921	10/19/95	Cu 0.00	Ag 0.053 Oz Au 0.01 Oz

Table 1
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00%
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
November 1993
Encycle/Texas, Inc

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
ASARCO, Inc. [Texas]	03671	1	D004	22.9	1	7043	11/09/93	Zn 0.00	Ag 0.060 oz. Au 0.002 oz. Ca 0.14 Mg. 0.01 As 0.04 Na: 4.40
ASARCO, Inc.	03671	1	D004	16.2	1	7155	11/30/93	Zn 0.00	Ag 0.040 oz. Au. 0.001 oz. Ca 0.14 Mg. 0.01 As 0.05 Na. 4.46
ASARCO, Inc	03671	1	D004	23.5	1	7139	11/23/93	Zn 0.00	Ca 0.12 As 0.10 Na 5.05
Cameron Forged Products	03362	1	D002	7.5	1	7124	11/19/93	Cu 0.00	Ag 0.0084 oz Au 0.707 oz Ca 0.02 Mg 0.05 Al 0.35 Mn 0.02 Na 0.04
Exxon Corporation	02251-91	1	D002 D007 D008	22.0	1	6968	11/04/93	Cr 0.01	Fe 0.01 Na 10.25
NASA/LBJ Space Center	00314-89	1	D007 D008	20.3	1	7076	11/10/93	Cr 0.00	Ag 0.020 oz. Au 0.055 oz Fe 0.01 Na 0.27 P 0.02
Sematech, Inc.	00034-90	1	D002	21.1	1	7070	11/08/93	Cu 0.01	Ag. 0.031 oz Au 0.020 oz. P 0.01

Table 1
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00 %
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
NOVEMBER 1996
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
Dupont Sabine River	04127	1	[5]	22.4	1	12822	11/01/96	Cr 0.00	Na 0.01 P 0.02
Dupont Sabine River	04127	1	[5]	19.8	1	12929	11/14/96	Cr 0.00	P 0.01

Table 1
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00%
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
DECEMBER 1994
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
Los Angeles Jewelry	04395	1	F006	4.6	4	9262	12/25/94	0.00	Ag 0.001 oz. Au 0.002 oz Cu 7.29 Mg 0.44
NASA/LBJ Space Center	00280-89	1	D002 D004 D006	0.7	1	9200	12/02/94	Cr: 0.00	Fe 0.09
NASA/LBJ Space Center	04481	1	D007 D008	9.2	1	9333	12/09/94	Pb: 0.00	Na 0.01

Table 1
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00 %
PRECIOUS METAL CONTENT: LESS THAN 0 1 0Z/TON
DECEMBER 1997
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]	
Eaton Corp.	02251-91	4	D002 D007 D008	1 9	2	14715	12/29/97 12/30/97 12/31/97	0.00	Fe 0.34 Ca 0 10	Na: 22.33
Eaton Corp.	02251-91	3	D002 D007 D008	1 3	2	14715	12/17/97 12/18/97 12/19/97	0 00	Fe 0.34 Ca 0 10	Na. 22.33

1 *Facility No. 1 or 2 for hydrometallurgical processing. Facility No. PMP means material was PMPed (blended).*
2 *Blank Load Number indicates number could not be determined from the Encycle documents (Material Movement tickets; Laboratory Analytical documents; Monthly Waste Receipt Summary)*
3 *Principal metal is designated for process circuit or bin for blending. Average is for more than one load received*
4 *Other metals contained in material, but not the principal metal. Value not indicated if less than 0 01% Silver and gold indicated in total ounces per shipment, not in concession.*
5 *NHW: Nonhazardous waste*
6 *Waste code information not in documents received by EPA.*

Table 2
WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00 %
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
GENERATOR SUMMARY
Encycle/Texas, Inc.

Generator Name	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
Arrowhead	3274	1	[4]	32.9	Not Recorded	8184	05/19/94	Cr 0.00	
ASARCO [Colorado]	3699	1	D002	5.0	1	6965	10/25/93	Pb 0.00	Ag: 0.7 ppm Au: 2.7 ppm
ASARCO [Colorado]	3699	1	D002	9.5	1	9497	01/26/95	Pb 0.00	
ASARCO, Columbus	3072-92	1	D006	28.7	2	7614	02/23/94	Zn 0.00	Na: 0.02
Avanti	4807	1	D002	1.1	Not Recorded	4007	07/07/92	0.00	
Avanti	101-89	1	D002	0.2	Not Recorded	4843	12/14/92	0.00	
Avanti	101-89	1	D002	0.7	Not Recorded	5314	03/05/93	0.00	
Avanti	3048	1	D002 D006 D007 D008 D010 D011	Not Recorded	Not Recorded	5631	04/21/93	Cu 0.00	Au: 0.75 ppm
Avanti	101-89	1	D002	0.7	Not Recorded	5790	05/14/93	0.00	
Avanti	101-89	1	D002	0.2	Not Recorded	6158	06/28/93	0.00	
Avanti	101-89	1	D002	0.7	Not Recorded	6558	09/10/93	0.00	Ag: 0.12 ppm Au: 0.17 ppm
Avanti	101-89	1	D002	0.7	Not Recorded	7158	12/03/93	Ni 0.00	
Cameron Forge	87-90	1	D002	12.5	1	341359 (WID)	05/15/91	Cr: 0.00 Ni: 0.00	
Cameron Forge	87-90	1	D002 D007	19.2	1	2795	10/03/91	Cr: 0.00 Ni: 0.00	Fe: 0.04 Na: 0.06
Cameron Forge	87-90	1	D002 D007	12.5	1	1991	11/08/91	Cr: 0.00 Ni: 0.00	Ca: 0.0.01. Fe: 0.05 Na: 0.18

Exhibit A-2

Table 2 (continued)

WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00%
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
GENERATOR SUMMARY
Encycle/Texas, Inc.

Generator Name	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
Cameron Forge	87-90	1	D002 D007	20.4	1	3015	11/12/91	Cr: 0.00 Ni: 0.00	Fe 0.01 Na 0.05
Cameron Forge	87-90	1	D002 D007	20.0	1	3016	11/12/91	Cr: 0.00 Ni 0.00	Na 0.01
Cameron Forge	87-90	1	D002 D007	20.3	1	3050	11/19/91	Cr 0.00 Ni 0.00	Ca: 0.01 Na: 0.02 Si 0.02
Cameron Forge	87-90	1	D002 D007	18.2	1	3051	11/20/91	Cr 0.00 Ni 0.00	Al 0.03 Ca 0.01 Fe 0.02 Ni 0.02 V 0.02
Cameron Forge	87-90	1	D002 D007	21.1	1	3154	12/13/91	Cr 0.00 Ni 0.00	Fe 0.04
Cameron Forge	87-90	1	D002 D007	21.2	1	3156	12/16/91	Cr 0.00 Ni 0.00	Fe 0.03 Na 0.25
Cameron Forge	87-90	1	D002 D007	21.2	1	3175	12/18/91	Cr 0.00 Ni 0.00	Fe 0.02 Na 0.05
Cameron Forge	87-90	1	D002 D007	9.6	1	3176	12/19/91	Cr 0.00 Ni 0.00	Fe 0.02 Na 0.04
Cameron Forge	87-90	1	D002 D007	Not Recorded	1	3267	01/02/92	Cr 0.00 Ni 0.00	Ca 0.01 Fe 0.09 Na 0.05 Si 0.01
Cameron Forge	87-90	1	D002 D007	Not Recorded	1	3268	01/22/91	Cr 0.00 Ni 0.00	Fe 0.04 Na 0.03
Cameron Forge	87-90	1	D002 D007	21.5	1	3344	02/06/91	Cr 0.00 Ni 0.00	Ca 0.01 Fe 0.08 Na 0.03
Cameron Forge	87-89	1	D002 D007	20.1	1	3545	03/24/96	Cr 0.00 Ni 0.00	Al 0.02 Fe 0.22 Na 0.28 Si 0.01 V 0.01

Table 2 (continued)

WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00%
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
GENERATOR SUMMARY
Encycle/Texas, Inc

Generator Name	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
Cameron Forge	87-89	1	D002	20.2	1	3626	04/09/91	Cr 0.00 Ni 0.00	Al 0.02 Na 0.98
Cameron Forge	87-89	1	D002	19.6	1	3627	04/09/91	Cr 0.00 Ni 0.00	Al 0.01 Na 0.61
Cameron Forge	87-89	1	D002	21.2	1	3677	04/22/91	Cr 0.00 Ni 0.00	Al 0.01 Fe 0.16 Na 0.22
Cameron Forge	87-89	1	D002	13.7	1	3717	04/28/91	Cr 0.00 Ni 0.00	Al 0.08 Fe 0.03 Na 0.22
Cameron Forge	87-89	1	D002	18.2	1	4580	09/12/92	Cr 0.00 Ni 0.00	Al 0.05 Fe 0.09 Na 0.25
Cameron Forge	87-89	1	D002 D007	18.5	1	4535	10/13/92	Cr 0.00 Ni 0.00	Fe 0.03 Na 0.01
Cameron Forge	87-89	1	D002 D007	20.4	1	4536	10/14/92	Cr 0.00 Ni 0.00	Al 0.01 Fe 0.05 Na 0.01
Cameron Forge	87-89	1	D002 D007	17.9	1	4608	10/22/92	Cr 0.00 Ni 0.00	Al 0.02 Fe 0.06 Na 0.04
Cameron Forge	87-89	1	D002 D007	20.6	1	4653	10/29/92	Cr 0.00 Ni 0.00	Ag 1.1 ppm Fe 0.1 Na 0.13
Cameron Forge	87-89	1	D002 D007	Not Recorded	1	4698	11/09/92	Cr 0.00 Ni 0.00	Ag 2.2 ppm Al 0.01 Fe 0.06 Na 0.28
Cameron Forge	87-89	1	D002 D007	20.9	1	4699	11/10/92	Cr 0.00 Ni 0.00	Ag 1.2 ppm Al 0.01 Fe 0.07 Na 0.02
Cameron Forge	87-89	1	D002 D007	22.1	1	5131	01/28/93	Cr 0.00 Ni 0.00	Ag 1.2 ppm Ca 0.44 Fe 0.07 Na 0.02
Cameron Forge	87-89	1	D002 D008	20.8	1	5244	02/16/93	Cr 0.00 Ni 0.00	Ag 1.3 ppm Ca 0.92 Fe 0.03 Na 0.31

Table 2 (continued)

WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00%
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
GENERATOR SUMMARY
Encycle/Texas, Inc.

Generator Name	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
Cameron Forge	87-89	1	D002 D008	20.0	1	7806	02/23/93	Cr: 0.00 Ni: 0.00	Ag: 0.9 ppm Au: 1.7 ppm Ca: 0.36 Fe: 0.19 Na: 0.31
Wyman Gordon (Cameron Forge)	87-89	1	D002 D007	20.9	1	9130	10/31/94	Cr: 0.00 Ni: 0.00	Ca: 0.42 Na: 0.04
Wyman Gordon (Cameron Forge)	87-89	1	D002 D007	16.3	1	9179	11/07/94	Cr: 0.00 Ni: 0.00	Ca: 0.83 Fe: 0.45 Na: 0.02
Wyman Gordon (Cameron Forge)	87-89	1	D002 D007	21.0	1	9446	01/05/95	Cr: 0.00 Ni: 0.00	Ca: 0.94 Na: 0.06
Wyman Gordon (Cameron Forge)	87-89	1	D002 D007	21.8	1	9495	01/05/95	Cr: 0.00 Ni: 0.00	Ca: 1.65 Fe: 0.06 Na: 0.11
DuPont Sabine River	4127	1	[5]	20.8	1	8294	06/17/94	Cr: 0.00	
DuPont Sabine River	4127	1	[5]	20.6	1	8326	06/20/94	Cr: 0.00	Ag: 0.16 ppm Au: 0.41
DuPont Sabine River	4127	1	[5]	20.8	1	8391	06/27/94	Cr: 0.00	
DuPont Sabine River	4127	1	[5]	20.8	1	8392	06/27/94	Cr: 0.00	
DuPont Sabine River	4127	1	[5]	20.8	1	8396	06/27/94	Cr: 0.00	
DuPont Sabine River	4127	1	[5]	Not Recorded	1	15237	03/20/97	Cr: 0.00	Au: 0.01 ppm
DuPont Sabine River	4127	1	[5]	Not Recorded	1	15238	03/23/98	Cr: 0.00	
DuPont Sabine River	4127	1	[5]	Not Recorded	1	15269	03/24/98	Cr: 0.00	Au: 0.07 ppm
DuPont Sabine River	4127	1	[5]	Not Recorded	1	15552	06/24/98	Cr: 0.00	

Table 2 (continued)

WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00%
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
GENERATOR SUMMARY
Encycle/Texas, Inc.

Generator Name	CCN	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
DuPont Sabine River	4127	1		23.4 Recorded	1	15554	06/25/98	Cr: 0.00	
DuPont Sabine River	4127	1		2.4 Recorded	1	15572	06/29/98	Cr: 0.00	
DuPont Sabine River	4127	1		Not Recorded	1	15773	06/30/98	Cr: 0.00	
DuPont Sabine River	4127	1		Not Recorded	1	15575	07/02/98	Cr: 0.00	
DuPont Sabine River	4127	1		Not Recorded	1	15574	07/07/98	Cr: 0.00	As: 0.05 ppm
DuPont Sabine River	4127	1		Not Recorded	1	15693	07/07/98	Cr: 0.00	
DuPont Sabine River	4127	1		Not Recorded	1	15611	07/09/98	Cr: 0.00	
DuPont Sabine River	4127	1		Not Recorded	1	15621	07/17/98	Cr: 0.00	
Eaton	2251-91	1	D002 D007 D008	Not Recorded	1	10038	04/21/95	0.00	Ag: 1.6 ppm
Eaton	2251-91	1	D002 D007 D008	12.5	1	10038	04/28/95	0.00	
Eaton	2251-91	1	D002 D007 D008	3.7	1	11894	05/22/96	0.00	
Eaton	2251-91	1	D002 D007 D008	3.4	1	14486	08/22/97	Zn: 0.00	

Table 2 (continued)

WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00%
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
GENERATOR SUMMARY
Encycle/Texas, Inc.

Generator Name	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
Eaton	22[illegible]1	1	[illegible]2 D007 [illegible]8	[illegible]	1	[illegible]25	10/09/97	Zn 0.01	
Eaton	22[illegible]1	1	[illegible]2 D007 D008	[illegible]	1	[illegible]76	02/[illegible]/98	Zn 0.01	[illegible] ppm
Eaton	2251-91	1	D002 D007 D008	Not Recorded	1	15231	05/20/98	Zn 0.00	
Eaton	2251-91	1	D002 D007 D008	Not Recorded	1	15424	05/15/98	Zn 0.00	Au 0.02 ppm
Eaton	2251-91	1	D002 D007 D008	Not Recorded	1	15446	05/22/98	Zn 0.00	Au 0.16 ppm
Eaton	2251-91	1	D002 D007 D008	Not Recorded	1	15443	06/23/98	Zn 0.00	Au 0.36 ppm
Eaton	2251-91	1	D002 D007 D008	Not Recorded	1	15635	07/27/98	Zn 0.00	
International Resist	0307	1	D002 D008	0.9	1	6478	08/26/93	0.00	Au 2.3 ppm
Naval Air Station	2841-91	1	D002 D006	0.7	1	5894	06/03/93	Zn. 0.00	Ag. 0.12 ppm Au 0.12
Naval Air Station	2841-91	1	D006 D006	0.5	1	6217	07/16/93	Pb: 0.00	Ag 0.72 ppm Au 1.4 ppm
NASA/LBJ	280-89	1	D002 D004	0.2	1	4416	09/30/92	Pb: 0.00	Au 0.6 ppm

Table 2 (continued)

WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00%
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
GENERATOR SUMMARY
Encycle/Texas, Inc.

Generator Name	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]
[illegible]	[illegible]	1	[illegible]	[illegible]	1	[illegible]	03/27/[illegible]	[illegible]	
[illegible]	[illegible]	1	[illegible]	[illegible]	1	[illegible]	04/[illegible]	[illegible]	
Sematech, Inc.	[illegible]	1	D002	19.8	1	296222 (WID)	05/06/91	Cu 0.00	
Sematech, Inc	00034-90	1	D002	17.7	1	296224 (WID)	06/31/91	Cu 0.00	
Sematech, Inc	00034-90	1	D002	19.1	1	296225 (WID)	06/10/91	Cu 0.00	
Sematech, Inc	00034-90	1	D002	19.1	1	296226 (WID)	06/19/91	Cu 0.00	
Sematech, Inc.	00034-90	1	D002	20.0	1	296228 (WID)	07/01/91	Cu 0.00	
Sematech, Inc	00034-90	1	D002	19.6	1	296229 (WID)	07/15/91	Cu 0.00	
Sematech, Inc	00034-90	1	D002	18.8	1	296207 (WID)	07/24/91	Cu 0.00	
Sematech, Inc	00034-90	1	D002	18.8	1	296230 (WID)	07/30/91	Cu 0.00	
Sematech, Inc.	00034-90	1	D002	20.9	1	296172 (WID)	08/09/91	Cu 0.00	
Sematech, Inc.	00034-90	1	D002	19.6	1	296116 (WID)	08/23/91	Cu 0.00	
Sematech, Inc.	00034-90	1	D002	18.8	1	296167 (WID)	09/09/91	Cu: 0.00	

Table 2 (continued)

WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00%
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
GENERATOR SUMMARY
Encycle/Texas, Inc.

Generator	EPA ID	Number of Loads	Waste Codes	Quantity (Tons)	Process Destination[1]	Load[2] Number	Process Date	Principal Metals (%) Average[3]	Other Constituents (%)[4]
[illegible]	[illegible]	1	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	1	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	1	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]
Sematech, Inc.	00034-90	1	D002	21.3	1	5056	01/19/93	Cu: 0.00	
Sematech, Inc.	00034-90	1	D002	21.3	1	5424	02/24/93	Cu: 0.00	
Sematech, Inc.	00034-90	1	D002	22	1	5219	02/10/93	Cu: 0.00	
Sematech, Inc.	00034-90	1	D002	22	1	5325	03/02/93	Cu: 0.00	Ag: 1.6 ppm Au: 0.03 ppm
Sematech, Inc.	00034-90	1	D002	21.7	1	5381	03/10/93	Cu: 0.00	
Sematech, Inc.	00034-90	1	D002	22	1	5465	03/22/93	Cu: 0.00	Ag: 0.02 ppm Au: 0.02 ppm
Sematech, Inc.	00034-90	1	D002	21.7	1	5526	03/30/93	Cu: 0.00	Ag: 0.29 ppm Au: 0.09 ppm
Sematech, Inc.	00034-90	1	D002	21.8	1	5634	04/13/93	Cu: 0.00	Ag: 0.06 ppm Au: 0.02 ppm
Sematech, Inc.	00034-90	1	D002	22	1	5692	04/26/93	Cu: 0.00	Ag: 0.02 ppm
Sematech, Inc.	00034-90	1	D002	21	1	5794	05/11/93	Cu: 0.00	Ag: 0.04 ppm Au: 0.75 ppm
Sematech, Inc.	00034-90	1	D002	22	1	5861	05/20/93	Cu: 0.00	Au: 0.05 ppm
Sematech, Inc.	00034-90	1	D002	22	1	5991	06/08/93	Cu: 0.00	Ag: 0.04 ppm Au: 0.01 ppm
Sematech, Inc.	00034-90	1	D002	22	1	6082	06/23/93	Cu: 0.00	
Sematech, Inc.	00034-90	1	D002	22	1	6216	07/08/93	Cu: 0.00	
Sematech, Inc.	00034-90	1	D002	22	1	6286	07/16/93	Cu: 0.00	Au: 0.42 ppm
Sematech, Inc.	00034-90	1	D002	22	1	6320	07/27/93	Cu: 0.00	Ag: 0.12 ppm Au: 0.06 ppm
Sematech, Inc.	00034-90	1	D002	22	1	6450	08/10/93	Cu: 0.00	

Table 2 (continued)

WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00%
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
GENERATOR SUMMARY
Encycle/Texas, Inc

Generator	[illegible]	Number	Waste	Quantity	Process	Load [2]	[illegible]	Principal Metals	[illegible]
									n / n
									n / n
				2					n / n
	00034-90	1	[illegible]	22	1	[illegible]	[illegible]	Cu 0.00	
Sematech, Inc.	00034-90	1	D002	22	1	6973	10/28/93	Cu 0.00	Ag 0.08 ppm Au 0.16 ppm
Sematech, Inc.	00034-90	1	D002	22	1	7028	11/03/93	Cu 0.00	Ag 0.04 ppm Au 0.00 ppm
Sematech, Inc.	00034-90	1	D002	22	1	7069	11/17/93	Cu 0.00	
Sematech, Inc.	00034-90	1	D002	22	1	7141	11/22/93	Cu 0.00	
Sematech, Inc.	00034-90	1	D002	22	1	7161	12/01/93	Cu. 0.00	Ag 0.12 ppm Au 0.22 ppm
Sematech, Inc.	00034-90	1	D002	22	1	7278	12/15/93	Cu. 0.00	Ag 1.0 ppm
Sematech, Inc.	00034-90	1	D002	22	1	7328	12/29/93	Cu: 0.00	Ni: 0.02
Sematech, Inc.	00034-90	1	D002	22	1	7355	01/05/94	Cu 0.00	
Sematech, Inc.	00034-90	1	D002	22	1	7427	01/18/94	Cu. 0.00	Ag 0.12 ppm Au 0.17 ppm
Sematech, Inc.	00034-90	1	D002	22	1	7443	01/24/94	Cu 0.00	
Sematech, Inc.	00034-90	1	D002	19.1	1	7506	02/01/94	Cu 0.00	Ag 0.31 ppm Au 0.75 ppm
Sematech, Inc.	00034-90	1	D002	22	1	7600	02/17/94	Cu. 0.00	
Sematech, Inc.	00034-90	1	D002	19.5	1	7852	03/31/94	Cu 0.00	
Sematech, Inc.	00034-90	1	D002	20.2	1	7927	04/13/94	Cu. 0.00	
Sematech, Inc.	00034-90	1	D002	17.8	1	7970	04/22/94	Cu: 0.00	Ag 0.17 ppm Au 0.36 ppm
Sematech, Inc.	00034-90	1	D002	22	1	8022	05/03/94	Cu: 0.00	

Table 2 (continued)

WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00%
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
GENERATOR SUMMARY
Encycle/Texas, Inc.

Generator Name	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	Load [2] Number	Process Date	Principal Metals (% Average) [3]	Other Constituents (%) [4]	
Sematech, Inc.	00034-90	1	D002	22	1	8117	05/16/94	Cu: 0.00	Ag: 0.29 ppm	Au: 0.37 ppm
Sematech, Inc.	00034-90	1	D002	19.1	1	8173	05/27/94	Cu: 0.00	Ag: 0.19 ppm	Au: 0.20 ppm
Sematech, Inc.	00034-90	1	D002	22	1	8223	06/08/94	Cu: 0.00		
Sematech, Inc.	00034-90	1	D002	18.1	1	8291	06/15/94	Cu. 0.00		
Sematech, Inc.	00034-90	1	D002	22	1	8386	06/27/94	Cu: 0.00		
Sematech, Inc.	00034-90	1	D002	19.3	1	8429	07/07/94	Cu: 0.00	Ag: 0.21 ppm	Au: 0.15 ppm
Sematech, Inc.	00034-90	1	D002	19.3	1	8531	07/20/94	Cu: 0.00	Ag: 0.33 ppm	Au: 0.48 ppm
Sematech, Inc.	00034-90	1	D002	19.9	1	8610	08/02/94	Cu: 0.00	Ag: 0.2 ppm	Au: 0.22 ppm
Sematech, Inc.	00034-90	1	D002	22	1	8669	08/12/94	Cu: 0.00		
Sematech, Inc.	00034-90	1	D002	19.8	1	8713	08/22/94	Cu: 0.00	Ag: 0.17 ppm	Au: 0.26 ppm
Sematech, Inc.	00034-90	1	D002	18.1	1	8758	09/01/94	Cu: 0.00		
Sematech, Inc.	00034-90	1	D002	17.8	1	9013	10/07/94	Cu: 0.00		
Sematech, Inc.	00034-90	1	D002	20.2	1	9077	10/21/94	Cu: 0.00	P: 0.02	
Sematech, Inc.	00034-90	1	D002	20.2	1	9136	11/02/94	Cu: 0.00	Ag: 0.01 ppm	Au: 0.04 ppm
Sematech, Inc.	00034-90	1	D002	17.7	1	9210	11/11/94	Cu: 0.00	Ag: 0.07	
Sematech, Inc.	00034-90	1	D002	20.4	1	9296	11/23/94	Cu: 0.00		
Sematech, Inc.	00034-90	1	D002	18.8	1	9332	12/07/94	Cu: 0.00	Au: 0.04	
Rocky Mountain Arsenal	2936-91	1	F039	80.2	2	10486	07/13/95	Cu: 0.00	Na: 5.79	P: 0.04

1 *Facility No. 1 or 2 for hydrometallurgical processing. Facility No. PMP means material was PMPed (blended).*
2 *Blank Load Number indicates number could not be determined from the Encycle documents (Material Movement tickets; Laboratory Analytical documents; Monthly Waste Receipt Summary). WID is the Waste Identification Document used prior to the Load Number tracking method.*
3 *Principal metal is designated for process circuit or bin for blending. Average is for more than one load received.*

Table 2 (continued)

WASTES PROCESSED
PRINCIPAL METAL CONTENT: 0.00%
PRECIOUS METAL CONTENT: LESS THAN 0.1 OZ/TON
GENERATOR SUMMARY
Encycle/Texas, Inc.

1/ *Facility No. 1 or 2 for hydrometallurgical processing. Facility No. PMP means material was PMPed (blended).*

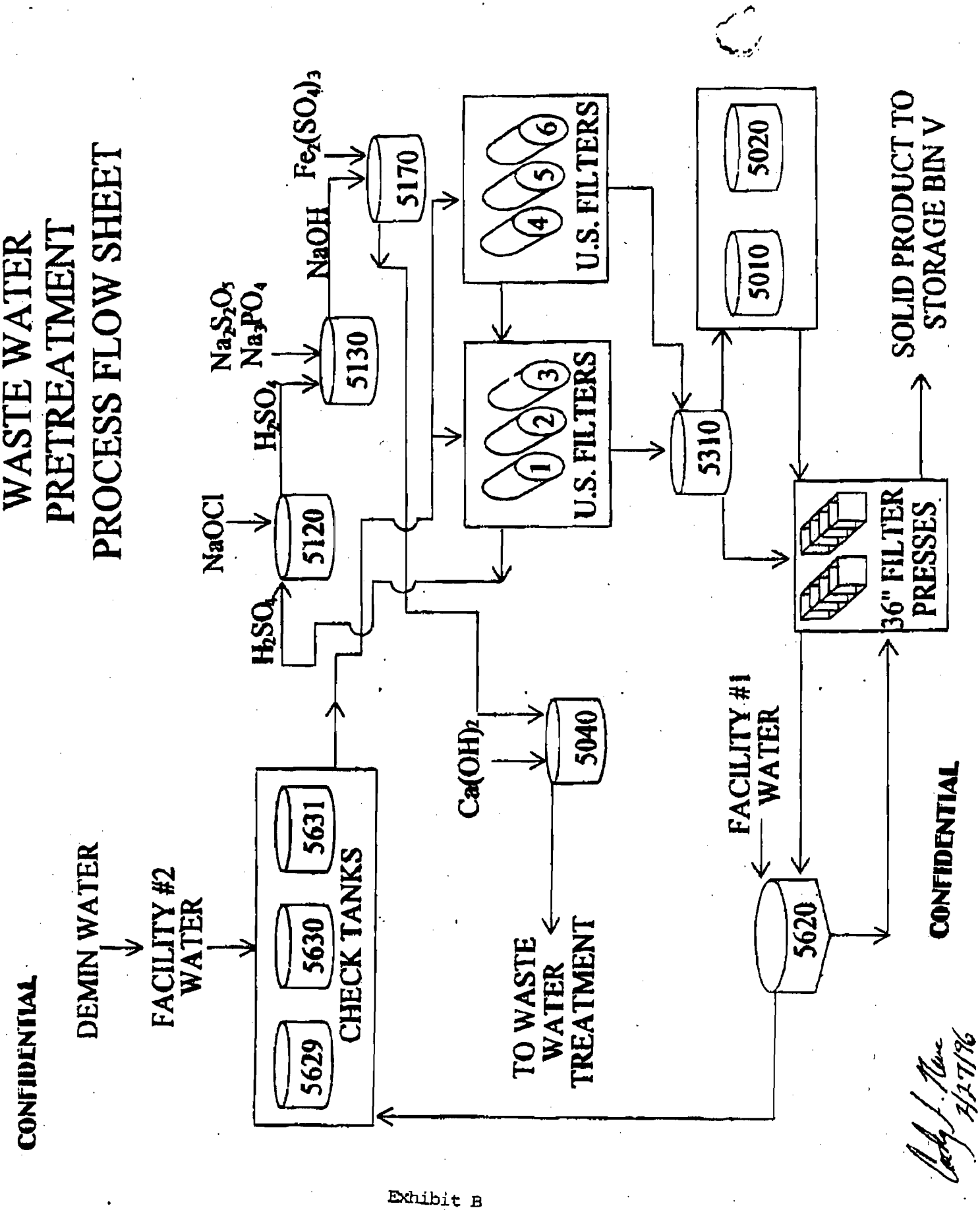
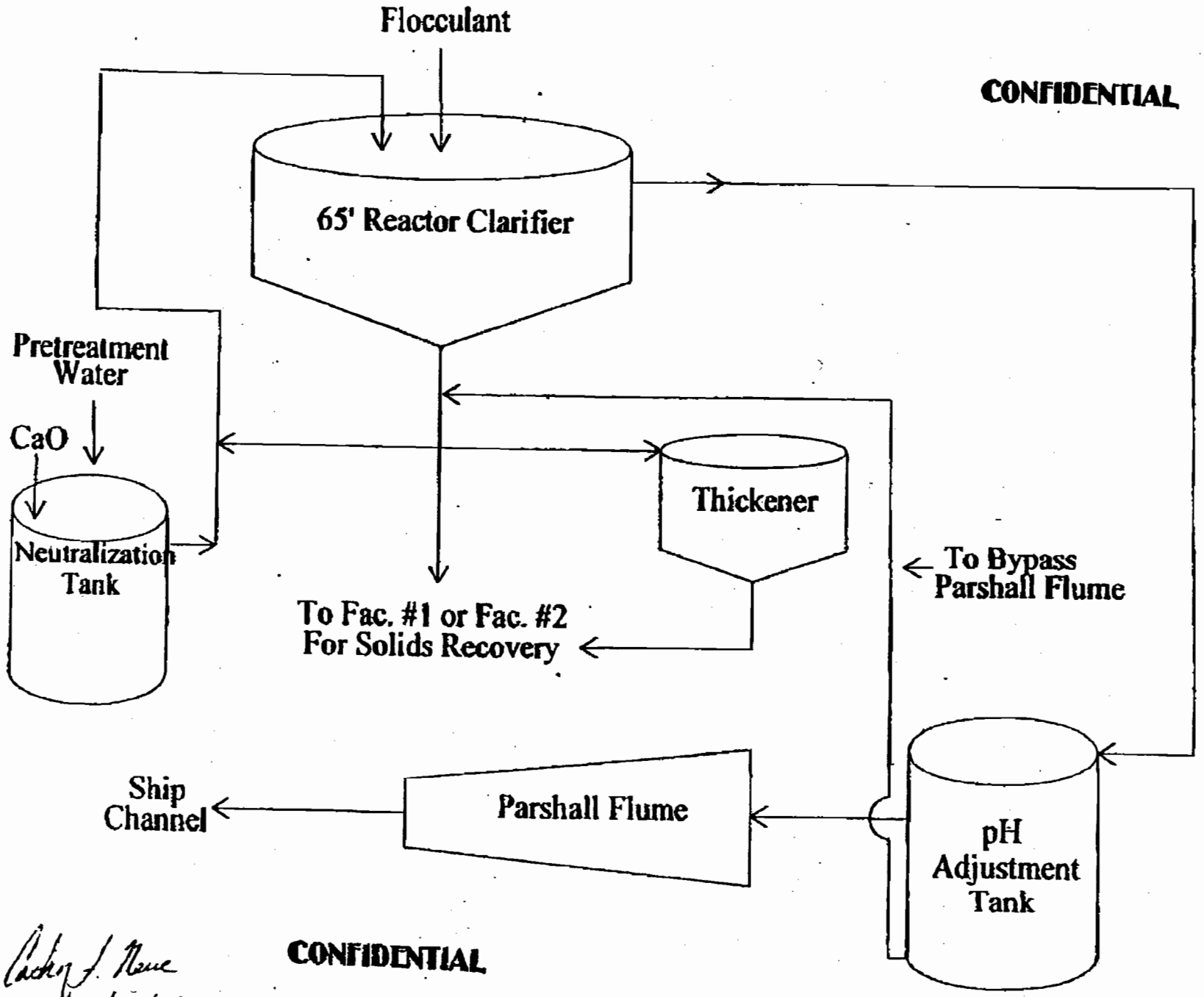

WASTE WATER
PRETREATMENT
PROCESS FLOW SHEET
CONFIDENTIAL
DEMIN WATER
FACILITY #2 WATER
5629
5630
5631
CHECK TANKS
H2SO4
NaOCl
5120
Na2S2O5
Na3PO4
H2SO4
NaOH
5130
Fe2(SO4)3
5170
U.S. FILTERS
1
2
3
4
5
6
U.S. FILTERS
Ca(OH)2
5040
TO WASTE WATER TREATMENT
5310
5010
5020
FACILITY #1 WATER
5620
36" FILTER PRESSES
SOLID PRODUCT TO STORAGE BIN V
CONFIDENTIAL

Exhibit B

WASTE WATER TREATMENT PROCESS FLOW SHEET



Cathy J. Rowe
2/27/96

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

APR 26 1989

OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE

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?

- Is it listed in industry news letters, trade journals, etc.?
- 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?

- Is there a contract in place to purchase the "product" ostensibly produced from the hazardous secondary materials?
- 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).
- 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?

- Is the secondary material stored on the land?
- Is the secondary material stored in a similar manner as the analogous raw material (i.e., to prevent loss)?
- Are adequate records regarding the recycling transactions kept?
- Do the companies involved have a history of mismanagement of hazardous wastes?

(6) Other relevant factors.

- 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?
- 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).

Exhibit D-1

WASTE RECEIVED AND PROCESSED SUMMARY
ENCYCLE/TEXAS INC.
[1993 - 1997]

YEAR	RECEIVED TOTAL[1] (Tons)	RECEIVED LISTED[2] (Tons)	% LISTED[3]	DIRECTLY BLENDED[4] (% OF TOTAL)[5]	PRECIPITATED & BLENDED[6] (% OF TOTAL)[5]
1993	43,446	24,592	57%	36%	46%
1994	64,212	55,259	86%	16%	60%
1995	31,291	24,874	79%	27%	53%
1996	13,622	7,959	58%	73%	18%
1997	16,307	5,383	33%	49%[7]	34%[7]
TOTAL	168,878	118,067	70%	32%[7]	49%[7]

1: TOTAL: Total of RCRA listed and characteristic hazardous waste and non- regulated waste
2: LISTED: RCRA listed hazardous waste
3: % LISTED: Percent of total waste received
4: BLENDED: Percentage of total waste received which was mixed (PMP) in bins
5: Estimated from Material Movement Ticket data
6: PRECIPITATED & BLENDED: Percentage of total waste received which was precipitated in Facility Nos. 1 and 2, then mixed with other wastes in storage bins
7: Data for January through July, 1997

SHIPMENTS OF REGULATED MATERIAL TO ASARCO SMELTERS FROM E/TI SUMMARY

YEAR	EL PASO, TEXAS (Tons)	EAST HELENA, MT. (Tons)	TOTAL (Tons)
1992	4,809	7,660	12,469
1993	7,704	9,831	17,535
1994	13,598	8,014	21,612
1995	9,291	5,274	14,565
1996	6,372	5,925	12,297
1997	4,712	1,214	5,926
TOTAL	46,486	37,918	84,404

Exhibit D-2

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

MEMORANDUM SEP 12 1989

SUBJECT: Laclede Steel Company, Alton, Illinois
(ILD 006 280 606)

FROM: Matthew Straus, Deputy Director
Characterization and Assessment Division

TO: David A. Ullrich, Associate Director
Office of RCRA
Waste Management Division

This memorandum is in response to your memorandum dated July 25, 1989 in which you request our review and determination of the regulatory status of waste produced by Laclede Steel Company, which manufactures specialty carbon and alloy steel from scrap iron.

Based on the information provided, the characterizations of the particulates generated in the furnaces during the melt down process, which are collected in a baghouse, as electric arc furnace dust (Hazardous Waste No. K061) and the spent pickle liquor as Hazardous Waste No. K062 are correct. There appears to be little question in this regard. The issues in question and on which this memorandum focuses relate to the exclusions claimed by Laclede Steel Company with respect to their K062 waste.

Laclede Steel has claimed three separate exclusions from the definition of solid waste for its K062 waste. The Agency believes each of these claims to an exclusion are unfounded, at least under Federal regulations. Each of the exclusions is discussed below.

The first exclusion claimed is the "closed-loop recycling" exclusion found at 40 CFR 261.4(a)(8). This exclusion, promulgated in the July 14, 1986 Federal Register notice (51 FR 25422), states that a material is not a solid waste if it is recycled and returned to the original process from which it was generated provided that: 1) only tank storage is involved; 2) the entire process is closed by being entirely connected by pipes; 3) the reclamation does not involve combustion; 4) there is no speculative accumulation of the material; 5) the

reclaimed material is not used to produce a fuel; and 6) the reclaimed material is not used to produce a product that will be placed on the land.

Laclede is not eligible for this exemption. The reason is that the K062 is trucked (not piped) to the recycling site. While the closed-loop exclusion does allow for the use of "other comparable enclosed means of conveyance," the Agency would not deem trucks to be comparable. The preamble discussion found at 51 FR 25443 clearly states EPA's intent that the closed nature of the process is a decisive factor and further defines that "closed" refers to "hard connections from point of generation to point of return to the original process." Trucks do not meet this definition. In addition, if the recycled materials are used to produce a product (such as fertilizer) that is applied to the land (i.e., used in a manner constituting disposal per Section 261.4(a)(8)(iv)), the solid waste exemption would not apply. There may also be some question as to whether the storage unit Laclede uses meets the definition of a tank or a surface impoundment. There was not enough information provided to make that determination; the Region or State must define the storage unit.

The second exclusion that Laclede is claiming is found at section 721.104(a)(7) of the State regulation (which is assumed to be equivalent to 40 CFR 261.2(e)(ii), involving use/reuse of a material as a substitute for a commercial product). While this exclusion may apply to the iron sulfate by-product from the reclamation activity, it would definitely not apply to the K062 waste. This exclusion applies to materials which are used or reused without reclamation (see the January 4, 1985 Federal Register notice, 50 FR 637, 638). The K062 is clearly being reclaimed and, therefore, is not eligible for this exclusion. Again, the exemption would not apply if use constituting disposal is involved (see Section 261.2(e)(2)(i)).

The third exclusion Laclede claims is under section 721.102(e)(1)(B) of the State regulation (which is assumed to be equivalent to 40 CFR 261.4(a)(7), involving the exemption of spent sulfuric acid used to produce virgin sulfuric acid from the definition of solid waste). Apparently, Laclede is confusing reclamation of a spent material with the production of virgin material. The K062 is definitely being reclaimed (i.e., contaminants are being removed to make it reusable). The preamble discussion found at 50 FR 642 (January 4, 1985) clearly describes the process of using spent sulfuric acid as an ingredient in the production of virgin sulfuric acid. Nothing in the reclamation process indicates that virgin sulfuric acid is being produced with K062 used as an ingredient. Therefore, this exclusion is also not applicable to Laclede.

The regulatory determination of concern associated with the Lacleda facility is that K062 is a hazardous waste being reclaimed. The residues of the reclamation process (which itself is not regulated) are also hazardous waste K062 (although the sulfuric acid that is recovered is an effective substitute for a commercial chemical product) and must meet the treatment standards (and notification requirements) under the land disposal restrictions program (40 CFR Part 268) prior to placement on the land (i.e., before a fertilizer produced from the iron sulfate can be applied to the land). Also, the iron sulfate (after reclamation) may be demonstrated to be an effective substitute for a commercial chemical product for uses other than those constituting disposal and, if so, would cease to be a K062-derived hazardous waste.

If you have any additional questions, please contact Mitch Kidwell at FTS 475-8551.

TEXAS WATER COMMISSION

December 30, 1988

cc: RIC
JLM
HAS
WOH
JAS
JBR ✓
CF

D. G. Stephenson
Encycle/Texas, Incorporated
Electrolytic Zinc Plant
Post Office Box 4767
Corpus Christi, Texas 78469-4767

Re: Solid Waste Registration 30003

Dear Mr. Stephenson:

This is in response to an October 7, 1988 letter from R. Keith Hopson of Brown Maroney Rose Barber and Dye to Glen Davis of the Texas Water Commission (TWC) in which Mr. Hopson requested TWC concurrence that the "precipitated solids reclaimed from the solid wastes received at the facility are not solid wastes." According to the letter, the precipitated solids are to be sold to "smelters or other appropriate metals processing facilities."

After review of the material submitted, TWC cannot concur that the precipitated solids are not solid waste. In the preamble of 50 Federal Register 633 (January 4, 1985), which clarifies the status of recycling activities, EPA stated:

> If the material is to be put to use after it has been reclaimed, it is still a solid waste until reclamation has been completed. Thus, the fact that wastes may be used after being reclaimed does not affect their status as wastes before and while being reclaimed.

The EPA goes on to state on page 634 that "commercial products reclaimed from hazardous wastes are products, not wastes"; however, they caution against misinterpretation of this statement and list several circumstances under which a "reclaimed material" may remain a solid waste. Included in this list are wastes which have been partially reclaimed, but must be reclaimed further, and reclaimed materials which are not ordinarily considered to be commercial products.

Smelting operations are considered to be reclamation processes; therefore, because it appears that the precipitated solids are further reclaimed before a final product is produced, the precipitated solids, as described in Mr. Hopson's letter of October 7, 1988, are not excluded from the definition of a solid waste under 31 Texas Administrative Code (TAC) 335.1 (Solid Waste)(I).

If you have any questions concerning this matter, please contact Vanessa Schiller of the Compliance Assistance Unit at (512) 463-8175.

Sincerely,

E. V. Hatton

E. V. Hatton, Head
Compliance Assistance Unit
Hazardous and Solid Waste Division

VS:vs/am

cc: R. Keith Hopson, Brown Maroney Rose Barber and Dye, Attorneys and Counselors, 1400 One Congress Plaza, 111 Congress Avenue, Austin, Texas 78701
Texas Water Commission District 12 Office - Corpus Christi

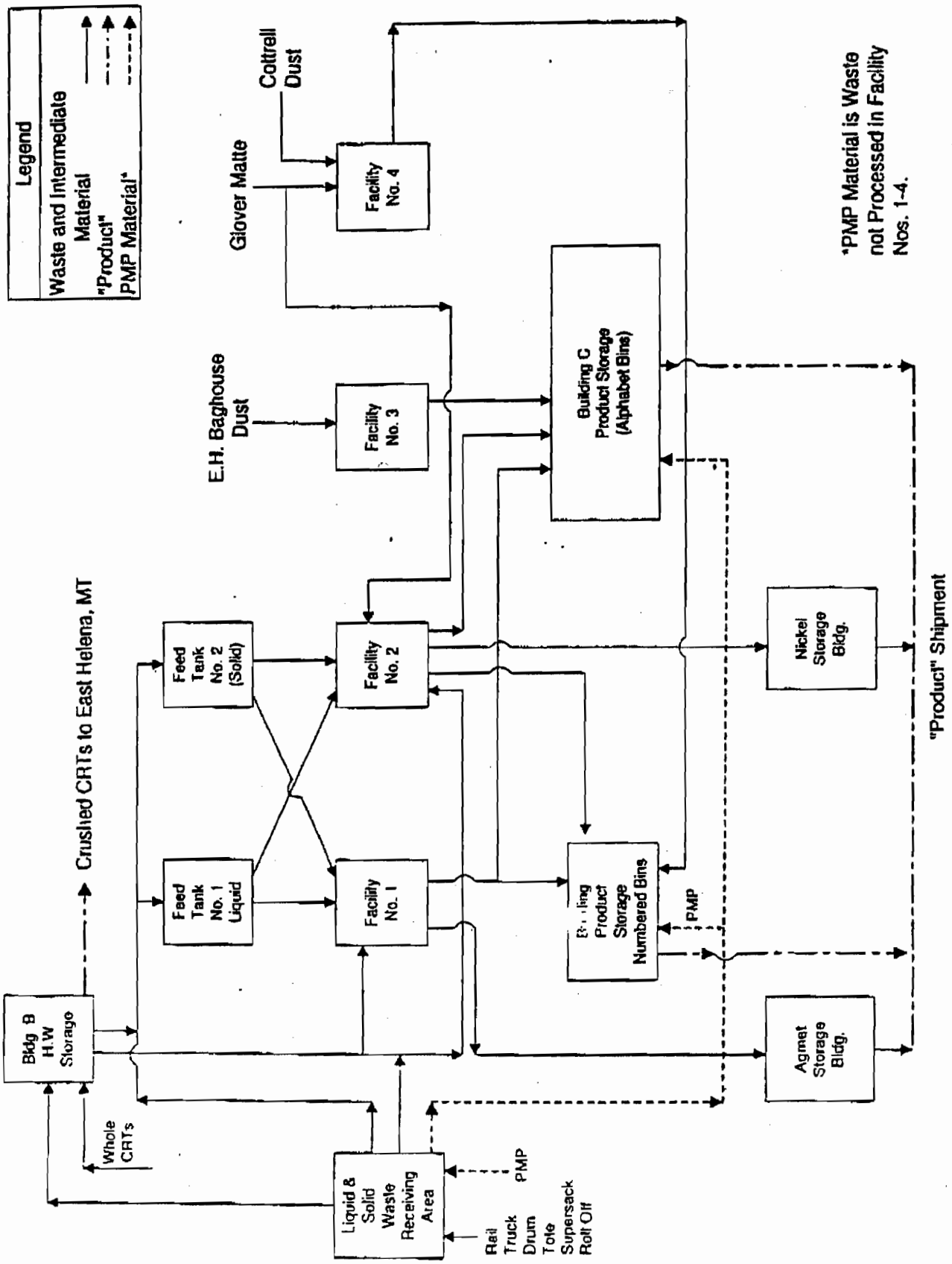

Legend
Waste and Intermediate Material
"Product"
PMP Material"
Glover Matte
Cottrell Dust
Facility No. 4
E.H. Baghouse Dust
Facility No. 3
Building C Product Storage (Alphabet Bins)
"PMP Material is Waste not Processed in Facility Nos. 1-4.
Prepared by NEIC
Not to Scale
Crushed CRTs to East Helena, MT
Feed Tank No. 2 (Solid)
Facility No. 2
Nickel Storage Bldg.
Feed Tank No. 1 Liquid
Facility No. 1
Building Product Storage Numbered Bins
PMP
"Product" Shipment
ENCYCLE/TEXAS, INC.
Waste and Product Flow
Bldg B H.W Storage
Agmet Storage Bldg.
Whole CRTs
Liquid & Solid Waste Receiving Area
Rail
Truck
Drum
Tote
Supersack
Roll Off
PMP
"Products" Include PMP Material Blended with Processed Material
CONFIDENTIAL

Exhibit C

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

June 10, 1998

Mr. Nelson Mossholder
President
Encycle/Texas, Inc.
5500 Upriver Road
Corpus Christi, TX 78407

Re: Solid Waste Registration No. 30003
EPA ID No. TX008117186

Dear Mr. Mossholder:

The purpose of this letter is to clarify the position of the Texas Natural Resource Conservation Commission ("TNRCC") concerning previous correspondence from the TNRCC relating to Encycle. Several letters have been written to Encycle by various members of the TNRCC over a period of years, dating from 1989 to the most recent letter dated March 6, 1997. As a result of information gathered and developed by the TNRCC and the United States Environmental Protection Agency during the investigation related to the current enforcement action, it is now apparent that much of the information supplied by Encycle as a basis for the previous TNRCC letters was incomplete and inaccurate, particularly as it related to the processes which were actually in use. Because these previous letters were based on this incomplete and inaccurate information, Encycle should not rely on the previous correspondence from the TNRCC, including the most recent letter dated March 6, 1997. Therefore, as previously discussed in various meetings between EPA, TNRCC and Encycle, the available information indicates that the exemption provisions cited in the earlier letters are not applicable to the materials Encycle produces and Encycle's reliance on the letters has been misplaced.

Exhibit H

If you need further clarification regarding this letter, please do not hesitate to contact me at 512/239-6592.

Sincerely,

Minor Hibbs, P.E., Director
Industrial and Hazardous Waste Division

MH/jh

cc: John T. Smith II
Peter Nickles
Covington & Burling
1201 Pennsylvania Avenue, N.W.
P.O. Box 7566
Washington, D.C. 20044-7566