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ISO 9001-2000

Original: 2451

December 21, 2004

By Express Mail

Environmental Quality Board
Rachel Carson State Office Building
15th Floor
400 Market Street
Harrisburg, PA 17101-2301

Re: Proposed Exclusion from the List of Hazardous Wastes of Electric Arc Furnace Dust Treated at the Yukon, PA Facility of MAX Environmental Technologies, Inc. - 34 Pennsylvania Bulletin 6421 (December 4, 2004)

Dear Sir or Madam:

I am enclosing for filing three copies of the Comments of the International Metals Reclamation Company, Inc. ("Inmetco") on the above-referenced proposed amendment to the listing of hazardous wastes in 25 Pa. Code Chapter 261a. Also enclosed are three copies of a one-page Summary of the Comments. As indicated in the Comments, Inmetco believes the Board should modify the proposed "delisting" by establishing waste acceptance criteria designed to prevent a diversion of recoverable nickel and chromium from reclamation to landfilling. In particular, as a condition for the exclusion, MAX Environmental should be precluded from accepting K061 electric arc furnace dust having a nickel or chromium content in excess of 1 percent (*i.e.*, >10,000 ppm nickel or chromium).

Adoption of the suggested concentration-based limitation as a condition of the delisting is necessary in order for the proposed exclusion to satisfy the public interest criteria of the Regulatory Review Act, 71 P.S. § 745.5. If such a limitation is not imposed, the final regulation would be "contrary to the . . . intention of the General Assembly in the enactment of the statute upon which the . . . regulation is based,"[1] *i.e.*, the Solid Waste Management Act, 35 P.S. § 6018.102(2), a principal purpose of which is to "encourage the development of resource recovery as a means of managing solid waste [and] conserving resources. . . ." The failure to impose waste acceptance criteria designed to prevent a diversion of recoverable metals from reclamation to landfilling

[1] 71 P.S. § 745.5(d).

also would be contrary to the public interest because of the adverse effect such a diversion would have on the Commonwealth's natural resources.[2] In addition, as noted in Part III of Inmetco's Comments, various provisions and conditions of the proposed exclusion are ambiguous and need to be clarified in order to comply with requirements of the Regulatory Review Act.[3]

We understand that the proposed rule has been sent to the Independent Regulatory Review Commission ("IRRC") for review and comment pursuant to section 5(a) of the Regulatory Review Act. In order to give IRRC members the benefit of Inmetco's views on the proposal, we are sending copies of our Comments directly to IRRC as well as to the Board.

Thank you for your consideration of Inmetco's Comments. If the Board has any questions about the Comments, please let me know.

Sincerely,

Stephen Heddle

Stephen J. Heddle
President

Enclosures

cc: Independent Regulatory Review Commission

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2 *See* 71 P.S. § 745.5(e)(2).

3 *See* 71 P.S. § 745.5(e)(3)(ii).

Summary of the Comments of the International Metals Reclamation Company, Inc. on the Proposal To Exclude from the List of Hazardous Wastes Electric Arc Furnace Dust Treated at the Yukon, PA Facility of MAX Environmental Technologies, Inc.
34 Pennsylvania Bulletin 6421 (December 4, 2004)

The EQB has proposed to exclude from the list of hazardous wastes electric arc furnace dust ("EAFD") that is treated at the Yukon, PA facility of MAX Environmental Technologies, Inc. and meets specified leachate concentration limits. The "delisted" waste could then be disposed in a residual waste landfill. Absent the "delisting," the material would be regulated as listed hazardous waste K061.

The International Metals Reclamation Company, Inc. ("Inmetco") urges the Board to modify the proposed delisting by specifying waste acceptance criteria designed to prevent a diversion of recoverable metals from reclamation to landfilling. In particular, as a condition of the delisting, MAX should be precluded from accepting K061 having a nickel or chromium content in excess of 1 percent (*i.e.*, >10,000 ppm nickel or chromium). Otherwise, MAX's reduced costs of managing the treated K061 as a nonhazardous waste could lead to the landfilling of EAFD that, in the absence of the proposed exclusion, would be sent for metals recovery followed by productive reuse in commerce. Such a diversion would be directly contrary to the General Assembly's objective, expressed in the Solid Waste Management Act, of "encourag[ing] the development of resource recovery as a means of managing solid waste [and] conserving resources." 35 P.S. § 6018.102(2). And it would run counter to U.S. EPA's "longstanding policy of encouraging the recovery and reuse of valuable resources as an alternative to land disposal . . . ." 68 Fed. Reg. 61558, 61560 (October 28, 2003). The fact that the delisting, as proposed, would create an incentive to ignore the waste management hierarchy established by the Commonwealth, by the U.S. Congress, and by U.S. EPA is sufficient grounds for rejecting the proposal as currently framed. *See* 71 P.S. § 745.5(d).

The concentration-based acceptance criteria for nickel and chromium that Inmetco advocates also are necessary because the bench-scale pilot testing performed by MAX did not cover the full range of chemical composition that characterizes K061—in particular, the very high nickel and chromium content found in many K061 dusts from stainless and specialty steel operations. MAX acknowledges that "[t]he composition of EAF dust can be highly variable," but its pilot testing did not reflect the high nickel and chromium levels that are common in K061 dusts processed by Inmetco. Consequently, the data submitted by MAX do not demonstrate effective treatment performance on the range of EAF dusts that can be encountered in stainless and specialty steelmaking. In addition to helping prevent a diversion of recoverable metal values from recycling to landfilling, the acceptance criteria Inmetco proposes would prevent generators from sending MAX K061 dusts with a nickel or chromium content far in excess of what was present in its pilot testing.

Finally, several conditions and provisions of the proposed exclusion dealing with changes in operating conditions and reopener language need to be clarified.

Before the Pennsylvania
Environmental Quality Board

Comments of
The International Metals Reclamation Company, Inc.
on the
Proposed Exclusion from the List of Hazardous Wastes
of Electric Arc Furnace Dust
Treated at the Hazardous Waste Treatment Facility
Operated by MAX Environmental Technologies, Inc.
in Yukon, Pennsylvania
34 Pennsylvania Bulletin 6421 (December 4, 2004)

Communications Regarding These
Comments Should Be Directed to:

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December 21, 2004

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Introduction

The International Metals Reclamation Company, Inc. ("Inmetco") is submitting these Comments on the Environmental Quality Board ("Board") proposal to grant a petition submitted by MAX Environmental Technologies, Inc. ("MAX") for the delisting of treated electric arc furnace dust ("EAFD") that otherwise would bear the hazardous waste code K061. 34 Pennsylvania Bulletin 6421 (December 4, 2004). Specifically, the Board has proposed to amend 25 Pa. Code Chapter 261a to exclude from the list of hazardous wastes EAFD that has been treated at MAX Environmental's Yukon, Pennsylvania facility and is disposed of in a RCRA Subtitle D/Pennsylvania Class 1 residual waste landfill, provided that the treated EAFD meets specified concentration limits for various metals in leachate and that the total concentration of mercury does not exceed 1 mg/kg. While the incoming EAFD would be the listed hazardous waste K061, the residue resulting from treatment by MAX in a chemical fixation/stabilization process would be excluded from the hazardous waste listing and no longer be considered K061.

The proposed amendment to Chapter 261a is being made pursuant to authority granted under the Pennsylvania Solid Waste Management Act. A principal purpose of that Act is to "encourage the development of resource recovery as a means of managing solid waste [and] conserving resources." 35 P.S. § 6018.102(2). As shown below, granting the delisting on the terms proposed would frustrate the achievement of that objective by creating an incentive to divert metal-bearing EAFD from resource recovery to landfilling. This would be "contrary to the . . . intention of the General Assembly in the enactment of the [Solid Waste Management Act]"—and, in that important respect, would run counter to the public interest. *See* 71 P.S. § 745.5(d).

Accordingly, if the proposed exclusion for MAX Environmental's treated EAFD is to be granted, it should be modified so as to include waste acceptance criteria designed to prevent a diversion of recoverable metals from reclamation to landfilling. In addition, various terms and conditions of the proposed amendment are unduly vague and should be clarified.

I. The Delisting of Treated K061 at MAX Environmental's Yukon Facility Should Be Conditioned on the Application of Acceptance Criteria Designed To Prevent a Diversion from Reclamation to Landfilling of EAF Dust Having Recoverable Levels of Nickel or Chromium.

Inmetco, located in Ellwood City, Pennsylvania, operates a high temperature metals recovery ("HTMR") process, utilizing a combination rotary hearth furnace and electric arc smelting furnace to recover nickel, chromium, and iron (along with smaller amounts of other metals) from a variety of metal-bearing secondary materials generated largely by the stainless and specialty steel industries. Inmetco's principal feed material is stainless and specialty steel EAFD bearing the listed hazardous waste code K061. Inmetco recovers nickel, chromium, and iron from this material in the form of a remelt alloy that is sent back to Inmetco's stainless and specialty steel customers (typically under tolling agreements) to be reused as a feedstock in the electric arc furnace steelmaking process.

In 2003, Inmetco reclaimed more than 75,000 tons of secondary materials that otherwise would have been disposed of in landfills. By reclaiming the materials, Inmetco was able to recover and return to productive reuse in commerce approximately 3,350 tons of nickel, 3,900 tons of chromium, 19,500 tons of iron, 250 tons of molybdenum, and lesser amounts of cobalt, manganese, and copper. Inmetco also operates cadmium retort furnaces which allow the company to recover cadmium values

from spent nickel-cadmium ("Ni-Cd") batteries. In 2003, Inmetco recovered 425 tons of cadmium that was recycled for commercial use in battery manufacturing and other applications. In addition, Inmetco sends its own flue dust and wastewater treatment filter cake to another Pennsylvania metals reclaiming facility—which we estimate recovered approximately 1,650 tons of zinc, 170 tons of lead, and 435 tons of iron from these materials in 2003.

Since commencing operations in 1978, Inmetco has prevented approximately 1.4 million tons of secondary materials from being discarded and becoming part of the nation's waste stream. This has lessened the need for more land disposal capacity—thus easing pressures to site additional hazardous and non-hazardous waste landfills—and has conserved non-renewable resources by reducing the need to mine and process virgin materials. Moreover, by recovering and returning metals to commerce, Inmetco helps reduce the U.S. balance of trade deficit in metal commodities. In addition, recovering a metal like nickel through Inmetco's HTMR process is approximately 50 percent more energy efficient than producing the same quantity of metal from mined and processed ore; it thus reduces energy demands and avoids the generation of pollutants associated with energy production. In all these respects, Inmetco's operation is

> consistent with [U.S. EPA's] . . . longstanding policy of encouraging the recovery and reuse of valuable resources as an alternative to land disposal . . . . [as well as] with one of the primary goals of the Congress in enacting . . . RCRA . . . (as evidenced by its name), and with [EPA's] vision of how the RCRA program could evolve over the longer term to promote sustainability and more efficient use of resources.[1/]

[1/] 68 Fed. Reg. 61558, 61560 (October 28, 2003).

Inmetco's operation also furthers Pennsylvania's public policy of promoting resource recovery over waste treatment and disposal.[2]

Because of its resource conservation and recovery benefits, and because of its effectiveness and consistency in treatment performance, Inmetco's HTMR process has been recognized by U.S. EPA as being the Best Demonstrated Available Technology for the treatment of metallic constituents in K061 and other nonwastewater forms of hazardous waste.[3] EPA explained its preference for HTMR over stabilization as follows:

> Since metals cannot be destroyed, treatment options for metal-bearing wastes are limited. Typically, these options include technologies that either can recover the metal or incorporate the metal into a stable matrix resistant to leaching. The Agency believes that the "best" treatment for metal constituents is recovery, especially in cases of high waste metal concentrations. Of the applicable technologies, HTMR appears to be the most matrix-independent (i.e., it consistently achieves the same levels of treatment performance regardless of influent matrix composition). HTMR also generally decreases the amount of material sent for land disposal, recovers valuable resources, and incorporates metals that are not recoverable into a stable slag matrix.
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> * * * * *
>
> Furthermore, the use of HTMR is consistent with the national policy, identified in HSWA [Hazardous and Solid Waste Amendments], to reduce the quantity of hazardous constituents disposed in landfills (this is in contrast to non-recovery technologies, such as stabilization, which are not intended to reduce the total concentration or quantity of

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[2] *See* 35 P.S. § 6018.102(2).

[3] *See* U.S. EPA Office of Solid Waste, *Final Best Demonstrated Available Technology (BDAT) Background Document for Universal Standards, Volume A: Universal Standards for Nonwastewater Forms Of Listed Hazardous Wastes* (July 1994), p. 4-12.

> hazardous constituents in the waste and, in fact, can increase the volume being sent to landfills). In addition, because metals are recovered instead of land disposed, ore processing is reduced, thus saving energy and pollution from these processes.[4]

The reasons EPA designated Inmetco's HTMR process as the Best Demonstrated Available Technology for the treatment of metal constituents in K061—better and more consistent treatment performance combined with resource conservation and recovery benefits—also are reasons why MAX Environmental's delisting should be limited to K061 that meets acceptance criteria designed to prevent the diversion from recycling to landfilling of EAFD having recoverable levels of nickel or chromium. In particular, as a condition of the delisting, MAX should be precluded from accepting K061 having a nickel or chromium content in excess of 1 percent (*i.e.*, >10,000 ppm nickel or chromium). Otherwise, MAX's reduced costs of managing the treated K061 as a nonhazardous waste could lead to the landfilling of EAFD that, in the absence of the proposed exclusion, would be sent for metals recovery followed by productive reuse in commerce. This potential adverse impact on metals recycling was conspicuously overlooked in the Board's discussion of the benefits and costs of the proposed rulemaking. *See* 34 Pennsylvania Bulletin at 6422.

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[4] *Id.*, pp. 4-13, 4-14. *See also* Land Disposal Restrictions for Newly Listed Wastes and Hazardous Debris, 57 Fed. Reg. 37194, 37209 (August 18, 1992) ("HTMR residues demonstrate consistent leaching behavior whereas stabilized matrices do not. The chemical bonding that occurs in the high temperature and oxidation/reduction conditions within the HTMR units is inherently different from the bonding that forms the basis of cementitious and pozzolanic stabilization. In addition, the kinetics of the reaction forming the bonds in these HTMR processes are superior in terms of immobilizing metals to the kinetics of bond formation in cementitious reactions because they are faster. . . . Furthermore, stabilization is highly matrix-dependent and prone to chemical interference.").

II. The K061 Samples Used in MAX Environmental's Pilot Testing Do Not Reflect the Full Range of Variability in the Composition of EAFD, Particularly EAFD Produced in Stainless and Specialty Steel Operations.

As MAX Environmental acknowledges, "[t]he composition of EAF dust can be highly variable contingent upon the quality of scrap used to charge the furnace."[5] The product grade (*e.g.*, carbon steel versus stainless steel or specialty alloy steel) also has a significant impact on the composition of the K061 dust generated by the furnace. The result, as MAX points out, is that "the concentrations of constituents of interest in the untreated K061 will be variable."[6]

MAX attempted to address the issue of waste variability by selecting six different samples of K061 for pilot testing in its bench-scale treatability study. But the samples it selected—while possibly representing the range of constituent concentrations that might be expected in EAFD from carbon steel operations—do not reflect the much higher nickel and chromium concentrations typically found in the stainless and specialty steel EAF dusts that Inmetco processes for high temperature metals recovery. Consequently, the pilot testing conducted by MAX does not demonstrate effective treatment performance on the range of EAF dusts that can be encountered in stainless and specialty steelmaking.

To illustrate this point, one need only compare the chromium/nickel composition and TCLP leachability of K061 dusts that Inmetco processes for metals recovery to the chromium/nickel composition and TCLP leachability of the K061 samples that Max

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[5] MAX Envirommental Delisting Petition at 17.

[6] *Id.* at 28.

Environmental pilot-tested as the basis for supporting its delisting petition. Table 1 below presents total composition data for—

- What MAX Environmental describes as "typical" K061 EAF dust;
- The two "worst case" K061 EAF dust samples tested by MAX; and
- K061 EAF dust received by Inmetco in 2003.

Table 1
Chemical Composition Data

Chemical	"Typical" K061 EAF Dust Chemical Composition (mg/Kg)[7/]	Average Chemical Composition of the two "Worst Case" K061 EAF Dusts Used for MAX Environmental's DRAS Analysis (mg/Kg)[8/]	Average Chemical Composition of K061 EAF Dust Received by Inmetco from Allegheny Ludlum in 2003 (mg/Kg)[9/]
Chromium	1,700	6,750	91,000
Nickel	340	8,807	23,000

As can be seen from Table 1, the chromium composition of the K061 dust received by Inmetco from Allegheny Ludlum in 2003 was more than 50 times higher than the chromium composition of what MAX refers to as "typical" K061 EAF dust and more than an order of magnitude higher than the chromium composition of the two "worst case" K061 dusts used in MAX Environmental's DRAS analysis. Similarly, the nickel composition of the K061 dust received by Inmetco from Allegheny Ludlum in

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7/ As shown in MAX Environmental's Delisting Petition, p. 17.

8/ These were the Allegheny Ludlum (AL-2) sample and the Ellwood Quality (EQ) sample. "DRAS" stands for Delisting Risk Assessment System.

9/ Since Inmetco did not receive any K061 dust from Ellwood Quality in 2003, the data presented are limited to Allegheny Ludlum.

2003 was more than 65 times higher than the nickel composition of MAX's "typical" K061 EAF dust and approximately three times higher than the nickel composition of the two "worst case" K061 dusts used in MAX's DRAS analysis.

Inmetco does not perform routine TCLP analyses on the EAF dusts it receives for processing, because that information (in contrast to total composition data for nickel and chromium) is not relevant for Inmetco's purposes. However, as part of a U.S. EPA-supervised testing program to identify Best Demonstrated Available Technology ("BDAT") for metals in 1991, Inmetco did perform TCLP analyses of typical EAF dusts that it received for processing. The results for chromium and nickel are presented in Table 2 below, along with the TCLP results for the two "worst case" untreated K061 dusts used in MAX Environmental's DRAS analysis.

Table 2
TCLP Data

Chemical	Average TCLP Results for the two "Worst Case" K061 EAF Dusts Tested in MAX Environmental's DRAS Analysis (mg/l)	Average of TCLP Results for K061 EAF Dusts Analyzed as Part of Inmetco's BDAT Test Program in 1991 (mg/l)[10/]
Chromium	24	153
Nickel	0.075	6.1

As can be seen from Table 2, the TCLP values for K061 received by Inmetco are much higher than the TCLP values for the two "worst case" untreated K061 dusts used in MAX Environmental's DRAS analysis. For chromium, the average TCLP result for K061 received by Inmetco was more than six times higher than the average TCLP value for the two "worst case" untreated K061 dusts used in MAX Environmental's DRAS

[10/] Table 3 from the 1991 BDAT Project Report (showing the TCLP analytical results for K061) and the cover page of the Report are attached hereto as Appendix 1.

analysis. For nickel, the average TCLP result for K061 received by Inmetco was almost two orders of magnitude higher than the average TCLP value for the "worst case" K061 dusts tested by MAX Environmental.

As the foregoing tables illustrate, MAX Environmental's bench-scale pilot testing cannot be said to have accounted for the wide variability in chemical composition and leachability of EAF dusts. This variability can be found in EAF dusts from different sources (Company A versus Company B) and even in EAF dusts from the same source (depending on what type and grade of steel is being produced in the furnace at the particular time and the nature and quality of the scrap and other input materials being used). As the data from Inmetco indicate, unless appropriate acceptance criteria are established, it is entirely possible that MAX would receive K061 dusts having much higher nickel and chromium concentrations than any of the samples it used in its pilot bench-scale tests. This is another reason to establish a 1 percent limit on the nickel and chromium composition of K061 dusts that MAX can accept for treatment pursuant to the proposed exclusion.

III. Other Conditions of the Proposed Exclusion Should Be Clarified.

In addition to establishing nickel and chromium acceptance criteria, the Board should clarify several other conditions and provisions of the proposed exclusion, as discussed below.

- **Changes in Operating Conditions**. Paragraph (3) of the proposed exclusion requires MAX to notify the Department "[i]f any of the approved EAFD generators significantly changes the manufacturing process or chemicals used in the manufacturing process"—at which point, MAX would have to handle wastes generated

at its facility as hazardous until the Department approves a resumption of the exclusion based on a demonstration that the wastes continue to meet the specified delisting levels. This provision raises several questions:

- Who are the "approved EAFD generators"?
  - Who approves them—and on what basis?
  - Where are they listed or otherwise identified?
- What constitutes a "significant change [in an approved EAFD generator's] manufacturing process or [in the] chemicals used in the manufacturing process"?
- How will MAX Environmental determine whether and when such a change has occurred?

- **Reopener Language**. Paragraph (5) of the proposed exclusion is a reopener provision, requiring MAX to notify the Department when it

> possesses or is otherwise made aware of any data for any of the approved disposal facilities . . . relevant to the delisted waste indicating that any constituent identified in paragraph (1) is at a level in the leachate higher than the Toxicity Characteristic . . . or is at a level in the groundwater higher than the specific facility action levels. . . .

Like paragraph (3), this provision raises a number of questions:

- Which are the "approved disposal facilities"?
  - Who approves them—and on what basis?
  - Where are they listed or otherwise identified?
- What are the "specific facility action levels"?
  - Where are they set forth?
  - How are they determined?

- What level of a constituent in the leachate at an approved disposal facility would trigger the reopener notification requirement if there is no Toxicity Characteristic for the constituent (as is the case for nickel)?

* * * * * *

The foregoing questions regarding paragraphs (3) and (5) should be answered clearly before the proposed exclusion is adopted in final form.

Conclusion

If it is going to grant the pending delisting petition, the Board should establish acceptance criteria reflecting a ceiling limit of 10,000 ppm (1 percent) on the chromium and nickel content of any K061 that is sent to MAX Environmental for treatment pursuant to the exclusion. If MAX accepts any K061 containing more than 10,000 ppm chromium or nickel, it should be required to handle the residue of its treatment process as hazardous waste.

Adding this condition to the proposed exclusion will help ensure that the delisting does not cause K061 with recoverable levels of nickel and chromium to be diverted from high temperature metals recovery (where the metal values are recycled for reuse in commerce) to burial in non-hazardous waste landfills (where the metal values are lost to productive reuse and pose a threat, however small, to human health and the environment). The important goals of sustainability, resource and energy conservation, and efficiency in the use of materials should not be compromised by a delisting that is intended to reduce the costs of disposal without regard to its impact on environmentally

sound recycling. Pennsylvania's public policy favoring resource recovery over waste treatment and disposal[11/] demands no less.

At the same time, the Board should clarify various of the other conditions and provisions of the exclusion, so that the final rule will be transparent, and all interested parties will be able to understand precisely how it is intended to operate in practice.

11/ *See* 35 P.S. § 6018.102(2).

Tate, Michele Original: 2451

From: Michael M. Meloy [mmeloy@mgkflaw.com]

Sent: Wednesday, January 05, 2005 6:05 PM

To: 'RegComments@state.pa.us'

Cc: 'Kate McGinty (kmcginty@state.pa.us)'; 'DShipman@state.pa.us'; 'Steve DeLussa (s.delussa@envirosafeservices.com)'

Subject: Comments Regarding Proposed Amendments to Pennsylvania's Hazardous Waste Regulations - Delisting of Treated K061 Wastes

In accordance with directions in the preamble to the above-referenced proposed regulations, I am attaching on behalf of Envirosource Technologies, Inc. pdf files containing (1) a transmittal letter to Secretary McGinty in her capacity as Chairperson of the Environmental Quality Board, (2) comments opposing the proposed regulations, and (3) a one page summary of the comments for distribution to members of the EQB. Please let me know if you have any problems opening these attachments and please confirm receipt of the comments.

Thank you.

Michael

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<<McGinty Letter.pdf>> <<ETI Comments.pdf>> <<Summary of Comments.pdf>>

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AN ENVIRONMENTAL LAW PRACTICE

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January 5, 2005

VIA ELECTRONIC MAIL AND FIRST-CLASS MAIL
The Honorable Kathleen A. McGinty, Secretary
Pennsylvania Department of Environmental Protection
16th Floor, Rachel Carson State Office Building
401 Market Street
P.O. Box 2063
Harrisburg, PA 17105-2063

Re: Proposed Amendments to Pennsylvania's Hazardous Waste Regulations -- Comments on Behalf of Envirosource Technologies, Inc.

Dear Secretary McGinty:

I am submitting to you in your capacity as Chairperson of the Pennsylvania Environmental Quality Board ("EQB") a set of comments on behalf of Envirosource Technologies, Inc. ("ETI") opposing proposed amendments to Pennsylvania's hazardous wastes regulations to "delist" electric arc furnace dust ("EAFD") treated by MAX Environmental Technologies, Inc. ("MAX") (formerly Mill Service, Inc.) at its facility in Yukon, South Huntingdon Township, Westmoreland County, Pennsylvania. EAFD is a dusty pollution control waste generated during steel production processes from the melting of scrap iron and steel in electric arc furnaces and is classified as a listed hazardous waste (K061) under both the federal hazardous waste program and Pennsylvania's hazardous waste program. The comments are being submitted in accordance with the preamble to the proposed regulations which were published in the Pennsylvania Bulletin on December 4, 2004. In addition to the comments themselves, I am enclosing a one page summary of the comments to be submitted to the members of the EQB as part of the agenda packet distributed prior to the meeting at which the final version of the regulations, if any, are considered.

184987

ETI is headquartered in Willow Grove, Pennsylvania, and provides technologies and services to customers for the treatment, recycling, and secure disposal of industrial and hazardous wastes. As described in more detail hereinafter, ETI and its subsidiaries are intimately familiar with the proper management of EAFD. ETI is therefore uniquely qualified to comment on the proposed regulations to delist treated EAFD and the underlying delisting petition prepared by MAX.

While the Pennsylvania Department of Environmental Protection ("PADEP") has failed to make available to the public the full record on which it based its recommendations to the EQB concerning MAX's delisting petition and drafted the proposed regulations at issue here, the documents that have been provided demonstrate that the proposed regulations rest on a severely limited and flawed technical foundation. In the proposed rule-making, the EQB is proposing to take the unprecedented step of delisting hundreds of thousands of cubic yards of EAFD generated by multiple and unspecified steel mills based on a total of only six samples of EAFD collected by MAX. The paucity of data coupled with the technical deficiencies in the delisting petition itself and PADEP's consideration of the delisting petition are so significant that the proposed regulations should be abandoned unless and until substantial additional sampling and analysis on a waste stream by waste stream basis is performed to ensure that exempting from the hazardous waste regulations EAFD handled at MAX's Yukon facility will not have adverse consequences for either public health or the environment.

The amount of data collected by MAX in support of its delisting petition would be minimal if the delisting petition addressed a single source of EAFD. It is grossly inadequate given the fact that the proposed regulations purport to cover the entire universe of EAFD from the steel industry. As discussed in more detail in the enclosed comments, the characteristics of EAFD vary depending on a number of factors including the characteristics of the scrap materials that are used in the steel production processes and the alloys that are added to the scrap materials to produce steel meeting particular specifications. The sampling results on which the proposed regulations are based do not take into account the variability in the characteristics of EAFD and are not representative of the full spectrum of K061 waste streams that MAX seeks to treat.

Perhaps even more astounding is the fact that the meager sampling results included with the delisting petition do not show that the treatment techniques that MAX intends to use will enable the treated K061 wastes to meet the delisting standards contained in the proposed regulations. Instead, the sampling results contained in the delisting petition indicate that not a single sample of EAFD which MAX treated under ideal bench scale conditions actually met the proposed delisting standards. Accordingly, there is no evidence that MAX's treatment process will be effective in eliminating the risks to human health and the environment posed by untreated EAFD. In such circumstances, there is no reason to proceed further with the proposed regulations.

The flawed technical foundation on which the proposed regulations rest is also evident in the material errors and inconsistencies found in the delisting petition and the fact that MAX failed to utilize sampling procedures required under the regulations governing the delisting process and relevant guidance applicable to this process. The scientific defensibility of delisting determinations is critical to the proper functioning of the Pennsylvania's hazardous waste program. The proposed regulations are not based on sound science but instead on a platform rife with errors and inconsistencies.

The terms and conditions in the proposed regulations do little to offset the deficiencies in the delisting petition itself. Gaping holes in the proposed regulations exist. For example, the proposed regulations do not contain any requirements mandating that MAX fully characterize individual K061 waste streams that it intends to treat and demonstrate that its treatment technology will actually be effective in treating such waste streams before accepting and treating the wastes. The manner in which the EQB has proposed to proceed represents an unprecedented departure from the way in which similar delisting petitions have been handled by the United States Environmental Protection Agency and other state regulatory agencies, and will place both human health and the environment at risk.

Given the failure of PADEP to make the full administrative record associated with the rule-making process available to the public, ETI is reserving its rights to supplement the enclosed comments until after PADEP has made the complete administrative record available to the public and ETI has had a full opportunity to review that record.

We would welcome the opportunity to meet with representatives of either the EQB or PADEP to discuss the enclosed comments and the proposed regulations.

Very truly yours,

Michael M. Meloy
For MANKO, GOLD, KATCHER & FOX, LLP

MMM/dm

Enclosures

cc: Mr. D. Richard Shipman (w/enclosures) (via electronic mail and first-class mail)
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Comments on Behalf of Envirosource Technologies, Inc.

Proposed Amendments to Pennsylvania's Hazardous Waste Regulations to Delist Electric Arc Furnace Dust Treated by MAX Environmental Technologies, Inc. at its Facility in Yukon, Pennsylvania.

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I. Introduction and Executive Summary.

These comments are submitted to the Pennsylvania Environmental Quality Board ("EQB") opposing proposed amendments to Pennsylvania's hazardous wastes regulations to "delist" electric arc furnace dust ("EAFD") treated by MAX Environmental Technologies, Inc. ("MAX") (formerly Mill Service, Inc.) at its facility in Yukon, South Huntingdon Township, Westmoreland County, Pennsylvania. EAFD is a dusty pollution control waste generated during steel production processes from the melting of scrap iron and steel in electric arc furnaces. EAFD is captured in air pollution control equipment (bag houses) at steel mills. It contains a number of toxic metals that are hazardous to human health and the environment. The United States Environmental Protection Agency ("USEPA") has classified EAFD as a listed hazardous waste with a hazardous waste code of K061 pursuant to the federal hazardous waste regulations promulgated by USEPA under the Resource Conservation and Recovery Act ("RCRA"). As a listed hazardous waste, EAFD (also referred to as K061) is subject to stringent requirements to ensure that it is managed so as protect public health and the environment. According to statistics cited by the EQB, EAFD is the largest hazardous waste stream generated in the United States.

On December 4, 2004, the EQB published in the Pennsylvania Bulletin a set of proposed regulations designed to "delist" EAFD treated by MAX at its Yukon facility. 34 Pa. Bull. 6421 (Dec. 4, 2004). The proposed regulations were drafted by the Pennsylvania Department of Environmental Protection ("PADEP") and, if finalized, will allow EAFD from multiple unspecified generators which is treated at MAX's Yukon facility to escape regulation as a listed hazardous waste.

The proposed rule-making was triggered by a delisting petition that MAX filed with the EQB on November 4, 2003. [1] On February 17, 2004, the EQB formally accepted the delisting petition for review and referred the delisting petition to PADEP for consideration. Thereafter, PADEP issued a report to the EQB recommending that Pennsylvania's hazardous waste regulations be amended to delist EAFD treated at MAX's Yukon facility. PADEP also prepared for consideration by the EQB proposed amendments to Pennsylvania's hazardous waste regulations to implement its recommendation. The EQB approved the regulations in proposed form at its meeting on October 19, 2004. In the preamble accompanying the proposed regulations in the Pennsylvania Bulletin on December 4, 2004, the EQB invited the public to submit comments regarding the proposed regulations to the EQB by January 5, 2005.

The comments presented herein have been prepared on behalf of Envirosource Technologies, Inc. ("ETI"). ETI is headquartered in Willow Grove, Pennsylvania, and provides technologies and services to customers for the treatment, recycling, and secure disposal of industrial and hazardous wastes. As described in more detail hereinafter, ETI and its subsidiaries are intimately familiar with the proper management of EAFD. ETI is therefore uniquely qualified to comment

[1] MAX submitted its original delisting petition in November 2003 in the form of a document entitled "Delisting Petition for Treated K061 (November 2003)." MAX subsequently submitted a modified version of this document to PADEP entitled "Revised Delisting Petition for Treated K061 (June 2004)." Unless otherwise indicated, references to MAX's delisting petition are intended to refer to the Revised Delisting Petition for Treated K061 (June 2004) rather than the November 2003 version of that document.

on the proposed regulations to delist treated EAFD and the underlying delisting petition prepared by MAX.

Based on the limited set of documents that PADEP has made available to the public in connection with the delisting petition and the proposed regulations, it is evident that the proposed rule-making process rests on a severely limited and flawed technical foundation. In the proposed rule-making, the EQB is proposing to take the unprecedented step of delisting hundreds of thousands of cubic yards of EAFD generated by multiple and unspecified steel mills based on a total of only six samples of EAFD collected by MAX. The paucity of data coupled with the technical deficiencies in the delisting petition itself and PADEP's consideration of the delisting petition are so significant that the proposed regulations should be abandoned unless and until substantial additional sampling and analysis on a waste stream by waste stream basis is performed to ensure that exempting from the hazardous waste regulations EAFD handled at MAX's Yukon facility will not have adverse consequences for either public health or the environment.

The amount of data collected by MAX in support of its delisting petition would be minimal if the delisting petition addressed a single source of EAFD. It is grossly inadequate given the fact that the proposed regulations purport to cover the entire universe of EAFD from the steel industry. As discussed in more detail hereinafter, the characteristics of EAFD vary depending on a number of factors including the characteristics of the scrap materials that are used in the steel production processes and the alloys that are added to the scrap materials to produce steel meeting particular specifications. The sampling results on which the proposed regulations are based do not take into account the variability in the characteristics of EAFD and are not representative of the full spectrum of K061 waste streams that MAX seeks to treat.

Perhaps even more astounding is the fact that the meager sampling results included with the delisting petition do not show that the treatment techniques that MAX intends to use will enable the treated K061 wastes to meet the delisting standards contained in the proposed regulations. Instead, the sampling results contained in the delisting petition indicate that not a single sample of EAFD which MAX treated under ideal bench scale conditions actually met the proposed delisting standards. Accordingly, there is no evidence that MAX's treatment process will be effective in eliminating the risks to human health and the environment posed by untreated EAFD. In such circumstances, there is no reason to proceed further with the proposed regulations.

The flawed technical foundation on which the proposed regulations rest is also evident in the material errors and inconsistencies found in the delisting petition and the fact that MAX failed to utilize sampling procedures required under the regulations governing the delisting process and relevant guidance applicable to this process. The scientific defensibility of delisting determinations is critical to the proper functioning of the Pennsylvania's hazardous waste program. The proposed regulations are not based on sound science but instead on a platform rife with errors and inconsistencies.

The terms and conditions in the proposed regulations do little to offset the deficiencies in the delisting petition itself. Gaping holes in the proposed regulations exist. For example, the

proposed regulations do not contain any requirements mandating that MAX fully characterize individual K061 waste streams that it intends to treat and demonstrate that its treatment technology will actually be effective in treating such waste streams before accepting and treating the wastes. The manner in which the EQB has proposed to proceed represents an unprecedented departure from the way in which similar delisting petitions have been handled by both USEPA and other state regulatory agencies, and will place both human health and the environment at risk.

For ease of review, the comments set forth herein have been divided by subject heading. The fact that PADEP has failed to make the full administrative record associated with the rule-making process available to the public has hampered the ability to review and comment on the proposed regulations, particularly given the technical complexity of the issues underlying the proposed regulations. ETI is therefore reserving its rights to supplement these comments until after PADEP has made the complete administrative record available to the public and ETI has had a full opportunity to review that record.

II. Background.

A. Regulatory Overview.

Under the federal hazardous waste regulations, wastes can be classified as hazardous either because they exhibit one of four sets of characteristics (ignitability, corrosivity, reactivity or toxicity) or because they are specifically listed as hazardous wastes. See 40 C.F.R. Part 261, Subparts C and D. USEPA has developed lists of hazardous wastes from non-specific sources (F-listed wastes) and hazardous wastes from specific sources (K-listed wastes). In addition, certain types of discarded commercial chemical products, off-specification species, container residues and spill residues qualify as listed hazardous wastes based on whether these materials are classified as acute hazardous wastes (P-listed wastes) or toxic wastes (U-listed wastes).

Since the inception of the federal hazardous waste program in 1980, the federal hazardous waste regulations have included provisions to allow members of the regulated community to petition USEPA to exclude wastes from particular generating facilities from being regulated as listed hazardous wastes. These petitions are generally referred to as "delisting" petitions and are subject to stringent review because the consequence of granting a delisting petition is to allow the listed hazardous wastes covered by the delisting petition to escape the protections afforded by the hazardous waste management program.

USEPA has promulgated detailed regulations governing the preparation and review of delisting petitions. Petitions to modify requirements of the hazardous waste regulations are generally described in 40 C.F.R. § 260.20. Delisting petitions are specifically governed by 40 C.F.R. § 260.22. USEPA has amplified on the requirements applicable to delisting petitions in a number of key guidance documents. For example, the Delisting Section of USEPA's Office of Solid Waste issued a guidance document in March of 1993 entitled "Petitions to Delist Hazardous Wastes – A Guidance Manual (Second Edition)" (hereinafter the "1993 Delisting Guidance Manual"). In addition, USEPA subsequently issued a guidance manual entitled "EPA RCRA Delisting Program – Guidance Manual for the Petitioner" dated March 23, 2000

(hereinafter the "2000 Delisting Guidance Manual"). These guidance documents are designed to address the technically complex issues that arise in connection with delisting petitions.

Since the Pennsylvania Solid Waste Management Act ("SWMA") was adopted in 1980, Pennsylvania has regulated the management of hazardous wastes within the Commonwealth. Pennsylvania's hazardous waste program has generally followed the same overall framework as the federal hazardous waste program, although Pennsylvania's hazardous waste program historically contained a number of components that were more stringent than the federal hazardous waste program. In 1999, Pennsylvania overhauled its hazardous waste regulations pursuant to the Regulatory Basics Initiative and incorporated by reference for the first time major sections of the federal hazardous waste regulations, thereby bringing Pennsylvania's hazardous waste program into closer conformance with the federal hazardous waste program.

Effective November 27, 2000, Pennsylvania received approval from USEPA pursuant to RCRA to administer Pennsylvania's hazardous waste program as of July 6, 1999, in lieu of the major components of the federal hazardous waste program including the handling of delisting petitions. Accordingly, since November 27, 2000, Pennsylvania has had authority to review delisting petitions concerning listed hazardous wastes being managed in Pennsylvania that would have previously been handled by USEPA.

The requirements in Pennsylvania's hazardous waste regulations concerning delisting petitions largely mirror those found in the federal hazardous waste regulations. Specifically, 25 Pa. Code § 260a.1(a) provides that "[e]xcept as expressly provided in this chapter, 40 CFR Part 260 and its appendices (relating to hazardous waste management system: general) are incorporated by reference." Under 25 Pa. Code § 260a.20 relating to petitions to modify hazardous waste management requirements (including delisting petitions), "[e]ach petition shall be submitted in accordance with Chapter 23 (relating to Environmental Quality Board – policy for processing petitions – statement of policy) instead of the procedures in 40 CFR 260.20(b) – (e) (relating to general)." Accordingly, with the exception that delisting petitions must be submitted to the EQB rather than PADEP directly, the regulations governing delisting petitions in Pennsylvania consist of the federal regulations set forth at 40 C.F.R. §§ 260.20(a) and 260.22 which are incorporated by reference.

Because Pennsylvania only recently received authorization from USEPA to handle delisting petitions, PADEP and the EQB have virtually no experience in the technical complexities associated with delisting petitions. Indeed, the delisting petition submitted by MAX to the EQB in late 2003 appears to be the first delisting petition that PADEP and the EQB have been asked to consider. Based on discussions with PADEP, neither PADEP nor the EQB have developed any guidance documents to describe the manner in which delisting petitions are to be handled. Instead, PADEP has relied on existing guidance developed by USEPA.

B. Classification and Management of Electric Arc Furnace Dust.

As previously noted, electric arc furnace dust is a listed hazardous waste generated by the iron and steel industry with a hazardous waste code of K061. The general description for K061 waste is "[e]mission control dust/sludge from the primary production of steel in electric arc furnaces." 40 C.F.R. § 261.32. K061 waste is classified as a toxic waste with a hazard code of "T." Based

on 40 C.F.R. Part 261, Appendix VII, K061 waste was listed as a hazardous waste by USEPA due to the fact that it contains elevated levels of hexavalent chromium, lead and cadmium.

EAFD can exhibit varying characteristics. The variability in EAFD is influenced by multiple factors. For example, EAFD from different steel mills may contain significantly different concentrations of toxic metals. Steel mills producing stainless steel will generate EAFD that has different characteristics than steel mills producing carbon steel. Even where steel mills are producing similar products, the characteristics of the EAFD can vary due to differences in the scrap metal supply. Moreover, because electric arc furnaces function on a batch basis, the characteristics of EAFD produced by a single steel mill can vary significantly between batches, depending on the composition of the scrap iron and steel that is used for the particular batch and the types and amounts of alloying materials that are added to the batch.[2] These differences exist because batches are often used to produce different grades of steel for different customers.

EAFD is generally handled in one of two ways. Depending on its metal content, EAFD may be recycled, primarily to recover zinc. Indeed, a substantial portion of zinc production in the United States utilizes EAFD. Alternatively, EAFD may be stabilized and placed in landfills.

USEPA has previously considered petitions to delist treated K061 waste and has granted delisting petitions covering treated EAFD generated at seven specific steel production facilities across the country. The requirements associated with handling delisted EAFD are specifically listed in 40 C.F.R. Part 261, Appendix IX, Table 2. Each of the delisted EAFD waste streams is limited to wastes generated at a single steel production facility. USEPA has never delisted treated EAFD from multiple unspecified generators as the EQB now proposes to do.

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[2] MAX's delisting petition highlights the variability that EAFD can exhibit, resting in part on the nature of the processes which generate EAFD. Section C.4 of the delisting petition contains the following description of the manner in which electric arc furnaces operate:

> Electric arc fumaces operate in a batch fashion. Each operating cycle consists of charging the furnace, a meltdown period, an oxidizing period, a composition and temperature adjustment period, and a tapping period. Charging the furnace is typically completed via removal of a swing type roof that accommodates direct dumping of the scrap into the furnace. Sorted and sized scrap is typically charged to the furnace in either a two - or three-drop process. Typical charges for large electric arc furnace[s] are approximately 90 metric tons. Alloying materials (e.g., carbon, chromium, nickel, manganese, etc.) are typically introduced to the furnace during charging. Upon completion of charging, the furnace roof and door(s) are closed and a refractory dam is built up over the interior of the door(s) where the furnace will ultimately be tapped. The dams prevent large scale release of the molten steel when the furnace is opened. The furnace electrodes are then powered up and continue to bore through the charge, melting the steel using electrical energy. Heating of the charge continues until it is completely melted. Oxidation occurs from the time the molten steel begins to form until the entire charge is in solution. Oxygen sources for the oxidation process include oxygen gas injected directly to the furnace, oxygen in the furnace atmosphere, calcinized limestone, and oxides of the alloying elements. Composition and temperature adjustment consists of tapping slag from the furnace to remove impurities such as sulfur and phosphorus and measurement of the furnace temperature and adjustment of the electrical energy supplies to the furnace. During tapping, the electrodes are raised and the tap hole is opened. The furnace is then tilted and the molten steel is poured into a ladle.

III. Statement of Interest.

Envirosource Technologies, Inc. provides technologies and services to customers for the treatment, recycling, and secure disposal of industrial and hazardous wastes. ETI is the parent company of Conversion Systems, Inc. and Envirosafe Services of Ohio, Inc. ("ESOI") which owns and operates a hazardous waste treatment facility and hazardous waste landfill in Oregon, Ohio. ETI has made the investments necessary to obtain hazardous waste permits and delistings and has worked with USEPA and various states in completing effective public participation programs to support these processes. ETI has highly trained employees and advanced environmental management systems to comply with the strict standards of the federal hazardous waste program, state hazardous waste programs and all other environmental laws.

ETI supplies customers with long-term, specialized services, including, material handling, stabilization and landfilling of environmentally sensitive wastes and by-products. The company utilizes a patented treatment process, called Super Detox®, to treat electric arc furnace dust. ESOI is currently one of the primary vendors for management of EAFD in the country and has dedicated nearly 80% of its process capacity to the steel industry. Although ETI is focused on servicing the steel industry, the company continues to use its long-term experience and knowledge of performing stabilization treatment to service hazardous waste incinerators, waste consolidators, and multi- and single-source generators. The expertise that ETI has developed gives ETI a unique and important vantage point to assist the EQB in helping to ensure that its disposition of MAX's delisting petition is handled in a way that will be protective of public health and the environment and that will be consistent with the manner in which similar delisting petitions have been addressed elsewhere in the country.

IV. Specific Comments Concerning the Proposed Regulations.

A. The Public Comment Process is Procedurally Deficient.

The proposed regulations to delist treated EAFD were published in the Pennsylvania Bulletin on December 4, 2004. As a result of the timing of the publication of the proposed regulations and the fact that the EQB provided only thirty days in which to submit comment on the proposed regulations, much of the comment period has been consumed by the Christmas and New Year holidays. As a result, the opportunity for the public to fully and fairly comment on the proposed regulations has been compromised. A thirty day comment period is a short comment period under the best of circumstances. Given the holiday season, it falls well short of the mark.[3]

Of even greater concern is that PADEP has failed to make available to the public the full record on which it based its recommendations to the EQB and drafted the proposed regulations at issue.

[3] To place the duration of the public comment period in perspective, if the EQB accepts a rule-making petition for consideration, PADEP is required to issue a report to the EQB evaluating the petition within 60 days. 25 Pa. Code § 23.6(1). Not only did PADEP fail to meet this 60 day deadline, it requested an extension from the EQB of an additional 90 days in which to complete its report, notwithstanding the fact that PADEP had been working closely with MAX for a number of months prior to the time that the EQB accepted MAX's delisting petition for consideration. It is therefore unreasonable to expect the public to digest a technically complex regulatory proposal and prepare comments concerning that regulatory proposal in thirty days, particularly when the comment period coincides with a major set of holidays.

Shortly after the EQB approved the regulations in proposed form, counsel for ETI contacted PADEP to request that all materials considered by PADEP as part of its review of MAX's delisting petition be made available to the public. Because others had made similar requests, PADEP agreed to create a docket of such materials and to post those materials on PADEP's web site. PADEP contacted counsel for ETI on November 23, 2004, to provide the link to materials that had been placed on PADEP's web site. These materials consisted of the revised delisting petition prepared by MAX dated June 2004. In addition, PADEP sent separately to counsel for ETI compact disks containing sampling results included with the delisting petition.

In discussions with PADEP during the week of December 21, 2004, PADEP conceded that other materials existed which had not been placed on its web site (or otherwise provided) including a sampling and analysis plan critical to understanding the nature of the analysis performed by MAX in support of its delisting petition. Based on discussions with PADEP, it is apparent that MAX submitted to PADEP an initial version of the sampling and analysis plan which PADEP found to be deficient. It is unclear from discussions with PADEP whether MAX ever submitted a revised version of the sampling and analysis plan addressing PADEP's concerns or instead simply proceeded with sampling activities associated with the delisting petition. If a revised version of the sampling and analysis plan was never submitted to PADEP, it is hard to understand how PADEP could appropriately consider the information that MAX submitted as part of the delisting petition. If a revised version of the sampling and analysis plan was submitted to PADEP, it has never been made available to the public. Moreover, ETI recently discovered that the analytical data for testing performed using SW-846 Method 6020 on extractions conducted using the Toxicity Characteristic Leaching Procedure ("TCLP") was not included in the compact disks provided by PADEP. From the revised delisting petition, it appears that this was the only TCLP data considered by PADEP, not the data that was included on the compact disks that was obtained by analyzing TCLP extractions using SW-846 Method 6010B.

Given the fact that the full administrative record has not been made available to the public, ETI believes that the comment period concerning the proposed regulations should be extended until all documents considered by PADEP in connection with MAX's delisting petition have been produced and posted on PADEP's web site and the public has had a full and fair opportunity to review those materials. Due to the technical complexity of the regulatory proposal, the full administrative record is crucial to understanding the ramifications from MAX's delisting proposal

B. The Economic Impacts from the Proposed Regulations Have not Been Properly Evaluated

As support for its delisting petition, MAX represented to the EQB at its meeting on February 17, 2004, that the proposed delisting of K061 waste would benefit and help the steel industry. The preamble to the proposed regulations echoes this concept, stating that "[t]he proposed delisting of the residuals resulting from effective treatment of EAFD will assist steel-making operations by providing a cost-effective alternative for management of their wastes - converting it from a hazardous waste to a nonhazardous residual waste that can be managed in an environmentally responsible manner in permitted residual waste facilities." 34 Pa. Bull. 6421, 6422 (Dec. 4, 2004). The preamble also includes the statement that "the delisting of the residuals resulting

from treatment of EAFD would result in an overall reduced waste management cost to the steel-making industry that would utilize the treatment services being offered by MAX." There is no evidence in the delisting petition to support these sweeping statements.

The average industry cost for management of K061 waste is near a decade low because of existing competition within the industry. These statistics belie the claims by MAX that the proposed regulations will result in significant economic benefits for the steel industry.

Moreover, in cases where EAFD is placed in hazardous waste landfills, it must first be treated to meet land disposal standards set forth in 40 C.F.R. Part 268. To achieve the level of treatment necessary to attain delisting standards for EAFD typically requires greater amounts of treatment reagents and more expensive reagents. Accordingly, while the costs of disposing of residual wastes in landfills may be less than the costs of disposing of hazardous wastes in landfills, that difference in costs may be offset by the increased costs of the treatment necessary to delist the EAFD so that it can be managed as a residual waste.

MAX itself may reap economic benefits from the delisting process because it appears that MAX intends to use significant quantities of delisted EAFD to backfill hazardous waste impoundments at its Yukon facility as part of the closure of these impoundments. In addition, MAX intends to use spent pickle liquor as part of treating EAFD at its Yukon facility. MAX is currently authorized to accept spent pickle liquor at its Yukon facility for treatment. Spent pickle liquor is a listed hazardous waste with a waste code of K062. MAX has asserted in the delisting petition that if it uses spent pickle liquor to treat EAFD, the spent pickle liquor will not constitute a waste in accordance with 40 C.F.R. § 261.2(e)(ii), thereby allowing the spent pickle liquor to escape regulation as a listed hazardous waste. The individual economic benefits that MAX may experience should not be confused with purported economic benefits that may redound to the steel industry more generally.

Finally, the preamble to the proposed regulations includes the statement that "[n]ew electric arc furnaces are expected to be built in this Commonwealth." While ETI is strongly supportive of the steel industry and would hope that this statement is true, the reality of the situation appears to be far different. ETI is not aware of any new steel mills that are scheduled to be constructed in Pennsylvania. Instead, steel mills are closing or downsizing. Adequate regional capacity to manage EAFD currently exists, particularly in the locality of MAX's Yukon facility. The two major processors of K061 wastes in the country are located in Pennsylvania and Ohio. These processors offer options for both recycling and treatment and disposal of EAFD.

C. The Proposed Regulations Fail to Individually Address K061 Waste Streams from Multiple Sources of EAFD.

MAX's delisting petition and the proposed regulations themselves represent a fundamental departure from the manner in which delisting determinations have been previously handled in connection with EAFD. Specifically, the proposed regulations purport to allow K061 wastes from any electric arc furnace or steel mill anywhere in the country to be treated at MAX's Yukon facility and delisted. The proposed regulations do not include any controls to ensure that K061 wastes from particular generators can be effectively treated at MAX's Yukon facility before the treatment process takes place. Indeed, there is nothing in the proposed regulations that even

indicates which generators of K061 wastes are authorized to send their wastes to MAX's Yukon facility for treatment and delisting. This omission directly conflicts with requirements in the regulations governing delisting petitions which make clear that delisting petitions are to cover individual generating facilities specifically identified in delisting petitions and not generic categories of generating facilities. See 40 C.F.R. §§ 260.22(a) and (k). Moreover, it is a radical departure from the manner in which USEPA and state regulatory agencies have handled similar delisting petitions for K061 wastes.

ETI is aware of two instances in which "generic" delisting petitions for K061 wastes have been considered. Unlike the proposed regulations at issue here, satisfying a formal regulatory process in each case has been required for each waste stream from each source of EAFD in order for the treated EAFD to be delisted.

The federal hazardous waste regulations contain an exclusion for K061 wastes generated by Northwestern Steel at its facility in Sterling, Illinois which are treated by Conversion Systems, Inc. ("CSI") using the Super Detox® process. As described in 40 C.F.R. Part 261, Appendix IX, Table 2, the exclusion allows CSI to submit detailed information to USEPA to formally add to the exclusion on a case-by-case basis additional facilities that are generating K061 wastes which will be treated using the Super Detox® process. The terms of the exclusion make clear that until USEPA has formally added a new steel mill to the exclusion, the K061 wastes from that steel mill must be managed as hazardous wastes.

The Idaho hazardous waste regulations also contain an exclusion for K061 wastes treated using the Super Detox® process by US Ecology Idaho, Inc. ("USEII"), formerly known as Envirosafe Services of Idaho, Inc. ("ESII"), at its facility in Grand View, Idaho. See IDAPA 58.01.05.005. This exclusion requires that prior to the initial treatment of any new source of EAFD, USEII must notify the Idaho Department of Environmental Quality ("IDEQ") in writing and provide IDEQ with waste profile information and the name and address of the generator of the EAFD. In addition, the first four consecutive batches of treated EAFD (chemically stabilized EAFD resulting from a single treatment episode in a full scale mixing vessel) from the generator must be sampled in accordance with protocols contained in the exclusion to determine if the treated EAFD meets the delisting levels specified in the exclusion. If the initial verification testing demonstrates that the samples of treated EAFD meet the delisting levels, the operational and analytical test data, including quality control information, must be submitted to IDEQ after which the treated EAFD originating from the new source of EAFD is considered to be delisted.

By contrast, the regulations approved by the EQB in proposed form do not identify any particular sources of EAFD from which MAX is authorized to accept K061 wastes for treatment nor is there any mechanism in the proposed regulations which will allow PADEP to authorize on a case-by-case basis the addition of new sources of EAFD. This is an unprecedented departure from the manner in which delisting petitions for K061 waste streams have been handled and violates the regulations governing delisting petitions. At a minimum, each source of K061 to be treated by MAX should be identified and initially assessed by PADEP against the delisting criteria prior to authorization for delisting. The conditions in both of the USEII and CSI delistings discussed above have clear requirements for initial versus subsequent verification testing. They include requirements that ensure that representative samples of EAFD are obtained

and account for temporal variation. Assessing variation in each source of K061 is critical for successful stabilization. There is no justification for the EQB to adopt regulations delisting K061 wastes which contain far less stringent requirements than those that have already been promulgated.

D. The Proposed Regulations are Based on Grossly Insufficient Sampling Data.

MAX's efforts to obtain a generic delisting regulation and PADEP's apparent willingness to collaborate in this process not only run afoul of the requirements applicable to delisting petitions but are technically deficient. MAX's delisting petition is based on a total of only six grab samples of EAFD. Specifically, MAX collected a single grab sample of EAFD from J&L Specialty Steel in Midland, Pennsylvania and a single grab sample of EAFD from Ellwood Quality Steel in New Castle, Pennsylvania. MAX collected two grab samples of EAFD from AK Steel in Butler, Pennsylvania (from separate silos) and two grab samples of EAFD from Allegheny Ludlum Steel in Brackenridge, Pennsylvania.[4] The samples collected in support of MAX's delisting petition are not representative of the EAFD from a single steel mill let alone the universe of EAFD from the entire steel industry. This appalling lack of data undercuts the technical validity of the entire regulatory proposal.

The regulations governing delisting petitions require that "[d]emonstration samples must consist of enough representative samples, but in no case less than four samples, taken over a period of time sufficient to represent the variability or the uniformity of the waste." 40 C.F.R. § 260.22(h). Section 7.2 of the 2000 Delisting Guidance Manual underscores the importance of collecting representative samples of each waste stream, taking into account both temporal and spatial variability. The sampling performed by MAX falls well short of the mark.

As previously noted, the characteristics of EAFD can vary. EAFD characteristics are highly dependent on the specific steel products being manufactured. Many steel mills produce various grades of steel with numerous burn cycles that result in K061 wastes that are distinctive from heat to heat. The characteristics of K061 wastes can change based on the scrap material being used and the various other additives that are incorporated to meet the final product specifications. The batch production processes that are employed with electric arc furnaces contribute significantly to the variability in K061 wastes. Where batch processes are used, Section 7.2.1 of the 2000 Delisting Guidance Manual makes clear that composite samples collected over a period of at least a month should normally be used to ensure that each waste stream is properly characterized. MAX failed to perform such sampling. Moreover, there is no evidence that MAX considered the spectrum of factors that induce variability in the characteristics of K061 wastes in collecting the limited universe of samples of EAFD on which the proposed regulations are based.

The most common type of steel produced is carbon steel. Carbon steel represents greater than 90% of the steel generated in the United States and a comparable percentage of the K061 generated. MAX collected only six grab samples of EAFD from four generators. Four of the six samples of EAFD were from the production of stainless steel or specialty steel. Only two samples of EAFD were from the production of the much more prevalent carbon steel. Moreover,

[4] The second sample of EAFD from Allegheny Ludlum Steel was collected approximately five and half months after the first sample because MAX needed additional EAFD on which to perform treatability studies.

the only sample to be tested using the Multiple Extraction Procedure ("MEP") was one from the production of stainless steel. This does not represent the majority of K061 waste generated. Therefore, the demonstration provided in the delisting petition does not account for the majority of K061 waste streams in the United States. A delisting petition purporting to cover all K061 waste streams is not appropriate unless a representative demonstration has been provided.

By way of comparison, the delisting petition which CSI prepared for K061 wastes treated using the Super Detox® process and which USEPA approved (40 C.F.R. Part 261 Appendix IX, Table 2) included total and TCLP analyses for 22 untreated samples of EAFD from 11 generators, more than 62 TCLP analyses for treated samples of EAFD from 12 generators, and 7 MEP analyses from 6 generators. This and much more information was provided to IDEQ in the delisting petition that Envirosafe Services of Idaho, Inc. prepared for EAFD treated using the Super Detox® process at ESII's facility in Grand View, Idaho.

In addition to the extreme paucity of samples, MAX's delisting petition lacks detail regarding the sampling program that was utilized by MAX. Analytical results generated by a scientifically defective sampling plan have limited utility, particularly in the case of regulatory proceedings. Chapter Nine of the USEPA guidance document SW846 entitled "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods" addresses the development of a technically valid sampling plan. The guidance document provides, as follows:

> [T]he regulations pertaining to the management of hazardous wastes contain three references regarding the sampling of solid wastes for analytical properties. The first reference, which occurs throughout the regulations, requires that representative samples of waste be collected and defines representative samples as exhibiting average properties of the whole waste. The second reference, which pertains just to petitions to exclude wastes from being listed as hazardous wastes, specifies that enough samples (but in no case less than four samples) be collected over a period of time sufficient to represent the variability of the wastes . . . .

MAX's delisting petition does not address either of these issues. In fact, no information is included in the delisting petition that indicates that sufficient data was collected for each manufacturer's product line or production schedule to justify obtaining only one discreet sample of EAFD from two of the generators that were evaluated and two discreet samples of EAFD from the other two generators that were evaluated. Moreover, these discrete samples do not appear to be representative of the bulk containers from which they were collected or representative of the generators' overall production processes. For example, the delisting petition indicates that MAX collected certain of the grab samples of EAFD by lowering a stainless steel bucket through the center hatch on the top of a truck used to transport EAFD. Given this sampling technique, it would appear that the collection of a representative sample of EAFD would be difficult if not impossible. Furthermore, there is no evidence contained in the delisting petition that indicates that any of the samples of EAFD are representative of the generic listed waste, K061, as a whole.

The SW846 guidance manual continues, as follows:

> [F]rom a regulatory and scientific standpoint, the primary objectives of a sampling plan for a solid waste are twofold: namely, to collect samples that will allow measurements of the chemical properties of the waste that are both accurate and precise. Sampling accuracy is usually achieved by some form of random sampling. In random sampling, every unit in the population has a theoretically equal chance of being sampled and measured. Consequently, statistics generated by the sample are unbiased (accurate) estimators of true population parameters. In other words, the sample is representative of the population. One of the commonest methods of selecting a random sample is to divide the population by an imaginary grid, assign a series of consecutive numbers to the units of the grid, and select the numbers (units) to be sampled through the use of a random-numbers table (such a table can be found in any text on basic statistics) . . . . [S]ampling precision is most commonly achieved by taking an appropriate number of samples from the population.

MAX's delisting petition fails to address any of these issues in a meaningful fashion. The delisting petition contains no evidence that sample non-conformity within bulk K061 containers or steel production changes have been considered within each of the facilities that were included in the sampling process. Moreover, MAX has not made any effort to estimate the number of samples necessary to characterize the K061 waste streams for each facility considered in the delisting petition. According to the SW846 guidance manual, "such preliminary estimates, which may be derived from information pertaining to similar wastes, process engineering data, or limited analytical studies, are used to identify the approximate number of samples that must be collected from the waste. It is always prudent to collect a somewhat greater number of samples than indicated by preliminary estimates since poor preliminary estimates of those statistics can result in an underestimate of the appropriate number of samples to collect . . . ."

E. The Delisting Petition Does Not Demonstrate that MAX's Treatment Process Will Effectively Chemically Stabilize EAFD.

1. Insufficient Sampling Has Been Performed to Demonstrate the Effectiveness of MAX's Treatment Process.

As discussed in the previous section of these comments, MAX collected only six samples of EAFD to characterize untreated K061 waste streams. Such sampling is a woefully insufficient basis to support the proposed regulations at issue here. Even more astounding is the fact that only a subset of the limited number of samples of EAFD were used for purposes of attempting to demonstrate that the treatment process used by MAX is effective. In fact, it appears from the delisting petition that MAX selected but a single discrete sample of EAFD from the four steel manufacturing facilities it evaluated to demonstrate the treatment effectiveness for K061 as a whole. This single discrete sample was collected from Allegheny Ludlum Steel's facility. The delisting petition includes treatment residue results (TCLP/MEP/Multiple pH Leaching Testing)

for this sample of EAFD. For the remaining four samples from the other three steel manufacturers, MAX included limited treatment residue analytical results and, in some cases, provided PADEP with total metals results for the treated residue. With such limited information, the effectiveness of MAX's treatment process for all K061 wastes is highly suspect.

In an apparent effort to buttress the meager data included in the delisting petition, MAX asserts that it selected the "worst-case" sample from five candidate samples of treated K061 wastes on which to perform leachability testing (apparently referring to MEP analyses).[5] It appears that this sample was selected because it purportedly contained the highest concentrations of extractable chromium from among the available samples.

The concept that the EAFD sample with the highest chromium content represents the "worst case" sample is misplaced. K061 wastes contain a number of metal constituents that all need to be stabilized simultaneously. This is challenging because the solubility of each metal is slightly different at different pHs. Therefore, selecting one metal as the test for determining "worst case" is inappropriate. A worst case sample of untreated K061 would be one where multiple metals with varied solubilities are present at TCLP concentrations well above the proposed delisting limits.

In the delisting petition, it appears that the second sample of EAFD (sample 2 or sample no. AL2) collected from the Allegheny Ludlum Steel facility on August 27, 2003, was used to demonstrate the treatment residue leachability utilizing the MEP protocol. Notwithstanding what actually constitutes a worst case sample, sample 2 does not exhibit the highest extractable chromium concentration which MAX claims is representative of the worst case scenario. The first sample collected from the Allegheny Ludlum Steel facility (sample 1 or sample no. AL1) in March 2003 contained the highest concentration of extractable chromium. Based on the data presented in Table 6 of the delisting petition, sample 1 exhibited an extractable (TCLP) chromium concentration of 81 mg/L while sample 2 collected from the same facility on August 27, 2003 exhibited an extractable (TCLP) chromium concentration of 47.1 mg/L. The sample used in the MEP demonstration is not a worst case scenario, even by MAX's definition of "worst case," and provides additional evidence that MAX failed to adequately investigated variability within the various waste streams.

At bottom, it is simply ludicrous to draw definitive conclusions regarding the effectiveness of MAX's treatment procedures for K061 wastes based on MEP analyses of a <u>single</u> sample of treated EAFD. One grab sample from one generator does not suffice to provide critical information regarding the long term effectiveness of the treatment process across all steel mills and residues generated from production of various grades of steel. According to Table 6 entitled Summary of Analytical Results for Untreated Waste in the delisting petition, the EAFD that was used to make the single sample selected for MEP analyses after being treated (AL-T2) is not even characterized by the highest total concentrations of cadmium, chromium, mercury, or zinc in the various samples of EAFD that were collected. Although these constituents were identified by MAX as constituents of concern in Table 2 of the delisting petition, the only sample selected to demonstrate MEP leachability does not even contain the highest levels of these constituents.

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[5] Analysis using the Multiple Extraction Procedure is critically important to evaluating how treated K061 wastes will behave in the environment over time.

This further undercuts the validity of MAX's claims regarding the effectiveness of its treatment process for K061 wastes.

2. The Limited Sampling Results Included in the Delisting Petition Show that MAX's Treatment Process Will Not Achieve the Proposed Delisting Standards.

The proposed regulations adopted by the EQB contain numeric standards for various metals that must be achieved based on TCLP analyses of treated K061 wastes in order for the wastes to be excluded from regulation under Pennsylvania's hazardous waste program. The limited sampling results included in the delisting petition show that K061 wastes treated using MAX's procedures will not attain the delisting standards set forth in the proposed regulations. Moreover, in certain instances, the reporting limits for concentrations of particular metals in TCLP extracts were above the delisting standards contained in the proposed regulations, rendering the analytical data useless for purposes of evaluating whether those standards were met.

The delisting petition indicates that in addition to standard analyses using TCLP, leaching tests were performed on samples of the treated K061 wastes using extraction fluids at two additional pHs. One of these additional extractions was performed using an alkalinity and pH purportedly representative of Impoundment No. 6 at MAX's Yukon facility while the other was performed under neutral conditions using the "ASTM leaching procedure." As a result, the leachability of treated K061 wastes was evaluated at three different pHs. Section 6.6.2 of the 2000 Delisting Guidance Manual makes clear that the results from multiple pH testing are a critical component of any delisting petition. (Deficiencies in the way that MAX conducted multiple pH testing are discussed in detail hereinafter.)

The analytical data presented in Table 9 of the delisting petition show that the analytical results (leaching and otherwise) from all of the samples of treated K061 wastes that were evaluated substantially exceeded the delisting standards in the proposed regulations for one or more analytes. These results are summarized in the following table.

Sample Code	Laboratory Sample Number	Parameter	Preparation	Result (mg/L)	Proposed Limit
AK1-T1	C3J270192001	Chromium	TCLP	1.1	0.60
AK2-T1	C3J270192002	Chromium	TCLP	1.8	0.60
AK2-T1	C3J270192002	Zinc	TCLP	255	4.3
AL-T2	C3I290214001	Lead	ASTM Leaching - Neutral	1	0.75
AL-T2	C3I250314001	Lead	ASTM Leaching - Alkaline	1.2	0.75
EQ-T1	C3I290216001	Lead	ASTM Leaching - Neutral	9.3	0.75
EQ-T1	C3I050272002	Mercury	Total	2.0 mg/kg	1.0 mg/kg
EQ-T2	C3I290216002	Lead	ASTM Leaching - Alkaline	9.4	0.75
JL-T1	C3I050272003	Mercury	Total	2.2 mg/kg	1.0 mg/kg

The foregoing results indicate that none of the samples of treated K061 wastes on which the proposed regulations are based meet the delisting criteria contained in the proposed regulations. Given the 100% failure rate exhibited by the samples of treated K061, it is incredible that PADEP recommended that the EQB proceed with the proposed rulemaking and that the EQB approved the proposed regulations for public comment. The data contained in the delisting petition itself shows that even under ideal conditions associated with bench scale treatment, MAX has been unable to successfully treat any of the samples of EAFD that it collected so as to achieve the delisting standards contained in the proposed regulations. Accordingly, there is no evidence that MAX's treatment process will be effective in rendering EAFD non-hazardous. As a result, the proposed regulations should be abandoned.

The fact that the existing data included in the delisting petition confirms that MAX's treatment process will not be effective in treating EAFD sufficiently to meet the delisting standards in the proposed regulations is further complicated by the fact that the reporting limits for certain analytes presented in the November 2003 delisting petition are above the delisting standards themselves. Table 5 of the delisting petition is missing the contract laboratory's reporting limits for method SW846-6010B for some the analyses presented in the Severn-Trent analytical package. This procedure is used to report metal values from the TCLP protocol. Without the reporting limits, it is not possible to compare the analytical results to the proposed delisting limits to ensure that the laboratory reporting limits are at or below the proposed delisting limits. Upon review of the actual laboratory reports, these limits were discovered and several were found to be very close to or above the proposed delisting limits as presented in the table below. As a result, assessment of whether the treated EAFD residues pass the proposed delisting limits for the listed analytes is impossible (i.e., the lowest limit at which the laboratory can assert with confidence whether an analyte is present or absent is higher than the proposed delisting limit). In this instance, data quality objectives have not been achieved and the resulting data results cannot be used to assess treatment effectiveness below the reporting limits.

Analyte	**Proposed Delisting Limit (mg/L)**	**Severn Trent Laboratories Reporting Limit (mg/L)**
Arsenic	0.0094	0.5
Cadmium	0.11	0.1
Silver	0.14	0.5
Thallium	0.088	2

F. The Delisting Petition Contains Material Errors and Inconsistencies.

MAX's delisting petition contains various errors and inconsistencies which place in question the proposed regulations at issue. A number of these errors and inconsistencies are highlighted below.

First, Section B.4 of the delisting petition includes a table presenting the concentrations of metallic constituents found in "typical" EAFD. The table is not representative of "typical" EAFD based on ETI's long term experience in managing and treating EAFD nor does it even agree with the analytical results that MAX provided in support of the delisting petition (see Table 6). The table in Section B.4 of the delisting petition does not include all of the constituents

for which land disposal restrictions ("LDRs") must be met prior to disposal of EAFD as hazardous waste or even all of the constituents for which K061 waste was originally listed. MAX also indicates elsewhere in the delisting petition that cadmium and mercury are constituents of concern (Table 2 of the delisting petition) but no typical concentrations are provided for these constituents in this table. A table presenting the characteristics of "typical" EAFD should include concentration ranges for each of the metallic constituents, accounting for variation based on the type of scrap materials used in the steel production process and for reagents added to the scrap materials to produce various grades of steel. This provides further evidence that a delisting petition for a generic exclusion is not warranted based on the data provided. MAX must demonstrate expertise in the knowledge and treatment of multiple sources of K061 wastes. This has clearly not been done.

Second, it is unclear how the EQB can move forward with proposed regulations delisting treated EAFD when the data submitted in support of the delisting petition does not match the "typical" waste stream profile presented in the delisting petition, even if that profile may be wrong. For example, the delisting petition indicates that a typical K061 waste stream contains lead at a concentration of 78,200 mg/kg and zinc at a concentration of 232,900 mg/kg yet none of the samples of EAFD selected by MAX for treatment feasibility studies approach these constituent levels. In fact, the selected EAFD samples utilized in MAX's feasibility studies exhibit lead concentrations that are 8 to 54 times lower than the typical lead concentrations given in the table and exhibit zinc concentrations that are 2.5 to 16 times lower than the typical zinc concentrations given in the table. This would seem to indicate either that MAX has selected atypical EAFD samples for evaluation or that the values in the table are incorrect. Further, a majority of the EAFD samples collected by MAX for evaluation are from generators that produce stainless steel. Depending on the grade of stainless steel produced, the concentrations of chromium in the EAFD from such operations can range between 30,000 and 60,000 mg/kg. This is radically different than the "typical" concentration of chromium in EAFD provided in the delisting petition of 1,700 mg/kg.

Third, Section D.1.3 and Table 2 of the delisting petition address "constituents of concern" in EAFD. However, the list of constituents of concern provided in the delisting petition is not consistent and does not include constituents of concern addressed in other delisting petitions for K061 wastes as presented in Table 1 of the delisting petition. It is not clear that MAX considered these other constituents in its evaluation of EAFD. The other delisting petitions covering K061 wastes are of particular importance because MAX seeks a generic exclusion which may include any of the K061 waste streams that were previously addressed in the other delisting petitions.

Fourth, Section B.5 of the delisting petition contains information presented by MAX regarding the densities of EAFD before and after treatment. Specifically, the delisting petitions states that "[e]lectric arc furnace dust is a solid material with a density of approximately 0.53 g/cm^3. The treated dust residuals are a solid with a density of approximately 0.84 g/cm^3." It is unclear how MAX derived these densities. Based on over a decade of experience in managing untreated and treated K061 wastes, ETI questions whether the figures presented in the delisting petition are accurate. In ETI's experience, typical untreated EAFD has a density that is closer to 0.84 g/cm^3, the value cited by MAX for treated EAFD. Moreover, the density of Super Detox® treatment

residue is approximately 1.36 g/cm^3 which is greater than the density of treated EAFD presented in the delisting petition.[6]

Fifth, Tables B-2A, B-2D, B-2E, B-2H, B-2I, B-2K, B-3A, B-3B, B-3D, B-3E, B-3F, B-3H, B-3I, B-3J, B-3K in Appendix B to the delisting petition (presenting the results of DRAS modeling) appear to contain errors. Clarification regarding the origin of several constituent concentrations obtained from total, TCLP, and alkaline analysis columns is needed. Many values in these tables do not agree with the values in Table 9 of the delisting petition. For instance, Table 9 of the delisting petition indicates that zinc was detected in leachate from the ASTM Impoundment extraction of sample AL-T2 at a concentration of 1.6 mg/L. By contrast, Table B-2D suggests that the leachable zinc concentration in the same sample for the ASTM Impoundment extraction was only 0.005 mg/L. The laboratory practical quantitation limit ("PQL") is 0.005 mg/L and the delisting petition states in Section D.3.10 that "[a]mong treated samples, detection of some analytes in method blanks resulted in results being flagged. These detections are not deemed to be sufficient to affect the usability of the data." The concentrations of constituents used in the DRAS model should be reviewed to ensure that they are in agreement with the results from bench-scale testing. In the case of zinc, this under-estimation could significantly impact the DRAS results.

G. Certain Sampling Methods Used in Support of the Delisting Petition Do Not Comport with Required Protocols.

As part of evaluating the efficacy of its treatment processes, MAX performed various analyses on samples of treated EAFD. These analyses included evaluating two samples of treated EAFD using leaching procedures utilizing extraction fluids representing acidic, neutral and alkaline conditions (multiple pH testing) and evaluating one sample of treated EAFD using the Multiple Extraction Procedure whereby the sample is subjected to a series of ten leaching tests in sequence. The procedures that MAX followed do not appear to comply with requirements set forth in the applicable regulations, the 2000 Delisting Guidance Manual and other guidance developed by USEPA.

1. Inappropriate Sample Preparation Methods Were Used.

Table 4 of the delisting petition summarizes sample preparation and analytical methods that MAX purportedly used in preparing the delisting petition. The methods presented in Table 4 of the delisting petition all are included in USEPA's SW-846 guidance document entitled "Test Methods for Evaluating Solid Wastes Physical/Chemical Methods." However, based on information contained elsewhere in the delisting petition, it is apparent that MAX used other sample preparation methods including the Extraction Procedure Toxicity Testing Procedure ("EP Toxicity") and an unspecified ASTM method not listed in Table 4 of the delisting petition.

[6] The physical nature of EAFD dictates that if a liquid is added, so to chemically and/or pozzolonically bind the metals in the EAFD, the density of the treated EAFD will increase. Air will be removed and the resulting products will be heavy and dense. Any volume increase would have to come from the addition of a large quantity of other reagents or a stabilization process that does not involve pozzolonic bonding. Because EAFD is a pozzolon and lime and spent pickle liquor or ferrous sulfate and water are reagents in the process, bonding will likely occur and the density of the material should increase.

Section 6.1 of the 2000 Delisting Guidance Manual requires that the TCLP protocol normally be used for leaching analyses in connection with delisting petitions, as follows:

> Toxicity Characteristic Leaching Procedure (TCLP) analyses are currently requested for delisting demonstrations. The Toxicity Characteristic Rule (55 FR 11798, March 29, 1990) replaced the Extraction Procedure (EP) with the TCLP as the needed procedure for testing wastes for the toxicity characteristic. The TCLP also is used for other Agency programs, and the procedure is found in SW-846 as Method 1311

No explanation has been provided as to why MAX used protocols other TCLP to conduct leaching analyses in connection with the delisting petition nor is there any indication that approval to use other methods was sought before conducting the sampling and analysis. A review of the methods that were used indicate that they are less stringent than the TCLP (i.e., require less leaching time), thereby raising significant questions about the merits of the sampling results that were included with the delisting petition. A delisting petition should not be approved when the delisting petition does not demonstrate compliance with applicable guidance or even the proposed delisting conditions (i.e., TCLP analyses at multiple pHs).

2. Multiple pH Testing Appears to Have Been Conducted Improperly.

Sections 6.1 and 6.6.2 of the 2000 Delisting Guidance Manual provides that multiple pH testing involving TCLP analyses using three different extraction fluids in a pH range between 3 and 11 are to be performed on the wastes to be delisted. The multiple pH extractions are intended to assess the behavior of the treated waste when it encounters various environments (acidic, neutral, and alkaline) without pH manipulation. The importance of using the same extraction procedure in each case (acidic/neutral/alkaline) is that direct comparisons of waste behavior can be made.

As part of its delisting petition, MAX assessed the behavior of two samples of treated EAFD under acidic conditions using the TCLP protocol (Method SW846-1311) but assessed the behavior of these same samples under neutral and alkaline conditions using entirely different and unspecified extraction protocols. Specifically, it appears that extractions using neutral and basic extraction fluids were conducted using the EP Toxicity protocol and/or an unspecified ASTM method instead of the TCLP protocol in accordance with the 2000 Delisting Guidance Manual[7]

[7] Although PADEP has suggested otherwise, there is evidence in the analytical reports that PADEP made available to ETI (footnote on page 30 of data for analytical report for sample C3I250314 IMP-W) from the contract laboratory used by MAX (Sevem Trent Laboratories, Pittsburgh) that the procedure used to assess the leachability of treated EAFD under neutral and alkaline conditions was Method SW846-1310 entitled "Extraction Procedure (EP) Toxicity Test Method and Structural Integrity Test." This procedure calls for 100 g of sample and 1600 mL of water to be combined initially. This mixture is agitated and the pH monitored. The solution pH is then adjusted to pH = 5.0 ± 0.2 with 0.5 N acetic acid whenever the pH exceeds 5.2. In the event that the solution pH is less than 5, no pH adjustment is made. This mixture is agitated for a total of 24 hours. If this procedure in fact was used, it is unclear whether the pH of the waste/liquid solution was adjusted as required by Method 1310. If pH adjustment occurred, the analytical results are not a true indication of the behavior of the treated K061 under neutral and/or alkaline conditions. In contrast, the 2000 Delisting Guidance Manual provides for the use of the TCLP protocol which calls for 100 g of sample to be mixed with 2000 mL of extraction fluid and agitated for 18 ± 2 hours without any pH manipulation. In accordance with the 2000 Delisting Guidance Manual, it is the TCLP protocol (Method SW846-

The delisting petition refers to an unspecified ASTM method being used in place of the recommended TCLP protocol and also refers to the EP Toxicity protocol.[8] The delisting petition does not provide any justification for these fundamental deviations from requirements of the 2000 Delisting Guidance Manual. Moreover, the deviations impede the assessment of treatment effectiveness because proper test protocols were not followed.

In addition, the delisting petition contains few of the details associated with the multiple pH testing that was performed. For instance, the delisting petition indicates that MAX performed an alkaline extraction using an alkalinity and pH for the extraction fluid representative of conditions in Impoundment No. 6 at MAX's Yukon facility. However, further specific information about the extraction process (such as the pH of the extraction fluid and how the fluid was made) was not provided. Likewise, the delisting petition does not contain information concerning the extraction process that was used to mimic neutral conditions including the pH of the extraction fluid and the manner in which the extraction process was performed.

The delisting petition does not specify whether the treated K061 samples that were evaluated were sieved to ensure that the particle sizes of the samples were within the requirements of the TCLP protocol. If the samples were not sieved, this failure could significantly affect the sample results.

Finally, Section D.2.9.2 of the delisting petition states that "[s]ince samples used for conducting bench scale treatability studies were prepared for analysis within the maximum sample holding time for inorganic compounds, no preservation was necessary." ETI notes that TCLP extracts are typically preserved with concentrated nitric acid to a pH < 2 if they are not immediately analyzed. It is unclear whether MAX extracted the samples in-house and then had the extractions analyzed or whether the independent laboratory conducted the extraction procedures. This issue becomes relevant because the amount of time that treated K061 samples were allowed to cure following bench scale treatability studies could affect the analyses performed on those samples. The delisting petitions fails to answer the question of what effect cure time may have on treatment effectiveness since weeks/months could have gone by before the extraction was initiated. For that matter, even if MAX extracted all treatment residues in-house, how long did the residue cure before the extraction? Such information may be important in evaluating whether cure time is a factor in successfully treating K061 wastes. If this is the case, then the amount of cure time will need to be addressed in the proposed regulations if and when they are finalized.

1311) that should be used to assess the behavior of waste under acidic, neutral, and alkaline conditions by simply changing the extraction fluid identity and pH to produce a specific pH range.

[8] Table B-2G in Appendix B of the delisting petition contains a heading that references an ASTM protocol which is also referenced throughout the delisting petition as a leaching method that was used. However, the results in the table below the heading are entitled TCLP concentrations (mg/L). It is unclear how TCLP requirements can be satisfied when concentration values correspond to ASTM leaching values for the sample identified as AL-T2.

3. The Multiple Extraction Procedure Appears to Have Been Conducted Improperly.

Section 6.2.2 of the 2000 Delisting Guidance Manual provides that if a delisting petition covers wastes generated from the chemical stabilization of a listed waste, leachable metals are to be quantified in the stabilized wastes using the Multiple Extraction Procedure (MEP) which is Method SW-846 1320. The MEP test results are necessary to assess the long term stability of the treated wastes. The MEP protocol involves conducted a series of ten sequential extractions of the sample being analyzed.

Section 6.2.2 of the 2000 Delisting Guidance Manual indicates that in circumstances where MEP testing is being performed in connection with a delisting petition, the TCLP protocol is to be used instead of the EP Toxicity protocol for the first extraction step in the MEP procedure followed by nine sequential extractions using the MEP procedure. In essence, the first step in the MEP procedure should be to perform a leaching extraction using the TCLP protocol (Method SW-846 1311). The material in this leaching procedure is then separated into its component liquid and solid phases. The liquid phase is analyzed for constituents of concern while the solid phase is re-extracted using an acid rain fluid for 24 hours. At the end of 24 hours, the material in this extraction procedure is then separated into its component liquid and solid phases. The extract is analyzed for constituents of concern while the solid material is re-extracted again using an acid rain fluid for 24 hours. This process of re-extraction and separation is repeated seven more times.

Rather than conducting MEP analysis in accordance with the 2000 Delisting Guidance Manual, Table 11 of the delisting petition indicates that MAX used the Synthetic Precipitation Leaching Procedure ("SPLP") (Method SW-846 1312) instead of the MEP protocol to conduct the initial extraction. The SPLP protocol uses a significantly shorter extraction period (18 ± 2 hours) than the MEP protocol (24 hours). In addition, the remaining extractions were also conducted using the SPLP protocol instead of using the prescribed MEP method. The delisting petition does not contain any justification for this deviation from the provisions of the 2000 Delisting Guidance Manual nor does it contain any details regarding the manner in which the MEP testing was performed such as the specific procedures that were followed, the manner in which extraction fluids were synthesized or the pH levels of the extraction fluids. Changes in the leaching procedures -- specifically the pH, reagents used to make the leaching solutions, and length of leaching -- will typically produce different analytical results than if the recommended leaching procedures had been used.

H. The Delisting Petition Appears to Evaluate an Unrealistic EAFD Treatment Scenario or one that is Inconsistent with Other Information Provided

The delisting petition includes calculations of the amount of EAFD that MAX expects to treat on an annual basis. These complex calculations rest in significant part on the amount of treatment chemicals that will be added to the EAFD. Section B.9 of the delisting petition indicates that MAX expects to add treatment chemicals to the EAFD at between a 25% and 75% weight ratio. MAX then uses the lowest end of this range (25%) on which to base its calculations. Specifically, Section B.4 of the delisting petition states that "[t]he primary non-hazardous solid waste components associated with the treated EAF dust include treatment reagents added at a

mass ratio of approximately 25%. These reagents include materials such as ferrous sulfate, sulfuric acid, triple super phosphate (TSP), lime products, and/or Portland cement."

The scenarios presented in the delisting petition appear to be unrealistic. Why would MAX provide a range of the amount of treatment chemicals that it anticipates may be necessary to ensure proper treatment of the K061 wastes of up to 75% of the weight of the K061 wastes and then base the estimated delisted quantities of EAFD on the assumption that treatment chemicals in the amount of only 25% by weight of the K061 wastes will be used? It is unrealistic to expect all waste streams to require the minimum amount of reagents if the process may require much more. If MAX believes that reagents in amounts up to 75% by weight of the untreated K061 wastes may be necessary on certain waste streams, treatment volumes should be recalculated on the anticipated averages.

In addition, it is unclear whether water is included in the foregoing ratios. The inclusion of water will significantly impact total treatment ratios, maximum annual generation rate estimations, and annual volume estimations for MAX's treated K061 residues. MAX has estimated waste generation rates and volumes assuming the lower end of this additive ratio (25%). This additive ratio has a significant effect on MAX's estimation of the maximum annual generation rate of treated K061 wastes. A higher additive ratio will result in a higher maximum annual generation rate.

Finally, it does not appear that a treatment by dilution review has been conducted for the higher end of the treatment chemicals additive weight ratio. A treatment chemical weight ratio of 75% is abnormally high and is indicative of treatment by dilution. Treatment by dilution is an impermissible way to satisfy either LDRs or delisting standards. See 40 C.F.R. § 268.3.

I. The Proposed Regulations Do Not Contain Clear and Appropriate Requirements Relating to Characterization and Verification Sampling.

Condition 2.i of the proposed regulations requires that representative samples of the treated K061 wastes be analyzed using a standard TCLP protocol and using a TCLP protocol with an extraction fluid having a pH of approximately 12.0. In addition, the waste samples are to be analyzed for total concentrations of mercury. Such verification sampling is to be performed on "a batch basis." The results of such verification sampling must meet the delisting standards contained in the proposed regulations. Condition 4.ii of the proposed regulations requires that "[t]he data from the initial full scale batch treatments following permit modification, and construction of the treatment unit shall be submitted to the Department as it becomes available and prior to disposal of those batches."

As a threshold matter, it is unclear whether the sampling contemplated in Condition 4.ii is the same as the verification sampling referenced in Condition 2.i, or these conditions are intended to require different sampling. In addition, the proposed regulations do not clearly state how frequently verification testing will need to be completed. While verification sampling is to be performed on a "batch" basis, the proposed regulations do not contain any definition of what constitutes a "batch" for purposes of these requirements. Although the preamble to the proposed regulations states that PADEP will require verification data for each batch of K061 wastes that is initially treated, the proposed regulations themselves do not include specific conditions

describing how this is to be accomplished, such as over what period of time the sampling will be performed and whether the sampling will be required for each source of K061 wastes. At a minimum, each source of K061 waste to be treated by MAX should be identified and initially assessed by PADEP against the delisting criteria prior to authorization for delisting. Conditions in both of the US Ecology and CSI delistings discussed previously in these comments have specific requirements for initial versus subsequent verification testing. Similar conditions are clearly needed in the proposed regulations as evidenced by the varied analytical concentrations of the untreated waste streams.

Condition 4.iii of the proposed regulations states that "[t]he data submission frequency may be modified by the Department upon demonstration that the treatment method is effective." The intent of this condition is not clear. Is it to allow modification of the data submission frequency without a modification of the regulation, or is it to allow modification of the data submission frequency as a proposed rule change that will include an opportunity for public comment? Any change in data submission frequency or change in analytical procedures should be subject to a full opportunity for public comment before such a change is approved.

The proposed regulations are entirely silent as to requirements that MAX must satisfy in order to accept K061 wastes from individual generators. This omission represents a gaping hole in the proposed regulations. The structure embodied by the proposed regulations gives MAX carte blanche to accept K061 wastes from any generator in the country without satisfying any requirements in the proposed regulations to show that the K061 wastes from that particular generator can be successfully treated. Indeed, it is unclear whether MAX will need to obtain any meaningful characterization data concerning the particular waste stream before it arrives at MAX's Yukon facility and is commingled with other waste streams.

The delisting petition itself provides scant information as to MAX's intentions in this regard. Section A.4 of the delisting petition states that "[i]ncoming wastes would receive physical inspection and limited chemical analysis in accordance with pre-established criteria before acceptance, and would be rejected if they do not meet MAX's Waste Acceptance Criteria specified in their Hazardous Waste Permit (PAD004835146)." Neither the delisting petition nor the proposed regulations describe the waste characterization procedures that must satisfied.

To the extent that PADEP and the EQB contemplate that initial verification sampling requirements do not need to be addressed in the proposed regulations but instead can be addressed as part of the permit conditions for MAX's Yukon facility, this approach is directly at odds with how similar delisting petitions have been handled elsewhere in the country. A delisting petition must be based on more than the aspirational goals of the petitioner. There must be concrete evidence that the wastes from a particular generator can be effectively treated so as to render them nonhazardous and that those wastes do not include unexpected constituents that were not addressed in the delisting process.

Moreover, the purported safeguards in the proposed hazardous waste permit for MAX's Yukon facility are weak. On December 3, 2004, ETI submitted comments to the Southwest Regional Office of PADEP concerning a proposed modification and renewal to MAX's hazardous waste

permit for its Yukon facility. Those comments included an evaluation of MAX's proposed Waste Analysis Plan ("WAP"). Relevant excerpts from those comments are set forth below:

> General Comment: Specific fingerprint testing requirements are vague. The plan concentrates on waste acceptance criteria. It is important that wastes accepted for treatment are consistently tested prior to treatment and/or disposal for a specific list of constituents. Boundary conditions, or expected range of a characteristic, for fingerprint parameters should be established and included in the WAP. As an example, the Module 1 for K061 as presented in Appendix F does not include any metals under the Chemical Characteristics. The reason for accepting and treating K061 is to stabilize the metals associated with the waste stream. At a minimum, all wastes should be screened for the concentration of constituents of concern. The received concentrations will have a direct impact on the effectiveness of the treatment process. If the concentrations are significantly different than those obtained during the treatability study, the process may be ineffective in properly stabilizing the waste.
>
> Section 3.3., page 3-9, third full paragraph - "Submissions to the DEP for approval to accept hazardous wastes which have been generically approved, but which will require treatment to render them non-hazardous before being acceptable ..."
>
> It is unclear what wastes are generically approved and what criteria exist to evaluate if a waste should be generically approved. The Draft Permit allows for the acceptance and treatment of many wastes, including K061, if a delisting is granted. Not all listed waste streams are identical in composition. An evaluation should not only be made based on the hazardous constituents. It should be made on all constituents and chemical properties of the waste stream. It should evaluate how each affects the specified treatment process. To comply with 40 CFR 264.13, Ohio EPA requires that all wastes accepted for treatment and disposal at the ESOI facility be assessed individually for treatment effectiveness. ESOI's facility conducts treatment operations nearly identical to those proposed for MAX.

Finally, ETI notes that Section C.5 of the delisting petition states that an "[a]nnual performance evaluation will be completed to demonstrate the continued effectiveness of MAX's chemical reduction/stabilization process." This suggests that MAX intends to evaluate whether its treatment process is working only once a year. Such an approach is woefully deficient and appears to conflict with elements of the proposed regulations.

SUMMARY OF COMMENTS - PROPOSED K061 DELISTING

Envirosource Technologies, Inc. ("ETI") has submitted comments opposing proposed amendments to Pennsylvania's hazardous wastes regulations to "delist" electric arc furnace dust ("EAFD") treated by MAX Environmental Technologies, Inc. ("MAX") at its facility in Yukon, Pennsylvania. Based on the limited and incomplete set of documents that have been made available to the public in connection with the proposed regulations (notwithstanding requests for the full administrative record), it is evident that the proposed rule-making process rests on a severely limited and flawed technical foundation. The proposed regulations take the unprecedented step of delisting hundreds of thousands of cubic yards of EAFD (a listed hazardous waste with a listing code of K061) generated by multiple and unspecified steel mills based on only six samples of EAFD collected by MAX. The paucity of data coupled with the technical deficiencies in the delisting petition itself and the review thereof are so significant that the proposed regulations should be abandoned unless and until substantial additional sampling and analysis on a waste stream by waste stream basis is performed to ensure that exempting from the hazardous waste regulations EAFD handled at MAX's Yukon facility will not have adverse consequences for either public health or the environment.

The amount of data collected by MAX in support of its delisting petition would be minimal if the delisting petition addressed a single source of EAFD. It is grossly inadequate given the fact that the proposed regulations purport to cover the entire universe of EAFD from the steel industry. The delisting petition fails to take into account the variability in the characteristics of EAFD. The sampling results on which the proposed regulations are based are not representative of the full spectrum of K061 waste streams that MAX seeks to treat.

Perhaps even more astounding is the fact that the meager sampling results included with the delisting petition do not show that the treatment techniques that MAX intends to use will enable the treated K061 wastes to meet the delisting standards contained in the proposed regulations. Instead, the sampling results contained in the delisting petition indicate that not a single sample of EAFD which MAX treated under ideal bench scale conditions actually met the proposed delisting standards. Accordingly, there is no evidence that MAX's treatment process will be effective in eliminating the risks to human health and the environment posed by untreated EAFD. In such circumstances, there is no reason to proceed further with the proposed regulations.

The flawed technical foundation on which the proposed regulations rest is also evident in the material errors and inconsistencies found in the delisting petition and the fact that MAX failed to utilize sampling procedures required under the regulations governing the delisting process and relevant guidance applicable to this process. The scientific defensibility of delisting determinations is critical to the proper functioning of the Pennsylvania's hazardous waste program. The proposed regulations are not based on sound science but instead on a platform rife with errors and inconsistencies.

The terms and conditions in the proposed regulations do little to offset the deficiencies in the delisting petition itself. Gaping holes in the proposed regulations exist. For example, the proposed regulations do not contain any requirements mandating that MAX fully characterize individual K061 waste streams that it intends to treat and demonstrate that its treatment technology will actually be effective in treating such waste streams before accepting and treating the wastes. The manner in which the Environmental Quality Board has proposed to proceed represents an unprecedented departure from the way in which similar delisting petitions have been handled by the United States Environmental Protection Agency and other state regulatory agencies, and will place both human health and the environment at risk.

3

Tate, Michele Original: 2451

From: Scott Slesinger [sslesinger@etc.org]
Sent: Wednesday, January 05, 2005 4:25 PM
To: RegComments@state.pa.us
Subject: Hazardous Waste Management System; Proposed Exclusion for Identification and Listing Hazardous Waste

Copy of comments on the above captioned proposal and a one page summary for the EQB

Scott Slesinger
Environmental Technology Council
734 15th Street, N.W.
Washington, DC 20005
202-783-0870x13
202-236-8490 (cell)
202-737-2038 (fax)

Environmental Technology Council

Re: **Proposal to Delist Waste Treated by MAX Technologies, Inc.**

One Page Summary

To the Environmental Quality Board:

The Environmental Technology Council (ETC), a national trade association for the commercial hazardous waste management industry, submits these comments on the above captioned proposal. Over the past 25 years, ETC has been a party to almost all the major legal cases that established the scope and stringency of the Resource Conservation and Recovery Act. We urge that the delistings not be granted because the evidence in the record does not meet the data quality standards required by the Commonwealth and EPA necessary to protect public health and the environment.

What the Regulations and Guidance Require

A delisting removes hazardous wastes from the protective requirements of environmental law. The law requires rigorous proof that the waste being delisting would not be harmful. For the delisting of a single waste stream, 40 CFR § 260.22(h) requires "enough representative samples but in no case less than four samples taken over a period of time sufficient to represent the variability or the uniformity of the waste." The record indicates that MAX provided only six samples from four facilities. On its face, these few samples are inadequate to properly represent the range and nature of likely waste streams that are subject to the generic delisting. **Unlike most petitions this is not a petition to delist one waste stream from one steel producer making the same type of steel alloy. This is a petition to delist the entire universe of electric arc furnace dust from a variety of steel mills using different processes.** Such a generic delisting must include significantly more evidence than a petition requesting a delisting for a single waste stream.

For stabilization treatment the guidance requires specific tests testing protocols that are common when determining the toxicity of hazardous waste. Despite using different testing methods outside the approved protocols, and using only a few unrepresentative samples, Table 9 of the delisting petition shows that the **treatment levels were often significantly higher than are proposed to be allowed for chromium, mercury, zinc**, and **lead**. If the treatment cannot meet the proposed standards, the state should not have proposed granting the petition.

The credibility of the risk assessment and the delisting program itself is entirely based on the inputted data into the risk model. If that data does not meet the reliability standards of the required protocols listed in SW-846, the output of the model is worthless. Approval of this petition based on the presented data undermines the rigorous testing and risk assessment that EPA and the Commonwealth have made the foundation for the delisting program.

Inadequate Record

Under Pennsylvania rules, commenters have 30 days to review the record and make comments. However, commenter Envirosource Technologies, Inc. asked for key data of the test results numerous times to no avail. Therefore, to be consistent with the intent and spirit of the Pennsylvania rules, we urge that the comment period be extended for at least 30 days after the full record is made available to the public.

Environmental Technology Council

734 15th Street, N.W. • Suite 720 • Washington, DC 20005 • (202) 783-0870

Comments submitted electronically

January 5, 2005

The Environmental Quality Board
Rachel Carson Building
Harrisburg, PA 17101

Re: Proposal to Delist Waste Treated by MAX Technologies, Inc.

To the Environmental Quality Board:

The Environmental Quality Board has proposed regulations designed to "delist" electric arc furnace dust treated by MAX Environmental Technologies, Inc. (MAX) at its Yukon facility. 34 Pa. Bull. 6421 (Dec. 4, 2004). The Environmental Technology Council (ETC), a national trade association for the commercial hazardous waste management industry, submits these comments on the proposal. We urge that the delistings not be granted because the evidence in the record does not meet the data quality standards required by the Commonwealth of Pennsylvania and the U.S. Environmental Protection Agency as necessary to protect public health and the environment.

Statement of Interest

The ETC membership is comprised of companies that provide technologies and services for recycling, treatment, and secure disposal of industrial and hazardous wastes, including electric arc furnace dust from steel mills. ETC companies own and operate commercial facilities such as Subtitle C permitted landfills, chemical treatment plants, incinerators, industrial furnaces, fuel blending facilities, and other types of facilities for the proper management of hazardous wastes. Over the past 25 years, ETC (formerly called the Hazardous Waste Treatment Council) has been a party to almost all the major legal cases that established the scope and stringency of the Resource Conservation and Recovery Act. Because of the expertise of our members and staff with the complicated technical, engineering, and chemical issues associated with hazardous waste management, we are often joined by public interests groups that share the same goals for environmental protection. Although we do not often comment on state regulations, the issues presented in this delisting, apparently the first delisting considered by the Commonwealth, are so broad and troublesome, we are concerned that the precedent of the proposed delistings could pose a major threat to the hazardous waste program.

Envirosource Technologies, Inc. (ETI) is a member of our Council and we incorporate by reference their comments on the proposed delistings.

Delisting Process

The Pennsylvania hazardous waste regulations largely mirror the federal RCRA program. The regulations governing delisting petitions in Pennsylvania consist of the federal regulations set forth at 40 C.F.R. §§ 260.20(a) and 260.22 which are incorporated by reference into the Commonwealth regulations.

EPA and Pennsylvania recognize that certain listed wastes generated at a facility may not meet the criteria for which they were originally listed. Delistings can be granted if a treatment process removes, destroys or immobilizes all hazardous constituents that were present in the listed waste from a particular waste stream. The regulations allowing delistings require that the hazardous constituents that are underlying in the waste stream, not just those responsible for the listing, must be addressed in the treatment. Generally, a delisting is granted to a specific waste stream that is based on identical inputs (within narrow chemical parameters) into a specific chemical process.

The required showing for a delisting is detailed in the regulations and in EPA guidance, particularly the document entitled *Petitions to Delist Hazardous Wastes, A Guidance Manual* (March 1993). The petitioner must demonstrate, using EPA and Pennsylvania approved sampling protocols, that the wastes tested represent the universe of wastes that are being delisted taking into account the differences in waste streams temporally and spatially, and that the treatment technology effectively renders the waste non-hazardous.

We believe that MAX has not made the necessary showing that candidate K061 waste streams have been adequately sampled and tested, and therefore that their technology can render the waste non-hazardous. MAX has failed to provide results consistent with the *Guidance Manual*, section 6.0 "Analytical Plan Development" and especially section 8.0 "Waste Sampling and Analysis Information." Our concern is that the petition does not present the evidence necessary for the Commonwealth to judge the merits of the delisting petition. If MAX had followed the guidance manual for delistings, its sampling plan would have been more extensive and representative. At this point, the state cannot properly determine whether a generic delisting for K061 wastes should be granted.

What the Regulations and Guidance Require

For the delisting of a single waste stream, 40 CFR § 260.22(h) requires "enough representative samples but in no case less than four samples taken over a period of time sufficient to represent the variability or the uniformity of the waste." The record indicates that MAX provided only six samples from four facilities. On its face, these few samples are inadequate to properly represent the range and nature of likely waste streams that are subject to the generic delisting. **Unlike most petitions this is not a petition to delist one waste stream from one steel producer making the same type of steel alloy. This is a petition to delist the entire universe of electric arc furnace dust from a**

variety of steel mills using different processes. Such a generic delisting must include significantly more evidence than a petition requesting a delisting for a single waste stream. The *Guidance Manual* states at 7-2 that:

> It is important to collect **representative** [bold in original] samples for your delisting demonstration because the resulting analytical data will be used to characterize the entire waste stream. Therefore, these samples should be "non-biased" and "sufficient to represent" your waste.

Six samples for a generic listing are clearly inadequate. The *Guidance Manual* notes at 7-3 that four samples are usually inadequate for most single waste stream delistings, so a mere six samples are clearly inadequate for a broad generic delisting.

MAX Sampling and Testing Did Not Follow the Delisting Guidance

EAF dust is created during the high temperature arcing of steel scrap. Steel scrap is the most recycled material in industry. By its very nature, it is variable and the heating of the scrap releases various contaminants that are collected in air pollution control facilities as EAF dust which is a listed hazardous waste, K061. Into the scrap are also added various alloys, including chromium, nickel and manganese. These additives differ depending on the type of steel that is being produced, but add to the toxic contaminants in the EAF dust.

To judge whether the treatment methods works to render a waste non-hazardous requires testing on the full range of K061 waste streams. The evidence a petitioner should present must include samples for a cross-section of steel production activities that will create a variety of steel scrap waste streams. EPA and Pennsylvania have approved testing protocols to assure that samples of hazardous wastes for analysis are truly representative. These protocols are se forth in the document *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846*. That document is incorporated by reference in 40 CFR § 260.22(d)(1)(i).

MAX collected only six samples from four steel manufacturers. Most of the six samples were from specialty or stainless steel operations. However, over 90% of the steel produced is not specialty or stainless but is carbon steel. The unrepresentative sampling of these waste streams and their inadequate number can in no way be viewed as representative of the universe of K061 wastes.

In addition, the appropriate testing for a delisting is critical to determine if wastes should be removed from the protective hazardous waste system. The *Guidance Manual* lists the criteria that must be met and gives some specific guidance based on the technology. MAX's technology is a stabilization process. Page 6-5 of the *Guidance Manual* states that the petitioner with a stabilization process "should quantify leachable metal concentrations using the Multiple Extraction Procedure (MEP), SW-846 Method 1320, as well as by TCLP analyses." Delisting protocol indicates that the first extraction step in the MEP procedure should be a TCLP extraction followed by 9 sequential

extractions using the MEP procedure. Table 11 of the MAX petition specifies that this was not done. It indicates that the petitioner has followed the SPLP procedure instead of the MEP protocol which uses a different extraction. In addition, the remaining extractions were also conducted using the SPLP instead of the prescribed MEP method. Nothing we could find in the record discusses why the approved protocols were not followed.

Despite using a testing methods that is outside the approved protocols, and using only a few unrepresentative samples, Table 9 of the delisting petition shows that the treatment levels were often significantly higher than are proposed to be allowed for chromium, mercury, zinc, and lead. If the treatment cannot meet the proposed standards, the state should not have proposed granting the petition.

A generic petition to delist K061 sent to a specific treatment process has been approved in two states; one by EPA for the state of Illinois and one approved by Idaho. However, the company receiving those delistings used a patented technology that is presumably different from the technology being used by MAX. In those two cases, the sampling and testing were much more substantial and rigorous than MAX has presented here.

If MAX used the same patented technology as the previous petitioners, a review of the history of those two delisting could support the argument that a thorough analysis following the EPA protocols for granting MAX a delisting would be redundant. However, by failing to meet the testing protocols by testing only a few grab samples, its failure to follow proper statistical analysis in identifying the samples, the small universe of steel facilities tested, and the limited amount of testing at those facilities does not begin to prove its technology has met the regulatory standard for a generic delisting.

The MAX Petition Undermines the Delisting Process

In June 2002, EPA reported on the economic and environmental impact of its delisting program. *RCRA Hazardous Waste Delisting: The First 20 Years Program Evaluation*. EPA's report looked at three different categories of outcomes of the delisting program:

- Cost savings and aggregate economic impacts
- Impacts of delisting on the environment
- Impacts of delisting on the RCRA hazardous waste management program.

At page 1.

However, the Agency felt it was not necessary in its program evaluation of the delisting program to review the impact on the environment of its delistings *because of the rigorousness of the listing process*. The Agency said:

> In summary, EPA does not have evidence of releases or lack of releases from delisted waste streams. However, given a strict risk assessment

> process (which has been made progressively more accurate), the Agency has little reason to believe that these streams are causing environmental problems.

Id. at 24.

The report notes that the environment is protected through a thorough chemical analysis and fate and transport modeling of wastes prior to granting a delisting, called the DRAS model. The credibility of the risk assessment and the delisting program itself is entirely based on the inputted data into the DRAS model. If that data does not meet the reliability standards of SW-846, the output of the model is worthless. Approval of this petition based on the presented data undermines the rigorous testing and risk assessment that EPA and the Commonwealth have made the foundation for the delisting program.

Inadequate Record

Under Pennsylvania rules, commenters have 30 days to review the record and make comments. However, ETI has asked for key data of the petitioners numerous times and as of January 3, 2005, certain critical data sets have not been made available. Therefore, to be consistent with the intent and spirit of the Pennsylvania rules, we urge that the comment period be extended for at least 30 days after the full record is made available to the public.

Conclusion

The inadequate case that MAX makes is inconsistent with the Commonwealth's and EPA's past scrupulous evaluations of delisting petitions, let alone generic delistings. We urge the Agency to reject the petition at this time until MAX submits testing and sampling consistent with SW-846 and the EPA Guidance on delistings.

Respectfully submitted,

Scott Slesinger
Vice President for Governmental Affairs

Original: 2451

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AN ENVIRONMENTAL LAW PRACTICE

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January 31, 2005

VIA E-MAIL AND FIRST-CLASS MAIL
Mr. James M. Smith
Independent Regulatory Review Commission
333 Market Street, 14th Fl.
Harrisburg, PA 17101

Re: Proposed Amendments to Pennsylvania's Hazardous Waste Regulations -- Comments on Behalf of Envirosource Technologies, Inc.

Dear Jim:

Thanks for taking time to discuss with me last week the comments that we submitted on behalf of Envirosource Technologies, Inc. ("ETI") opposing proposed amendments to Pennsylvania's hazardous wastes regulations to "delist" electric arc furnace dust ("EAFD") treated by MAX Environmental Technologies, Inc. ("MAX") (formerly Mill Service, Inc.) at its facility in Yukon, South Huntingdon Township, Westmoreland County, Pennsylvania. During our conversations, you posed a number of questions concerning EAFD and the manner in which EAFD is handled. You indicated that the Pennsylvania Department of Environmental Protection ("PADEP") has been unable to provide you with the information which you are seeking and therefore asked if we could help in this process. The information set forth below is intended to respond to the questions that you raised.

EAFD is a listed hazardous waste with a listing designation of K061. EAFD is a dusty pollution control waste generated during steel production processes from the melting of scrap iron and steel in electric arc furnaces. The preamble to the proposed amendments to Pennsylvania's hazardous waste regulations indicates that EAFD is the largest hazardous waste stream currently being generated in the United

States. However, the preamble does not contain any specific information about the amount of EAFD that is generated on an annual basis.

Based on general knowledge of the steel industry and the amounts of K061 being generated in the United States, ETI estimates that approximately 850,000 to 900,000 tons of K061 wastes are generated per year in the United States. Of this amount, ETI estimates that approximately 700,000 tons of K061 wastes are generated in the eastern portion of the United States. The proposed regulations would allow MAX to delist up to 300,000 cubic yards of treated K061 wastes per year. While there are discrepancies in the densities used by MAX in its delisting petition for treated and untreated K061 wastes versus the density information that ETI has compiled, ETI believes that the volume limits in the proposed regulations would allow MAX to accept on the order of 300,000 tons of K061 wastes for treatment on an annual basis. This is close to half of the K061 wastes generated east of the Mississippi River and underscores why it is critical that the proposed delisting regulations be based on a data base that is fully representative of the broad range of K061 wastes that MAX may encounter and that MAX demonstrate "up front" on a waste stream by waste stream basis that its treatment process will be successful as a predicate to proceeding with the proposed regulations.

With respect to the manner in which K061 wastes are currently being managed, a significant portion of the wastes are being recycled while the remainder of the wastes are being treated and land disposed. We do not currently have exact figures on the relative percentages of the K061 wastes that are being recycled versus being treated and land disposed. However, ETI believes that more than half of the K061 wastes generated in the United States are being recycled. Recycling may be a viable option for K061 wastes that have significant concentrations of metals. Much of the recycling of K061 wastes is done in Pennsylvania. For the remainder of the K061 wastes, treatment and land disposal is the alternative option. This is the management process that MAX proposes to use. However, it is evident from the specific sources chosen in MAX's delisting petition that many of the K061 wastes which it wishes to accept for treatment are currently being recycled. The comments from Horsehead Corporation and International Metals Reclamation Company, Inc. which you have received underscore this issue.

For K061 wastes that are treated and then land disposed, the costs of such a management approach reflect two components -- the costs of the treatment process itself and the costs of placing the treated wastes in landfills (tipping fees). Because the costs of constructing and operating non-hazardous waste landfills and hazardous waste landfills have become very similar, the tipping fees for residual wastes and the tipping fees for hazardous wastes may not be significantly different. With that said, pricing can be influenced by a variety of factors such as the type of wastes involved and local market conditions. The overall costs of disposing of hazardous wastes versus residual wastes are generally materially higher because hazardous wastes must first be treated in order to meet the land disposal restrictions ("LDRs") set forth in 40 C.F.R. Part 268. LDRs are the minimum standards that must be met for hazardous wastes that are to be land disposed. The standards necessary to enable hazardous wastes to be delisted are more stringent and generally involve more complex and expensive treatment techniques.

MAX has provided no information to PADEP or the Environmental Quality Board ("EQB") concerning the overall costs that generators of K061 wastes will face if they use MAX's services. Accordingly, MAX's bald statements regarding the purported economic benefits that may redound to the steel industry from the proposed regulations do not appear to be rooted in any specific objective analysis. Likewise, it does not appear that either PADEP or the EQB have independently and objectively evaluated MAX's unsubstantiated claims but instead have simply repeated those claims. It is clear that MAX will incur costs in treating K061 wastes that it receives and will incur costs in disposing of the treated K061 wastes in non-hazardous waste landfills assuming that it is able to meet the delisting standards. As we discussed, there is scant evidence that was included in the delisting petition to demonstrate that MAX's treatment process will, in fact, be able to achieve the delisting standards. In the absence of effectively treating K061 wastes so as to meet the delisting standards, the wastes will remain classified as listed hazardous wastes and will need to be managed at facilities that are permitted to accept such wastes for treatment and disposal. Accordingly, it is very likely that the costs of managing such wastes will actually be higher than if the wastes had either been recycled or treated using a proven treatment technology in the first place.

I hope that this information helps to address some of the questions which you raised. Please let me know if you would like to discuss the foregoing information further or have additional questions. We would appreciate receiving a copy of the comments that the Independent Regulatory Review Commission submits to the EQB and PADEP later this week.

Very truly yours,

Michael

Michael M. Meloy
For MANKO, GOLD, KATCHER & FOX, LLP

MMM/dem/100005/0008

cc: Mr. D. Richard Shipman (via electronic mail and first-class mail)
Mr. Stephen J. DeLussa (via electronic mail and first-class mail)