LION TECHNOLOGY INC.

YOUR SOURCE FOR COMPLIANCE SUCCESS

February 26, 2009

From: Lion Technology
To: Ronald Potter, MXI Environmental
Re: Solid Waste Determinations of Ethanol Containing Sources

Thank you for your Hotline inquiry of February 4, 2009. Based on your initial request and subsequent discussion, you requested guidance regarding how the EPA and the States of New York and Virginia regulate certain materials recycled in certain ways. We have researched these issues and will attempt to provide as much detail as possible.

As you know, in the January 4, 1985 *Federal Register*, EPA issued a final rule which established the regulatory scheme for recycling under RCRA. This rulemaking established many concepts and regulatory definitions that continue to be the basis for identifying which materials are or are not regulated as "solid waste" and/or "hazardous waste" under the RCRA hazardous waste regulations. The burden of proof rests on the generator or other party that claims a material is excluded from regulation.

These concepts are used by EPA and the States on a case-by-case basis to determine the regulatory status of materials in a particular instance. Below, we present our opinion based on language in the January 4, 1985 *Federal Register*, the EPA RCRA regulations found in 40 CFR, and other documents from EPA and the New York Department of Environmental Conservation.

We hope you find this information helpful. If you have any further questions, please do not hesitate to contact us.

Sincerely,

CHANNON MAYCOCK
JAMES GRIFFIN

Lion Technology Inc.

Enclosures

Waste Determination Report

Background:

MXI Environmental operates an ethanol recycling facility in Virginia. This facility receives ethanol-containing material from multiple sources, distills ethanol from those source materials, and then markets the ethanol for industrial use, primarily for use as a fuel additive. This is a process which recycles (reclaims) a useable product from industrial waste materials, some of which have the potential to be hazardous wastes. MXI has contacted Lion Technology to research and corroborate its position that three specific source materials are NOT solid or hazardous wastes under the RCRA Subtitle C regulations.

The specific source materials to be discussed are unused perfume, spent ethanol used for its solvent properties, and ethanol used during the production of sunscreen. Based on the information provided by MXI and our independent research, in the absence of additional information, each of these materials is excluded from substantive regulation under RCRA.

Since each source material is excluded under different parts of the RCRA regulations, detailed discussion follows.

Source: Unused Perfume

Background:
MXI Environmental's Virginia distilling plant receives unused perfume from a New York-based facility. The unused perfume is processed to recover ethanol. Some of this ethanol is sold as a fuel additive. MXI has related to Lion Technology that a representative of the State of New York has put forth the argument that materials being reclaimed must be reclaimed for their original intended use to be excluded from regulation.

Issue:
MXI requires a refutation of the regulator's argument and a review of what regulations apply to reclamation of hazardous wastes.

Response:
The waste determination of the unused perfume depends on what fate the unused perfume will undergo. The unused perfume will be processed to reclaim a useable product (ethanol), which is excluded from the definition of solid waste at 40 CFR 261.2(c)(3). For the purposes of making a solid waste determination under 261.2, the end-use of the reclaimed ethanol does not factor in.

As for the argument that materials must be reclaimed for their original intended use, New York may be relying on language from 40 CFR 261.33, or equivalent language in 6 NYCCR 371.4(d), "The following materials or items are hazardous wastes when…**in lieu of their original intended use**, they are produced for use as (or as a component of) a fuel, distributed for use as a fuel, or burned as a fuel." [**Emphasis added by Lion**]

Let us first address the applicability of 'original intended use' on the solid waste determination. The definition of "commercial chemical product" in 40 CFR 261.33 does not apply to the term as

used in the solid waste determination at 40 CFR 261.2, as clarified in the preamble to the January 4, 1985 rulemaking.

II. Discussion of Specific Provisions of the Revised Definition of Solid Waste

A. Section 261.1(b): Purpose and Scope

1. *Use of The Regulatory Definition of Solid Waste Only For Purposes of The Subtitle C Regulations.* The applicability provision in the final rule is virtually identical to the one proposed. Section 261.1(b)(1) reiterates that the regulatory definition of solid waste applies only to materials that also are Subtitle C hazardous wastes. This point is implicit since the regulatory definition of solid waste appears in regulations implementing Subtitle C of RCRA, which subtitle only applies to hazardous wastes. In response to comment, we are adopting a clarifying provision in § 261.1(b) to ensure that the regulatory definition is not used in unintended contexts, for example to justify regulation of non-hazardous wastes. The language of the final rule is modelled on Section 8 of H.R. 2867 and is consistent with the Committee's intent. See H.R. Rep. 98–198 at 47.

This provision also makes clear that waste-derived products placed on the land for beneficial use or burned as fuels must themselves be hazardous (by exhibiting a characteristic or containing a listed hazardous waste) to be covered by the rule.

50 FR 627, January 4, 1985, clarifying the use of the regulatory definition of solid waste.

In addition, it may be helpful to show that burning ethanol as a fuel is a normal use, so the restriction at 40 CFR 261.2 from burning as a fuel does not apply to the reclaimed ethanol.

The use of a commercial chemical product as a fuel, when that is not an ordinary manner of use of that material, makes that product a hazardous waste. As defined in 40 CFR 261.33 and 1985 rulemakings:

> "The following materials or items are hazardous wastes when…in lieu of their original intended use, they are produced for use as (or as a component of) a fuel, distributed for use as a fuel, or burned as a fuel." 40 CFR 261.33

> "Commercial chemical products…ordinarily are not wastes when recycled…are including them as wastes when they are recycled in ways that differ from their normal manner of use, namely, when they are used in a manner constituting disposal or when they are burned for energy recovery , (assuming these materials are neither a pesticide nor a commercial fuel)." 50 FR 618, January 4, 1985.

> "Commercial chemical products…are not considered solid wastes when recycled except when they are recycled in ways that differ from their normal use—namely, when they are burned for energy recovery or used to produce a fuel." 50 FR 14219, April 11, 1985.

Furthermore, multiple sources can be found showing that the EPA and NYDEC both consider that 1) a material being recycled need not be recycled for its original intended use, and 2) that energy recovery (use as a fuel) is an ordinary manner of use for ethanol. Therefore, using ethanol, or an ethanol-containing product as a fuel, would be a legitimate form of recycling even if that particular ethanol source material was not originally produced to be used as a fuel.

The following letters from EPA to various parties show that materials may be recycled as fuels, even if they were not produced to be fuels. Full versions of these letters can be obtained from the EPA through their RCRA Online service at http://www.epa.gov/rcraonline.

Elizabeth Cotsworth, Director Office of Solid Waste to Richard Wasserstrom, American Forest & Paper Association. August 8, 2002. Regarding the use of Turpentine for energy recovery. RCRA Online # 14609. URL: http://yosemite.epa.gov/osw/rcra.nsf/0c994248c239947e85256d090071175f/C8AC1FF9B2AF636A85256C6700700E0A/$file/14609.pdf

In this letter, EPA states that a substance (turpentine) may be recycled by burning for energy recovery because it has the chemical characteristics of a fuel and a history of being used as a fuel, even though burning for energy recovery is not the primary or most common contemporary use of turpentine.

> "August 8, 2002
>
> Richard Wasserstrom, Esq.
> American Forest & Paper Association
>
> We have reviewed the information you have submitted, as well as other information available to the Agency, and **have determined that crude sulfate turpentine is a commercial chemical product which is itself a fuel,** and therefore is not a solid waste (and hence not a regulated hazardous waste) when it is burned for energy recovery**.**
> **Background**
> …Crude sulfate turpentine is extracted from wood during the pulping process and collected and sold as a raw material. Buyers generally specify moisture and sulphur content for the turpentine they purchase. Crude sulfate turpentine consists of organic compounds, principally alpha-pinene and beta-pinene, which are of particular commercial value, and other terpenes including carenes and dipentenes.
> **Use of Crude Sulfate Turpentine as Fuel**
> Our review of information provided by the American Forest & Paper Association (AFPA) and other sources shows that, **while not a widely used commercial fuel today, turpentine has an established history of use as a commercial fuel source**, and can still be used (and is used) to replace more traditional fossil fuels."
> [**Emphasis added by Lion**]

Sylvia K Lowrance Director Office of Solid Waste to Paige Murphy-Young Assistant Attorney General Arizona. July 27, 1988. Exemption for Commercial Chemical Products Burned for Energy Recovery. RCRA Online# 13208. URL: http://yosemite.epa.gov/osw/rcra.nsf/0c994248c239947e85256d090071175f/04E2B0FCE89028498525670F006BF9CB/$file/13208.pdf

In this letter, EPA states that commercial chemical products used as fuels would not be solid wastes even though that was **not** their original intended use.

JULY 27 1988
Ms. Paige Murphy-Young
Assistant Attorney General
1275 West Washington
Phoenix, Arizona 85007

"Although the exclusion provided by §261.2(c)(2)(ii) would not apply to the waste-derived fuel, **the exclusion could apply to solvent product that was off-specification and, in lieu of its intended purpose, burned for energy recovery**. To be exempt under this provision, the off-spec solvent would also have to be a fuel itself. The use of acetone-derived solvents, for example, would be precluded by the fuel requirement."[**Emphasis added by Lion**]

Sylvia K. Lowrance, Director Office of Solid Waste to Karl E. Bremer, Chief RCRA Permitting Branch Office of RCRA, Region 5. December 30, 1992. Application of the BIF Rule to Heritage Environmental Services, Inc., Lemont, Illinois. RCRA Online # 11717.
URL:
http://yosemite.epa.gov/osw/rcra.nsf/0c994248c239947e85256d090071175f/C80E5A42078243378525670F006BEA55/$file/11717.pdf

This letter is another example of EPA stating that commercial chemical products used as fuels would not be solid wastes, even though that was not their original intended use.

"December 30, 1992
MEMORANDUM
SUBJECT: Application of the BIF Rule to Heritage
Environmental Services, Inc., Lemont, Illinois

Subpart H of 40 CFR Part 266 regulates the burning or processing of hazardous waste in boilers and industrial furnaces. However, before a substance can be classified as a hazardous waste, it must first meet the definition of a solid waste. In determining whether the butane and propane propellants are solid wastes, **it must also be decided whether the burning of these materials constitutes the burning for energy recovery of a propellant (is a solid waste), or use as a fuel (is not a solid waste) for the reasons stated below.**
As stated in your memo, Heritage plans to recover the materials from the aerosol cans and separate them into three streams: (1) scrap metal (crushed cans), (2) a liquid phase (household chemicals), and (3) **a gaseous phase (propellants, mostly butane and propane). Heritage then plans to burn the recovered propellants from the aerosol cans** in their on-site boiler for RO 11717 energy value.
According to 40 CFR Section 261.2(c)(2)ii regulations, commercial chemical products that are listed in 40 CFR Section 261.33 as well as non-listed commercial chemical products that exhibit hazardous waste characteristics (see attached April 11, 1985 Federal Register notice explaining the regulatory status of non-listed commercial chemical products), **are not classified as solid wastes when burned for energy recovery if they**

> **are themselves fuels**. Since propane and butane are materials that are normally both used as fuels, when unused, they can be burned as fuels without being considered solid wastes. Therefore, if the aerosol cans are full (not used), or partially full (in which case they would be considered off specification with the remaining propellants in the cans also being unused), then the butane and propane propellants would be classified as commercial chemical products. **Since these products are fuels and being burned for energy recovery, they would not fall within the definition of a solid waste and would consequently not be considered a hazardous waste."** [**Emphasis added by Lion**]

Furthermore, the definition of commercial chemical product in 40 CFR 261.33, or 6 NYCCR 371.4(d), does not apply to the term as used in the solid waste determination at 40 CFR 261.2, or 6 NYCCR 371.1(c). We know this from language in the preamble to the January 4, 1985 rulemaking and federal regulations.

> "The definition of solid waste contained in this part applies only to wastes that are also hazardous for the purposes of implementing Subtitle C of RCRA." 40 CFR 261.1(b)(1)

> "Section 261.1(b)(1) reiterates that the regulatory definition of solid waste applies only to materials that are also Subtitle C hazardous wastes. This point is implicit since the regulatory definition of solid waste appears in regulations implementing Subtitle C of RCRA, which subtitle applies only to hazardous waste." 50 FR 627, January 4, 1985

A commercial chemical product being reclaimed is excluded from the definition of solid waste by 261.2(c)(3), and therefore cannot be a hazardous waste by 261.3(a).

Source: Perfume Line Purge Ethanol

Background:
The New York-based perfumery uses ethanol as a solvent to purge production lines between runs of different perfumes. The used solvent is sent to MXI's distilling facility to be reclaimed.

Issue: Is this spent solvent subject to regulation as solid or hazardous waste?

Response:
The ethanol has been used for its solvent properties, has been contaminated by use, and the perfumery will not reuse it. This makes the ethanol a spent material (261.1(c)(1)), and spent materials are solid wastes when reclaimed (261.2(c)(3)). The spent ethanol might then meet the definition of a hazardous waste for the characteristic of ignitability. Remember that an "aqueous solution of alcohol containing less than 24 percent alcohol by volume" cannot be a D001 Ignitability waste. (261.21(a)(1))

However, "industrial ethyl alcohol that is reclaimed…" is one of the kinds of recyclable materials "not subject to regulation under Parts 262 through 266, 268, or Parts 270 and 124 of [40 CFR] and are not subject to the notification requirements of Section 3010 of RCRA.", per 261.6(a)(3)(i) or 6 NYCCR 371.1(g)(1)(iii)(a).

"Industrial ethyl alcohol" is not defined by EPA in the RCRA regulations. The Alcohol and Tobacco Tax and Trade Bureau of the Department of the Treasury (TTB), a successor agency to the ATF, considers any non-beverage use of alcohol to be "industrial." (29 CFR Part 1, Subpart D)

In the January 4, 1985 rulemaking at 50 FR 649, regarding the definition of solid waste, EPA states that it was unnecessary for them to regulate industrial ethyl alcohol under RCRA, given the conditions that must be met for compliance with ATF regulations.

G. Recyclable Materials Exempt from Regulation

1. *Section 261.6(a)(3)(i): Reclaimed Industrial Ethyl Alcohol.* Industrial ethyl alcohol can become contaminated during use, and may then be returned to a distillery for redistillation. Spent industrial alchol exhibits the characteristic of ignitability.

EPA has decided to exempt industrial ethyl alchol that is reclaimed from any RCRA regulation because the entire reclamation operation already is regulated by the Bureau of Alcohol, Tobacco and Firearms from point of spent ethyl alcohol generation to point of redistillation. These regulations require operating permits for individual industrial ethyl alcohol distilleries and users. These permits must address (among other things) ethyl alcohol storage (including storage of spent ethyl alcohol), plant security, and recordkeeping. See 27 CFR 19.156, 19.159, 19.166, and 19.271–19.281 (requirements for distillers) and §§ 211.41–211.50, and 211.91–211.96 (requirements for users). Tracking from the generator to the distiller likewise is controlled. *Id.* §§ 211.217.–211.219. There is also incentive to avoid loss of alcohol because there is tax liability of $10.50 per gallon of spent ethyl alcohol, and this tax is imposed, and ordinarily not remitted, in the event of loss. *Id.*, §§ 19.561–19.563. In light of this comprehensive cradle-to-grave existing regulatory system, further RCRA regulation would be redundant.

50 FR 649, January 4, 1985, EPA's decision to defer to the ATF regulation of ethyl alcohol recycling.

Source:Ethanol Contaminated With Sunscreen During the Manufacture of Sunscreen

Background:
A personal care products facility uses ethanol in the production of sunscreen. This ethanol contains trace amounts of other materials as a result of the production process. This contaminated ethanol is shipped to MXI Environmental's distilling facility to be reclaimed.

Issue: Is this contaminated ethanol subject to regulation as solid or hazardous waste?

Response:
If the contaminated ethanol is not produced intentionally or separately from the sunscreen, and is not suitable for use without substantial processing, then it is a by-product of sunscreen production. [261.1(c)(3), 50 FR 625, January 4, 1985]

A by-product that exhibits a hazardous waste characteristic, but is not listed as a hazardous waste in 40 CFR 261, Subpart D is excluded from regulation as solid waste when reclaimed, per 261.2(c)(3) or 6 NYCCR 371.1(c).