

Connecticut Department of

**ENERGY &  
ENVIRONMENTAL  
PROTECTION**

December 12, 2011

Mr. Ernest Petrey  
Ardleigh Minerals Incorporated  
24100 Chagrin Boulevard, Suite 380  
Beachwood, Ohio 44122

Dear Mr. Petrey:

Thank you for your letters to the Department, including the most recent one dated May 2, which was received by the Department on November 8, 2011 (copy attached) concerning the regulatory status under Connecticut's Hazardous Waste Management Regulations of thermal spray dust and filters that are being sent off-site for recovery of their metal values. I apologize for the delay in the Department responding to your letters, but your inquiries raised a number of regulatory issues that warranted careful consideration, since we cannot categorically say that every sludge that exhibits a characteristic of hazardous waste is not a solid waste when reclaimed and thus is not subject to regulation as a hazardous waste.

However, we have taken the opportunity to provide you with some considerations that you and your clients should evaluate in order to determine whether or not a particular thermal spray dust or filter is eligible for the reclamation exemption. These considerations are summarized in the Attachment to this letter.

I should also note that your company's website indicates that you provide recycling services for a wide range of materials other than thermal spray dust and filters. These materials are not specifically addressed in this letter or in the Attachment to this letter. Some of these materials may be eligible for the exemption for characteristically-hazardous sludges being reclaimed, but others may not. Whether or not such materials are exempt from regulation would require a separate evaluation. In such cases, if a generator wishes to know whether or not a particular material is exempt, the generator may contact DEEP for assistance, such as by calling the DEEP's toll-free Hazardous Waste Compliance Assistance Line at 1-888-424-4193.

If you or any of your clients have any questions concerning this letter, please contact Ross Bunnell of my staff at (860) 424-3274, or by email at [ross.bunnell@ct.gov](mailto:ross.bunnell@ct.gov).

Sincerely,

Macky McCleary  
Deputy Commissioner

MM:RQB  
Attachments

**ATTACHMENT**  
**Ardleigh Minerals Incorporated**  
**Regulatory Status of Thermal Spray Dust and Filters Sent Off-Site**  
**for Recovery of Their Metals Values.**

The letter to Commissioner Esty, dated May 2, 2011 and received by the Department on November 8, 2011 concerned the regulatory status under Connecticut's Hazardous Waste Management Regulations of thermal spray dust and filters that are being sent off-site for recovery of their metal content. More specifically, the letter sought concurrence from the Department of Energy and Environmental Protection (DEEP) that such materials would meet the definition of characteristically-hazardous sludges, which, when reclaimed, would be exempt from hazardous waste requirements provided that they are not:

- used in a manner constituting disposal;
- used to produce products that are applied to the land;
- burned for energy recovery;
- used to produce a fuel, or contained in fuels;
- accumulated speculatively; or,
- inherently waste-like, as defined (as defined in 40 CFR 261.2(d)).

In support of this interpretation, the letter cites Section 40 CFR 261.2(c)(3) of the federal hazardous waste regulations, and the associated Table 1 in that section that indicates that characteristically-hazardous sludges being reclaimed are not solid or hazardous wastes.

In response, DEEP can confirm that Sections 22a-449(c)-101(a)(1) and -101(a)(2)(D) of Connecticut's Hazardous Waste Management Regulations do, in fact, incorporate this particular provision of the federal hazardous waste regulations. However, Connecticut's Hazardous Waste Management Regulations also add a marking and dating requirement that would apply to anyone in Connecticut that generates or otherwise handle these materials. In particular, Section 22a-449(c)-101(a)(2)(D) requires anyone managing such materials in Connecticut to "mark all containers and tanks holding these materials so that their contents are clearly identified and the date upon which each period of accumulation begins is clearly marked and visible for inspection." This section goes on to note that "[w]hen marking the beginning of each period of accumulation for materials accumulated or stored in tanks, the person accumulating or storing such materials does not have to mark the tank itself, but may maintain a written log noting the date upon which each period of accumulation begins, provided such log is maintained in the facility operating record and is available for inspection."

Therefore, thermal spray dust and filters generated in Connecticut that are being sent off-site for recovery of their metal values are eligible for the exemption from the definition of solid and hazardous waste, provided that Connecticut's marking and dating requirements for such

materials are met. However, there are certain issues that can affect the applicability of this exemption, such as the ones described in detail below. As a result, Ardleigh Minerals Incorporated, and any potential client seeking to use their recycling services must evaluate the particular set of facts associated with each thermal spray dust and filter waste stream (including the composition of the materials and how they will be recycled) and confirm whether or not the exemption applies to their material. Such clients must also be able to document any claims that their material is exempt, and be prepared to provide such documentation to a DEEP inspector during a hazardous waste inspection.

### **Issues that May Affect the Applicability of the Exemption from Solid and Hazardous Waste Requirements for Characteristically-Hazardous Sludges Being Reclaimed**

1. Applicability of the Exemption is Specific to Each Material Being Reclaimed. During hazardous waste inspections, DEEP inspectors will evaluate the applicability of any claimed exemptions by considering the same site-specific factors outlined herein. If any claims about the applicability of an exemption are found to be erroneous, the failure of the generator and/or the reclaimer to properly characterize a material will not relieve either party from the requirement to manage the material under applicable hazardous waste requirements. If a material is incorrectly claimed to be exempt, DEEP may pursue any and all violations of hazardous waste requirements that may result from such mischaracterization. As a result, it is important that any generator that claims that a material is exempt has carefully thought through these issues and factors, and has properly documented their claim (see item 4 below for more on the importance of documentation of claims).
2. Reclamation Must be Legitimate. Perhaps the most important factor in evaluating the applicability of the exemption for characteristically-hazardous sludges being reclaimed is whether or not the material is being legitimately reclaimed, or if it is merely being processed as an alternative to disposal. The generator of the material for which the exemption is claimed must ensure that significant material values will, in fact, be recovered from their material. This may be done, for example, by evaluating the capabilities of the recycling process that will be used, or through chemical analyses or other evaluations regarding the suitability of their material in the proposed recycling process (see item 3 below for more on the importance of proper testing and characterization). There are several indicators of legitimate reclamation (versus illegitimate, or "sham" reclamation). Examples of indicators of legitimate reclamation include but are not limited to the following:
  - Materials being reclaimed are handled in a manner that is consistent with a material that has value (i.e., they are not stored or handled in a manner that allows

economic loss, such as outdoors in open or leaking containers). Note: any materials that are actually released to the environment would lose their exemption immediately, as such a release would constitute de facto disposal.

- The recycler has product specifications for the materials being reclaimed, or utilizes specifications that are in accordance with those generally in use in industry.
- There are records or other documentation confirming that significant material values are actually reclaimed, such as records showing the amount of a particular metal was reclaimed from a shipment of the material.
- There is payment to the generator of a particular material for recycling it, as opposed to payment by the generator for the recycling of the material.

3. Importance of Proper Testing and Characterization. It is very important that any material that is claimed to be exempt as a characteristically-hazardous sludge being reclaimed is thoroughly tested and characterized prior to being accepted for recycling. Such testing and characterization is important to ensuring that the material is suitable for reclamation, and does not contain contaminants that might invalidate the applicability of the exemption, such as listed hazardous wastes. Some listed hazardous wastes that might commonly be present as contaminants in thermal spray dusts include sludges from the treatment of electroplating wastewaters (EPA Waste Code F006), and listed hazardous waste solvents (EPA Waste Codes F001 through F005). Such testing and characterization should be performed prior to the shipment of a generator's recyclable material, in order to avoid situations where material that is actually subject to regulation as a hazardous waste is erroneously shipped as an exempt material. It would also be appropriate for each incoming load of recyclable material to be tested to check that it conforms to the original analysis and description.

An important consideration with respect to testing and characterization is that the materials that some generators may be sending for reclamation may be very consistent from batch-to-batch, whereas other generators' material may vary in composition over time. For example, material generated by a manufacturer that always uses the same thermal spray formulation on the same type of part might be very consistent from batch to batch. On the other hand, material generated by a company that uses a variety of thermal spray formulations on many different types of parts (e.g., a thermal spray job shop) might be highly variable from batch to batch. The testing and characterization described above must specifically account for this kind of variability.

4. Documentation of Claims. Section 22a-449(c)-101(a)(1) of Connecticut's Hazardous Waste Management Regulations incorporates the federal requirement at 40 CFR 261.2(f) regarding documentation of claims. This provision applies to any material that is claimed

to be exempt from the definition of solid waste and therefore not subject to regulation as hazardous waste (including characteristically-hazardous sludges being reclaimed). The provision requires that any person making such a claim be able to demonstrate that there is a known market or disposition for the material and that they meet the terms of the exclusion. In addition, the facilities that actually reclaim the materials must be able to show that they have the necessary equipment to do so. Appropriate documentation would include things such as contracts between generators and reclaimers, test results confirming that the waste contains recoverable concentrations of reclaimable materials, documentation of shipments to the reclamation facility (e.g., bills of lading), and records documenting that material values are actually reclaimed, such as payments or credits from the reclaimer for the materials that are recovered<sup>1</sup>. It is especially important that the generator of such a material keep this documentation on file at the site where the material is generated, so it can be provided to a DEEP inspector in the event of a hazardous waste inspection. A DEEP inspector would want to review this information as part of their overall evaluation of the facility's compliance with hazardous waste requirements.

5. Connecticut Requirements Concerning "Speculative Accumulation." As noted at the beginning of this attachment, a factor which can invalidate the applicability of the exemption for characteristically-hazardous sludges being reclaimed is "speculative accumulation." Simply put, speculative accumulation means the accumulation of a recyclable material without a legitimate means to recycle it, or for excessive periods of time without recycling it. Materials that are speculatively accumulated – including characteristically-hazardous sludges that are to be reclaimed – cease to be exempt once they are accumulated speculatively, and become subject to regulation as solid and hazardous wastes. Connecticut's Hazardous Waste Management Regulations have the following two provisions that are different from the federal provisions concerning speculative accumulation:

- a. Accumulation Time Limit of One Year. The first provision is in Section 22a-449(c)-101(a)(2)(B), and sets a time limit of one year for the accumulation of recyclable materials before they are considered to be speculatively accumulated. This is in contrast to the federal regulations, which only require that 75 percent of the material be recycled each calendar year.

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<sup>1</sup> Many recyclers will issue a "certificate of recycling" or other similarly-named document to the generator to confirm that their material was recycled. Although such documents can serve as part of the required documentation to support a claim that a material is exempt, it cannot serve as the sole means for such documentation.

- b. Applicability to Commercial Chemical Products. The second provision is in Section 22a-449(c)-101(a)(2)(E), and indicates that commercial chemical products being speculatively accumulated are subject to regulation as solid wastes. This is in contrast to the federal regulations, which indicate that such materials are not considered solid wastes. For more on the issue of commercial chemical products, see item 6 below.
6. The Material Being Reclaimed Must Meet the Definition of a "Sludge." Another factor that must be considered in determining if a particular material is eligible for the exemption for characteristically-hazardous sludges being reclaimed is whether or not it actually meets the definition of a "sludge." Under both the federal hazardous waste regulations and Connecticut's Hazardous Waste Management Regulations, a sludge is defined as follows:

"... any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant."

This definition would include, for example, thermal spray dusts that were captured in a filter, baghouse, or other device used specifically for air pollution control.<sup>2</sup> However, sometimes thermal spray dusts are not captured in an air pollution control device, but are generated in some other type of equipment, or, in some cases, merely accumulate on the floor of the thermal spray enclosure (e.g., a spray booth or spray room). It is also possible that a company that engages in thermal spraying may have some excess unused thermal spray powders that that they may no longer have a need for. Thermal spray dusts such as these would not meet the definition of a sludge, but would instead be classified as either "spent materials" "by-products," or "commercial chemical products." This is important since, of these three categories, only characteristically-hazardous by-products and commercial chemical products have the same exemption from the definition of solid waste as characteristically-hazardous sludges when they are reclaimed. Characteristically-hazardous spent materials, on the other hand, are subject to regulation as solid and hazardous wastes when reclaimed.

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<sup>2</sup> Filters, baghouses, and other similar devices that are used for purposes other than air pollution control (e.g., to capture a material so that it may be reclaimed), would not produce "sludges." Such devices may, however, produce a by-product, and characteristically-hazardous by-products are also exempt from the definition of solid and hazardous waste when they are reclaimed.

In cases where a particular thermal spray dust material does not meet the definition of a "sludge," a different evaluation must be conducted in order to determine whether or not the material is subject to regulation when it is reclaimed. In such cases, the generator may contact DEEP for assistance, such as by calling the DEEP's toll-free Hazardous Waste Compliance Assistance Line at 1-888-424-4193.

7. Use Constituting Disposal. As noted at the beginning of this attachment, the exemption for characteristically-hazardous sludges being reclaimed does not apply if the material is used in a manner constituting disposal, or is used to produce a product that is applied to the land. In order to determine if a material is used in a manner constituting disposal, it must be evaluated from the point of generation throughout the entire management cycle, not just to the first step of the management cycle. Therefore, for example, if a material is sent to a facility that reclaims certain metals that are sent to a fertilizer manufacturer, which in turn uses them as an ingredient to make commercial fertilizers, this would be use constituting disposal, since the ultimate fate of the material involves application to the land. Furthermore, even if only one of the reclaimed metals were sent to a fertilizer manufacturer, this would be enough to qualify as use constituting disposal, since at least part of the material is ultimately applied to the land.
8. Burning for Energy Recovery. As noted at the beginning of this attachment, the exemption for characteristically-hazardous sludges being reclaimed does not apply if the material is burned for energy recovery. Under state and federal hazardous waste regulations, burning for energy recovery includes the burning of any wastes with over 500 parts per million by weight ("ppmw") of organic compounds listed in 40 CFR 261 Appendix VIII or any wastes with a fuel value of over 5000 BTU per pound, irrespective of whether or not there is also material recovery occurring. For example, if a thermal spray dust that contains 600 ppmw of toluene is burned in an industrial furnace to recover chromium, tungsten, and cobalt, it is still considered burned for energy recovery rather than being reclaimed. The consequence of this is that a material handled in this manner would not be exempt as a characteristically-hazardous sludge being reclaimed, but would instead be subject to regulation as a solid and hazardous waste. In particular, the material would be subject to the Boiler and Industrial Furnace Requirements of 40 CFR 266 Subpart H, as incorporated by Section 22a-449(c)-106 of Connecticut's Hazardous Waste Management Regulations. Units meeting the definition of "industrial furnaces" include blast furnaces, smelting, melting and refining furnaces (which in turn include pyrometallurgical devices such as cupolas, reverberator furnaces, sintering machines, roasters, and foundry furnaces).
9. "Scrap Metal" Provisions Do Not Apply to Thermal Spray Materials. Under the state and federal hazardous waste regulations, there are certain special provisions for scrap

metals (e.g., 40 CFR 261.6(a)(3)(ii)). Although it might seem appropriate to classify thermal spray dusts or filters – which may consist in large part of metallic dusts – as scrap metal, these materials do not in fact conform to the definition of scrap metals based on their physical form. The definition of “scrap metals” includes “... bits and pieces of metal parts (e.g., bars, turnings, rods, sheets, wire) or metal pieces that may be combined together with bolts or soldering (e.g., radiators, scrap automobiles, railroad box cars), which when worn or superfluous can be recycled.” The metals contained in thermal spray dusts and filters are simply too finely divided to be properly classified as scrap metals. As a result, the various provisions for scrap metals would not apply to thermal spray dusts or filters.

10. Additional State or Local Requirements May Apply. Even if a generator’s thermal spray dust or filters are legitimately exempt in Connecticut as described above, the generator should still ensure that any materials that they send out-of-state are managed in accordance with all applicable state or local requirements. In particular, the generator should confirm that the reclamation facility has obtained any required state or local permit(s) to reclaim the material, since many localities require permits for the recycling of exempt wastes.



# ARDLEIGH MINERALS INCORPORATED

Bolton  
1450  
11-25-11

RECEIVED

NOV 08 2011

DEPT. OF ENVIRONMENTAL PROTECTION  
OFFICE OF THE COMMISSIONER

May 2, 2011

Via Certified Mail  
Return Receipt Requested

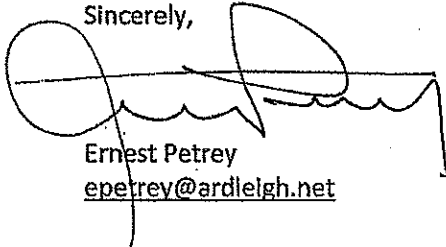
Mr. Daniel Esty  
Commissioner  
State of Connecticut  
Department of Energy & Environmental Protection  
Office of the Commissioner  
79 Elm Street  
Hartford, CT 06106-5127

Dear Mr. Esty:

This letter is to follow up on our June 5, 2008, June 19, 2009, September 2, 2009, May 4, 2010, and May 2, 2011 letters to Mr. Robert Isner and Ms. Yvonne Bolton regarding the recycling of various media forms used to prepare surfaces for further processing in the aerospace, medical, transportation and printing industries in the state of Connecticut. Copies of our letters are attached for reference.

It appears that we have not received a response from your department on this subject; if you have responded, we are requesting a copy of your response. If you have not responded, could you please let us know the status of our inquiry?

Sincerely,



Ernest Petrey  
[epetrey@ardleigh.net](mailto:epetrey@ardleigh.net)

# ARDLEIGH MINERALS INCORPORATED

for two years  
Class Mail or Priority Mail  
with Certified Mail  
to

May 4, 2010

Via Certified Mail  
Return Receipt Requested

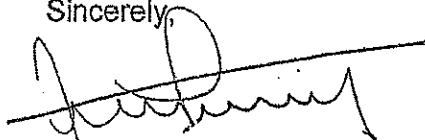
Mr. Robert Isner  
State of Connecticut  
Department of Environmental Protection  
Bureau of Materials Management and Compliance Assurance  
Waste Engineering and Enforcement Division  
79 Elm Street  
Hartford, CT 06106-5127

Dear Mr. Isner:

This letter is to follow up on our June 5, 2008, June 19, 2009, and September 2, 2009 letters regarding the recycling of various media forms used to prepare surfaces for further processing in the aerospace, medical, transportation and printing industries in the state of Connecticut. Copies of our letters are attached for reference.

It appears that we have not received a response from you on this subject; if you have responded, we are requesting a copy of your response. If you have not responded, could you please let us know the status of our inquiry?

Sincerely,



Ernest Petrey  
[epetrey@ardleigh.net](mailto:epetrey@ardleigh.net)

# ARDLEIGH MINERALS INCORPORATED

First-Class Mail® or Priority Mail®  
with Certified Mail,®  
Return Receipt,®  
for two years  
(PSN) 2009

September 2, 2009

Via Certified Mail  
Return Receipt Requested

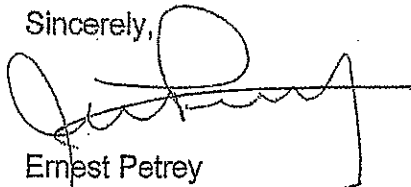
Mr. Robert Isner  
State of Connecticut  
Department of Environmental Protection  
Bureau of Materials Management and Compliance Assurance  
Waste Engineering and Enforcement Division  
79 Elm Street  
Hartford, CT 06106-5127

Dear Mr. Isner:

This letter is to follow up on our June 5, 2009 and June 19, 2009 letters regarding the recycling of various media forms used to prepare surfaces for further processing in the aerospace, medical, transportation and printing industries in the state of Connecticut. Copies of our letters are attached for reference.

It appears that we have not received a response from you on this subject; if you have responded, we are requesting a copy of your response. If you have not responded, could you please let us know the status of our inquiry?

Sincerely,



Ernest Petrey  
[epetrey@ardleigh.net](mailto:epetrey@ardleigh.net)

# ARDLEIGH MINERALS INCORPORATED

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June 19, 2009

Mr. Robert Isner  
State of Connecticut  
Department of Environmental Protection  
Bureau of Materials Management and Compliance Assurance  
Waste Engineering and Enforcement Division  
79 Elm Street  
Hartford, CT 06106-5127

Dear Mr. Isner:

This letter is to follow up on our June 5, 2008 letter regarding thermal spray processing generated in the State of Connecticut. A copy of our letter is attached for reference.

It appears that we have not received a response from you on this subject; if you have responded, we are requesting a copy of your response. If you have not responded, could you please let us know the status of our inquiry?

Sincerely,



Ernest Petrey  
[epetrey@ardleigh.net](mailto:epetrey@ardleigh.net)

# ARDLEIGH MINERALS INCORPORATED

June 5, 2008

Mr. Robert Isner  
State of Connecticut  
Department of Environmental Protection  
Bureau of Materials Management and Compliance Assurance  
Waste Engineering and Enforcement Division  
79 Elm Street  
Hartford, CT 06106-5127

Dear Mr. Isner:

As best we can determine, there are 25-30 major locations, in Connecticut, that use thermal spray processing to apply ceramic and metallic coatings to various substrates. These industries include aerospace, medical, transportation and printing.

The thermal spray process in use is described briefly, as follows:

Coatings can be sprayed from rod or wire stock or from powder material. Operators feed materials to a flame that melts it. The molten stock then is stripped from the end of the wire and atomized by a high-velocity stream of compressed air or other gases, coating the materials onto the workpiece. Depending on the substrate, bonding occurs because of mechanical interlock with a roughened surface and/or because of Van der Waals forces (i.e., mutual attraction and cohesion between two surfaces).

We are asking for a confirmation of the on-site handling requirements of thermal spray dust and filters that are being sent off-site for recovery of their metallic content. In facilities that coat materials using thermal spray technology, the air pollution control devices generate dust and filters which may contain heavy metals such as chromium. The thermal spray dust and the filters may meet the regulatory definition of characteristic sludge. As we understand it, the regulations define a sludge as any solid, semisolid, or liquid waste generated from a municipal, commercial, or industrial

Mr. Robert Isner  
State of Connecticut  
Department of Environmental Protection  
Bureau of Materials Management and Compliance Assurance  
Waste Engineering and Enforcement Division  
June 5, 2008  
Page 2

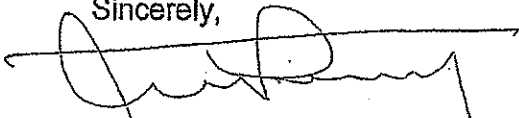
wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant.

As we also understand it, sludges exhibiting a characteristic of hazardous waste are not wastes when reclaimed and hence are not hazardous wastes. To meet this exclusion, the materials or any product made from them cannot be used in a manner constituting disposal, or be used to produce products that are applied to the land, burned for energy recovery, used to produce a fuel, or contained in fuels; accumulated speculatively; or be inherently waste-like according to the regulations, as we understand them. In addition, it is our understanding that the regulations require that there be available documentation demonstrating that there is a known market or disposition for the material being reclaimed and that it meets the terms of the exclusion. If the above requirements are met, there appear to be no additional on-site hazardous waste handling requirements for the material. However, we realize that this exclusion is only from the hazardous waste requirements and does not negate potential DOT or OSHA regulations.

Based on a brief review of the statutes we believe that this information is covered in 40CFR 261.2(c)(3) "Materials noted with an "-" in column 3 of Table 1 are not solid waste when reclaimed" and are reflected in the statutes "Connecticut Regulations for Hazardous Waste Management", Section 22a-449(c)-101 Identification and Listing of Hazardous Wastes (a) Incorporation by Reference.

Thank you for reviewing this. If you have any questions please do not hesitate to contact me.

Sincerely,



Ernie Petrey  
[epetrey@ardleigh.net](mailto:epetrey@ardleigh.net)

# ARDLEIGH MINERALS INCORPORATED

JAN 10 2011

DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF MATERIALS MANAGEMENT  
AND COMPLIANCE ASSURANCE  
WASTE ENGINEERING AND ENFORCEMENT

RECEIVED

JAN 23 2012

DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF MATERIALS MANAGEMENT  
AND COMPLIANCE ASSURANCE  
WASTE ENGINEERING AND ENFORCEMENT

January 3, 2012

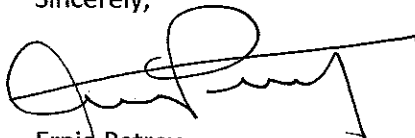
Mr. Macky McCleary  
Deputy Commissioner  
Connecticut Department of Energy & Environmental Protection  
79 Elm Street  
Hartford, CT 06106-5127

Dear Mr. McCleary:

Thank you for your letter of December 12, 2011. We are in agreement with all of the points that you raised, in particular paragraph 9 "Scrap Metal Provisions Do Not Apply to Thermal Spray Materials".

If you have any questions please let us know.

Sincerely,



Ernie Petrey  
[epetrey@ardleigh.net](mailto:epetrey@ardleigh.net)