U.S. Department
of Transportation

Pipeline and Hazardous Materials Safety Administration

1200 New Jersey Avenue, SE
Washington, D.C. 20590

JAN 15 2008

Mr. Michael Lambert, CHP
4 Stonegate Drive
Burgettstown, PA 15021

Ref. No. 07-0218

Dear Mr. Lambert:

This is in response to your November 1, 2007 letter regarding the applicability of the Hazardous Materials Regulations (HMR; 49 CFR 171-180) to shipments of soil containing natural uranium.

Your question regards a former commercial site, licensed by the U.S. Nuclear Regulatory Commission (NRC) that received a variety of ores primarily for the processing of these ores for the manufacture of molybdenum products, as well as ferroalloys. The facility operated in this capacity from approximately 1920 to 1991. Since 1991, the facility has been idle and is now undergoing remediation. A portion of the site has been identified through preliminary site characterization where appreciable natural uranium concentrations exist in soil. Additional characterization (soil sampling and radiological analysis) is needed to determine the uranium concentrations and better define the volume of the material that will be processed. Preliminary characterization results for the natural uranium from the area in question indicate that the activity concentration for exempt material and the activity limit for exempt consignment would be exceeded. In addition, the known concentration of natural uranium is only slightly less than 10 times the activity concentration for exempt material (approximately 96% of the limit, with the remaining 4% well within the analytical error).

You plan to transport the soil samples to a laboratory for characterization by tentatively selecting a proper shipping name, hazard class and identification number in accordance with the provisions in § 172.101(c)(11) for samples of material for which the hazard class is uncertain and must be determined by testing.

After the additional characterization you plan to hire a contractor to package and transport the excavated soil to a processing facility for recovery of uranium radionuclides for commercial use.

Your questions are paraphrased and answered as follows:

Q1. May the samples of material that are to be shipped for additional characterization be offered for transportation and transported under the exception in § 173.401(b)(4) for natural materials and ores?

A1. Yes. Section 173.401(b)(4) provides an exception for natural material and ores containing

naturally occurring radionuclides which are not intended to be processed for use of these radionuclides, provided the activity concentration of the material does not exceed 10 times the values specified in § 173.436. Since the preliminary characterization of your material shows that the known concentration of the natural uranium is slightly less than 10 times the exempt concentration limit, and because the sample of material is being transported for purposes other than the extraction of radionuclides, the exception in § 173.401(b)(4) may be used.

Q2. May the material that is to be shipped for the recovery of uranium be transported under the exception in § 173.401(b)(4).

A2. No. The material may not be transported under the exception in § 173.401(b)(4) because it is being transported for the processing and extraction of radionuclides.

I hope this satisfies your inquiry. If we can be of further assistance, please contact us.

Sincerely,

John A. Gale
Chief, Standards Development
Office of Hazardous Materials Standards

Eichenlaub
§173.401
RAM
07-0218

November 1, 2007

U.S. Department of Transportation
Office of Hazardous Materials Standards
400 Seventh Street SW
Washington, DC 20590-0001

Subject: Interpretation of 49 CFR 173.401

To whom it may concern:

I am interested in obtaining an interpretation of Title 49 Code of Federal Regulations Part 173.401 (49 CFR 173.401). Specifically, I am seeking an interpretation of 49 CFR 173.401(b)(4) as it applies to shipments of material via public roadways as discussed in the following paragraphs.

A former commercial site, licensed by the U.S. Nuclear Regulatory Commission (NRC), received a variety of ores primarily for the processing of these ores for the manufacture of molybdenum products, as well as ferroalloys. The facility operated in this capacity from approximately 1920 to 1991. Since 1991, the facility has been idle and is now undergoing remediation in an attempt to terminate the NRC license.

Although a large portion of the site (remaining land areas) are contaminated primarily with thorium-232 (^{232}Th), one portion of the site has been identified through preliminary site characterization where appreciable natural uranium concentrations exist in soil. It is not known whether the natural uranium contamination in soil is the result of the presence of ore brought onto the project site over the many years of operation or residual material resulting from processing ore of a presently unknown origin. The site owner and remediation project management believe the concentrations of natural uranium in soil and volume of soil with these elevated concentrations of natural uranium at this location are sufficient to warrant contracts with two companies: one to facilitate the packaging and transport of excavated soils containing this elevated natural uranium activity, and the second company to receive and process the soil for the recovery of uranium for commercial use. Both companies specialize in these areas. The obvious benefit of this to the project is to offset some of the remediation costs.

However, to fully understand the potential value of this material from the proposed uranium recovery, additional characterization is needed to better define the volume of material that will be processed. For the performance of this additional characterization (soil sampling and radiological analyses), the following conditions exist and actions are planned:

1. Analytical capabilities do not exist at the project site for the determination of uranium concentrations present in soil samples.
2. Soil samples are to be collected, packaged and transported to an off site laboratory for the determination of uranium concentrations in the samples. Transportation will be via courier over public roadways.
3. Planned soil sampling in this area is extensive and many samples will be collected and submitted to the off site laboratory for analysis in several separate conveyances.

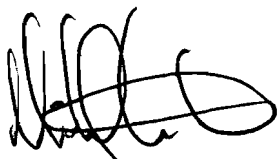
It is clear from 49 CFR 172.101(c)(11) the hazard class, proper shipping name, etc. are to be tentatively assigned for the shipment of radioactive samples from this area based on the "shipper's knowledge of the material." However, it is first necessary to determine if this material (soil samples) does in fact fall under the hazardous material regulations (HMR) as Class 7 (radioactive). To determine this, it is necessary to reference 49 CFR 173.401, specifically 49 CFR 173.401(b)(4). To further understand the applicability of this scope exception it is also necessary to reference the background information specifically related to this topic in Federal Register, Volume 69, Number 16, dated January 26, 2004. However, after review of this information it is still unclear to project management whether the criteria (used to determine whether the soil sample shipments fall under the scope of the HMR) are based on the 49 CFR 173.436 exempt activity concentration and consignment limits as written or 10 times the applicable exempt activity concentration as allowed by 49 CFR 173.401.

It is clearly the site owner and remediation project management's intent to facilitate the removal and shipment of this material to a processor for recovery of the uranium for commercial use, i.e., extracting the radionuclides, and not "some other physical or chemical processing." It is worth noting that preliminary characterization results for natural uranium from the area in question, which are to be used as the "shipper's knowledge of the material", indicate the exempt activity concentration (and consignment limit) would be exceeded if the 49 CFR 173.401(b)(4) scope exception does not apply and, therefore, each shipment of soil to an off site laboratory would be Class 7 per the HMR. However, if the 49 CFR 173.401(b)(4) scope exception does apply to this material, the concentrations of natural uranium in the samples, again based on prior preliminary data which was of very limited investigation, does not exceed ten times the exempt activity concentration limit and the material would not be Class 7. It is also worth noting that in this latter case, the known concentration of natural uranium is only slightly less than 10 times the exempt concentration limit (approximately 96% of the limit, with the remaining 4% well within the analytical error).

To clarify the understanding of the regulations in 49 CFR 173.401(b)(4) for this particular material, given the conditions stated, your assistance is necessary. Simply put, given the information provided, does the scope exception in 49 CFR 173.401(b)(4) apply to shipments of soil samples from this area of elevated natural uranium radioactivity and any subsequent shipments of the excavated material, with the understanding that the intent is to facilitate recovery of the uranium isotopes for commercial use?

Thank you for your assistance.

Sincerely,



Michael Lambert, CHP
4 Stonegate Drive
Burgettstown, PA 15021