UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

MAY 12, 1989

Mr. Tom Tiesler, Director
Division of Solid Waste Management
Tennessee Department of Health
and Environment
701 Broadway
Customs House, 4th Floor
Nashville, Tennessee 37219-5403

Dear Mr. Tiesler:

It has come to our attention that there has been some inconsistency in the procedure used to test blast slag at secondary lead smelters throughout the Southeast region. EPA would like to clarify and discuss the proper procedure to use when conducting the EP toxicity test. The basic procedure is described in Appendix II of 40 CFR Part 261. The inconsistency of the tests lie in the application of steps 3 and 4 of the Part A Extraction Procedure. EPA is hereby notifying you of the proper procedure to follow when conducting the EP toxicity test on blast slag.

Step 3 of the procedure discusses the particle size of the sample. Since most slag samples are too large to pass through a 9.5 mm (0.375 inch) sieve, the sample material shall be prepared for extraction by crushing, cutting, or grinding the material so that it passes through a 9.5 mm sieve.

Step 3 of the procedure also describes using the "Structural Integrity Procedure" if the sample material is in a single piece. This procedure is found in the Part B Structural Integrity Procedure of 40 CFR Part 261 Appendix II. This procedure may be applied if the sample material is:

a. A large monolithic block - blast slag is not considered to be monolithic blocks because it continuously degrades and breaks into smaller pieced or particles; or

b. It must be a fixated waste - nowhere in the handling of the blast slag is the waste material treated so as to be fixated.

The structural integrity procedure is not applicable for blast slag and may not be used. The sample material must be evaluated for its particulate size as stated above in Step 3.

The second common problem found in the EP toxicity test occurs in Step 4 of the extraction procedure. Step 4 requires that the "extractor be one which will allow sufficient agitation to the mixture to not only prevent stratification of the sample and extraction fluid but also ensure that sample surfaces are continuously brought into contact with well mixed extraction fluid." EPA has determined that the rotary extractor (tumblers) is the best type to use in testing slag from secondary lead smelters. The rotary extractor assures that the sample material will be mixed thoroughly with the extraction fluid by continuously tumbling the sample. This gives a good representative sample to detect total metals using the EP toxicity test. It seems most lead smelters use an extractor that contains a stirring rod or blade to mix the sample with the extraction fluid. Since un-dissolved metals will settle to the bottom of the extractor below the blade or stirring rod, all sample surfaces are not being continuously exposed to the extraction fluid. This will not adequately mix the sample nor provide a representative sample for total metals concentration. The rotary extractor must be used to ensure a representative sample.

EPA will require all samples taken from secondary lead smelter's blast slag (or other slag piles) to be ground, crushed, or cut into smaller particles and be able to pass through a 9.5 mm (0.375 inch) sieve. These samples should be representative of the average size of the slag chunks on the pile. Large pieces of slag should be broken into smaller pieces. Approximately one-third of the smaller pieces shall be crushed and passed through a sieve. Adequate sample volumes will then be collected from the sieve material. The representative sample will be agitated using a rotary extractor when conducting the EP toxicity tests. Please notify all facilities in your state of these testing requirements. All facilities not currently testing their slag in this manner will need to re-sample according to the procedure described above and in 40 CFR Part 261 Appendix II.

If you have any questions concerning this matter, please contact Karen McKinney, of my staff, at 404/ 347-7603.

Sincerely yours,

James H. Scarbrough, P.E.
Chief, RCRA Branch
Waste Management Division