

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS AND TESTING DIVISION

MATERIALS PROCEDURE

PROCEDURE FOR SAMPLING "SPENT MATERIAL" DURING REMOVAL
OR CLEANING OF EXISTING STEEL STRUCTURES PRIOR TO REPAINTING

1.0 PURPOSE

1.1 To provide a field sampling procedure for the collection and handling of samples taken from specific LOTs of spent material that have been contained in accordance with Materials Procedure 688.03.20 resulting from the cleaning of existing steel structures.

2.0 SCOPE

2.1 This procedure is applicable for all steel structures being cleaned and/or having existing paint removed and contained in accordance with Materials Procedure 688.03.20.

2.1.1 This procedure describes sampling techniques required prior to the disposal of "spent materials" resulting from paint removal and cleaning of existing steel structures.

2.1.2 This procedure describes a "Chain of Custody" to ensure the integrity of samples in the field, during shipment, storage, and finally to the laboratory for analysis.

2.1.3 The Occupational Health and Safety Act (OSHA) guidelines for field personnel who are involved in potentially hazardous waste sampling and handling are presented in this procedure.

3.0 APPLICABLE DOCUMENTS

- (a) Section 1.0 of USEPA SW 846: "Sampling of Solid Wastes".
- (b) Section 1.0-7 of USEPA SW 846: "Implementation of Sampling Plan".

- (c) Section 2.0 of USEPA SW 846: "Documentation of Chain of Custody".
- (d) Section 3.0 of USEPA SW 846: "Sampling Methodology".
- (e) Steel Structure Painting Guide (SSPC) X71X(DIS): "Guide for the Disposal of Lead-Contaminated Surface Preparation Debris".

4.0 TERMINOLOGY

- 4.1 Testing Laboratory - a laboratory that is selected by the contractor and approved by the West Virginia Division of Highways (WVDOH) in performance of Toxicity Characteristic Leachate Procedure (TCLP) on "spent materials" from steel structures.
- 4.1.2 Central Laboratory - the WVDOH laboratory that performs TCLP on spent material and documents intralaboratory precision between the testing and the central laboratory for quality control and quality assurance.
- 4.1.3 LOT - amount of spent material accumulated and contained over a period of time and representing the structure being cleaned.
- 4.1.4 Representative Samples - samples taken from a specific LOT of spent material.
- 4.1.5 Split Samples - portions of a sample taken from the same LOT.
- 4.1.6 Spent material - rust particles, paint particles, dust and/or debris resulting from the cleaning of steel structures that have been painted.
- 4.1.7 Field Sampler - any persons trained in environmental field sampling of solid waste and familiar with OSHA guidelines. The persons may work for the contractor or the testing laboratory.

- 4.1.8 Paint - paint that contains lead and may contain any of the following: Arsenic, Barium, Cadmium, Chromium, Mercury, Selenium, or Silver.
- 4.1.9 TCLP - is a method procedure designated under USEPA SW846 as Method 1311 and is used to test potentially hazardous solid waste.
- 5.0 SAMPLE PLAN
- 5.1 The sample plan must be developed prior to beginning work. The sampling plan should include: who will be responsible for the sampling, how often samples will be taken, how the samples will be obtained, and how many samples will be taken (Minimum of TEN. See 5.5).
- 5.1.1 A field sampler is defined in Section 4.1.7.
- 5.1.2 Representative samples of spent material shall be taken from the contained LOT by a random sampling technique. The size of the contained LOT and the amount of time in cleaning a steel structure will determine when samples are collected.
 - 5.1.2.1 Representative samples may be taken when the contained LOT (containers, trucks, or barrels) is completely filled of spent material.
 - 5.1.2.2 Representative samples from the contained LOT for shorter jobs, when the cleaning is completed in 30 days or less, can be taken at the end of the job and tested.
 - 5.1.2.3 Representative samples from the contained LOT for longer jobs should be sampled and tested after cleaning 25% to 50% of the steel structure. Samples are again taken at the completion of the job.
- 5.2 Representative samples shall be taken from a contained LOT no later than 60 days after accumulation. The maximum holding time for large quantity generators is 90 days by Federal Law under the Resource Conservation Recovery Act (RCRA).
- 5.3 The representative samples shall be obtained by use of a thief sampler (see Sampling Procedure 6.0).

- 5.4 The representative samples that are collected shall be sent to the testing laboratory and to the central laboratory.
- 5.5 The number of samples for a LOT of spent material SHALL BE TEN. The samples shall be documented on a Chain of Custody form (see Chain of Custody Section 7.0).
- 6.0 SAMPLING PROCEDURE
- 6.1 Ten samples from a contained LOT shall be collected using representative random sampling. To sample randomly, divide the contained LOT by any imaginary grid, and select random numbers from a random number table. Ten random numbered sampling areas shall be sampled and documented on a Chain of Custody form. This sampling technique can be found in USEPA SW 846 "Sampling Methodology" Section 3.0, Chapter 9.
- 6.2 The spent material shall be collected from the contained LOT using a thief sampler. A thief sampler consists of two slotted concentric tubes, usually made of stainless steel or brass. The outer tube has a conical pointed tip that permits the sampler to penetrate the spent material being sampled. The inner tube rotates to open and close the thief. (See Attachment I).
- 6.2.1 The thief shall be of such size as to sample no less than one hundred grams and no greater than five hundred grams.
- 6.3 Collect the sample by placing the thief sampler in the open position and inserting it vertically into the spent material until all but the top of the thief is submerged; then, turning the knob to close the thief sampler, pull upwards and remove. Invert the thief sampler and pour the spent material into a plastic lined cloth bag. Repeat this procedure until the bag contains five hundred grams. For a split sample, one thousand grams shall be collected.
- 6.3.1 Collect eight samples, each containing five hundred grams of spent material. Then collect two samples, each containing one thousand grams of "spent materials".

- 6.3.1.1 Each sample containing one thousand grams is divided into two equal portions of five hundred grams and placed into separate plastic lined cloth bags. The samples are now referred to as split samples.
- 6.4 A waterproof field sampling tag shall be firmly wired to the cloth bag and shall contain the following information, written in waterproof ink.
- 6.4.1 Name of project number and steel structure (bridge) number.
- 6.4.2 Name of field sampler.
- 6.4.3 Date and time sampled.
- 6.4.4 Sample number, LOT number, and if split sample.
- 6.4.5 Type of spent material sampled.
- 6.4.6 Analysis to be performed.
- 6.4.7 Observations and remarks.
- 6.4.8 Handling precautions for being potentially hazardous.
- 6.5 All samples shall be packaged in seal shipping containers and shipped to appropriate testing laboratory and central laboratory.
- 6.5.1 The contractor's WVDOH approved testing laboratory shall receive 10 samples, two of which shall be split samples.
- 6.5.2 The WVDOH central laboratory shall receive the remaining portions of the split samples. These samples shall be shipped to the following address:
- WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS AND TESTING DIVISION
190 DRY BRANCH ROAD
CHARLESTON, WEST VIRGINIA 25306
- 6.6 After sampling, the LOT containers shall be sealed so that no spent material can be added and then tagged or labeled with the following information:
- 6.6.1 LOT number.

6.6.2 Name of project number and steel structure (bridge) following information.

6.6.3 Name of field sampler.

6.6.4 Date and time sampled.

7.0 CHAIN OF CUSTODY

7.1 As few people as possible should handle samples.

7.2 The field sampler is personally responsible for the care and custody of the samples collected until they are properly transferred.

7.3 Identification tags should be firmly attached as described in Section 6.4.


7.4 When transferring samples, the field sampler, the shipper, and the receiver of the samples are to sign, date, note the time of transfer, and receive a copy of the Chain of Custody (See Attachment 2).

7.4.1 The Chain of Custody record accompanies each shipment to identify its contents. The original record is to accompany the shipment, and a copy is retained by the supervisor of the project.

8.0 FIELD SAMPLER SAFETY

8.1 The field sampler shall be familiar with OSHA guidelines and have experience in collecting, handling, and shipping of spent material.

8.2 The field sampler shall wear appropriate protective equipment. This shall include a protective mask that prevents inhalation of "spent materials"; safety glasses or goggles; hard hat; and gloves to prevent exposure of potentially hazardous waste.



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and Testing Division