STATEMENT OF BASIS

Bingham & Taylor
Culpeper, Virginia

EPA ID No. VAD 003 064 490

I. Introduction

This Statement of Basis is for the Bingham & Taylor Foundry facility, located in Culpeper, Virginia. Upon review of the results of the site inspections, site investigations, and remedial activities, the United States Environmental Protection Agency (EPA) believes that no further corrective action is necessary at the Bingham & Taylor facility at this time, and is proposing a final decision of Corrective Action Complete With Controls as defined in the EPA notice entitled *Final Guidance on Completion of Corrective Action at RCRA Facilities* (Federal Register, Vol. 68, No. 37 February 25, 2003). The purpose of this document is to solicit public comment on the proposal that no further corrective action is required at Bingham & Taylor at this time.

Bingham & Taylor is subject to the Corrective Action Program under the Resource Conservation and Recovery Act (RCRA). The Corrective Action program is designed to ensure that facilities have investigated and cleaned up any release(s) of hazardous waste or constituents that may have occurred at their property. Region III is using the administrative procedures found in 40 CFR Part 270 to solicit public comment prior to making its final corrective action decision for the Bingham & Taylor facility. For more information on RCRA Corrective Action, please visit the Region III web site at www.epa.gov/reg3wcmd/correctiveaction.htm

II. Facility Background

The Bingham & Taylor Foundry, a division of Virginia Industries, Inc., of Connecticut, is located in the Town of Culpeper, Virginia at the convergence of the Southern Railway, Nalle Place, Yancy Street, and Spencer Street (**Figure 1**). The facility layout consists of two large buildings housing offices and operations (**Figure 2**), several other outbuildings for storage, and a loading dock.

The foundry facility produces cast iron products from recycled scrap iron. Scrap iron loads are delivered to the facility by trucks. The loads are melted in the cupola. The molten iron is then transferred by ladles to various product molds in which the molten material hardens to produce the cast products (valve boxes, curb boxes, meter frames and lids, etc.). In the

final step in the process, the castings are immersed into a dip tank for finishing with an asphalt coating.

On July 17, 1998, US EPA Region III notified Bingham & Taylor that the facility was included in the EPA's list of 284 high priority, unaddressed, RCRA Treatment, Storage, and Disposal Facilities (TSDFs) in Region III. The list was generated by the National Corrective Action Priority System (NCAPS) model. An unaddressed facility means that there was no State or Federal cleanup program in place to require the investigation of areas of suspected contamination and, if necessary, the cleanup of these areas. After conducting a facility inspection in September 1998, and consulting with the Virginia Department of Environmental Quality (DEQ), EPA concluded that additional activities were required at the Bingham & Taylor facility.

III. Release History

The three primary waste products generated by the foundry process include cupola dust, cupola slag, and spent casting sand. Impurities in lower grade feedstock prevent the material loaded into the cupola from completely melting. This residual material ("slag") is removed from the cupola as waste after each batch. Casting sand, a silica and bentonite mixture, is used to form the molds into which the molten iron is poured. Cupola slag and casting sand are both non-hazardous wastes.

The dust emission from the cupola is considered hazardous under federal guidelines because of the leachable quantities of lead and cadmium. The residue was stabilized by mixing with clay, the non-hazardous slag, and spent casting sand. In the past, the mixture was utilized as fill material in some portions of the facility. After 1976, the dust was removed from cupola air emissions by a scrubber system. In 1983, the scrubber was replaced with a baghouse filter system. In 1986, the practice of disposing of the waste onsite was discontinued. Currently, the baghouse dust is re-formulated in a Totally Enclosed Treatment Facility that renders the waste material non-hazardous. Since 1986, the baghouse dust has been disposed of in a permitted hazardous waste landfill and the slag and spent casting sand is now disposed of in a permitted solid waste landfill.

A previous report, *Task III Phases 2, 3, & 4, Geologic, Hydrologic, and Waste Investigations* (Hatcher-Sayre, Inc., October 26, 1988) delineated two estimated areas of the property, which included most of the southern and northeastern portions of the facility property, where historical onsite disposal of waste material mixtures had taken place. Based largely on the results of this report, the *RCRA Site Inspection Report*, prepared for US EPA Region III by the US Army Corps of Engineers (USACE), dated July 21, 1999, designated those two portions of the facility with significant fill material as one suspected former Solid Waste Management Unit (SWMU).

IV. Summary of Investigation

Bingham & Taylor completed a Site Assessment on February 13, 2003 to investigate the potential environmental impacts of historical waste management.practices at the facility. Specifically, the investigation addressed potential effects of two former activities: (1) airborne emissions of potential contaminants from the facility's furnaces in the period before baghouse filters were installed and (2) onsite disposal of untreated cupola waste. Lastly, the project included analytical screening of groundwater to assess potential impacts on groundwater from these activities.

Field work for the onsite sampling took place during the period of October 28 –31, 2002. Personnel from US EPA were onsite during the first two days of the onsite sampling to inspect quality control/quality assurance practices during sampling. US EPA contractors were also onsite to collect split-samples at each location, except for groundwater, for quality assurance purposes.

To address these potential concerns, the project included a multi-media investigation, in which samples were collected from surface soils (up to one inch below the ground surface), subsurface soils (up to 15 feet below the ground surface), groundwater, and stream sediments (including offsite, downstream locations).

To investigate onsite surface soil for the presence of lead and cadmium on the facility grounds, eight irregularly shaped 0.5-acre grids ("subareas") were superimposed over a site map, so that four grids were within the SWMU and four were outside of the SWMU boundaries. The arrangement of the gridded subareas is shown in **Figure 3**. Sampling locations were selected randomly from nodes of each grid following guidelines for the EPA's Systematic Random Sampling technique. In all, 96 discreet soil samples were collected from the top inch of surface material using a stainless steel scoop. Three composite samples from each grid were analyzed for lead and cadmium. The analytical results were averaged to obtain a single mean concentration for each of the eight grids.

For subsurface soil sampling, areas of maximum likelihood of contamination were identified based on interviews with facility personnel regarding historical waste disposal practices. Subsections of the grid developed for surface soil sampling were superimposed on a map of the areas suggested by the historical information. The subsurface sampling grids and randomly selected sampling locations are shown in **Figure 4**. Soil borings were advanced by a direct-push method to depths up to 12 feet. Samples were collected from the resulting cores at two foot intervals. The samples from each core were composited and subsamples from these mixtures were analyzed for leachable and total lead and cadmium. US EPA contractors collected two discretionary grab samples from material in the cores that were suspected of being contaminated based on visual appearance.

Groundwater screening utilized four existing monitoring wells installed for a previous

investigation. Additionally, one new well (MW-1) was installed downgradient from the SWMU area for this project. The locations of the wells, and the estimated contours of groundwater level and estimated net flow direction beneath the facility are shown in **Figure 5**. The existing wells were rehabilitated and the new well developed by removing at least ten times the well volume from each well with a bailer. Water samples were collected from the wells using the EPA's recommended "Low-Flow" sampling technique that uses a submersible pneumatic pump. Filtered and unfiltered water samples were collected and analyzed from each well for lead and cadmium.
Stream sediment samples were collected from four locations along the unnamed tributary that runs across the southern portion of the property. One sample was located at the point where the stream enters the property from the west. The second location (SED-2) was across Yancy Street downstream of the facility. The third location was approximately 200 yards downstream from SED-2, and the fourth location was at the confluence with Mountain Run.

In conjunction with the onsite sampling, US EPA contractors collected 408 discreet surface soil samples, comprising 102 composite samples, during the period November 12 – 14, 2002, using a Systematic Random Sampling procedure. Sampling areas were located within 0.25 to 0.33 miles from the facility boundaries. The methods and results of the offsite sampling are discussed in detail in the report titled, *Final Soil Sampling Report, Off-Site Surface Soil Sampling, Bingham & Taylor Facility, Culpeper, Virginia* (United States Army Corps of Engineers, Norfolk, VA, and ICOR, Ltd., Woodbridge VA, April 8, 2003). Surface soil samples were collected from seven (7) properties up to 15 acres in size, selected by the US EPA Region III and USACE based on their estimation of the historical operations of the facility, prevailing wind direction, and accessibility.

Once collected and processed, the samples were analyzed at a qualified analytical laboratory for Total Recoverable lead and cadmium. As noted above, the subsurface soil composite samples were also analyzed for leachable lead and cadmium using the Toxicity Characteristic Leachate Procedure (TCLP).

V. Sampling Criteria

The results of the lead analysis of all soil and sediment samples (onsite and offsite) were compared to EPA's recommended Residential Soil Screening Level (SSL) for lead of 400 mg/kg (ppm). Region III Risk-Based Concentration for cadmium in water of 39 mg/kg (ppm) was used for total cadmium in surface soils. The TCLP lead action level was established as 5 mg/L for this project as the federal definition of hazardous waste. The TCLP cadmium action level was 8 mg/kg, the default cadmium SSL for migration to groundwater.

Screening levels for lead or cadmium concentrations in groundwater were based on EPA

Region III Risk Based Concentrations (RBCs) for cadmium (18 µg/l) and the EPA action level for lead, 15 µg/l, as defined in Drinking Water Regulations and Health Advisories (EPA, Office of Water, June 2003).

Checks of field and laboratory logs indicated that the sampling, sample management, and data management quality assurance data met the qualitative and quantitative data quality objectives established for this project. The data for this investigation were obtained and managed in such a manner such that comparison of assessment data to quantitative criteria was meaningful and reasonable; therefore, conclusions and/or recommendations of the site assessment were based on reproducible, defensible, high-quality data.

VI. Sampling Results

In all, 96 discreet on-site soil samples were collected comprising 24 composite samples. Cadmium levels in all the samples were below health-based limits established for this project (indicated above). Five of the samples exceeded the 400 ppm residential action levels for lead with values of 402, 481, 674, 835 and 903 ppm. Two of the samples exceeded the CERCLA clean-up level for lead of 1000 ppm with values of 1320 and 1370 ppm.

Off-site surface soil samples consisted of 408 discreet samples comprising of 102 composite samples. Again, cadmium levels in all the samples were below the health-based limits. Two of the samples exceeded the 400 ppm residential action level for lead with values of 491 and 8660 ppm. It was determined that these two samples were not caused by activities associated with Bingham & Taylor, but were related to fill material in the area.

On-site sub-surface soil samples consisted of five discreet and five composite samples. Cadmium levels in all the samples were again below health-based limits established for this project. Of these ten samples one exceeded the 400 ppm residential action level for lead with a value of 865 ppm and one exceeded the CERCLA clean-up level for lead of 1000 ppm with a value of 1410 ppm.

Sediment samples for cadmium and lead consisted of four discreet samples. None of these samples exceeded the 39 ppm water screening level for cadmium and the 400 ppm residential action level for lead.

Based on the above data, on September 2003, EPA Region III determined that the Environmental Indicator (EI) for Human Health was met at the Bingham & Taylor facility and in February 2004 the Groundwater EI was met.

VII. Corrective Measures

In the fall of 2003 Bingham & Taylor implemented the corrective measures

recommended in their Site Assessment Report. The corrective measures were to cap any areas on-site that yielded lead samples that were greater than the 400 ppm residential action level (**Figure 6)**. A 30,000 square foot bituminous asphalt cap was installed. The asphalt cap first consisted of a two to three-inch layer of stone which was rolled and graded. Then a two-inch layer of asphalt was applied on top of the stone. Lastly, another two-inch layer of asphalt was applied over the initial layer. This process resulted in a two-layer, four inch cap of asphalt over the impacted areas.

A layer of wood chips was also applied to the tree lined area along the northwest facility boundary, designated as Subarea 4 in the Site Assessment Report. This area is also indicated in **Figure 6**.

VIII. Public Participation

EPA is requesting comments from the public on its decision of Corrective Action Complete with Controls. The public comment period will last forty-five (45) calendar days from the date this matter is publicly noticed in a local newspaper. Comments should be sent to EPA in writing at the EPA address listed below, and all comments will receive a copy of the final decision and a copy of the response to comments.

The Administrative Record contains all information considered by EPA when making this proposal. The Administrative Record is available at the following locations:

U.S. Environmental Protection Agency – Region III
1650 Arch Street - 3WC23
Philadelphia, PA 19103-2029
Contact: Mr. Denis Zielinski
Telephone: (215) 814-3431

ENSAT Corporation
301 East Culpeper Street
Culpeper, VA 22701
Phone: (540) 825-9083
Hours: Monday – Friday, 8:00 AM – 5:00 PM
Telephone: (540) 825-9083

Following the forty-five (45) calendar-day public comment period, EPA will prepare a final decision which will address all written comments presented during the period. This final decision will be incorporated into the Administrative Record. If the comments are such that significant changes are made to this proposal, EPA will seek public comment on the revised proposal.