

STATEMENT OF BASIS

University of Virginia
Charlottesville, Virginia

EPA ID No. VAD 000820712

I. Introduction

This Statement of Basis is for the University of Virginia (UVA), located in Charlottesville, Virginia. After reviewing the results of recent site inspections, past environmental practices, historical investigations and remedial activities, the United States Environmental Protection Agency (EPA) believes that no further corrective action is necessary at UVA at this time, and is proposing a final decision of Corrective Action Complete Without Controls. This proposal is consistent with current EPA guidance entitled *Final Guidance on Completion of Corrective Action at RCRA Facilities* (February 25, 2003). The purpose of this document is to solicit public comment on the proposal that no further corrective action is required at the university at this time.

The UVA facility is subject to the Corrective Action Program under the Resource Conservation and Recovery Act (RCRA). (For more information on RCRA Corrective Action, please visit the Region III web site at www.epa.gov/reg3wcmd/correctiveaction.htm). The Corrective Action program is designed to ensure that facilities have investigated and cleaned up any releases 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 UVA facility.

II. Facility Background

The University of Virginia founded in 1819 by Thomas Jefferson, is a state-supported institution that supports research and scholarship in many fields. Its areas of strength include research in the humanities and programs in the biomedical, physical, and engineering sciences. UVA is located in Charlottesville, Virginia in the county of Albemarle.

UVA, as a participant in the EPA Corrective Action Program conducted a Source Characterization Investigation to investigate the potential environmental impacts of two former waste disposal areas located on Mount Jefferson, more locally known as Observatory Hill. One disposal area is a former debris disposal area which was designated by the Virginia Department of Health in 1981 as a rubble/debris landfill and identified as Solid Waste Management Unit 16 (SWMU 16). The second disposal area, located adjacent to SWMU 16, is a one acre parcel where UVA reportedly buried a small quantity of hospital generated waste in the 1970's. This area is referred to as the Hillside Disposal Area.

In the summer of 1999, EPA identified UVA as a high priority unaddressed facility on its Government Performance and Results Act (GPRA) baseline. (For more information on the Government Performance and Results Act, please visit the Region III web site at www.epa.gov/reg3wcmd/correctiveaction.htm). An unaddressed facility means that there was no State or Federal cleanup program in place to drive the investigation of areas of suspected contamination and, if necessary, the cleanup of these areas. After conducting a facility inspection in September 1999 and consulting with the Virginia Department of Environmental Quality (VDEQ), EPA concluded that additional investigation activities were required at SWMU 16 and at the adjacent one acre parcel known as the Hillside Disposal Area.

III. Release History and Follow-up Activities

SWMU 16 is not currently used as a landfill, however, UVA previously used the area for landscaping brush and debris disposal beginning possibly prior to 1937. This is based on historical photographs from the US Department of Agriculture that show land disturbance in this area beginning with the first available photograph dated 1937. Waste disposal activities were terminated in the early to mid-1980s, in accordance with Federal and State waste disposal regulations. Currently, UVA utilizes the surface of SWMU 16 as an in-house yard waste composting facility, exempt from yard waste composting regulations, as defined in 9 Virginia Administrative Code (VAC) 20-101-60, *General Exemption to the Vegetative Waste Management and Yard Waste Composting Regulations*.

Interviews with current and former UVA staff, and examination of SWMU 16, indicated that significant portion of the debris that was disposed of at the site was building debris related to construction, renovation and demolition projects throughout the University. Peaks in this activity occurred during the early 1950s when the old hospital was replaced by the current multistory building, during the early and mid-1960's when dorms were constructed and renovated, and during mid to late 1960's when a fire at the Chemistry Building required disposal of a large quantity of fire related building debris. As a result of the normal building practices of the day, the demolition material may have contained both asbestos-containing materials and lead based paint coated materials. In the early 1980s, in accordance with the recently promulgated solid and hazardous waste disposal regulations, disposal activities at SWMU 16 ceased. The university was however, allowed to continue using the site to temporarily store leaves collected from throughout the grounds for later redistribution and to store other bulky landscape debris prior to use or transfer to the Rivanna Solid Waste Management Authority Ivy Landfill. To provide cover for the landfill, large quantities of soil were brought to the site from excavations, construction, and grading projects around the campus. The most recent addition of a large volume of soil occurred in 1990 when the adjacent water tank was constructed.

UVA reportedly use the Hillside Waste Disposal Area, to bury waste that the UVA Hospital generated. UVA has maintained an incineration program since the early 1970s for materials that would now be designated as regulated medical waste. These reported disposal activities preceded this period and/or were short periods of time when the incinerator was not functional.

The material in this area was reportedly buried in backhoe-excavated trenches and pits. These trenches were situated to the south of the present water tank and were up to 20 feet long and 12 feet deep. The buried material was reportedly delivered as single truckloads of drums and plastic bags. No information could be obtained regarding the contents of either the bags or the drums. In August of 1999, UVA conducted a geophysical survey in the suspected disposal area. No large, buried metallic objects were identified, suggesting that steel drums were not deposited here.

IV. Summary of Investigation

During September 2000, UVA conducted a Source Characterization Investigation of SWMU 16 and the Hillside Disposal Area. The goals of the investigation were to determine the nature of the materials disposed of at the two former waste disposal areas, determine the nature and extent of any contaminants and assess the potential risks associated with those contaminants to human health and the environment. The investigation consisted of field activities to obtain representative samples from soil, surface water, sediments and groundwater from areas with the highest potential for environmental contamination. To accomplish this, test pits and trenches were excavated within the disposal areas, and groundwater monitoring wells were installed both upgradient and downgradient from the disposal areas.

At SWMU 16 three trenches were excavated, evaluated, and sampled, (see Figure 3-1). Landfill materials encountered during all excavation activities were representative of a typical rubble, stump, and construction debris landfill. A total of seven soil samples were collected from the three trenches.

To investigate the Hillside Disposal Area a total of 12 test pits were excavated and evaluated and seven pits were sampled, (see Figure 3-5). In addition, six samples were collected from four soil borings during the drilling of monitoring wells, and these results were evaluated in association with the soil samples from the Hillside Disposal Area test pits. All together a total of 14 samples were collected from the trenches and soil borings. Hospital/medical and laboratory-related materials were identified in three of the 12 test pits, confirming historical information regarding disposal activities at the Hillside Disposal Area. These materials were discovered in an area east of the originally suspected disposal area boundaries.

Six groundwater monitoring wells were installed and sampled during the investigation of the two former disposal areas. Groundwater samples from the six monitoring wells were collected in three separate sampling rounds. During Round 1 of the groundwater sampling, one surface water and two stream sediment samples (one for background) were also collected. UVA collected additional surface water samples during Rounds 2 and 3.

Once collected and processed, the samples were analyzed at a qualified analytical laboratory for a complete list of chemicals based on historical information about the former disposal areas and compounds typically identified by EPA as having a potentially hazardous effect on human health and the environment. This list included Target Compound List (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds, (SVOCs), TCL pesticides, TCL polychlorinated biphenyls (PCBs), TAL metals/mercury, cyanide and formaldehyde.

V. Sample Results

The analytical results of the samples collected during the investigation were compared to EPA's screening values for identification of contaminants of potential concern. Contaminants of potential concern are defined as analytes that either exceed the screening levels established for the facility, or have non-risk related attributes that necessitate their inclusion in a human health risk assessment.

Analytical results for soils were compared to USEPA Region III residential soil Risk Based Concentrations (RBCs), including soil to groundwater migration, soil screening levels for residential inhalation as calculated by VDEQ and, USEPA Region IX Preliminary Remediation Goals. Low levels of several metals (aluminum, arsenic, barium chromium, iron, lead, manganese, selenium, silver, thallium and vanadium), one Aroclor, and six polynuclear aromatic hydrocarbons were identified at the facility as constituents of potential concern for the soils.

Groundwater results were compared to USEPA Region III tap water RBCs and Federally promulgated maximum contaminant levels. Very low concentrations of several metals, bis(2-chloroethyl)ether, bis(2-ethylhexyl)phthalate, carbon tetrachloride, and chloroform were above the tap water RBCs. Sample results for surface water and sediments were all below screening levels.

VI. Risk Analysis

Since some soils and groundwater results exceeded EPA's screening criteria, EPA requested UVA to complete a human health risk assessment evaluation for the most likely exposure pathways and scenarios based on current and expected future use. The results of UVA's risk assessment indicate that adverse health effects are not expected to occur in populations exposed to maximum concentrations of contaminants of potential concern at the site, with the exception of future residential groundwater use.

Adverse health effects, assuming a future residential scenario, resulted primarily from the ingestion pathway for several metals; however, the maximum concentrations for all of these metals in groundwater were from monitoring well MW-3 in the third round of sampling. During this sampling, the well contained only small amounts of water with high suspended solids. Not enough water could be collected from the well to allow for filtration so no further analysis of the effects of the suspended solids on the concentrations in the sample could be made. Filtered samples, as well as unfiltered, were collected from all other monitoring wells during round 3.

EPA believes the elevated concentrations in the groundwater sample collected from MW-3 in the third round are the result of high suspended solids concentrations. The suspended solids are likely a result of an incomplete purging of the well due to low volume and slow recharge in that monitoring well. Therefore, EPA views the result of this well as unrepresentative of groundwater quality in the immediate vicinity of the disposal area. Results from other wells where filtered samples were collected indicated that particulates are the source for most metals.

An Ecological Risk Assessment was conducted to identify and characterize existing and potential future risks to ecological receptors that could result from exposure to contaminants of potential concern at the site. No stressed vegetation or other signs of adverse effects were observed at the site. No significant rare, threatened, or endangered

species, communities, or sensitive habitats were identified at or adjacent to the former disposal areas. This portion of the facility is surrounded by highways or intensive development and does not currently support unique areas of wildlife habitat, nor is this likely to change in the future. In summary, the ecological risk assessment does indicate a small potential risk for certain ecological receptors based on evaluation against very conservative criteria. However, due to the relatively small areas affected, adverse effects, if any, would be very localized and affect only species with a limited home range.

After reviewing the analytical results of the samples collected during the investigation and the human health and ecological risk assessment evaluations, EPA concludes that the local groundwater and surrounding area has not been impacted above levels of concern by the former disposal practices of SWMU 16 or the Hillside Disposal Area and that Corrective Action at SWMU 16 and the Hillside Disposal Area is complete and no further activity or controls are necessary to protect human health and the environment. (For more detailed information, please see the October 2001 *Final Report for the Source Characterization Investigation of Two Former Waste Disposal Sites at Observatory Hill, University of Virginia*, located in the Administrative Record.)

VII. Public Participation

EPA is requesting comments from the public on its tentative decision of Corrective Action Complete without Controls. The public comment period will last forty-five (45) calendar days from the date that this matter is publicly noticed in a local newspaper (December 10, 2003 to January 26, 2004). Comments should be sent to EPA in writing at the EPA address listed below, and all commentors will receive a copy of the final decision and a copy of the response to comments.

A public meeting will be held upon request. Requests for a public meeting should be directed to Mr. Russell Fish of the EPA Regional Office at the address below or at (215) 814-3226.

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. Russell Fish
Voice: (215) 814-3226
Fax: (215) 814-3113
Hours: Monday - Friday, 8:00 A.M - 5:00 P.M.
E-mail: fish.russell@epa.gov

University of Virginia
Science and Engineering Library

Clark Hall, 291 McCormick Road
Charlottesville, VA 22903
Phone: (434) 924-3628
Hours: Monday - Thursday, 10:00 A.M. - 9:00 P.M.
Friday - Saturday, 10:00 A.M. - 5:30 P.M.

Following the forty-five (45) calendar day public comment period, EPA will prepare a final decision which will address all written comments and any substantive comments presented verbally at a public meeting. 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 comments on the revised proposal.