

**CLOSURE REPORT FOR  
DEMOLITION AND DISPOSAL OF  
THE ANIMAL WASTE  
INCINERATOR AT THE BINGHAM  
FACILITY**

**The University of North Carolina at Chapel Hill  
Bingham Facility  
Chapel Hill, North Carolina  
Facility ID # 05/68/00049  
Air Permit # 03036R12**

*Prepared For:*  
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**June 2010**

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**The University of North Carolina at Chapel Hill**

**Bingham Facility**

Chapel Hill, North Carolina

*Orange County*

Facility ID # 05/68/00049

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**Closure Report**

**Incinerator Decommissioning and Disposal**

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## 1.0 Introduction

The University of North Carolina at Chapel Hill's (University) Bingham Facility (Bingham) is located at 1907 Orange Chapel Clover Garden Road, Chapel Hill, North Carolina. The facility has operated a 400-lb/hr incinerator for incineration of research animal carcasses for several years that has been permitted as emission source ES-I-1. The incinerator is a Consumat LPG-fired dual chamber unit with a 0.8 MMBtu/hr primary chamber LPG firing rate and a 2.5 MMBtu/hr secondary chamber LPG firing rate. The incinerator is rated at 400 lbs/hr of Types 0, 1, 2, 3, and 4 wastes. During the first several years of initial operation, the unit was used to burn animal carcasses, animal bedding, and miscellaneous wastes (paper and refuse) generated at the Bingham Facility. However, in October 2000, the air permit for the facility was revised to restrict the waste burned to only animal carcasses and animal bedding. This restriction was taken to avoid regulation as a hospital, medical, infectious waste incinerator. At no time in its operating life has the incinerator been used for the combustion of chemical wastes, radiological wastes, or any other hazardous waste.

In April 2010, the University disabled the incinerator and submitted a request to the N.C. Division of Air Quality that the unit be removed from the air permit. Subsequent to removing the unit from the permit, the University's Department of Environment, Health, and Safety (EHS) initiated planning for decommissioning and removal of the incinerator from the Bingham Facility. In April 2010, at the EHS's request, RST Engineering, PLLC (RST) prepared a decommissioning plan for removal of the incinerator. EHS subsequently contracted with Clean Harbors Environmental Services, Inc. for removal and disposal of the incinerator. RST was requested to provide a Professional Engineer for onsite observation of the demolition activities and removal of the incinerator. The Professional Engineer was requested to prepare a certified Closure Report documenting the activities performed and the actions taken to insure protection of the environment during the incinerator demolition and removal. This document presents the requested Closure Report and Professional Engineer certification.

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## 2.0 Certification

By my seal below I attest to the following:

- a. I am familiar with environmental regulations, and equipment demolition practices and procedures implemented to prevent contamination of the environment.
- b. I was onsite during the entire period of demolition of the incinerator on June 24, 2010, and visually observed all demolition and equipment removal activities conducted on that date.
- c. All incinerator demolition and equipment removal activities were conducted in accordance with accepted practices and procedures, and the University's established policies, to protect the environment as outlined in this report.

Engineer: Stacy G. Smith

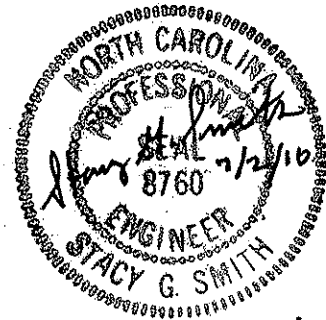
Signature: *Stacy G. Smith*

State: North Carolina

License No: 8760

Date: July 2, 2010

Engineer's Seal:



*RST Engineering, PLLC*

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### **3.0 Project Organization and Team Members**

EHS is the University's designated responsible department for coordination of demolition and removal of the incinerator, including its normal environmental, health, and safety responsibilities. Ms. Mary Beth Koza is the Director of Environment, Health, and Safety, phone # (919) 843-5913. Mr. Michael Long, CHMM was designated as the EHS project manager for the incinerator demolition and removal project, phone # (919) 962-5723.

The demolition and disposal contractor contracted by EHS for the project was Clean Harbors Environmental Services, Inc. The Clean Harbors' personnel providing onsite contractor management of the demolition and removal activities were Mr. Donny Loiselle and Mr. Randy Melick of Clean Harbors' Reidsville, N.C. office. Mr. Loiselle served as the contractor project manager.

Physical demolition of the incinerator, including the operation of all cutting torches, lifting cranes, and other equipment was provided by Tilton's Crane Services, Raleigh, N.C. under the supervision of the Clean Harbors' project manager (Mr. Loiselle). Tilton's Crane Services' personnel that performed the demolition were Charles Tilton, Richard Baker, and Craig Shapcott.

S.G."Butch" Smith, P.E. of RST Engineering, PLLC observed the demolition and prepared this Closure Report.

### **4.0 Preliminary Inspection**

Prior to demolition, the incinerator was inspected by qualified University EHS personnel under the direction of Mr. Michael Long to identify any components of concern with respect to hazardous material handling and disposal. The unit was inspected for the presence of any residual ash in the primary waste combustion chamber. Approximately 50 gallons of residual ash was found in the primary combustion chamber. During routine operation, ash removed from the incinerator was disposed of as a nonhazardous waste at the local landfill. However, for this demolition project, a sample of the residual ash was obtained and sent to a laboratory for testing in accordance with EPA's TCLP for hazardous materials identification. This testing confirmed that the residual ash was not a hazardous waste. The residual ash was removed from the incinerator on June 22, 2010 and disposed by the EHS personnel, prior to the demolition of the incinerator.

Since the incinerator is a heated combustion device, it was inspected by EHS for the presence of any asbestos containing insulating materials. The only possible material identified that could potentially contain asbestos was the primary combustion chamber refractory lining. Samples were taken of the primary combustion chamber refractory and sent to a laboratory for analysis for the presence of asbestos. The analytical results confirmed the absence of any asbestos in the refractory material.

The EHS personnel also inspected the incinerator for the presence of any mercury-containing equipment such as thermostats or switches. Two mercury-containing switches

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were identified. The two switches were removed and disposed by EHS in compliance with the University's mercury-equipment disposal procedures.

The incinerator was also inspected by EHS for the presence of any contained liquids, including any lubricating oils or cooling oils. During the inspection, EHS personnel found and removed approximately 10 gallons of oil from the incinerator. Samples of the oil were sent to a laboratory for analysis for the presence of PCBs. The laboratory analysis indicated no PCBs. The oil was identified to be hydraulic oil. The oil was disposed by EHS in compliance with the University's waste oil disposal procedures.

## **5.0 Incinerator Demolition**

Demolition and removal of the incinerator from the Bingham Facility was performed on June 24, 2010. Prior to demolition, electrical power and propane supply to the unit was disconnected. Under the oversight of Mr. Loiselle of Clean Harbors and Mr. Long of EHS, the Tiltons' personnel disassembled the incinerator. Most disassembly was accomplished by using acetylene torches to cut bolts and other connections. The incinerator was disassembled into three large component sections and 3-4 other small sections of piping and equipment components. The three large component sections were primarily composed of the primary combustion chamber vessel, the secondary combustion chamber vessel, and the charge ram assembly. Each large component section of the incinerator was connected by steel cable chokers and shackles to a large telescoping-boom crane prior to torch cutting of the connecting bolts and flange connections. Connection with the crane was a safety precaution to prevent the disassembled component from falling when the component connections were cut. The component sections removed were initially lifted by the crane and set on the adjacent ground surface. All disassembled components were later loaded into a large multi-wheeled tandem tractor/trailer bed for offsite transport and disposal. During demolition, the following precautions were taken to prevent exposure of any contaminating materials to the environment.

### Spill Prevention

As noted above, hydraulic oil identified during the preliminary inspection was drained from the unit and disposed by EHS personnel prior to the demolition. During the demolition, 5-gallon buckets were placed under all disconnected hydraulic components and piping to collect small drips of residual hydraulic oil from the disassembled components. Care was taken to avoid any spills of the oil. Based on observation, all residual oil drips had ceased before the disassembled equipment components were removed from the concrete pad. All dripping oil was captured in the drip buckets. No oil was discharged onto the concrete pad base or adjacent ground surfaces during the demolition. Collected dripping hydraulic oil is estimated to have totaled less than 1 quart. The collected oil was removed by Mr. Long of EHS for disposal in compliance with the University's waste oil disposal procedures.

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All disassembled equipment surfaces were observed to be clean and free of any surface oil, grease, or other contaminants prior to removal from the awning-covered concrete base-pad. There was no precipitation during the demolition activities prior to transport of the disassembled equipment from the Bingham Facility.

### Dust Containment

The decommissioning plan for the incinerator recommended that the demolition be either (1) conducted under containment to avoid the release of any possible incinerator ash or other contaminated dust generated during demolition, or (2) be conducted with other appropriate dust capture and control devices. These included vacuum capture and filtration systems with dust pickup at the points of dust generation during demolition activities. It was recommended that any vacuum/filtration systems use HEPA filters or equivalent high efficiency filtration systems. However, as noted earlier, all residual ash (approximately 50 gallons) remaining in the primary combustion chamber were removed by EHS personnel on June 22, 2010 prior to demolition activities on June 24, 2010. No loose dust materials were observed on any equipment component surfaces during the demolition. Additionally, the primary and secondary combustion chambers were removed from the incinerator as separate intact components. The enclosure integrity of the two combustion chambers was maintained during disassembly and loading for offsite transport. Because of these factors, no enclosure or vacuum dust collection equipment were deemed to be warranted during the demolition. This conclusion was confirmed by the absence of any visible dust emissions during observation of the demolition activities.

### Onsite Handling of Disassembled Equipment

The decommissioning plan for the incinerator recommended that all equipment components removed during incinerator demolition that would be temporarily stored onsite prior to disposal be inspected for surface contamination including ash, greases, or oils. If any surface contamination was identified, the surfaces were to be decontaminated by wet wiping and HEPA vacuum/filtration of any dusts. The volume of wastewater generated during any decontamination processes were to be minimized to the extent possible with the wastewater contained for disposal as directed by EHS. All removed components were to be protected from potential exposure to precipitation that could contaminate storm water runoff. However, as noted above, all disassembled equipment surfaces were inspected during demolition and observed to be clean and free of any surface oil, grease, or other contaminants prior to removal from the awning-covered concrete base-pad. Therefore, no cleaning and decontamination of the disassembled equipment surfaces were deemed to be warranted during the demolition. All incinerator components were immediately loaded into a tandem tractor/trailer bed for offsite transport and disposal at the end of the demolition activities on June 24, 2010. The truck transporting the equipment components offsite left the Bingham Facility immediately after loading of the disassembled components. As noted earlier, there was no precipitation during demolition activities on June 24, 2010 and no covering of removed components was necessary to prevent storm water exposure.

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## Soil and Groundwater Contamination

As noted in the decommissioning plan, the incinerator was located on a concrete pad, burned solid wastes, and was fired with LPG. At atmospheric pressure, LPG (propane) is a gas and any releases (spills) would immediately vaporize and would not pose any threat of soil or groundwater contamination. Potential soil and groundwater contamination from the incinerator was not deemed to be a concern and no soil or groundwater testing in proximity to the incinerator was recommended in the decommissioning plan. As noted in this closure report, no oils, greases, chemicals or any other contaminants were discharged onto the concrete base-pad or surrounding soil surfaces during the observed demolition activities. Therefore, no soil or groundwater contamination is believed to have occurred during the incinerator demolition and removal activities.

### **6.0 Incinerator Equipment Disposal**

The incinerator components removed were inspected by EHS prior to demolition. All residual ash, hydraulic oil, and mercury-switches identified were removed prior to demolition. Materials testing confirmed the absence of any asbestos insulating materials or PCB-containing oils. The equipment components to be removed from the facility were determined by EHS to contain no residual hazardous constituents and could be disposed as recyclable scrap metal. Clean Harbors was authorized by EHS to ship the disassembled incinerator components to a licensed metal recycler. After completion of demolition activities, the disassembled components were loaded into the tandem trailer bed of a truck with the following identification:

Foss Recycling  
866-534-5865  
US DOT 538227

The certifying engineer was informed that the removed incinerator components were to be transported to the D.H. Griffin Scrap Yard for scrap metal recovery and recycling.

### **7.0 Conclusion**

Given the relatively small size of the incinerator and past prohibitions on chemical, hazardous, and radioactive waste combustion in the unit, decommissioning and demolition was not expected to generate any significant environmental impacts or threats to the surrounding area. Field observation of demolition activities by the certifying Professional Engineer did not identify any spills or releases of any contaminants that would be expected to pose a threat to the environment. It is believed that demolition and disposal of the Bingham Facility incinerator was conducted in accordance with the guidance of the decommissioning plan and all established University procedures and protocols for environmental protection, and was performed with no adverse environmental impacts.