



## Workplan for Excavation and Removal of Underground Utility Piping

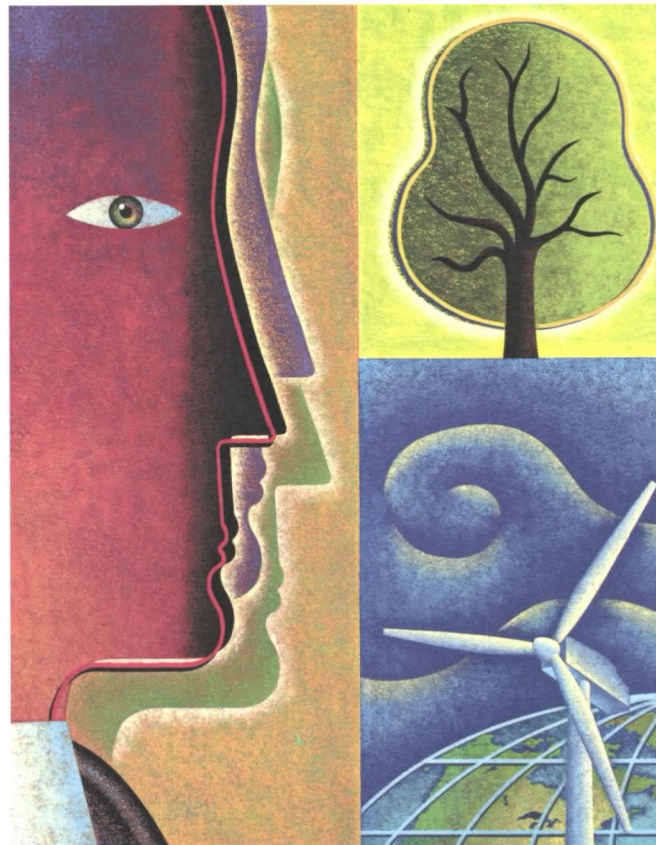
Former WestPoint Home, Inc. Facility  
Clemson, South Carolina

July 2009

RECEIVED

JUL 30 2009

SITE ASSESSMENT,  
REMEDICATION &  
REVITALIZATION



WEST POINT  
HOME

*Goldie*  
**RECEIVED**

July 29, 2009

JUL 30 2009

Mr. Tom Knight, P.G.  
South Carolina Department of Health and Environmental Control  
2600 Bull Street  
Columbia, SC 29201

SITE ASSESSMENT,  
REMED:ATION &  
REVITALIZATION

Subject: Workplan for Excavation and Removal of Utility Piping;  
Former West Point Home (WPH) Facility, Clemson, South Carolina.

Dear Tom:

As a courtesy to the South Carolina Department of Health and Environmental Control (SC DHEC) and other site stakeholders, I have enclosed two copies of a work plan prepared by RMT, Inc. (RMT) that describes excavation and removal activities that are planned for the former WPH facility in Clemson, South Carolina. Site demolition activities were previously conducted for the new owner by D.H. Griffin Company, during which time they removed the various building structures and foundations that were present at this facility. Since the underground utility piping from many of these former manufacturing buildings still remains in place, it is our objective to exhume the subsurface utility lines that historic facility drawings indicate are present within the footprint of the observed VOC groundwater plumes. This action will allow us to better assess the condition of the vadose-zone soils of these areas and determine if additional remedial response measures are appropriate.

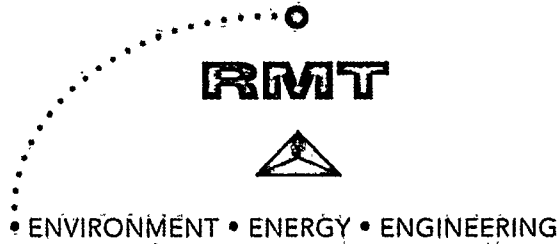
We anticipate beginning this fieldwork on or about August 10, 2009. The enclosed work plan contains more specific details about project details and scope. As always, I will continue to keep the Department fully apprised and aware of our progress. If you should have any questions or concerns, please feel free to contact me at (706) 645-4515.

Sincerely,



Eddie Lanier  
Director - Environmental Department

cc: Scott Puffer - Tom Winkopp Realtor/Developer, LLC  
Will Huss, Jr. - Trehel Construction Co.  
Bob Mussro - Goldie & Associates



# Workplan for Excavation and Removal of Underground Utility Piping

Former WestPoint Home, Inc. Facility

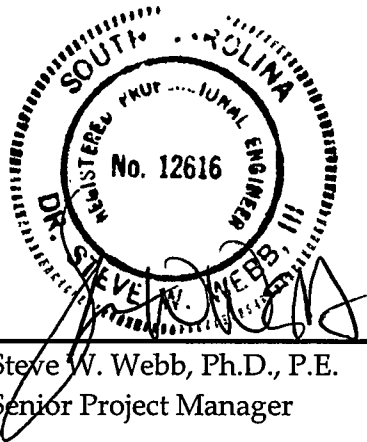
*Clemson, South Carolina*

**July 2009**


**RECEIVED**

JUL 30 2009

SITE ASSESSMENT,  
REMEDICATION &  
REVITALIZATION



Steve W. Webb, Ph.D., P.E.  
Senior Project Manager



---

Greg S. Mitchell, P.E.  
Project Engineer

RMT, Inc. | WestPoint Home, Inc.  
Workplan for Excavation and Removal  
of Underground Utility Piping

© 2009 RMT, Inc.  
All Rights Reserved

I:\WPGVL\PJT\00-70583\96\R007058396-001.DOC

# Table of Contents

---

1.	Introduction.....	1-1
1.1	Background.....	1-1
1.2	Site Conditions.....	1-2
2.	Scope of Work.....	2-1
2.1	Site Preparation.....	2-1
2.2	Piping Excavation and Removal.....	2-1
2.3	Soil Testing and Characterization.....	2-1
2.4	Trench Backfill.....	2-2
3.	Project Schedule.....	3-1
4.	Construction Quality Assurance Plan.....	4-1
4.1	Introduction.....	4-1
4.2	Key Positions, Responsibility, and Authority.....	4-1
4.3	Reporting.....	4-2
4.4	Construction Reporting.....	4-4
4.4.1	Construction Reporting Contacts.....	4-4
4.4.2	Routine Documentation Reports.....	4-5
4.4.3	Construction Documentation Report.....	4-5

## List of Figures

Figure 1-1	Pipeline Location Map.....	1-3
------------	----------------------------	-----

# Section 1

## Introduction

---

### 1.1 Background

Previous environmental investigations at WestPoint Home, Inc.'s (WPH's) facility in Clemson, South Carolina have revealed the presence of two discrete groundwater contamination plumes, each comprised primarily of the volatile organic compound (VOC) tetrachloroethene (PCE). These groundwater plumes appear to originate from different source areas beneath the original J.P. Stevens Company manufacturing complex and migrate in a southeastwardly direction towards Lake Hartwell. The larger plume (outlined in green on Figure 1-1, is referred to as the "upgradient" plume and exhibits PCE concentrations generally less than 4 mg/L. This plume appears to originate near the southern end of a manufacturing building that was constructed in 1959. The second plume (outlined in red on Figure 1-1) is referred to as the "downgradient" plume and is considerably smaller in areal extent. The concentrations of PCE observed in this plume are typically greater than have been observed in the "upgradient" plume.

Historical drawings of the WPH site depict the facility at various stages of expansion and reveal the presence of a network of underground utility piping that is present across several suspected VOC source areas identified within the upgradient and downgradient groundwater plumes. Prior field work has suggested that some of this piping may represent a possible source area for the VOCs identified in these plumes. During the period of February 4 through February 6, 2009, nine exploratory trenches were installed to assess the condition and location of this underground piping and to evaluate if the underlying soils contained VOCs at levels that could represent a possible source. In several of the exploratory trenches, RMT, Inc. (RMT) encountered VOCs in the underlying soils at depths that corresponded to the observed depths of this underground utility piping. VOC-bearing sludge was found in a section of the piping that was exposed within exploratory trench #9, further corroborating the underground piping as a possible source of VOCs in the upgradient and downgradient plumes.

-NOT  
in soil

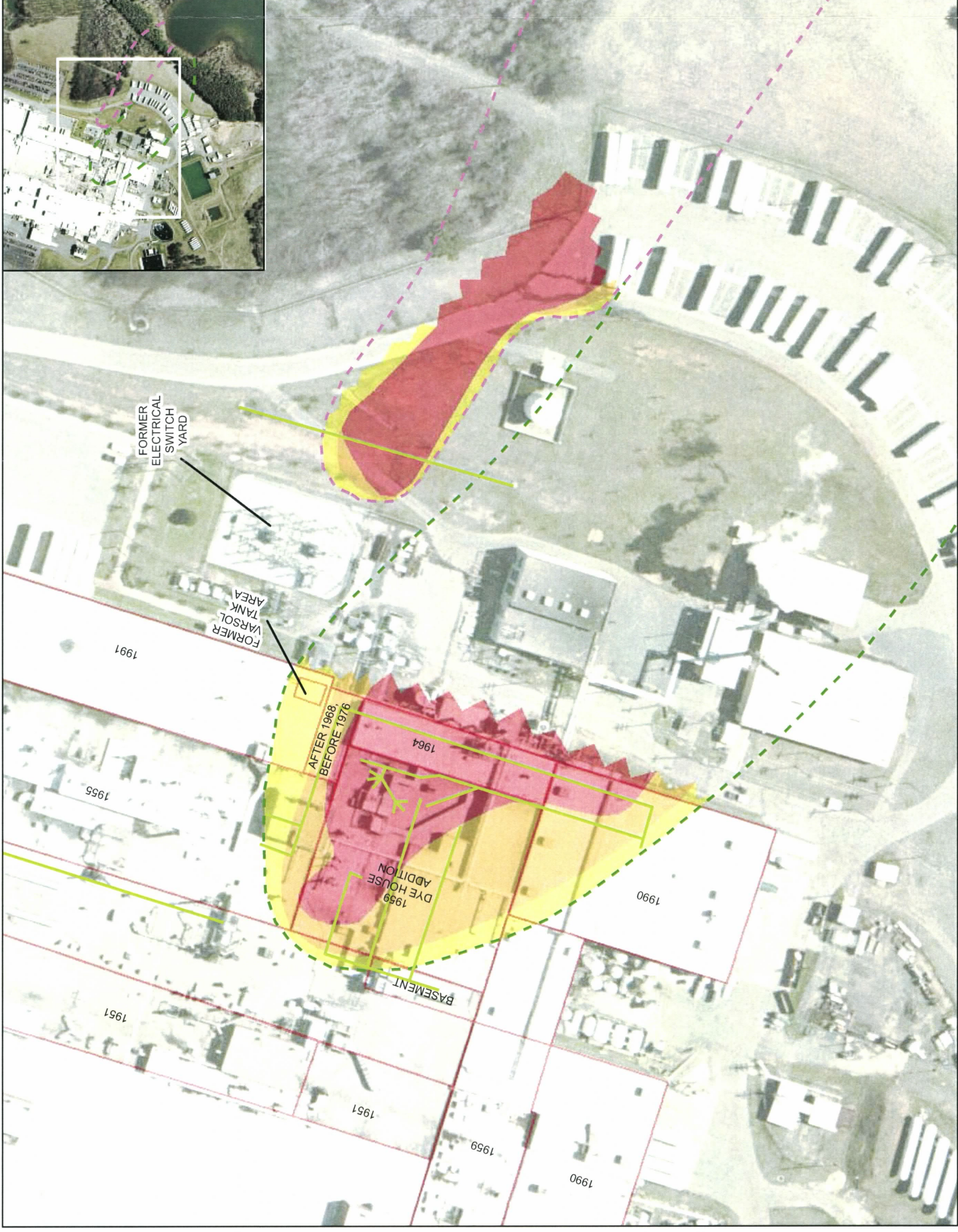
The purpose of this workplan is to describe and communicate the scope and approach for locating this underground utility piping, excavating the piping and removing adjacent soils, staging the soils within polyethylene-lined staging areas, properly characterizing the soils for signs of elevated VOC levels, managing the soils in an appropriate manner and then appropriately backfilling each trench excavation.

## 1.2 Site Conditions

The area of proposed trenching for the upgradient plume is located within the footprint of the former WPH manufacturing facility (see Figure 1-1). The former manufacturing buildings have all been demolished and the concrete floor slabs and foundations have been removed. The existing site consists only of the original compacted earth foundation and buried pipelines that were otherwise below the active demolition zone. The ground surface is mostly clear of vegetation and will not require any clearing or grubbing activities.

The area of proposed trenching for the downgradient plume is roughly located near the existing facility access road (see Figure 1-1). This proposed trenching area is located around an area of former storm drains and is presently covered with a light growth of grass. Both construction areas are readily accessible to construction equipment and will not require undue site preparations.





**LEGEND**

SUBSURFACE DRAIN LINES  
(LOCATIONS APPROXIMATE)

APPROXIMATE AFFECTED  
GROUNDWATER  
BOUNDARY,  
UPGRADIENT PLUME

APPROXIMATE AFFECTED  
GROUNDWATER  
BOUNDARY,  
DOWNGRADIENT PLUME

MIPS GROUNDWATER ECD LEVEL  
(RELATIVE)



**NOTES**

Aerial Photograph taken March 2005,  
Courtesy of Oconee County, SC



WESTPOINT HOME, INC.  
CLEMSON, SOUTH CAROLINA

**PIPELINE LOCATION MAP**

DRAWN BY: TLH	SCALE AS NOTED	PROJECT NO.: 00-70583.96
CHECKED BY: RKN		DATE: JULY 2009
APPROVED BY: DOM		FIGURE NO.: 1-1

**RMT**  
Patewood Plaza One, Suite 100  
30 Patewood Drive  
Greenville, SC 29615-3535  
Phone: 864-281-0030  
FAX: 864-281-0288





# Section 2

## Scope of Work

---

### 2.1 Site Preparation

In advance of the excavation activities, staging areas for the overburden soils and piping will be prepared by constructing a series of polyethylene-lined, earthen bermed enclosures suitable to manage and control storm water run-off. These enclosed areas will be located in close proximity to the trenching locations. Since site data has revealed that the soil VOCs occur only at depth in these areas, shallow overburden soils will be used to construct the earthen berms. Imported soils from an off-site borrow source are not anticipated for this work effort.

### 2.2 Piping Excavation and Removal

Based on record drawings provided to RMT, up to approximately 2,500 lineal feet of underground pipeline may be affected by this work effort. Recent subsurface exploration at the site has revealed that this existing piping is buried at depths ranging between one to 10 feet below land surface (bls), with most of the piping occurring at depths between 5 and 8 feet bls. Because of the depth of the excavation and the characteristics of the native soils, it may be necessary for the trench sides to be sloped back or benched to provide adequate stability. While the actual trench depths and extent of underground piping are not fully known at this time, RMT anticipates that as much as 6,000 cubic yards of soil may be excavated and temporarily staged at the site. The excavated piping and soil materials will be segregated and stockpiled within polyethylene-lined staging areas. The targeted pipelines for this work effort are shown in Figure 1-1.

### 2.3 Soil Testing and Characterization

Overburden material located above piping will be screened using a photoionization detector (PID) during excavation activities. Soil with PID measurements of less than 0.5 ppm will be considered not impacted and will be staged separately from soil with PID measurements of 0.5 ppm or greater.

Excavated soil materials with PID measurements of 0.5 ppm or greater will be staged in polyethylene-lined earthen bermed enclosures for further characterization. Typically, staged soils will be evaluated in approximately 500 cubic yard portions. Soils will be subjected to Toxicity Characteristic Leaching Procedure (TCLP) testing to determine if the excavated materials exhibit any evidence of hazardous characteristics for volatile organics as described in



SCR.61-79.261.24. Soils that do not exhibit any signs of hazardous characteristics will be returned to the trench excavation as backfill.

Soil materials exceeding hazardous thresholds will be resampled and retested to verify TCLP testing results. Soils that do not exhibit any signs of hazardous characteristics following the second round of TCLP testing will be returned to the excavations as backfill. Soil material exceeding hazardous thresholds following the second round of testing will be subject to compositional soil analyses for volatile organics and will be properly disposed of in a hazardous waste landfill. RMT does not anticipate soil materials exceeding hazardous waste thresholds will be encountered during the proposed excavation activities.

While it is expected that the majority of the underground piping will be comprised of vitreous clay composition, some polyvinyl chloride (PVC) and cast-iron piping was encountered during RMT's earlier subsurface investigations. Where soil characterization data shows that PCE soil concentrations fall below land disposal restrictions, all vitreous clay pipe (VCP) will be crushed and incorporated into the trench backfill materials. Where encountered, PVC and cast-iron piping will be segregated and staged for possible off-site disposal. Off-site disposal is currently not anticipated within the existing project scope. A PID will be used during trenching activities to monitor air quality for worker protection. Work activities will cease if PID readings exceed 5 ppm in worker breathing zones. Work activities will only resume once PID readings drop below this threshold.

PID readings will be taken during excavation activities to assess the vertical and lateral extent of impacted material. Trenching will cease once PID measurements of excavated soil materials are less than 0.5 ppm, or groundwater is encountered. Soil excavation activities will be halted if the depth of the excavations exceeds the operational depth of the trenching equipment.

## **2.4 Trench Backfill**

After the staged soils have been properly characterized and documented as suitable for trench backfill, the staged soils will be returned to the trench excavations and compacted, in-place, with heavy construction equipment. A specific compactive effort has not been established for these trench backfilling operations.

## Section 3 Project Schedule

ACTIVITY	DATE
Submit Workplan to South Carolina Department of Health and Environmental Control (SC DHEC)	07/30/09
Mobilize to Site	08/10/09
Excavation of Soil and Piping	08/10/09 – 09/30/09
Soil and Pipe TCLP	09/30/09 – 10/30/09
Backfill Trenches	11/02/09 – 11/13/09
Demobilize from Site	11/16/09

Note – Schedule subject to change based on weather conditions encountered during construction activities.

# Section 4

## Construction Quality Assurance Plan

---

### 4.1 Introduction

This construction quality assurance plan (CQAP) has been prepared to address the excavation and removal of buried utility piping at the WPH site in Clemson, South Carolina. This CQAP provides the following:

- An overview of how construction activities will be implemented and managed at the site;
- A description of principles and practices for providing quality control/quality assurance (QA/QC) during remedy construction to confirm that construction activities meet project performance standards, design criteria, plans, specifications, and overall objectives for the site;
- A list of key project management personnel and their relevant duties;
- A procedure for administration of construction changes, and
- Formats for meetings and reports that will be used for tracking and communicating project progress.

The objective of this section is to describe the delivery approach, roles and responsibilities of key members of the construction management team, and construction.

### 4.2 Key Positions, Responsibility, and Authority

Positions key to implementation of this workplan are presented in the following narrative along with a description of their relevant areas of responsibility.

- Project Manager (RMT)
  - Assumes overall responsibility for construction activities at the WPH site.
  - Serves as the primary management contact with WPH.
  - Serves as primary management contact with SC DHEC and other regulatory agencies.
  - Oversees preparation and submittal of construction progress reports.
- Site Construction Manager (RMT)
  - Responsible for managing and coordinating construction activities.
  - Serves as site health and safety representative (HSR) during remedy construction in accordance with the HSP.

- Serves as RMT’s on-site contact with property owner and applicable regulatory officials.
  - Oversees the implementation of cost controls, schedule controls and other site controls on a daily basis.
  - Serves as liaison between the contractor, property owner, WPH, any on-site regulatory officials and RMT.
  - Observes and documents construction and installation procedures.
  - Prepares daily summary and inspection reports and transmits these to the project manager.
  - Maintains records and files on the site and assists in the preparation of status reports.
  - Performs other responsibilities as delegated by WPH or RMT during construction activities.
  - Confirms that work activities comply with the CQAP and specifications.
- Project Engineer (RMT)
    - Responsible for preparation and certification of any construction inspections or reports.
    - Assists the site construction manager during implementation to provide interpretation and clarification of the work scope and intent.
    - Serves as a liaison between the site construction manager, contractors, and RMT for clarification and interpretation of the work scope and intent.
    - Conduct periodic site visits to review the construction in progress and check for compliance with the work scope and intent.
    - Provides field assessment of potential work scope problems or interferences.

Project meetings, as needed during remedy implementation, will be jointly agreed upon and WPH, and RMT. Representatives will coordinate supplemental project team meetings as required.

### 4.3 Reporting

During active construction, the site construction manager will prepare a daily summary report for each day of activity. The daily summary report will contain the following information:

- Date, project name, location, and name site construction manager



- Time work starts and ends each construction work day. This also includes duration and reasons for work stoppages (*i.e.*, weather delay, equipment shortage, unanticipated site conditions, etc.)
- Documentation of weather conditions
- Record of any visitors to the project site
- Description of contractor's work force, equipment used and materials delivered to the job site.
- Chronological description of work in progress, including materials used, locations and type of work performed.
- Results or references of field testing and sampling.
- Summary of meetings held and attendees.
- Discussion of problems/deficiencies identified and corrective actions taken.
- Record of calibrations or standardizations performed on field testing equipment.

The daily summary reports will be submitted to the project manager and the project engineer. Problems and/or deficiencies identified and corrective action will be documented in the daily summary report when a construction material or activity is observed or tested that do not meet the project specifications. The summary report will reference other reports, photographs, or forms that contain data or observations leading to the determination of a problem or deficiency. Problem/deficiency identification and corrective action documentation may include the following information:

- A description of the problem or deficiency, including reference to supplemental data or observations responsible for determining the problem or deficiency.
- Location of the problem or deficiency, including how and when the problem or deficiency was discovered. In addition, an estimate of how long the problem or deficiency has existed.
- An opinion as to the probable cause of the problem or deficiency.
- A recommended corrective action for resolving the problem or deficiency. If the corrective action has already been implemented, then the observations and documentation to show that the problem or deficiency has been resolved. If the problem or deficiency has not been resolved by the end of the day upon which it was discovered, then the report will clearly state that it is an unresolved problem or deficiency. Subsequent daily reports shall indicate the status of problems or deficiencies until resolved.

If the problem or deficiency has not been resolved, the site construction manager will discuss the necessary corrective actions with the project manager and project engineer. The site

construction manager will work with the contractor(s) to implement actions necessary to resolve the problem or deficiency.

The site construction manager will determine if the problem or deficiency is an indication of a situation that might require changes to the plans and specifications. Revisions to the plans or specifications must be approved by the project manager and project engineer after consultation with WPH. Documentation of decisions and/or conditions regarding proposed changes shall be incorporated into the weekly construction progress report.

Photographs will be taken to document observations, problems, deficiencies, corrective actions, and work in progress. Photographs will be in 35-mm print or digital format and will be filed in chronological order in a permanent protective file by the site construction manager.

The following information will be documented in the daily report or a log book for each photograph:

- Date and time.
- Location where photograph was taken, including information regarding the orientation of the photograph itself for proper viewing (*i.e.*, looking south).
- Description of the subject matter.
- Unique identifying number for reference in other reports.
- Name and signature of photographer.

## **4.4 Construction Reporting**

This section outlines considerations for construction reporting and documentation.

### **4.4.1 Construction Reporting Contacts**

Documents, including deliverables and progress reports, approvals and other correspondence may be sent, to the following addresses. All notices and submissions will be considered effective upon receipt, unless otherwise provided:

- Documents to be submitted to WPH will be sent to:

Mr. Eddie Lanier  
Director – Environmental Department  
West Point Home, Inc  
3300 23<sup>rd</sup> Drive  
Valley, Alabama 36854

- Documents to be submitted to RMT should be sent to:

Dr. Steve W. Webb, P.E.  
Senior Project Manager  
RMT, Inc.  
30 Patewood Drive, Suite 100  
Greenville, SC 29615-3535

#### **4.4.2 Routine Documentation Reports**

During construction, the site construction manager will prepare and submit a daily construction summary report for each day of activity. This report will be submitted to the project manager and the project engineer.

#### **4.4.3 Construction Documentation Report**

To document completion of this workplan, RMT will prepare a construction documentation report. The report will be prepared by the project engineer under the purview of the project manager.

The construction documentation report will include the following elements:

- Introduction
- Construction activities
- Chronology of events
- Performance standards and construction quality control
- Extent of the targeted soil removal effort and the degree to which underground piping was encountered and removed
- Summary of excavated pipe and soil volumes, PID measurements observed during soil screening activities, and soil analytical testing and characterization results.