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REMEDIAL ACTION REPORT
OPERABLE UNIT ONE
Pond 5 Treatment Plant
Saltville Waste Disposal Ponds Superfund Site
Saltville, Virginia

I. INTRODUCTION

The Saltville Waste Disposal Ponds Superfund Site ("Site") is part of Olin Corporation's former Saltville facility located along the north bank of the North Fork of the Holston River ("NFHR") between the towns of Saltville and Allison Gap, in western Smyth and eastern Washington Counties, Virginia. The NFHR forms the southern border of the Site and Virginia State Route 611 runs along the northern border at the foot of Little Mountain. The Site consists of the Former Chlorine Plant Site and two waste ponds, Ponds 5 and 6, and areas to which contamination has migrated, including the NFHR. Pond 5 and its dikes cover an area of about 76 acres. Pond 6 is immediately west and downstream of Pond 5. Pond 6 and its dikes cover an area of about 45 acres. The Former Chlorine Plant Site is about ½ mile upstream of Pond 5 and has an area of about 4 acres.

From approximately 1895 to 1972, the Saltville facility was owned and used by Olin Corporation ("Olin") or its predecessors (Olin Mathieson Chemical Corporation, Mathieson Chemical Corporation and Mathieson Alkali Works) as the location for various chemical manufacturing operations. Mathieson Chemical Corporation constructed a mercury cell chlor-alkali plant (also referred to as the chlorine plant) in 1950. The plant produced chlorine gas and sodium hydroxide by passing brine, obtained by solution mining salt deposits in the area, between electrodes. The cathode used in this process contained mercury and leakage from the electrode is considered the source of mercury in the pond wastes. The electrical current passing through the brine caused the formation of chlorine gas at the anode through electrolytic oxidation. At the same time a sodium amalgam was formed at the cathode. The amalgam was passed into a decomposing tower where the sodium was separated by flushing the water from the sodium hydroxide. Some of the mercury was lost in the production process and was solubilized and passed into Pond 5 in the wastewater. Much of the mercury lost in this process was solubilized and passed into Pond 5 in the sludges and brine. Additional mercury was lost through poor operating procedures. Mercury losses were estimated at 100 pounds per day during the early stages of this process.

Olin, the Tennessee Valley Authority, the State of Virginia, and the U.S. Environmental Protection Agency ("EPA") have conducted studies of the discharge from Pond No. 5 since 1977. EPA used the results of these studies as the basis of a Risk Assessment and Feasibility Study issued in 1986. On June 30, 1987, EPA issued a Record of Decision ("ROD") which required the design and construction of interim remedial actions (Operable Unit 1) and the implementation of a detailed Remedial Investigation/Feasibility Study ("RI/FS") for Pond 5,

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Pond 6 and the Former Chlorine Plant Site (collectively identified and Operable Unit 2) and the NFHR (Operable Unit 3).

Specifically the ROD listed the following activities as part of the interim action:

- Upgrade runoff controls with ditches/berms/downshutes;
- Install a treatment system to treat Waste Pond 5 outfall using either a sulfide precipitation unit process or carbon adsorption;
- Conduct operation and maintenance of the treatment facility and continued sampling and analysis of the NFHR upgradient and downgradient of the site;
- Conduct additional studies, including a groundwater study, a bioassessment, and additional sampling along the NFHR;
- Install a groundwater monitoring system at the conclusion of the studies.

On September 15, 1988, EPA and Olin entered into a Consent Decree in which Olin agreed to implement an Interim Remedial Action consisting of Operable Unit 1 ("OU1") treatment of point source discharge from Pond No. 5, completion of the upland diversion ditch around the eastern edge of Pond No. 5, and detailed RI/FS for Operable Unit 2 ("OU2") and Operable Unit 3 ("OU3").

On September 22, 1992, an OU1 remedial action report was issued documenting the completion of the upgrade of runoff controls, particularly the upland diversion ditch around the eastern edge of Pond No. 5. Completion of the OU1 treatment of point source discharge from Pond No. 5 is being documented in this report and represents completion of the final portion of the interim remedial actions required under OU1.

II. CHRONOLOGY OF EVENTS (Specific to the Pond 5 Treatment Facility)

- | | |
|---------|--|
| 6/30/87 | EPA issues Operable Unit One Interim Remedial Measures Record of Decision. |
| 9/15/88 | Consent Decree signed by EPA and Olin. |
| 9/22/92 | EPA issues Remedial Action Report documenting completion of runoff controls. |
| 9/92 | Olin submits Final Engineering Report, Milestone Report No.8. This report documents the final design (plans and specifications) for construction of the Pond 5 Treatment Facility. |

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- 4/27/93 EPA issues approval for Final Engineering Report, Milestone Report No.8.
- 8/12/93 Olin submits request to EPA regarding a modification to the Consent Decree to delete the requirement to construct the Pond 5 Treatment Plant.
- 9/16/93 EPA conducts meeting with Olin and denies request to modify the Consent Decree to delete the requirement to construct the Pond 5 Treatment Plant.
- 10/12/93 Construction phase begins.
- 4/28/94 Olin submits alternative design package for Pond 5 Effluent Pumping Station.
- 5/17/94 EPA issues approval for alternative design package for Pond 5 Effluent Pumping Station.
- 8/1/94 Construction phase complete.
- 11/94 Start-up and Final Inspection.

III. PERFORMANCE STANDARDS AND CONSTRUCTION QUALITY CONTROL

The objectives of the remedial design/remedial action ("RD/RA") for the interim remedy, as described in the June 1987 ROD, are as follows:

- Upgrade the existing runoff control system to prevent surface water from entering Waste Pond 5 and leaching through contaminated sediment and sludge to the groundwater, or discharge from the pond outfall after picking up mercury contamination;
- Reduce the levels of mercury contamination from Waste Pond 5 surface discharge.

Achievement of performance standards and construction quality control for the upgrade of the existing runoff control system was documented in the September 22, 1992 remedial action report.

For the Pond 5 Treatment Facility effluent, the OUI ROD assumed that the NPDES permit for the discharge would set a limit on the concentration of mercury in the discharge in order to achieve the water quality standard for mercury of 0.05 ppb in the NFHR. Allowable mercury concentrations in the treatment process effluent were estimated by GCA Technology Division Inc.,(EPA's contractor conducting the OUI risk assessment and feasibility study) based

on the modeling of mercury loading to the river.

It was determined by GCA Technology Division, Inc., that the average Pond 5 effluent mercury discharge of 39 ppb (peak discharge of 120 ppb) must be reduced to a mean concentration of less than 20 ppb on a 24-hour basis for a minimum of 15 years. This standard was based on public health and environmental impact considerations, and applicable or relevant and appropriate statutes. Based on previous use and a review of literature, it was determined that the carbon adsorption treatment technology was able to reach the treatment goal of 20 ppb mercury discharge.

Throughout the construction, EPA's oversight contractor, CH2M HILL, provided oversight of the remedial action on behalf of EPA. The oversight contractor conducted frequent inspections of the Pond 5 Treatment Facility and submitted written trip reports that described the results of their inspections. The inspection reports are included in Appendix 1.

A station monitoring the inflow to the Pond 5 treatment facility equalization basin provides data useful in developing operating parameters historical databases. An automatic pH monitor and a composite automatic sampler is located at this station. The lab area in the control room of the treatment plant has facilities to conduct mercury and pH analysis of samples collected at this station. Additional analysis, such as suspended solids and total dissolved solids are conducted at the Olin Chemical Corporation's laboratory in Charleston, Tennessee.

A daily composite sample is collected from the influent to the equalization basin as well as grab samples as needed. The normal sample analysis includes pH, total dissolved solids, mercury, and chlorides. One daily composite sample for the effluent will be analyzed for the same criteria.

Mercury concentrations of the effluent are documented in the Quarterly Data Reports submitted to EPA. Laboratory results indicate that the system is achieving reductions in mercury significantly below the 20 ppb limit established in the OU1 ROD.

IV. CONSTRUCTION ACTIVITIES

All remedial design and remedial action contractors were selected by Olin pursuant to the company's contractor acquisition process. Names and qualifications of selected contractors were submitted to EPA pursuant to Section VI. of the OU1 Consent Decree.

The following are the major contributing contractors selected by Olin and utilized for this project:

- Fluor Daniel Environmental Services, Greenville, South Carolina provided the Remedial Design Package.

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- Severson Environmental Services, Niagara Falls, New York, provided the Construction Services for the Remedial Action.
- Lockwood Greene Technologies, Oak Ridge, Tennessee provided the Independent, Third Party Construction Quality Assurance/Quality Control Services.
- Law Engineering and Environmental Services, Kennesaw, Georgia, provided the Design Engineering for changes during construction and prepared the As-Built Drawings.

The engineering firm of CH2M HILL provided technical review of the design documents on behalf of EPA. CH2M Hill also provided field construction oversight.

One major design change occurred during the construction phase. This change involved the location of the Pond 5 effluent collection system. Olin believed, and EPA concurred, that a design change was necessary to minimize personnel exposure during future maintenance activities. The original design required personnel to enter the Pond 5 outfall shaft to perform maintenance of the pumps. An alternate design for the Pond 5 effluent pumping station relocated the pumping station to a more accessible location and rerouted the pipe which conveys Pond 5 effluent to the equalization basin. Engineering drawings and a report delineating the design change are included in the Construction Complete, As-Built Package dated April 21, 1995.

V. STARTUP/FINAL INSPECTION

Olin's proposed startup/final inspection schedule for the Pond 5 treatment facility was based on a three-phased approach. Phase I startup focused on the acid feed system consisting of the feed pumps, pH adjustment tanks, and the flow control valve. Upon successful completion of Phase I, Phase II was initiated focusing on the multi-media filter and the carbon columns. Phase III was similar to Phase II, with the exception that water from the second carbon column was to be conveyed to the clearwell. The clearwell effluent then flowed by gravity to the NFHR. Discharge occurred only after the appropriate treatment for pH adjustment, solids removal, and mercury removal was demonstrated.

Phase I startup activities were initiated on November 7, 1994. The startup of the pH adjustment system was not successful because the sulfuric acid feed system was not supplying a sufficient flow of acid to the pH adjustment tanks. Modifications to correct the acid feed line were required. It was also decided at this time that the recirculation of acid through the system would be allowed to occur to avoid problems of this nature occurring in the feed line in the future.

Olin completed modifications to the acid feed system and continued the startup of the pH adjustment system protocol on November 16, 1994. During testing on November 16, 1994, at a flow rate of approximately 150 gpm, the three stage pH adjustment system was operating as

designed and the pH from the third stage tank ranged between 6.4 and 7.2. The carbon column effluent exhibited a pH between 7.7 and 8.5 and mercury concentrations were below 1 ppb. Since the pH was greater than 8.0, the carbon effluent was conveyed back to the equalization basin rather than being discharged.

On November 17, 1994, the system flow rate was increased to a rate greater than 225 gpm. It was observed that the carbon column effluent pH was slowly increasing to a level of approximately 9.8. Olin then contacted the vendor of the carbon column system and learned that it was not unusual for granular activated carbon products to exhibit a significant pH increase when placed on-line for water treatment and that water should be recycled through the system for several days.

Olin resumed the Pond 5 treatment facility startup on November 28, 1994. After having operated in a recycle mode for several days, the carbon column effluent consistently exhibited a pH below 9.0 and on November 28, the pH had reached a level below 8.0. In addition, mercury concentrations were well below 1.0 ppb; a calibration standard of 1.0 ppb prepared by Olin was used in the on-site laboratory. Olin began discharging treated effluent on November 28 when the effluent from the carbon columns had reached a pH of 7.5. Olin discharged water to the NFHR between November 28 and November 29, 1994, until low-level cutoff was reached at the system pump station adjacent to the equalization basin. All monitoring showed the pH was between 6.0 and 9.0 and the mercury concentrations were below 1.0 ppb for the treated water discharged to the river.

VI. CERTIFICATION THAT REMEDY IS OPERATIONAL AND FUNCTIONAL

EPA determined that the Pond 5 Treatment Facility is operational and functional. The system began full capacity operation on November 28, 1994. Since that time, the facility has operated continuously. There have been periodic shutdowns for maintenance during periods of low flow. The low flow period typically occurs in late summer and early fall.

On two occasions since the treatment facility has been operating, high water levels have reached the design overflow point and a release of untreated Pond water did occur. These incidents occurred on January 27, 1996 and February 14, 1996, respectively. Both situations were the result of the unique combination of heavy rainfall and rapid snowmelts which produced high flows into the Pond 5 pump station. The extraordinarily heavy rains saturated the waste material in Pond 5 resulting in unusually high water elevations within the waste. These saturated conditions left little capacity within the pond to absorb the water from the rainfall or snow melts and produced a high volume of flow entering the pump station.

The pump station was designed with an overflow to protect the electrical system for the pumps and to prevent large amounts of water from accumulating behind the dike of Pond 5. Large amounts of water behind the earthen dike structures could compromise the integrity of the dike and decant structure in the event of very intense or prolonged rainfall and/or equipment or

power failure. The pump station performed as designed during the overflow events in January and February, 1996.

Treatment facility operating personnel monitored plant operations, including Pump Station operations, closely throughout the months of January and February 1996. Their efforts maximized treatment facility performance throughout the period. The treatment facility was on line for 99% of the time, 24 hours per day. The only downtime was for required back washing of the multimedia filter or the carbon units. Effluent quality was excellent with mercury concentrations of 1 ppb.

The equalization basin of the treatment facility also performed as designed during the prolonged precipitation events in January and February of 1996. Overflow from the equalization basin recycled back to Pond 5. The recycled water ponded on the surface of the eastern half of Pond 5 and drained slowly back to the Pump Station.

Both of these occurrences of untreated pond water being released were reported and documented in a Conclusion Report dated March 6, 1996 that was prepared by Olin and submitted to EPA. This reporting was in accordance with the procedures and requirements of Section IX.A.3 and IX.A.4 of the OU1 Consent Decree.

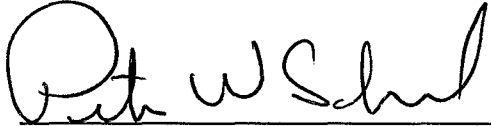
VII. OPERATION AND MAINTENANCE PLAN

The Pond 5 Treatment Facility has been and will be operated and maintained by Olin personnel. The operation and maintenance manual provides detailed information and an overview of the entire treatment system. The following topics are discussed: Pond 5 effluent pumping station, equalization basin, system feed pumps, pH adjustment system, acid feed system, filtration system, carbon adsorption unit, clearwell/backwash pumps, settling tank, and monitoring stations. The Operation and Maintenance manual is included in the Construction Complete As-Built Package (Milestone Report No. OU1-9) dated April 21, 1995.

VIII. SUMMARY OF PROJECT COSTS

The 1987 OU1 ROD estimated that total capital construction cost to treat Pond 5 outfall using carbon filtration to be approximately \$790,000. Construction of the Pond 5 Treatment Facility was completed by Olin in accordance EPA approved design documents. Actual cost data for construction was maintained by Olin.

Approved by:



Peter W. Schaul
Chief, Remedial Branch
Hazardous Waste Management Division
EPA Region III

9/3/96
Date

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Appendix 1



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(Rec'd)

November 15, 1993

WDC63108.GI.G0

Mr. Russ Fish
U.S. Environmental Protection Agency
841 Chestnut Street
Philadelphia, PA 19107

Dear Russ:

Subject: Saltville Waste Disposal Site Treatment Plant Construction Oversight Visit

The following trip report was prepared by CH2M HILL Construction Observer Christopher Bozzini for the November 8, 1993, site visit to the Saltville Waste Disposal Site. CH2M HILL personnel that visited the site included Julie Pfeffer and Christopher Bozzini. The purpose of the site visit was to show Mr. Bozzini around the site, as it was his initial visit to the site, and for Ms. Pfeffer to attend meetings concerning Operable Unit (OU) 2.

Mr. Bozzini met Keith Roberts, Olin Chemical's Project Manager; Bob Fisher, the Quality Assurance/Quality Control (QA/QC) Engineer from Lockwood Greene; John Gervais, Fluor Daniel's Project Manager; and personnel from Severson Environmental Services. Mr. Bozzini was shown different portions of the site by Severson and Bob Fisher. Discussions were held with Bob Fisher concerning his interaction with Mr. Bozzini. Basically, the procedures for coordination of site visits and interaction with site personnel are as follows for the near future:

- CH2M HILL will contact the Remedial Project Manager (RPM), who will contact Olin with 24 hours notice of the upcoming visit.
- Upon receipt of requested activities to oversee, Olin will notify the RPM (who will notify CH2M HILL) of scheduled changes to those activities.
- All personnel will sign in upon arrival at the site.
- CH2M HILL will not direct any site activities. They will report all concerns to the RPM.

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Mr. Russ Fish
Page 2
November 15, 1993
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Construction activities that were occurring during the visit included:

- Clearing and removal of topsoil for equalization basin
- Surveying
- Preparation of soil borrow pit

CH2M HILL has also reviewed Severson's Health and Safety Plan (HSP) for the Remedial Action. CH2M HILL has approved performing oversight activities following the guidelines written in the site HSP.

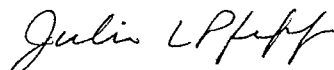
UPCOMING ACTIVITIES

The next oversight visit is anticipated to occur during the week of November 22, 1993. The Construction Observer will examine construction of the equalization basin. At that time, modifications to the pump station and installation of the effluent pumps may be taking place, and these activities will also be observed.

A checklist to be used in future site visits has been attached. Please call if you have any questions or would like to add activities to the checklist.

Sincerely,

CH2M HILL



Julie L. Pfeffer, P.E.
Site Manager

OROC4/012.WP5

Attachment

cc: Christopher Bozzini/CH2M HILL/WDC

Saltville OU 2, Treatment Plant
Construction Oversight Checklist
Visit Date

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Contact Onsite Supervisor
Current Activities

-
-

Identify Personnel Onsite

-
-

Contact QA/QC Engineer
Activities/Submittals

-
-

Work Performed Since Last Visit

-
-

Compare As Built versus Plans/Specifications
Deviations

-
-

Changes Since Last Visit (Provide Documentation)

-
-

Tests Performed Since Last Visit (Results)

-
-

Project on Schedule
Problems

-
-

Revisit Issues from Last Visit
Status

-
-

Current Issues/Problems

-
-

**Saltville OU 2, Treatment Plant
Construction Oversight
Activities Specified for EPA Oversight**

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Outfall Modification

Install Effluent Pumps

Laying HDPE Liner

Installation of Carbon Units

Inspection of Equipment

Startup



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November 30, 1993

WDC63108.GI.G0

Mr. Russ Fish
U.S. Environmental Protection Agency
841 Chestnut Street
Philadelphia, PA 19107

Dear Russ:

Subject: Saltville Construction Oversight Trip Report

The following trip report was prepared by CH2M HILL Construction Observer Christopher Bozzini for the November 22, 1993, site visit. The purpose of the site visit was to observe the progress of construction activities. A modified schedule was obtained, and a copy of it is attached to this letter.

The upcoming site activities are anticipated to include:

- Mechanical work for the treatment building
- Continuing work on the equalization basin
- Constructing the slab for the treatment building
- Determining plans for the sump and outfall station

No site work will be performed November 25 through November 28 because of the Thanksgiving holiday.

The next oversight visit is anticipated to occur during the first week of December.

Sincerely,

CH2M HILL

Julie L. Pfeffer, P.E.
Site Manager

OROC6/009.WP5

Attachment

cc: Christopher Bozzini/CH2M HILL/WDC

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**Saltville OU 2, Treatment Plant
Construction Oversight Checklist
November 22, 1993 Visit**

✓ Contact onsite supervisor

Mr. Bozzini met with Norm Leclerc of Severson Environmental Services (SES); Bob Fisher, the quality assurance/quality control (QA/QC) engineer from Lockwood Greene (LG); and Russ Roach of Olin Chemical.

Construction activities that were occurring during the visit included:

- Hauling and compaction of fill in the equalization basin area
- Preparing the building area
- Paving the access road through the ice house

✓ Identify personnel onsite

Personnel at the site included:

- Four people from SES, including the supervisor, site safety coordinator, and two laborers
- Five laborers from Tri-City Industrial Builders (TCIB)
- Bob Fisher from LG

✓ Contact QA/QC Engineer

The QA/QC engineer appears to be performing well in keeping SES within spec. In-place soil testing on the lifts in the berm have all passed. The fill being used does have some large boulders; however, the QA/QC engineer makes sure the fill material is worked well with the dozers to break up boulders.

✓ Work performed since last visit

Major activities performed since the last visit include:

- Working on the equalization basin
- Inspection/camera of sump and outfall
- Paving roads
- Installation of electrical grounding for building

✓

Compare as-built vs plans/specifications deviations

- Added Typar fabric as filter cloth cover over soda ash at equalization basin

✓

Tests performed since last visit

- Compaction tests on lifts in berms

✓

Project on schedule

According to SES and Olin personnel, the project is still on schedule. The equalization basin is progressing as scheduled. The access roads are slightly behind schedule; however, SES did not feel this would adversely affect the overall schedule.

✓

Revisit issues from last visit

- None

✓

Current issues/problems

Other minor problems include the town not allowing a holding tank for sewage, and the building permit has not been granted. The local authority may require Olin to install a connection to the local sewer for the treatment building's sanitary sewer system.

There are several pallets of drums at the site. Some of these drums are old and have portions that have disintegrated. SES does not know what exactly is in the drums; however, they believe the drums contain drill cuttings, purge water, and used personal protective equipment (PPE). There are also two drums that are labeled as containing fuel. One drum feels empty and the other has some liquid in it. The drums are not in a diked area, or contain any other form of containment.

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ACTIVITY NUMBER	DESCRIPTION	DUR	START	FINISH	OCT/
1000	MOBILIZATION	5	11OCT93 22 OCT	15OCT93 25 OCT	
1005	EROSION CONTROL	5	18OCT93 26 OCT	22OCT93 28 OCT	
1010	ACCESS ROADS	10	18OCT93 28 OCT	29OCT93 11 NOV	
1020	SITE GRADING/STRUCTURAL EXCAVATION	10	25OCT93 9 NOV	05NOV93 22 NOV	
1030	EFFLUENT PUMP MODIF / EFFLUENT U/G PIPING	30	17MAY94	28JUN94	
1040	EQUALIZATION BASIN	25	08NOV93 22 NOV	13DEC93 24 DEC	
1050	TREATMENT BLDG FOUNDATIONS	30	08NOV93	20DEC93	
1060	ACID U/L/STOR FOUNDATIONS	15	07DEC93	27DEC93	
1070	METAL BUILDING	10	21DEC93	03JAN94	
1075	FINISHES TREATMENT PLANT	20	08MAR94	04APR94	
1080	INSTALLATION OF EQUIPMENT	35	01MAR94	18APR94	
1090	PROCESS PIPING	40	15MAR94	09MAY94	
1100	ELECTRICAL & INSTRUMENTATION	50	19APR94	28JUN94	
1110	REMAINDER OF U/G PIPING & SITE GRADING	15	10MAY94	31MAY94	
1120	MECH & ELEC FOR EQ. BASIN, POND 5 PS & ACID U/L/STO	40	12APR94	07JUN94	
1130	PUNCH LIST	10	29JUN94	13JUL94	
1140	DEMOBILIZATION	5	14JUL94	20JUL94	

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Engineers
Planners
Economists
Scientists

December 14, 1993

WDC63108.GI.G0

Mr. Russ Fish
U.S. Environmental Protection Agency
841 Chestnut Street
Philadelphia, PA 19107

Dear Russ:

Subject: Saltville Construction Oversight Trip Report

The following trip report was prepared by CH2M HILL Construction Observer Christopher Bozzini for the December 9, 1993, site visit. The purpose of the site visit was to observe the progress of construction activities. Attached to this letter is the construction oversight checklist for the latest visit.

The upcoming site activities are anticipated to include:

- Continuing work on the equalization basin
- Constructing the foundation for the treatment building
- Cleaning the outfall pipe

No site work will be performed December 23 through January 2 because of the Christmas and New Year holidays.

The next oversight visit is anticipated to occur on December 21.

Sincerely,

CH2M HILL

A handwritten signature in cursive script, appearing to read "Julie L. Pfeffer".

Julie L. Pfeffer, P.E.
Site Manager

OROC4/030.WP5

Attachment

cc: Christopher Bozzini/CH2M HILL/WDC

**Saltville OU 1, Treatment Plant
Construction Oversight Checklist
December 9, 1993 Visit**

✓ Contact onsite supervisor

Mr. Bozzini met with Norm Leclerc of Severson Environmental Services (SES); Bob Fisher, the quality assurance/quality control (QA/QC) engineer from Lockwood Greene Technologies (LGT); and George Harbisan of Olin Chemical. George Harbisan was onsite due to the death of Olin's construction manager Lowell Roach.

Construction activities that were occurring during the visit included:

- Cleaning the outfall pipe
- Preparing the foundation forms for the building
- Placing gravel for the onsite access road

✓ Identify personnel onsite

Personnel at the site included:

- Seven people from SES, including the supervisor, site safety coordinator, and five laborers
- Eight laborers from Tri-City Industrial Builders (TCIB)
- Bob Fisher and Jeff Cochran from LGT
- Three local laborers
- One person from Berry's (bottled air supplier)

✓ Contact QA/QC Engineer

The QA/QC engineer stated that work has been progressing slowly due to heavy rain and the lack of good equipment. Not much progress has been made on the berms for the equalization basin. In-place soil testing on the lifts in the berm has been performed. The soil met the requirements until the seventh lift. This lift contained larger pieces and did not pass, requiring additional work by the equipment.

✓

Work performed since last visit

Major activities performed since the last visit include:

- Work on the equalization basin
- Initiated cleaning of outfall pipe

✓

Compare as-built vs plans/specifications deviations

- No holding tank will be used for the sanitary sewer. The sewer will be connected to the local system.

✓

Tests performed since last visit

- Compaction tests on lifts in berms (2 since last visit)
- Leak testing on piping for treatment building

✓

Project on schedule

According to the latest schedule, the project is beginning to fall behind schedule. The equalization basin is behind schedule due to weather and equipment problems. According to the site workers, the foundations may not be completed by December 20. The metal building is scheduled to begin on December 21 and end on January 3. This will not happen. The access roads are behind schedule. Completion of the access roads will be dependent on completion of the building and the acid unloading and storage areas.

✓

Revisit issues from last visit

- A design for the sanitary sewer has been prepared. The sewer will be connected to the local system.
- The drums remain onsite. There are approximately 75 drums.

✓

Current issues/problems

- None.

ORIGINAL
(Russ)



Engineers
Planners
Economists
Scientists

February 17, 1994

MAE63108.GI.G0

Mr. Russ Fish
U.S. Environmental Protection Agency
841 Chestnut Street
Philadelphia, PA 19107

Dear Russ:

Subject: Saltville Construction Oversight Trip Report

The following trip report was prepared by CH2M HILL Construction Observer Christopher Bozzini for the February 16, 1994 site visit. The purpose of the site visit was to observe the progress of construction activities. Attached to this letter is the construction oversight checklist for the latest visit.

The upcoming site activities are anticipated to include:

- Construction of the treatment building and acid unloading pad
- Construction of the new sump, after EPA approval of the design
- Continuing work on the equalization basin once weather is better (2-4 weeks)

This was the first site visit since December 9, 1993. Work at the site has been hampered by bad weather. The weather has caused delays with all aspects of the project. However, at this time, Olin appears to be attempting to complete construction on time.

The next oversight visit has not been planned. It is estimated to coincide with installation of treatment equipment in the building, construction of the sump, or work on the equalization basin.

Sincerely,

CH2M HILL

A handwritten signature in cursive script, appearing to read "Steve".

Steve Druschel, P.E.
Site Manager

Attachment

cc: Christopher Bozzini

**Saltville OU 2, Treatment Plant
Construction Oversight Checklist
February 16, 1994 Visit**

✓

Contact onsite supervisor

Mr. Bozzini met with Norm Leclerc of Severson Environmental Services (SES); Bob Fisher, the quality assurance/quality control (QA/QC) engineer from Lockwood Greene Technologies (LGT). Paul Little of Olin Chemical is now the construction manager for Olin.

Construction activities that were occurring during the visit included:

- Preparing the acid unloading area and pouring concrete
- Work on the treatment building

✓

Identify personnel onsite

Personnel from the following companies were at the site:

- SES
- Tri-City Industrial Builders (TCIB)
- LGT
- Olin Chemicals
- Electrical and mechanical contractors
- EPA
- CH2M HILL

✓

Contact QA/QC Engineer

The QA/QC engineer stated that not much progress has occurred this winter. Weather has been bad and has affected the speed of work. He stated that Law Engineering is working on the design of the sump. Plans should be completed in 2-4 weeks.

✓

Work performed since last visit

Major activities performed since the last visit include:

- Construction of the frame of the treatment building, including primary and secondary steel framing
- Cleaning of the outfall pipe
- Preparation of the acid unloading area

✓ Compare as-built vs plans/specifications deviations

- No major deviations

✓ Tests performed since last visit

- Concrete tests have been performed for the slab and curb. The QA/QC engineer indicated that the 7-day strength tests conformed to specification.

✓ Project on schedule

The project is beginning to fall behind schedule. SCS is attempting to complete the project by July 1, 1994. The equalization basin will be worked on once the weather gets better. Work is anticipated to begin again in 2-4 weeks and take a total of 6 weeks to complete. The treatment building should be completed in 2-3 weeks. The frame is up and the metal sheeting must still be installed. All equipment delivery is believed to be complete in 12 weeks.

✓ Revisit issues from last visit

- None

✓ Current issues/problems

- None



ORIGINAL
(Red)

March 28, 1994

MAE63108.GI.GO

Mr. Russell H. Fish, P.E.
U.S. Environmental Protection Agency
Region III (3HW41)
841 Chestnut Street
Philadelphia, PA 19107

Dear Russ:

Subject: Saltville RD/RA Construction Oversight Trip Report

CH2M HILL Construction Observer Christopher Bozzini visited the Saltville site on March 18, 1994, to observe the progress of construction activities at the OU-1 treatment plant facility. Attached to this letter is the construction oversight checklist for the latest visit.

A couple of items were noticed by Mr. Bozzini which we believe are significant (listed as Current Issues/Problems on the checklist). First, two broken bags labeled "Asbestos" were found near the concrete intake shaft, apparently abandoned by a trespasser. Olin needs to dispose of these properly. Second, the location of the force main from the decant structure/pump station to the treatment plant has changed, because of variations in the existing conditions encountered. The extent and cause of the variation could be a concern because of either poor initial design or continuing change and increased maintenance. Third, the design for the pump station at the decant structure has not been finalized. This may become a critical path item, because the equipment currently proposed to make the entrance into the decant structure is highly specialized and may not be available quickly.

Additionally, the latest schedule (attached) to complete also creates some concern. The equalization basin earthwork has already been shown to be very sensitive to weather, and it is now scheduled to be completed primarily during April. Rain events are likely to cause further delay. The liner installation, scheduled for May 3rd and 4th, must be coordinated with a specialty subcontractor and could be severely impacted by schedule slip. Mechanical and electrical work for the equalization basin are also dependent upon

ORIGINAL
(Red)

Mr. Russell H. Fish, P.E.
Page 2
March 28, 1994
MAE63108.GI.GO

the timely completion of the basin earthwork. It may be questionable for Severson to complete the basin on time with the current level of effort.

Because of these concerns, an increased level of oversight is recommended for the next 2 months, in accordance with our revised workplan. As we recently discussed, CH2M HILL will continue to monitor the project directly, through contact with Olin's on-site construction manager, Paul Little. You will be apprised of these contacts by fax of the telephone conversation record. Suggestions for CH2M HILL site visits will be brought to you directly.

Upcoming site activities are anticipated to include:

- Installation of carbon system and multimedia filter along with associated piping;
- Construction of the new sump/pumping station, after EPA approval of the design;
- Continuing work on the equalization basin (week of April 4); and
- Installation of the force main.

Feel free to call me if you have questions on any of these issues.

Sincerely,

CH2M HILL



Stephen J. Druschel, P.E.
Site Manager

sh/WDCC3/033.WP5
cc: Christopher Bozzini/CH2M HILL/WDC

**Saltville OU 1, Treatment Plant
Construction Oversight Checklist
March 18, 1994 Visit**

✓ Contact onsite supervisor

Mr. Bozzini met with Paul Little, construction manager for Olin, Norm Leclerc of Severson Environmental Services (SES); Bob Fisher, the quality assurance/quality control (QA/QC) engineer from Lockwood Greene Technologies (LGT).

✓ Construction activities that were occurring during the visit included:

- Work on the treatment building

✓ Identify personnel onsite

Personnel from the following companies were at the site:

- SES
- Tri-City Industrial Builders (TCIB)
- LGT
- Olin Chemicals
- Electrical and mechanical contractors
- CH2M HILL

✓ Work performed since last visit

Major activities performed since the last visit include:

- Framing of the treatment building
- Installation of tanks inside treatment building
- Preparation of the acid unloading area
- Installation of acid tank
- Installation of 500 feet of effluent piping

✓ Compare as-built vs plans/specifications deviations

- The design for the sump has changed. The new plan is discussed under the current issues section.

✓

Tests performed since last visit

- Concrete tests have been performed for the building slab. The 7-day strength tests conformed to specification.

✓

Project on schedule

A new schedule as of March 2 has been issued by SCS. The treatment building should be completed in 2-3 weeks. The frame is up and the metal sheeting must still be installed. The carbon units are scheduled to arrive at the site on March 23. The multimedia filters are scheduled to arrive at the site on April 16. The effluent line will be completed this week. Startup is scheduled to end on July 13 and SCS will demobilize from the site on July 20. The acid unloading area is anticipated to be completed next week. Construction of the equalization basin will resume on April 4. The pump station is still under design. Construction is expected to begin in 2-3 weeks after design approval.

✓

Revisit issues from last visit

- None

✓

Current issues/problems

- Two broken bags containing white material and labeled as asbestos were found by the concrete intake shaft in Pond 5.
- The design for the pump station has changed. The current design has two borings through the discharge tunnel/pipe, creating a sump and installing submersible pumps. A third boring will be installed to control the head in the pipe.
- The location of the force main does not correspond with the drawings. The topographical map that served as the base for the piping plan is different than actual conditions. Olin did not have a plan for addressing this discrepancy.

NUMBER		DUR	START	FINISH	DC
1000	MOBILIZATION	5	11OCT93	15OCT93	
1005	EROSION CONTROL	5	18OCT93	22OCT93	
1010	ACCESS ROADS	50	18OCT93	27DEC93	
1020	SITE GRADING/STRUCTURAL EXCAVATION	10	25OCT93	05NOV93	
1030	EFFLUENT PUMP MODIF / EFFLUENT U/G PIPING	30	17MAY94	28JUN94	
1040	EQUALIZATION BASIN	125	08NOV93	02MAY94	
1050	TREATMENT BLDG FOUNDATIONS	50	08NOV93	17JAN94	
1060	ACID UNL/STOR FOUNDATIONS	45	25JAN94	28MAR94	
1070	METAL BUILDING	35	01FEB94	21MAR94	
1075	FINISHES TREATMENT PLANT	20	08MAR94	04APR94	
1080	INSTALLATION OF EQUIPMENT	35	01MAR94	18APR94	
1090	PROCESS PIPING	40	15MAR94	09MAY94	
1100	ELECTRICAL & INSTRUMENTATION	50	01MAR94	09MAY94	
1110	REMAINDER OF U/G PIPING & SITE GRADING	15	10MAY94	31MAY94	
1120	MECH & ELEC FOR EQ. BASIN, POND 5 PS & ACID UL/STO	40	12APR94	07JUN94	
1130	PUNCH LIST	10	29JUN94	13JUL94	
1135	LINER	5	03MAY94	09MAY94	
1140	DEMOBILIZATION	5	14JUL94	20JUL94	

ORIGINAL
1/10/94

as of
March 2

CH2M HILL**TELEPHONE CONVERSATION RECORD****ORIGINAL
(Red)**

Call to: Bob Fisher/LGT at Saltville trailer

Project No.: MAE63108.GI.GO

Phone No.: 1-496-5506

Call from: Chris Bozzini/WDC

Date: 3/29/94

Message taken by:

Time: 8:15 AM PM

Subject: Construction Progress

Weather - not raining today, had rain yesterday

Tri-Cities arrived yesterday to resume earthwork. Soil piles around building and acid unloading area were removed. Began cleaning area around pipe supports. More equipment is due today to begin work on the basin and berm on Wednesday or Thursday. ~~The lift on the berm did not pass for compaction.~~ This lift will be scarified, recompacted, and retested.

Acid unloading area is almost complete. Walls and upper portion were poured last week. Curb and hand rails are left.

Building. Inside work yesterday included painting and block filler along with some concrete decking around bathroom and shower area. The building is still open at one end. The roof will be completed once it dries out, possibly today or Thursday. The carbon units arrived last week and were placed in the building using a crane. The units will require a heavy duty fork lift to place them in their final location. This is scheduled for today. The multimedia filters are due in mid-April and can be brought in through the west door. Once roof is on, process piping can be installed.

Search for outfall tunnel. Last week a driller was brought on site for an exploratory hole. The surveyed line thought to be the outfall tunnel was aligned and the boring place there on the first level, approximately 56 feet from the end of the tunnel. The boring hit within 6 inches of the center of the tunnel. This location will serve as the location for one of the caissons for the pump station.

Asbestos bags. The bags contained solids from the cleaning of the outfall. Severson used the wrong bags and did not turn them inside out, so the label was showing. The material was placed in the same area with the drums.

Force Main. A surveyor arrived last Friday to check the planned location of the main. A new alignment was made and staked. Olin wants all changes to the alignment of the force main to be checked by Law prior to installation.

Effluent water line. Approximately 70 feet of concrete encasement of the line has occurred. The rest of the line will be finished when the pipe supports are installed.

Paul Little/Olin typically arrives at the site on noon ~~Tuesday~~ and leaves at noon on Friday. This week he has been delayed by the weather.

ORIGINAL
(Red)



TELEPHONE CONVERSATION RECORD

Call to: Bob Fisher/LGT at Saltville trailer

Project No.: MAE63108.GI.GO

Phone No.: 1-496-5506

Call from: Chris Bozzini/WDC

Date: 4/5/94

Message taken by:

Time: 9:55 AM PM

Subject: Construction Progress

Weather - good weather yesterday and today, rain/snow expected for tomorrow and possibly beyond

Tri-Cities was ready to resume earthwork. Dozer, hoe, hauler, and compactor were onsite or due onsite today. A heavy rain on Sunday has made the basin and borrow area a mess. The plan is to start the basin earthwork next week.

Acid unloading area is almost complete. Curb was poured last week. Only hand rails are left.

Building. Building will be enclosed today. Carbon units were placed in the building. Electrical and mechanical (piping) work is taking place. The multimedia filters are due in mid-April.

Force Main and Pump Station. The force main and pump station will be installed at the same time. The drawings are ready for review or have gone to review.

Pipe Supports. The pipe supports have been precast and will be installed. The locations for the pipe supports will be excavated to hard material, backfilled with gravel, and the supports installed.

Effluent water line. Approximately 70 feet of concrete encasement of the line has occurred. The rest of the line will be finished when the pipe supports are installed.

Power to the site has been brought up Perryville Rd.

Work next week is anticipated to be continued work inside the building on piping and electrical items. Work will begin on the basin, assuming good weather and the material is workable.

Paul Little/Olin is scheduled to arrive today.

CH2M HILL**TELEPHONE CONVERSATION RECORD****ORIGINAL**
(Red)**Call to:** Bob Fisher/LGT at Saltville trailer**Project No.:** MAE63108.GI.GO**Phone No.:** 1-496-5506**Call from:** Chris Bozzini/WDC**Date:** 4/13/94**Message taken by:****Time:** 8:35 AM PM**Subject:** Construction Progress

Weather - a hard rain is falling. It is expected to clear mid-day.

No earthwork is taking place, however, the workers and equipment are at the site and will start working as soon as the material is dry enough. Work may begin Friday and continue through the weekend.

Only electrical and mechanical work is going on today, inside the building.

Multimedia filters are due on Monday to arrive at the site and be installed.



ORIGINAL
(Rem)

April 29, 1994

MAE63108.GI.G0

Mr. Russ Fish
U.S. Environmental Protection Agency
841 Chestnut Street
Philadelphia, PA 19107

Dear Russ:

Subject: Saltville Construction Oversight Trip Report

The following trip report was prepared by CH2M HILL Construction Observer Christopher Bozzini for the April 21, 1994 site visit. The purpose of the site visit was to observe the progress of construction activities. Attached to this letter is the construction oversight checklist for the latest visit.

The upcoming site activities are anticipated to include:

- Construction of the new sump/pumping station, after EPA approval of the design
- Continuing work on the equalization basin
- Installation of the force main

The next oversight visit has not been planned. It is estimated to coincide with installation of treatment equipment in the building, construction of the sump, or work on the equalization basin.

Sincerely,

CH2M HILL

Stephen J. Druschel, P.E.
Site Manager

Attachment
cc: Christopher Bozzini/WDC
WDCC5/053.WP5

ORIGINAL
(Rec'd)

**Saltville OU 1, Treatment Plant
Construction Oversight Checklist
April 21, 1994 Visit**

✓ Contact onsite supervisor

Mr. Bozzini met with Paul Little, construction manager for Olin, Norm Leclerc of Severson Environmental Services (SES); Bob Fisher, the quality assurance/quality control (QA/QC) engineer from Lockwood Greene Technologies (LGT).

✓ Construction activities that were occurring during the visit included:

- Working the soil on equalization berm
- Soil testing of the berm by Law Engineering
- Work on the piping in the treatment building

✓ Identify personnel onsite

Personnel from the following companies were at the site:

- SES
- Tri-City Industrial Builders (TCIB)
- LGT
- Olin Chemicals
- Electrical and mechanical contractors
- CH2M HILL

✓ Work performed since last visit

Major activities performed since the last visit include:

- The treatment building is enclosed.
- Installation of tanks inside treatment building (only multimedia filter is remaining).
- Acid unloading area is complete
- Several pipe supports have been installed.
- Investigation derived waste (IDW) drums were moved onto staging area in Pond 5.

✓ Compare as-built vs plans/specifications deviations

- The design for the sump has changed. The new plan is discussed under the current issues section.

✓

Tests performed since last visit

- Law Engineering has performed soil testing of the berm. The soil typically has been too moist or the compaction has not been met. Severson has been working the soil through blading and compaction to meet the specifications.

✓

Project on schedule

Olin is concerned about the project schedule. The equalization basin is not progressing quickly, because the borrow material is very wet. The design drawings for the sump and force main have not been submitted to EPA for their review.

A new schedule as of April 4 has been issued by SES. This schedule has demobilization occurring in September.

✓

Revisit issues from last visit

- Two broken bags containing white material and labeled as asbestos were found by the concrete intake shaft in Pond 5. Olin stated the bags came from the cleanout of the discharge pipe. Olin has ordered Severson to remove any bags with an asbestos label from the site.
- The design for the pump station has changed. The current design has two borings through the discharge tunnel/pipe, creating a sump and installing submersible pumps. Law Engineering and Olin corporate personnel have been working on the design. Paul Little, Olin's construction manager has not seen final drawings for the pump station and force main.

✓

Current issues/problems

- Olin is concerned about the project schedule. The equalization basin is not progressing quickly, because the borrow material is very wet. The design drawings for the sump and force main have not been submitted to EPA for their review.

WDCC5/054.WP5

CH2M HILL**TELEPHONE CONVERSATION RECORD****ORIGINAL**
TR**Call to:** Bob Fisher/LGT at Saltville trailer**Project No.:** MAE63108.GI.GO**Phone No.:** 1-496-5506**Call from:** Chris Bozzini/WDC**Date:** 5/10/94**Message taken by:****Time:** 8:30 AM PM**Subject:** Construction Progress

Work and weather has been much the same lately.

No earthwork has occurred in the last week. Weather has been good yesterday and today. Rain may come later this week. Earthwork may start today or tomorrow, however, contractor is at another site and took hoe and compactor. Severson can get them back with a phone call. Pump station design is with EPA. Severson has begun precasting pipe supports for the force main.

Building

- piping is moving along
- exterior pipe supports that can be installed, have been
- unloading piping is just about done
- media filter has arrived, but piping for it has not
- building has power

ORIGINAL



TELEPHONE CONVERSATION RECORD

Call to: Paul Little/Olin at Saltville trailer

Project No.: MAE63108.GLGO

Phone No.: 1-496-5506

Call from: Chris Bozzini/WDC

Date: 5/13/94

Message taken by:

Time: 8:00 AM PM

Subject: Construction Progress

No earthwork has occurred in the last week. Equipment was taken from the site this week. Could have possibly done some work today. Rain is expected this Saturday, so it is questionable when earthwork will begin again.

Temporary power was installed to the pond. This will be used for the pump station.

Pump station design is with EPA. Severson has begun precasting pipe sleepers for the force main. Piping for force main is due today or next week.

Building

- almost done, now doing some outside work
- internal components for multimedia filter arrived and will be installed today or next week
- settler is last piece of equipment to be installed

CH2M HILL**TELEPHONE CONVERSATION RECORD****ORIGINAL****Call to:** Bob Fisher/LGT at Saltville trailer**Project No.:** MAE63108.GLGO**Phone No.:** 1-496-5506**Call from:** Chris Bozzini/WDC**Date:** 5/17/94**Message taken by:****Time:** 8:00 AM PM**Subject:** Construction Progress

No earthwork has occurred in the last week. A heavy rain fell last weekend. Too wet to work on berm. Earthwork contractor (Tri-Cities) is not onsite.

Pump station: Have installed piping sleepers. Have ordered dual containment piping. Pumps have been ordered. Assuming approval is received, June 6 may be the first day of construction for the pump station.

Building

- pipe fitters are almost done
- multimedia filter is installed. Culligan representative is scheduled to oversee adding filter material
- modular settling tank is to be installed today.

Weather is cool and windy. Sun possible for rest of week. May begin earthwork again Thursday.



May 31, 1994

MAE63108.GI.GO

Mr. Russell H. Fish, P.E.
U.S. Environmental Protection Agency
Region III (3HW41)
841 Chestnut Street
Philadelphia, PA 19107

Dear Russ:

Subject: Saltville RD/RA Construction Oversight Trip Report

CH2M HILL Construction Observer Christopher Bozzini and Dan McCracken of CH2M HILL visited the Saltville site on May 24, 1994 to observe the progress of construction activities at the OU-1 treatment plant facility. Attached to this letter is the construction oversight checklist for the latest visit.

Current activities include the following:

- Work on the berm. The berm is roughly 75 percent complete. There is approximately 4 to 5 feet left to be added to the berm. Work on the berm has been slowed by the weather and the condition of the borrow material, which has been very moist.
- The building is almost complete. The carbon units and multimedia filters must be filled with their respective material. Additional piping is contingent on completion of the berm.
- Work on the sump/outfall and force main has begun. Sleepers for the piping have been laid and the force main piping was being laid in the pond. Olin/Sevenson has begun reinforcing the discharge tunnel in preparation of construction. A change in the pipe cleanout design is being made. Y-shaped cleanouts are being changed to T-shaped pieces. This change is based on recommendations by the manufacturer.

ORIGINAL

Mr. Russell H. Fish, P.E.
Page 2
May 31, 1994
MAE63108.GI.GO

Now that the weather is becoming better, Olin/Sevenson has been able to proceed faster with the work. The month of June has several important milestones that will warrant oversight activities. Drilling for the sump is scheduled to begin on June 1 and last 5 days. Earthwork for the basin is scheduled to be completed by June 7. The liner is scheduled to be installed the week of June 13. The Calgon Carbon units are scheduled to be filled the week of June 13. Construction is scheduled to be completed by the week of June 27 and startup will begin that week. This schedule is heavily dependent on the berm. The equalization basin must be completed for installation of the liner and completion of piping. If weather impacts earthwork, this current schedule will slide.

Based on discussions held between Mike Tilchin of CH2M HILL and yourself, a change of personnel for construction oversight will be made. The change is being performed to lower project costs, specifically related to travel. Dan McCracken of CH2M HILL's Oak Ridge, TN office will now perform the oversight trips. Dan visited the site during this last visit to transition responsibilities from Chris Bozzini. None of the labor and travel costs associated with Dan's visit will be billed to the project. Dan's next visit is anticipated to be June 2, when Olin is installing the caissons for the sump.

Feel free to call me if you have questions on any of these issues.

Sincerely,

CH2M HILL



Brian Marshall, P.E.
Site Manager

alh/NJR142/030R142.WP5

cc: Christopher Bozzini/CH2M HILL/WDC
Dan McCracken/CH2M HILL/ORO

**Saltville OU 1, Treatment Plant
Construction Oversight Checklist
May 24, 1994 Visit**

✓ Contact onsite supervisor

Mr. Bozzini met with Paul Little, construction manager for Olin and Norm Leclerc of Severson Environmental Services (SES).

✓ Construction activities that were occurring during the visit included:

- Working the soil on equalization berm
- Cleaning and reinforcing outfall tunnel
- Laying out force main
- Installing prefab settling tank
- Applying acid resistant coating to acid unloading area

✓ Identify personnel onsite

Personnel from the following companies were at the site:

- SES
- Tri-City Industrial Builders (TCIB)
- Olin Chemicals
- Electrical and mechanical contractors
- CH2M HILL

✓ Work performed since last visit

Major activities performed since the last visit include:

- Several lifts on the berm have been added
- The treatment building piping and electrical work has progressed. The carbon units, multimedia filter, and settling tank have been installed.
- Pipe sleepers for force main have been installed.

✓ Compare as-built vs plans/specifications deviations

- None

✓

Tests performed since last visit

- Law Engineering has performed soil testing of the berm. The soil has been too moist or the compaction has not been met. Severson has been working the soil through blading and compaction to meet the specifications.

✓

Project on schedule

The schedule for June contains several major milestones. Drilling for the sump is scheduled to begin on June 1 and last 5 days. Earthwork on the basin is scheduled to be completed by June 7. The equalization basin liner is scheduled to be installed the week of June 13. The Calgon Carbon units are scheduled to be filled the week of June 13. Construction is scheduled to be completed by the week of June 27 and startup will begin that week. This schedule is heavily dependent on the berm. The equalization basin must be completed for installation of the liner and completion of piping. If weather impacts earthwork, this current schedule will slide.

✓

Revisit issues from last visit

- None

✓

Current issues/problems

- The schedule for June contains many key aspects of the overall construction. If bad weather occurs, the project schedule will slide into July or later.

PHONE CONVERSATION

CH2M HILL

ORIGINAL
1/2/94

TO: Bob Fischer
Lockwood Greene Engineers

FROM: Dan McCrackin
CH2M HILL

DATE: June 7, 1994

SUBJECT: Saltville RD/RA Construction

PROJECT: MAE63108.GI.G0

I called Bob Fischer to follow-up on the status of the drilling that is being performed by Long Foundation Drilling, Inc. at the location where the pump station is to be installed into the existing tunnel. Mr. Fischer provided the following information:

1. All three holes through the tunnel have been drilled. The drilling activities went well and there were no significant problems encountered. The Contractor was installing the 16-inch casing into the third boring; once this casing is grouted, the drilling contractor will be near completion.
2. The berm at the equalization basin was near final grade. They have had good weather (although hot) and apparently the clay from the newly identified borrow area was easier to work with regarding placement and compaction to meet the specification.
3. The Contractor had set the pump for the feed pumps at the equalization basin. The sump is basically a 5-foot diameter manhole, that is 12 feet in length.
4. Approximately 40 feet of 12-inch HDPE line was installed connecting the sump (manhole) to the point where the line work last week was terminated.
5. The 80-mil HDPE liner for the equalization basin has arrived to the site. Gundle is still scheduled to be onsite June 13-14 to install the liner.

PHONE CONVERSATION

CH2M HILL

ORIGINAL
1/10/94

TO: Dan McCrackin
CH2M HILL

FROM: Bob Fischer
Lockwood Greene Engineers

DATE: June 10, 1994

SUBJECT: Saltville RD/RA Construction

PROJECT: MAE63108.GI.G0

Bob Fischer called this morning to say that bad weather this week has caused another shift in the schedule. Gundle was scheduled to be in Saltville on June 13-14, 1994. The new schedule is for Gundle to be at the site beginning June 20, 1994.

I will plan to visit the site either June 20, or 21, 1994.



ORIGINAL
(Rec)

June 10, 1994

MAE63108.GI.G0

Mr. Russell H. Fish. P.E.
U.S. Environmental Protection Agency
Region III (3HW41)
841 Chestnut Street
Philadelphia, PA 19107

Dear Russ:

Subject: Saltville RD/RA Construction Oversight Trip Report

CH2M HILL Construction Observer Dan McCrackin of CH2M HILL/ORO visited the Saltville site on Thursday, June 2, 1994, to observe the progress of construction activities at the OU-1 treatment plant facility. Attached to this letter is the construction oversight checklist for the latest visit.

Current activities include the following:

- Work on the equalization pond berm continues. The present grade is approximately 3 feet below final. The condition of the clay borrow material has made it difficult for placement and compaction to meet the specifications. However, a new clay source in close proximity to the current borrow area has been identified and is now being used. This material has a moisture content that is closer to optimum and should improve construction of the clay berm. Severson still has Gundle scheduled for placement of the liner the week of June 13, 1994. However, this does not seem to be a reasonable date since earthwork continues. Upon completion of earthwork, the Contractor will still need to install pipelines through the berm and the sump for the feed pumps. It is estimated that Gundle will be rescheduled for the week of June 20, 1994 for placement of the equalization basin liner.
- Work on the process treatment building is on-going, with primary activities involving instrumentation and controls (I&C), and electrical work. The carbon units and multimedia filters have not been filled with their respective material.

ORIGINAL
(Rev)

Mr. Russell H. Fish. P.E.
Page 2
June 10, 1994
MAE63108.GI.G0

- The single-wall HDPE piping has been installed from the top of the berm at Pond 5 to within a few feet of the equalization basin. The double-wall containment piping that is to be installed on concrete supports up the berm side slope will not be performed until the pump station is completed.
- Long Foundation Drilling mobilized at the site on June 1, 1994. After a brief "down period" to work on the drilling equipment, Long Foundation began drilling the first boring into the tunnel on June 2, 1994. Long Foundation first drilled down to the top of the tunnel using a 36-inch bit. A 30-inch steel casing was then installed from ground surface to the top of the tunnel within this boring. Next, Long Foundation lowered a drill bit down through the 30-inch casing and cut through the top of the tunnel. Extreme care was taken to control the pressure exerted onto the tunnel to ensure a clean, precise cut without damage to the tunnel (Sevenson had provided structural support to the tunnel prior to drilling activities). After approximately 3 hours, drilling through the top of the tunnel was successfully completed. At this point, oversight observation was discontinued and Long Foundation proceeded to drill through the bottom tunnel wall. Once through the bottom tunnel wall, Long Foundation was to install a 24-inch casing inside the 30-inch casing. Within the 24-inch casing, Long Foundation was to extend an 18-inch diameter hole into the underlying bedrock for placement of the pumps below the invert of the tunnel. The remaining two sets of well casings were to be drilled and installed on Friday.
- Woody Blackwell with Olin Chemical Company (Charleston, Tennessee) was onsite. Mr. Blackwell was working to make some minor modifications that were required to the "chatterbox" control system that will be used for pump controls. Mr. Blackwell was working closely with the onsite electrical and I&C contractors.
- The piping arrangement for the module settling tank inside the process treatment area was modified. The original design required that the rigid connection between the external piping and the tank be made. However, tolerance must be made in these connections to allow slight movement of the walls upon filling the tank. Therefore, the piping connection was modified to allow flexibility within the tolerance requirements.

ORIGINAL
1/2/94

Mr. Russell H. Fish. P.E.
Page 3
June 10, 1994
MAE63108.GI.G0

- Lowell McCallister, an Olin employee who will be operating the OU-1 treatment facility, is now onsite working with the construction services staff to become familiar with the process and layout. In addition, Shelby Smith assistant to Mr. McCallister, is currently working onsite. Mr. McCallister and Ms. Smith have successfully completed their 40-hour HAZWOPR training, and Ms. Smith has also received her 8-hour refresher training.
- The process piping and gravity lines were pressure tested as required. All testing passed the requirements as specified.


The construction project should reach several important milestones during the next month, including:

- Installation of pump station within the tunnel
- Completion of the equalization berm, including piping, pump station, and the liner
- Placement of the carbon and multi-media material into the respective process tanks
- Completion of all construction and process start-up.

Please feel free to call me if you have any questions regarding this trip report. Dan's next visit is tentatively planned for the week of June 20, 1994, with primary emphasis placed on overseeing the installation of the equalization basin liner.

Sincerely,

CH2M HILL



Brian Marshall, P.E.
Site Manager

Attachment

dac/NJR143/021R1434.WP5

cc: Dan McCrackin/CH2M HILL/ORO

ORIGINAL
(Red)

Saltville OU-1 Treatment Plant Construction Oversight Checklist June 2, 1994 Visit

✓ Contact onsite supervisor

Mr. McCrackin met with Paul Little, construction manager for Olin, Norm Leclerc of Severson Environmental Services (SES), and Bob Fischer of Lockwood Greene Engineers.

✓ Construction activities that were occurring during the visit included:

- Placement of clay soil on the equalization berm
- Drilling of caissons through the tunnel
- Electrical and I&C activities in the process treatment building

✓ Identify personnel onsite

Personnel from the following companies were at the site:

- SES
- Tri-City Industrial Builders
- Olin Chemicals
- Lockwood Greene
- CH2M HILL
- Long Foundation Drilling
- Electrical and mechanical contractors

✓ Work performed since last visit

Major activities performed since the last visit include:

- Several lifts have been added to the equalization basin berm.
- The treatment building piping and electrical work has progressed. Process piping has been pressure tested.
- Single-walled piping has been installed from Pond 5 (top of berm) to within a few feet of the equalization basin.

✓ Compare as-built vs. plans/specifications deviations

- No major deviations to the plans/specifications

✓

Test performed since last visit:

- Law Engineering has performed soil testing of the berm. The treatment building process piping and equalization basin overflow gravity lines have been pressure tested.

✓

Project schedule

The construction project should reach several important milestones during the next month, including:

- Installation of the pump station within the tunnel
- Completion of the equalization berm, including piping, pump station, and the liner
- Placement of the carbon and multi-media material into the respective process tanks
- Completion of all construction and process start-up

✓

Revisit issues from last visit

- None

✓

Current issues/problems

As documented in past oversight reports, problems with the construction of the equalization basin berm have impacted the project schedule. In addition, the progress of on-going construction activities will be key issues regarding the completion of construction and start-up. As always, weather will be a consideration that could alter the completion schedule. Based on these issues, it appears that a late July 1994 completion date may be achievable.

ORIGINAL
(Rev)

CH2M HILL

TELEPHONE CONVERSATION RECORD

Call to: Bob Fischer
Lockwood Greene Engineers
Project No.: MAE63108.GI.GO

Call from: Dan McCrackin
CH2M HILL
Date: June 14, 1994

Subject: Saltville RD/RA Construction

I called Bob Fischer to follow-up on the status of the subject project. Mr. Fischer provided the following information:

1. All three holes through the tunnel have been drilled. The drilling activities went well and there were no significant problems encountered. The Contractor has completed the concrete work for the pump station. Mechanical work on the pump station should begin within the next few days.

The tunnel was inspected upon completion of the drilling. The installation of the casings through the tunnel was not "perfect" as some of the casing were slightly off center, etc. However, this was interpreted a basically a "cosmetic" issue, because the casing will adequately serve the intended use.

In general, this overall task involving the construction of the pump station within the existing tunnel is proceeding as designed and intended.

2. The berm at the equalization basin is near final grade. The Contractor is shaping the slopes and using the excess material to extend the basin to final grade.

The pump station sump and piping at the equalization basin have been completed. The concrete spillway is the last remaining item that must be in place prior to the installation of the liner. The Contractor is planning on constructing the spillway later this week and through the weekend.

There is also a small section of piping that must be installed between the equalization basin and the pipeline that extends to the pump station at Pond No. 5. However, this will not interfere with the lining installation schedule.

Weather permitting, Gundle will be on-site on Monday, June 20, 1994. It is anticipated that the liner installation will take between 2 to 3 days. Law Engineering will perform the seam and liner integrity inspection.

3. Mechanical (piping) and electrical work within the process treatment building should be completed by the end of this week.
4. The carbon and mixed-media tanks have not been filled. Both Calgon and Culligan are tentatively scheduled for next week to oversee the placement of the respective completion.

ORIGINAL

5. Mr. Fischer did not have a firm construction schedule, including completion of construction and start-up. However, he anticipates a July 1994 construction completion.

As always, weather will be an issue during the construction activities.

Call to: Bob Fischer
Lockwood Greene Engineers

Project No.: MAE63108.GLGO

Call from: Dan McCrackin
CH2M HILL

Date: June 27, 1994

Subject: Saltville RD/RA Construction

I called Bob Fischer this afternoon to discuss the status of the subject project. Mr. Fischer provided the following information:

1. Gundle completed installation and testing of the equalization basin liner on Saturday, June 25, 1994. Wet weather impeded the construction of the liner. Tests performed on the liner passed. No problems to report.
2. The pump manufacturer representative is scheduled to be at the site on Thursday, June 30, 1994. The submersible pumps will be installed into the Pond 5 effluent pump later this week.
3. The pipeline from the Pond 5 effluent pump station to the equalization basin will be tested prior to testing/start-up of the Pond 5 effluent pumps.

Mr. Fischer will call me on Wednesday with an update. I told Mr. Fischer that we likely will witness the upcoming equipment testing and start-up activities rather than installation of mechanical equipment (as well as electrical, I&C, etc.).

ORIGINAL
(Red)



June 29, 1994

MAE63108.GI.GO

Mr. Russell H. Fish, P.E.
U.S. Environmental Protection Agency
Region III (3HW41)
841 Chestnut Street
Philadelphia, PA 19107

Dear Russ:

Subject: Saltville RD/RA Construction Oversight Trip Report

CH2M HILL Construction Observer Dan McCrackin of CH2M HILL/ORO visited the Saltville site on Tuesday and Wednesday, June 21 and 22, 1994, to observe the progress of construction activities at the OU-1 treatment plant facility. A two-day visit was required due to severe weather conditions that impeded construction activities. On June 21, 1994, Randy Underwood of CH2M HILL/WDC accompanied Mr. McCrackin to the site to observe the methods used for installation of the equalization basin liner. Mr. Underwood is a senior geotechnical engineer with expertise related to the design and installation of geomembrane and geotextile materials, including high-density polyethylene (HDPE) liners. Attached to this letter is the construction oversight checklist for the latest visit.

The following sections summarize the current construction activities at the Saltville site.

Equalization Basin

Work on the equalization basin continues. The berm was brought up to final grade and a proper base was prepared for the installation of the 80-mil HDPE liner. Gundle mobilized a five-man crew to the site on Monday, June 20, 1994. A severe thundershower Monday night forced the postponement of the liner installation until Wednesday morning. On Tuesday following the storm event, the earthwork contractor removed water collected in the equalization basin using a generator-powered pump.

Gundle began installing the 80-mil HDPE liner on Wednesday, June 22, 1994. By late afternoon, Gundle had placed and welded the seams along the bottom of the basin and had a significant portion of the HDPE liner placed on the basin side slopes. The remaining sections of the HDPE liner on the side slopes were to be placed and

Mr. Russell H. Fish, P.E.
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June 29, 1994
MAE63108.GI.GO

welded on Thursday and Friday (June 23 and 24, 1994). Due to unpredictable weather conditions, Gundle decided to install the HDPE liner (including welding) and then go back and perform the tests as outline in Project Specification 02776, since the weather would not significantly impact the testing activities.

Craig Brown and Sam Interchillia of Law Engineering (Asheville, North Carolina) were on-site to provide field quality control during installation of the HDPE liner. Mr. Brown is a certified liner quality control technician. Based on conversations held at the site on June 21 and 22, Mr. Brown and Law Engineering appear well qualified to provide field quality control services for the HDPE liner installation.

Other activities at the equalization basin include:

- Completion of the concrete overflow spillway on the outside slope of the basin. The section of the spillway that interfaces with the HDPE liner was constructed earlier in the week.
- The anchor trench for the HDPE liner was constructed along the top of the berm concurrently with the placement of the liner by Gundle.
- The mechanical contractor was making the final connections between the two basin pumps and the 4-inch pipeline into the treatment building. Insulating and heat tracing the process piping between the basin pump station and the treatment building will not be performed until completion of all mechanical activities.
- The earthwork contractor was dressing the outside slopes of the basin that were disturbed during installation of the HDPE liner.

Treatment Building

Work on the process treatment building is ongoing. A Calgon Corporation representative was onsite on Tuesday, June 21, 1994, to oversee the placement of the granular carbon media into the carbon adsorption units. The granular carbon was shipped to the site in dry bulk, and water was added to the carbon at the site to form a slurry. The carbon slurry was then pumped into the carbon adsorption units. This work was completed by approximately 8:30 p.m. the same day.

ORIGINAL
(Red)

Mr. Russell H. Fish, P.E.

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The multi-media material was to be placed into the filter units on Thursday, June 23, 1994. A representative from Culligan was scheduled to be on-site to supervise the installation of the multi-media into the filter unit.

The mechanical contractor has been scheduled to reinstall the liner in the settling tank and reconnect the piping. The original liner was removed from the tank due to a factory defect in the material.

Other construction activities at the treatment building include:

- Instrumentation and controls (I&C)
- Electrical
- Interior features, including sinks, counter tops, cabinets and ceilings.

Pond 5 Effluent Pump Station

Three casings have been drilled and installed (including grouting) from the ground surface through the top of the tunnel. In addition, two casings that will contain the submersible pumps have been drilled and installed through the bottom of the tunnel into the underlying bedrock. At the ground surface, a concrete structure has been constructed around the three casings; the top cover that will support vehicular traffic and allow entrance into the structure has not been placed.

Mechanical work on the pump station is scheduled to begin within the next week. Piping for the pump station is currently being pre-fabricated and will be shipped to the site. Electrical and I&C work at the Pond 5 effluent pump station will not be initiated until mechanical completion.

The electrical contractor was working on the main power unit for the Pond 5 effluent pump station. This unit is located near the treatment building.

Sevenson Environmental Services is working on patching cracks that exist within the tunnel walls. Currently, the contractor is preparing the tunnel walls by routing out the cracks. Following this, a fiberglass geotextile and epoxy grout will be placed to seal the cracks to reduce the potential for seepage through the tunnel walls.

The above-ground, double-walled HDPE piping has been installed on concrete supports up the berm side slope. The final section of piping was to be completed on

ORIGINAL
(Recd)

Mr. Russell H. Fish, P.E.
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Wednesday, June 22, 1994, to connect the double-walled piping that penetrates the ground-level concrete structure to the double-walled piping that extends up the side slope to Pond 5.

Other Issues

Lowell McCallister, an Olin employee who will be operating the OU-1 treatment facility, is onsite working with the construction services staff. Mr. McCallister continues to observe the construction activities to become familiar with the process and layout.

The construction project should reach several important milestones during the next month, including:

- Installation of the pump station within the tunnel, including mechanical, structural, electrical and I&C activities.
- Completion of the equalization basin, including piping, pump station, spillway, HDPE liner, electrical and I&C.
- Placement of the multi-media material into the filtration units.
- Reinstallation of the liner into the settling tank and reconnection of the piping.

The current schedule indicates completion of construction activities by August 8, 1994. Although limited "shake down" of process and equipment may be performed prior to August 8, 1994, full process startup will not be initiated until completion of all construction.

Please feel free to call me if you have any questions regarding this trip report.

Sincerely,

CH2M HILL



Brian Marshall, P.E.
Site Manager

dac/NJR144/039R144.WP5

cc: Dan McCrackin/CH2M HILL/ORO

ORIGINAL
7/2/94

Saltvill OU-1 Treatment Plant Construction Oversight Checklist June 21 and 22, 1994 Visit

✓ Contact on-site supervisor

Mr. McCrackin and Mr. Underwood met with Paul Little, construction manager for Olin, Norm Leclerc of Severson Environmental Services (SES), and Bob Fischer of Lockwood Greene Engineers.

✓ Construction activities that were occurring during the visit included:

- Placement of HDPE-liner within the equalization basin
- Construction of the concrete overflow spillway along the outside slope of the equalization basin
- Piping connection between the equalization basin pump station and the 4-inch piping that extends to the treatment building
- Patching cracks within the tunnel
- Placement of the granular carbon media into the carbon adsorption units
- Electrical work for the main power unit for the Pond 5 pump station located adjacent to the treatment building
- Placement of gravel surface around the acid storage facility

✓ Identify personnel onsite

Personnel from the following companies were at the site:

- Olin Chemicals
- Tri-City Industrial Builders
- Mechanical Contractors (from Virginia Beach, Virginia)
- Lockwood Greene
- CH2M HILL
- Law Engineering
- Gundle
- Severson Environmental Services
- Electrical Contractors

✓

Work performed since last visit

Major activities performed since the last visit include:

- Completion of the equalization basin berm to final grade.
- Mechanical installation of the equalization basin pump station is near completion. Electrical and I&C activities will begin upon mechanical completion.
- Installation of pipelines that penetrate the equalization basin.
- The treatment building piping, electrical and I&C work has progressed.
- Installation of three casings from ground surface through the top of the tunnel, and installation of two casing through the bottom of the tunnel into the underlying bedrock. The concrete structure around the three casings at the ground surface has been constructed, and the top cover should be installed within the next few days.
- Double-walled piping has been installed from the Pond 5 effluent pump station to the single-wall piping that extends to the newly constructed equalization basin along the inside slope of Pond No. 5. The double-walled piping was installed above-ground on concrete pipe supports.

✓

Compare as-built versus plans/specifications deviations

- No major deviations to the plans/specifications

✓

Test performed since last visit

- Law Engineering performed soil testing of the berm during the final lifts.
- Law Engineering provided on-site field quality control for the installation of the equalization basin HDPE-liner. Testing was being performed as outlined in Project Specification 02776.
- The HDPE line from that extends along Pond 5 to the equalization basin has been air tested; a hydrostatic test will be performed on this line in the near future.

✓

Project schedule

The construction project should reach several important milestones during the next month, including:

- Installation of the Pond 5 effluent pump station, including mechanical, structural, electrical and I&C activities
- Completion of the equalization basin, including piping, fencing, pump station, electrical, I&C, overflow spillway and installation of the HDPE-liner
- Placement of the multi-media material into the respective process tanks
- Reinstallation of the liner into the settling tank located in the treatment building; reconnection of the piping to the settling tank

✓

Revisit issues from last visit

- None

✓

Current issues/problems

The current schedule indicates completion of construction activities by August 8, 1994. Full process startup will not be initiated until completion of all construction.

ORIGINAL
(Red)

PHONE CONVERSATION

TO: Dan McCrackin
CH2M HILL/ORO

FROM: Bob Fisher
Lockwood Greene Engineers

DATE: July 1, 1994

SUBJECT: Saltville RD/RA Construction

PROJECT NO: MAE63108.GI.GO

Mr. Bob Fisher called this morning to provide an update on the above-referenced project. Mr. Fisher provided the following information:

1. Pond 5 Effluent Pump Station

Concrete was poured into the tunnel and all appurtenances (i.e., door, pipe penetration) have been installed. The concrete structure will act as a dam so that flow through the tunnel may be pumped. The Worthington pump representative will be on-site on Tuesday, July 5, 1994, to oversee the installation of the submersible pumps. This is the area that will receive the most attention over the next several working days.

2. Equalization Basin

The liner installation was completed on Saturday, June 25, 1994. The liner passed all tests that were performed during installation. Law Engineering provided inspection services during liner installation.

Fence posts have been installed around the equalization basin. Fence wire is currently being installed.

The equalization basin lift (pump) station is mechanically and electrically complete.

ORIGINAL
(Red)

Telephone Conversation
Saltville RD/RA Construction
MAE63108.GI.GO

3. Filtration Unit

A Culligan representative was on-site on Tuesday and Wednesday (June 28-29, 1994) to oversee placement of the multi-media into the filtration unit by Severson Environmental Services. The internal and external piping was inspected and tested. The unit was backwashed upon placement of the final layer; backwash water was stored in the lined settling tank.

4. Settling Tank in Treatment Building

The tank liner was re-installed and the piping reconnected. The tank was tested by filling with water and showed no evidence of leakage. The tank was used to hold backwash water from the filtration unit.

5. HDPE Pipeline

Hydrostatic pressure tests have not yet been performed on the pipeline from the Pond 5 effluent pump station to the equalization pond.

6. Approximately 320 feet of guard rail was installed on the upper access road. This road extends to the site by way of the Ice House building that is located on Route 107.

7. The clay borrow area was "dressed" to prevent soil erosion.

Mr. Fisher anticipates that some preliminary start-up of equipment may begin by the end of next week.

ORIGINAL
(Red)

PHONE CONVERSATION

TO: Dan McCrackin
CH2M HILL/ORO

FROM: Bob Fisher
Lockwood Greene Engineers
Saltville Field Office

COPIES: Brian Marshall
CH2M HILL/NJO

DATE: Friday, July 8, 1994

SUBJECT: Saltville RD/RA Construction

PROJECT NO: MAE63108.GI.GO

Mr. Fisher called this afternoon to provide an update on the above-referenced project. Mr. Fisher reported the following information:

1. The bulk head door within the tunnel was closed and the tunnel is now accumulating water. The Worthington pump representative has been rescheduled and will be onsite on Wednesday, Friday 13, 1994, for the startup of the submersible pumps at the Pond 5 effluent pump station.

Due to recent dry weather conditions, the flow within the tunnel is relatively low. The contractor has some concern as to whether there will be enough flow in the tunnel to allow startup of the submersible pumps, with the pumps conveying flow through the HPDE pipeline to the equalization basin. If low flow conditions prohibit startup of the pumps, one option would be to pump water out of the North Fork of the Holston River to the equalization basin. This option will only be explored if there is not enough water in the tunnel during startup next week.

2. Construction crews will be working this weekend (July 9-10). Activities include completion of various electrical work in and around the treatment building.
3. Severson will be monitoring work activities this weekend, and should be able to establish a date for startup and testing of the process equipment.

ORIGINAL
(Red)

Telephone Conversation
Saltville RD/RA Construction
MAE63108.GI.GO

I told Mr. Fisher that I would call him the middle of next week to inquire about the project status and schedule. I told Mr. Fisher that the EPA and CH2M HILL are interested in overseeing startup of the unit processes, and to keep me informed regarding the schedule of this work.

ORIGINAL
(Red)

PHONE CONVERSATION

TO: Dan McCracken
CH2M HILL/ORO

FROM: Bob Fisher
Lockwood Greene/Saltville Field Office

COPIES: Brian Marshall
CH2M HILL/NJO

DATE: Thursday, July 14, 1994 ✓

SUBJECT: Saltville RD/RA Construction

PROJECT NO: MAE63108.GI.GO

Mr. Fisher called this morning to provide an update on the above-referenced project. Mr. Fisher reported the following information:

1. The 8,000-gallon acid tank was partially filled with 93% H₂SO₄. Approximately 3,200 gallons of acid was transferred into the tank on Wednesday, July 13, 1994. The remainder of the tank will be filled this week.
2. The construction completion date is set for August 8, 1994. It seems that Severson Environmental has told its subcontractors that they must be mechanically complete by Friday, July 15, 1994. It appears that the only significant work still in progress is electrical. Electrical work is currently at 98% complete and the electricians will be working perhaps through the weekend to complete the work.
3. As stated in Item No. 2 above, the only significant work still in progress is electrical. The project is in a "punch list mode," and some "shakedown" of process equipment is occurring.
4. The startup for the facility is scheduled for August 22, 1994. Mr. Fisher stated that he was not sure if startup was ever scheduled for August 8, 1994 (as August 8, 1994, is the date for completion of construction). With Mr. Fisher on the line, I pulled my project files and read to him a paragraph in our June 29, 1994, site visit memorandum to Mr. Russell Fish (EPA) that stated:

ORIGINAL
(Red)

Telephone Conversation
Saltville RD/RA Construction
MAE63108.GI.GO

"The current schedule indicates completion of construction activities by August 8, 1994. Although limited "shake down" of process and equipment may be performed prior to August 8, 1994, full process startup will not be initiated until completion of all construction."

This is consistent with earlier information reported to EPA; however, the August 8, 1994, construction completion deadline should not be confused with startup.

5. Mr. Fisher stated that there is currently low flow from the Pond 5 effluent tunnel due to dry weather conditions. As stated in our July 8, 1994, telephone conversation, the bulk head door within the tunnel was closed and the tunnel is now accumulating water.

Due to low flow conditions, the contractor has decided to pump water from the Pond 5 effluent pump station to the equalization pond. Therefore, Pond 5 effluent is not being discharged into the North Fork of the Holston River (NFHR). Enough water should be conveyed to the equalization pond to allow startup and testing of the process treatment equipment the week of August 22, 1994. Without storing Pond 5 effluent over this period, the contractor was concerned that there may not be enough flow available to allow a continuous startup operation, and would be interrupted due to lack of water.

6. Mr. Lowell McCallister, an Olin employee who will be operating the OU-1 treatment facility, has been onsite the past few weeks working with the construction services staff. Mr. Fisher stated that Mr. McCallister is becoming both familiar and comfortable with the facility.
7. The HDPE pipeline from the Pond 5 effluent pump station to the equalization pond was tested to 50 psig. However, to meet specifications, the carrier line will be hydrostatically tested to 100 psig (working pressure is 57 psig) next week. The HDPE pipe is rated for 160 psig.

The short section of containment piping (from the effluent pump station to the inside of Pond 5 berm) will be air tested next week in accordance with the project specifications.

The 6-inch gravity line that will be used to discharge treated water to the NFHR will be tested next week (standing head test).

ORIGINAL
(Red)

Telephone Conversation
Saltville RD/RA Construction
MAE63108.GI.GO

Mr. Fisher and I will communicate no later than Thursday, July 21, 1994. I told Mr. Fisher that my next anticipated trip to the site would be the week of August 22, 1994, during the startup phase.

ORIGINAL
(Red)

PHONE CONVERSATION

TO: Bob Fisher
Lockwood Greene Engineers
Saltville Field Office

FROM: Dan McCrackin
CH2M HILL

DATE: July 21, 1994

SUBJECT: Saltville RD/RA Construction

PROJECT NO: MAE63108.GI.GO

I called Mr. Bob Fisher this morning to obtain an update on the above-referenced project. Mr. Fisher provided the following information:

1. A standing (static) head test was attempted on the 6-inch HDPE treated water line early this week. The contractor pumped water into the 6-inch pipeline from Tuesday (7/21) through Wednesday (7/22), but was not able to fill the line. As efforts continued to fill the line, a wet spot was noticed at the ground surface indicating a leak in the line. It was determined that the top of the line was damaged. Fluid Controls (Driscoll pipe representative from Huntsville, Alabama) has already responded to this problem. The hole in the pipe was patched and the pipe passed the standing head pressure test.
2. Most of the current work at the site involves general site cleanup and reviewing the punch list items with the contractor.
3. Lowell McCallister (Olin treatment plant operator) is on site, and is periodically pumping water from the Pond 5 effluent pump station to the equalization basin. The Pond 5 effluent pump station seems to be operating satisfactorily.
4. The HDPE carrier pipe from the Pond 5 effluent pump station to the equalization basin passed the pressure tests. The HDPE containment pipe (up the side slopes between the Pond 5 effluent pump station and inside of the Pond 5 berm) is to be air tested within the next few days.

ORIGINAL
(Red)

Telephone Conversation
Saltville RD/RA Construction
MAE63108.GI.GO

5. Project startup is still scheduled for the week of August 22, 1994.

Due to low flow conditions, the contractor is pumping water from the Pond 5 effluent pump station to the equalization pond. Therefore, Pond 5 effluent is not being discharged into the North Fork of the Holston River (NFHR). Enough water should be conveyed to the equalization pond to allow startup and testing of the process treatment equipment the week of August 22, 1994. Without storing Pond 5 effluent over this period, the contractor was concerned that there may not be enough flow available to allow a continuous startup operation, and would be interrupted due to lack of water.

6. Mr. Fisher stated that he will be assisting with the development of as-built drawings. He was not sure about how much longer he would be at the Saltville site.

ORIGINAL
(Red)

PHONE CONVERSATION

TO: Bob Fisher
Lockwood Greene Engineers

FROM: Dan McCrackin
CH2M HILL

DATE: August 12, 1994

SUBJECT: Saltville RD/RA Construction

PROJECT NO: MAE63108.GI.GO

I called Mr. Bob Fisher this morning to obtain an update on the above-referenced project. Mr. Fisher provided the following information:

1. The general contractor (Sevenson Environmental) demobilized last week.
2. Not much work going on at the present. Today, Mr. Fisher and a pipe insulator are the only ones at the site. The pipe insulator is insulating the 4" pipeline from the equalization basin to the treatment building.
3. Items that remain (excluding start-up) include:
 - Minimal site grading to improve drainage
 - Prepare as-built drawings
 - Seeding of site (hydroseeding)
4. Mr. Fisher has not heard of any changes to the official start-up period currently scheduled for the week of August 22, 1994. Mr. Fisher is going to contact Mr. John Burns (Olin Chemicals) to confirm start-up period.
5. Mr. Fisher stated that there appears to be enough water in the equalization basin for a "plant run through" during the start up period. However, low flow conditions from Pond 5 continue to exist.

Mr. Fisher and I will communicate again on Wednesday, August 17, 1994, to confirm the start-up period.

CONVERSATION

ORIGINAL
(Red)

Bob Fisher
Lockwood Greene Engineers

FROM: Dan McCrackin
CH2M HILL

DATE: August 16, 1994

SUBJECT: Saltville RD/RA Construction

PROJECT NO: MAE63108.GI.GO

I called Mr. Bob Fisher this morning to obtain an update on the above-referenced project. Mr. Fisher provided the following information:

1. The start up date has been changed from the week of August 22, 1994, to Tuesday, September 6, 1994. Monday is the Labor Day Holiday. The reason for the delay is that Olin Chemical Co. believes that there is not a sufficient quantity of water in the equalization basin to allow a continuous start up operation. There is approximately 2 feet of water above the invert of the equalization basin pipeline (i.e., approximately 2 feet of water in the basin).
2. It should be noted that the Pond 5 effluent pump station is running on "AUTO" mode, and all water from the Pond 5 tunnel is being conveyed to the equalization basin. Therefore, no water is being discharged to the Holston River as we wait for start up of the treatment process.
3. This may be Bob Fisher's last week in Saltville. He will be going back to Lockwood Green Technologies' Atlanta, Georgia office; he can be contacted at 404.818.8507. He plans to be at the Saltville facility during the startup period.
4. The telephone number in the Treatment Building Control Room is 703.496.3463. Mr. Lowell McCallister (Olin Chemical Co.) is the treatment facility operator.
5. As reported in our August 12, 1994, conversation, there is not much activity at the Saltville site. Mr. Fisher is completing various "paper work" and as-built drawings, and Mr. McCallister is still training on the treatment process equipment. The general contractor, Severson, has demobilized from the facility. Mr. Fisher thought that Severson would have representatives present during start-up.

I will communicate with Mr. Fisher and Mr. McCallister again by Friday, August 26, 1994, 1994, to confirm the start-up period.

PHONE CONVERSATION

ORIGINAL
(Rec)

FROM: Bob Fisher
Lockwood Greene Engineers

TO: Dan McCrackin
CH2M HILL

DATE: August 22, 1994

SUBJECT: Saltville RD/RA Construction

PROJECT NO: MAE63108.GI.GO

Mr. Bob Fisher called this morning to inform me that the start-up date for the Saltville project has been changed. The start-up date for the treatment process was scheduled for Tuesday, September 6, 1994. However, the revised start-up date is for Monday, September 12, 1994. The reason for the delay is that Mr. John Burns (Project Manager for Olin Chemical Co.) believes that there is not a sufficient quantity of water in the equalization basin to allow a continuous start-up operation. Mr. Lowell McCallister (Treatment Facility Operator for Olin) estimates that the basin currently contains a volume of water that would allow only a 6-hour start-up run. It should be noted that Olin will be monitoring the volume of water in the equalization basin. If a sufficient volume of water is not available on September 12, 1994, the start-up will be rescheduled for Monday, September 26, 1994. Mr. Fisher will keep me informed regarding the status of the treatment process start-up operation.

Other issues to report include:

1. All water from Pond 5 is still being diverted to the equalization basin; no water is discharged to the North Fork of the Holston River.
2. The grading and earth works subcontractor was on-site Friday, August 19, 1994, to improve the drainage system. Upon completion of this work (mid-week), the area will be hydroseeded.
3. A mechanical contractor is on-site performing various minor tasks. Recent problem with a carbon column feed pump has been corrected. The mechanical contractor removed a plastic wrapper from the pump suction piping.
4. Not much activity at the site this week. All subcontractors should be gone by mid-week (depending on the weather).

As earlier stated, Mr. Fisher and I will communicate on a weekly basis (minimum) to keep informed on the status of the project.

ORIGINAL
(Red)**TELEPHONE CONVERSATION**

TO: Lowell McCallister
Olin Chemical Company
Saltville, Virginia

FROM: Dan McCrackin
CH2M HILL

DATE: September 6, 1994

SUBJECT: Saltville RD/RA Construction

PROJECT NO: MAE63108.GLGO

I called Mr. McCallister this morning to obtain an update on the startup date for the above-referenced project. Mr. McCallister provided the following information:

1. The startup date will not be the week of September 12, 1994. Startup may actually be moved into the first part of October 1994.
2. There is approximately 3 feet of water in the equalization basin. However, 1.5 feet of this water is below the low level cutoff for the pumps. Therefore, Olin is concerned that 1.5 feet of "available" water in the equalization basin is not enough to allow a continuous startup period.
3. Mr. McCallister stated that all the laboratory equipment has not yet arrived to the site. He stated that all lab equipment is scheduled to be onsite by September 12, 1994.
4. Mr. McCallister recommended that we talk next week for an update on the schedule.

ORIGINAL
(Red)**TELEPHONE CONVERSATION**

TO: Bob Fisher
Lockwood Greene Engineers

FROM: Dan McCrackin
CH2M HILL

DATE: September 6, 1994

SUBJECT: Saltville RD/RA Construction

PROJECT NO: MAE63108.GI.GO

I called Mr. Bob Fisher this morning to obtain an update on the startup date for the above-referenced project. Mr. Fisher stated that he did not receive an update last week and suggested that I call Mr. Lowell McCallister at the Olin facility in Saltville. [See attached telephone log.]