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MID 1995 - MID 1997 AS-BUILT CONSTRUCTION REPORT

For the Brewer Gold Mine Site Closure
Brewer Gold Mine – Jefferson, South Carolina

Submitted to:

Mr. Bud Long, P.E.
Brewer Gold Company
Jefferson, South Carolina

Submitted by:

Schafer and Associates
Bozeman, Montana

Date:

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Schafer

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BREWER GOLD MINE SITE CLOSURE
JEFFERSON, SOUTH CAROLINA

1.0 INTRODUCTION

This report summarizes the construction activities and related quality control testing which were completed during Phase 1 of the Brewer Gold Mine (BGM) Site Closure in Jefferson, South Carolina. The attached As-Built Drawings (six sheets) graphically illustrate how the closure was constructed. For the purposes of this report, Phase 1 is considered the time period from initiation of full scale Brewer Pit dewatering operations through revegetation of the backfilled Brewer Pit.

This As-Built report and drawings have been prepared as identified in Section 6.4 of the BGM Site Closure Design Report dated May 11, 1995. This As-Built report documents the closure construction and confirms that the closure was performed in accordance with the intent of the design approved by SCDHEC.

1.1 General Site History

As shown on Sheet 1of the As-Built Drawings, the BGM is located in Chesterfield County, SC and is accessed off of State Highway 265, approximately 1.5 miles west of the town of Jefferson. The mine site occupies approximately 1,000 acres on a topographic ridge between Little Fork Creek to the east and Lynches River to the south and west. The total area disturbed to date by mining activities is less than 230 acres.

The BGM site was mined historically on an intermittent basis from the early 1800s through 1993. In 1984, Costain, Inc. (Costain) purchased Nicor Mineral Ventures, Inc., who controlled an option to purchase the BGM. Later that year, Costain exercised the option and the BGM became part of the newly formed Westmont Mining, Inc. (Westmont). In 1987, Westmont created Brewer Gold Company (BGC) to operate the BGM.

Since 1984, operations at the BGM focused on open-pit mining. Waste rock was removed and stockpiled to access the ore. The ore was crushed, agglomerated with cement and cyanide, stockpiled on heap leach pads, and rinsed with a dilute-buffered cyanide solution to leach the gold from the ore. Active mining was discontinued in January 1993 and gold recovery from the final heap leach pile (HLP) was completed in June 1995.

Between January 1993 and July 1995, the Brewer Pit was allowed to recharge with ground water and surface water to a depth of approximately 50 feet above the pit floor. Full scale dewatering of the Brewer Pit was initiated on July 3, 1995 to facilitate backfill operations. The content of this As-Built report documents construction activities subsequent to initiation of full scale dewatering operations.

1.2 Pre-Construction Site Status

Prior to site closure construction operations, the primary BGM site facility components consisted of: three open pits (the Brewer Pit, the B6 Pit and the Northwest Trend (NWT) Pit); a waste rock dump (WRD); three Heap Leach Piles (HLP 1-4, HLP 5 and HLP 6); a sediment pond; seven synthetic lined process solution ponds; and other site facilities that supported mining operations. Table 1 describes the pre-construction and current status of each of these facilities.

2.0 GENERAL DESCRIPTION OF THE WORK

2.1 Scope of Work

The primary work performed during Phase 1 of the BGM Site Closure included: installation of temporary erosion control measures; clearing and grubbing; construction of new and upgrade of existing haul roads; excavation, hauling and placement of the WRD and HLPs 1-4, 5 and 6 into the Brewer and B6 Pits; transfer of sludges from the Sediment Pond to Brewer Pit; hauling and placement of limestone amendment along the bottom of the Brewer Pit west wall; closure of the adit and construction of a Brewer/B6 Pits subdrain (subdrain); construction of surface water drainage channels; development of an on-site borrow area; placement of a low-permeability cap system over the backfilled Brewer and B6 Pits; closure of site process ponds, including stabilization of hazardous sludges and; regrading and revegetation of disturbed site areas.

Titan Environmental Corporation (Titan) performed the design and produced the technical specifications (Specifications), construction drawings (Drawings) and bid documents. The Design Report is dated May 11, 1995 and was submitted to SCDHEC in May of 1995. During construction, Titan provided construction management services and performed quality control testing to verify adherence to the Drawings and Specifications.

2.2 Contract Awards

Performance of the BGM Site Closure work described in Section 2.1 involved two prime contractors and three subcontractors. Contractor contact information is as follows:

Prime Contractors

Contractor	Vecellio & Grogan, Inc.	Amos Horton Grading
Work Tasks	1. Backfill of the WRD, and HLPs 1-6 into the Brewer and B6 Pits. 2. Limestone amendment placement. 3. Subdrain construction. 4. Bedrock cap placement. 5. Brewer Pit cap construction. 6. Brewer Pit channel construction. 7. Miscellaneous force account work.	1. B6 Pit cap construction. 2. B6 Pit channel construction. 3. Miscellaneous force account work.
Address	P.O. Box V Beckley, West Virginia 25802	P.O. Box 429 Jefferson, South Carolina 29718
Phone	(304) 252-4131	(803) 658-7628
Contact	John M. Conkwright PE Vice President - Operations	Lynn Horton Vice President - Operations

Subcontractors

Contractor	Serrot Corporation	Threat Farms	Bedenbaugh Seed
Contracted To	Vecellio & Grogan, Inc	Amos Horton Grading	Vecellio & Grogan, Inc
Work Tasks	1. Supply and installation of the Subdrain HDPE liner.	1. Revegetation of the B6 Pit cap.	1. Revegetation of the Brewer Pit cap.
Address	125 Cassia Way Henderson, NV 89014	RR 1 Jefferson, SC 29718	Drawer 276 Prosperity, SC 29127
Phone	(800) 237-1777	(803) 658-3106	(803) 364-2760
Contact	J. Graydon Renshaw Project Manager	David Threat Owner	Charles W. Bedenbaugh President

2.3 Construction Schedule

The construction schedule for all major work items completed during Phase 1 of the BGM Site Closure is detailed on Figure 1. As shown on Figure 1, major site closure construction activities

began with full scale dewatering of Brewer Pit on July 3, 1995 and were completed with revegetation of the Brewer Pit cap area on July 25, 1997.

3.0 PITS DEWATERING

3.1 General

Prior to initiation of construction activities at the BGM, the Brewer Pit contained approximately 100 million gallons (MG) of acidic water. BGC personnel constructed and operated a batch treatment plant for rapidly dewatering Brewer Pit in support of pit backfill operations. The water level elevation was approximately 386 feet above mean sea level (approximately 2 vertical feet below the adit inlet) on July 3, 1995 when full-scale dewatering operations were initiated by BGC.

3.2 Dewatering Approach

Because the water contained in Brewer Pit was acidic and contained high metals concentrations, treatment of the water was required prior to discharge. BGC's existing treatment plant was insufficiently sized to rapidly dewater Brewer Pit and allow for backfill operations to begin as scheduled. Therefore, a batch treatment system was constructed by BGC and, in general, operated as follows:

1. Water was pumped from Brewer Pit to near the NWT Pit via a barge mounted pump in Brewer Pit and a booster station located at the 440 feet MSL level of Brewer Pit;
2. A magnesium hydroxide ($MgOH_2$) slurry was prepared in a slurry tank located near the NWT Pit.
3. The slurry was injected into the Brewer Pit dewatering pipeline at a predetermined rate and blended using an in-line static mixer.
4. The treated water was then discharged into two 15,000-gallon tanks for additional mixing and retention time to allow for $MgOH_2$ reaction.
5. Following mixing and retention, the treated water proceeded via gravity flow directly into the NWT Pit for settling of solids and additional polishing if necessary. Typically, treated water remained in the NWT Pit for a period of approximately 3 days prior to discharge.

6. Once the water was determined acceptable for discharge, the water was removed from NWT Pit using a barge mounted pump and discharged through BGC's permitted National Pollution Discharge Elimination System (NPDES) 001 outfall into Little Fork Creek.
7. Typical batch sizes during dewatering operations ranged from 6.5 to 11 MG based on reagent availability and NWT Pit storage capacity. The typical time required for each batch treatment was approximately 11.5 days (3.5 days for in-line treatment + 3 days for settling/polishing + 5 days for discharge).

3.3 Dewatering Results

As previously stated, full-scale dewatering operations commenced on July 3, 1995. A total of 12 batch treatments were performed by BGC in order to dewater the Brewer Pit to a point low enough for backfill operations to begin. The final batch treatment was completed on January 31, 1995 resulting in a total of approximately 120 million gallons of water treated (the original 100 MG + 20 MG from ground water and surface water inflow) in 212 days.

During the course of batch treatment, approximately 1,600 tons of reagent (primarily MgO) were used to treat the Brewer Pit water to meet NPDES discharge standards. Approximately 7 MG of non-hazardous hydroxide sludge was deposited in NWT Pit as a result of the treatment process.

3.4 Design Variances

As specified in the BGM Site Closure Design Report (submitted to BGC on May 11, 1995) (design report), the hydroxide sludge produced during Brewer Pit dewatering operations was to be pumped back into Brewer Pit and incorporated into the backfill materials as an amendment. As detailed in a June 18, 1997 correspondence from BGC to the South Carolina Department of Health and Environmental Control (SCDHEC), relocation of the sludge in NWT Pit proved to be impractical due to the amount of excess water required to dredge the material.

4.0 PITS BACKFILL

4.1 General

Pits backfill operations for Phase 1 of the BGM Site Closure involved the following:

- Installation of concrete plugs at both ends of the Brewer adit;
- Backfill of B6 Pit with excavated WRD material and minor quantities of HLP 1-4 and HLP 5 material;
- Backfill of Brewer Pit with the remaining WRD and HLP material;
- Installation of a limestone amendment layer along the west highwall of Brewer Pit;
- Construction of a bedrock cap along the east highwall of Brewer Pit; and
- Incorporation of sludge material from cleanout of site ponds into the pits backfill materials.

4.2 Adit Closure

4.2.1 Outlet Bulkhead

Construction of the adit outlet bulkhead was performed by BGC personnel prior to the onset of B6 Pit backfill operations. BGC personnel began construction of the bulkhead on December 6, 1995 and completed construction on December 21, 1995. In order to gain access to the adit and provide a solid foundation for concrete placement, the existing bulkhead was removed using a track-mounted breaker and approximately 30 cubic yards (cy) of accumulated sediment were removed.

Upon gaining access to the adit, BGC personnel constructed the necessary formwork, and installed the reinforcing bars (rebar) and cables (see Sheet 6 for construction details). On December 21, 1995 a total of approximately 26 cy of ASTM C 150 Type V concrete was poured into the formwork and consolidated with a high-frequency vibrator to eliminate voids. Subsequent to concrete curing, clayey material was placed behind and above the outside formwork of the bulkhead.

4.2.2 Inlet Bulkhead

Construction of the adit inlet bulkhead was performed by Vecellio & Grogan (V&G). Construction operations began on April 10, 1996 with cleanout of sediments from the opening and scaling of loose rock. Formwork and rebar placement were completed on April 16, 1997 (see Sheet 6 for construction details). On April 17, 1996 a total of approximately 30 cy of ASTM C 150 Type V concrete was poured into the formwork and consolidated with a high-frequency vibrator to eliminate voids. Subsequent to concrete curing, clayey material was placed behind and above the outside formwork of the bulkhead.

4.3 B6 Pit Backfill

4.3.1 General

Backfill of the B6 Pit was completed primarily with WRD material and minor quantities of HLP material for HDPE and geosynthetic clay liner (GCL) subgrade preparation (see Sheet 3 for material placement sequencing). Backfill of B6 Pit was initiated on January 4, 1996 and completed on May 9, 1996. B6 Pit was not completely backfilled prior to shifting full-scale backfill operations to Brewer Pit. The remaining portion of B6 Pit was backfilled concurrent with Brewer Pit. A total of approximately 658,300 cy of material was backfilled into B6 Pit (includes approximately 13,000 cy of Subdrain material) prior to completion of Brewer Pit backfill.

4.3.2 Waste Rock Placement

Waste rock placement into B6 Pit was initiated on January 4, 1996. Backfill operations were performed by V&G using three Cat 785B haul trucks, one Cat D9N dozer, one Cat D8L dozer and one Hitachi EX1800 excavator. Backfilled waste rock was placed in maximum 5-foot-thick lifts and compacted by routing of haul trucks and dozer tracking. Waste rock backfill continued until February 6, 1996 when the operation was suspended to allow construction of the Subdrain. Waste rock backfill operations resumed on March 21, 1996 and were completed on April 25, 1996 for a total of approximately 603,000 cy of waste rock material placed.

4.3.3 HLP 5 Placement

Approximately 5,300 cy of HLP 5 material were placed in B6 Pit for construction of the Subdrain liner foundation. HLP 5 material was placed in maximum 2-foot-thick lifts, graded to match the Subdrain cross-section and profile and compacted with a smooth drum vibratory roller to 90% of the materials maximum dry density. The total depth of HLP 5 material ranged from 3 to 5 feet as required to fill voids in the previously placed waste rock and provide a smooth surface for HDPE liner placement.

4.3.3.1 HLP 5 Asphalt Liner Placement

Subsequent to complete removal of HLP 5 material to Brewer and B6 pits, the asphalt liner on Pad 5 was removed and placed in B6 Pit. Liner removal operations began on March 25, 1996 with V&G using a D9N dozer to rip and windrow the asphalt to allow efficient loading and hauling to B6 Pit. Asphalt liner removal was complete on April 9, 1997 with a total of approximately 17,000 cy removed. All asphalt material was placed in B6 Pit between the 465 and 475 feet MSL elevations.

4.3.4 HLP 1-4 Placement

Between April 26 and June 9, 1996, approximately 20,000 cy of HLP 1-4 material was placed above the waste rock material backfilled into B6 Pit to prepare a suitable subgrade for GCL placement. The entire B6 Pit waste rock backfill surface was covered with 1 to 1.5 feet of HLP 1-4 material. No compactive effort beyond dozer tracking was applied, pending GCL placement operations.

4.4 Brewer Pit Backfill

4.4.1 General

Backfill of Brewer Pit was primarily completed with all remaining WRD and HLP material (see Sheet 3 for material placement sequencing). Backfill operations in Brewer Pit were initiated on February 6, 1996 and completed on March 6, 1997. A total of approximately 6,042,000 cy of material were backfilled into Brewer Pit (includes approximately 7,700 cy of Subdrain material).

4.4.2 HLP 5 Placement

Backfill operations in Brewer Pit commenced on February 6, 1996 with placement of HLP 5 material on the pit floor. HLP 5 material was hauled to the Brewer Pit floor from Pad 5 with three Cat 785B haul trucks, spread in maximum 2-foot-thick lifts with a D9N dozer, and compacted by dozer tracking and routing of haul trucks. Each lift of HLP 5 material was compacted to at least 90% of the materials standard proctor density prior to placement of subsequent lifts. A total of approximately 694,587 cy of HLP 5 material were placed in Brewer Pit for a final backfill elevation of approximately 408 feet MSL. Placement of HLP 5 material in Brewer Pit was completed on March 21, 1996.

4.4.3 Limestone Amendment Placement

A 1-foot-thick layer of ASTM No. 4 limestone was placed against the west highwall of Brewer Pit from approximately 355 feet MSL to 480 feet MSL (see Sheets 3 and 4 for location of limestone amendment placement). Limestone material was delivered to the Brewer Pit using two 18-ton dump trucks, placed against the highwall using a loader, and pushed up to form a 1-foot-thick layer using a Cat D5 dozer. A total of 6,670 tons of limestone amendment material were placed between February 17, 1996 and March 20, 1996.

4.4.4 HLP 1-4 Placement

HLP 1-4 backfill operations in Brewer Pit commenced on March 19, 1996 with placement of HLP 1-4 material directly above the final backfill surface of HLP 5 (see Sheet 3 for material placement sequencing). HLP 1-4 material was hauled to Brewer Pit from Pad 1-4 with three Cat 785B haul trucks, spread in maximum 2-foot-thick lifts with a D9N dozer, and compacted by dozer tracking and routing of haul trucks. Each lift of HLP 1-4 material was compacted to at least 90% of the materials standard proctor density prior to placement of subsequent lifts. A total of approximately 1,046,983 cy of HLP 1-4 material were placed in Brewer Pit. The final backfill elevation of HLP 1-4 material was approximately 444 feet MSL in the center of Brewer Pit, sloping up to approximately 480 feet MSL along the west highwall of Brewer Pit. Placement of HLP 1-4 material in Brewer Pit was completed on June 14, 1996.

4.4.5 Bedrock Cap Placement

Approximately 9,350 cy of silty material were placed along the east highwall of Brewer Pit to attempt to limit groundwater flow between Brewer and B6 Pits (see Sheet 3 for material placement location). Bedrock cap construction began on March 15, 1996 and was completed on June 11, 1996. Silty material was obtained from the on-site borrow area, transported to Brewer Pit using 35-ton haul trucks, and pushed up against the Brewer Pit highwall to form a continuous 1-foot-thick layer from approximately 382 feet MSL to 438 feet MSL. Compaction of the silty material was achieved by dozer tracking. All bedrock cap material was compacted to 90% of the materials standard proctor density.

4.4.6 Waste Rock Placement

Waste Rock backfill operations in Brewer Pit commenced on June 14, 1996 with placement of waste rock material directly above the final backfill surface of HLP 1-4 (see Sheet 3 for material placement sequencing). Waste rock material was hauled to Brewer Pit from the WRD and Ore Stockpile areas with three Cat 785B haul trucks, spread in maximum 5-foot-thick lifts with a D9N dozer, and compacted by dozer tracking and routing of haul trucks. No specific compaction specification was required for waste rock material beyond haul truck routing. A total of approximately 2,292,148 cy of waste rock material (includes approximately 55,816 cy of material from the Ore Stockpile) were placed in Brewer Pit. The final backfill elevation of waste rock material was approximately 512 feet MSL in the center of Brewer Pit. Placement of waste rock material in Brewer Pit was completed on November 15, 1996.

4.4.7 HLP 6 Placement

HLP 6 backfill operations in Brewer Pit commenced on November 20, 1996 with placement of HLP 6 material directly above the final backfill surface of waste rock material (see Sheet 3 for material placement sequencing). HLP 6 material was hauled to Brewer Pit from Pad 6 with three Cat 785B haul trucks, spread in maximum 2-foot-thick lifts with a D9N dozer, and compacted by dozer tracking and routing of haul trucks. Each lift of HLP 6 material was compacted to at least 90% of the materials standard proctor density prior to placement of subsequent lifts. A total of approximately 1,986,150 cy of HLP 6 material were placed in Brewer Pit. The final backfill elevation of HLP 6 material was approximately 588 feet MSL in the northwest corner of Brewer

Pit. Placement of HLP 6 material in Brewer Pit was completed on March 6, 1997 and marked completion of Brewer Pit backfill operations.

4.5 NWT Pit Backfill

The NWT Pit was not backfilled as specified in the Design Report. Per BGC direction, the NWT Pit was left open to facilitate water treatment requirements.

4.6 QA/QC Testing And Results

Quality assurance/quality control (QA/QC) testing of Pits backfill operations involved the following activities:

- Continuous observations of backfill lift thickness to verify compliance with lift thickness specifications;
- Moisture/density relationship testing of placed materials to determine standard proctor densities.
- Nuclear density testing to verify compliance with backfill density requirements.

All QA/QC activities except for moisture/density relationship testing were performed by Titan. Moisture/density relationship tests were performed by off-site third-party laboratories. Results of these tests are provided in Appendix A. Nuclear density test results are summarized in Table 2.

4.7 Design Variances

As specified in the Design Report, the NWT Pit was to be backfilled with HLP 6 material and Pad 6 Overflow Pond dam material. Due to uncertainties regarding long term water treatment flow rates and influent quality, the NWT Pit was left open, per BGC direction, as a water treatment system component.

Minor changes to the adit bulkhead designs were presented in design Addendums 1 and 3 which were submitted to BGC on December 1, 1995 and January 11, 1996 for construction of the adit inlet and outlet bulkheads, respectively.

5.0 SUBDRAIN CONSTRUCTION

5.1 General

The Brewer/B6 Pits Subdrain (Subdrain) was constructed in two phases to accommodate Pits backfilling schedules. Phase 1 of Subdrain construction commenced on February 12, and consisted of construction of the easternmost 1,050 linear feet (lf) of the B6 portion of the Subdrain. Phase 1 of Subdrain construction was completed on March 20, 1996. Subdrain construction resumed on May 20, 1996 for Phase 2, which consisted of the remaining 293 lf of B6 Subdrain and the total 237 lf of Brewer Subdrain. Sheets 3 and 4 of the As-Built Drawings provide location and construction details for the Subdrain.

In general, Subdrain construction consisted of the following:

- Subgrade construction;
- Liner system installation;
- Subdrain backfill materials placement; and
- QA/QC testing

All Subdrain construction work was performed by V&G except for installation of the HDPE liner system which was performed by Serrot Corporation (Serrot).

5.2 Subgrade Preparation

Subgrade preparation work varied slightly between the Brewer and B6 sections of the Subdrain. For the B6 section, subgrade preparation was as follows:

- Approximately 20,000 cy of existing rock were blasted by BGC to allow excavation of the Subdrain profile;
- V&G shaped the waste rock backfill in B6 Pit to the approximate Subdrain cross-section and profile;
- The rough graded waste rock trench was lined with approximately 3 to 5 feet (approximately 5,300 cy) of HLP 5 material to provide a smooth surface for HDPE liner placement. The HLP 5 material was placed in maximum 2-foot-thick lifts, graded to match the Subdrain

cross-section and profile and compacted with a smooth drum vibratory roller to 90% of the materials maximum dry density.

Subgrade preparation for the Brewer Pit section of the Subdrain was considerably easier as the backfill material surrounding the Brewer Pit Subdrain was HLP 1-4 material. Subgrade preparation for the Brewer Pit Subdrain consisted only of shaping the surrounding HLP 1-4 material to the Subdrain cross-section and profile and compacting the HLP 1-4 material to 90% of the materials standard proctor density.

5.3 Liner System Installation

The Subdrain liner system consisted of approximately 216,000 square feet (sf) of 60-mil HDPE, approximately 37,600 square yards (sy) of 12 oz/sy non-woven geotextile and approximately 2,600 sy of 8 oz/sy non-woven geotextile. A cross-section of the subdrain liner system is shown on Sheet 4 of the As-Built Drawings. All liner system materials were supplied and installed by Serrot Corporation. Liner system installation was performed in four phases:

1. 1,050 lf of the B6 Subdrain bottom liner (2/21/96 – 2/24/96)
2. 1,050 lf of the B6 Subdrain top liner (3/15/96 – 3/20/96)
3. 237 lf of the Brewer Subdrain bottom liner and 343 lf of the B6 Subdrain bottom liner (6/14/96 – 6/16/96)
4. 343 linear feet of the B6 Subdrain top liner (6/29/96 – 6/30/96).

All primary HDPE seams were fusion welded using the dual hot wedge method. HDPE patches for repair of destructive testing areas and panel seams inaccessible to the hot wedge machine were extrusion welded. All geotextile materials were installed with a minimum 18-inch overlap and heat bonded with a propane torch.

5.4 Subdrain Backfill Placement

All subdrain backfill materials were placed by V&G. Subdrain backfill materials included:

- Approximately 8,846 cy of ASTM No. 4 limestone,
- Approximately 4,200 cy of 12" minus limestone,
- Approximately 5,785 cy of 6" minus granite,

- Approximately 1,677 cy of cushion sand, and
- Approximately 571 cy of filter sand.

Backfill materials were end dumped into the subdrain, and spread to the specified material layer thickness with a D5 dozer. To prevent liner slippage, a trackhoe was utilized to place the ASTM No. 4 limestone along the 3H:1V sideslopes of the subdrain. Sheet 4 illustrates the subdrain backfill cross section.

5.5 QA/QC Testing And Results

Quality assurance/quality control (QA/QC) testing of Subdrain construction operations involved the following activities:

- Continuous observations of liner subgrade preparation, liner installation and backfill layer thickness to verify compliance with Subdrain construction specifications;
- Collection and testing of 26 destructive seam samples;
- Non-destructive testing of all seams using pressurized channel and vacuum box methods;
- Daily testing of all welders;
- Nuclear density testing to verify compliance with subgrade density requirements.

All QA/QC activities, except for testing of destructive seam samples, were either performed or observed by Titan. Testing of destructive seam samples was performed by an off-site Serrot Corp. laboratory. Results of the destructive seam tests and Serrot Corp. as-built information are contained in Appendix B. Nuclear density test results are summarized in Table 2.

5.5.1 Factory Testing

Serrot Corp. conducted thickness, tensile properties, tear resistance, puncture resistance, carbon black, density, melt flow index, dimensional stability and environmental sensitivity tests on all geomembrane materials prior to their installation. Quality control certificates containing these test results are presented in Appendix B.

5.6 Design Variances

To decrease the possibility of liner puncture during construction activities, Finer grained material types and thicker layers of backfill materials were used. Sheet 4 of the As-Built Drawings identifies the material types and thicknesses constructed. Design Addendum No. 2, submitted to BGC on January 2, 1996, and a subsequent Construction Drawing submitted to BGC on June 4, 1996 also detail these changes.

6.0 PONDS CLOSURE

6.1 General

Reclamation of the site ponds was primarily performed by BGC personnel with some loading and hauling assistance provided by V&G. Full-scale reclamation of the site ponds was initiated on September 23, 1996 with the Barren Pond and was completed on March 20, 1997 with cleanout of the Sediment Pond. In general, reclamation of the site ponds involved the following activities:

- Removal of accumulated sludge and sediment;
- Chemical stabilization of all hazardous sludge;
- Removal of pond liner systems; and
- Regrading of pond embankments.

As most of the sludge removal work was performed by BGC personnel and a significant portion of sludge removal was performed by pumping, accurate volumes for sludge material removed are not available. Volumes presented in this document are based solely on pre-construction estimates. The former and remaining pond locations are shown on Sheet 2.

6.2 Barren Pond

Cleanout operations for the Barren Pond were initiated on September 23, 1996 and completed on October 24, 1996. Analytical testing performed by BGC determined that the sludge contained in the Barren Pond was non-hazardous, allowing direct disposal of the sludge into Brewer Pit.

Initially, a mobile dredge contractor was engaged to perform sludge removal operations, however, the sludge proved to be too cohesive to allow efficient dredging, so conventional dig and haul operations were initiated by BGC on October 4, 1996. A total of approximately 4,000 cy of sludge and all HDPE liner materials were removed from the Barren Pond using BGC's Kawasaki loader and transported to Brewer Pit with BGC's Cat 769 haul truck. Upon placement in Brewer Pit, the sludge and liner materials were incorporated into the waste rock backfill.

Following cleanout of the Barren Pond, BGC performed confirmation sampling of the pond subgrade to verify that the subgrade was non-hazardous. Subsequent to cleanout of surrounding ponds, the interior berms separating the ponds were removed and regraded. Currently, the Barren, Rinse Spray and Rinse Effluent Ponds area is serving as a storm water detention pond for runoff from the Pads 1-4 and Pad 5 area. See Sheet 2 for as-built conditions.

6.3 Rinse Spray Pond

Cleanout operations for the Rinse Spray Pond were initiated on October 7, 1996 and completed on November 8, 1996. Analytical testing performed by BGC determined that the sludge in the Rinse Spray Pond contained elevated leachable metals concentrations, requiring chemical stabilization prior to disposal of the sludge into Brewer Pit.

Using barge mounted air diaphragm pumps, BGC personnel pumped the approximate 650,000 gallons of Rinse Spray Pond sludge to the existing water treatment plant located near the process ponds area. The sludge was pumped directly into existing sludge conditioning tanks where a predetermined amount of MgO powder was mixed into the sludge to chemically stabilize the leachable metals. Following stabilization, the sludge was filter pressed and retested to verify that EPA's Toxicity Characteristic Leaching Procedure (TCLP) criteria were met.

Upon successful stabilization, the sludge was transported to Brewer Pit and incorporated into the waste rock backfill. Subsequent to cleanout of the Rinse Spray Pond, the HDPE liner was removed and BGC performed confirmation sampling of the pond subgrade to verify that the subgrade was non-hazardous.

6.4 Rinse Effluent Pond

Cleanout operations for the Rinse Effluent Pond were initiated on November 1, 1996 and completed on November 20, 1996. Analytical testing performed by BGC determined that the sludge contained in the Rinse Effluent Pond was non-hazardous, allowing direct disposal of the sludge into Brewer Pit.

Sludge removal operations were performed using a combination of pumping and conventional dig and haul. Loose fluid material was pumped directly to Brewer Pit, while more dense material was excavated and trucked consistent with cleanout operations for the Barren Pond. A total of approximately 7,500 cy of sludge and all HDPE liner materials were removed from the Rinse Effluent Pond. Upon placement in Brewer Pit, the sludge and liner materials were incorporated into the waste rock backfill. Following cleanout of the Rinse Effluent Pond, BGC performed confirmation sampling of the pond subgrade to verify that the subgrade was non-hazardous.

6.5 Pit Water Pond and Emergency Pond

The Pit Water Pond and the Emergency Pond were both left intact for use in BGC's water treatment and storage circuit. A small amount of sludge was pumped directly from the Pit Water Pond to Brewer Pit between November 21, 1996 and December 6, 1996. Liners and embankments for both ponds were left intact.

6.6 Hydrogen Peroxide Pond

Cleanout operations for the Hydrogen Peroxide Pond were initiated on November 11, 1996 and completed on November 15, 1996. Analytical testing performed by BGC determined that the sludge in the Hydrogen Peroxide Pond contained elevated leachable metals concentrations and that stabilization would be necessary prior to disposal. BGC attempted to stabilize the sludge with MgO powder similar to the Rinse Spray Pond sludge, however, the Hydrogen Peroxide Pond sludge did not respond as well to MgO addition. Following several unsuccessful attempts to meet TCLP criteria, BGC disposed of the approximate 99 tons of sludge in an off-site hazardous waste landfill.

6.7 Sediment Pond

Sludge removal operations for reclamation of the Sediment Pond represented the largest effort of all ponds combined. Analytical testing performed by BGC determined that the sludge contained in the Sediment Pond was non-hazardous, allowing direct disposal of the sludge into Brewer Pit. Full-scale sludge removal operations began on November 21, 1996 and were completed on March 20, 1997. A total of approximately 70,000 cy of sludge were removed from the Sediment Pond using both pumping and conventional excavation techniques.

A trial effort at dredging the Sediment pond was attempted by Lott Enterprises between May 14, 1996 and May 31, 1996. This trial effort proved unsuccessful due to the excessive volume of water discharged into Brewer Pit by the dredge.

In order to minimize the volume of water pumped into Brewer Pit, BGC removed all standing water from the Sediment Pond and V&G began conventional excavation of the sludge. Conventional excavation activities involved: construction of a load-out pad into the middle of the Sediment Pond; excavation of the sludge with a Cat 330 trackhoe top-loading 2 Cat 631 scrapers and; transportation of the sludge to Brewer Pit on a temporary haul road constructed over the waste rock dump area. On arrival at Brewer Pit, the sludge was spread as thinly as possible along the west highwall and incorporated into the pit backfill material. Following completion of Brewer Pit backfill operations, a minor quantity of Sediment Pond sludge was deposited in the NWT Pit.

Sludge was also removed from the Sediment Pond using a large submersible pump operated by BGC. Sludge that was fluid enough to flow to the pump was removed to a steady head tank for flow equalization then pumped directly to Brewer Pit with a trailer mounted centrifugal pump.

Following removal of all sludge from the Sediment Pond, the pond sideslopes were regraded and revegetated. Currently the Sediment Pond is being utilized to contain runoff from the waste rock dump area and Brewer Pit.

6.8 Pad 6 Overflow Pond

The Pad 6 Overflow Pond was not reclaimed as specified in the Design Report. Per BGC direction, the Pad 6 Overflow Pond was left in-pace to facilitate water treatment requirements. The HDPE lined channel connecting the pond to the HLP 6 area was removed and the area regraded.

6.9 QA/QC Testing And Results

All QA/QC testing of Ponds Closure activities was performed by BGC. QA/QC testing included:

- TCLP testing of sludge in each pond to determine hazardous/non-hazardous status;
- TCLP testing of all stabilized sludge to verify non-hazardous status; and
- TCLP and cyanide testing of each pond's subgrade material to determine suitability of leaving the material in-place.

6.10 Design Variances

As specified in the Design Report, the Pad 6 Overflow Pond dam and liner were to be removed and backfilled into the NWT Pit. Due to uncertainties regarding long term water treatment flow rates and influent quality, the Pad 6 Overflow Pond was left intact, per BGC direction, as a water treatment system component.

As specified in the design report, sludges contained in the process ponds were to be closed in-place. All sludge materials contained in the process ponds were deposited in Brewer Pit, with the exception of sludge contained in the Hydrogen Peroxide Pond, which was shipped off-site for disposal.

7.0 LOW-PERMEABILITY CAP CONSTRUCTION

7.1 General

Construction of the low permeability cap systems over the Brewer and B6 Pits backfill areas involved the following work items:

- Preparation of a suitable subgrade for installation of a geosynthetic clay liner (GCL);
- Installation of a GCL;
- Placement and compaction of 1.5 feet of low-permeability soil;
- Placement of 3 inches of loose topsoil; and
- Revegetation.

Cap system locations and details are provided on Sheets 2, 3 and 6 of the As-Built Drawings.

7.2 B6 Pit Cap

Construction of the B6 Pit cap system commenced on May 22, 1996 and was completed on July 15, 1996. All B6 Pit capping construction activities were performed by AHG. Prior to GCL placement, AHG prepared the cap subgrade (HLP 1-4 material) with a D4 dozer and a smooth drum roller. Upon acceptance of the subgrade surface by Titan's on-site engineer, GLC installation began. All GCL panels were installed parallel to the direction of the slope with minimum 6-inch overlaps on the panel edges and 2-feet overlaps on the panel ends. All GCL panels at the top of slope were anchored in a minimum 2-feet deep anchor trench. Mid-slope and bottom-of-slope panels were not anchored. All GCL material placed on B6 Pit was reinforced by the manufacturer for steep slope applications (see Sheet 6 for cap system details). GCL material dimensions were 13.83 feet wide by 100, 150 and 200 feet long. A total of 182 rolls of GCL were installed on B6 Pit (34-200', 114-150', and 34-200') for a total installed quantity of approximately 377,559 square feet of GCL material.

Cover soil placement operations were performed concurrent with GCL placement operations, such that at the end of each day, all GCL was covered by a minimum of 9-inches of compacted low-permeability soil. Upon completion of all GCL placement, a second 9-inch lift of low-permeability soil and the final 3-inch lift of topsoil were placed over the capped area. The

receiving surfaces for the second lift of low-permeability soil and topsoil were scarified and checked for moisture content prior to subsequent lift placement. A combined total of approximately 21,260 cy of compacted low-permeability soil and topsoil were placed on the B6 Pit cap. Following topsoil placement, the entire capped area was seeded and straw crimped.

7.3 Brewer Pit Cap

Construction of the Brewer Pit cap system commenced on April 28, 1997 and was completed on July 4, 1997. All Brewer Pit capping construction activities were performed by V&G. Prior to GCL placement, V&G prepared the cap subgrade (HLP 6 material) with a 16G motorgrader and a smooth drum roller. Upon acceptance of the subgrade surface by Titan's on-site engineer, GLC installation began. All GCL panels were installed parallel to the direction of the slope with minimum 6-inch overlaps on the panel edges and 2-feet overlaps on the panel ends. All GCL panels at the top of slope were anchored either by a minimum 7-foot top of slope run-out or in a minimum 2-feet deep anchor trench. Mid-slope and bottom-of-slope panels were not anchored. All GCL material placed on Brewer Pit 5H:1V slopes was reinforced by the manufacturer for steep slope applications. GCL material placed on slopes flatter than 10H:1V was not reinforced (see Sheet 6 for cap system details). GCL material dimensions were 13.83 feet wide by 150 feet long. A total of 815 rolls of GCL were installed on Brewer Pit (337 reinforced, 478 non-reinforced) for a total installed quantity of approximately 1,690,718 square feet of GCL material.

Cover soil placement operations were performed concurrent with GCL placement operations, such that at the end of each day, all GCL was covered by a minimum of 18-inches of compacted low-permeability soil. Upon completion of all low-permeability soil placement, the final 3-inch lift of topsoil was placed over the capped area. A combined total of approximately 125,492 cy of compacted low-permeability soil and topsoil were placed on the Brewer Pit cap. Following topsoil placement, the entire capped area was seeded and straw crimped. All 5H:1V slope areas were also sprayed with an asphalt emulsion to further adhere the straw to the topsoil.

7.4 NWT Pit Cap

The NWT Pit was not capped as specified in the Design Report. Per BGC direction, the NWT Pit was left open to facilitate water treatment requirements.

7.5 QA/QC Testing and Results

Quality assurance/quality control (QA/QC) testing of low-permeability cap construction operations involved the following activities:

- Continuous observations of liner subgrade preparation, liner installation and low-permeability soil layer thickness to verify compliance with cap construction specifications;
- Moisture/density relationship testing of low-permeability soil materials to determine standard proctor densities; and
- Nuclear density testing to verify compliance with backfill density requirements.

All QA/QC activities except for moisture/density relationship testing were performed by Titan. Moisture/density relationship tests were performed by off-site third-party laboratories. Results of these tests are presented in Appendix A. Nuclear density test results are summarized in Table 2.

7.5.1 Factory Testing

CETCO conducted bentonite mass per area, grab strength, index flux and permeability tests on all GCL materials prior to their shipment to the BGM. Quality control certificates verifying these test results are presented in Appendix C.

7.6 Design Variances

Non reinforced GCL material was utilized on areas of the Brewer Pit cap having a slope less than 10H:1V. This material has equal impermeability characteristics as reinforced GCL.

Cover soil placement on the Brewer Pit cap was performed in a single 1.5-foot lift rather than two 9-inch lifts. Rigorous density testing was performed to verify compliance with density requirements.

Seed mixtures for both B6 and Brewer Pit revegetation were modified by the revegetation subcontractors. All modifications resulted in increases to the specified application rates for seed, fertilizer and lime. In addition, an asphalt emulsion was applied to the Brewer Pit sideslopes to aid in erosion control.

8.0 SURFACE WATER CHANNELS

8.1 General

Construction of the site surface water channels involved the following work items:

- Excavation and grading of the channel subgrade; and
- Installation of channel lining materials.

See Sheets 2 and 5 of the As-Built Drawings for channel locations and construction details.

8.2 B6 Pit Channel

Construction of the B6 Pit channel commenced on September 23, 1996 and was completed on January 20, 1997. All B6 channel construction operations were performed by AHG. Construction of the B6 Pit channel was performed sequentially by reach, beginning with reach 1 as shown on the As-Built Drawings. Channel subgrade preparation involved excavation of the channel cross-section and profile into the B6 Pit cap with a Cat 120 trackhoe, fine grading with a Cat D4 dozer and compaction with a smooth drum roller. Following acceptance of the subgrade surface by Titan's on-site engineer, the subgrade surface was lined with an 8 oz/sy non-woven geotextile which was heat bonded and anchored across the channel on 30 foot centers. A reno mattress lining system was installed directly above the geotextile material. Each reno mattress was assembled, positioned in the channel, and connected to adjoining reno mattresses using galvanized metal rings.

Following installation of the empty reno mattresses into the channel cross-section, each mattress was filled with approximately 2.7 cy of 6-inch-minus crushed granite. Stone placement was performed with a Cat 120 trackhoe and hand labor. After the mattresses were filled with stone and leveled, the reno mattress lids were installed and secured with galvanized metal rings.

The total length of the B6 Pit channel is 918 feet with bottom widths of 4 feet in reach 1, 15 feet in reach 2 and 21 feet in reach 3. A total of approximately 336 reno mattresses were installed in the B6 Pit channel, requiring approximately 907 cy of stone fill.

8.2.1 B6 Channel Underdrain

Due to surface and subsurface flow from pre-construction springs located near the transition from reach 2 to reach 3, the subgrade surface at reach 3 was unsuitable for channel construction. Approximately 1,500 cy of saturated soil were excavated from the area in order to reach a firm foundation on bedrock. Because seepage continued to flow from the excavation cut faces, an aggregate underdrain was constructed (see Sheet 6 for location and details). Approximately 600 cy of ASTM No. 4 limestone were backfilled into the excavation. To provide additional drainage and filtering of fines, a geonet drainage composite was installed along the south face of the excavation, and the entire excavation was wrapped in 4 oz/sy non-woven geotextile. The constructed underdrain was routed beneath the channel to an exit point approximately 45 feet north of the channel boundary. The underdrain exit was constructed of 4 gabion structures to provide a stilling basin type oxygen trap.

8.2.2 Discharge Apron

Flow from the B6 Pit channel is released onto a discharge apron in order to further reduce runoff water velocity and diffuse concentrated flows prior to release into natural drainage paths. The discharge apron is constructed of reno mattresses consistent with the B6 Pit channel. The discharge apron is constructed in a V shape, tapering from 6 mattresses wide at the upstream end to 9 mattresses wide at the downstream end. The downstream end of the discharge apron is connected to a 3-feet-high gabion wall to provide further energy dissipation.

8.3 Brewer Pit Channel

Construction of the Brewer Pit channel commenced on June 17, 1997 and was completed on June 24, 1997. All Brewer Pit channel construction operations were performed by V&G. Completion of the Brewer Pit channel involved construction of both grass lined and reno mattress lined reaches as shown on Sheets 2 and 5 of the As-Built Drawings. Construction of the grass-lined reach 1 was performed by fine grading the final surface of the Brewer Pit cap to match the design cross-section and profile. Construction of the reach 2 subgrade involved excavation of the channel cross-section and profile into the Brewer Pit cap with a Cat D6 dozer and compaction with a smooth drum roller. Following acceptance of the subgrade surface by Titan's on-site engineer, the subgrade surface was lined with an 8 oz/sy non-woven geotextile

which was heat bonded and anchored across the channel on 30 foot centers. A reno mattress lining system was installed directly above the geotextile material. Each reno mattress was assembled, positioned in the channel, and connected to adjoining reno mattresses using galvanized metal rings.

Following installation of the empty reno mattresses into the channel cross-section, each mattress was filled with approximately 2.7 cy of 6-inch-minus crushed granite. Stone placement was performed with a Cat EL200 trackhoe and hand labor. After the mattresses were filled with stone and leveled, the reno mattress lids were installed and secured with galvanized metal rings.

The total length of the Brewer Pit channel is 950 feet with bottom widths of 30 feet in reach 1, and 11 feet in reach 2. A total of approximately 81 reno mattresses were installed in the Brewer Pit channel, requiring approximately 219 cy of stone fill.

8.4 QA/QC Testing and Results

Quality assurance/quality control (QA/QC) testing of surface water channel construction operations involved the following activities:

- Pre-construction inspection of riprap sources; and
- Continuous observations of channel subgrade preparation and installation of channel lining materials to verify compliance with channel construction specifications.

8.5 Design Variances

Riprap lined surface water channels were not constructed on the Waste Rock Dump area as specified in the design report. These channels were not constructed because excavation of the waste rock material resulted in a bedrock subgrade for the specified channels.

The General Site Area Swale was not constructed due to a change in final topography. The final backfill configuration for the Brewer Pit was such that runoff from the backfilled area could be conveyed by a swale located along the west side of the Brewer Pit backfill area.

Pad 6 channels A, B and C were not constructed because the Pad 6 Overflow pond was left intact at BGC's direction.

Surface water channels for the reclaimed HLP's 1-4 and HLP 5 areas as described in Addendum No. 5 submitted to BGC on March 3, 1997 were not constructed at BGC's direction. BGC is currently controlling runoff from these areas using Best Management Practices.

9.0 RECLAMATION OF HLP AREAS

9.1 General

Final reclamation of the HLP areas involved the following activities:

- Analytical testing of the pad subgrade;
- Regrading of the pad subgrade;
- Upgrade of existing or construction of new surface water runoff controls; and
- Revegetation.

9.2 HLP 5

Following removal of all heap leach and liner materials from Pad 5, BGC personnel collected 13 soil samples for weak acid dissociable (WAD) cyanide analysis and 2 soil samples for Synthetic Precipitation Leaching Procedure (SPLP) analysis. Analysis of these samples indicated no residual contamination of the pad material. A copy of the sample location map and third party analysis was forwarded to SCDHEC on April 22, 1996.

Following sampling and analysis of the pad foundation material, approximately 17,000 cy of gravel were stripped from the pad area and utilized for upgrade/maintenance of existing access roads. The pad area was then regraded to promote drainage to the process ponds area and revegetated by BGC.

9.3 HLP's 1-4

Following removal of all heap leach and liner materials from Pad 1-4, BGC personnel collected 17 soil samples for WAD cyanide analysis and 2 soil samples for SPLP analysis. Analysis of these samples indicated no residual contamination of the pad material. A copy of the sample location map and third party analysis was forwarded to SCDHEC on August 9, 1996.

Following sampling and analysis of the pad foundation material, approximately 30,000 cy of clay were stripped from the pad area and stockpiled on Pad 5 for later use. The pad area was then regraded to promote drainage to the process ponds area and revegetated by BGC.

9.4 HLP 6

Following removal of all heap leach and liner materials from Pad 6, BGC personnel collected 28 soil samples for WAD cyanide analysis and 6 soil samples for SPLP analysis. Analysis of these samples indicated that all but one location were free of residual contamination of the pad material. The location in question showed 0.82 mg/l of WAD cyanide. Approximately 100 cy of soil were removed from this location and the site was retested and found to be clean. A copy of the sample location map and third party analysis was forwarded to SCDHEC on June 2, 1997.

Following sampling and analysis of the pad foundation material, the pad area was regraded to promote drainage to the existing perimeter channels and revegetated by BGC. Surface water runoff from the Pad 6 area is controlled by Best Management Practices. Runoff water is collected in perimeter channels and conveyed to selected discharge points where the water is released to natural drainage paths.

10.0 LOW-PERMEABILITY SOIL BORROW AREA

Approximately 150,000 cy of silty clayey material was removed from the on-site borrow area for use in low-permeability cap construction and channel construction. Following removal of this material, the borrow area was regraded to promote drainage and revegetated by BGC.

TABLES

TABLE 1
CURRENT AND PRE-CONSTRUCTION SITE FACILITIES STATUS
BREWER GOLD MINE - JEFFERSON, SOUTH CAROLINA

Mine Facility	Pre-Construction Status	Current Status
Brewer Pit	• 5.0 million cubic yard (MCY) pit. • Approximately 27.3 acres in aerial extent. (Border of highwalls). • Contained approximately 100 million gallons (Mgal) of acidic water.	• Backfilled with HLPs 1-4, 5, and 6 and WRD material and capped with a geosynthetic clay liner.
B-6 Pit	• 0.9 MCY pit. • Approximately 9.4 acres in aerial extent. (Border of highwalls). • Sump collected groundwater and runoff which were pumped to Brewer Pit.	• Backfilled with WRD material and capped with a geosynthetic clay liner.
Northwest Trend Pit	• 0.23 MCY pit. • Approximately 3.3 acres in aerial extent (Border of highwalls). • Contained approximately 4 Mgal of water.	• Was not backfilled during Phase 1 of the BGM Site Closure. • Currently being used for batch treatment of site water.
Waste Rock Dump (WRD)	• Contained 2.9 MCY of material. • Approximately 41 acres in aerial extent. • Gradation: fines to boulders in excess of 10 feet in diameter. • WRD material was acid generating.	• Primary backfill material for B6 Pit. • Backfilled in the Brewer Pit between 442 Feet and 512 Feet MSL. • WRD area has been graded and amended with lime in preparation for pine tree planting.
Heap Leach Pile (HLP) 1-4	• Contained 1.07 MCY of material. • Approximately 17 acres in aerial extent. • Gradation: 3/4"-minus. • HLP 1-4 material was not acid generating.	• Backfilled in Brewer Pit between 391 Feet and 480 Feet MSL. • HLP 1-4 material was also used as a subgrade for the geosynthetic clay liner on B6 Pit. • HDPE liner removed and backfilled into Brewer Pit. • Approximately 30,000 cubic yards of the Pad 1-4 clay liner was excavated and stockpiled for later use. • Pad 1-4 area graded and revegetated.

TABLE 1 (continued)
CURRENT AND PRE-CONSTRUCTION SITE FACILITIES STATUS
BREWER GOLD MINE - JEFFERSON, SOUTH CAROLINA

Mine Facility	Pre-Construction Status	Current Status
Heap Leach Pile 5	• Contained 0.72 MCY of material. • Approximately 14 acres in aerial extent. • Gradation: 3/4"-minus. • HLP 5 material was acid generating.	• Backfilled in Brewer Pit between the pit floor (330 Feet) and 408 Feet MSL. • HLP 5 material was also used as a subgrade for the HDPE liner in the B6 Subdrain. • Asphalt liner removed and backfilled into B6 Pit. • Pad 5 area graded and revegetated.
Heap Leach Pile 6	• Contained 1.99 MCY of material. • Approximately 28 acres in aerial extent • Gradation: 3/4"-minus. • HLP 6 material was acid generating.	• Backfilled in Brewer Pit between 495 Feet and 588 Feet MSL. • HDPE liner removed and backfilled into Brewer Pit. • Pad 6 area graded and revegetated.
Sediment Pond	• Design capacity - 18 Mgal. • Approximate sludge volume - 14 Mgal. • Pre-construction capacity - 4 Mgal.	• All sludge removed and deposited in the Brewer and Northwest Trend Pits. • Pond currently being utilized as a catchment for runoff from the WRD area.
Pad 6 Overflow Pond	• Design capacity - 19 Mgal. • Approximate sludge volume - 0.4 Mgal. • Pre-construction capacity - 18.6 Mgal.	• No action taken on the Pad 6 Overflow Pond. Pond to remain in place to facilitate short term O& M requirements of water storage prior to batch treatment.
Process Ponds	• 6 ponds used for process and storm waters. • Design capacity - 12 Mgal. • Approximate sludge volume - 3 Mgal. • Pre-construction capacity - 9 Mgal.	• Existing sludge was removed from all process ponds. • All ponds with the exception of the Pit Water and Emergency Ponds were decommissioned. Decommissioned pond liners were removed and backfilled into Brewer Pit. Decommissioned ponds are currently being utilized for runoff detention from Pads 1-5.
Other Site Facilities	• Refinery, maintenance, laboratory, storage, administrative building areas and site roads.	• The refinery area buildings were demolished and backfilled into Brewer Pit. No action has been taken on remaining buildings or roads.

TABLE 2
SUMMARY OF MOISTURE/DENSITY TEST RESULTS
BREWER GOLD MINE SITE CLOSURE - JEFFERSON, SOUTH CAROLINA

Date	Test No.	Test Location Coordinates		Elevation (ft., msl)	Wet Density (pcf)	Dry Density (pcf)	Moisture Content (percent)	Maximum Dry Density (pcf)	Optimum Moisture Content (percent)	Percent Compaction
		Northing	Easting							
2/16/95	N5-2/16-1	601050	2176380	352	125.2	117.3	6.8	137.1	7.8	85.5
2/16/95	N5-2/16-1A	601050	2176380	352	135.0	126.2	7.0	137.1	7.8	92.0
2/16/95	N5-2/16-2	600920	2176360	353	136.1	127.5	6.7	137.1	7.8	93.0
2/16/95	N5-2/16-3	600880	2176270	354	136.0	127.3	6.8	137.1	7.8	92.8
2/16/95	N5-2/16-4	600850	2176150	355	134.1	123.5	8.6	137.1	7.8	90.1
2/15/96	N5-2/15-1	600920	2176340	350	145.2	137.6	5.6	137.1	7.8	100.3
2/15/96	N5-2/15-2	600850	2176250	352	136.9	127.9	7.0	137.1	7.8	93.3
2/15/96	N5-2/15-3	600800	2176050	354	135.7	127.5	6.4	137.1	7.8	93.0
2/15/96	N5-2/15-3A	600800	2176050	353	136.3	127.8	6.7	137.1	7.8	93.2
2/19/96	N-SD-2196	600570	2177900	391	132.9	127.5	4.2	137.1	7.8	93.0
2/19/96	NSD-2/19-2	600550	2177880	395	131.3	124.6	5.4	137.1	7.8	90.8
2/19/96	NSD-2/19-3	600590	2177915	397	131.5	125.6	4.7	137.1	7.8	91.6
2/19/96	NSD-2/19-4	600635	2177760	395	134.3	129.4	3.8	137.1	7.8	94.4
2/19/96	NSD-2/19-5	600610	2177750	400	135.7	129.5	4.8	137.1	7.8	94.5
2/19/96	NSD-2/19-6	600655	2177770	400	135.2	130.8	3.3	137.1	7.8	95.4
2/19/96	NSD-2/19-7	600710	2177580	402	140.2	134.7	4.1	137.1	7.8	98.3
2/19/96	NSD-2/19-8	600690	2177590	408	134.6	127.7	5.4	137.1	7.8	93.2
2/19/96	NSD-2/19-9	600730	2177600	408	134.7	130.2	3.5	137.1	7.8	94.9
2/20/96	NSD-2/20-1	600780	2177410	408	139.4	132.6	5.1	137.1	7.8	96.7
2/20/96	NSD-2/20-2	600760	2177400	416	135.6	129.6	4.7	137.1	7.8	94.5
2/20/96	NSD-2/20-3	600800	2177420	414	135.4	129.0	5.0	137.1	7.8	94.1
2/20/96	NSD-2/20-4	600860	2177230	414	135.5	129.0	5.0	137.1	7.8	94.1
2/20/96	NSD-2/20-5	600840	2177220	420	137.0	128.7	6.5	137.1	7.8	93.9
2/20/96	NSD-2/20-6	600880	2177240	420	139.0	129.7	5.7	137.1	7.8	94.6
2/23/96	N5-2/23-1	600750	2175970	365	139.1	131.4	5.9	137.1	7.8	95.8
2/23/96	N5-2/23-2	600820	2175985	365	136.2	125.2	8.8	137.1	7.8	91.3
2/23/96	N5-2/23-3	600800	2176100	364	139.8	126.2	10.8	137.1	7.8	92.0
2/23/96	N5-2/23-4	600860	2176150	364	135.6	124.0	9.3	137.1	7.8	90.5
2/23/96	N5-2/23-5	600840	2176160	363	132.9	119.1	11.5	137.1	7.8	86.9
2/23/96	N5-2/23-5A	600840	2176160	363	136.1	123.8	9.9	137.1	7.8	90.3
2/23/96	N5-2/23-6	600870	2176200	364	135.2	123.7	9.3	137.1	7.8	90.2
2/23/96	NSD-2/23-1	600905	2177020	420	141.6	132.8	6.6	137.1	7.8	96.9
2/23/96	NSD-2/23-2	600890	2177015	425	133.9	127.3	5.1	137.1	7.8	92.9
2/23/96	NSD-2/23-3	600930	2177030	424	134.2	127.0	5.6	137.1	7.8	92.7

TABLE 2
SUMMARY OF MOISTURE/DENSITY TEST RESULTS
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Date	Test No.	Test Location Coordinates		Elevation (ft., msl)	Wet Density (pcf)	Dry Density (pcf)	Moisture Content (percent)	Maximum Dry Density (pcf)	Optimum Moisture Content (percent)	Percent Compaction
		Northing	Easting							
2/23/96	NSD-2/23-4	600912	2176970	421.5	139.5	132.6	5.3	137.1	7.8	96.7
2/23/96	NSD-2/23-5	600885	2176935	425	133.7	127.4	4.9	137.1	7.8	92.9
2/23/96	NSD-2/23-6	600950	2176950	426	136.9	129.5	5.7	137.1	7.8	94.5
2/27/96	PAD5-1	601630	2175200	620	130.8	124.3	5.2	137.1	7.8	90.7
2/27/96	PAD5-2	601635	2175160	630	105.9	96.1	10.2	137.1	7.8	70.1
2/27/96	PAD5-3	601640	2175120	640	106.0	96.7	9.5	137.1	7.8	70.5
2/27/96	PAD5-4	601645	2175080	650	131.7	123.0	7.1	137.1	7.8	89.7
2/27/96	PAD5-5	601645	2175040	660	116.5	108.9	7.0	137.1	7.8	79.4
2/27/96	PAD5-6	601640	2175000	650	114.3	107.4	6.5	137.1	7.8	78.3
3/1/96	N5-3/1-01	601685	2176150	390	135.2	125.5	7.7	137.1	7.8	91.5
3/1/96	N5-3/1-02	601690	2176210	390	136.3	126.7	7.6	137.1	7.8	92.4
3/1/96	N5-3/1-03	601600	2176205	388	135.4	125.0	8.4	137.1	7.8	91.1
3/1/96	N5-3/1-04	601615	2176260	388	134.2	124.4	7.9	137.1	7.8	90.8
3/1/96	N5-3/1-04B	601614	2176259	388	138.5	128.7	7.6	137.1	7.8	93.9
3/1/96	N5-3/1-05	601525	2176310	385	139.8	133.7	4.0	137.1	7.8	97.5
3/1/96	N5-3/1-06	601430	2176340	383	137.8	13.6	5.5	137.1	7.8	95.3
3/1/96	N5-3/1-07	601440	2176400	383	135.5	128.9	5.1	137.1	7.8	94.0
3/1/96	N5-3/1-08	601310	2176405	380	134.8	128.3	5.0	137.1	7.8	93.6
3/1/96	N5-3/1-09	601285	2176490	380	128.9	122.7	5.0	137.1	7.8	89.5
3/1/96	N5-3/1-09B	601285	2176490	380	135.4	128.6	5.3	137.1	7.8	93.8
3/1/96	N5-3/1-10	601155	2176480	378	136.5	129.8	5.2	137.1	7.8	94.7
3/1/96	N5-3/1-11	601145	2176520	377	133.0	120.3	10.6	137.1	7.8	87.8
3/1/96	N5-3/1-11B	601145	2176520	377	135.4	125.0	8.4	137.1	7.8	91.1
3/1/96	N5-3/1-12	601070	2176500	376	133.9	126.1	6.2	137.1	7.8	92.0
3/1/96	N5-3/1-13	601080	2176460	377	131.3	124.5	5.5	137.1	7.8	90.8
3/1/96	N5-3/1-14	601035	2176400	383	130.6	123.8	5.5	137.1	7.8	90.3
3/1/96	N5-3/1-15	600985	2176430	380	136.9	124.6	9.9	137.1	7.8	90.9
3/1/96	N5-3/1-16	600950	2176460	376	137.9	125.0	10.3	137.1	7.8	91.2
3/1/96	N5-3/1-17	600940	2176370	380	135.6	123.8	9.5	137.1	7.8	90.3
3/7/96	N5-3/6-1	601100	2176430	385	134.9	120.8	11.8	137.1	7.8	88.0
3/7/96	N5-3/6-1A	601100	2176430	385	139.9	126.1	10.9	137.1	7.8	92.0
3/7/96	N5-3/6-2	601050	2176490	383	131.4	120.4	9.1	137.1	7.8	87.8
3/7/96	N5-3/6-2A	601050	2176490	383	135.6	124.0	9.3	137.1	7.8	90.5
3/7/96	N5-3/6-3	600960	2176440	382	130.1	118.1	10.1	137.1	7.8	86.2

TABLE 2
SUMMARY OF MOISTURE/DENSITY TEST RESULTS
BREWER GOLD MINE SITE CLOSURE - JEFFERSON, SOUTH CAROLINA

Date	Test No.	Test Location Coordinates		Elevation (ft., msl)	Wet Density (pcf)	Dry Density (pcf)	Moisture Content (percent)	Maximum Dry Density (pcf)	Optimum Moisture Content (percent)	Percent Compaction
		Northing	Easting							
3/7/96	N5-3/6-3A	600960	2176440	382	136.8	123.6	10.7	137.1	7.8	90.2
3/8/96	N5-3/8-1	601560	2176270	398	137.5	126.2	9.0	137.1	7.8	92.0
3/8/96	N5-3/8-2	601150	2176430	386	146.2	135.8	7.6	137.1	7.8	99.1
3/8/96	N5-3/8-3	600930	2176340	394	144.2	132.9	8.5	137.1	7.8	96.9
3/8/96	N5-3/8-4	600910	2176360	393	141.9	131.4	8.0	137.1	7.8	95.8
3/8/96	N5-3/8-5	600780	2175910	400	135.1	121.5	11.2	137.1	7.8	88.7
3/8/96	N5-3/8-6	600780	2175910	400	141.5	127.8	10.7	137.1	7.8	93.2
3/13/96	N5-3/13-1	601445	2176490	395	141.8	126.9	11.7	137.1	7.8	92.6
3/13/96	N5-3/13-2	601445	2176440	395	138.0	124.6	10.7	137.1	7.8	90.9
3/13/96	N5-3/13-3	600960	2176310	405	145.3	135.6	7.1	137.1	7.8	98.9
3/13/96	N5-3/13-4	600980	2176360	407	137.6	127.0	8.4	137.1	7.8	92.6
3/13/96	N5-3/13-5	600910	2176220	410	138.1	129.9	6.4	137.1	7.8	94.7
3/13/96	N5-3/13-6	600870	2176240	412	126.5	126.5	6.1	137.1	7.8	92.2
3/13/96	N5-3/13-7	600870	2176200	413	140.2	129.3	8.4	137.1	7.8	94.3
3/13/96	N5-3/13-8	600850	2176200	413	140.9	130.1	8.3	137.1	7.8	94.9
3/13/96	N5-3/13-9	600800	2176180	414	141.9	131.6	7.8	137.1	7.8	96.0
4/8/96	N14-4/8-1	601750	2176110	420	130.7	122.0	7.1	125.0	12.0	97.6
4/8/96	N14-4/8-2	601790	2176070	421	131.6	122.1	7.8	125.0	12.0	97.7
4/8/96	N14-4/8-3	601600	2176150	416	129.5	123.1	5.1	125.0	12.0	98.5
4/8/96	N14-4/8-4	601560	2176150	415	131.5	125.5	4.8	125.0	12.0	100.4
4/8/96	N14-4/8-5	601410	2176320	412	137.8	126.8	8.6	125.0	12.0	101.4
4/8/96	N14-4/8-6	601380	2176310	411	131.0	120.2	9.0	125.0	12.0	96.2
4/8/96	N14-4/8-7	601110	2176420	405	130.8	122.5	6.7	125.0	12.0	98.0
4/8/96	N14-4/8-8	601060	2176460	404	129.7	121.0	7.2	125.0	12.0	96.8
4/22/96	N14-4/22-01	601700	2176420	428	130.1	119.4	8.9	125.5	11.5	95.2
4/22/96	N14-4/22-02	601570	2176440	420	134.4	123.4	8.9	125.5	11.5	98.3
4/22/96	N14-4/22-03	601360	2176100	419	130.1	119.7	8.7	125.5	11.5	95.4
4/22/96	N14-4/22-04	601360	2176300	416	134.3	123.2	9.0	125.5	11.5	98.2
4/22/96	N14-4/22-05	601360	2176470	412	131.6	121.0	8.7	125.5	11.5	96.4
4/22/96	N14-4/22-06	600960	2176420	416	135.9	123.4	10.1	125.5	11.5	98.3
4/22/96	N14-4/22-07	600980	2176280	417	137.0	125.4	9.3	125.5	11.5	99.9
4/22/96	N14-4/22-08	600900	2176090	419	134.1	125.7	6.7	125.5	11.5	100.1
4/22/96	N14-4/22-09	600820	2176110	417	137.5	127.9	7.5	125.5	11.5	101.9
4/22/96	N14-4/22-10	600750	2175960	420	131.0	122.1	7.3	125.5	11.5	97.3

TABLE 2
SUMMARY OF MOISTURE/DENSITY TEST RESULTS
BREWER GOLD MINE SITE CLOSURE - JEFFERSON, SOUTH CAROLINA

Date	Test No.	Test Location Coordinates		Elevation (ft., msl)	Wet Density (pcf)	Dry Density (pcf)	Moisture Content (percent)	Maximum Dry Density (pcf)	Optimum Moisture Content (percent)	Percent Compaction
		Northing	Easting							
4/29/96	N14-4/29-1	601660	2176450	424	134.6	124.2	8.4	125.5	11.5	99.0
4/29/96	N14-4/29-2	601700	2176390	425	133.3	123.7	7.7	125.5	11.5	98.6
4/29/96	N14-4/29-3	601070	2176520	415	134.4	123.2	9.1	125.5	11.5	98.2
4/29/96	N14-4/29-4	601080	2176570	417	134.1	123.6	8.5	125.5	11.5	98.5
4/29/96	N14-4/29-5	601000	2176510	414	130.0	118.5	9.7	125.5	11.5	94.5
4/29/96	N14-4/29-6	600830	2176310	415	136.5	128.3	6.4	125.5	11.5	102.2
4/29/96	N14-4/29-7	600810	2176240	416	137.0	129.4	6.0	125.5	11.5	103.1
5/2/96	N14-5/2-1	601030	2176500	419	132.5	121.3	9.2	125.5	11.5	96.7
5/2/96	N14-5/2-2	601020	2176520	418	129.6	118.2	9.6	125.5	11.5	94.2
5/2/96	N14-5/2-3	600950	2176460	418	129.7	117.2	10.6	125.5	11.5	93.4
5/2/96	N14-5/2-4	600930	2176500	417	128.8	115.5	11.5	125.5	11.5	92.0
5/2/96	N14-5/2-5	600890	2176370	421	128.8	116.4	10.7	125.5	11.5	92.7
5/2/96	N14-5/2-6	600870	2176380	420	127.5	114.7	11.1	125.5	11.5	91.4
5/2/96	N14-5/2-7	600840	2176320	421	134.7	118.8	13.4	125.5	11.5	94.7
5/14/96	N14-5/14-01	601480	2176100	438	132.3	121.6	8.8	125.5	11.5	96.9
5/14/96	N14-5/14-02	601480	2176150	438	131.7	119.9	9.0	125.5	11.5	95.5
5/14/96	N14-5/14-03	601410	2176040	437	132.0	121.1	9.0	125.5	11.5	96.5
5/14/96	N14-5/14-04	601350	2176030	437	130.4	120.4	8.3	125.5	11.5	96.0
5/14/96	N14-5/14-05	601270	2175980	437	124.3	114.7	8.4	125.5	11.5	91.4
5/14/96	N14-5/14-06	601240	2175970	437	122.2	113.5	7.7	125.5	11.5	90.4
5/14/96	N14-5/14-07	601070	2175980	430	123.3	111.9	10.1	125.5	11.5	89.1
5/14/96	N14-5/14-08	601030	2176020	429	133.8	123.0	8.9	125.5	11.5	98.0
5/14/96	N14-5/14-09	601010	2175890	428	131.5	122.0	7.7	125.5	11.5	97.2
5/14/96	N14-5/14-10	600990	2175860	427	130.2	120.6	8.0	125.5	11.5	96.1
5/28/96	NC-5/28-1	600340	2177790	456	117.8	87.6	34.5	94.0	24.0	93.2
5/28/96	NC-5/28-2	600360	2177850	442	119.6	89.5	33.6	94.0	24.0	95.2
5/28/96	NC-5/28-3	600400	2177810	447	118.6	89.3	32.8	94.0	24.0	95.0
5/28/96	NC-5/28-4	600430	2177880	428	115.9	88.6	30.8	94.0	24.0	94.3
5/28/96	NC-5/28-5	600480	2177830	437	116.8	85.9	36.0	94.0	24.0	91.4
5/28/96	NC-5/28-6	600450	2177780	454	108.1	82.1	31.7	94.0	24.0	87.3
6/5/96	N14-6/5-01	601600	2176570	450	135.1	123.5	9.4	125.5	11.5	98.4
6/5/96	N14-6/5-02	601680	2176470	453	133.9	122.5	9.3	125.5	11.5	97.6
6/5/96	N14-6/5-03	601630	2176390	455	133.9	123.0	8.9	125.5	11.5	98.0
6/5/96	N14-6/5-04	601590	2176270	457	135.9	125.0	8.7	125.5	11.5	99.6

TABLE 2
SUMMARY OF MOISTURE/DENSITY TEST RESULTS
BREWER GOLD MINE SITE CLOSURE - JEFFERSON, SOUTH CAROLINA

Date	Test No.	Test Location Coordinates		Elevation (ft., msl)	Wet Density (pcf)	Dry Density (pcf)	Moisture Content (percent)	Maximum Dry Density (pcf)	Optimum Moisture Content (percent)	Percent Compaction
		Northing	Easting							
6/5/96	N14-6/5-05	601540	2176180	460	134.1	118.8	12.9	125.5	11.5	94.6
6/5/96	N14-6/5-06	601370	2176180	461	134.6	120.3	11.9	125.5	11.5	95.9
6/5/96	N14-6/5-07	601390	2176040	470	139.4	123.1	13.2	125.5	11.5	98.1
6/5/96	N14-6/5-08	601650	2176050	472	134.7	118.9	13.3	125.5	11.5	94.7
6/5/96	N14-6/5-09	601790	2176020	470	134.0	117.9	13.6	125.5	11.5	93.9
6/5/96	N14-6/5-10	601790	2176200	472	135.6	119.7	13.3	125.5	11.5	95.4
6/5/96	NC-6/5-01	600330	2177830	447	118.7	92.2	28.7	94.0	24.0	98.1
6/5/96	NC-6/5-02	600440	2177730	465	112.2	87.5	28.2	94.0	24.0	93.1
6/5/96	NC-6/5-03	600470	2177860	429	107.6	84.5	27.3	94.0	24.0	89.9
6/5/96	NC-6/5-04	600580	2177830	429	110.7	85.5	29.5	94.0	24.0	91.0
6/5/96	NC-6/5-05	600520	2177690	469	110.9	82.2	34.8	94.0	24.0	87.4
6/5/96	NC-6/5-06	600570	2177640	468	115.9	87.0	33.3	94.0	24.0	92.6
6/5/96	NC-6/5-07	600670	2177750	435	117.4	90.3	30.0	94.0	24.0	96.1
6/5/96	NC-6/5-08	600750	2177750	416	109.8	84.4	30.0	94.0	24.0	89.8
6/5/96	NC-6/5-09	600590	2177530	476	117.6	91.4	28.7	94.0	24.0	97.2
6/5/96	NC-6/5-10	600560	2177540	483	116.2	89.1	30.4	94.0	24.0	94.8
6/13/96	NC-6/13-1	600400	2177700	475	117.8	92.3	27.6	94.0	24.0	98.2
6/13/96	NC-6/13-2	600470	2177790	446	112.7	88.3	27.6	94.0	24.0	93.9
6/13/96	NC-6/13-2B	600470	2177790	446	112.0	90.1	24.3	94.0	24.0	95.9
6/13/96	NC-6/13-3	600500	2177910	406	109.9	83.9	31.0	94.0	24.0	89.3
6/13/96	NC-6/13-3B	600500	2177910	412	122.5	98.0	25.1	94.0	24.0	104.3
6/13/96	NC-6/13-4	600500	2177910	406	116.5	92.0	26.6	94.0	24.0	97.9
6/13/96	NC-6/13-5	600600	2177850	424	106.5	82.6	28.9	94.0	24.0	87.9
6/13/96	NC-6/13-5B	600790	2177700	406	113.9	89.7	27.0	94.0	24.0	95.4
6/17/96	N14-6/17-01	601250	2176710	443	145.3	131.0	10.9	125.0	12.0	104.4
6/17/96	N14-6/17-02	601480	2176560	447	136.4	124.0	10.0	125.0	12.0	98.8
6/17/96	N14-6/17-03	601440	2176440	448	134.9	121.8	10.7	125.0	12.0	97.1
6/17/96	N14-6/17-04	601620	2176330	448	131.7	119.9	9.9	125.0	12.0	95.5
6/17/96	N14-6/17-05	601440	2176130	452	131.1	118.5	10.6	125.0	12.0	94.4
6/17/96	N14-6/17-06	601280	2176340	452	129.9	117.3	10.7	125.0	12.0	93.4
6/17/96	N14-6/17-07	601070	2176260	454	134.3	122.1	10.0	125.0	12.0	97.3
6/17/96	N14-6/17-08	601210	2175980	475	133.5	121.4	10.0	125.0	12.0	96.8
6/17/96	N14-6/17-09	601400	2176010	473	132.9	119.8	10.9	125.0	12.0	95.5
6/17/96	N14-6/17-10	601090	2176020	473	132.8	119.9	10.7	125.0	12.0	95.6

TABLE 2
SUMMARY OF MOISTURE/DENSITY TEST RESULTS
BREWER GOLD MINE SITE CLOSURE - JEFFERSON, SOUTH CAROLINA

Date	Test No.	Test Location Coordinates		Elevation	Wet Density	Dry Density	Moisture Content	Maximum Dry	Optimum Moisture	Percent
		Northing	Easting	(ft., msl)	(pcf)	(pcf)	(percent)	Density (pcf)	Content (percent)	Compaction
6/17/96	NC-6/17-01	600680	2177820	428	115.5	92.9	24.4	97.0	24.0	95.8
6/17/96	NC-6/17-02	600560	2177670	467	117.7	96.6	21.9	97.0	24.0	99.6
6/17/96	NC-6/17-03	600720	2177710	425	114.9	90.2	27.3	97.0	24.0	93.0
6/17/96	NC-6/17-04	600560	2177530	484	114.0	91.6	24.4	97.0	24.0	94.4
6/17/96	NC-6/17-05	600780	2177700	406	112.8	91.0	23.9	97.0	24.0	93.8
6/17/96	NC-6/17-06	600740	2177640	425	115.9	95.2	21.8	97.0	24.0	97.1
6/17/96	NC-6/17-07	600680	2177560	447	110.2	91.0	21.2	97.0	24.0	92.8
6/17/96	NC-6/17-08	600620	2177510	465	107.5	89.3	20.3	97.0	24.0	91.2
6/17/96	NC-6/17-09	600640	2177430	466	115.6	92.6	24.8	97.0	24.0	94.5
6/17/96	NC-6/17-10	600790	2177560	415	115.3	96.3	19.7	97.0	24.0	98.2
6/18/96	NC-6/18-1	600660	2177400	466	113.4	94.3	20.3	97.0	24.0	97.2
6/18/96	NC-6/18-2	600380	2177790	454	115.1	95.5	20.5	97.0	24.0	98.5
6/18/96	NC-6/18-3	600580	2177850	426	115.0	93.6	22.8	97.0	24.0	96.5
6/18/96	NC-6/18-4	600540	2177700	465	112.3	92.5	21.4	97.0	24.0	95.4
6/19/96	NC-6/19-1	600730	2177450	445	109.8	88.4	24.2	97.0	24.0	91.2
6/19/96	NC-6/19-1B	600730	2177450	445	112.3	92.6	21.3	97.0	24.0	95.4
6/19/96	NC-6/19-2	600860	2177340	437	109.7	86.4	27.0	97.0	24.0	89.1
6/19/96	NC-6/19-2B	600860	2177340	437	112.5	92.5	21.6	97.0	24.0	95.4
6/19/96	NC-6/19-3	600690	2177170	496	115.7	96.5	19.9	97.0	24.0	99.4
6/19/96	NC-6/19-4	600720	2177270	477	117.2	96.6	21.3	97.0	24.0	99.5
6/20/96	NC-6/20-1	600730	2177200	488	115.0	92.8	23.9	97.0	24.0	95.7
6/20/96	NC-6/20-2	600870	2177160	478	112.5	89.0	26.4	97.0	24.0	91.7
6/20/96	NC-6/20-2B	600870	2177160	478	115.1	93.4	23.3	97.0	24.0	96.3
6/20/96	NC-6/20-3	600890	2177280	447	114.5	87.9	30.3	97.0	24.0	90.7
6/20/96	NC-6/20-3B	600890	2177280	447	119.7	92.7	29.1	97.0	24.0	95.6
6/25/96	NC-6/25-1	600610	2177530	469	113.0	95.4	18.5	97.0	24.0	98.4
6/25/96	NC-6/25-2	600840	2177650	389	113.3	94.1	20.4	97.0	24.0	97.0
6/25/96	NC-6/25-3	600750	2177400	447	112.0	93.7	19.4	97.0	24.0	96.6
6/25/96	NC-6/25-4	600810	2177150	483	112.1	92.7	20.8	97.0	24.0	95.6
12/6/96	N6-12/6-1	601820	2176340	560	150.7	139.0	8.5	145.5	5.0	95.5
12/6/96	N6-12/6-2	601610	2176270	550	146.6	134.7	8.8	145.5	5.0	92.6
12/6/96	N6-12/6-3	601470	2176270	545	142.7	132.4	7.8	145.5	5.0	91.0
12/6/96	N6-12/6-4	601490	2176250	545	141.6	131.2	7.9	145.5	5.0	90.2
12/6/96	N6-12/6-5	601380	2176110	540	146.0	137.5	6.2	145.5	5.0	94.5

TABLE 2
SUMMARY OF MOISTURE/DENSITY TEST RESULTS
BREWER GOLD MINE SITE CLOSURE - JEFFERSON, SOUTH CAROLINA

Date	Test No.	Test Location Coordinates		Elevation (ft., msl)	Wet Density (pcf)	Dry Density (pcf)	Moisture Content (percent)	Maximum Dry Density (pcf)	Optimum Moisture Content (percent)	Percent Compaction
		Northing	Easting							
12/6/96	N6-12/6-6	601280	2176100	540	145.2	136.4	6.5	145.5	5.0	93.8
12/6/96	N6-12/6-7	601200	2176110	540	142.9	133.5	7.0	145.5	5.0	91.8
12/18/96	N6-12/18-1	601530	2176390	542	143.0	134.6	6.2	145.5	5.0	92.5
12/18/96	N6-12/18-2	601430	2176390	542	144.0	136.6	5.4	145.5	5.0	93.9
12/18/96	N6-12/18-3	601340	2176340	542	137.6	125.0	10.0	145.5	5.0	85.9
12/18/96	N6-12/18-4	601300	2176350	542	138.5	130.4	6.2	145.5	5.0	89.6
12/18/96	N6-12/18-5	601200	2176350	542	142.8	135.8	5.2	145.5	5.0	93.3
12/18/96	N6-12/18-6	601100	2176360	543	137.2	137.2	6.7	145.5	5.0	88.4
1/2/97	N6-1/2-01	601310	2176220	548	145.0	134.2	8.0	145.5	5.0	92.2
1/2/97	N6-1/2-02	601290	2176280	548	143.2	132.4	8.2	145.5	5.0	91.0
1/2/97	N6-1/2-03	601260	2176360	546	142.0	133.8	6.1	145.5	5.0	91.9
1/2/97	N6-1/2-04	601230	2176430	548	146.4	133.5	9.7	145.5	5.0	91.7
1/2/97	N6-1/2-05	601190	2176490	550	145.1	131.8	10.1	145.5	5.0	90.6
1/2/97	N6-1/2-06	601170	2176560	550	142.2	131.2	8.4	145.5	5.0	90.2
1/2/97	N6-1/2-07	601100	2176550	550	148.1	137.3	7.8	145.5	5.0	94.4
1/2/97	N6-1/2-08	601040	2176580	552	144.5	134.2	7.6	145.5	5.0	92.3
1/2/97	N6-1/2-09	601000	2176590	552	142.9	132.9	7.5	145.5	5.0	91.4
1/2/97	N6-1/2-10	601060	2176690	552	143.1	132.4	8.1	145.5	5.0	91.0
1/16/97	N6-1/16-01	601170	2176060	526	143.2	130.7	9.5	145.5	5.0	89.8
1/16/97	N6-1/16-02	601170	2176060	526	147.9	137.0	7.9	145.5	5.0	94.2
1/16/97	N6-1/16-03	601200	2176260	531	145.9	136.1	7.2	145.5	5.0	93.5
1/16/97	N6-1/16-04	601170	2176520	532	145.5	135.4	7.5	145.5	5.0	93.1
1/16/97	N6-1/16-05	600980	2176550	532	145.1	131.9	10.0	145.5	5.0	90.6
1/16/97	N6-1/16-06	600960	2176410	526	142.2	130.2	9.2	145.5	5.0	89.5
1/16/97	N6-1/16-07	600950	2176220	520	144.7	134.2	7.8	145.5	5.0	92.2
1/16/97	N6-1/16-08	600880	2176240	520	143.6	133.5	7.6	145.5	5.0	91.7
1/16/97	N6-1/16-09	600760	2176230	520	144.3	133.4	8.2	145.5	5.0	91.7
1/16/97	N6-1/16-10	600770	2176320	521	145.2	134.1	8.3	145.5	5.0	92.2
1/27/97	N6-1/27-01	600800	2176560	534	140.0	130.9	8.0	145.0	5.0	90.0
1/27/97	N6-1/27-02	601030	2176560	534	140.5	130.6	7.6	139.0	6.5	94.0
1/27/97	N6-1/27-03	601030	2176490	533	139.1	129.2	7.0	139.0	6.5	93.0
1/27/97	N6-1/27-04	601040	2176390	530	139.5	130.2	7.1	139.0	6.5	93.7
1/27/97	N6-1/27-05	601050	2176270	525	140.1	130.8	7.2	139.0	6.5	94.1
1/27/97	N6-1/27-06	601650	2176050	540	141.8	131.8	7.5	145.0	5.0	90.6

TABLE 2
SUMMARY OF MOISTURE/DENSITY TEST RESULTS
BREWER GOLD MINE SITE CLOSURE - JEFFERSON, SOUTH CAROLINA

Date	Test No.	Test Location Coordinates		Elevation (ft., msl)	Wet Density (pcf)	Dry Density (pcf)	Moisture Content (percent)	Maximum Dry Density (pcf)	Optimum Moisture Content (percent)	Percent Compaction
		Northing	Easting							
1/27/97	N6-1/27-07	601590	2176060	540	143.2	135.4	5.7	145.0	5.0	93.1
1/27/97	N6-1/27-08	601520	2176050	535	142.3	133.3	6.7	145.0	5.0	91.6
1/27/97	N6-1/27-09	601410	2176030	535	140.3	129.2	8.6	145.0	5.0	88.8
1/27/97	N6-1/27-10	601380	2176120	535	143.2	130.9	9.3	145.0	5.0	90.0
2/5/97	N6-2/5-01	601860	2167340	570	141.0	134.0	5.2	145.0	6.5	92.1
2/5/97	N6-2/5-02	601840	2176320	570	140.1	132.0	6.1	145.0	6.5	90.8
2/5/97	N6-2/5-03	601710	2176330	565	141.4	133.4	6.0	139.0	6.5	96.0
2/5/97	N6-2/5-04	601720	2176380	565	142.2	132.8	7.1	139.0	6.5	95.5
2/5/97	N6-2/5-05	601630	2176340	564	140.6	131.7	6.7	139.0	6.5	94.8
2/5/97	N6-2/5-06	601550	2176450	564	143.5	131.3	9.3	139.0	6.5	94.5
2/5/97	N6-2/5-07	601520	2176390	563	137.7	127.2	8.3	139.0	6.5	91.5
2/5/97	N6-2/5-08	601410	2176430	555	139.1	128.4	8.3	139.0	6.5	92.4
2/5/97	N6-2/5-09	601360	2176440	555	138.7	127.9	8.5	139.0	6.5	92.0
2/5/97	N6-2/5-10	601350	2176370	554	137.1	125.9	8.9	139.0	6.5	90.6
2/5/97	N6-2/5-11	601110	2176600	540	140.7	128.9	9.1	139.0	6.5	92.8
2/5/97	N6-2/5-12	601090	2176540	538	138.8	127.9	8.5	139.0	6.5	92.0
2/5/97	N6-2/5-13	600990	2176620	539	137.4	127.7	7.6	139.0	6.5	91.9
2/5/97	N6-2/5-14	600960	2176510	537	139.9	129.2	8.2	139.0	6.5	93.0
2/5/97	N6-2/5-15	600930	2176440	534	138.4	126.2	9.7	139.0	6.5	90.8
2/5/97	N6-2/5-16	601070	2176380	534	132.5	118.9	11.5	139.0	6.5	85.5
2/5/97	N6-2/5-17	601050	2176350	534	145.2	137.7	5.5	145.0	5.0	94.6
2/5/97	N6-2/5-18	601110	2176270	533	140.8	133.5	5.5	145.0	5.0	91.7
2/5/97	N6-2/5-19	601180	2176210	530	144.6	137.9	4.9	145.0	5.0	94.8
2/5/97	N6-2/5-20	601240	2176150	527	140.3	133.6	5.0	145.0	5.0	91.9
2/17/97	N6-2/17-01	600810	2176540	534	139.4	131.5	6.0	139.0	6.5	94.6
2/17/97	N6-2/17-02	600840	2176480	534	142.3	133.3	6.8	139.0	6.5	95.9
2/17/97	N6-2/17-03	600850	2176410	534	141.5	133.5	6.1	139.0	6.5	96.0
2/17/97	N6-2/17-04	600850	2176320	533	139.7	132.5	5.5	139.0	6.5	95.3
2/17/97	N6-2/17-05	600850	2176290	533	142.7	128.9	10.7	139.0	6.5	92.7
2/17/97	N6-2/17-06	600830	2176280	533	140.3	127.1	10.4	139.0	6.5	91.5
2/17/97	N6-2/17-07	601130	2176550	550	146.4	133.9	9.3	139.0	6.5	96.3
2/17/97	N6-2/17-08	601120	2176500	550	144.1	132.1	9.0	139.0	6.5	95.1
2/17/97	N6-2/17-09	601100	2176450	550	138.7	126.3	9.8	139.0	6.5	90.9
2/17/97	N6-2/17-10	601100	2176380	550	144.7	131.6	9.9	139.0	6.5	94.7

TABLE 2
SUMMARY OF MOISTURE/DENSITY TEST RESULTS
BREWER GOLD MINE SITE CLOSURE - JEFFERSON, SOUTH CAROLINA

Date	Test No.	Test Location Coordinates		Elevation (ft., msl)	Wet Density (pcf)	Dry Density (pcf)	Moisture Content (percent)	Maximum Dry Density (pcf)	Optimum Moisture Content (percent)	Percent Compaction
		Northing	Easting							
2/17/97	N6-2/17-11	601110	2176370	550	147.4	136.0	8.4	139.0	6.5	97.8
2/17/97	N6-2/17-12	601170	2176340	550	139.9	128.6	8.8	139.0	6.5	92.5
2/17/97	N6-2/17-13	601100	2176280	545	148.1	137.3	7.8	145.5	5.0	94.4
2/17/97	N6-2/17-14	601200	2176250	545	149.6	138.9	7.7	145.5	5.0	95.5
2/17/97	N6-2/17-15	601100	2176210	543	147.4	135.8	8.5	145.5	5.0	93.4
2/17/97	N6-2/17-16	601190	2176190	543	146.6	138.7	5.7	145.5	5.0	95.3
2/17/97	N6-2/17-17	601120	2176130	543	144.3	136.6	5.7	145.5	5.0	93.9
2/17/97	N6-2/17-18	601210	2176130	543	146.1	138.3	5.6	145.5	5.0	95.1
2/17/97	N6-2/17-19	601150	2176090	543	148.7	141.7	4.9	145.5	5.0	97.4
2/17/97	N6-2/17-20	601240	2176080	543	150.3	142.4	5.6	145.5	5.0	97.9
5/8/97	NC-5/8-1	600640	2177010	511	120.0	91.5	31.1	95.0	25.5	96.4
5/8/97	NC-5/8-2	600670	2176990	510	120.5	93.9	28.4	95.0	25.5	98.8
5/8/97	NC-5/8-3	600780	2176680	527	118.7	92.1	28.9	95.0	25.5	96.9
5/8/97	NC-5/8-4	600810	2176680	527	113.4	87.9	28.9	95.0	25.5	92.6
5/14/97	NC-5/14-1	600610	2177020	511	124.1	97.4	27.4	97.0	24.0	100.4
5/14/97	NC-5/14-2	600720	2177040	505	120.9	95.1	27.1	97.0	24.0	98.0
5/14/97	NC-5/14-2A	600720	2177040	505	119.3	92.4	29.1	97.0	24.0	95.3
5/14/97	NC-5/14-3	600750	2176990	508	188.5	90.8	30.4	95.0	25.5	95.6
5/14/97	NC-5/14-4	600910	2177000	505	121.3	93.1	30.3	97.0	24.0	95.9
5/14/97	NC-5/14-4A	600910	2177000	505	120.8	91.3	32.3	97.0	24.0	94.2
5/16/97	NC-5/16-01	600630	2176990	511	120.2	95.2	26.3	97.0	24.0	98.1
5/16/97	NC-5/16-02	600730	2176990	509	121.0	95.6	26.5	97.0	24.0	98.6
5/16/97	NC-5/16-03	600820	2176970	508	124.2	96.4	28.9	97.0	24.0	99.4
5/16/97	NC-5/16-04	600980	2176960	507	119.5	93.7	27.5	97.0	24.0	96.6
5/16/97	NC-5/16-05	600880	2176900	506	120.0	94.5	26.9	97.0	24.0	97.4
5/16/97	NC-5/16-06	600720	2176700	524	115.5	94.5	29.1	95.0	25.5	94.1
5/16/97	NC-5/16-07	600870	2176680	527	119.8	95.5	25.4	97.0	24.0	98.4
5/16/97	NC-5/16-08	600970	2176700	524	116.3	88.4	31.5	90.0	27.5	98.3
5/16/97	NC-5/16-09	601090	2176680	528	120.6	93.0	29.7	95.0	25.5	97.9
5/16/97	NC-5/16-10	601190	2176680	530	113.0	88.7	27.4	95.0	25.5	93.3
5/22/97	NC-5/22-1	601120	2176650	534	120.4	96.0	25.5	97.0	24.0	98.9
5/22/97	NC-5/22-2	60120	2176750	513	126.3	98.6	28.1	97.0	24.0	101.6
5/22/97	NC-5/22-3	601180	2176750	514	120.8	96.5	25.2	97.0	24.0	99.5
5/22/97	NC-5/22-4	601210	2176590	549	120.3	92.3	30.4	97.0	24.0	97.1

TABLE 2
SUMMARY OF MOISTURE/DENSITY TEST RESULTS
BREWER GOLD MINE SITE CLOSURE - JEFFERSON, SOUTH CAROLINA

Date	Test No.	Test Location Coordinates		Elevation (ft., msl)	Wet Density (pcf)	Dry Density (pcf)	Moisture Content (percent)	Maximum Dry Density (pcf)	Optimum Moisture Content (percent)	Percent Compaction
		Northing	Easting							
5/22/97	NC-5/22-5	601300	2176680	530	120.7	94.7	27.4	97.0	24.0	99.7
5/22/97	NC-5/22-6	601380	2176670	531	114.1	91.0	25.4	97.0	24.0	95.8
5/22/97	NC-5/22-7	601450	2176670	530	118.8	90.4	31.5	97.0	24.0	95.1
5/29/97	NC-5/29-1	601410	2176600	545	116.5	91.9	26.7	95.0	25.5	96.7
5/29/97	NC-5/29-2	601470	2176590	546	118.9	93.5	27.2	95.0	25.5	98.4
5/29/97	NC-5/29-3	601480	2176570	550	119.3	92.4	29.1	95.0	25.5	95.3
5/29/97	NC-5/29-4	601520	2176560	547	116.8	87.8	33.0	95.0	25.5	92.4
5/29/97	NC-5/29-5	601630	2176530	546	116.9	89.9	30.1	95.0	25.5	94.6
6/5/97	NC-6/5-01	601860	2175880	583	119.3	93.0	28.2	95.0	25.5	97.9
6/5/97	NC-6/5-02	601870	2176180	573	120.0	94.8	26.6	95.0	25.5	99.8
6/5/97	NC-6/5-03	601690	2176310	568	115.7	88.4	30.0	95.0	25.5	93.0
6/5/97	NC-6/5-04	601670	2176120	571	121.6	95.2	27.7	95.0	25.5	100.2
6/5/97	NC-6/5-05	601660	2175940	583	121.2	97.3	24.6	97.0	24.0	100.3
6/5/97	NC-6/5-06	601480	2176020	566	121.3	92.2	31.6	97.0	24.0	95.0
6/5/97	NC-6/5-07	601480	2176220	560	117.2	89.9	30.4	95.0	25.5	94.6
6/5/97	NC-6/5-08	601480	2176400	563	123.1	95.4	29.0	95.0	25.5	100.4
6/5/97	NC-6/5-09	601370	2176330	559	118.4	91.6	29.2	95.0	25.5	96.4
6/5/97	NC-6/5-10	601380	2176130	557	120.0	94.4	27.1	95.0	25.5	99.3
6/24/97	NC-6/24-01	601400	2176030	560	122.5	95.6	28.2	95.0	25.5	100.6
6/24/97	NC-6/24-02	601390	2176210	558	116.1	94.2	23.2	95.0	25.5	99.2
6/24/97	NC-6/24-03	601380	2176370	560	188.6	94.5	25.5	95.0	25.5	99.5
6/24/97	NC-6/24-04	601160	2175930	550	120.7	93.5	29.1	95.0	25.5	98.5
6/24/97	NC-6/24-05	601170	2176120	549	120.6	95.9	25.7	95.0	25.5	101.0
6/24/97	NC-6/24-06	601170	2176360	554	121.1	95.7	26.5	95.0	25.5	100.8
6/24/97	NC-6/24-07	600800	2176450	543	121.4	95.1	27.6	95.0	25.5	100.0
6/24/97	NC-6/24-08	600820	2176200	541	119.9	94.4	27.0	95.0	25.5	99.4
6/24/97	NC-6/24-09	600840	2175960	538	119.6	94.5	26.5	95.0	25.5	99.5
6/24/97	NC-6/24-10	600840	2175730	537	120.1	93.9	27.9	95.0	25.5	98.9

Notes:

N5 = HLP 5 material
N14 = HLP 1-4 material
NSD = Subdrain subgrade material
NC = Clay cap material
PAD5 = Insitu tests on HLP 5
N6 = HLP 6 material