CONSTRUCTION QUALITY ASSURANCE REPORT
CLOSURE OF ASH POND A, ASH POND B, ASH POND C, AND BOTTOM ASH POND
HUTSONVILLE POWER STATION
15142 EAST 1900 AVENUE
CRAWFORD COUNTY, ILLINOIS

Prepared for:

AMERENENERGY MEDINA VALLEY COGEN, L.L.C.

Prepared by:

GEOTECHNOLOGY, INC.
St. Louis, Missouri

Project No. J019896.05

November 21, 2016

GEOTECHNOLOGY INC
FROM THE GROUND UP

November 21, 2016 J019896.05

Mr. Mike Wagstaff, P. E.
Ameren Missouri
3700 South Lindbergh Boulevard
St. Louis, Missouri

Re: Construction Quality Assurance Report
Closure of Ash Pond A, Ash Pond B, Ash Pond C, and Bottom Ash Pond
Hutsonville Power Station
15142 East 1900 Avenue
Crawford County, Illinois

Dear Mr. Wagstaff:

Attached is the Construction Quality Assurance report for the referenced site. This report is documentation of the activities associated with the closure of Ash Pond A, Ash Pond B, Ash Pond C, and the Bottom Ash Pond at the Hutsonville Power Station in Crawford County, Illinois.

If you have any questions or comments regarding the attached information, please feel free to contact the undersigned at (314) 997-7440.

Very truly yours,

GEOTECHNOLOGY, INC.

Anna M. Saindon, P.E., Ph.D.
Project Manager

JYH/AMS/MSR:jyh/jsj

J019896.05

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TABLE OF CONTENTS

CONSTRUCTION QUALITY ASSURANCE REPORT
CLOSURE OF ASH POND A, ASH POND B, ASH POND C, AND BOTTOM ASH POND
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TABLE OF CONTENTS
(continued)

TABLES

SHEETS

APPENDICES

CONSTRUCTION QUALITY ASSURANCE REPORT
CLOSURE OF ASH POND A, ASH POND B, ASH POND C, AND BOTTOM ASH POND
HUTSONVILLE POWER STATION
15142 EAST 1900 AVENUE
CRAWFORD COUNTY, ILLINOIS

1.0 PROJECT BACKGROUND

The AmerenEnergy Medina Valley Cogen, L.L.C. (Ameren) Hutsonville Power Station (Hutsonville) is located at 15142 East 1900 Avenue, Hutsonville, Illinois. This report is documentation of the completed Construction Quality Assurance (CQA) program for the closure of four ash ponds: Ash Pond A, Ash Pond B, Ash Pond C, and the Bottom Ash Pond. The plan has been completed in general accordance with the coal combustion byproduct (CCB) surface impoundment closure requirements of 35 Illinois Administration Code (IAC) 840.146 entitled Construction Quality Assurance Program.

Ash Pond A was operational from 1986 until the plant ceased operations in December 2011. Fly ash from the operating units was collected by an electrostatic precipitator and sluiced to Ash Pond A. The pond was constructed with an 80 mil high-density polyethylene (HDPE) liner. Ash was sluiced to the pond where solids were permitted to settle out and supernatant liquids were decanted. The pond contained fly ash within an area of approximately 12 acres, with an average ash depth of approximately 20 feet. Prior to closure initiation, it was estimated that Ash Pond A contained approximately 81,000 cubic yards of ash. The ash pond was contained by a 2,400 foot long perimeter embankment approximately 15 feet high.

Ash Pond B, an HDPE-lined pond, was placed in service in 2000 for disposal of sluiced fly ash and bottom ash. This pond received wastewater and/or storm water for periodic discharge and was permitted under the facility's National Pollutant Discharge Elimination System (NPDES) and Subpart B permits. Ash Pond B had a surface area of approximately 4.4 acres, with a maximum embankment height of 17 feet. Prior to closure initiation, it was estimated that Ash Pond B contained approximately 12,400 cubic yards of ash. Ash Pond B functioned as a secondary settling pond (polishing pond), receiving flow via a triplex pump station in Ash Pond C and flow from Ash Pond A before discharging to the Wabash River via NPDES-permitted outfall #002 (IL0000175).

Ash Pond C was an HDPE-lined pond placed in service in 2000 for disposal of sluice water from the Bottom Ash Pond. This pond received storm water and was permitted under the facility's NPDES and Subpart B permits. Storm water from the Bottom Ash Pond and Ash Pond C was discharged to Ash Pond B via a pump station. Ash Pond C was incised with a surface area of approximately 2 acres. Prior to closure initiation, it was estimated that Ash Pond C contained approximately 10,000 cubic yards of ash.

The Bottom Ash Pond was put into service in 1969 for disposal and reuse of bottom ash. The Bottom Ash Pond had a surface area of approximately 1.2 acres, with a maximum embankment height of 15 feet. Prior to closure initiation, it was estimated that the Bottom Ash Pond contained approximately 23,000 cubic yards of bottom ash. This pond received storm water for periodic discharge and was permitted under the facility's NPDES and Subpart B permits.

In summary, the closure activities for the three clean-closure ash ponds included: removal of CCB, removal of geomembrane, grading, construction of surface water control structures, and vegetation. The closure activities for Ash Pond A included: placement of CCB from the three clean-closure ash ponds, CCB subgrade grading, CCB subgrade compaction, placement of 40-mil HDPE geomembrane, placement of a three-foot thick final cover soil layer, construction of surface water control structures, and vegetation. As required in the CQA Plan, a scheduled program of monitoring, inspecting, sampling, and testing was performed. The CQA Plan was used to evaluate compliance with the intent of the closure plans[1] and specifications[2]. A summary of the site activities, construction observation, field testing, laboratory testing, and surveying during the ash pond closures are included in this CQA report. Presented in Appendix A are the weekly memorandums, daily reports, meeting minutes, and photograph logs. Presented in Appendix B are the CQA certifications.

2.0 CLEAN CLOSURE ACTIVITIES

2.1 CCB Removal Activities

CCB was removed from Ash Pond B, Ash Pond C, and the Bottom Ash Pond to facilitate clean closure of these ponds. CCB removal began on June 4, 2015 and concluded on September 24, 2015. A CQA representative periodically observed the CCB removal activities to assess the completeness of CCB removal. The CCB removed from Ash Pond B, Ash Pond C, and the Bottom Ash Pond was placed in Ash Pond A. After the CCB was removed, the ponds were brought to final grade, storm water controls were installed, and the ponds were vegetated.

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[1] *Construction Plans for the Closure of Ash Ponds A, B, C and Bottom Ash Pond, Medina Valley Cogen, LLC, Hutsonville Power Station, Revised August 2014*; prepared by Hanson Professional Services Inc. for Ameren Energy Generating Company, 2014.

[2] *Construction Specification UE-2165 for Closure of Ash Ponds A, B, C and Bottom Ash Pond at Medina Valley Cogen, LLC Hutsonville Power Station*; prepared by Hanson Professional Services Inc. for Ameren Energy Generating Company, 2014.

2.2 Coal Yard

The Coal Yard previously stored coal for use at the power plant. The excess coal stored in the Coal Yard after the power plant operation ceased was removed prior to the beginning of the project. Coal spoils were still present in the Coal Yard after these removal activities. The top twelve inches of coal spoils were removed from the surface of the Coal Yard and placed in Ash Pond A. The top twelve inches were then backfilled with excess soil from on site.

2.3 Ash Pond D Slope at the Bottom Ash Pond

Ash Pond D was closed on the site in 2012. The slope of Ash Pond D adjacent to the east end of the Bottom Ash Pond contained ash extending into Ash Pond D. The Ash Pond D slope, extending from a tie-in to the previously installed Ash Pond D geomembrane to the base of the slope, was installed using the same procedures outlined in Section 4.0 (Geomembrane) of this report. The Ash Pond D geomembrane was installed on November 5, 2015 and protective cover was installed on November 20, 2015.

2.4 Survey of Final Grade

The finished grade of Ash Pond B, Ash Pond C, and the Bottom Ash Pond was surveyed by a licensed surveyor for a final as-built drawing. The results of the survey are illustrated and summarized on Sheet S-XXX-001A.

2.5 Surface Water Management

Surface water management structures in Ash Pond B, Ash Pond C, and the Bottom Ash Pond, including ditches and outfalls, were built in accordance with the design and approved modifications thereof.

2.6 Vegetation

After Ash Pond B, Ash Pond C, the Bottom Ash Pond, and the Coal Yard were brought to final grade, they were fertilized and seeded using synthetic mats and straw as needed to establish vegetation.

3.0 ASH POND A SUBGRADE PREPARATION

Subgrade preparation began on May 11, 2015 and was completed on October 30, 2015. In summary, subgrade preparation activities consisted of placing CCB material excavated from Ash Pond B, Ash Pond C, and the Bottom Ash Pond, placing spoils excavated from the Coal Yard, grading CCB in Ash Pond A, compacting the top 1 foot of subgrade material, performing compaction testing, and surveying the final subgrade elevations. In addition, the prepared subgrade was visually assessed by the CQA Officer to observe that the surface was relatively smooth and free of deleterious materials (i.e. jagged, irregularly-shaped protrusions) that could damage the geomembrane.

3.1 Laboratory Testing

Three CCB bulk samples were obtained from the existing subgrade. Index testing (moisture content and Atterberg limits) was performed on select samples. Standard Proctor moisture-density relationship was performed on the three bulk samples. The laboratory test results are summarized and presented in Appendix C.

3.2 Subgrade Compaction

Nuclear gauge density tests were performed on the upper 12 inches of the prepared subgrade at a frequency of five tests per acre (refer to Table 1). The field density tests were compared to the standard Proctor moisture-density relationship laboratory test data (Appendix C) to provide information regarding subgrade compaction. The project specifications required the subgrade to be compacted to 90 percent of the maximum standard Proctor dry density. Areas of failed density tests were recompacted and retested as needed. Based on the laboratory test results and field density test results, the subgrade was compacted in conformance with the CQA plan. The field tests are summarized in Table 1 and provided in the field observation reports in Appendix A.

3.3 Subgrade Survey

The subgrade was surveyed by a licensed surveyor. In addition, the subgrade was observed by the CQA Officer to verify that the prepare slopes did not have sharp grade changes, depressions, or protrusions. Repairs were made to areas that did not meet these criteria prior to geomembrane placement. A final as-built survey of the subgrade was performed. The results of the survey are illustrated and summarized on Sheet SUV-1. After the subgrade was smoothed, certification of the survey data and general condition of the subgrade was provided by the CQA Officer prior to installation of the 40-mil HDPE geomembrane liner (Appendix B).

4.0 GEOMEMBRANE

Geomembrane placement began on October 30, 2015 and was completed on November 13, 2015.

4.1 Prequalification Testing

The geomembrane manufacturer supplied an inventory list of the 40-mil HDPE geomembrane rolls to the owner and the CQA Officer. The geomembrane manufacturer submitted samples from the prequalification rolls to an independent geosynthetics laboratory for verification of selected manufacturer's guaranteed properties (presented in Appendix D). On each geomembrane roll selected for sampling, a 3-foot long sample was collected along the entire width of the roll.

In addition, the manufacturer submitted documentation that the materials supplied were tested for the parameters listed in the manufacturers list of guaranteed properties at the required testing frequency. The results of the testing, including identification of tested rolls, were submitted to the CQA Officer for review. The manufacturer certified that all rolls met the manufacturer's guaranteed properties in accordance with the specified testing frequency rate (Appendix D).

Geomembrane prequalification testing was completed prior to delivery. Copies of the testing results are provided in Appendix D.

4.2 Installer Certification of Placement Surface

The geomembrane installer's inspection and acceptance of the prepared subgrade surface as suitable for the geomembrane installation is documented through Certificates of Acceptance (Appendix E). Certificates of Acceptance were provided to the CQA Officer each day for the area covered by geomembrane that day.

4.3 Seam Overlap Testing

The general contractor and geomembrane installer arranged the geomembrane panels in an orientation to reduce the number of field seams. Within the geomembrane footprint, seam overlaps were field measured by the geomembrane installer to verify that the required 3 inches of overlap was met for all seams. Seam overlaps were "shingled" in the direction of the downslope. The CQA Officer and field representatives made independent measurements of the seam overlaps for additional verification.

4.4 Non-Destructive Testing

The geomembrane installer performed non-destructive testing of seams at the frequency specified in the CQA Plan. The seams were non-destructively tested over the full-length using a vacuum test unit, air pressure test, or other methods (i.e., spark testing for geomembrane boots around vent pipes) approved by the CQA Officer. Vacuum testing and air pressure testing procedures are presented in Sections 4.4.1 and 4.4.2. Continuity testing was completed as the seaming progressed. The CQA Officer and field representatives observed the non-destructive testing performed by the geomembrane installer. The geomembrane installer submitted all non-destructive field-testing results to the CQA Officer (Appendix C).

4.4.1 Vacuum Testing (Extrusion Welds)

Extrusion welds were typically used for repairs, protrusions through the geomembrane, and the tie-in to the existing geomembrane of Ash Pond D. Vacuum testing procedures for extrusion welds follow.

Equipment

The following equipment was used:

- Vacuum box assembly consisting of a rigid housing with a transparent viewing window, soft neoprene gasket attached to the bottom, port hole or valve assembly and a vacuum gauge;
- Vacuum tank and pump assembly equipped with a pressure controller and pipe connections;
- Rubber pressure or vacuum hose with fittings and connections;
- Bucket; and
- Soapy solution.

Procedures

The following procedures were followed:

1. The vacuum pump was energized and tank pressure was adjusted to approximately 10 inches of mercury.
2. A strip of geomembrane approximately 12 inches wide by 48 inches long (an area larger than the coverage of the vacuum box) was wetted with the soapy solution.
3. The box was placed over the wetted area.
4. The bleed valve was closed and the vacuum valve opened.
5. Creation of a leak tight seal was verified.

6. The geomembrane was observed for at least ten seconds through the viewing window for the presence of soap bubbles.
7. When bubbles were not observed after 10 seconds, the vacuum valve was closed, and the bleed valve opened. The box was moved to the next adjoining area, and the process was repeated.
8. All areas where soap bubbles appeared were marked, repaired, and retested until passing test results were obtained.

4.4.2 Air Pressure Testing (Double Fusion Welds)

Double fusion seams were typically used to fuse two panels of geomembrane together. Air pressure testing procedures for double fusion welds follow.

Equipment

The following equipment was used:

- Air pump (manual or motor driven) equipped with pressure gauge capable of generating and sustaining a pressure of 25 to 30 pounds per square inch (psi) and mounted on a cushion to protect the geomembrane;
- Rubber hose with fittings and connections; and
- Sharp hollow needle.

Procedures

The following procedures were followed:

1. Both ends of the seam to be tested were sealed.
2. A needle was inserted into the tunnel created by the fusion weld.
3. A protective cushion was inserted between the air pump and the geomembrane.
4. The air pump was energized to a pressure between 25 psi and 30 psi. The valve was closed, and the pressure was sustained for a minimum of five minutes.
5. If loss of pressure exceeded 3 psi or did not stabilize, the leaking area was located, then repaired and retested until passing test results were obtained.
6. At the conclusion of a passing air pressure test, the opposite end of the seam was slit and the subsequent drop in pressure was observed. Our observation of the pressure drop indicated that the seam passed.
7. The needle was removed and the needle hole sealed.

4.5 Destructive Testing

Destructive seam tests were performed at randomly selected geomembrane locations as seaming work progressed. The purpose of the destructive seam tests was to evaluate seam strength. The CQA Officer and field representatives observed the destructive testing performed by the geomembrane installer.

The geomembrane installer submitted the results of the field destructive testing to the CQA Officer. An independent laboratory, selected by the CQA Officer, performed the destructive seam tests that included peel and shear strength testing. The destructive seam testing results (field-testing and independent testing) are presented in Appendix D.

4.5.1 Testing Location and Frequency

The CQA Officer or field representative selected the destructive test locations where seam samples were removed for testing at a minimum frequency of one sample per 500 feet of seaming. In addition, the CQA Officer or field representative could select additional destructive seam sample locations at their discretion. Destructive seam test locations include random seam testing and areas of possible defects (excess crystallinity, contamination, offset welds, equipment malfunction).

4.5.2 Sampling Procedures

Destructive seam samples were obtained as the seaming progressed. This method was used to facilitate approval of the geomembrane results prior to covering the geomembrane with the next layer of the closure construction. The geomembrane installer assigned a number to each destructive seam sample and marked the location and seaming information on each collected sample. The destructive seam sample location was recorded on an as-built drawing. The locations of the destructive seam samples were repaired in accordance with the CQA Plan. The continuity of the repairs was subsequently vacuum tested.

4.5.3 Field Testing

The geomembrane installer used a tensiometer to test ten 1-inch wide strips from each sample identified for destructive testing. In accordance with the CQA Plan, the field destructive tests consisted of five samples for peel adhesion and five samples for shear strength. Upon successful field-testing, the remaining destructive seam samples were qualified to be submitted for independent laboratory testing.

4.5.4 Laboratory Testing

Samples that passed the prequalifying field-tests were submitted to the independent testing laboratory. Ten specimens from each destructive seam sample were tested, including five shear strength tests and five peel adhesion tests. Laboratory testing was in accordance with "Standard Test Method for Determining the Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods" (ASTM D 6392). Acceptance was based on the criteria outlined in the Geosynthetic Research Institute (GRI) standard GRI GM19 as provided in the CQA Plan.

4.5.5 Procedures for Failed Destructive Tests

If a destructive sample did not pass either a field or a laboratory test, the geomembrane installer had two options to remediate the failure. The geomembrane installer could reconstruct and repair the seam between any two passed test locations completed by the same technician on the same day. Alternatively, the geomembrane installer could trace the welding path to an intermediate location at least 10 feet from the failed test in either direction and take additional destructive seam samples. The additional samples were then field-tested prior to sending to the independent laboratory as previously described. If the additional samples passed, then the seam was reconstructed between the two passing samples. If the additional samples failed, then the process was repeated to establish the zone in which the seam should be reconstructed.

Reconstructed seams were bounded by two locations with passing laboratory destructive tests. In cases that exceeded 150 feet of reconstructed seam, a destructive sample was taken from the zone in the reconstructed area. The geomembrane installer documented the actions taken in conjunction with destructive test failures (Appendix D).

5.0 FINAL COVER

After the geomembrane was constructed and approved, 3 feet of final cover (soil) was placed over the 40-mil HDPE geomembrane. Soil grading began on November 23, 2015. On December 22, 2015, the protective cover was winterized for completion in the spring; all parts of the HDPE geomembrane were covered by at least two feet of protective cover as of this date. Protective cover placement, shaping, and grading resumed on April 6, 2016 and were completed on June 6, 2016.

The final cover installer's inspection and acceptance of the geomembrane surface as suitable for the final cover installation is documented through Certificates of Acceptance (Appendix E). Certificates of Acceptance were provided to the CQA Officer each day for the area of geomembrane covered by final cover that day.

The soil grading activities consisted of:

- Visually observing that the geomembrane surface was free of defects prior to soil placement,
- Removing deleterious materials (such as roots and rocks) from the soil that could damage the geomembrane,
- Spreading the soil over the geomembrane,
- Preparing the partial cover for the winter months,
- Repairing erosive damage to the partial cover when work resumed in the spring,
- Surveying the final subgrade elevations on the established 100-foot grid points, and
- Calculating the difference between the ash subgrade and the final surface to confirm that a minimum of 3 feet of soil as a final cover was present over the geomembrane.

The soil was placed in a 2-foot thick lift by a low pressure bulldozer. During the placement of the 2-foot thick lift, a 3-foot thick road was built and maintained to allow haul trucks to transport soil onto Ash Pond A. The soil was then brought to final grade in a second grading phase after the geomembrane surface was covered. The final surface survey data and calculated thickness are provided on Sheet SUV-1. Discussions of the soil placement are provided on the field observation reports presented in Appendix A.

After the final cover was graded and the surface water management controls constructed, Ash Pond A was fertilized and seeded using synthetic mats and straw as needed to establish vegetation.

6.0 SURFACE WATER MANAGEMENT

Berms and channels were constructed on the final cover for surface water management. Construction of the berms and channels were observed and an as-built survey was performed.

A copy of the surface water management structure survey data is provided on Sheet S-XXX-001A. Additional information on the field observations are provided in Appendix A.

7.0 SIGNATURE

As Construction Quality Assurance (CQA) Officer for the construction of the closure of Ash Pond A, Ash Pond B, Ash Pond C, and the Bottom Ash Pond (from April 14, 2015 to October 12, 2016), located at the AmerenEnergy Medina Valley Cogen, Hutsonville Plant in Hutsonville, Illinois, I am familiar with the plans and specifications, and the CQA Plan as prepared and approved for the project. Based on my observations and the observations of the Construction Quality Assurance Officers-In-Absentia (Cassandra Baresel, Steve Graham, and Jessie Hahn), it is my professional opinion that the construction was completed as described in this Report. CQA certification by the owner's representative does not relieve the contractor of their obligations to furnish all work in accordance with the contract.

Rosanna M. Saindon, P.E., Ph.D.
Illinois Licensed Professional Engineer
Project Manager
Geotechnology, Inc.

LICENSED PROFESSIONAL ENGINEER
ROSANNA MARIE SAINDON
062.062289
11/21/2016
STATE OF ILLINOIS

TABLE 1
SUMMARY OF FIELD DENSITY TESTING - SUBGRADE
ASH POND A
HUTSONVILLE POWER STATION
CRAWFORD COUNTY, ILLINOIS

Location			TEST DATE	LIFT NUMBER (1-lower, 2-upper)	Compaction					Pass (P)/ Fail (F)	Notes/ Passing Test Reference	Material Description
Point Number	Latitude (°N)	Longitude (°W)			Max. Dry Density (pcf)	Optimum Moisture (%)	Field Dry Density (pcf)	Field Moisture Content (%)	Compaction (%)			
41	39.13022	-87.66171	10/01/15	2	79.0	NA	104.0	13.17	131.7%	P	Retested (see 41R)	Grey Ash with Sand
			10/01/15	1	79.0	NA	106.7	12.16	135.1%	P	Retested (see 41R)	Grey Ash with Sand
42	39.12998	-87.66149	10/01/15	2	79.0	NA	103.7	13.79	131.2%	P	Retested (see 42R)	Grey Ash with Sand
			10/01/15	1	79.0	NA	102.7	12.98	130.0%	P	Retested (see 42R)	Grey Ash with Sand
43	39.12981	-87.66132	10/01/15	2	79.0	NA	116.6	9.76	147.6%	P	Retested (see 43R)	Grey Ash with Sand
			10/01/15	1	79.0	NA	115.1	10.49	145.7%	P	Retested (see 43R)	Grey Ash with Sand
44	39.12967	-87.66117	10/01/15	2	79.0	NA	101.7	13.36	128.7%	P	Retested (see 44R)	Grey Ash with Sand
			10/01/15	1	79.0	NA	107.4	12.34	135.9%	P	Retested (see 44R)	Grey Ash with Sand
36	39.12947	-87.66137	10/01/15	2	79.0	NA	105.5	11.62	133.6%	P	Retested (see 36R)	Grey Ash with Sand
			10/01/15	1	79.0	NA	99.4	11.08	125.8%	P	Retested (see 36R)	Grey Ash with Sand
35	39.12958	-87.66150	10/01/15	2	79.0	NA	116.4	10.34	147.4%	P	Retested (see 35R)	Grey Ash with Sand
			10/01/15	1	79.0	NA	119.2	9.68	150.8%	P	Retested (see 35R)	Grey Ash with Sand
34	39.12977	-87.66173	10/01/15	2	79.0	NA	106.4	11.82	134.7%	P	Retested (see 34R)	Grey Ash with Sand
			10/01/15	1	79.0	NA	106.7	11.24	135.1%	P	Retested (see 34R)	Grey Ash with Sand
33	39.12999	-87.66195	10/01/15	2	79.0	NA	112.6	12.08	142.6%	P	Retested (see 33R)	Grey Ash with Sand
			10/01/15	1	79.0	NA	114.3	11.34	144.7%	P	Retested (see 33R)	Grey Ash with Sand
40	39.13004	-87.66194	10/01/15	2	79.0	NA	110.0	11.91	139.3%	P	Retested (see 40R)	Grey Ash with Sand
			10/01/15	1	79.0	NA	110.0	11.32	139.3%	P	Retested (see 40R)	Grey Ash with Sand
39	39.13058	-87.66209	10/01/15	2	79.0	NA	104.1	14.14	131.8%	P	Retested (see 39R)	Grey Ash with Sand
			10/01/15	1	79.0	NA	105.2	13.94	133.2%	P	Retested (see 39R)	Grey Ash with Sand
48	39.13075	-87.66188	10/01/15	2	79.0	NA	94.5	17.12	119.7%	P	Retested (see 48R)	Grey Ash with Sand
			10/01/15	1	79.0	NA	97.8	16.73	123.8%	P	Retested (see 48R)	Grey Ash with Sand
49	39.13057	-87.66156	10/01/15	2	79.0	NA	58.4	41.80	74.0%	F	Retested (see 49R)	Grey Ash with Sand and Coal
			10/01/15	1	79.0	NA	55.6	44.73	70.5%	F	Retested (see 49R)	Grey Ash with Sand and Coal
50	39.13036	-87.66141	10/01/15	2	79.0	NA	79.1	29.10	100.1%	P	Retested (see 50R)	Grey Ash with Sand
			10/01/15	1	79.0	NA	87.9	26.94	111.2%	P	Retested (see 50R)	Grey Ash with Sand
51	39.13005	-87.66115	10/01/15	2	79.0	NA	105.2	13.04	133.2%	P	Retested (see 51R)	Grey Ash with Sand
			10/01/15	1	79.0	NA	105.7	12.31	133.8%	P	Retested (see 51R)	Grey Ash with Sand
52	39.12988	-87.66092	10/01/15	2	79.0	NA	92.8	16.75	117.5%	P	Retested (see 52R)	Grey Ash with Sand
			10/01/15	1	79.0	NA	98.6	13.89	124.8%	P	Retested (see 52R)	Grey Ash with Sand
33R	39.12992	-87.66199	10/07/15	2	79.0	NA	108.2	16.90	137.0%	P		Grey Ash
			10/07/15	1	79.0	NA	109.5	16.00	138.6%	P		Grey Ash
25	39.12992	-87.66224	10/07/15	2	79.0	NA	110.3	16.00	139.6%	P		Grey Ash
			10/07/15	1	79.0	NA	110.2	15.23	139.4%	P		Grey Ash

TABLE 1
SUMMARY OF FIELD DENSITY TESTING - SUBGRADE
ASH POND A
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Location			TEST DATE	LIFT NUMBER (1-lower, 2-upper)	Compaction					Pass (P)/ Fail (F)	Notes/ Passing Test Reference	Material Description
Point Number	Latitude (°N)	Longitude (°W)			Max. Dry Density (pcf)	Optimum Moisture (%)	Field Dry Density (pcf)	Field Moisture Content (%)	Compaction (%)			
26	39.12973	-87.66199	10/07/15	2	79.0	NA	95.5	16.93	120.9%	P		Grey Ash with Sand
			10/07/15	1	79.0	NA	98.7	16.91	124.9%	P		Grey Ash with Sand
27	39.12953	-87.66174	10/07/15	2	79.0	NA	104.9	9.96	132.8%	P		Grey Ash
			10/07/15	1	79.0	NA	105.9	10.28	134.1%	P		Grey Ash
28	39.12950	-87.66169	10/07/15	2	79.0	NA	104.7	10.80	132.5%	P		Grey Ash with Sand
			10/07/15	1	79.0	NA	104.1	10.29	131.8%	P		Grey Ash with Sand
20	39.12925	-87.66206	10/07/15	2	79.0	NA	100.6	13.53	127.3%	P		Grey Ash with Sand
			10/07/15	1	79.0	NA	102.8	13.88	130.1%	P		Grey Ash with Sand
31	39.13049	-87.66231	10/07/15	2	79.0	NA	110.3	15.81	139.6%	P		Grey Ash with Sand
			10/07/15	1	79.0	NA	113.0	15.62	143.0%	P		Grey Ash with Sand
23	39.13044	-87.66241	10/07/15	2	79.0	NA	108.5	12.41	137.4%	P		Grey Ash with Sand
			10/07/15	1	79.0	NA	108.9	12.64	137.9%	P		Grey Ash with Sand
16	39.13037	-87.66267	10/07/15	2	79.0	NA	110.9	10.14	140.4%	P		Grey Ash with Sand
			10/07/15	1	79.0	NA	113.8	10.08	144.1%	P		Grey Ash with Sand
17	39.12993	-87.66277	10/07/15	2	79.0	NA	110.8	9.64	140.3%	P		Grey Ash with Sand
			10/07/15	1	79.0	NA	112.4	9.99	142.3%	P		Grey Ash with Sand
18	39.12783	-87.66257	10/07/15	2	79.0	NA	106.2	15.58	134.5%	P		Grey Ash with Sand
			10/07/15	1	79.0	NA	111.0	13.22	140.5%	P		Grey Ash with Sand
19	39.12950	-87.66229	10/07/15	2	79.0	NA	104.6	16.27	132.4%	P		Grey Ash with Sand
			10/07/15	1	79.0	NA	104.8	15.45	132.7%	P		Grey Ash with Sand
13	39.12949	-87.66231	10/07/15	2	79.0	NA	100.9	14.29	127.7%	P		Grey Ash with Sand
			10/07/15	1	79.0	NA	101.6	13.15	128.6%	P		Grey Ash with Sand
12	39.12951	-87.66233	10/07/15	2	79.0	NA	103.9	16.48	131.5%	P		Grey Ash with Sand
			10/07/15	1	79.0	NA	102.4	16.42	129.7%	P		Grey Ash with Sand
11	39.12976	-87.66296	10/07/15	2	79.0	NA	110.0	14.02	139.3%	P		Grey Ash with Sand
			10/07/15	1	79.0	NA	110.1	14.31	139.3%	P		Grey Ash with Sand
24	39.13011	-87.66251	10/07/15	2	79.0	NA	108.7	14.69	137.6%	P		Grey Ash with Sand
			10/07/15	1	79.0	NA	113.4	13.58	143.5%	P		Grey Ash with Sand
32	39.13013	-87.66247	10/07/15	2	79.0	NA	104.0	12.85	131.6%	P		Grey Ash with Sand
			10/07/15	1	79.0	NA	113.2	11.40	143.4%	P		Grey Ash with Sand
34R	39.12980	-87.66173	10/08/15	2	79.0	NA	99.4	17.28	125.8%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	101.1	17.37	128.0%	P		Grey Ash with Sand
35R	39.12963	-87.66155	10/08/15	2	79.0	NA	117.5	6.10	148.7%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	122.6	5.99	155.2%	P		Grey Ash with Sand
36R	39.12948	-87.66138	10/08/15	2	79.0	NA	102.0	11.78	129.1%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	98.0	12.59	124.1%	P		Grey Ash with Sand

TABLE 1
SUMMARY OF FIELD DENSITY TESTING - SUBGRADE
ASH POND A
HUTSONVILLE POWER STATION
CRAWFORD COUNTY, ILLINOIS

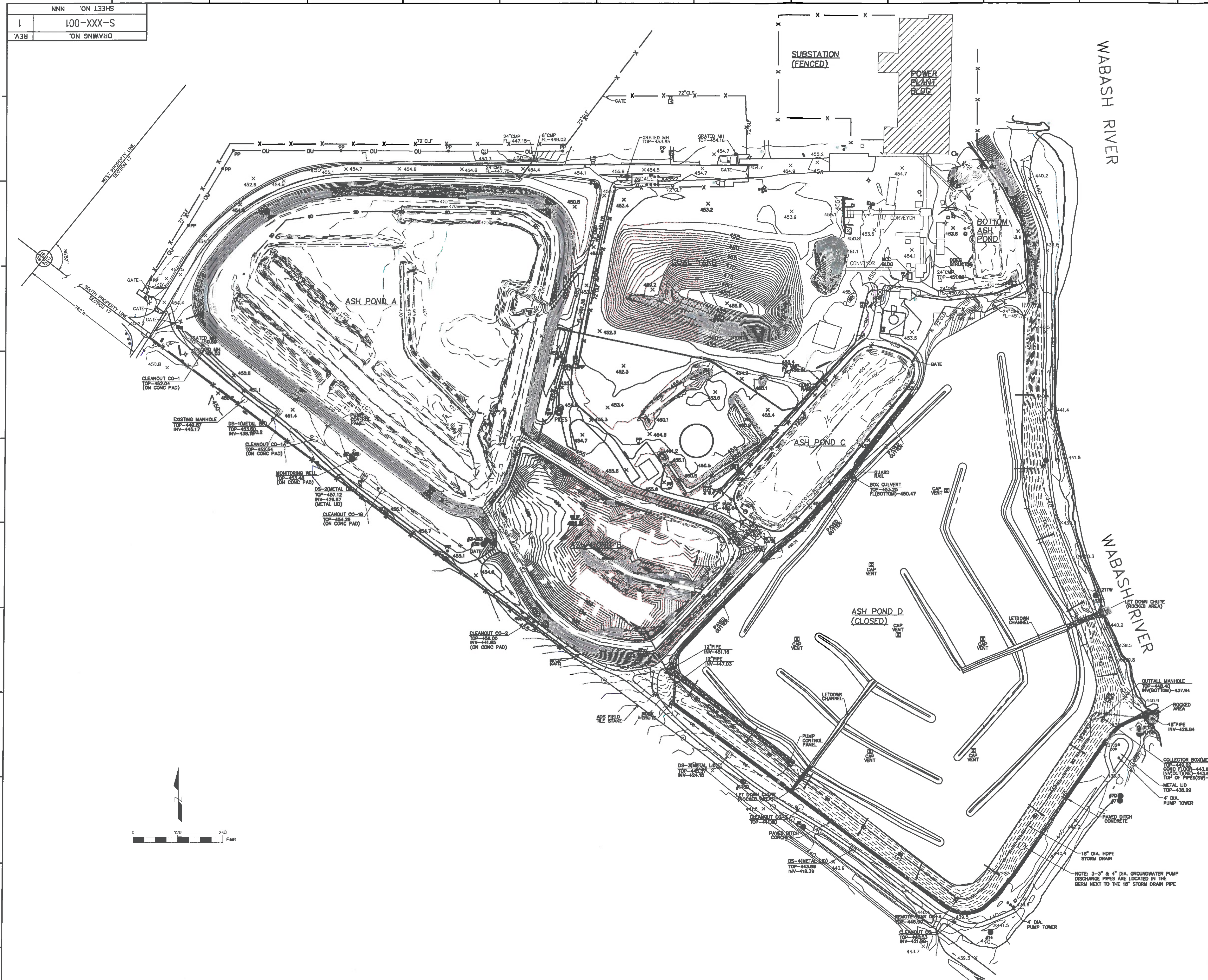
Location			TEST DATE	LIFT NUMBER (1-lower, 2-upper)	Compaction					Pass (P)/ Fail (F)	Notes/ Passing Test Reference	Material Description
Point Number	Latitude (°N)	Longitude (°W)			Max. Dry Density (pcf)	Optimum Moisture (%)	Field Dry Density (pcf)	Field Moisture Content (%)	Compaction (%)			
60	39.12944	-87.66131	10/08/15	2	79.0	NA	87.8	21.40	111.1%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	89.0	20.82	112.6%	P		Grey Ash with Sand
45	39.12922	-87.66096	10/08/15	2	79.0	NA	89.3	18.81	113.0%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	90.2	17.93	114.1%	P		Grey Ash with Sand
44R	39.12926	-87.66095	10/08/15	2	79.0	NA	100.8	11.65	127.6%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	101.8	11.44	128.8%	P		Grey Ash with Sand
43R	39.12971	-87.66125	10/08/15	2	79.0	NA	108.8	6.36	137.7%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	114.2	6.38	144.6%	P		Grey Ash with Sand
42R	39.12975	-87.66128	10/08/15	2	79.0	NA	107.7	12.41	136.9%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	104.9	12.82	132.7%	P		Grey Ash with Sand
41R	39.13016	-87.66167	10/08/15	2	79.0	NA	108.4	13.34	137.2%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	109.1	12.47	138.1%	P		Grey Ash with Sand
40R	39.13032	-87.66180	10/08/15	2	79.0	NA	111.1	10.64	140.7%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	118.6	10.22	149.8%	P		Grey Ash with Sand
39R	39.13039	-87.66179	10/08/15	2	79.0	NA	106.4	13.53	134.7%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	109.8	13.58	139.0%	P		Grey Ash with Sand
48R	39.13043	-87.66183	10/08/15	2	79.0	NA	86.7	20.17	109.8%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	96.9	18.27	122.6%	P		Grey Ash with Sand
49R	39.13045	-87.66182	10/08/15	2	79.0	NA	75.7	18.53	95.8%	P	Retested (see 49R2)	Grey Ash with Sand and Coal
			10/08/15	1	79.0	NA	66.9	22.51	84.7%	F	Retested (see 49R2)	Grey Ash with Sand and Coal
50R	39.13044	-87.66178	10/08/15	2	79.0	NA	99.2	12.25	125.5%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	105.9	10.46	134.1%	P		Grey Ash with Sand
51R	39.13043	-87.66175	10/08/15	2	79.0	NA	107.4	11.14	136.0%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	107.8	12.27	136.5%	P		Grey Ash with Sand
52R	39.12992	-87.66094	10/08/15	2	79.0	NA	93.2	13.87	118.0%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	89.9	13.95	113.8%	P		Grey Ash with Sand
10	39.12980	-87.66324	10/08/15	2	79.0	NA	107.2	13.81	135.6%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	111.7	12.70	141.4%	P		Grey Ash with Sand
5	39.12977	-87.66326	10/08/15	2	79.0	NA	96.2	18.17	121.7%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	95.6	18.20	121.0%	P		Grey Ash with Sand
6	39.12972	-87.66327	10/08/15	2	79.0	NA	101.4	15.14	128.3%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	105.9	14.07	134.1%	P		Grey Ash with Sand
7	39.12936	-87.66284	10/08/15	2	79.0	NA	104.4	10.25	132.1%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	105.6	11.02	133.7%	P		Grey Ash with Sand
59	39.12936	-87.66280	10/08/15	2	79.0	NA	88.9	22.06	112.6%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	89.8	22.28	113.6%	P		Grey Ash with Sand

TABLE 1
SUMMARY OF FIELD DENSITY TESTING - SUBGRADE
ASH POND A
HUTSONVILLE POWER STATION
CRAWFORD COUNTY, ILLINOIS

Location			TEST DATE	LIFT NUMBER (1-lower, 2-upper)	Compaction					Pass (P)/ Fail (F)	Notes/ Passing Test Reference	Material Description
Point Number	Latitude (°N)	Longitude (°W)			Max. Dry Density (pcf)	Optimum Moisture (%)	Field Dry Density (pcf)	Field Moisture Content (%)	Compaction (%)			
46	39.12933	-87.66329	10/08/15	2	79.0	NA	89.6	14.90	113.4%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	86.0	14.54	108.8%	P		Grey Ash with Sand
3	39.12941	-87.66347	10/08/15	2	79.0	NA	93.8	16.26	118.7%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	93.2	16.50	118.0%	P		Grey Ash with Sand
2	39.12948	-87.66350	10/08/15	2	79.0	NA	98.6	18.43	124.8%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	96.1	18.69	121.6%	P		Grey Ash with Sand
4	39.12984	-87.66366	10/08/15	2	79.0	NA	85.5	13.60	108.2%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	88.5	13.02	112.0%	P		Grey Ash with Sand
9	39.13003	-87.66350	10/08/15	2	79.0	NA	102.8	13.81	130.2%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	102.8	13.11	130.1%	P		Grey Ash with Sand
15	39.13029	-87.66322	10/08/15	2	79.0	NA	105.0	15.40	133.0%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	105.2	15.23	133.1%	P		Grey Ash with Sand
22	39.13047	-87.66290	10/08/15	2	79.0	NA	108.7	15.63	137.6%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	109.5	14.61	138.6%	P		Grey Ash with Sand
30	39.13048	-87.66285	10/08/15	2	79.0	NA	101.5	16.79	128.4%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	104.9	15.69	132.8%	P		Grey Ash with Sand
29	39.13072	-87.66258	10/08/15	2	79.0	NA	103.5	15.14	131.0%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	100.7	14.91	127.5%	P		Grey Ash with Sand
21	39.13058	-87.66306	10/08/15	2	79.0	NA	82.4	25.55	104.3%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	82.5	22.95	104.4%	P		Grey Ash with Sand
14	39.13039	-87.66348	10/08/15	2	79.0	NA	96.3	18.45	121.9%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	94.2	19.38	119.3%	P		Grey Ash with Sand
8	39.13001	-87.66371	10/08/15	2	79.0	NA	95.0	18.60	120.2%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	90.8	18.64	115.0%	P		Grey Ash with Sand
49R2	39.13045	-87.66182	10/08/15	2	79.0	NA	98.6	13.31	124.8%	P		Grey Ash with Sand and Coal
			10/08/15	1	79.0	NA	104.4	12.98	132.2%	P		Grey Ash with Sand and Coal
37	39.13103	-87.66231	10/08/15	2	79.0	NA	91.9	17.49	116.3%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	90.5	17.88	114.6%	P		Grey Ash with Sand
38	39.13094	-87.66227	10/08/15	2	79.0	NA	96.5	20.30	122.1%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	91.3	21.40	115.6%	P		Grey Ash with Sand
47	39.13087	-87.66187	10/08/15	2	79.0	NA	96.2	22.21	121.8%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	101.2	20.05	128.0%	P		Grey Ash with Sand
55	39.13088	-87.66180	10/08/15	2	79.0	NA	99.6	16.96	126.1%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	103.9	16.22	131.5%	P		Grey Ash with Sand
56	39.13086	-87.66147	10/08/15	2	79.0	NA	86.9	23.16	110.0%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	82.3	23.81	104.1%	P		Grey Ash with Sand

TABLE 1
SUMMARY OF FIELD DENSITY TESTING - SUBGRADE
ASH POND A
HUTSONVILLE POWER STATION
CRAWFORD COUNTY, ILLINOIS

Location			TEST DATE	LIFT NUMBER (1-lower, 2-upper)	Compaction					Pass (P)/ Fail (F)	Notes/ Passing Test Reference	Material Description
Point Number	Latitude (°N)	Longitude (°W)			Max. Dry Density (pcf)	Optimum Moisture (%)	Field Dry Density (pcf)	Field Moisture Content (%)	Compaction (%)			
57	39.13060	-87.66131	10/08/15	2	79.0	NA	67.1	35.47	84.9%	F	Retested (see 57R)	Grey Ash with Sand and Coal
			10/08/15	1	79.0	NA	85.7	26.22	108.4%	P	Retested (see 57R)	Grey Ash with Sand and Coal
58	39.13031	-87.66109	10/08/15	2	79.0	NA	105.7	13.53	133.8%	P		Grey Ash with Sand
			10/08/15	1	79.0	NA	108.8	12.11	137.8%	P		Grey Ash with Sand
57R	39.13060	-87.66131	10/09/15	2	79.0	NA	79.6	29.27	100.7%	P		Grey Ash with Sand and Coal
			10/09/15	1	79.0	NA	92.3	22.82	116.8%	P		Grey Ash with Sand and Coal
53	39.12956	-87.66075	10/09/15	2	79.0	NA	96.0	20.95	121.5%	P		Grey Ash with Sand
			10/09/15	1	79.0	NA	93.2	20.41	118.0%	P		Grey Ash with Sand
54	39.12997	-87.66091	10/09/15	2	79.0	NA	102.1	14.67	129.2%	P		Grey Ash with Sand
			10/09/15	1	79.0	NA	103.8	14.08	131.4%	P		Grey Ash with Sand
1	39.12931	-87.66362	10/09/15	2	79.0	NA	96.5	17.52	122.2%	P		Grey Ash with Sand
			10/09/15	1	79.0	NA	97.8	17.38	123.9%	P		Grey Ash with Sand



GENERAL SURVEY NOTES:

Aerial topographic information shown was taken from a photogrammetric data provided by Continental Mapping Consultants as flown April, 2010 including contours on ground surfaces.

Contours within ponds were determined by bottom of pond elevations established by the surveyor, and supplemented with surveys provided by Lamac Engineering Company in April 2014

Boundary information was taken from information provided to the surveyor by Ameren from a survey prepared February 1984 shown on sheet K-547.

The adopted coordinate system used for this survey was taken from the above mentioned survey of 1984.

The benchmark used was taken from the above mentioned survey of 1984 located near the main power plant shown as elevation 454.14'.

SYMBOLS & ABBREVIATIONS

PP	POWER POLE W/GUY WIRE	AC	ACRES
PP	POWER POLE	ASPH	ASPHALT
	STREET SIGN	BK	BOOK
GV	GAS VALVE	BLDG	BUILDING
GM	GAS METER	CLF	CHAIN LINK FENCE
WV	WATER VALVE	CONC	CONCRETE
WM	WATER METER	DB	DEED BOOK
OWF	WATER FAUCET	E	EAST
OCO	CLEAN OUT	E MH	ELECTRIC MANHOLE
OYD	YARD DRAIN	ELEV	ELEVATION
EB/EM	ELECTRIC BOX OR METER	FF	FIRST FLOOR
MB	MAIL BOX	FL	FLOW LINE
	CAP VENT	L	LENGTH
TB	TELEPHONE BOX	MH	MANHOLE
LS	LIGHT STANDARD	N	NORTH
FH	FIRE HYDRANT	NTS	NOT TO SCALE
TS	TRAFFIC SIGNAL	PB	PLAT BOOK
EYL	ELECTRIC YARD LIGHT	PG	PAGE
	TEST HOLE	PVC	POLYVINYL CHLORIDE
OU	OVERHEAD UTILITY LINE	PVMT	PAVEMENT
G	UNDERGROUND ELECTRIC	R	RADIUS
UE	GAS LINE	RCP	REINFORCED CONCRETE PIPE
UT	UNDERGROUND TELEPHONE	REC	RECORD
SD	SANITARY SEWER	S	SOUTH
	STORM SEWER	SA	SANITARY
X	FENCE LINE	SBM	SITE BENCHMARK
	TREE DRIP LINE W/RADIUS	SF	SQUARE FEET
	TREE LINE	SIR	SET 5/8"x18" IRON ROD W/PLASTIC CAP
±	PLUS OR MINUS	SPM	SET 5/8"X24" IRON ROD W/ALUMINUM CAP
		ST	STORM
10"	TREE W/ SIZE	SURV	SURVEY
		TRANS	TRANSFORMER
		VCP	VITRIFIED CLAY PIPE
48"	BUSH W/ SIZE	W	WEST
		W MH	WATER MANHOLE
W	WELL	W/	DENOTES WITH
X	AERIAL TOPOGRAPHIC SPOT ELEVATION		
X	FIELD SPOT ELEVATIONS (INCLUDING BOTTOM OF POND)		

NOTICE OF LIMITED RESPONSIBILITY

THE RESPONSIBILITY OF THE UNDERSIGNED ENGINEER IS LIMITED TO THE DESIGN WORK SHOWN ON PROJECT DRAWINGS AND DOCUMENTS BEARING HIS/HER SEAL, SIGNATURE OR INITIALS. HE/SHE DOES NOT HAVE AUTHORITY OVER THE PROJECT AS A WHOLE. THE UNDERSIGNED DISCLAIMS ANY RESPONSIBILITY FOR WORK DONE UNDER SUBSEQUENT REVISIONS AND ANY OTHER DOCUMENTS ASSOCIATED WITH THE PROJECT WHICH DO NOT BEAR HIS/HER SEAL, SIGNATURE OR INITIALS.

DRAWING RECORD

REV.	DATE	PROJECT NO.	AMEREN SUPV ENGR	DRAFTING DRFTR	DRAFTING CHK'D	DRAFTING SUPV	ENGR APPROVAL AMEREN	ENGR APPROVAL OTHER	DESCRIPTION
0	10.20.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION
1	04.07.2015	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR CONSTRUCTION
2	09.20.2016			MKW					AS BUILT

MARK UP DRAWING NO.	REV.
–	–
SHEET NO. ---	

SCALE –

UNIT NO. –

DWG. SIZE 24X36

SUB CLASS –

EXISTING CONDITIONS MAP

AS-BUILT PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS

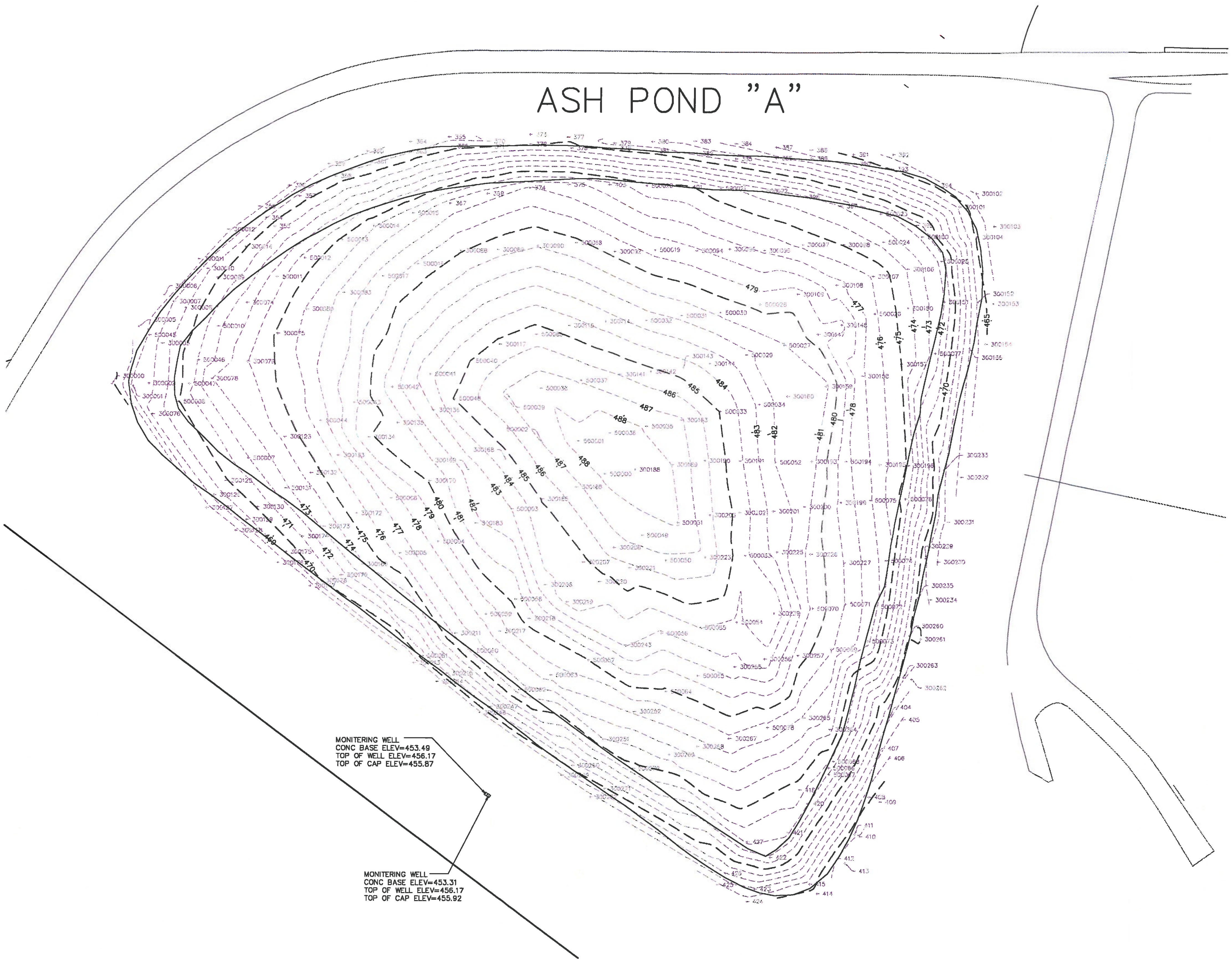
SITE: HUTSONVILLE POWER STATION

Ameren MISSOURI

DRAWING NO.	REV.
S-XXX-001	1
SHEET NO. 001	

POND CAP SURVEY

A TRACT OF LAND BEING PART OF AMEREN HUTSONVILLE POWER STATION
HUTSONVILLE, ILLINOIS



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STATE OF ILLINOIS
WILLIAM F. MASSMANN, JR.
NUMBER 035-002885
PROFESSIONAL LAND SURVEYOR

MISSOURI PROFESSIONAL LAND SURVEYING LIMITED LIABILITY CO.
No. 2016004723
(EXPIRES 12-31-2016)

ILLINOIS DESIGN FIRM
LAND SURVEYOR, LLC REGISTRATION
No. 184-003753
(EXPIRES 04-30-2017)

PROJECT REVISION:

NO:	DATE:	DESCRIPTION:
1.	06/09/16	CLIENT COMMENTS
2.	06/16/16	CLIENT COMMENTS
3.	06/17/16	CLIENT COMMENTS

POND CAP SURVEY
A TRACT OF LAND BEING PART OF AMEREN HUTSONVILLE POWER STATION
HUTSONVILLE, ILLINOIS

DATE: 06/08/16
BOOK NO.: 97
DRAFTED BY: DAW
APPROVED BY: WFM
FILE NAME: 10022.DWG

SHEET TITLE:
POND CAP SURVEY

SHEET NUMBER:

SUV-1

SHEET NO: 1 OF 2

PROJECT NO: 10022.01.002

POND CAP SURVEY

A TRACT OF LAND BEING PART OF AMEREN HUTSONVILLE POWER STATION
HUTSONVILLE, ILLINOIS

Cover Grade Certification Points						
Point Number	Northing (ft)	Easting (ft)	As-Built Base (ft)	As-Built Cover (ft)	Calculated Thickness(ft)	Description
353	4693.39	3373.92	465.91	470.42	4.51	COVER GRADE
354	4702.29	3364.65	465.25	468.93	3.68	COVER GRADE
355	4714.28	3357.04	466.59	466.64	0.05	COVER GRADE
356	4736.55	3388.53	466.75	466.85	0.10	COVER GRADE
357	4725.43	3399.46	465.58	469.29	3.71	COVER GRADE
358	4746.47	3436.80	465.73	469.22	3.49	COVER GRADE
359	4759.60	3429.90	466.35	467.63	1.28	COVER GRADE
360	4772.96	3470.55	467.26	467.82	0.56	COVER GRADE
361	4761.67	3474.76	467.13	468.71	1.58	COVER GRADE
363	4772.70	3516.19	467.38	468.92	1.54	COVER GRADE
364	4783.22	3516.24	467.61	468.26	0.65	COVER GRADE
365	4788.24	3557.33	465.98	468.66	2.68	COVER GRADE
366	4778.50	3560.49	465.72	469.53	3.81	COVER GRADE
367	4718.43	3559.00	474.28	477.41	3.13	COVER GRADE
500015	4694.15	3478.24	473.63	476.77	3.14	COVER GRADE
369	4728.81	3598.49	474.59	477.61	3.02	COVER GRADE
370	4783.94	3599.02	466.07	469.05	2.98	COVER GRADE
371	4778.28	3599.56	465.99	469.97	3.98	COVER GRADE
372	4780.93	3643.60	466.29	469.88	3.59	COVER GRADE
373	4791.15	3643.27	466.52	469.69	3.17	COVER GRADE
374	4734.95	3642.70	475.00	478.08	3.08	COVER GRADE
375	4738.51	3684.35	474.16	477.35	3.19	COVER GRADE
376	4776.96	3686.84	466.43	470.46	4.03	COVER GRADE
377	4788.65	3682.72	466.20	469.64	3.44	COVER GRADE
378	4776.87	3732.73	466.23	469.67	3.44	COVER GRADE
379	4782.46	3732.45	466.60	468.65	4.09	COVER GRADE
380	4784.03	3773.07	466.40	468.10	1.70	COVER GRADE
381	4774.16	3774.51	465.59	469.52	3.93	COVER GRADE
382	4771.56	3820.62	465.45	468.69	3.24	COVER GRADE
383	4784.41	3818.39	466.02	467.49	1.47	COVER GRADE
384	4781.87	3861.85	465.29	466.69	1.43	COVER GRADE
385	4766.02	3861.85	464.31	468.60	4.29	COVER GRADE
386	4766.82	3905.01	463.89	467.22	3.33	COVER GRADE
387	4778.21	3905.18	464.14	465.98	1.84	COVER GRADE
388	4775.25	3941.86	463.71	465.39	1.68	COVER GRADE
389	4766.41	3942.29	463.71	466.29	2.58	COVER GRADE
390	4761.18	3987.44	462.45	465.61	3.16	COVER GRADE
391	4770.63	3986.64	463.24	464.79	1.55	COVER GRADE
392	4770.58	4028.65	462.65	463.64	0.99	COVER GRADE
393	4755.25	4027.50	461.40	464.94	3.54	COVER GRADE
394	4738.25	4073.84	460.83	464.80	3.01	COVER GRADE
395	4695.92	4054.23	468.40	471.48	3.08	COVER GRADE
500023	4708.06	4016.04	469.57	472.69	3.12	COVER GRADE
397	4716.36	3973.78	469.94	472.96	3.02	COVER GRADE
398	4725.86	3933.90	470.19	473.24	3.05	COVER GRADE
500022	4732.00	3890.05	470.63	473.81	3.18	COVER GRADE
500021	4734.74	3846.80	471.34	474.48	3.14	COVER GRADE
401	4736.09	3810.36	471.98	475.19	3.21	COVER GRADE
500020	4737.59	3767.43	472.57	475.68	3.01	COVER GRADE
403	4738.49	3727.57	473.19	476.43	3.24	COVER GRADE
404	4177.67	4027.62	464.44	468.14	3.70	COVER GRADE
405	4174.73	4042.12	464.67	466.91	3.33	COVER GRADE
406	4134.25	4027.93	464.37	465.95	1.58	COVER GRADE
407	4134.05	4014.07	463.12	467.17	4.05	COVER GRADE
408	4093.24	4006.21	462.59	465.29	2.70	COVER GRADE
409	4088.03	4017.73	463.61	464.17	0.56	COVER GRADE
410	4051.57	3997.00	461.12	463.93	2.81	COVER GRADE
411	4053.78	3991.54	460.41	464.08	3.67	COVER GRADE
412	4028.61	3974.59	459.51	463.91	4.40	COVER GRADE
413	4023.51	3981.45	460.09	463.60	3.51	COVER GRADE
414	3991.41	3952.06	460.73	464.42	3.69	COVER GRADE
415	4001.55	3944.38	461.54	465.56	3.92	COVER GRADE
500068	4130.68	3968.64	470.80	473.98	3.18	COVER GRADE
500067	4116.75	3964.13	470.34	473.48	3.14	COVER GRADE
418	4100.64	3933.04	471.43	474.48	3.05	COVER GRADE
500066	4123.75	3963.45	470.69	473.95	3.26	COVER GRADE
420	4086.30	3941.56	470.13	473.13	3.00	COVER GRADE
421	4055.81	3920.70	470.10	473.27	3.17	COVER GRADE
422	4029.51	3902.57	468.74	471.83	3.09	COVER GRADE
423	3996.25	3886.01	463.11	466.87	3.76	COVER GRADE
424	3982.97	3878.07	464.40	465.45	1.05	COVER GRADE
425	4000.79	3846.53	464.56	465.72	1.16	COVER GRADE
426	4012.85	3855.30	464.41	467.99	3.58	COVER GRADE
427	4045.99	3878.06	470.21	473.21	3.00	COVER GRADE

Cover Grade Certification Points						
Point Number	Northing (ft)	Easting (ft)	As-Built Base (ft)	As-Built Cover (ft)	Calculated Thickness(ft)	Description
300000	4526.33	3203.88	464.30	464.67	0.37	COVER GRADE
300001	4524.15	3226.29	463.61	467.27	3.66	COVER GRADE
300002	4527.13	3243.01	463.85	467.68	3.83	COVER GRADE
300003	4569.40	3256.54	463.98	468.45	4.47	COVER GRADE
500045	4577.97	3242.54	464.12	467.29	3.17	COVER GRADE
300005	4586.87	3231.62	464.69	466.42	1.73	COVER GRADE
300006	4620.25	3258.13	464.83	466.21	1.38	COVER GRADE
300007	4613.46	3287.87	464.49	468.00	3.51	COVER GRADE
300008	4607.10	3280.79	464.47	468.96	4.49	COVER GRADE
300009	4639.16	3313.53	465.14	469.87	4.73	COVER GRADE
300010	4648.37	3303.19	464.64	468.77	4.13	COVER GRADE
300011	4658.55	3293.72	465.46	466.31	0.85	COVER GRADE
300012	4689.71	3324.72	465.72	466.69	0.97	COVER GRADE
300014	4671.74	3343.23	465.37	469.88	4.51	COVER GRADE
500010	4587.64	3315.18	468.77	471.91	3.14	COVER GRADE
500046	4552.01	3295.13	468.12	471.16	3.04	COVER GRADE
500047	4526.87	3285.23	467.67	470.76	3.09	COVER GRADE
300074	4612.64	3345.09	469.59	472.59	3.00	COVER GRADE
300075	4580.42	3376.08	472.11	475.13	3.02	COVER GRADE
300076	4494.81	3247.10	463.98	468.29	4.31	COVER GRADE
500008	4507.89	3274.54	466.94	470.06	3.12	COVER GRADE
300078	4532.44	3309.22	469.33	472.97	3.64	COVER GRADE
300079	4550.63	3346.55	470.95	473.96	3.01	COVER GRADE
300080	4606.27	3408.32	473.06	476.08	3.02	COVER GRADE
500011	4640.09	3376.86	470.61	473.69	3.08	COVER GRADE
500012	4660.03	3405.68	471.42	474.47	3.05	COVER GRADE
300083	4623.76	3447.61	474.19	477.24	3.05	COVER GRADE
500013	4679.60	3444.99	472.18	475.29	3.11	COVER GRADE
500014	4694.15	3478.24	472.96	476.11	3.15	COVER GRADE
500017	4641.25	3488.24	475.49	478.60	3.11	COVER GRADE
500016	4654.33	3525.41	476.14	479.30	3.16	COVER GRADE
300088	4668.47	3570.61	476.88	479.90	3.02	COVER GRADE
300089	4669.68	3609.74	477.61	480.63	3.02	COVER GRADE
300090	4673.76	3651.97	477.93	480.93	3.00	COVER GRADE
500018	4677.27	3693.06	477.21	480.37	3.16	COVER GRADE
300092	4668.25	3733.74	476.68	479.70	3.02	COVER GRADE
500019	4669.91	3776.83	475.75	478.89	3.14	COVER GRADE
300094	4668.92	3821.31	475.07	478.13	3.06	COVER GRADE
300095	4670.73	3856.30	474.40	477.41	3.01	COVER GRADE
300096	4669.29	3893.26	473.86	476.86	3.00	COVER GRADE
300097	4675.44	3934.04	472.73	475.75	3.02	COVER GRADE
300098	4675.46	3977.17	471.93	474.94	3.01	COVER GRADE
500024	4678.14	4018.80	470.73	473.82	3.09	COVER GRADE
300100	4683.85	4059.84	468.70	471.83	3.13	COVER GRADE
300101	4715.39	4099.59	460.72	465.74	5.02	COVER GRADE
300102	4729.53	4117.05	462.54	462.95	0.41	COVER GRADE
300103	4694.75	4135.95	462.85	463.26	0.41	COVER GRADE
300104	4683.61	4117.89	461.50	464.85	3.35	COVER GRADE
500025	4658.05	4080.71	468.84	472.00	3.16	COVER GRADE
300106	4649.62	4044.84	470.82	473.90	3.08	COVER GRADE
300107	4642.19	4008.22	472.72	475.89	3.17	COVER GRADE
300108	4632.87	3969.81	474.22	477.35	3.13	COVER GRADE
300109	4623.13	3928.58	475.49	479.38	3.89	COVER GRADE
500028	4612.23	3888.66	476.71	479.82	3.11	COVER GRADE
500030	4603.86	3846.87	477.85	481.04	3.19	COVER GRADE
500031	4600.51	3805.57	478.85	482.07	3.22	COVER GRADE
500032	4595.34	3767.53	479.60	482.74	3.14	COVER GRADE
300114	4594.31	3724.57	480.49	483.49	3.00	COVER GRADE
300115	4589.84	3686.30	481.43	484.45	3.02	COVER GRADE
500080	4580.42	3651.26	482.54	485.76	3.22	COVER GRADE
300117	4569.83	3613.12	482.22	485.29	3.07	COVER GRADE
500040	4552.13	3582.04	482.03	485.28	3.25	COVER GRADE
500041	4538.09	3539.54	480.87	484.00	3.13	COVER GRADE
500042	4524.29	3499.67	478.60	481.77	3.17	COVER GRADE
500043	4507.84	3459.23	475.87	478.98	3.11	COVER GRADE
500044	4488.47	3424.37	473.58	476.72	3.14	COVER GRADE
300123	4471.55	3386.45	471.14	474.23	3.09	COVER GRADE
500007	4448.63	3348.08	468.94	472.09	3.15	COVER GRADE
300125	4424.77	3324.66	465.43	469.86	4.43	COVER GRADE
300126	4409.72	3312.57	465.19	468.38	3.19	COVER GRADE
300127	4396.09	3304.78	465.75	466.59	0.84	COVER GRADE
300128	4372.37	3335.77	465.94	466.68	0.74	COVER GRADE
300129	4383.60	3346.85	465.33	468.75	3.42	COVER GRADE
300130	4397.34	3358.52	466.09	470.11	4.02	COVER GRADE
300131	4417.16	3388.36	469.74	472.85	3.11	COVER GRADE
300132	4433.59	3414.42	471.41	474.43	3.02	COVER GRADE
300133	4452.03	3442.95	473.34	476.38	3.04	COVER GRADE
300134	4471.23	3475.20	475.42	479.88	4.46	COVER GRADE
300135	4486.61	3505.25	477.60	480.59	4.47	COVER GRADE
300136	4500.12	3543.20	480.02	483.02	3.00	COVER GRADE
500048	4512.37	3584.88	482.08	485.30	3.24	COVER GRADE
500039	4516.78	3621.30	484.46	487.68	3.22	COVER GRADE
500038	4523.36	3656.79	484.83	487.94	3.11	COVER GRADE
500037	4532.00	3699.12	483.91	486.99	3.08	COVER GRADE
300141	4538.45	3739.79	482.90	485.96	3.06	COVER GRADE
300142	4541.41	3772.96	482.16	485.22	3.06	COVER GRADE
300143	4545.58	3808.07	481.39	484.41	3.02	COVER GRADE
300144	4549.79	3835.82	480.65	483.66	3.01	COVER GRADE
500029	4559.04	3874.41	479.38	482.45	3.07	COVER GRADE
500027	4569.22	3914.52	478.28	481.42	3.14	COVER GRADE
300147	4580.83	3950.56	476.37	479.48	3.11	COVER GRADE
300148	4590.86	3675.53	475.14	479.48	4.34	COVER GRADE
500026	4602.61	4010.56	473.21	476.39	3.18	COVER GRADE
300150	4608.40	4045.38	471.26	474.34	3.08	COVER GRADE
300151	4615.06	4083.72	468.99	472.02	3.03	COVER GRADE
300152	4614.72	4119.33	461.30	465.83	4.53	COVER GRADE
300153	4613.17	4135.74	463.56	464.32	0.76	COVER GRADE
300154	4570.38	4127.40	464.35	465.22	0.87	COVER GRADE
300155	4566.01	4110.85	463.06	466.99	3.02	COVER GRADE
500077	4560.72	4074.58	469.70	472.85	3.15	COVER GRADE
300157	4549.35	4038.95	471.97	475.00	3.03	COVER GRADE
300158	4536.87	3997.62	474.08	477.15	3.07	COVER GRADE
300159	4526.02	3959.44	476.13	481.19	5.06	COVER GRADE
300160	4515.35	3918.49	478.17	481.19	3.02	COVER GRADE
500034	4506.83	3888.84	479.82	483.13	3.31	COVER GRADE
500033	4499.36	3847.17	481.97	485.37	3.40	COVER GRADE
300163	4490.17	3806.08	484.18	487.85	3.67	COVER GRADE
500035	4483.60	3768.68	484.92	487.99	3.07	COVER GRADE
500036	4476.42	3730.12	485.96	489.26	3.30	COVER GRADE
500001	4467.95	3696.54	485.67	488.78	3.11	COVER GRADE
500002	4466.02	3658.70	484.09	487.24	3.15	COVER GRADE
300168	4448.18	3776.89	481.59	484.66	3.07	COVER GRADE
300169	4437.35	3580.72	479.34	482.36	3.02	COVER GRADE
300170	4425.44	3580.72	476.93	480.09	3.16	COVER GRADE

Cover Grade Certification Points						
Point Number	Northing (ft)	Easting (ft)	As-Built Base (ft)	As-Built Cover (ft)	Calculated Thickness(ft)	Description
500006	4407.02	3499.67	474.63	477.73	3.10	COVER GRADE
300172	4390.98	3463.25	472.49	475.51	3.02	COVER GRADE
300173	4377.02	3428.21	470.19	473.19	3.00	COVER GRADE
300174	4366.42	3405.76	466.74	471.03	4.29	COVER GRADE
300175	4350.24	3389.37	466.04	469.22	3.18	COVER GRADE
300176	4338.60	3381.06	466.78	467.12	0.34	COVER GRADE
300177	4314.40	3414.83	467.27	467.40	0.13	COVER GRADE
300178	4319.83	3426.87	466.44	469.99	3.55	COVER GRADE
300179	4325.78	3447.34	467.32	471.60	4.28	COVER GRADE
300180	4337.20	3469.77	470.86	473.92	3.06	COVER GRADE
500005	4349.27	3509.27	473.32	476.37	3.05	COVER GRADE
500004	4361.50	3549.12	475.41	478.51	3.10	COVER GRADE
300183	4380.90	3588.59	477.87	481.82	3.95	COVER GRADE
500003	4395.98	3626.62	479.99	483.08	3.09	COVER GRADE
300185	4406.64	3658.70	481.90	485.05	3.15	COVER GRADE
300186	4419.37	3694.57	483.72	486.76	3.04	COVER GRADE
500000	4433.15	3724.57	485.32	488.47	3.15	COVER GRADE
300188	4437.85	3756.89	485.75	488.77	3.02	COVER GRADE
300189	4443.00	3796.79	484.96	487.97	3.01	COVER GRADE
300190	4447.33	3831.61	483.15	486.21	3.06	COVER GRADE
300191	4447.19	3868.77	481.12	484.16	3.04	COVER GRADE
500052	4445.90	3906.22	479.12	482.39	3.27	COVER GRADE
300193	4446.59	3944.67	477.03	481.38	4.35	COVER GRADE
300194	4446.50	3981.05	475.15	478.27	3.12	COVER GRADE
300195	4443.36	4016.80	473.45	476.50	3.05	COVER GRADE
300196	4442.37	4046.80	471.72	474.87	3.15	COVER GRADE
500076	4407.03	4043.67	471.88	475.09	3.21	COVER GRADE
500075	4405.69	4006.74	474.18	477.33	3.15	COVER GRADE
300199	4403.36	3975.82	475.69	478.75	3.06	COVER GRADE
300200	4398.68	3936.56	477.79	481.52	3.73	COVER GRADE
300201	4394.09	3904.24	479.63	482.65	3.02	COVER GRADE
300202	4392.64	3868.29	481.53	484.64	3.11	COVER GRADE
300203	4389.87	3837.10	483.12	486.16	3.04	COVER GRADE
500051	4382.07	3802.44	485.48	488.74	3.26	COVER GRADE
500049	4368.55	3764.59	484.58	487.69	3.11	COVER GRADE
300206	4355.62	3734.99	483.43	486.53	3.10	COVER GRADE
300207	4340.10	3702.21	481.73	484.75	3.02	COVER GRADE
300208	4316.20	3662.64	478.98	483.76	4.78	COVER GRADE
500058	4301.01	3631.14	477.26	480.28	3.02	COVER GRADE
500059	4285.25	3600.45	475.39	478.52	3.13	COVER GRADE
300211	4264.96	3568.30	473.23	476.38	3.15	COVER GRADE
500061	4241.16	3534.14	467.69	470.83	3.14	COVER GRADE
300213	4233.76	3524.41	467.79	468.11	0.32	COVER GRADE
300214	4214.10	3549.07	467.95	468.16	0.21	COVER GRADE
300215	4222.72	3559.08	467.22	470.92	3.70	COVER GRADE
500060	4246.62	3585.20	473.25	476.41	3.16	COVER GRADE
300217	4267.22	3614.42	475.55	478.57	3.02	COVER GRADE
300218	4280.55	3645.82	477.28	480.35	3.07	COVER GRADE
300219	4298.09	3685.36	479.49	484.24	4.75	COVER GRADE
300220	4319.60	3719.97	481.49	484.52	3.03	COVER GRADE
300221	4334.12	3751.27	482.79	485.81	3.02	COVER GRADE
500050	4342.08	3790.05	483.81	486.84	3.03	COVER GRADE
300223	4345.33	3832.20	483.65	486.74	3.09	COVER GRADE
500053	4347.44	3874.99	481.30	484.37	3.07	COVER GRADE
300225	4351.02	3908.23	479.56	482.64	3.08	COVER GRADE
300226	4348.69	3943.71	477.68	480.71	3.03	COVER GRADE
300227	4339.92	3979.79	475.87	478.95	3.08	COVER GRADE
500074	4342.07	4023.26	473.63	476.84	3.21	COVER GRADE
300229	4344.16	4065.60	465.69	469.10	3.41	COVER GRADE
300230	4340.76	4078.54	465.78	467.92	2.14	COVER GRADE
300231	4382.73	40899.03	464.88	467.46	2.58	COVER GRADE
300232	4430.04	4102.77	464.63	466.67	2.04	COVER GRADE
300233	4437.67	4084.53	464.55	468.18	3.63	COVER GRADE
300234	4300.73	4070.85	466.21	468.84	2.63	COVER GRADE
300235	4302.75	4057.64	466.11	469.70	3.59	COVER GRADE
500072	4293.55	4013.53	474.40	477.54	3.14	COVER GRADE
500071	4296.36	3980.83	476.00	479.29	3.29	COVER GRADE
500070	4291.70	3946.17	477.80	480.89	3.09	COVER GRADE
300239	4286.49	3905.60	480.21	484.87	4.68	COVER GRADE
500054	4277.08	3866.19	480.88	484.01	3.13	COVER GRADE
500055	4271.70	3827.57	481.07	484.19	3.12	COVER GRADE
500056	4265.40	3785.55	479.91	483.00	3.09	COVER GRADE
300243	4253.02	3746.68	478.57	483.10	4.53	COVER GRADE
500057	4236.92	3708.43	476.98	480.12	3.14	COVER GRADE
500063	4221.24	3669.21	475.59	478.67	3.08	COVER GRADE
500062	4205.78	3636.04	473.70	476.80	3.10	COVER GRADE
300247	4187.87	3605.92	467.66	471.44	3.78	COVER GRADE
300248	4181.37	3594.37	468.02	468.78	0.76	COVER GRADE
300249	4115.70	3681.41	467.57	467.96	0.39	COVER GRADE
300250	4126.05	3692.30	467.25	470.57	3.32	COVER GRADE
300251	4153.83	3724.77	472.94	475.98	3.04	COVER GRADE
300252	4182.73	3757.09	475.09	478.12	3.03	COVER GRADE
500064	4204.01	3790.60	476.84	479.84	3.00	COVER GRADE
500065	4220.68	3824.77	478.38	481.46	3.08	COVER GRADE
300255	4230.26	3863.99	479.64	482.64	3.00	COVER GRADE
300256	4238.39	3895.68	478.88	483.67	4.79	COVER GRADE
300257	4242.15	3931.09	477.41	480.50	3.09	COVER GRADE
500069	4248.55	3966.09	476.20	479.30	3.10	COVER GRADE
500073	4257.34	4004.49	474.77	477.95	3.18	COVER GRADE
300260	4262.95	4048.48	466.13	470.08	3.95	COVER GRADE
300261	4259.51	4060.00	466.62	470.11	3.49	COVER GRADE
300262	4216.97	4051.12	466.09	468.46	2.37	COVER GRADE
300263	4219.12	4042.14	465.43	469.16	3.73	COVER GRADE
300264	4164.45	3964.82	473.26	476.38	3.12	COVER GRADE
300265	4176.52	3936.61	474.85	477.93	3.08	COVER GRADE
500078	4166.36	3899.09	475.73	478.86	3.13	COVER GRADE
300267	4154.76	3858.12	475.74	478.81	3.07	COVER GRADE
300268	4146.23	3824.49	474.58	477.59	3.01	COVER GRADE
300269	4137.51	3794.67	473.46	476.47	3.05	COVER GRADE
500079	4123.05	3756.53	471.66	474.74	3.08	COVER GRADE
300271	4101.78	3726.48	466.49	469.80	3.31	COVER GRADE
300272	4092.93	3711.27	466.70	467.49	0.79	COVER GRADE

MASSMANN & ASSOCIATES
913 South 13th Street
St. Louis, MO 63103
314-862-5577, 314-862-5579 FAX

STATE OF ILLINOIS
WILLIAM F. MASSMANN, JR.
NUMBER 035-002885
PROFESSIONAL LAND SURVEYOR

MISSOURI PROFESSIONAL LAND SURVEYING LIMITED LIABILITY CO.
No. 2016004723
(EXPIRES 12-31-2016)

ILLINOIS DESIGN FIRM
LAND SURVEYOR, LLC REGISTRATION
No. 184-003753
(EXPIRES 04-30-2017)

PROJECT REVISION:

NO:	DATE:	DESCRIPTION:
1.	06/09/16	CLIENT COMMENTS
2.	06/16/16	CLIENT COMMENTS
3.	06/17/16	CLIENT COMMENTS

POND CAP SURVEY
A TRACT OF LAND BEING PART OF
AMEREN HUTSONVILLE POWER STATION
HUTSONVILLE, ILLINOIS

DATE: 06/08/16
BOOK NO.: 97
DRAFTED BY: DAW
APPROVED BY: WFM
FILE NAME: 10022.DWG

SHEET TITLE:
POND CAP SURVEY

SHEET NUMBER:
SUV-1

SHEET NO: 2 OF 2

PROJECT NO: 10022.01.002

GENERAL SURVEY NOTES:

Original pre-construction topographic information shown was taken from a photogrammetric data provided by Continental Mapping Consultants as flown April, 2010 including contours on ground surfaces.

Original pre-construction contours within ponds were determined by bottom of pond elevations established by the surveyor, and supplemented with surveys provided by Lamac Engineering in April 2014.

As-built contours were taken from a combination of photogrammetric data flown on August 9, 2016 and ground survey on August 29, 2016.

Boundary information was taken from information provided to the surveyor by Ameren from a survey prepared February 1984 shown on sheet K-547.

The adopted coordinate system used for this survey was taken from the above mentioned survey of 1984.

The benchmark used was taken from the above mentioned survey of 1984 located near the main power plant shown as elevation 454.14'.

SYMBOLS & ABBREVIATIONS

PP	POWER POLE W/GUY WIRE	ASPH	ASPHALT
PP	POWER POLE	BLDG	BUILDING
	STREET SIGN	CLF	CHAIN LINK FENCE
	CAP VENT	CONC	CONCRETE
OU	OVERHEAD UTILITY LINE	ELEV	ELEVATION
UE	UNDERGROUND ELECTRIC	FL	FLOW LINE
	AERIAL TOPOGRAPHIC SPOT ELEVATION	MH	MANHOLE
	FIELD SPOT ELEVATIONS (INCLUDING BOTTOM OF POND)	RCP	REINFORCED CONCRETE PIPE
		VCP	VITRIFIED CLAY PIPE

DRAWING RECORD

REV.	DATE	PROJECT NO.	AMEREN SUPV ENGR	DRAFTING DRFTR	DRAFTING CHK'D	DRAFTING SUPV	ENGR APPROVAL AMEREN	ENGR APPROVAL OTHER	DESCRIPTION
0	10.20.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION
1	04.07.2015	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR CONSTRUCTION
2	09.20.2016			MKW					AS BUILT

NOTICE OF LIMITED RESPONSIBILITY

THE RESPONSIBILITY OF THE UNDERSIGNED ENGINEER IS LIMITED TO THE DESIGN WORK SHOWN ON PROJECT DRAWINGS AND DOCUMENTS BEARING HIS/HER SEAL, SIGNATURE OR INITIALS. HE/SHE DOES NOT HAVE AUTHORITY OVER THE PROJECT AS A WHOLE. THE UNDERSIGNED DISCLAIMS ANY RESPONSIBILITY FOR WORK DONE UNDER SUBSEQUENT REVISIONS AND ANY OTHER DOCUMENTS ASSOCIATED WITH THE PROJECT WHICH DO NOT BEAR HIS/HER SEAL, SIGNATURE OR INITIALS.

MARK UP DRAWING NO. – REV. –

SHEET NO. ---

SCALE –

UNIT NO. –

DWG. SIZE 24X36

SUB CLASS –

FINAL CONDITIONS MAP

AS-BUILT PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS

SITE: HUTSONVILLE POWER STATION

Ameren MISSOURI

DRAWING NO. S-XXX-001A REV. 1

SHEET NO. 001

APPENDIX A

WEEKLY REPORTS

M E M O R A N D U M

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., R.G., Ph.D.
Geotechnology, Inc.

DATE: September 29, 2015

SUBJECT: Weekly Summary Report for September 15, 2015 to September 18, 2015

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

Weather

The weather was generally sunny and dry. Temperature (^{O}F) lows ranged from 47 to 63^{O}F, and temperature highs ranged from 82 to 89^{O}F.

Construction Activities

Ash was removed from Ash Pond B and placed in Ash Pond A. The top one foot of material was removed from the Coal Yard and placed in Ash Pond A. Grading activities occurred in Ash Pond B and Ash Pond A. Wet materials in Ash Pond A were scarified to improve drying. The geomembrane liner was exposed and cleaned at the interface between the Bottom Ash Pond and the previously closed Ash Pond D.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 2 backhoes (1 Caterpillar 320B, 1 Komatsu PC 350 LC), 3 dump trucks (John Deere 400D), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), and 1 water truck (Caterpillar 623B).

WB Koester had 12 employees working on site: 2 laborers, 1 mechanic, and 9 equipment operators.

Lamac Engineering was on site on Friday, September 18 to survey the ash ponds.

Meetings

A weekly progress meeting was held on Wednesday, September 16, 2015. Refer to the meeting minutes for additional information.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Ash from Ash Pond B and spoils from the Coal Yard were placed in Ash Pond A.

Testing/Sampling

One sample of soil from a potential borrow source was obtained from Quality Lime Company for benzene, toluene, ethylbenzene and xylenes (BTEX) analysis.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/15/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: JYH

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 1130 Depart: 1630 Travel: 3.00 Total: 8.00

AM Conditions: Clear AM Temperature: 56 F
PM Conditions: Clear PM Temperature: 82 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg
Equipment: WB Koester: 2 backhoes, 3 dump trucks, 3 bulldozers, 1 water truck (see additional notes)
Personnel: WB Koester: 12 workers

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Ash excavated at Pond B and placed at Pond A.

Deliveries:
Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A; Ash Pond B. See attached location drawing for more information.

9/15/2015
Geotechnology, Inc. Rep. Date

9-28-2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/15/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:
Loaded out steel from the coal yard so that the top 1' can be removed to Ash Pond A. Ongoing demolition of buildings. Don Shaver (Ameren) indicated that the hydrogen tanks will be purged Wednesday or Thursday this week so that the tanks can be removed.

WB Koester:

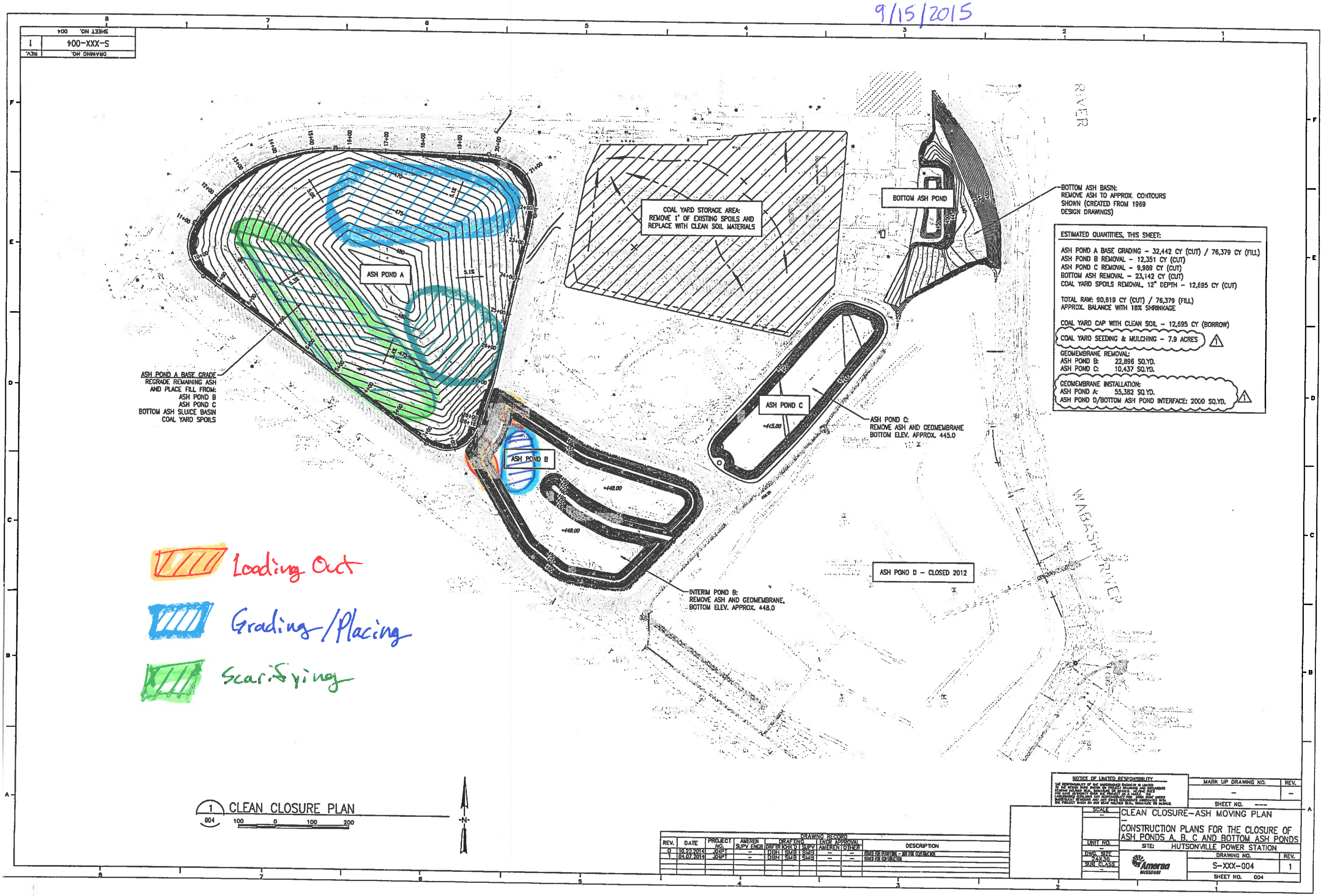
Equipment details: 2 backhoes (1 Caterpillar 320B, 1 Komatsu PC 350 LC), 4 dump trucks (John Deere 400D) (3 in use), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 water truck (Caterpillar 623B)

Excavated ash at the northwest corner of Ash Pond B with two excavators and placed ash on eastern half of Ash Pond A with three dump trucks (a fourth dump truck is currently out of service for repairs on site). Graded bottom of Ash Pond B with one GPS bulldozer. Graded eastern berms of Ash Pond A with one GPS bulldozer. Scarified western half of Pond A with one non-GPS bulldozer to allow material to dry (material is visibly wet). Water truck sprayed road areas with water to reduce dust.

Other:

Bottom Ash Pond is waiting on the removal of hydrogen tanks and steel debris by Brandenberg before activity continues. Observed ash in Ash Pond C on the northeast end of the southeast wall adjacent to the roadway. Observed ash in Ash Pond B along northeast , southwest, and southeast ends. Ash on Ash Pond A is visibly wet on the western half and drier on the eastern half. There is ponded water in the northeast corner.

9/15/2015


RIVER
WABASH RIVER
BOTTOM ASH BASIN: REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
BOTTOM ASH POND
COAL YARD STORAGE AREA: REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
ASH POND A
ASH POND A BASE GRADE REGRADE REMAINING ASH AND PLACE FILL FROM: ASH POND B ASH POND C BOTTOM ASH SLUICE BASIN COAL YARD SPOILS
ASH POND B
INTERIM POND B: REMOVE ASH AND GEOMEMBRANE, BOTTOM ELEV. APPROX. 448.0
ASH POND C
ASH POND C: REMOVE ASH AND GEOMEMBRANE BOTTOM ELEV. APPROX. 445.0
ASH POND D – CLOSED 2012
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 CY (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
Loading Out
Grading/Placing
Scarifying
1 CLEAN CLOSURE PLAN 004
100 0 100 200
N
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
Ameren MISSOURI

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/16/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0630 Depart: 1630 Travel: - Total: 9.50

AM Conditions: Clear AM Temperature: 73 F
PM Conditions: Clear PM Temperature: 84 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg
Equipment: WB Koester: 2 backhoes, 3 dump trucks, 3 bulldozers, 1 water truck (see additional notes)
Personnel: WB Koester: 12 workers

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Ash excavated at Pond B and placed at Pond A.

Deliveries:
Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A; Ash Pond B; Bottom Ash Pond. See attached location drawing for more information.

9/16/2015
Geotechnology, Inc. Rep. Date

9/28/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/16/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:
Loaded out steel from the coal yard so that the top 1' can be removed to Ash Pond A. Ongoing demolition of buildings.

WB Koester:

Equipment details: 2 backhoes (1 Caterpillar 320B, 1 Komatsu PC 350 LC), 3 dump trucks (John Deere 400D), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 water truck (Caterpillar 623B)

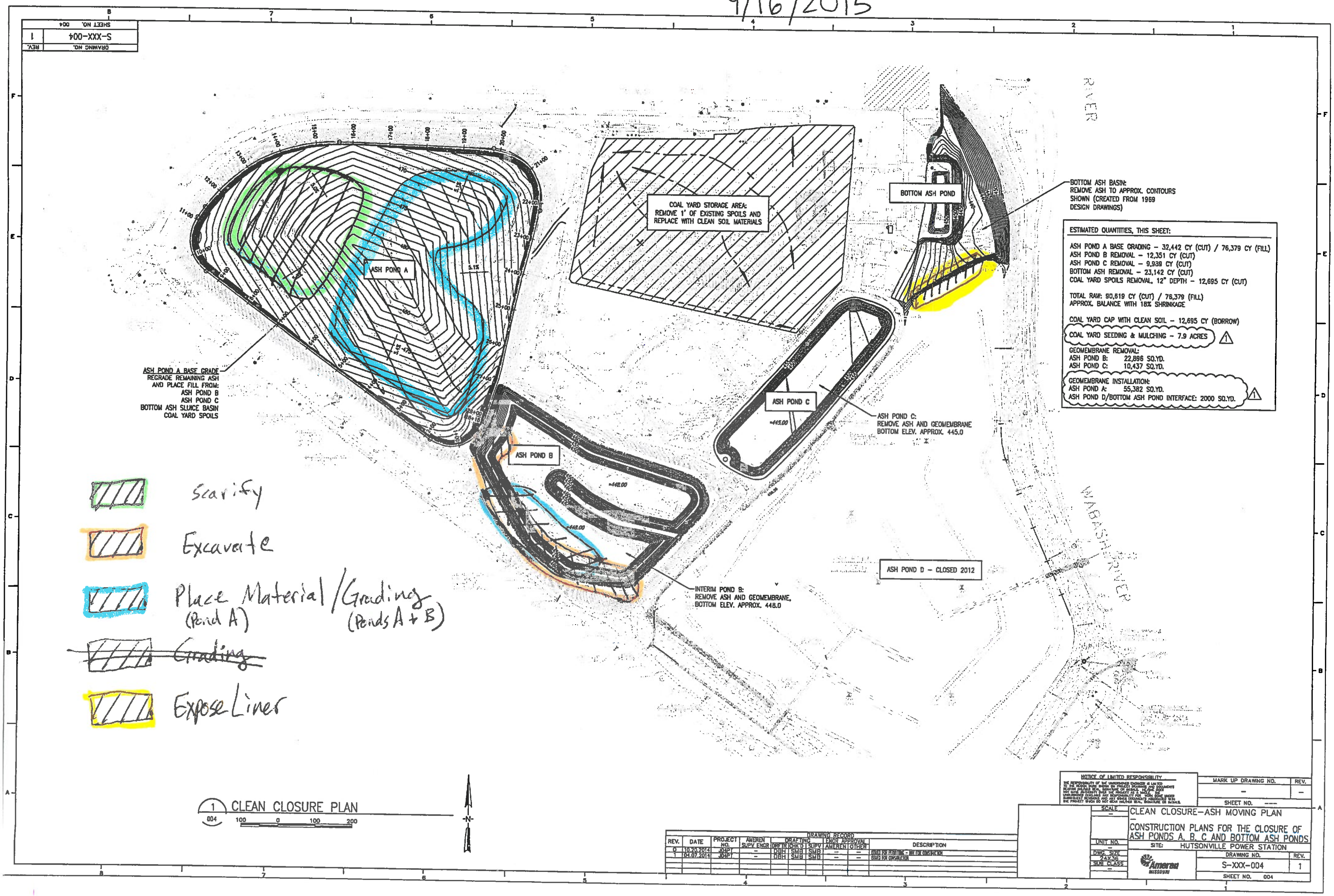
Excavated ash at the southwest wall of Ash Pond B with one excavator and placed ash on eastern half of Ash Pond A with three dump trucks (a fourth dump truck is currently out of service for repairs on site). Graded bottom and sides of Ash Pond B with one GPS bulldozer. Graded eastern berms of Ash Pond A with one GPS bulldozer. Scarified western half of Ash Pond A with one non-GPS bulldozer and one excavator to allow material to dry in the early morning. Graded northeast portion of Ash Pond A with one non-GPS bulldozer in the late morning/afternoon. Moved soil to expose HDPE geomembrane liner at the interface between the Bottom Ash Pond and Ash Pond D with one excavator. Water truck sprayed road areas with water to reduce dust. Late afternoon both backhoes loading ash out of Ash Pond B (southwest and southeast corners) into Ash Pond A.

1330: Talked with Chris Atkinson (WB Koester) about remaining ash locations in the Bottom Ash Pond.

Other:

Progress meeting held today at 1030. Refer to the meeting minutes for more information.

9/16/2015


BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,939 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,519 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
RIVER
WABASH RIVER
BOTTOM ASH POND
COAL YARD STORAGE AREA:
REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
ASH POND B
ASH POND C
ASH POND C:
REMOVE ASH AND GEOMEMBRANE
BOTTOM ELEV. APPROX. 445.0
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
Scarify
Excavate
Place Material (Pond A) / Grading (Ponds A + B)
~~Grading~~
Expose Liner
1 CLEAN CLOSURE PLAN 004
100 0 100 200
N
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
REV.
SHEET NO.
SCALE
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
UNIT NO.
DWG. SIZE 24X36
SUB CLASS
Ameren MISSOURI
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
DRAWING RECORD
REV. DATE PROJECT NO. AMEREN SUPV ENGR DRAFTING DRFTR CHK'D SUPV ENGR APPROVAL AMEREN OTHER DESCRIPTION
0 10.20.2014 J04PT – DBH SMB SMB – –
1 04.07.2014 J04PT – DBH SMB SMB – –

Weekly Progress Meeting

Meeting Minutes

Date: 9-16-15

Attendees:

Ameren: Don Shaver, Mike Wagstaff (phone), Ken Beckman, John Patterson (phone), Tim Free

WB Koester: Chris Atkinson, Bob Fisher

Geotechnology, Inc.: Jessie Hahn

Topics:

Safety/Housekeeping

- No issues
- Make sure to wash and scrape the parking lot on Friday.
- Discuss with work crews that all must wear seat belts.

Manpower

- Man hours
  - Start of Job (4-27-15) through 9-14-15
    - Total = 6963 hrs.
- Next week expected manpower
  - WBK = 1 superintendent, 1 mechanic, 7 operators, 2 laborer, 1 teamster
  - 10 hrs days approx.

Review old minutes and action items

- Silt Fence removal will be performed on a T&M basis as opposed to lump sum.
- Mike checked with Hanson regarding lowering the bottom ash pond berm, said to only lower it 5' lower than existing elevation).
- Bob submitted flowable fill mix design and it was approved.
- Geotechnology, Inc was given 5 gallon bucket of Quality Lime borrow soil to test. Jessie will obtain more at site to test for BTEX.

Next Meeting Scheduled: September 23, 2015 at 9:00 CST

Action Items

- Bob Fisher
  - Prepare schedule of values
  - Provide T&M price for a temp generator?
- Mike Wagstaff –
  - Call farmer back to have him produce lease agreement. If not then WBK can borrow out of field.
  - If borrow out of field is ok then check with LAMAC to see if they can amend SWPPP Plan to include the field.
- Don Shaver
  - Take pictures during structure demolitions for records.
- Geotechnology, Inc.
  - Jessie to obtain more sample of Quality Lime borrow soil for BTEX testing
  - Jessie to obtain sample of farm field soil for testing.

Act ID	Description	Orig Dur	Early Start	Early Finish	Actual Start	Actual Finish
1000	Mobilization	24d6h	27APR15 A	15JUN15 A	27APR15	15JUN15
1010	Remove Existing Fencing Initial	10d	27APR15 A	06MAY15 A	27APR15	06MAY15
1020	Install temporary Fencing	2d	30APR15 A	01MAY15 A	30APR15	01MAY15
1050	Initial Site Prep / Dewatering/ Haul routes	24d	11MAY15 A	02AUG15 A	11MAY15	02AUG15
1060	Exc of Ash from C to A	15d4h	08JUN15 A	26JUN15 A	08JUN15	26JUN15
1090	Excavation of Coal Yard Spoils	14d	29JUN15 A	17JUL15 A	29JUN15	17JUL15
1490	Haul Stockpile from outside fence	7d	13JUL15 A	21JUL15 A	13JUL15	21JUL15
1500	Treat and Discharge Water from Pond B (Ameren)	11d	15JUL15 A	29JUL15 A	15JUL15	29JUL15
1510	Mass Grade Subgrade in A	42d	15JUL15 A	11SEP15 A	15JUL15	11SEP15
1530	Pump Water From BA Pond	24d	17JUL15 A	14AUG15 A	17JUL15	14AUG15
1480	Excavation of Ash from BA Pond to A	20d	22JUL15 A	14AUG15 A	22JUL15	14AUG15
1100	Prep and Excavation of Ash from B to A	38d	27JUL15 A	17SEP15	27JUL15	
1540	Treat and Disch Water modified Pond B (Ameren)	38d	27JUL15 A	17SEP15	27JUL15	
1180	Pond B soil to Pond C, BA Pond and Coal Yard	17d	13AUG15 A	25AUG15 A	13AUG15	25AUG15
1110	Demo Liner partial in B	5d	17AUG15 A	25AUG15 A	17AUG15	25AUG15
1130	Finish Grade pond A liner subgrade	14d	08SEP15 A	25SEP15	08SEP15	
1120	Clean and prep liner for Pond A tie in	10d	14SEP15 A	25SEP15	14SEP15	
1520	Finish Coal Yard Haul to Pond A	2d	17SEP15 A	18SEP15	17SEP15	
1140	Pond A vent / piezometer install	4d	21SEP15	24SEP15		
1210	Finish BA Pond Haul to Pond A	5d	21SEP15 A	23SEP15	21SEP15	
1550	Finish Grade BA Pond	5d	24SEP15	30SEP15		
1230	Finish Grade Pond B	15d	25SEP15	15OCT15		
1560	Geotechnology Surveying/compaction testing	5d	28SEP15	02OCT15		
1080	HDPE Liner Tie-in to Pond D at BA Excavation	2d	05OCT15	06OCT15		
1030	Site Erosion Control Installation	5d	06OCT15	12OCT15		
1150	HDPE Liner in Pond A	10d	07OCT15	17OCT15		
1220	Finish Grade Pond C	5d	08OCT15	14OCT15		
1270	Borrow Soil to Coal Yard	4d	15OCT15	20OCT15		
1400	Pond C and BA Pond Rip Rap	2d	15OCT15	16OCT15		
1350	Pond B Storm Sewer	5d	16OCT15	22OCT15		
1200	Borrow soil to Pond A cover	30d	19OCT15	01DEC15		
1240	Pond A perimeter berm cut	8d	19OCT15	28OCT15		
1410	Pond C and BA Pond Turf Mat	2d	19OCT15	20OCT15		
1280	North Ditch to Coal Yard	2d	21OCT15	22OCT15		
1420	Pond C and BA Pond Erosion Cont Blanket	2d	21OCT15	22OCT15		
1370	Pond B Agg Surface for Access Road	1d	23OCT15	23OCT15		
1430	Pond C and BA Pond Seeding	1d	23OCT15	23OCT15		
1440	Coal Yard Seeding	1d	23OCT15	23OCT15		
1380	Pond B Erosion Control Blanket	3d	26OCT15	28OCT15		
1390	Pond B Seeding	2d	29OCT15	30OCT15		
1450	Fence Installation	10d	02NOV15	13NOV15		
1470	Fence Demolition (Final)	1d	16NOV15	16NOV15		
1300	Finish Grade Pond A Final Surface	10d	23NOV15	08DEC15		
1310	Pond A Rip Rap Chutes	3d	02DEC15	04DEC15		
1360	Pond A Agg surface for Access Road	1d	07DEC15	07DEC15		
1320	Pond A Storm Sewer	1d	08DEC15	08DEC15		
1330	Pond A Turf Mat	5d	08DEC15	14DEC15		
1460	Cleanup and Demobilization	9d	14DEC15	28DEC15		
1340	Pond A seeding	3d	15DEC15	17DEC15		

Start date	04MAY15
Finish date	28DEC15
Data date	16SEP15
Run date	17SEP15
Page number	1A
Project name	amer2

WB Koester Construction, LLC
Ameren Hutsonville Ash Pond Closure

- Early bar
- Progress bar
- Critical bar
- Summary bar
- Start milestone point
- Finish milestone poin

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/17/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0730 Depart: 1600 Travel: - Total: 9.50

AM Conditions: Clear AM Temperature: 71 F
PM Conditions: Clear PM Temperature: 84 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg
Equipment: WB Koester: 2 backhoes, 3 dump trucks, 3 bulldozers, 1 water truck (see additional notes)
Personnel: WB Koester: 12 workers

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Ash excavated at Ash Pond B and the Coal Yard and placed at Ash Pond A.

Deliveries:
Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A; Ash Pond B; Bottom Ash Pond. See attached location drawing for more information.

Geotechnology, Inc. Rep. 9/17/2015 Date

Geotechnology, Inc. Engineer 9/28/2015 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/17/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Finished loading out steel from the coal yard. Ongoing demolition of buildings. Began purging of the hydrogen tank located at the west end of the Bottom Ash Pond.

WB Koester:

Equipment details: 2 backhoes (1 Caterpillar 320B, 1 Komatsu PC 350 LC), 3 dump trucks (John Deere 400D), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 water truck (Caterpillar 623B)

One excavator spent one hour in the morning cleaning off the HDPE geoembrane liner at the interface between the Bottom Ash Pond and Ash Pond D. Two laborers cleaned off the HDPE geomembrane liner between Ash Pond D and the Bottom Ash Pond with shovels in the morning.

Excavated ash at the southern edge of Ash Pond B and at the western corner of Ash Pond B with two excavators and placed ash on eastern half of Ash Pond A with three dump trucks. Graded bottom and sides of Ash Pond B with one GPS bulldozer and one excavator. Graded eastern berms of Ash Pond A with one non-GPS and one GPS bulldozer.

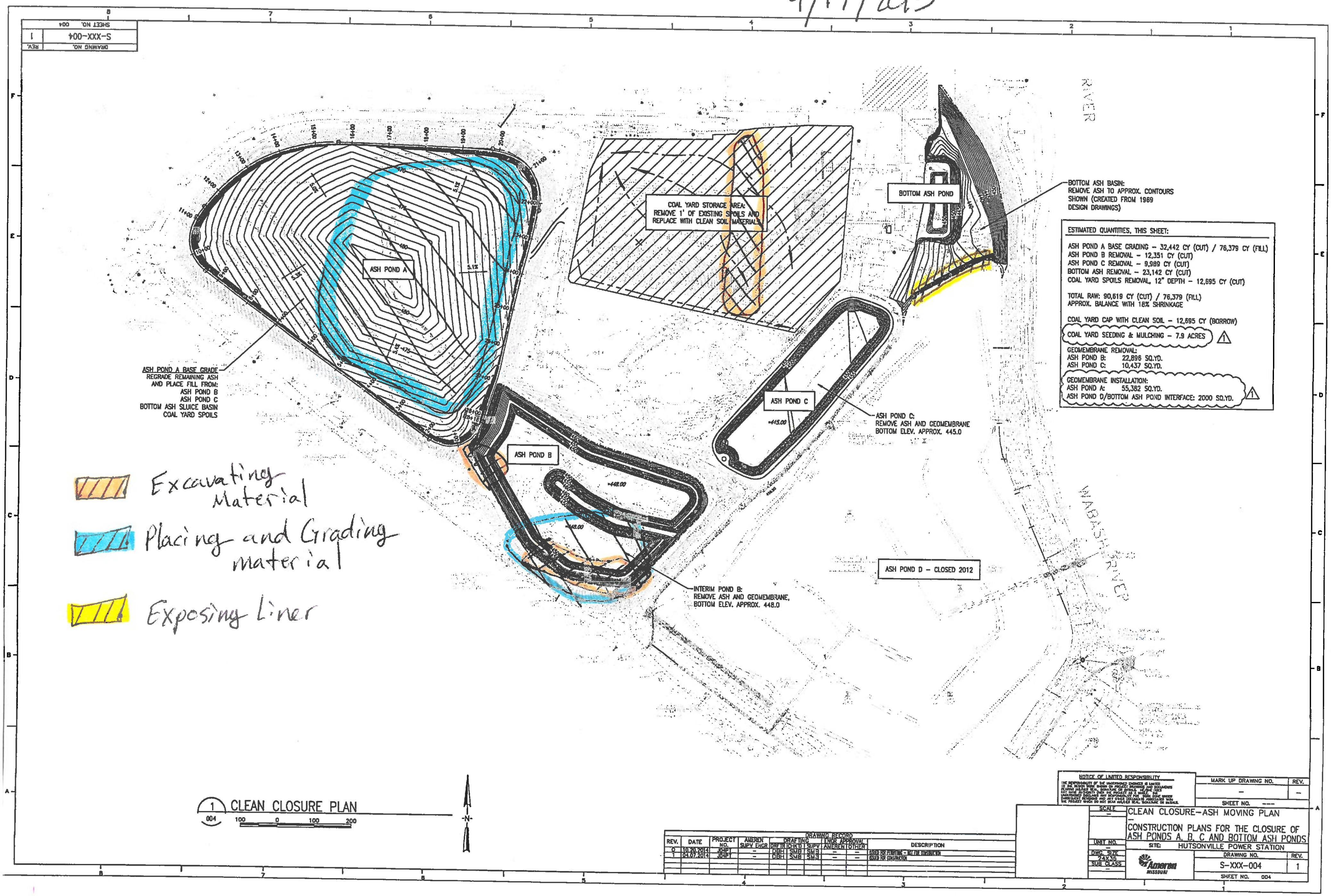
Around 0930, one excavator and one GPS-bulldozer moved to the Coal Yard to remove the top 1 foot of material. Three dump trucks transported the removed material to Ash Pond A. This activity continued for the remainder of the day.

Water truck sprayed road areas with water to reduce dust.

One tracked jackhammer arrived on site around 1400 this afternoon.

One bulldozer (non-GPS, previously grading material placed on Ash Pond A) out of service and under repair at 1530 site walk.

9/17/2015



RIVER
WABASH RIVER
BOTTOM ASH POND
BOTTOM ASH BASIN: REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
COAL YARD STORAGE AREA: REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
ASH POND B
ASH POND C
ASH POND C: REMOVE ASH AND GEOMEMBRANE BOTTOM ELEV. APPROX. 445.0
INTERIM POND B: REMOVE ASH AND GEOMEMBRANE, BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
Excavating Material
Placing and Grading material
Exposing Liner
1 / 004 CLEAN CLOSURE PLAN
100 0 100 200
N
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
REV.
SHEET NO.
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
Ameren MISSOURI
DWG. SIZE 24X36
REV. 0 DATE 10.20.2014 PROJECT NO. J04PT
REV. 1 DATE 04.07.2014 PROJECT NO. J04PT

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/18/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0730 Depart: 1200 Travel: 3.00 Total: 7.50

AM Conditions: Cloudy
AM Temperature: 72 F
PM Conditions:
PM Temperature:

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg
Equipment: WB Koester: 2 backhoes, 3 dump trucks, 3 bulldozers, 1 water truck (see additional notes)
Personnel: WB Koester: 12 workers

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Spoils excavated at the Coal Yard and placed at Ash Pond A.

Deliveries:
Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A; Ash Pond B; Coal Yard. See attached location drawing for more information.

9/18/2015
Geotechnology, Inc. Rep. Date

9/28/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/18/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Finished loading out steel from the coal yard. Ongoing demolition of buildings. Continued purging of the hydrogen tank located at the west end of the Bottom Ash Pond.

WB Koester:

Equipment details: 2 backhoes (1 Caterpillar 320B, 1 Komatsu PC 350 LC), 3 dump trucks (John Deere 400D), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 water truck (Caterpillar 623B)

The bulldozer that was under repair yesterday (9/17/15) afternoon is back in service.

Graded bottom and sides of Ash Pond B with one GPS bulldozer. Graded Ash Pond A with one non-GPS bulldozer. At 1000 the GPS bulldozer at Ash Pond B moved to Ash Pond A to continue grading activities.

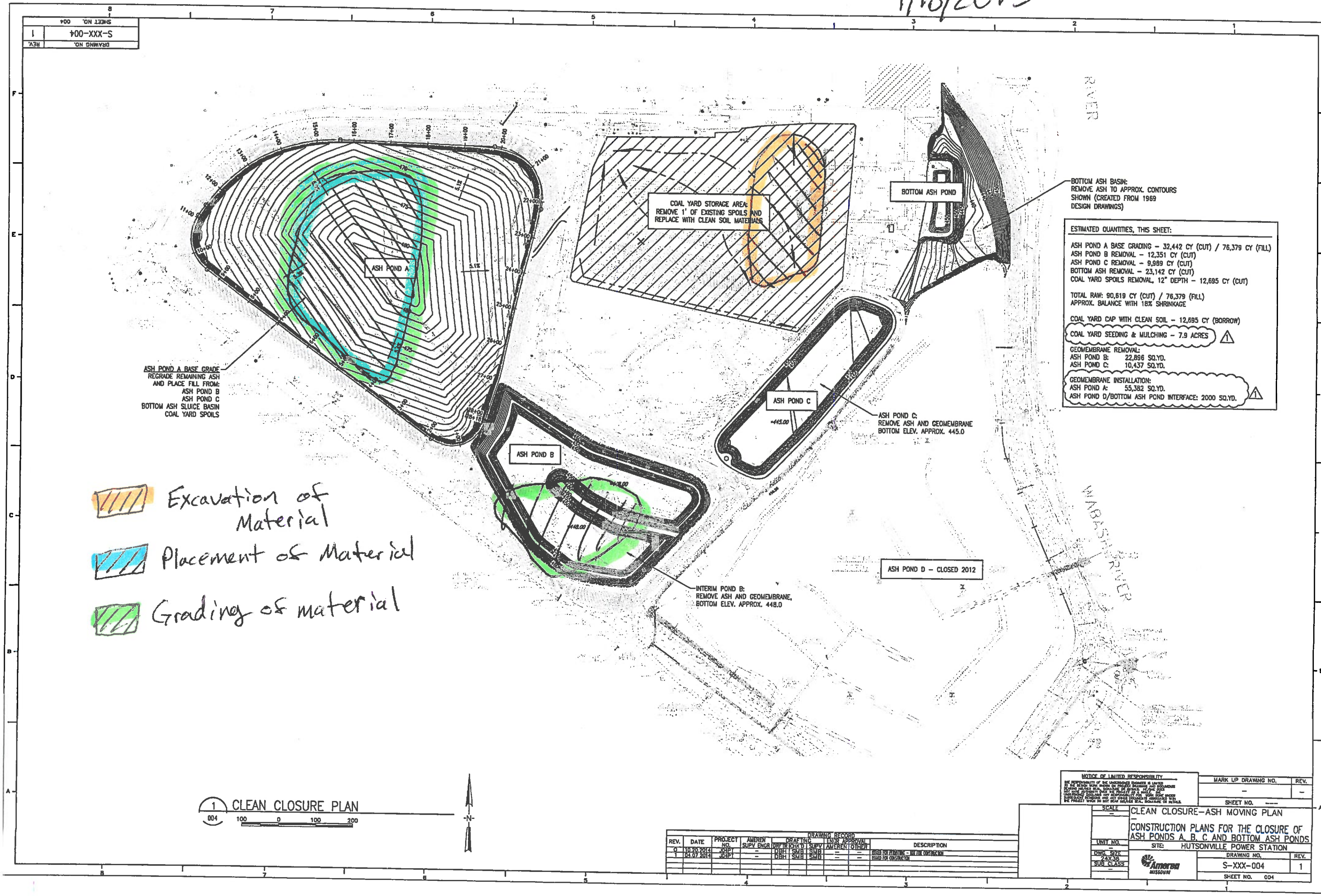
Two excavators and one GPS bulldozer removed the top 1 foot of spoils and debris in the Coal Yard. Three dump trucks transported the material to Ash Pond A.

Water truck sprayed road areas with water to reduce dust.

Used one bulldozer to scrape material from roads.

WB Koester had a surveyor on site to generate an updated topo for the Ash Pond B and Ash Pond A to evaluate additional ash volume in Ash Pond A and to update grade design on Ash Pond B.

9/18/2015



BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
BOTTOM ASH POND
COAL YARD STORAGE AREA:
REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
ASH POND B
ASH POND C
ASH POND C:
REMOVE ASH AND GEOMEMBRANE
BOTTOM ELEV. APPROX. 445.0
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
RIVER
WABASH RIVER
Excavation of Material
Placement of Material
Grading of material
CLEAN CLOSURE PLAN
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
DRAWING RECORD
REV. 0 10.20.2014
REV. 1 04.07.2014
Ameren MISSOURI

PHOTOGRAPH LOG

Photograph 1 ⮙ - View of the north portion of the Bottom Ash Pond looking southeast, showing groundwater leaching and subsequent dewatering.

Photograph 2 ⮙ - View of the southern portion of the Bottom Ash Pond, looking south into Ash Pond C.

Photographs taken by Jessie Hahn of Geotechnology, Inc. September 15-18, 2015.

Photograph 3 ⮙ - View of Ash Pond C from the northwest corner, looking southeast.

Photograph 4 ⮙ - View of Ash Pond C from the southern end, looking north.

Photograph 5 - View of the southeastern end of Ash Pond B, looking south.

Photograph 6 - View of the western end of Ash Pond B, looking west.

Photograph 7 - View of the western end of Ash Pond B, looking west.

Photograph 8 - View of the northern end of Ash Pond A, looking northeast.

Photograph 9 ⮝ - View of the western end of Ash Pond A, looking west.

Photograph 10 ⮝ - View of excavation and grading of ash and soils at the south levee of Ash Pond B, looking south.

Photograph 11 - View of material placement and grading on Ash Pond A, looking southwest.

Photograph 12 - View of an excavator moving material to promote drying of wet material on Ash Pond A, looking southwest.

Photograph 13 ⮝ - Overview of Ash Pond B, looking south, showing loadout of material at southwest corner.

Photograph 14 ⮝ - View of material placement and grading on Ash Pond A, looking northwest.

Photograph 15 - View of exposing the Ash Pond D liner at the Bottom Ash Pond, looking southwest.

Photograph 16 - Overview of Ash Pond B showing grading of material, looking east.

Photograph 17 ⮝ - View of material placement and grading on Ash Pond A, looking southwest.

Photograph 18 ⮝ - Overview of Ash Pond B, looking east.

Photograph 19 ⮝ - View of loadout activity in the Coal Yard, looking northwest.

MEMORANDUM

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., R.G., Ph.D.
Geotechnology, Inc.

DATE: October 2, 2015

SUBJECT: Weekly Summary Report for September 21, 2015 to September 25, 2015

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

Weather

The weather was generally sunny and dry. Temperature (^{O}F) lows ranged from 44 to 53^{O}F, and temperature highs ranged from 79 to 87^{O}F.

Construction Activities

Ash was removed from the Bottom Ash Pond and placed on Ash Pond A. The Bottom Ash Pond was graded. Ash Pond A was graded and compacted. Wet portions of Ash Pond A (near the edges of the pond) were spread and scarified to encourage drying. Seven piezometers/vents were installed in Ash Pond A by Illini Drilled Foundations, Inc. on September 21-23, 2015. The electric line adjacent to the eastern bank of Ash Pond B was taken down and re-installed by ENR on September 22-24, 2015.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 2 backhoes (1 Caterpillar 320B, 1 Komatsu PC 350 LC), 3 dump trucks (John Deere 400D), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 water truck (Caterpillar 623B), 1 sheepsfoot compactor (CA 251), 1 smooth drum roller (CS-433E), and 1 skidsteer (Caterpillar 247B).

WB Koester had 9 employees working on site: 2 laborers, 1 mechanic, and 6 equipment operators.

Illini Drilled Foundations, Inc. was on site September 21-23 with 3 operators. Illini had 1 Caterpillar 312B auger machine, 1 forklift, and 1 backhoe/front-end loader on site.

ENR was on site September 22-24 with two electricians. ENR had 1 manlift on site.

Meetings

A weekly progress meeting was held on Wednesday, September 23, 2015. Refer to the meeting minutes for additional information.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Ash from the Bottom Ash Pond was placed in Ash Pond A. Four-inch HDPE piezometers were installed in Ash Pond A at seven locations.

One delivery of HDPE geomembrane arrived on site on September 21, 2015.

Testing/Sampling

One protective cover soil sample was obtained from a farm field near the site for prequalification testing.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/21/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 1030 Depart: 1630 Travel: 3.50 Total: 9.50

AM Conditions: Clear
AM Temperature: 63 F
PM Conditions: Clear
PM Temperature: 77 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Illini, Brandenberg

Equipment: WB Koester: 2 excavators, 3 bulldozers, 1 sheepsfoot roller (see additional notes)
Illini: 1 drilling machine, 1 fork lift, 1 backhoe

Personnel: WB Koester: 9 workers; Illini: 3 workers

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Materials for the installation of the 4" HDPE vents in Ash Pond A (see additional notes)

Deliveries: 12 rolls of HDPE geomembrane were delivered to the site at 1530.

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A; Ash Pond B. See attached location drawing for more information.

Geotechnology, Inc. Rep. — Date: 9/21/2015

Geotechnology, Inc. Engineer — Date: 9/29/2015

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/21/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment details: 2 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 sheepsfoot roller compactor (CA 251).

Cleaned ash at the northeast corner of Ash Pond B and shaped the slopes with one excavator and dump trucks.

Mike Wagstaff (Ameren) was on site in the morning reviewing site issues and concerns. Per his direction, the east wall of Ash Pond C (where ash is visible) and the northeast corner of Ash Pond B (where ash is visible) will be covered with a protective cap of soil.

Graded Ash Pond A with three bulldozers (two with GPS). Two excavators shaped the HDPE geomembrane anchor trench at various locations at the Ash Pond A levees. In the morning, one sheepsfoot roller compacted in the northern half of Ash Pond A levees.

Illini Drilled Foundations, Inc.:

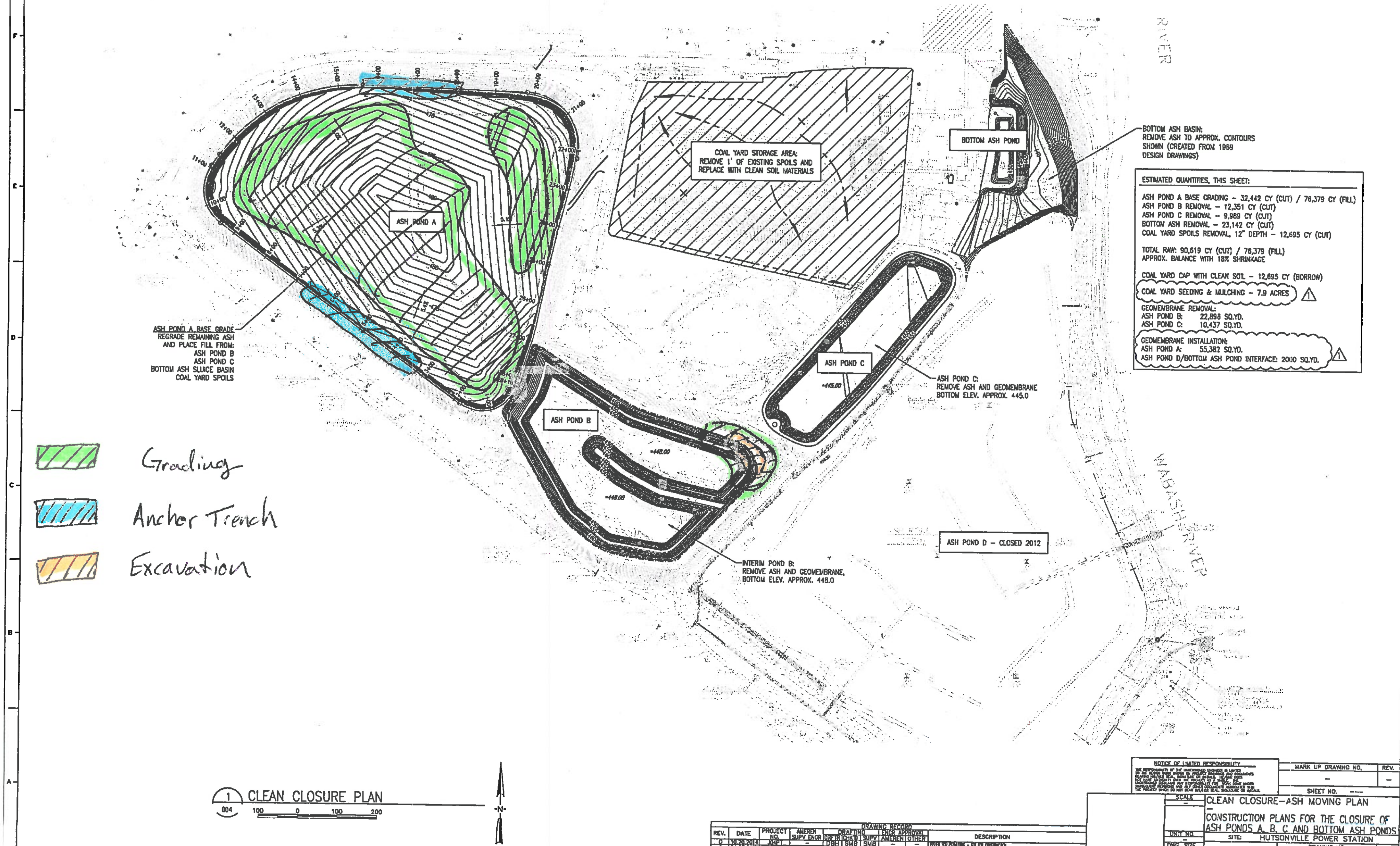
Equipment details: 1 Caterpillar 312B auger machine, 1 Caterpillar TL934C fork lift, 1 Caterpillar 420E backhoe/front-end loader.

Used auger machine to auger vents in Ash Pond A at locations indicated on attached plans. The vent borings were advanced by auger until the material was too wet, and then advanced by bucket. An 18-24 inch casing was advanced as the material was removed. The vents consist of a 4-inch HDPE pipe with four ½-inch holes at approximately 6-inch intervals. The HDPE pipe is enclosed in a sock to the approximate ground level and has three centralizers spaced evenly along its length. The borings had a diameter of approximately 18-24 inches. The annular space was backfilled with gravel and the casing removed.

At 1115, Illini had to send someone back to their Danville, IL office to pick up a correctly-sized bucket for picking up wet material. In the absence of proper tools, two other borings were advanced to the depth possible with the auger tool. The bucket arrived on site at around 1400 and normal production continued.

Two vents were completed on 9/21/2015, and a third vent was advanced to the depth possible with an auger.

9/21/2015



REV.	DATE	PROJECT NO.	AMEREN SUPV ENGR	DRAFTING DRFTR	CHK'D	SUPV	ENGR APPROVAL AMEREN	OTHER	DESCRIPTION
0	10.29.2014	JCIPT	–	DBH	SMB	SMB	–	–	ISSUED FOR PERMITTING – NOT FOR CONSTRUCTION
1	04.07.2015	JCIPT	–	DBH	SMB	SMB	–	–	ISSUED FOR CONSTRUCTION

CLEAN CLOSURE–ASH MOVING PLAN

CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS

SITE: HUTSONVILLE POWER STATION

Ameren MISSOURI

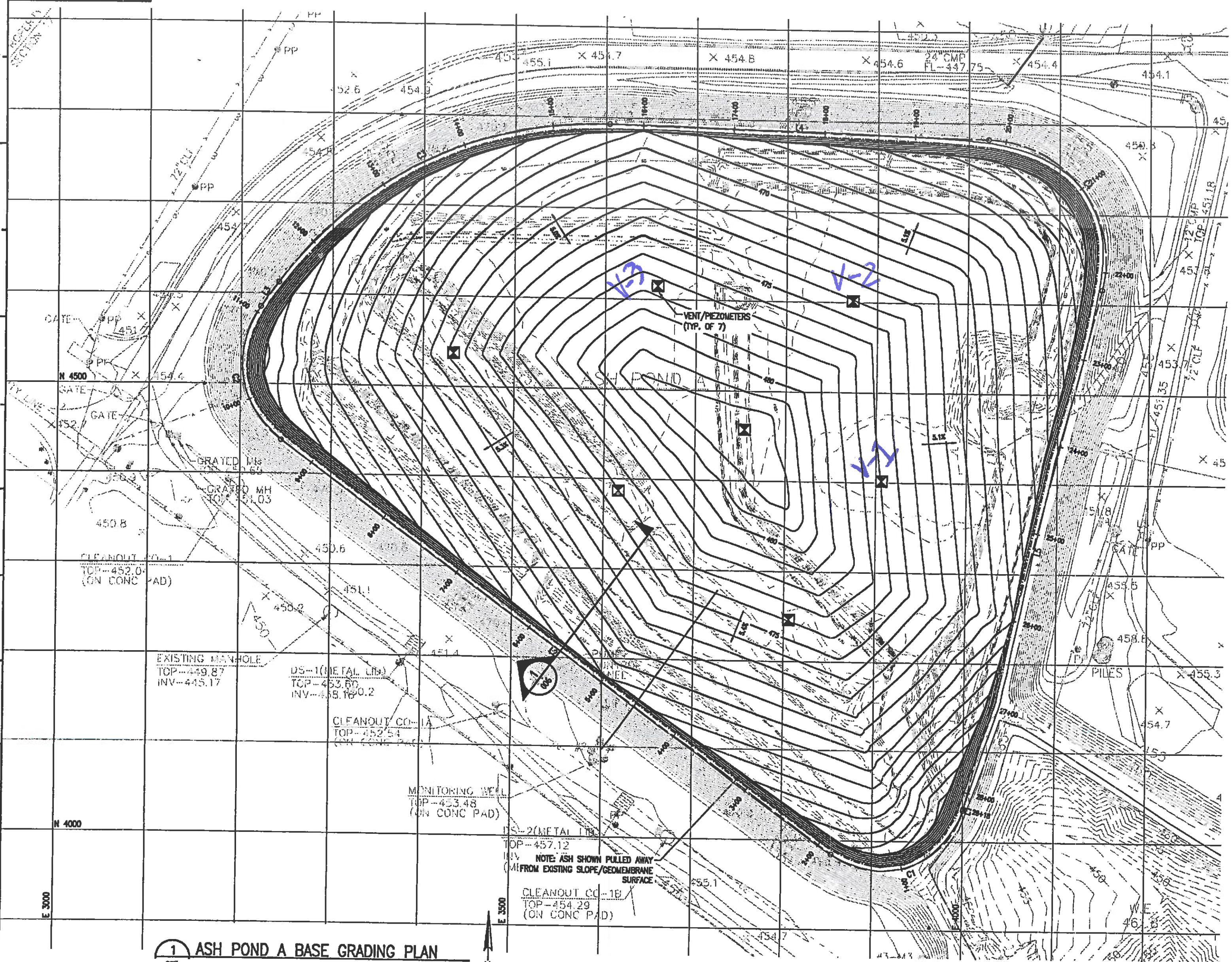
DRAWING NO. S-XXX-004 REV. 1

SHEET NO. 004

MARK UP DRAWING NO. – REV. –

NOTICE OF LIMITED RESPONSIBILITY

~~9/15/2015~~ 9/21/2015



1/005 ASH POND A BASE GRADING PLAN

Scale: 50 0 50 100

NOTES:

1. THIS PLAN SHOWS APPROXIMATE GRADES FOR FINAL ASH BASE. GRADING PLAN SHOWN INCLUDES MATERIAL FROM THE COAL YARD, ASH POND B, ASH POND C, AND BOTTOM ASH POND. CLEAN CLOSURE GRADING CONTOURS FOR THESE FACILITIES ARE SHOWN ON SHEET 004.
2. SEE COA PLAN FOR CLEAN CLOSURE APPROVAL GUIDELINES.
3. GEOMEMBRANE IN PONDS B AND C SHALL BE DISPOSED OF OFF SITE IN A LICENSED LANDFILL.

V-1 + V-2 fully installed.

V-3 advanced with auger to depth possible.

REV.	DATE	PROJECT NO.	AMEREN SUPV ENGR	DRAFTING DRFTR	CHECKD	SUPV	EDCH APPROVAL AMEREN	OTHER	DESCRIPTION
0	10.20.2014	JOB?	–	DBH	SMB	SMB	–	–	
1	04.07.2015	JOB?	–	DBH	SMB	SMB	–	–	

NOTICE OF LIMITED RESPONSIBILITY

MARK UP DRAWING NO. – REV. –

SHEET NO. –

ASH POND A BASE GRADING PLAN

CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS

SITE: HUTSONVILLE POWER STATION

Ameren MISSOURI

DRAWING NO. S-XXX-005 REV. 1

SHEET NO. 005

DRAWING NO. S-XXX-005 REV. 1 SHEET NO. 005

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/22/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0700 Depart: 1630 Travel: 0.00 Total: 9.00

AM Conditions: Clear AM Temperature: 63 F
PM Conditions: Clear PM Temperature: 83 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Illini, ENR, Brandenberg
Equipment: **WB Koester:** 2 excavators, 3 bulldozers (see additional notes)
Illini: 1 drilling machine, 1 fork lift, 1 backhoe; **ENR:** 1 manlift
Personnel: **WB Koester:** 9 workers; **Illini:** 3 workers; **ENR:** 2 workers
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Materials for the installation of the 4" HDPE vents in Ash Pond A (see additional notes)

Deliveries:
Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A; Ash Pond B. See attached location drawing for more information.

9/22/2015
Geotechnology, Inc. Rep. Date

9/29/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT DATE: 9/22/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings. Demolition of hydrogen tank and foundation over bottom ash adjacent to the Bottom Ash Pond at the northwest corner.

Illini Drilled Foundations, Inc.:

Equipment details: 1 Caterpillar 312B auger machine, 1 Caterpillar TL934C fork lift, 1 Caterpillar 420E backhoe/front-end loader.

Advancement, materials, and vent construction performed as described in the 9/21/2015 daily report.

Four vents were completed on 9/22/2015.

ENR (Electricians):

Equipment details: 1 JLG Lift 600S manlift

Used manlift and one WB Koester excavator to take down the power line from the power poles on the east side of Ash Pond B. Exposed underground power lines at southeast corner of Ash Pond B. Rewired power poles after the poles were reinstalled by WB Koester.

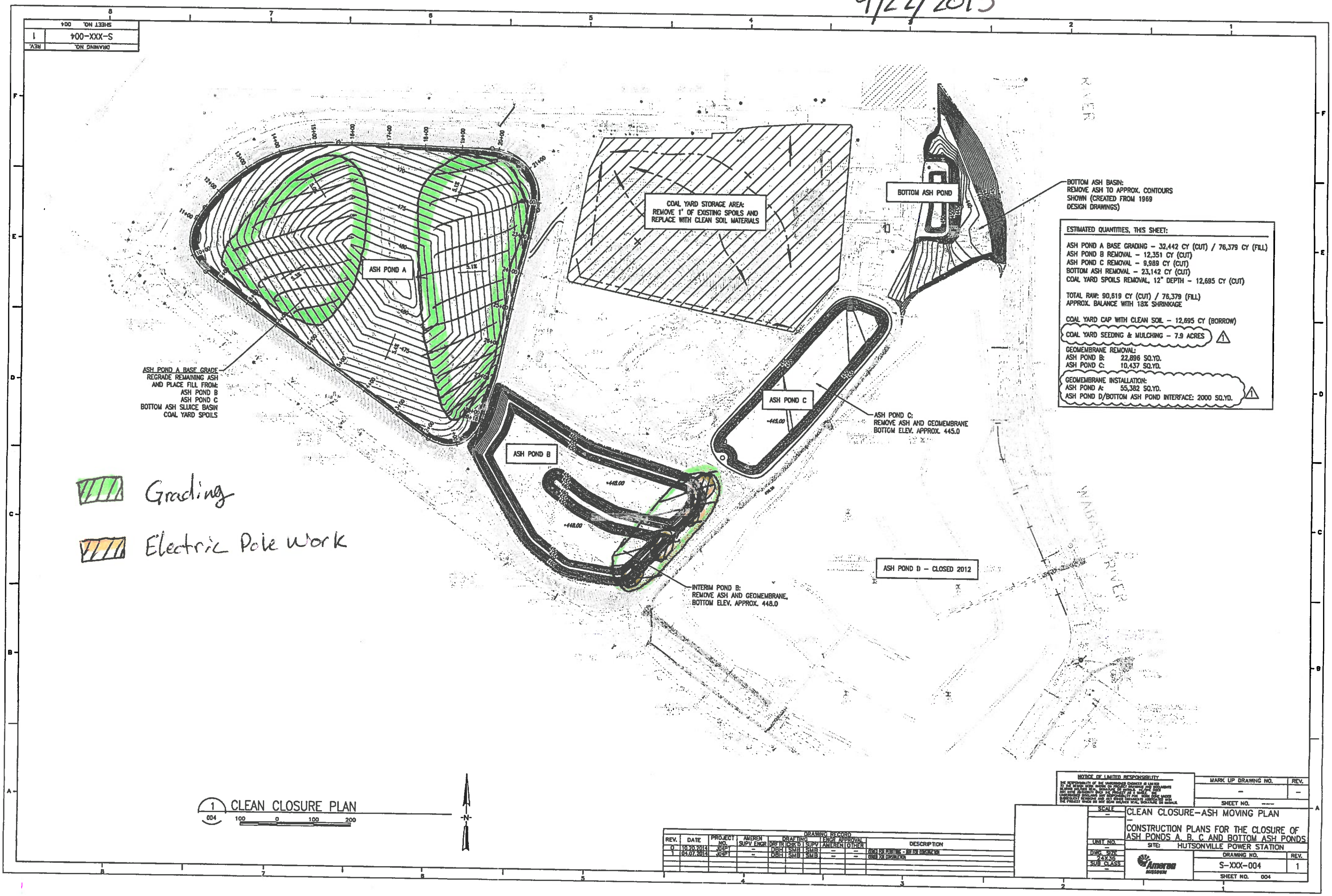
WB Koester:

Equipment details: 2 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS).

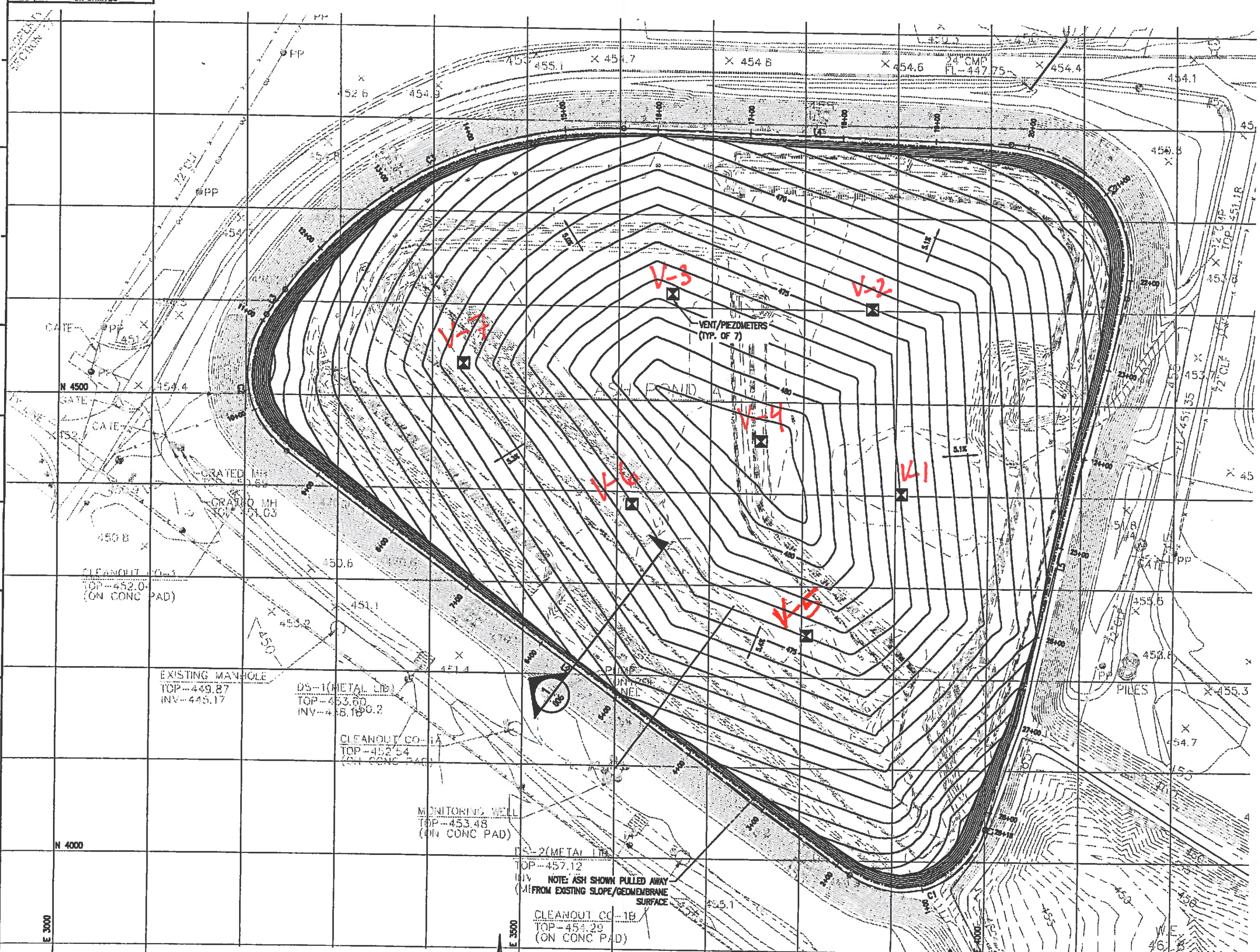
Graded Ash Pond A with three bulldozers (two with GPS). Two excavators shaped the HDPE geomembrane anchor trench at various locations at the Ash Pond A levees.

One excavator assisted in removing the power line along the east side of Ash Pond B. Once the power line was down (0900), two excavators and one GPS bulldozer graded the west slope of Ash Pond B and removed a large concrete structure near the southern end of that slope. The two excavators reinstalled the power poles after grading was completed (beginning around 1200). One excavator dug trenching to expose existing electric lines (southeast corner of Ash Pond B) and for burial of electric lines (northeast corner of Ash Pond B).

9/22/2015


COAL YARD STORAGE AREA: REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH POND
BOTTOM ASH BASIN: REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
ASH POND A
ASH POND A BASE GRADE REGRADE REMAINING ASH AND PLACE FILL FROM: ASH POND B ASH POND C BOTTOM ASH SLUICE BASIN COAL YARD SPOILS
ASH POND B
ASH POND C
ASH POND C: REMOVE ASH AND GEOMEMBRANE BOTTOM ELEV. APPROX. 445.0
INTERIM POND B: REMOVE ASH AND GEOMEMBRANE, BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
WABASH RIVER
Grading
Electric Pole Work
CLEAN CLOSURE PLAN
100 0 100 200
N
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
Ameren MISSOURI

9/22/2015



1 / 005 ASH POND A BASE GRADING PLAN

NOTES:

1. THIS PLAN SHOWS APPROXIMATE GRADES FOR FINAL ASH BASE. GRADING PLAN SHOWN INCLUDES MATERIAL FROM THE COAL YARD, ASH POND B, ASH POND C, AND BOTTOM ASH POND. CLEAN CLOSURE GRADING CONTOURS FOR THESE FACILITIES ARE SHOWN ON SHEET 004.
2. SEE COA PLAN FOR CLEAN CLOSURE APPROVAL GUIDELINES.
3. GEOMEMBRANE IN PONDS B AND C SHALL BE DISPOSED OF OFF SITE IN A LICENSED LANDFILL.

V-1 + V-2 completed 9/21/2015.

V-3, V-4, V-5, V-6 completed 9/22/2015

Depths

V-1	27'
V-2	24'
V-3	27'
V-4	33'
V-5	27'
V-6	29'
V-7	21'

REV.	DATE	PROJECT NO.	AMEREN SUPV ENGR	DFTR	CHK'D	SUPV	ENGR APPROVAL	DESCRIPTION
0	10.20.2014	J04PT	–	DBH	SMB	SMB	–	
1	04.07.2015	J04PT	–	DBH	SMB	SMB	–	

ASH POND A BASE GRADING PLAN

CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS

SITE: HUTSONVILLE POWER STATION

Ameren MISSOURI

DRAWING NO. S-XXX-005 REV. 1

SHEET NO. 005

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/23/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0700 Depart: 1630 Travel: 0.00 Total: 9.00

AM Conditions: Clear AM Temperature: 63 F
PM Conditions: Clear PM Temperature: 82 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Illini, ENR, Brandenberg

Equipment: **WB Koester:** 2 excavators, 3 bulldozers, 1 dump truck, 1 compactor (see additional notes)
Illini: 1 drilling machine, 1 fork lift, 1 backhoe; **ENR:** 1 manlift

Personnel: **WB Koester:** 9 workers; **Illini:** 2 workers; **ENR:** 2 workers

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Materials for the installation of the 4" HDPE vents in Ash Pond A (see additional notes)
Ash material from Ash Pond B placed in Ash Pond A.

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A; Ash Pond B. See attached location drawing for more information.

Geotechnology, Inc. Rep. 9/23/2015 Date

Geotechnology, Inc. Engineer 9/29/2015 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/23/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings. Steel above concrete structure was removed to make concrete structure accessible for removal.

Illini Drilled Foundations, Inc.:

Equipment details: 1 Caterpillar 312B auger machine, 1 Caterpillar TL934C fork lift, 1 Caterpillar 420E backhoe/front-end loader.

Advancement, materials, and vent construction performed as described in the 9/21/2015 daily report.

One vent was completed on 9/23/2015. This completes the vent installation in Ash Pond A. Illini off site by 1200 on 9/23/2015. Equipment remains on site.

ENR (Electricians):

Equipment details: 1 JLG Lift 600S manlift

Installed power line on reinstalled power poles and in adjoining trenches.

WB Koester:

Equipment details: 2 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 dump truck (John Deere 400D), 1 sheepsfoot roller (CA 251).

Graded and compacted Ash Pond A with two GPS bulldozers and one sheepsfoot roller.

Two excavators worked at Ash Pond B: loaded out material at the northeast corner of Ash Pond B with one dump truck in the early morning for 2-3 hours, set two power poles, and backfilled electrical trenches.

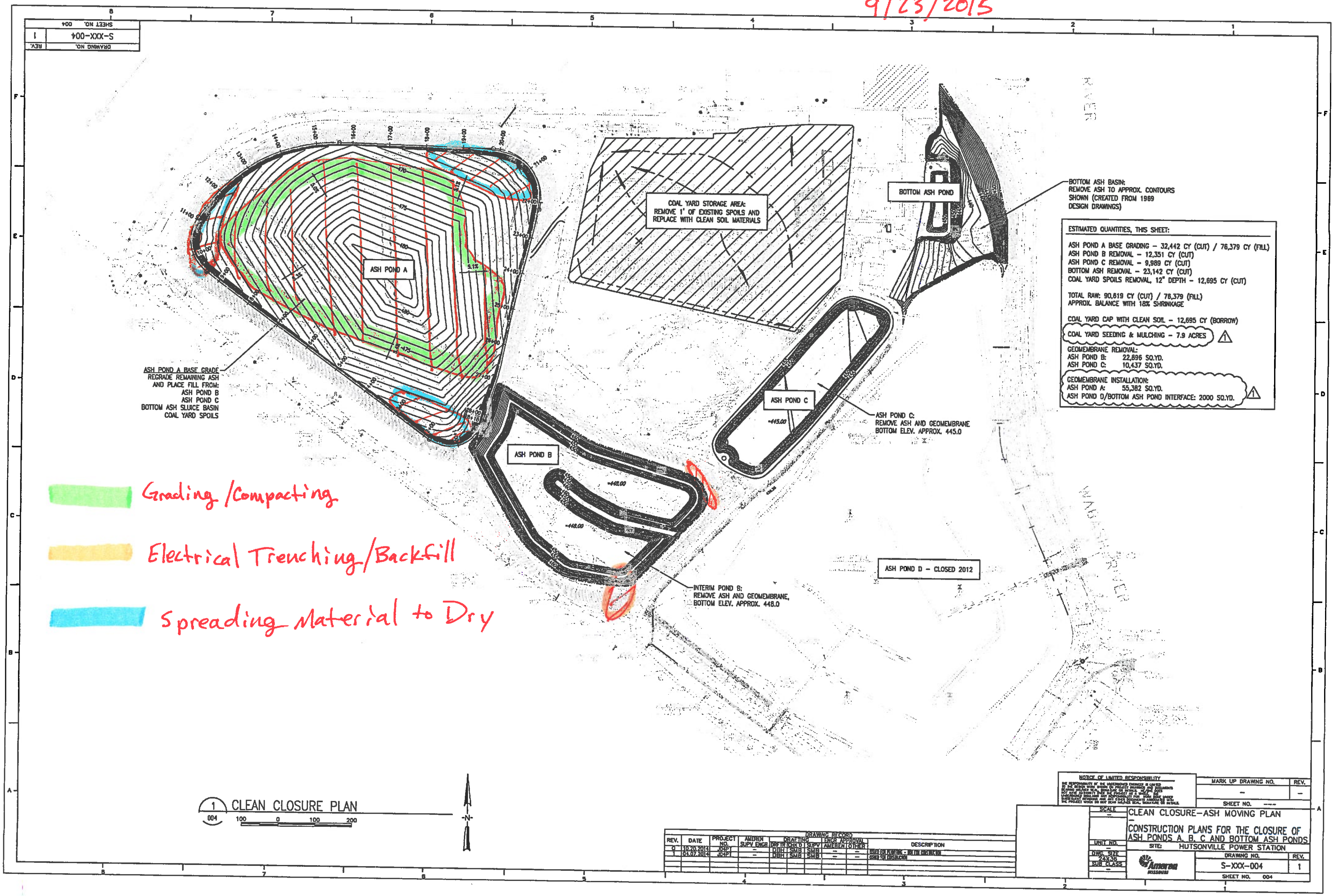
In the afternoon, two excavators worked at Ash Pond A spreading wet material from the corners to dry.

Other:

Progress meeting held at 0900. See meeting minutes for additional information.

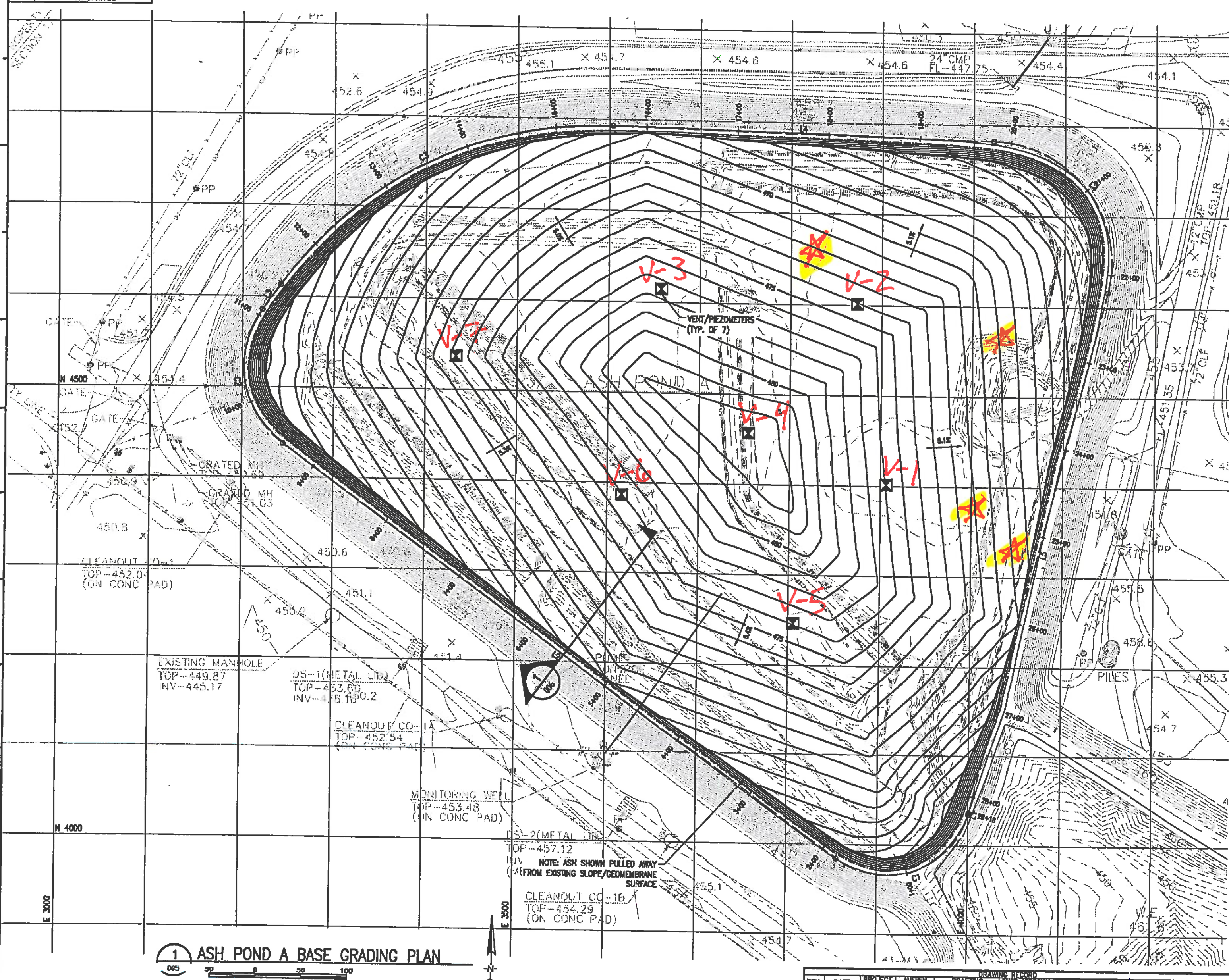
Preliminary density testing was performed at the request of WB Koester.

9/23/2015



ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH
AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
COAL YARD STORAGE AREA:
REMOVE 1' OF EXISTING SPOILS AND
REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH POND
BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS
SHOWN (CREATED FROM 1989
DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
ASH POND B
ASH POND C
ASH POND C:
REMOVE ASH AND GEOMEMBRANE
BOTTOM ELEV. APPROX. 445.0
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
WABASH RIVER
RIVER
Grading /Compacting
Electrical Trenching/Backfill
Spreading Material to Dry
1 CLEAN CLOSURE PLAN
004
100 0 100 200
N
DRAWING RECORD
REV. DATE PROJECT NO.
0 10.20.2014 JO4P1
1 04.07.2014 JO4P1
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF
ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
Ameren MISSOURI
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004

9/23/2015



1 ASH POND A BASE GRADING PLAN (005)

★Compaction Test Location

NOTES:

1. THIS PLAN SHOWS APPROXIMATE GRADES FOR FINAL ASH BASE. GRADING PLAN SHOWN INCLUDES MATERIAL FROM THE COAL YARD, ASH POND B, ASH POND C, AND BOTTOM ASH POND. CLEAN CLOSURE GRADING CONTOURS FOR THESE FACILITIES ARE SHOWN ON SHEET 004.
2. SEE COA PLAN FOR CLEAN CLOSURE APPROVAL GUIDELINES.
3. GEOMEMBRANE IN PONDS B AND C SHALL BE DISPOSED OF OFF SITE IN A LICENSED LANDFILL.

Vent	Target Depth	Date Completed
1	27'	9/21/2015
2	24'	9/21
3	27'	9/22
4	33'	9/22
5	27'	9/22
6	29'	9/22
7	21'	9/23

REV.	DATE	PROJECT NO.	AMEREN SUPV ENGR	DRFTR	CHK'D	SUPV	ENGR APPROVAL AMEREN	OTHER	DESCRIPTION
0	10.20.2014	JO4PT	–	DBH	SMB	SMB	–	–	
1	04.07.2014	JO4PT	–	DBH	SMB	SMB	–	–	

ASH POND A BASE GRADING PLAN

CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS

SITE: HUTSONVILLE POWER STATION

Ameren MISSOURI

DRAWING NO. S-XXX-005 REV. 1

SHEET NO. 005

Weekly Progress Meeting

Meeting Minutes

Date: 9-23-15

Attendees:

Ameren: Don Shaver, Mike Wagstaff , Ken Beckman, John Patterson, Tim Free

WB Koester: Chris Atkinson, Bob Fisher

Geotechnology, Inc.: Jessie Hahn

Topics:

Safety/Housekeeping

- No issues
- Make sure to wash and scrape the parking lot on Friday.

Manpower

- Man hours
  - Start of Job (4-27-15) through 9-21-15
    - Total = 7547 hrs.
- Next week expected manpower
  - WBK = 1 superintendent, 1 mechanic, 5 operators, 2 laborer
  - 10 hrs days approx.

Review old minutes and action items

- Bob provided schedule of values and invoice to Mike.
- Mike talked to farmer and we are ok to borrow out of farm field. Seed and Lime at conclusion. Strip and save topsoil and replace. Mike to look into amending SWPPP plan. Bob to get LAMAC to look at providing plan?

Material Issues

- No issues discussed.

Quality Control Issues

- No issues discussed.

Schedule Compliance

- Liner roll off boxes and disposal on going.
- WBK is continuing to shape pond A subgrades and placing ash in Pond A.
- Ash is out of Pond B. Ash around power poles will be removed this week.
- Brandenberg removed hydrogen tank and concrete trench. Ash to be removed in these areas by the end of week.
- Illini Drilled Foundation install piezometers this week.
- National Lining Systems moved to October 5th to start liners. Liner to be delivered starting Monday September 21.
- Brandenberg Divers on site Sept 28th. Will need WBK to build retention levee in Bottom ash pond for them to pump into.
-

Cost and Budget Control

- Silt fence removal in Pond D to be by T&M and not Lump sum.

Next Meeting Scheduled: September 30, 2015 at 9:00 CST

Action Items

- Bob Fisher
  - See if LAMAC and work on SWPPP Plan in needed.
- Mike Wagstaff –
  - Look to make sure SWPPP can just be amended.
- Don Shaver
  - Take pictures during structure demolitions for records.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/24/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0730 Depart: 1600 Travel: 0.00 Total: 8.00

AM Conditions: Clear
AM Temperature: 65 F
PM Conditions: Clear
PM Temperature: 85 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, ENR, Brandenberg

Equipment: **WB Koester:** 2 excavators, 3 bulldozers, 1 dump truck, 1 compactor (see additional notes)
ENR: 1 manlift

Personnel: **WB Koester:** 9 workers; **ENR:** 2 workers

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Ash material from the Bottom Ash Pond placed in Ash Pond A.

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B, Bottom Ash Pond. See attached location drawing for more information.

Geotechnology, Inc. Rep. — 9/24/2015 Date

Geotechnology, Inc. Engineer — 9/29/2015 Date

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings. Steel above concrete structure was removed to make concrete structure accessible for removal. Concrete structure in the Bottom Ash Pond removed to make ash accessible for removal by WB Koester.

ENR (Electricians):

Equipment details: 1 JLG Lift 600S manlift

Installed power line on reinstalled power poles and in adjoining trenches.

WB Koester:

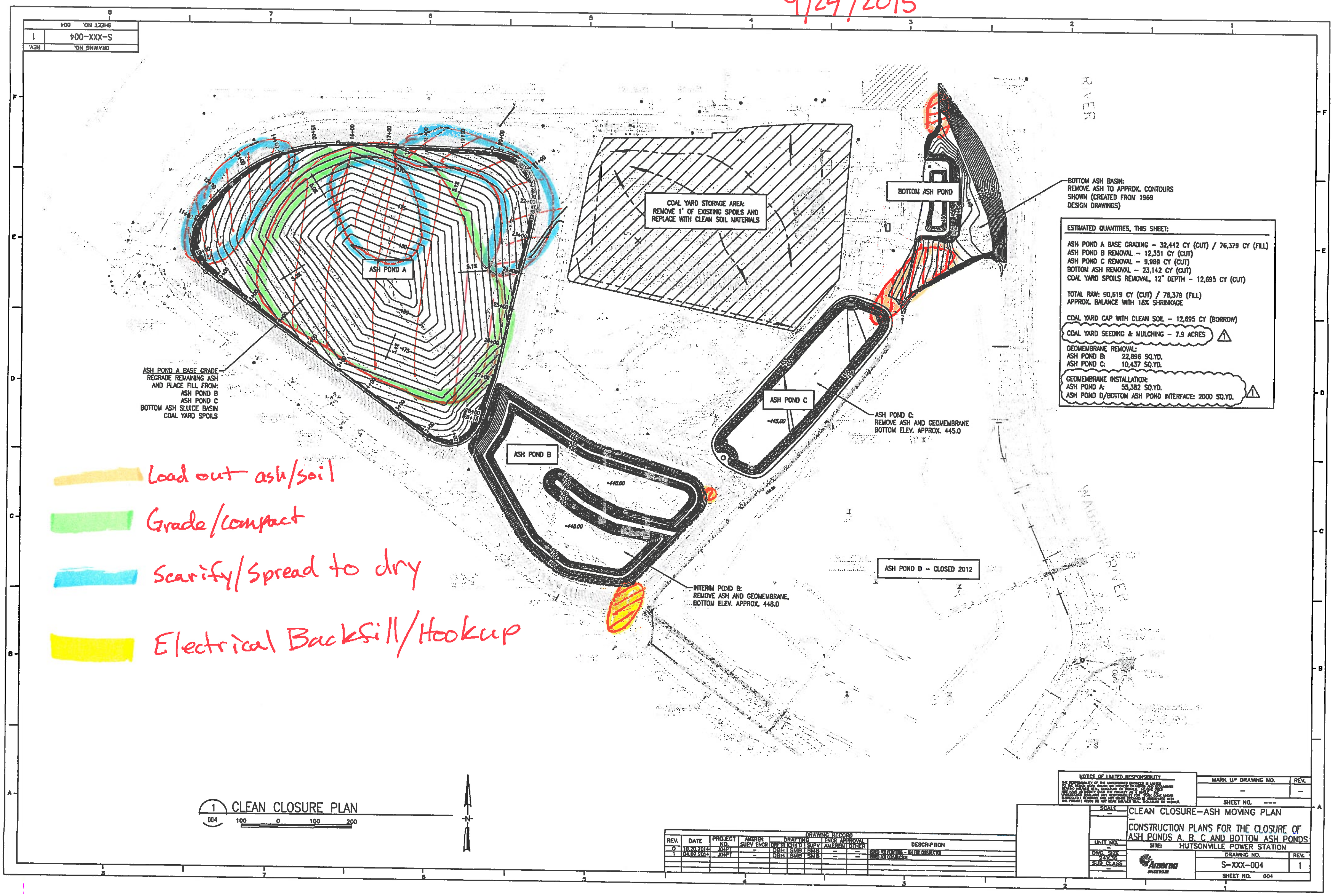
Equipment details: 2 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 dump truck (John Deere 400D), 1 sheepsfoot roller (CA 251).

Graded and compacted Ash Pond A with two GPS bulldozers and one sheepsfoot roller. When not performing other activity, the two excavators were spreading wet material to dry adjacent to the edges of Ash Pond A.

One excavator backfilled an electrical trench adjacent to the southeast corner of Ash Pond B for 1 hour in the morning.

Loaded out ash material from the Bottom Ash Pond to Ash Pond A with one excavator, one non-GPS bulldozer, and one dump truck.

9/24/2015


BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 CY (FILL)
APPROX. BALANCE WITH 16% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
BOTTOM ASH POND
COAL YARD STORAGE AREA:
REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
ASH POND B
ASH POND C
ASH POND C:
REMOVE ASH AND GEOMEMBRANE
BOTTOM ELEV. APPROX. 445.0
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
WABASH RIVER
Load out ash/soil
Grade/compact
Scarify/Spread to dry
Electrical Backfill/Hookup
1 CLEAN CLOSURE PLAN 004
100 0 100 200
N
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
REV.
SHEET NO.
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
DRAWING RECORD
REV.
DATE
PROJECT NO.
DESCRIPTION
0 10.20.2014
1 04.07.2015
Ameren MISSOURI
DRAWING NO.
S-XXX-004
SHEET NO. 004

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/25/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0700 Depart: 1200 Travel: 3.50 Total: 8.00

AM Conditions: Clear
AM Temperature: 71 F
PM Conditions:
PM Temperature:

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg
Equipment: **WB Koester:** 2 excavators, 3 bulldozers, 1 skidsteer, 1 compactor (see additional notes)

Personnel: **WB Koester:** 9 workers
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries: One skidsteer and one flat compactor for WB Koester arrived at 0730.
Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Bottom Ash Pond. See attached location drawing for more information.

Geotechnology, Inc. Rep. 9/25/2015 Date

Geotechnology, Inc. Engineer 9/29/2015 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/25/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment details: 2 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 dump truck (John Deere 400D), 1 sheepsfoot roller (CA 251), 1 skidsteer (Caterpillar 247B), 1 flat roller (CS-433E).

Graded and compacted Ash Pond A with two GPS bulldozers and one flat roller. Two excavators spread wet material to dry adjacent to the edges of Ash Pond A and brought the edges of the Ash Pond A to grade.

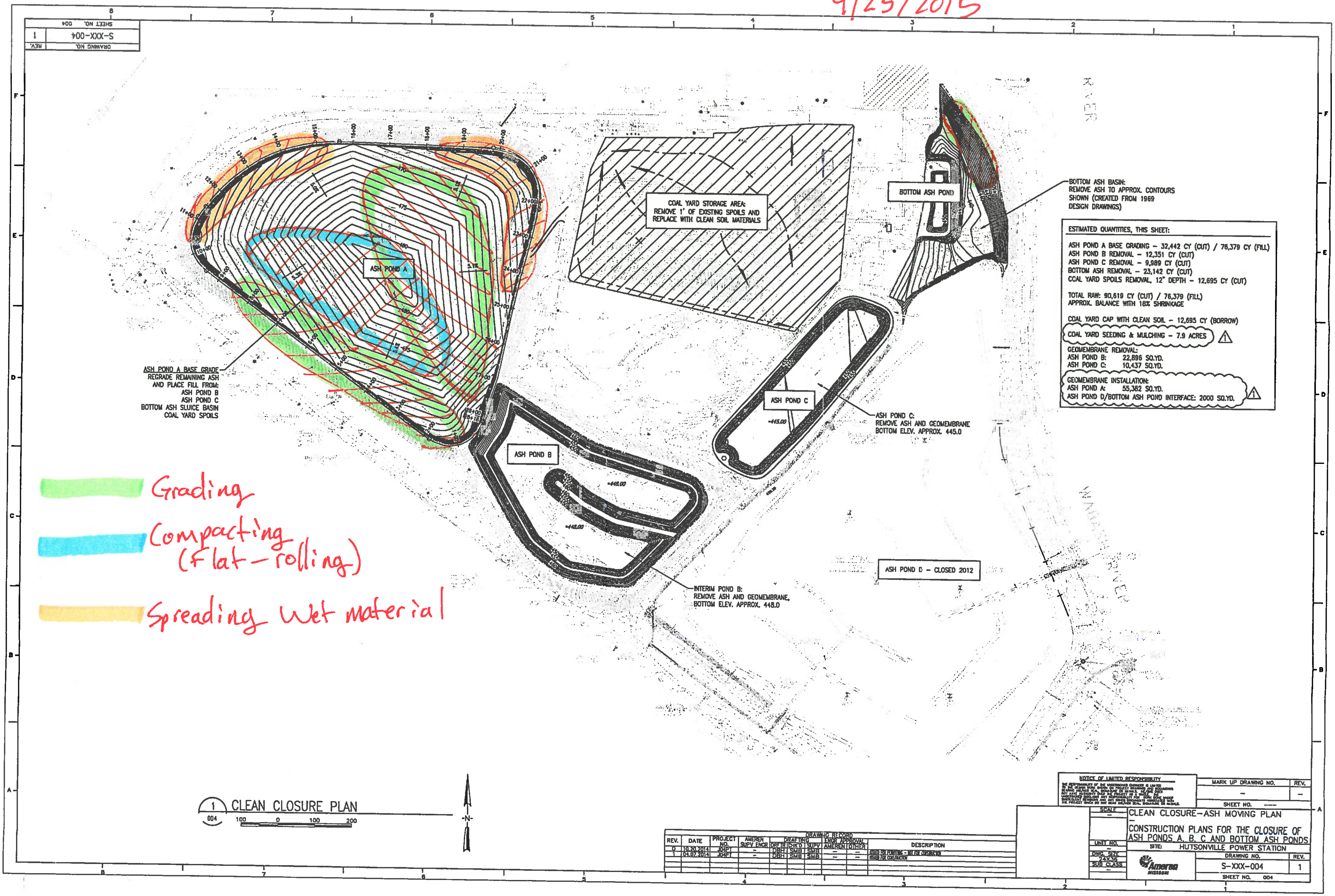
One non-GPS bulldozer removed the top two feet of the north levee at the Bottom Ash Pond and graded the Bottom Ash Pond.

Other:

At 1000, Illini's drill rig was removed from site.

Jessie Hahn (Geotechnology) took soil samples from a nearby borrow field for analysis.

9/25/2015



S-XXX-004
SHEET NO. 004
RIVER
BOTTOM ASH BASIN: REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 CY (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
BOTTOM ASH POND
COAL YARD STORAGE AREA: REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
ASH POND A
ASH POND A BASE GRADE REGRADE REMAINING ASH AND PLACE FILL FROM: ASH POND B ASH POND C BOTTOM ASH SLUICE BASIN COAL YARD SPOILS
ASH POND B
ASH POND C
ASH POND C: REMOVE ASH AND GEOMEMBRANE BOTTOM ELEV. APPROX. 445.0
INTERIM POND B: REMOVE ASH AND GEOMEMBRANE, BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
WABASH RIVER
Grading
Compacting (Flat-rolling)
Spreading Wet material
1 CLEAN CLOSURE PLAN
004
100 0 100 200
N
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
REV.
SHEET NO.
SCALE
CLEAN CLOSURE-ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
UNIT NO.
DWG. SIZE 24X36
SUB CLASS
Ameren MISSOURI
DRAWING NO.
S-XXX-004
SHEET NO. 004
DRAWING RECORD
REV. DATE PROJECT NO.
0 10.20.2014 J04PT
1 04.07.2014 J04PT
DESCRIPTION

PHOTOGRAPH LOG

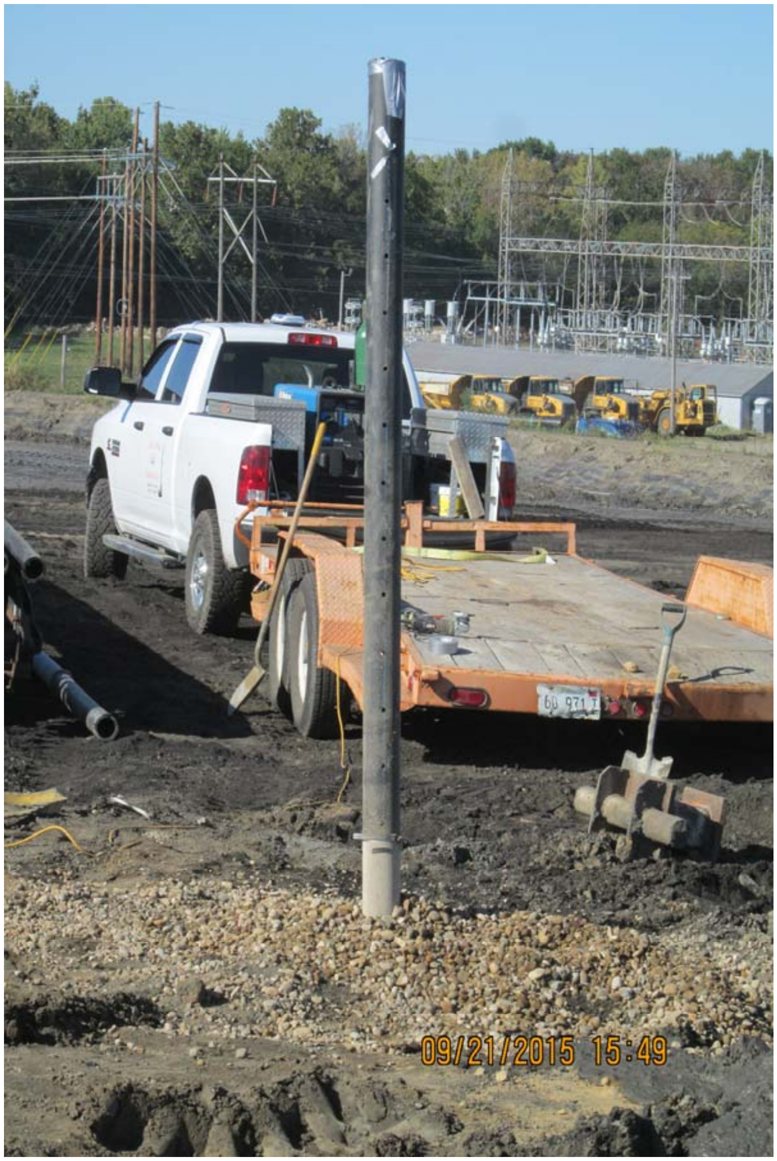
Photograph 1 ⮝ - View of vent installation at Ash Pond A, looking north.

Photograph 2 ⮝ - View of soil grading on Ash Pond A.

Photographs taken by Jessie Hahn of Geotechnology, Inc. September 21-25, 2015.

Photograph 3 ⮙ - View of anchor trench excavation at Ash Pond A, northwest embankment.

Photograph 4 ⮙ - View of gravel placement in the annular space of the vents on Ash Pond A.



Photograph 5 - View of an installed vent at Ash Pond A.

Photograph 6 ⮝ - View of HDPE geomembrane unloading.

Photograph 7 ⮝ - View of power line removal at the southeast corner of Ash Pond B.

Photograph 8 ⮙ - View of the 4-inch HDPE vent pipes enclosed in socks with centralizers for Ash Pond A.

Photograph 9 ⮙ - View of casing removal after vent placement on Ash Pond A.

Photograph 10 - View of electrical conduit trench adjacent to the southeast corner of Ash Pond B, looking south.

Photograph 11 - View of a power pole installation along the eastern bank of Ash Pond B, looking northwest.

Photographs taken by Jessie Hahn of Geotechnology, Inc. September 21-25, 2015.

Photograph 12 ⮝ - View of hydrogen tank and foundation demolition at the northwest corner of the Bottom Ash Pond.

Photograph 13 ⮝ - View of wet ash drying activities at the west corner of Ash Pond A.

Photograph 14 ⮝ - View of material removal from the southeast corner of the Bottom Ash Pond, looking southwest.

Photograph 15 ⮝ - View of material removal at the location of the former hydrogen tank (west end of the Bottom Ash Pond), looking west.

Photograph 16 ⮝ - View of wet ash drying activities at the northwest corner of Ash Pond A, looking east.

Photograph 17 ⮝ - View of Ash Pond A grading, looking west.

Photograph 18 ⮙ - View of a smooth-drum roller compacting material on Ash Pond A, looking northeast.

Photograph 19 ⮙ - View of Bottom Ash Pond grading, looking northeast.

M E M O R A N D U M

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., R.G., Ph.D.
Geotechnology, Inc.

DATE: October 13, 2015

SUBJECT: Weekly Summary Report for September 28, 2015 to October 2, 2015

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

Weather

The weather was generally cloudy. Temperature (^{O}F) lows ranged from 48 to 61^{O}F, and temperature highs ranged from 69 to 84^{O}F.

Construction Activities

Ash Pond B and the Bottom Ash Pond were graded. A levee was built in the Bottom Ash Pond for use by Brandenburg as a siltation basin.

Concrete structures in Ash Pond B and Ash Pond A were demolished and removed.

Ash Pond A was graded and compacted. The wet ash material in the corners and edges of Ash Pond A, especially the western corner, was dug out and spread to dry. Ponded water in the corners was pumped out of Ash Pond A and the wet material was spread and mixed to dry. Dry soil from the pond levees was spread over wet ash near the levees to increase stability.

The outfall structure at Ash Pond A was abandoned-in-place by encasing in concrete at both ends.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 4 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC, 1 Case CX210C, 1 Caterpillar 308E), 3 dump trucks (John Deere 400D), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 water truck (Caterpillar 623B), 1 sheepsfoot roller, 1 smooth drum roller (CS-433E), 1 skidsteer.

WB Koester had 11 employees working on site: 2 laborers, 1 mechanic, and 8 equipment operators.

Meetings

The weekly progress meeting was held on Wednesday, September 30, 2015. Refer to the meeting minutes provided by WB Koester for additional information.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Flowable fill was used to enclose both ends of the outfall structure at the southeast corner of Ash Pond A.

Testing/Sampling

Nuclear density tests were conducted at fifteen locations on Ash Pond A. See testing forms for additional information.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/28/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0900 Depart: 1630 Travel: 3.00 Total: 10.0

AM Conditions: Clear
AM Temperature: 69 F
PM Conditions: Cloudy
PM Temperature: 83 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg
Equipment: **WB Koester:** 2 excavators, 3 bulldozers, 1 flat roller, 1 skidsteer (see additional notes)

Personnel: **WB Koester:** 11 workers
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries: 12 rolls of HDPE geomembrane were delivered to the site before 0900.
12 rolls of HDPE geomembrane were delivered to the site at 1400.
Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Bottom Ash Pond. See attached location drawing for more information.

Jessie Hahn 9/28/2015
Geotechnology, Inc. Rep. Date

9/5/15
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/28/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

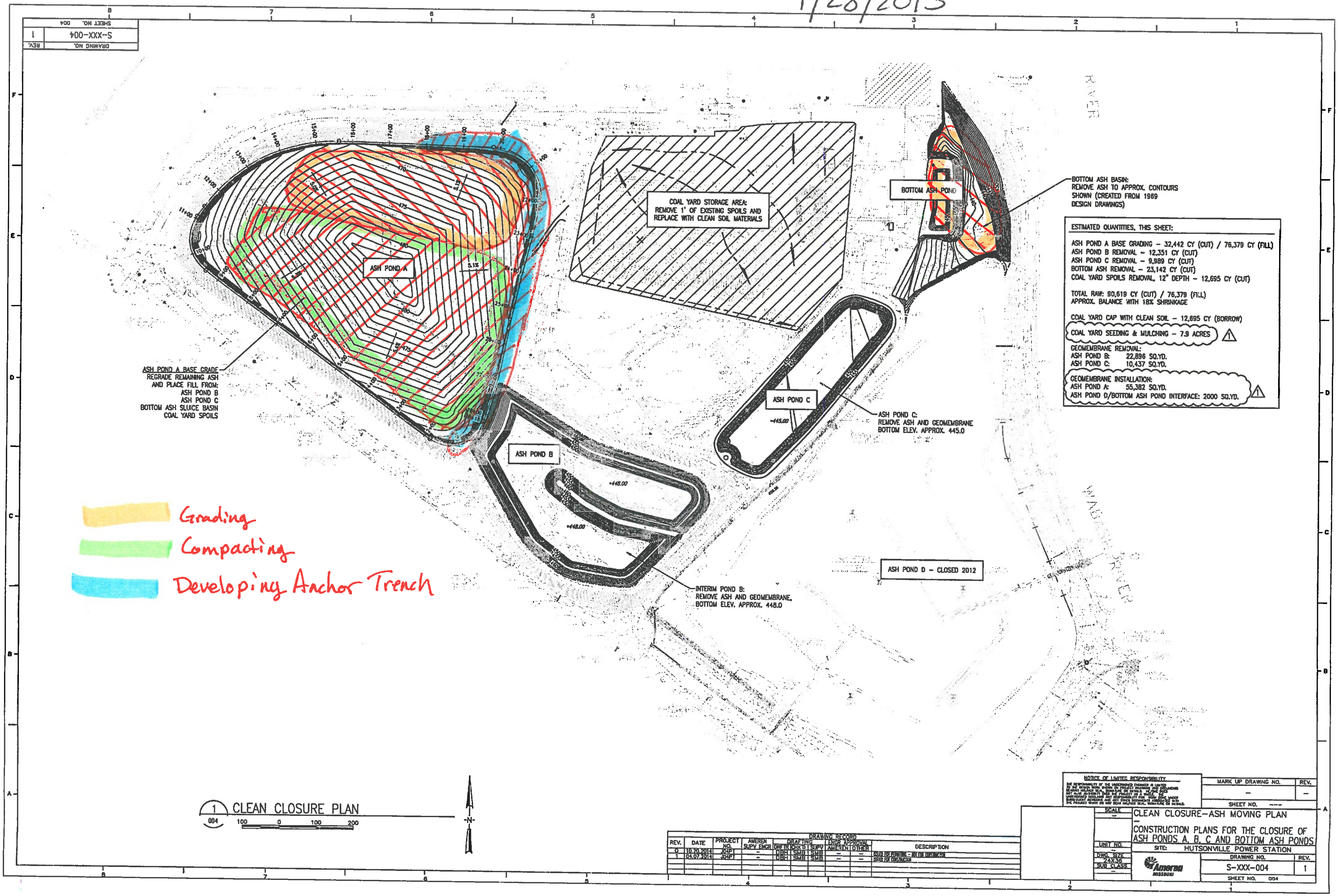
Equipment details: 2 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 flat roller (CS-433E).

Graded and compacted Ash Pond A with one GPS bulldozer and one flat roller. Two excavators developed the anchor trench adjacent to the edges of Ash Pond A and brought the edges of the Ash Pond A to grade.

One non-GPS bulldozer and one GPS bulldozer graded the Bottom Ash Pond and began building a levee partway down its length for use by Brandenburg as a siltation basin.

The skidsteer cleaned the roads at 1430. The water truck sprayed the roads to cut down on dust throughout the day.

9/28/2015



DRAWING RECORD									
REV.	DATE	PROJECT NO.	AMEREN SUPV ENGR	DRAFTING DRFTR	DRAFTING CHK'D	DRAFTING SUPV	ENGR APPROVAL AMEREN	ENGR APPROVAL OTHER	DESCRIPTION
0	10.20.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR PERMITTING – NOT FOR CONSTRUCTION
1	04.07.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR CONSTRUCTION

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/29/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0730 Depart: 1230 Travel: 0.00 Total: 8.00

AM Conditions: Cloudy, Rain – Rain Day Called 0930
AM Temperature: 67 F
PM Conditions:
PM Temperature:

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg

Equipment: **WB Koester:** 3 excavators, 3 bulldozers, 1 flat roller, 1 skidsteer (see additional notes)

Personnel: **WB Koester:** 11 workers

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries: One Case CX210C excavator arrived on site at 0800.

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B, Bottom Ash Pond. See attached location drawing for more information.

Jessie Hahn 9/29/15
Geotechnology, Inc. Rep. Date

10/5/15
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/29/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester: Rain day – Left site at 0930.

Equipment details: 3 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC, 1 Case CX210C), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 flat roller (CS-433E).

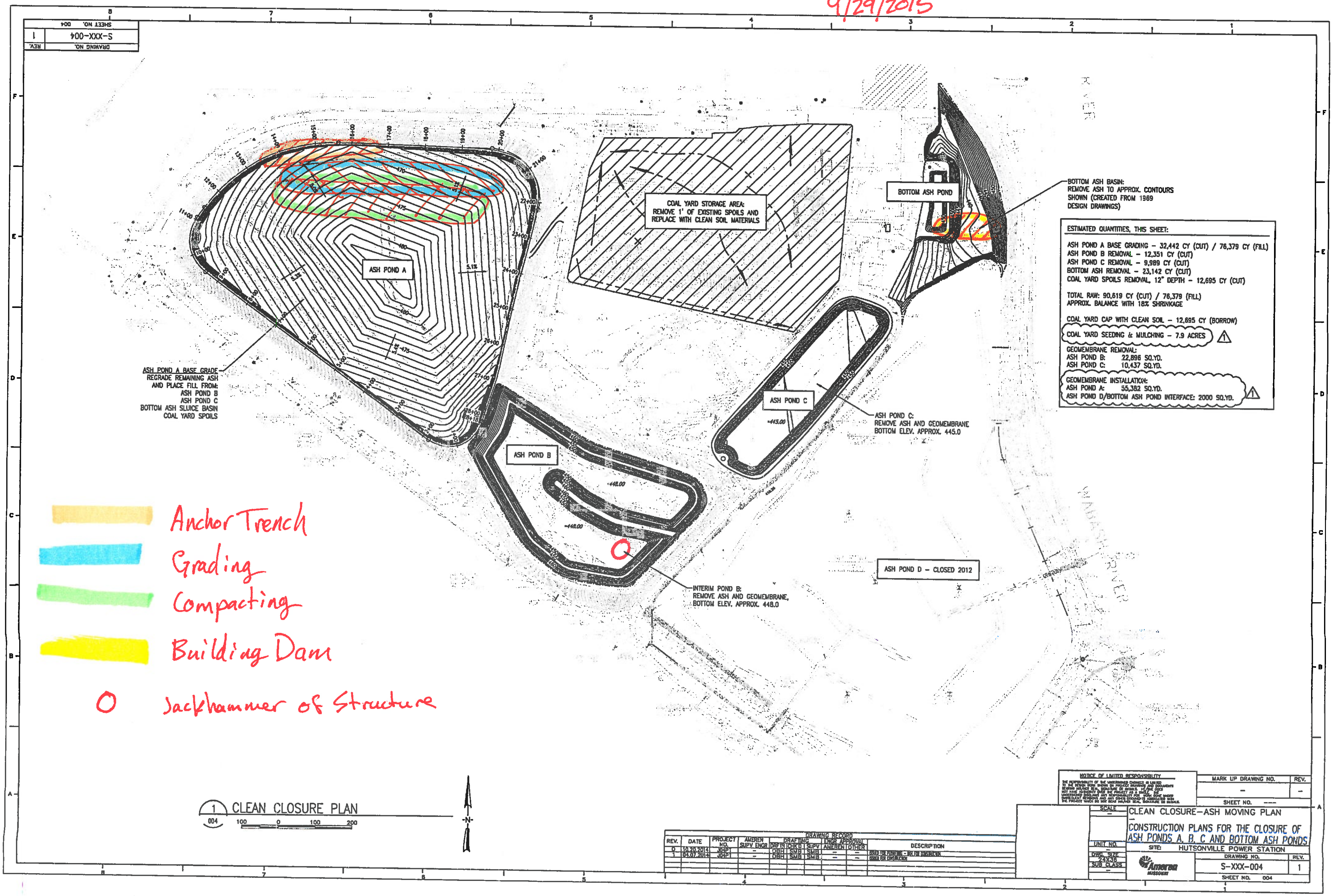
Graded and compacted Ash Pond A with one GPS bulldozer and one flat roller. Two excavators developed the anchor trench adjacent to the edges of Ash Pond A and brought the edges of the Ash Pond A to grade.

One non-GPS bulldozer and one GPS bulldozer graded the Bottom Ash Pond and continued building a levee partway down its length for use by Brandenburg as a siltation basin.

One Case excavator with a jackhammer attachment was delivered to the site. The jackhammer was used to break up the large concrete structure remaining in Ash Pond B.

The skidsteer was used to clean the roads.

9/29/2015


S-XXX-004
SHEET NO. 004
COAL YARD STORAGE AREA:
REMOVE 1' OF EXISTING SPOILS AND
REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH POND
BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS
SHOWN (CREATED FROM 1969
DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH
AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
ASH POND C
ASH POND C:
REMOVE ASH AND GEOMEMBRANE
BOTTOM ELEV. APPROX. 445.0
ASH POND B
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
Anchor Trench
Grading
Compacting
Building Dam
Jackhammer of Structure
CLEAN CLOSURE PLAN
004
100 0 100 200
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
REV.
SHEET NO.
SCALE
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
UNIT NO.
DWG. SIZE 24X36
SUB CLASS
Ameren MISSOURI
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
DRAWING RECORD
REV. | DATE | PROJECT NO. | AMEREN SUPV ENGR | DRAFTING DRFTR CHK'D SUPV | ENGR APPROVAL AMEREN OTHER | DESCRIPTION
0 | 10.20.2014 | J04P1 | – | DBH SMB SMB | – – | ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION
1 | 04.07.2014 | J04P1 | – | DBH SMB SMB | – – | ISSUED FOR CONSTRUCTION

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 9/30/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0715 Depart: 1545 Travel: 0.00 Total: 8.00

AM Conditions: Clear
AM Temperature: 63 F
PM Conditions: Clear
PM Temperature: 71 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg

Equipment: **WB Koester:** 3 excavators, 3 bulldozers, 1 flat roller, 1 skidsteer (see additional notes)
Earth Images: 1 trencher

Personnel: **WB Koester:** 11 workers, **Earth Images:** 4 workers

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B, Bottom Ash Pond. See attached location drawing for more information.

Jessie Hahn 9/30/15
Geotechnology, Inc. Rep. Date

Geotechnology, Inc. Engineer 10/5/15
Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT DATE: 9/30/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment details: 3 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC, 1 Case CX210C), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 flat roller (CS-433E).

One excavator developed the anchor trench adjacent to the edges of Ash Pond A in the morning.

Water was pumped from the western corner of Ash Pond A in the morning.

One non-GPS bulldozer finished building a levee partway down its length for use by Brandenburg as a siltation basin. This was completed around 0800.

One GPS bulldozer and one non-GPS bulldozer graded Ash Pond B.

One excavator with a jackhammer attachment was used to break up the large concrete structure remaining in Ash Pond B. One excavator was used to remove the structure.

Two excavators (one with a jackhammer attachment) were used to break up and remove stabilized levee soil at the western corner of Ash Pond A to facilitate draining and drying of the ash.

Four sawcuts (at two locations) were made in the asphalt near the northern corner of Ash Pond A for future installation of HDPE culverts.

The skidsteer was used to clean the roads. The water truck sprayed the roads throughout the day.

Earth Images:

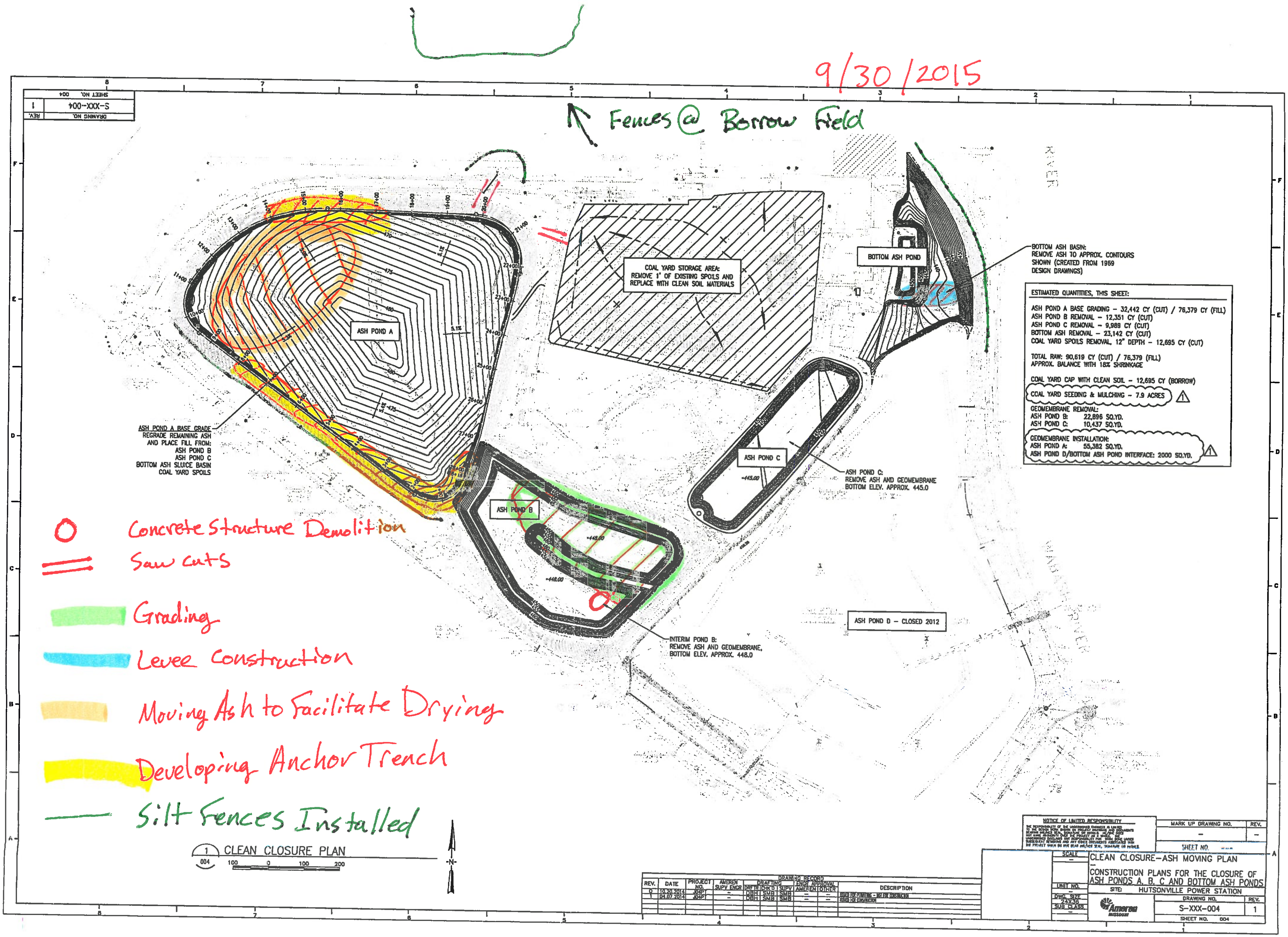
Silt fences were installed at the locations indicated on the attached work areas map.

Other:

The manlift used by the electricians was removed from site.

The weekly progress meeting was held at 0900. See the meeting minutes for additional details.

9/30/2015


Fences @ Borrow Field
COAL YARD STORAGE AREA: REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH POND
BOTTOM ASH BASIN: REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
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TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
ASH POND A
ASH POND A BASE GRADE REGRADE REMAINING ASH AND PLACE FILL FROM: ASH POND B ASH POND C BOTTOM ASH SLUICE BASIN COAL YARD SPOILS
ASH POND B
ASH POND C
ASH POND C: REMOVE ASH AND GEOMEMBRANE, BOTTOM ELEV. APPROX. 445.0
INTERIM POND B: REMOVE ASH AND GEOMEMBRANE, BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
Concrete Structure Demolition
Saw cuts
Grading
Levee Construction
Moving Ash to Facilitate Drying
Developing Anchor Trench
Silt Fences Installed
1 CLEAN CLOSURE PLAN 004
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
REV.
SHEET NO.
SCALE
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
UNIT NO.
DWG. SIZE 24X36
SUB CLASS
Ameren MISSOURI
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004

Weekly Progress Meeting

Meeting Minutes

Date: 9-30-15

Attendees:

Ameren: Don Shaver, Mike Wagstaff , Ken Beckman, John Patterson, Tim Free

WB Koester: Chris Atkinson, Bob Fisher, Greg Head, Mike Rexing

Geotechnology, Inc.: Jessie Hahn, Vince Epps, Anna Saindon

Topics:

Safety/Housekeeping

- No issues
- Chris cleaned roads sufficient last week.
- Make sure to wash and scrape the parking lot each Friday and as necessary.

Manpower

- Man hours
  - Start of Job (4-27-15) through 9-28-15
    - Total = 8042 hrs.
- Next week expected manpower
  - WBK = 1 superintendent, 1 mechanic, 6 operators, 2 laborer, 1 teamster
  - 10 hrs days approx.

Review old minutes and action items

- Mike Smallwood with Ameren completed and submitted SWPPP plan for farm field on Monday/Tuesday. LAMAC supplied drawing of erosion control features. Mike W. says it is fine to install silt fence and construction entrance while we wait for the 30 day review period to take place.

Material Issues

- No issues

Quality Control Issues

- No issues

Schedule Compliance

- Liner roll off boxes and disposal on going.
- WBK is continuing to shape pond A subgrades and placing ash in Pond A.
- No more ash from site is expected to be brought to pond A.
- National Lining Systems moved to October 12th to start liners, weather permitting. All liner has been delivered to site.
- Brandenberg Divers on site this week to begin pumping, waiting on a guard but they will try to dive today. WBK has built berm for the retention pond for them. Brandenberg installed piping. WBK to keep pump on site to pump water to pond b outlet. Silt in detention pond will remain in place at end.
- WBK met with Mike W. to discuss changes to design in Pond B, C and Bottom ash pond. Bob to send revised Auto Cad files to Mike to review (possibly with Hanson). Excess soil from Pond B and Bottom ash pond levee will be used to seal off Bottom ash pond base, and cover Pond C slopes and coal yard
- Goal is to try and get some seeding completed ASAP and cover the areas that require turf mat ASAP as well. Will have to discuss with Brandenberg to determine how much of coal yard they will use as a laydown area and we will not seed that area.
- 1" of rain at site on Tuesday. Pumping water out of Pond A to help dry it out. Many rills in previously smooth drum rolled areas that will have to be re-rolled.
- Pond A SW corner is still soft. Discussed lime addition. Anna says that the 1' clean separation layer (ie. ash not mixed with lime) would apply to the top HDPE as well as the existing HDPE. WB Koester to visit site after meeting and determine plan of action to treat the ash in SW corner. (Note: WB Koester has decided to undercut the soft areas in SW corner and spread them over Pond A to dry. Replace with a bridge lift of drier ash from pond A and test compaction. Will check on availability of lime as well as a back up plan.) Update all

on schedule for completion of Pond A (for testing and surveying) as soon as we see how the SW corner work is progressing.

- Chris saw cut the entrance road and access road where the new pipe installations will be. Will not remove until ready to install pipe. Possibly next week.
- Chris demolishing structures in Pond A and B today. Will plug structure and pipe in Pond A this week.
- Silt fence installation around Bottom ash pond berm outlet and farm field borrow area taking place today (Earth Images is subcontractor installing)

Cost and Budget Control

- None discussed.

Next Meeting Scheduled: October 7, 2015 at 9:00 CST

Action Items

- Bob Fisher
  - Send Mike W. AutoCads of Pond B, C and Bottom ash pond proposed re-design
  - Update all with schedule after SW corner work starts and progress and be projected.
- Mike Wagstaff – n/a
- Don Shaver
  - Take pictures during structure demolitions for records.
- Chris Atkinson – make sure roads are cleaned regularly

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/01/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0730 Depart: 1600 Travel: 0.00 Total: 8.00

AM Conditions: Clear AM Temperature: 60 F
PM Conditions: Clear, Windy PM Temperature: 70 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg
Equipment: **WB Koester:** 4 excavators, 3 bulldozers, 1 skidsteer, 1 haul truck (see notes)

Personnel: **WB Koester:** 11 workers
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries: 1 Caterpillar 308E Excavator

Testing: Jessie Hahn (Geotechnology) conducted nuclear density tests at 15 locations on Ash Pond A. One location failed.

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B. See attached location drawing for more information.

10/1/2015
Geotechnology, Inc. Rep. Date

10/5/15
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/01/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment details: 4 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC, 1 Case CX210C, 1 Caterpillar 308E), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 flat roller (CS-433E), 1 skidsteer.

Water was pumped from the northern corner of Ash Pond A in the morning and the southeast corner in the afternoon.

One non-GPS bulldozer graded Ash Pond B in the morning.

Two excavators (one with a jackhammer attachment) were used to demo the outfall structure at the southeast corner of Ash Pond A and another concrete structure along the northeast wall of Ash Pond A.

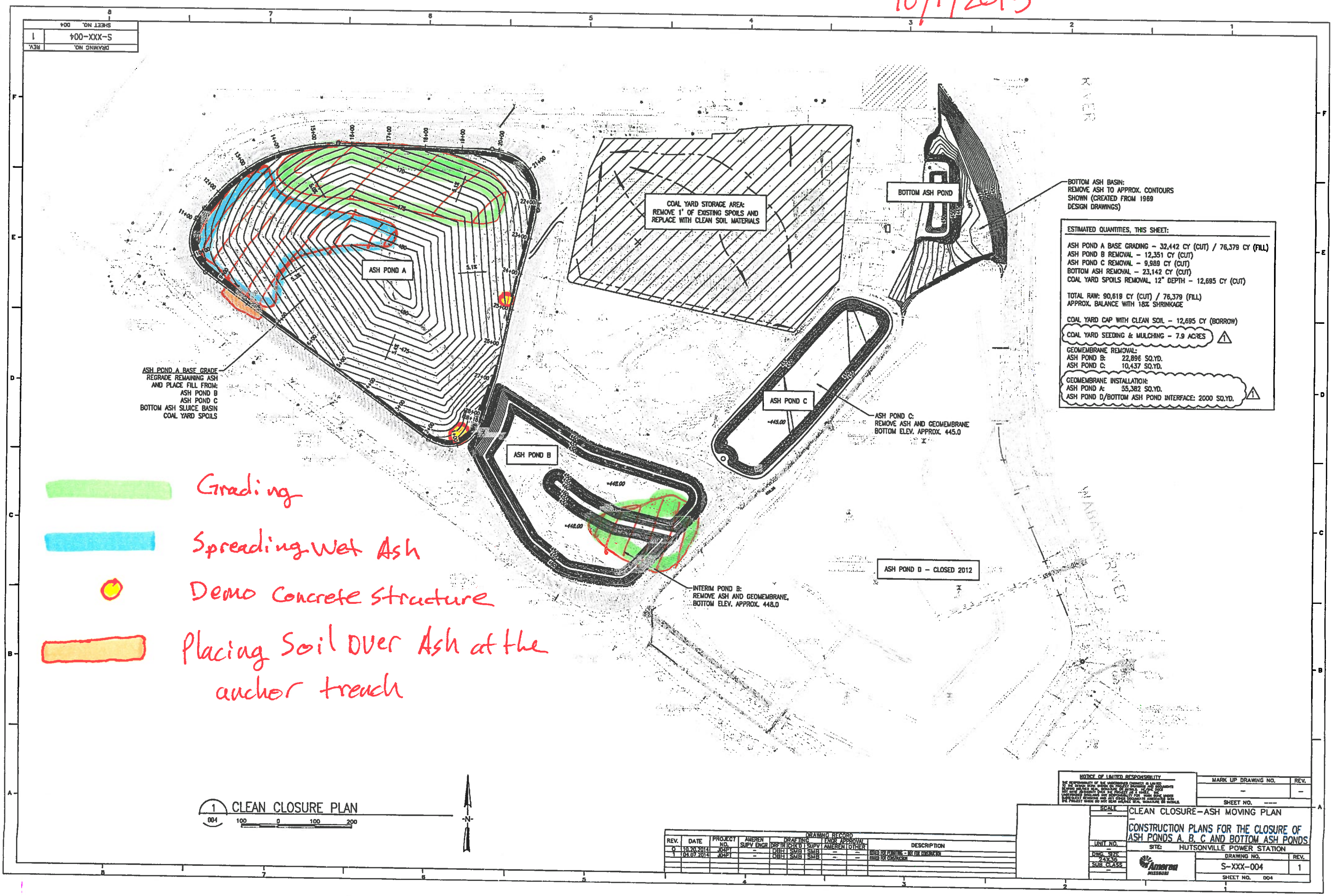
Various pieces of equipment moved, mixed, and spread ash on Ash Pond A to promote drying, including three bulldozers, three excavators, and a dump truck at different times throughout the day.

One small excavator (Caterpillar 308E) was used to place loose soil over ash at the anchor trenches.

One GPS bulldozer graded Ash Pond A.

The skidsteer was used to clean the roads.

10/1/2015


DRAWING NO. S-XXX-004 REV. 1 SHEET NO. 004
COAL YARD STORAGE AREA: REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH POND
BOTTOM ASH BASIN: REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
ASH POND A
ASH POND A BASE GRADE REGRADE REMAINING ASH AND PLACE FILL FROM: ASH POND B ASH POND C BOTTOM ASH SLUICE BASIN COAL YARD SPOILS
ASH POND B
ASH POND C
ASH POND C: REMOVE ASH AND GEOMEMBRANE BOTTOM ELEV. APPROX. 445.0
INTERIM POND B: REMOVE ASH AND GEOMEMBRANE, BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
Grading
Spreading Wet Ash
Demo Concrete Structure
Placing Soil over Ash at the anchor trench
1 CLEAN CLOSURE PLAN 004
100 0 100 200
N
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO. – REV. –
SHEET NO. ---
SCALE –
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
UNIT NO. –
DWG. SIZE 24X36
SUB CLASS –
Ameren MISSOURI
DRAWING NO. S-XXX-004 REV. 1
SHEET NO. 004
DRAWING RECORD
REV. DATE PROJECT NO. AMEREN SUPV ENGR DRAFTING DRFTR CHK'D SUPV ENGR APPROVAL AMEREN OTHER DESCRIPTION
0 10.20.2014 J04PT – DBH SMB SMB – –
1 04.07.2014 J04PT – DBH SMB SMB – –

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/02/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0730 Depart: 1400 Travel: 0.00 Total: 8.00

AM Conditions: Cloudy AM Temperature: 56 F
PM Conditions: Partly Cloudy PM Temperature: 70 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg
Equipment: **WB Koester:** 4 excavators, 3 bulldozers, 1 skidsteer, 1 haul truck (see notes)

Personnel: **WB Koester:** 11 workers
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Concrete
Deliveries: 1 Hyundai 290 Excavator

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B. See attached location drawing for more information.

Jessie Hahn 10/02/2015
Geotechnology, Inc. Rep. Date

10/5/15
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/02/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment details: 4 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC, 1 Case CX210C, 1 Caterpillar 308E), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 flat roller (CS-433E), 1 haul truck (John Deer 400D), 1 skidsteer.

Water was pumped from the western corner of Ash Pond A in the morning.

Various pieces of equipment moved, mixed, and spread ash on Ash Pond A to promote drying, including three bulldozers, three excavators, and a dump truck throughout the day.

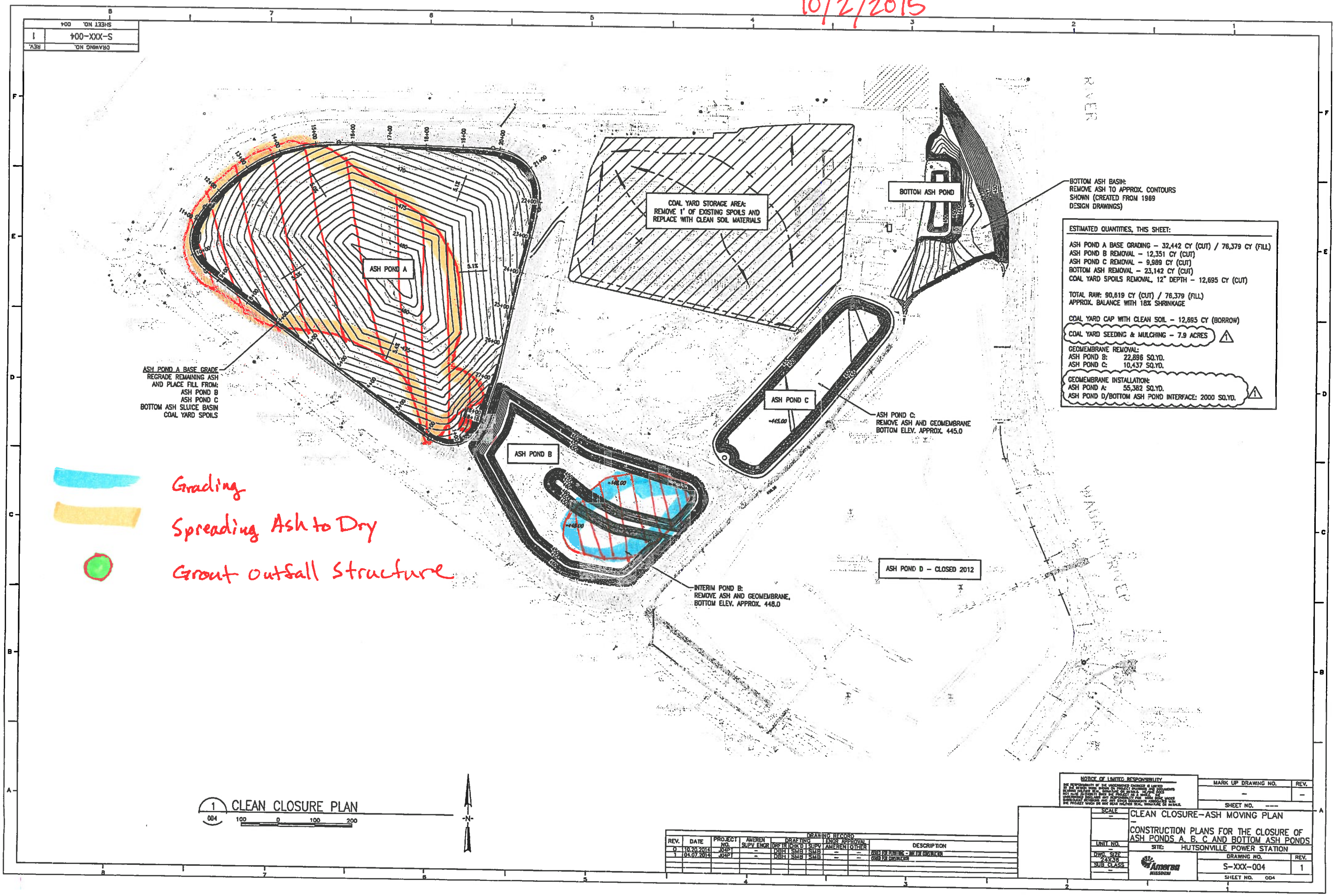
One excavator was used to place loose soil over ash at the anchor trenches.

The outfall structure at Ash Pond A was grouted with concrete at 1030. The structure was grouted from the top and bottom.

One GPS bulldozer graded Ash Pond B in the afternoon.

The skidsteer was used to clean the roads. The water truck sprayed the roads to keep the dust down.

10/2/2015


S-XXX-004
SHEET NO. 004
ASH POND A
ASH POND B
ASH POND C
BOTTOM ASH POND
ASH POND D – CLOSED 2012
COAL YARD STORAGE AREA: REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH BASIN: REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
ASH POND A BASE GRADE REGRADE REMAINING ASH AND PLACE FILL FROM: ASH POND B ASH POND C BOTTOM ASH SLUICE BASIN COAL YARD SPOILS
ASH POND C: REMOVE ASH AND GEOMEMBRANE BOTTOM ELEV. APPROX. 445.0
INTERIM POND B: REMOVE ASH AND GEOMEMBRANE, BOTTOM ELEV. APPROX. 448.0
RIVER
WABASH RIVER
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
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GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
Grading
Spreading Ash to Dry
Grout outfall Structure
1 CLEAN CLOSURE PLAN 004
100 0 100 200
N
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO. –
REV. –
SHEET NO. ---
SCALE –
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
UNIT NO. –
DWG. SIZE 24X36
SUB CLASS –
SITE: HUTSONVILLE POWER STATION
Ameren MISSOURI
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
DRAWING RECORD
REV. | DATE | PROJECT NO. | AMEREN SUPV ENGR | DRAFTING DRFTR | CHK'D | SUPV | ENGR APPROVAL AMEREN | OTHER | DESCRIPTION
0 | 10.20.2014 | J04PT | – | DBH | SMB | SMB | – | – | ISSUED FOR PERMITTING – NOT FOR CONSTRUCTION
1 | 04.07.2014 | J04PT | – | DBH | SMB | SMB | – | – | ISSUED FOR CONSTRUCTION

PHOTOGRAPH LOG

Photograph 1 ⮝ - View of Bottom Ash Pond grading, looking east.

Photograph 2 ⮝ - View of smooth drum roller compacting Ash Pond A, looking north.

Photographs taken by Jessie Hahn of Geotechnology, Inc. between 9-28 and 10-2-15.

Photograph 3 ⮝ - View of anchor trench excavation on the east edge of Ash Pond A, looking southeast.

Photograph 4 ⮝ - View of Ash Pond A grading, looking north.

Photograph 5 ⮙ - View of the western side of Ash Pond A, looking west, showing the smooth-rolled top of Ash Pond A and the wet ash in the western corner of Ash Pond A.

Photograph 6 ⮙ - View of the western corner of Ash Pond A, looking north, showing wet condition.

Photographs taken by Jessie Hahn of Geotechnology, Inc. between 9-28 and 10-2-15.

Photograph 7 ⮝ - View of the siltation levee at the Bottom Ash Pond nearing completion.

Photograph 8 ⮝ - Typical view of smooth-rolled portions of Ash Pond A after rain, showing rill development.

Photograph 9 ⮝ - View of southeast corner of Ash Pond A after rain, showing ponded water.

Photograph 10 ⮝ - View of western corner of Ash Pond A after rain, showing ponded water.

Photograph 11 ⮝ - View of northern corner of Ash Pond A after rain, showing ponded water.

Photograph 12 ⮝ - View of road sawcuts for HDPE culvert installation.

Photograph 13 ⮝ - View of silt fence installed south of Ash Pond A.

Photograph 14 ⮝ - View of grading and structure demolition activity in Ash Pond B.

Photograph 15 ⮝ - View of liner demolition and anchor trench construction at the southeast corner of Ash Pond A.

Photograph 16 ⮝ - View of water pumped into siltation basin in the Bottom Ash Pond.

Photographs taken by Jessie Hahn of Geotechnology, Inc. between 9-28 and 10-2-15.

Photograph 17 ⮝ - View of placing dry soil to bridge over wet ash at the west corner of Ash Pond A.

Photograph 18 ⮝ - View of dumping wet ash to be spread and dried.

Photograph 19 ⮝ - View of excavators removing ash and placing dry soil at the western corner of Ash Pond A.

Photograph 20 ⮝ - View of Ash Pond A outfall structure abandonment-in-place.

Photograph 21 ⮝ - View of concrete placement to plug the Ash Pond A outfall pipe.

Photograph 22 ⮝ - View of saturated ash level at the western corner of Ash Pond A.

M E M O R A N D U M

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., R.G., Ph.D.
Geotechnology, Inc.

DATE: October 15, 2015

SUBJECT: Weekly Summary Report for October 5, 2015 to October 09, 2015

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

Weather

The weather was generally cloudy. Temperature (^{O}F) lows ranged from 51 to 55^{O}F, and temperature highs ranged from 67 to 80^{O}F.

Construction Activities

Ash Pond A was shaped, graded, and compacted. Ponded water in the corners was pumped out of Ash Pond A. The edges of Ash Pond A were cleaned and shaped.

Excess soil was moved from Ash Pond B to the Coal Yard. Ash Pond B and the Coal Yard were graded.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 4 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC, 1 Caterpillar 308E), 3 dump trucks (John Deere 400D), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 water truck (Caterpillar 623B), 1 sheepsfoot roller (CA251), 1 smooth drum roller (CS-433E), and 1 skidsteer.

WB Koester had 16 employees working on site: 7 laborers, 1 mechanic, and 8 equipment operators.

Meetings

The weekly progress meeting was held on Wednesday, October 7, 2015. Refer to the meeting minutes for additional information.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Excess soil from Ash Pond B was placed in the Coal Yard.

Testing/Sampling

Moisture/density tests were conducted at sixty locations on Ash Pond A by Jessie Hahn of Geotechnology. Refer to testing forms for additional information.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/05/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0830 Depart: 1600 Travel: 3.00 Total: 10.00

AM Conditions: Clear AM Temperature: 69 F
PM Conditions: Clear PM Temperature: 78 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg
Equipment: **WB Koester:** 3 excavators, 2 bulldozers, 1 skidsteer, 2 compactors, 1 haul truck (see notes)

Personnel: **WB Koester:** 16 workers
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B. See attached location drawing for more information.

Jessie Hahn 10/5/15
Geotechnology, Inc. Rep. Date

[signature] 10/12/15
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/05/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

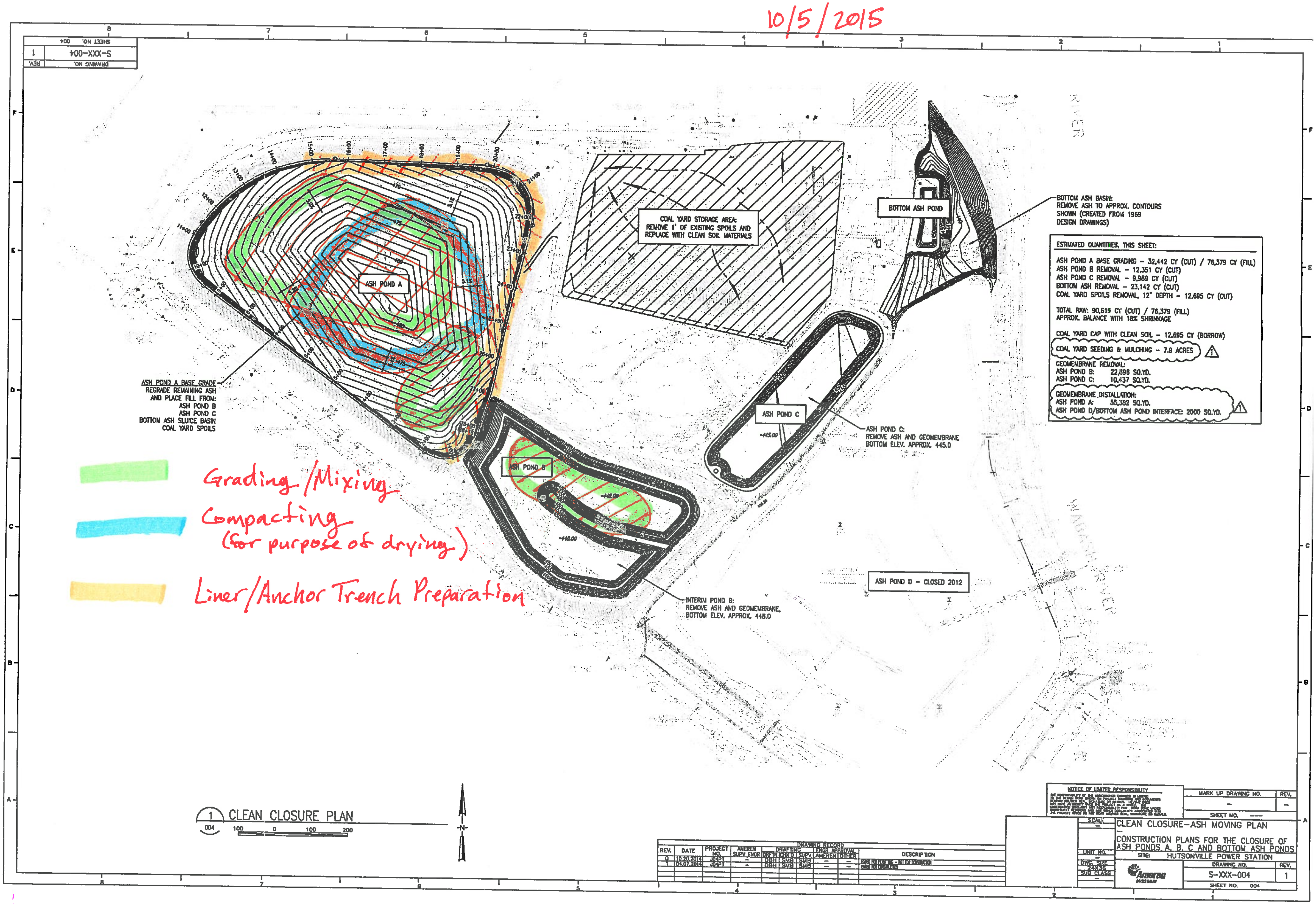
Equipment details: 4 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC, 1 Case CX210C, 1 Caterpillar 308E), 2 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 smooth roller (CS-433E), 1 haul truck (John Deer 400D), 1 skidsteer.

In the morning water was pumped from the western corner of Ash Pond A. Two excavators removed wet material and replaced it with loose, dry soil. A smooth drum roller compacted the placed soil.

Two bulldozers graded the wet ash on Ash Pond A. One sheepsfoot roller compacted ash on Ash Pond A in the afternoon. One GPS bulldozer graded Ash Pond B.

Three excavators exposed the HDPE liner and moved soil in preparation for the new HDPE liner and anchor trench at the Ash Pond A levees. Laborers repaired tears in the lower HDPE liner.

The skidsteer was used to clean the roads. The water truck sprayed the roads to keep the dust down.


10/5/2015
S-XXX-004
COAL YARD STORAGE AREA: REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH POND
BOTTOM ASH BASIN: REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
ASH POND B
ASH POND C
ASH POND C: REMOVE ASH AND GEOMEMBRANE BOTTOM ELEV. APPROX. 445.0
ASH POND D – CLOSED 2012
INTERIM POND B: REMOVE ASH AND GEOMEMBRANE, BOTTOM ELEV. APPROX. 448.0
Grading/Mixing
Compacting (for purpose of drying)
Liner/Anchor Trench Preparation
1 CLEAN CLOSURE PLAN
004
100 0 100 200
N
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
REV.
SHEET NO.
SCALE
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
UNIT NO.
DWG. SIZE 24X36
SUB CLASS
Ameren MISSOURI
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
DRAWING RECORD
REV. DATE PROJECT NO. AMEREN SUPV ENGR DRAFTING DRFTR CHK'D SUPV ENGR APPROVAL AMEREN OTHER DESCRIPTION
0 10.20.2014 J04P1 DBH SMB SMB
1 04.07.2014 J04P1 DBH SMB SMB

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/06/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jessie Hahn
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0730 Depart: 1600 Travel: 0.00 Total: 8.00

AM Conditions: Foggy and cloudy
AM Temperature: 63 F
PM Conditions: Clear
PM Temperature: 77 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg

Equipment: **WB Koester:** 3 excavators, 2 bulldozers, 1 skidsteer, 2 compactors, 1 haul truck (see notes)

Personnel: **WB Koester:** 16 workers

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B. See attached location drawing for more information.

Jessie Hahn 10/6/15
Geotechnology, Inc. Rep. Date

[signature] 10/12/15
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/06/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment details: 4 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC, 1 Case CX210C, 1 Caterpillar 308E), 2 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 smooth roller (CS-433E), 1 haul truck (John Deer 400D), 1 skidsteer.

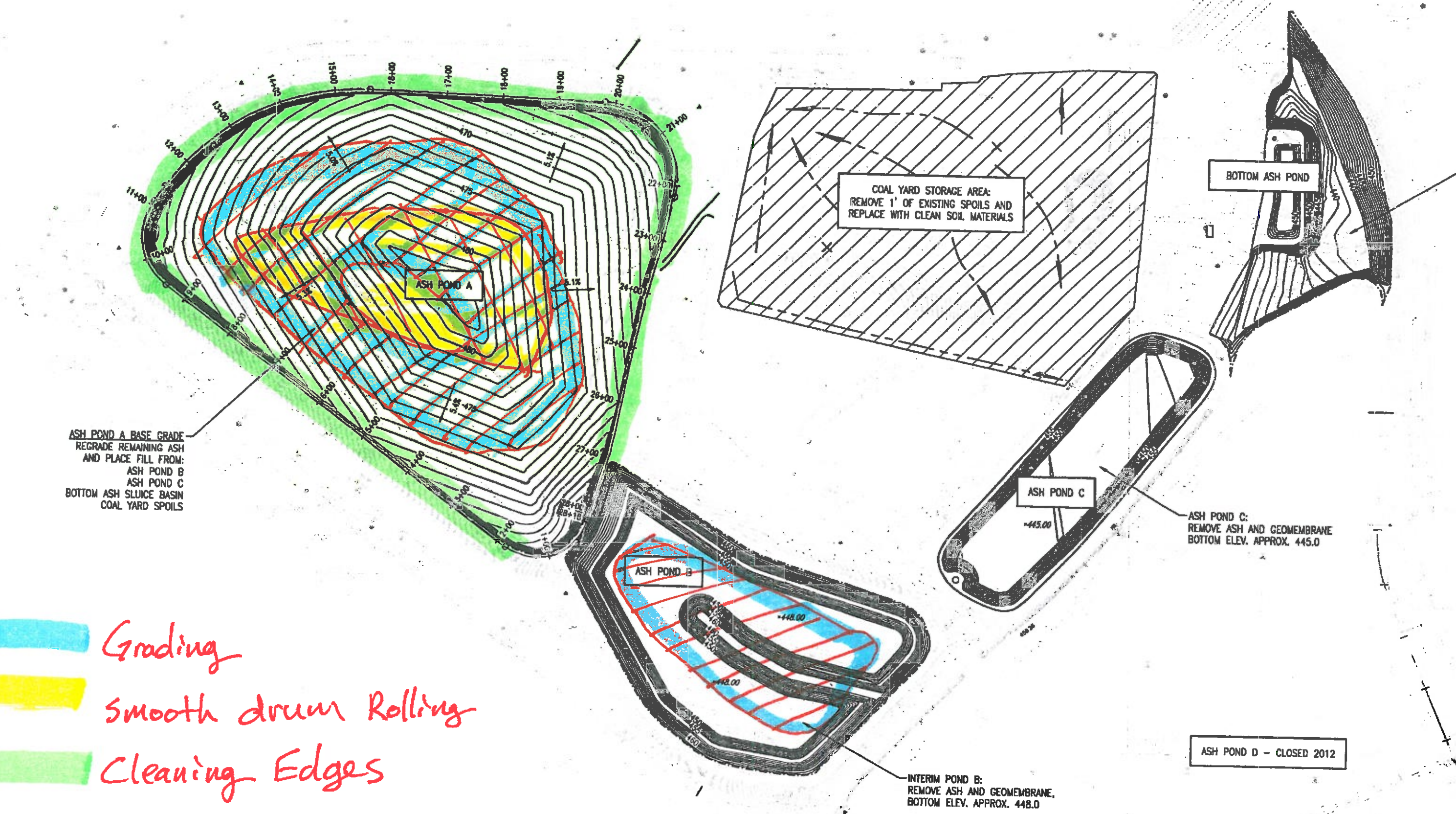
One GPS bulldozer graded the wet ash on Ash Pond A. One smooth drum roller compacted ash on Ash Pond A.

Three excavators exposed the HDPE liner and moved soil in preparation for the new HDPE liner and anchor trench at the Ash Pond A levees. Laborers repaired tears in the lower HDPE liner. The skidsteer was used to clean the lower geomembrane.

One GPS bulldozer graded Ash Pond B.

The water truck sprayed the roads to keep the dust down.

10/6/2015



BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS
SHOWN (CREATED FROM 1969
DESIGN DRAWINGS)

ESTIMATED QUANTITIES, THIS SHEET:

ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)

TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE

COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES 1

GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.

GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD. 1

1 CLEAN CLOSURE PLAN
004

100 0 100 200

N

REV.	DATE	PROJECT NO.	AMEREN SUPV ENGR	DRFTR	CHK'D	SUPV	AMEREN	OTHER	DESCRIPTION
0	10.20.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR PERMITTING – NOT FOR CONSTRUCTION
1	04.07.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR CONSTRUCTION

NOTICE OF LIMITED RESPONSIBILITY

MARK UP DRAWING NO. – REV. –
SHEET NO. ---

SCALE –
UNIT NO. –
DWG. SIZE 24X36
SUB CLASS –

CLEAN CLOSURE–ASH MOVING PLAN
–
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION

Ameren MISSOURI

DRAWING NO. S-XXX-004 REV. 1
SHEET NO. 004

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/07/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0700 Depart: 1600 Travel: 0.00 Total: 8.50

AM Conditions: Foggy, Clear by 0830 AM Temperature: 60 F

PM Conditions: Clear PM Temperature: 74 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg

Equipment: **WB Koester:** 4 excavators, 2 bulldozers, 1 skidsteer, 2 compactors, 1 haul truck (see notes)

Personnel: **WB Koester:** 16 workers

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing: Jessie Hahn (Geotechnology) conducted nuclear density tests at 17 locations on Ash Pond A. All tested locations passed.

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B. See attached location drawing for more information.

Jessie Hahn 10/7/15
Geotechnology, Inc. Rep. Date

10/12/15
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/07/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment details: 4 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC, 1 Case CX210C, 1 Caterpillar 308E), 2 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 smooth roller (CS-433E), 1 haul truck (John Deer 400D), 1 skidsteer.

Two GPS bulldozers graded Ash Pond A. One smooth drum roller compacted Ash Pond A.

Three excavators moved and shaped soil in preparation for the new HDPE liner and anchor trench at the Ash Pond A levees. Laborers repaired tears in the lower HDPE liner. The skidsteer was used to clean the lower geomembrane.

Laborers and the skidsteer removed deleterious material from smooth-rolled portions of Ash Pond A.

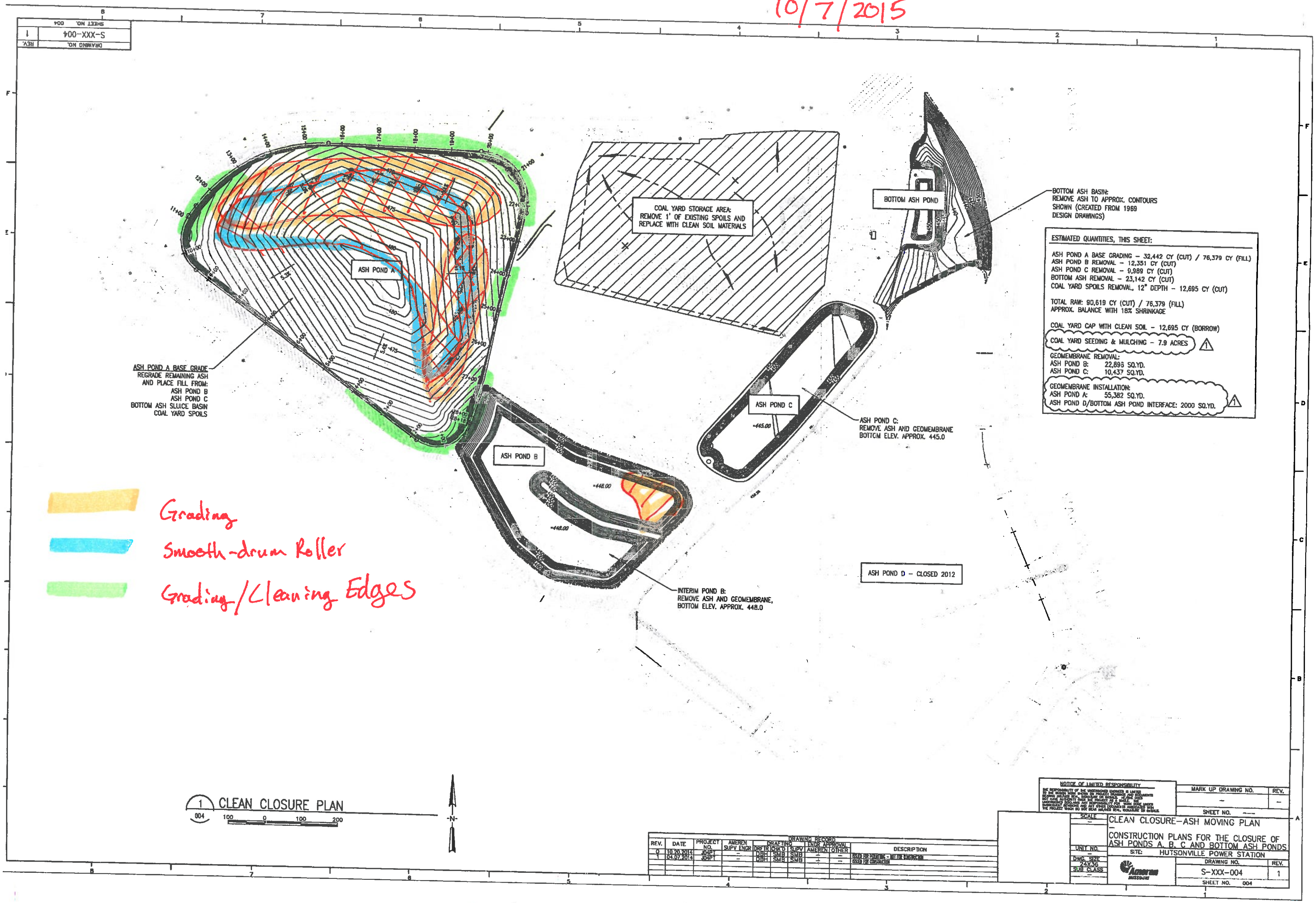
In the late afternoon, one GPS bulldozer graded the northeast corner of Ash Pond B.

The water truck sprayed the roads to keep the dust down.

Other:

The weekly progress meeting was held at 0900. See the meeting minutes for additional details.

10/7/2015


SHEET NO. 004
S-XXX-004
DRAWING NO.
REV.
1
ASH POND A
COAL YARD STORAGE AREA:
REMOVE 1' OF EXISTING SPOILS AND
REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH POND
BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS
SHOWN (CREATED FROM 1969
DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
ASH POND A BASE GRADE
REGRADE REMAINING ASH
AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
ASH POND B
ASH POND C
ASH POND C:
REMOVE ASH AND GEOMEMBRANE
BOTTOM ELEV. APPROX. 445.0
ASH POND D – CLOSED 2012
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 448.0
Grading
Smooth-drum Roller
Grading/Cleaning Edges
1 CLEAN CLOSURE PLAN
004
100 0 100 200
N
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
SHEET NO.
SCALE
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF
ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
UNIT NO.
DWG. SIZE
24X36
SUB CLASS
Ameren
MISSOURI
DRAWING NO.
S-XXX-004
REV.
1
SHEET NO. 004
DRAWING RECORD
REV. DATE PROJECT NO. AMEREN SUPV ENGR DRAFTING DRFTR CHK'D SUPV ENGR APPROVAL AMEREN OTHER DESCRIPTION
0 10.20.2014 J04PT – DBH SMB SMB – –
1 04.07.2014 J04PT – DBH SMB SMB – –

Weekly Progress Meeting

Meeting Minutes

Date: 10-7-15

Attendees:

Ameren: Don Shaver, Mike Wagstaff , Ken Beckman, Tim Free

WB Koester: Chris Atkinson, Bob Fisher

Geotechnology, Inc.: Jessie Hahn

Topics:

Safety/Housekeeping

- No issues
- Chris cleaned roads sufficient last week.
- Chris to make sure to wash and scrape the parking lot each Friday and as necessary.
- Chris to pick up loose liner pieces so they don't get blown away in high winds.
- Chris to move grease barrels closer to trailer so they don't get hit with equipment.

Manpower

- Man hours
    - Start of Job (4-27-15) through 10-5-15
        - Total = 8705 hrs.
- Next week expected manpower
    - WBK = 1 superintendent, 1 mechanic, 6 operators, 6 laborer, 1 teamster, 1 surveyor
    - 10 hrs days approx. (Daylight to dusk)

Review old minutes and action items

- Bob sent Mike W. Autocad files for the proposed designs in Ponds B, C and Bottom ash pond. He was fine with them. Would like a swale lined with turf mat in B coming out of detention area. In Pond C would like a rip rap chute following the side slopes at the box culvert areas leading to the center swale. Turf line that swale also.

Material Issues

- No issues

Quality Control Issues

- Jessie testing compaction and today all 8 have passed.
- SE corner still leaching water so may need to undercut it like the SW corner.

Schedule Compliance

- Liner roll off boxes and disposal on going.
- Pond A should be shaped, graded and smooth rolled by end of day Thursday.
- Mike says he will try and schedule Massman to survey on Monday.
- Jessie to continue getting all compaction testing completed by end of day Friday.
- Bob to schedule liner guys for October 19^{th} .
- Next week Chris will continue to grade Pond B and use excess soil to finish off Pond C and Coal Yard.
- Brandenberg Divers on site this week. Began pumping to Bottom Ash pond. May take 6-7 weeks for them to complete. WBK to continue pumping during that time. Silt in detention pond will remain in place at end.
- Mike says LAMAC may be used to do the final surveys at the site.
- North Farm field borrow area – 3700' of silt fence was installed last week.

Cost and Budget Control

- Bob to submit invoice which can include the cost for the stored HDPE liner (need to submit copy of National Lining Systems invoice as well).

Next Meeting Scheduled: October 14, 2015 at 9:00 CST

Action Items

- Bob Fisher
  - Bob to submit Invoice.
  - Schedule liner sub to start Oct 19th.
- Mike Wagstaff – Schedule Massman to survey on Monday Oct 12th.
- Chris Atkinson –
  - make sure roads are cleaned regularly
  - move grease barrels
  - gather liner pieces and put in dumpster.
  - Finish Pond A grading and compaction so Jessie can complete compaction testing.
- Jessie Hahn – Continue compaction testing, complete by Friday if possible.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/08/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0730 Depart: 1600 Travel: 0.00 Total: 8.50

AM Conditions: Partly Cloudy AM Temperature: 62 F
PM Conditions: Clear PM Temperature: 79 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg
Equipment: **WB Koester:** 3 excavators, 2 bulldozers, 1 skidsteer, 2 compactors, 1 haul truck (see notes)

Personnel: **WB Koester:** 16 workers
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:

Testing: Jessie Hahn (Geotechnology) conducted nuclear density tests at 40 locations on Ash Pond A. See testing results for additional details.

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B. See attached location drawing for more information.

Jessie Hahn 10/8/2015
Geotechnology, Inc. Rep. Date

[signature] 10/12/15
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/08/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment details: 4 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC, 1 Caterpillar 308E), 2 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 smooth roller (CS-433E), 1 skidsteer.

One GPS bulldozers graded Ash Pond A. One smooth drum roller compacted Ash Pond A.

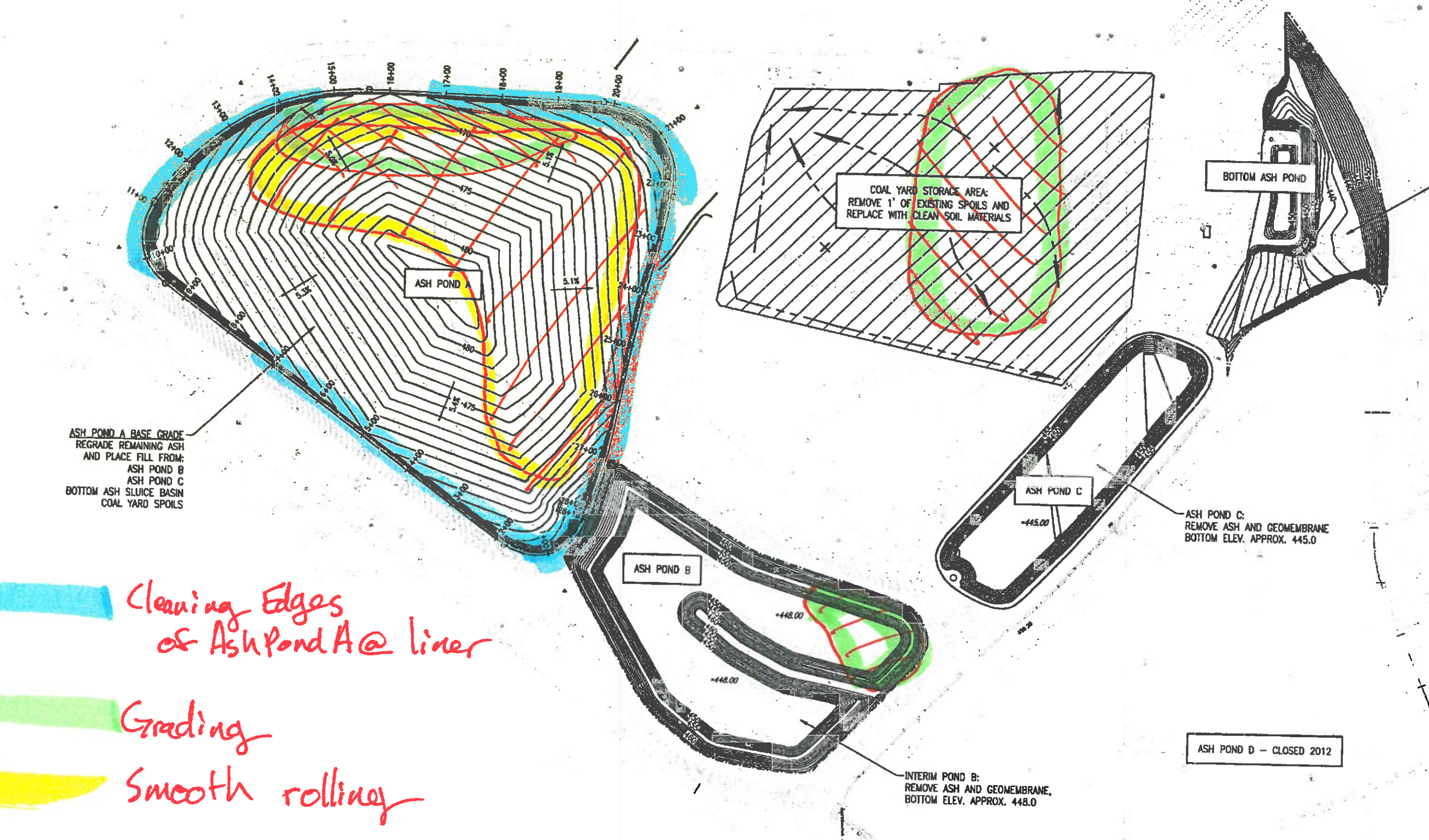
Three excavators moved and shaped soil in preparation for the new HDPE liner and anchor trench at the Ash Pond A levees. Laborers repaired tears in the lower HDPE liner and dressed the slopes near the exposed liner. The skidsteer was used to clean the lower geomembrane.

Laborers and the skidsteer removed deleterious material from smooth-rolled portions of Ash Pond A.

One GPS bulldozer graded the Coal Yard and placed two feet of soil over exposed ash at the northeast corner of Ash Pond B.

The water truck sprayed the roads to keep the dust down.

10/8/2015



Cleaning Edges of Ash Pond A @ liner

Grading

Smooth rolling

BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)

ESTIMATED QUANTITIES, THIS SHEET:

ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)

TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE

COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES 1

GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.

GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD. 1

1 CLEAN CLOSURE PLAN
004

100 0 100 200

N

REV.	DATE	PROJECT NO.	AMEREN SUPV ENGR	DRFTR	CHK'D	SUPV	AMEREN	OTHER	DESCRIPTION
0	10.20.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR PERMITTING – NOT FOR CONSTRUCTION
1	04.07.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR CONSTRUCTION

NOTICE OF LIMITED RESPONSIBILITY

MARK UP DRAWING NO. – REV. –
SHEET NO. ---

SCALE –

CLEAN CLOSURE–ASH MOVING PLAN

CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS

SITE: HUTSONVILLE POWER STATION

UNIT NO. –
DWG. SIZE 24X36
SUB CLASS –

Ameren MISSOURI

DRAWING NO. S-XXX-004 REV. 1
SHEET NO. 004

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/09/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0700 Depart: 1300 Travel: 3.50 Total: 9.50

AM Conditions: Cloudy
AM Temperature: 60 F
PM Conditions:
PM Temperature:

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg

Equipment: **WB Koester:** 2 excavators, 2 bulldozers, 1 skidsteer, 1 compactors, 2 haul truck (see notes)

Personnel: **WB Koester:** 16 workers

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Ash Pond B material placed in the Coal Yard.

Deliveries:

Testing: Jessie Hahn (Geotechnology) conducted nuclear density tests at 4 locations on Ash Pond A. See testing results for additional details.

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B, Coal Yard. See attached location drawing for more information.

Jessie Hahn 10/09/2015
Geotechnology, Inc. Rep. Date

10/12/15
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/09/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

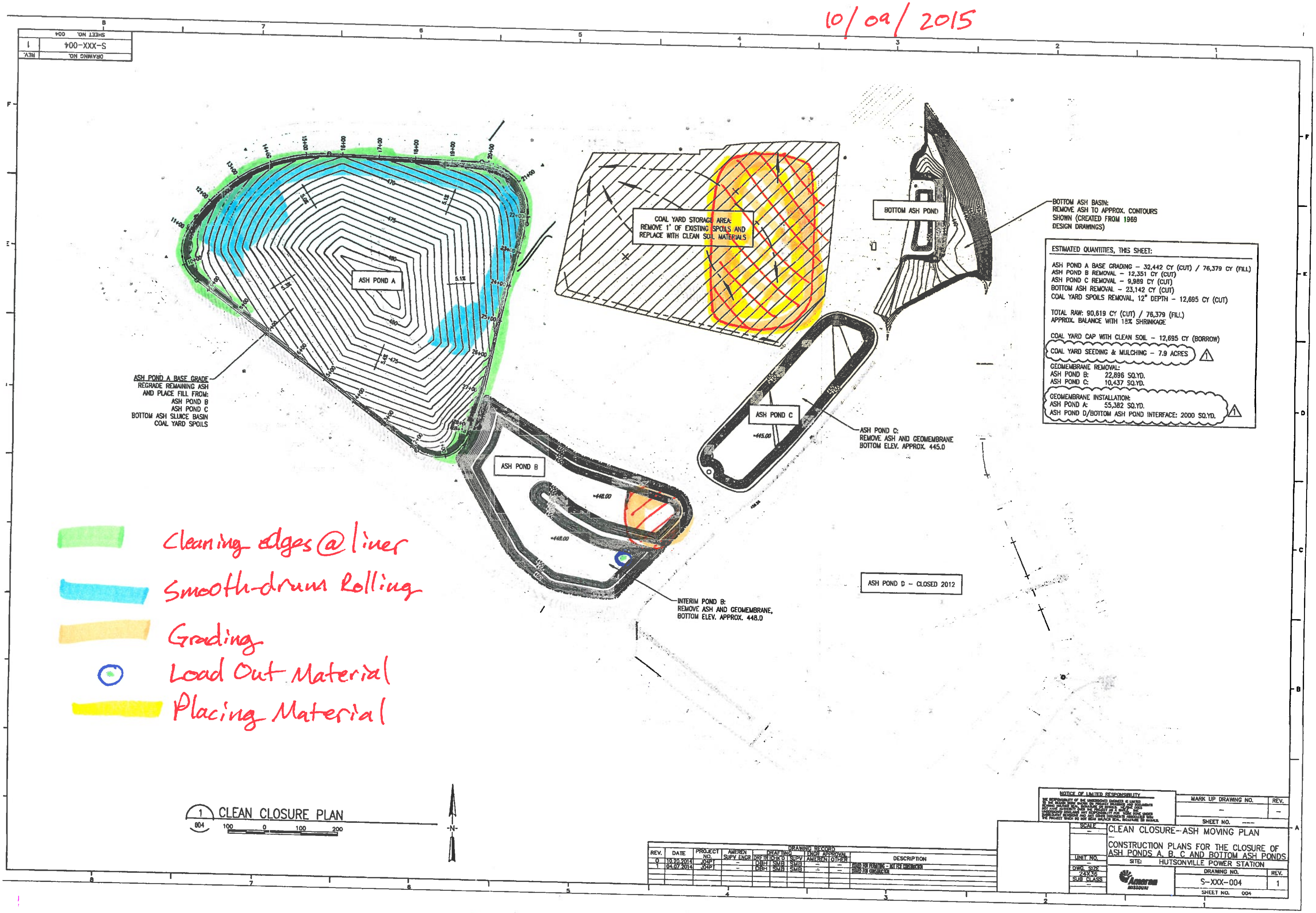
Equipment details: 2 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC), 2 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 smooth roller (CS-433E), 1 skidsteer, 2 haul trucks (John Deere 400D).

One GPS bulldozers cleaned the edges of Ash Pond A. One smooth drum roller compacted Ash Pond A.

Laborers repaired tears in the lower HDPE liner and dressed the slopes near the exposed liner. The skidsteer was used to clean the lower geomembrane. Laborers and the skidsteer removed deleterious material from smooth-rolled portions of Ash Pond A.

One GPS bulldozer graded Ash Pond B. One excavator loaded out excess material from Ash Pond B. Two haul trucks moved the excess material to the Coal Yard. One GPS bulldozer graded the Coal Yard.

The water truck sprayed the roads to keep the dust down. The skidsteer cleaned the roads.


10/09/2015
S-XXX-004
ASH POND A
ASH POND B
ASH POND C
BOTTOM ASH POND
ASH POND D – CLOSED 2012
COAL YARD STORAGE AREA:
REMOVE 1' OF EXISTING SPOILS AND
REPLACE WITH CLEAN SOIL MATERIALS
ASH POND A BASE GRADE
REGRADE REMAINING ASH
AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS
SHOWN (CREATED FROM 1969
DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 15% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
ASH POND C:
REMOVE ASH AND GEOMEMBRANE
BOTTOM ELEV. APPROX. 445.0
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 448.0
Cleaning edges @ liner
Smooth-drum Rolling
Grading
Load Out Material
Placing Material
CLEAN CLOSURE PLAN
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
REV.
SHEET NO.
SCALE
UNIT NO.
DWG. SIZE 24X36
SUB CLASS
CLEAN CLOSURE--ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
Ameren MISSOURI
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
DRAWING RECORD
REV. | DATE | PROJECT NO. | AMEREN SUPV ENGR | DRFTR | CHK'D | SUPV | AMEREN | OTHER | DESCRIPTION
0 | 10.20.2014 | J04PT | – | DBH | SMB | SMB | – | –
1 | 04.07.2014 | J04PT | – | DBH | SMB | SMB | – | –

PHOTOGRAPH LOG

Photograph 1 ⮝ - View of placing dry soil over wet ash at the western corner of Ash Pond A.

Photograph 2 ⮝ - View of smooth drum roller compacting dry soil over wet ash at the western corner of Ash Pond A.

Photographs taken by Jessie Hahn of Geotechnology, Inc. October 5-9, 2015.

Photograph 3 ⮝ - View of sheepsfoot roller compacting wet ash to promote drying.

Photograph 4 ⮝ - View of excavators cleaning the liner at the Ash Pond A levees, looking northeast.

Photograph 5 ⮝ - View of grading in Ash Pond B, looking south.

Photograph 6 ⮝ - View of grading and smooth drum rolling on Ash Pond A, looking west.

Photograph 7 ⮝ - View of deleterious material removal from the surface of Ash Pond A, looking north.

Photograph 8 ⮝ - View of smoothing ash with an excavator bucket, looking north.

Photograph 9 ⮝ - View of grading soil over ash at the northeast corner of Ash Pond B, looking south.

Photograph 10 ⮝ - View of skidsteer cleaning roads.

Photograph 11 ⮝ - View of placing and grading material at the Coal Yard, looking west.

Photograph 12 ⮝ - View of grading and loading out material at Ash Pond B, looking south.

M E M O R A N D U M

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., R.G., Ph.D.
Geotechnology, Inc.

DATE: October 21, 2015

SUBJECT: Weekly Summary Report for October 12, 2015 to October 16, 2015

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

Weather

The weather was generally cloudy. Temperature (^{O}F) lows ranged from 34 to 51^{O}F, and temperature highs ranged from 64 to 80^{O}F.

Construction Activities

The edges of Ash Pond A were cleaned and shaped. Ash Pond A was smooth-drum rolled. A proof roll was conducted on Ash Pond A on October 15-16. On Monday, October 12, Ash Pond A was surveyed by Massmann Surveying.

Excess material was moved from Ash Pond C to the Coal Yard and the plant entrance field. Excess material was moved from Ash Pond B to the levees of Ash Pond C to form a two foot soil cap. Ash Pond B, Ash Pond C, and the Coal Yard were graded.

On October 15-16, the outfall adjacent to the Bottom Ash Pond at the Wabash River was installed.

On October 14-16, Skinner well drillers were on site to install Monitoring Wells MW-2D, MW-22S, and MW-22D and abandon Monitoring Well MW-1.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 3 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC, 1 Caterpillar 308E), 3 dump trucks (John Deere 400D), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 water truck (Caterpillar 623B), 1 sheepsfoot roller (CA251), 1 smooth drum roller (CS-433E), and 1 skidsteer.

WB Koester had 11 employees working on site: 3 laborers, 1 mechanic, and 7 equipment operators.

Massmann Surveying had 2 surveyors working on site on October 12.

Skinner had 1 well driller on site on October 14-15 and 2 driller's helpers on site October 14-16.

Meetings

The weekly progress meeting was held on Wednesday, October 14, 2015. Refer to the meeting minutes for additional information.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Well installation materials, including 2" PVC well casing and screen, sand, bentonite, hole plug, well covers, and concrete were used for the installation of three monitoring wells.

Rip-rap, gravel bedding, and filter fabric were used for the installation of the outfall adjacent to the Bottom Ash Pond at the Wabash River.

Testing/Sampling

A survey of Ash Pond A ash subgrade was performed by Massmann Surveying on Monday, October 12.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/12/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0830 Depart: 1600 Travel: 3.00 Total: 10.00

AM Conditions: Clear and Windy
AM Temperature: 71 F
PM Conditions: Clear to Cloudy. Brief, light shower at 1600.
PM Temperature: 74 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg, Massman Surveying

Equipment: **WB Koester:** 1 excavator, 2 bulldozers, 1 skidsteer, 2 compactors, 2 haul trucks (see notes)

Personnel: **WB Koester:** 11 workers; **Massman:** 2 surveyors

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Ash Pond C material placed in the Coal Yard and at the Ash Pond A ramp.

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B, Coal Yard. See attached location drawing for more information.

Jessie Hahn 10/12/2015
Geotechnology, Inc. Rep. Date

10/13/15
Geotechnology, Inc. Engineer Date

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment details: 2 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC), 2 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 smooth roller (CS-433E), 1 sheepsfoot roller (CA 251), 1 skidsteer, 2 haul trucks (John Deere 400D).

One smooth drum roller compacted Ash Pond A.

Laborers repaired tears in the lower HDPE liner and dressed the slopes near the exposed liner. The skidsteer was used to clean the lower geomembrane.

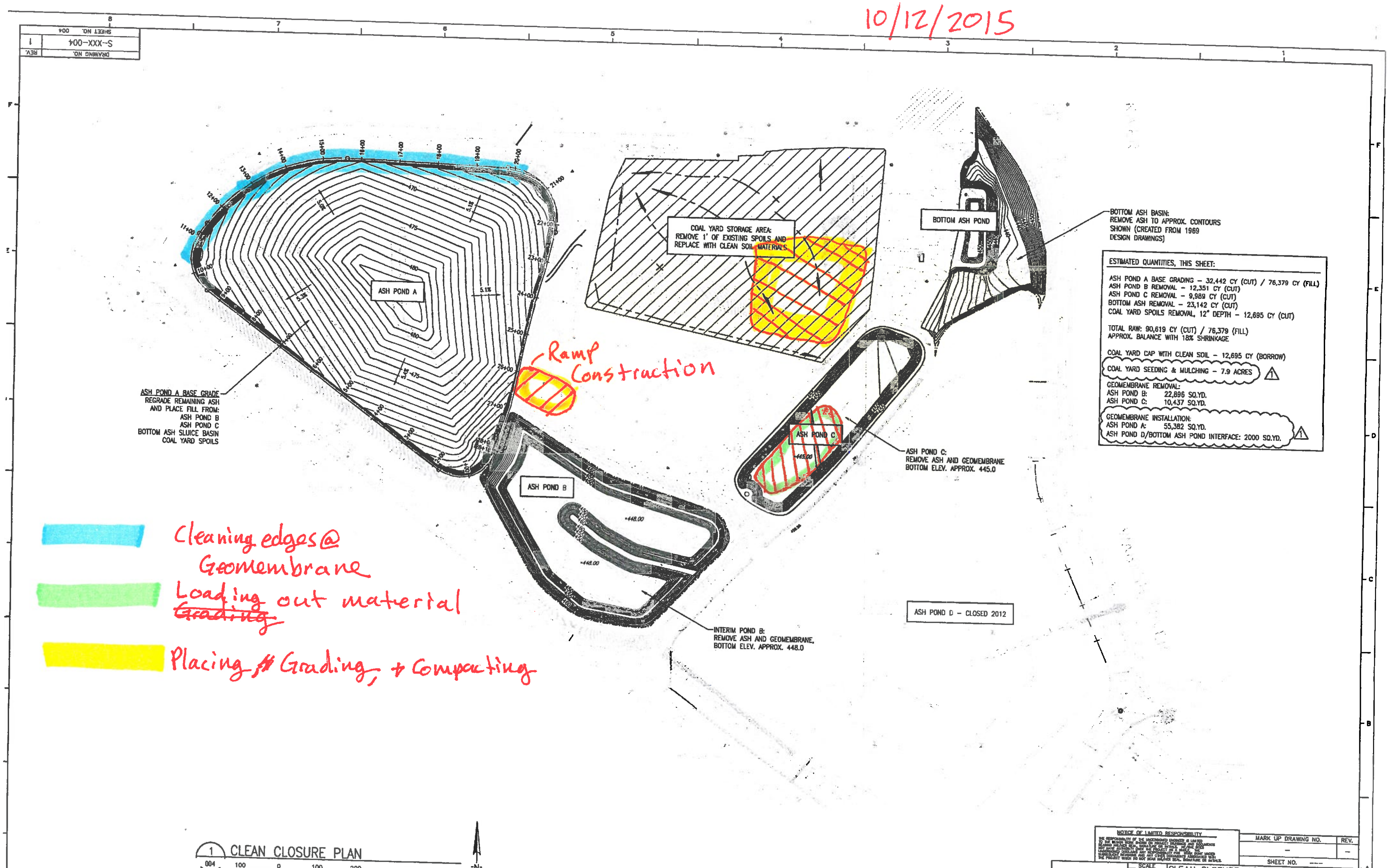
One GPS bulldozer graded Ash Pond C. One excavator loaded out excess material from Ash Pond C. In the morning, two haul trucks moved the excess material to the Coal Yard, one GPS bulldozer graded the Coal Yard, and one sheepsfoot roller compacted the Coal Yard. In the afternoon, one haul truck moved the excess material to build the new ramp onto Ash Pond A, one GPS bulldozer graded the ramp, and one sheepsfoot roller compacted the ramp.

The water truck sprayed the roads to keep the dust down. The skidsteer cleaned the roads.

Massman Surveying:

Two surveyors arrived on site at 1200 and surveyed Ash Pond A.

10/12/2015



REV.	DATE	PROJECT NO.	AMEREN SUPV ENGR	DRFTR	CHK'D	SUPV	ENGR APPROVAL AMEREN	OTHER	DESCRIPTION
0	10.20.2014	JD4PT	–	DBH	SMB	SMB	–	–	
1	04.07.2014	JD4PT	–	DBH	SMB	SMB	–	–	

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/13/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0730 Depart: 1530 Travel: 0.00 Total: 8.00

AM Conditions: Clear
AM Temperature: 57 F
PM Conditions: Clear
PM Temperature: 67 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg

Equipment: **WB Koester:** 1 excavator, 2 bulldozers, 1 compactor, 2 haul trucks (see notes)

Personnel: **WB Koester:** 11 workers

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Ash Pond C material placed in the Coal Yard and at the Ash Pond A ramp.

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B, Coal Yard, . See attached location drawing for more information.

[signature] 10/13/2015
Geotechnology, Inc. Rep. Date

[signature] 10/19/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/13/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

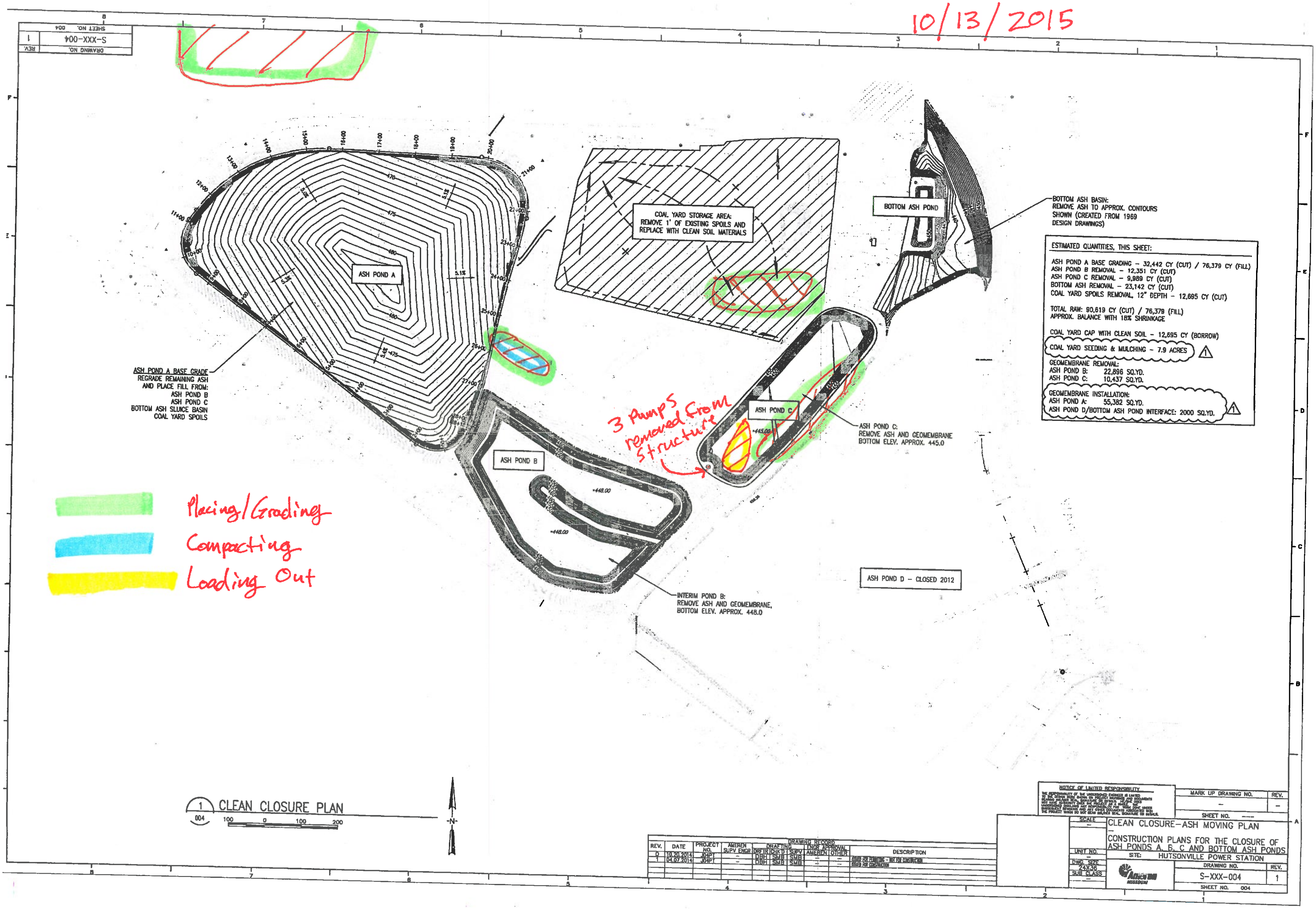
WB Koester:

Equipment details: 1 excavator (1 Komatsu PC 350 LC), 2 bulldozers (Caterpillar D6N LGP with GPS), 1 sheepsfoot roller (CA 251), 1 skidsteer, 2 haul trucks (John Deere 400D).

One excavator loaded out excess material from Ash Pond C. Two haul trucks moved excess material to the Coal Yard, the Ash Pond A ramp, and the field near the site entrance. One GPS bulldozer graded Ash Pond C. One GPS bulldozer graded the ramp, the Coal Yard, and the site entrance field. One sheepsfoot roller compacted the Ash Pond A ramp.

At 1030, a haul truck hit and knocked over an electric pole with a light near the site entrance. Ameren stated that the line was de-energized at the time of the incident. WB Koester prepared an incident report. Refer to the incident report for additional information.

The water truck sprayed the roads to keep the dust down. The skidsteer cleaned the roads.


10/13/2015
S-XXX-004
ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
COAL YARD STORAGE AREA:
REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH POND
BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
ASH POND C
3 Pumps removed from structure
ASH POND C:
REMOVE ASH AND GEOMEMBRANE BOTTOM ELEV. APPROX. 445.0
ASH POND B
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE, BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
Placing/Grading
Compacting
Loading Out
1 CLEAN CLOSURE PLAN
004
N
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
REV.
SHEET NO.
SCALE
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
UNIT NO.
DWG. SIZE 24X36
SUB CLASS
Ameren MISSOURI
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
DRAWING RECORD
REV. | DATE | PROJECT NO. | AMEREN SUPV ENGR | DRAFTING DRFTR | CHK'D | SUPV | ENGR APPROVAL AMEREN | OTHER | DESCRIPTION
0 | 10.20.2014 | J04PT | – | DBH | SMB | SMB | – | – | ISSUED FOR PERMITTING – NOT FOR CONSTRUCTION
1 | 04.07.2014 | J04PT | – | DBH | SMB | SMB | – | – | ISSUED FOR CONSTRUCTION

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/14/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0630 Depart: 1700 Travel: 0.00 Total: 10.00

AM Conditions: Clear AM Temperature: 51 F
PM Conditions: Clear PM Temperature: 68 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg, Skinner
Equipment: **WB Koester:** 2 excavators, 1 bulldozer, 2 haul trucks (see notes)
Skinner: 1 drill rig
Personnel: **WB Koester:** 11 employees; **Skinner:** 3 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Ash Pond B material placed at Ash Pond C levees.
Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond B, Ash Pond C, . See attached location drawing for more information.

Geotechnology, Inc. Rep. 10/14/2015 Date

Geotechnology, Inc. Engineer 10/19/2015 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/14/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment details: 1 excavator (1 Komatsu PC 350 LC, 1 Caterpillar 308E), 2 bulldozers (Caterpillar D6N LGP with GPS), 1 sheepsfoot roller (CA 251), 1 skidsteer, 2 haul trucks (John Deere 400D).

One excavator loaded out excess material from Ash Pond B. Two haul trucks moved excess material to the levees of Ash Pond C. One GPS bulldozer graded Ash Pond C.

Two laborers and one excavator removed the silt fence around Ash Pond D.

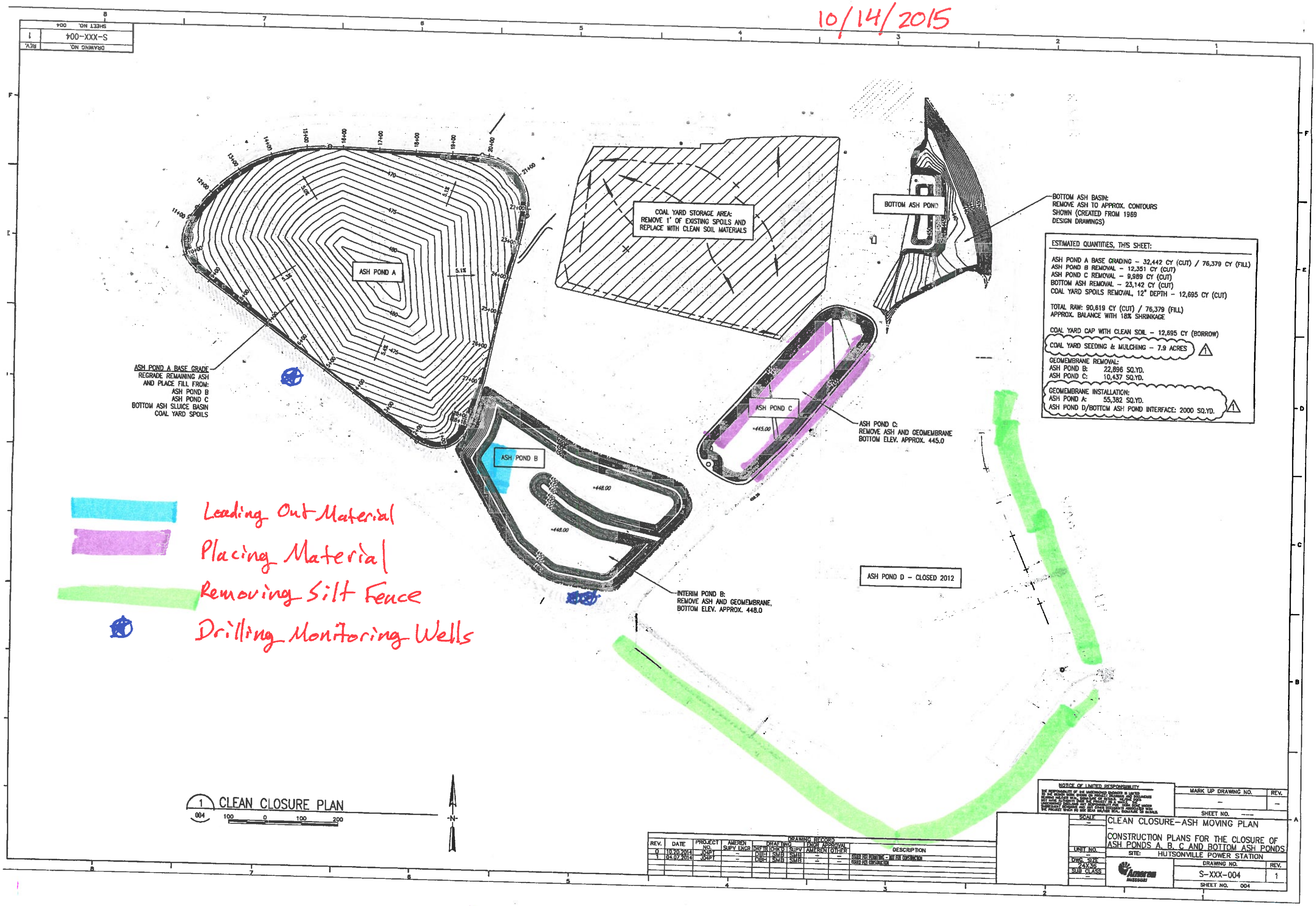
The water truck sprayed the roads and Ash Pond A to keep the dust down. The skidsteer cleaned the roads.

Skinner:

Drilled and installed three wells at locations indicated on attached location drawing.

Other:

The weekly progress meeting was held at 0900. See the meeting minutes for additional details.



REV.	DATE	PROJECT NO.	AMEREN SUPV ENGR	DRAFTING DRFTR	DRAFTING CHK'D	DRAFTING SUPV	ENGR APPROVAL AMEREN	ENGR APPROVAL OTHER	DESCRIPTION
0	10.20.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR PERMITTING – NOT FOR CONSTRUCTION
1	04.07.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR CONSTRUCTION

Weekly Progress Meeting

Meeting Minutes

Date: 10-14-15

Attendees:

Ameren: Don Shaver, Mike Wagstaff , Ken Beckman (phone), Tim Free

WB Koester: Chris Atkinson

Geotechnology, Inc.: Jessie Hahn

Topics:

Safety/Housekeeping

- Artic truck ran into de-energized power line at the stockpile area outside the gate while delivering cover soil. Chris wrote report and discussed the issue with crew. Reiterate that you don't move trucks until beds are completely back in place. Driver was off work for 3 days as discipline.
- Chris to make sure to wash and scrape the parking lot each Friday and as necessary.
- Continue to pick up loose liner pieces as encountered but most have been picked up by now.

Manpower

- Man hours
    - Start of Job (4-27-15) through 10-12-15
        - Total = 9345 hrs.
- Next week expected manpower
    - WBK = 1 superintendent, 1 mechanic, 4 operators, 6 laborer, 1 teamster
    - 8 hrs days approx.

Review old minutes and action items

- Bob submitted invoice
- Mike scheduled Massman to survey this week,
- Jessie completed compaction testing

- Anna to review data in anticipation that liner company will start October 19th.

Material Issues

- No issues

Quality Control Issues

- No issues

Schedule Compliance

- Liner roll off boxes and disposal on going.
- Massman completed with survey, Jessie completed with compaction testing. Anna to review data. Chris will proof roll Pond A as well this week.
- Liner guys scheduled for October 19th .
- Chris will continue to grade Pond B and C and use excess soil to finish off Pond C slopes, Pond B slopes and Coal Yard.
- Brandenberg may take 6-7 weeks for them to complete. WBK to continue pumping during that time. Silt in detention pond will remain in place at end.
  - Discussed installing the sampling outlet point through the berm to the river and then divert the Brandenberg water through the outlet.
- Chris needs to relocate the temporary fence at the bottom ash pond to allow for the outlet construction and levee removal.
- Looking to seed Coal yard, Pond C, Pond B and stockpile area outside fence as soon as they are covered.
- May start to demo silt fence at Pond D this week.
- May demo concrete pump structure at Pond C this week. Will demo as much as we can and then grout rest with flowable fill.

Cost and Budget Control

- n/a

Next Meeting Scheduled: October 21, 2015 at 9:00 CST

Action Items - n/a

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/15/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0645 Depart: 1615 Travel: 0.00 Total: 9.00

AM Conditions: Clear AM Temperature: 51 F
PM Conditions: Clear PM Temperature: 76 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg, Skinner

Equipment: **WB Koester:** 2 excavators, 1 bulldozer, 1 haul truck, 2 compactors (see notes)
Skinner: 1 drill rig

Personnel: **WB Koester:** 10 employees; **Skinner:** 3 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Ash Pond B material placed at Ash Pond C levees.

Deliveries: Rip-rap and bedding material for the outfall construction delivered to site.

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond B, Ash Pond C, . See attached location drawing for more information.

Geotechnology, Inc. Rep. — 10/15/2015 Date

Geotechnology, Inc. Engineer — 10/19/2015 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/15/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment details: 2 excavators (1 Komatsu PC 350 LC, 1 Caterpillar 320B), 1 bulldozer (Caterpillar D6N LGP with GPS), 1 sheepsfoot roller (CA 251), 1 smooth drum roller (CS-433E), 1 skidsteer, 1 haul truck (John Deere 400D).

One excavator loaded out excess material from Ash Pond B. Two haul trucks moved excess material to the levees of Ash Pond C. One GPS bulldozer graded Ash Pond C. One sheepsfoot roller compacted the Ash Pond C levees.

One excavator cleared trees and excavated the Bottom Ash Pond outfall location. A power line was uncovered (dug by hand once tape was revealed) at a higher elevation than expected, which would place it in the rip-rap of the final outfall. WB Koester dug out 50 feet from the exposed location in either direction in order to allow the line to sag to a lower elevation.

A proof roll of the wet parts of Ash Pond A was performed with the smooth drum roller.

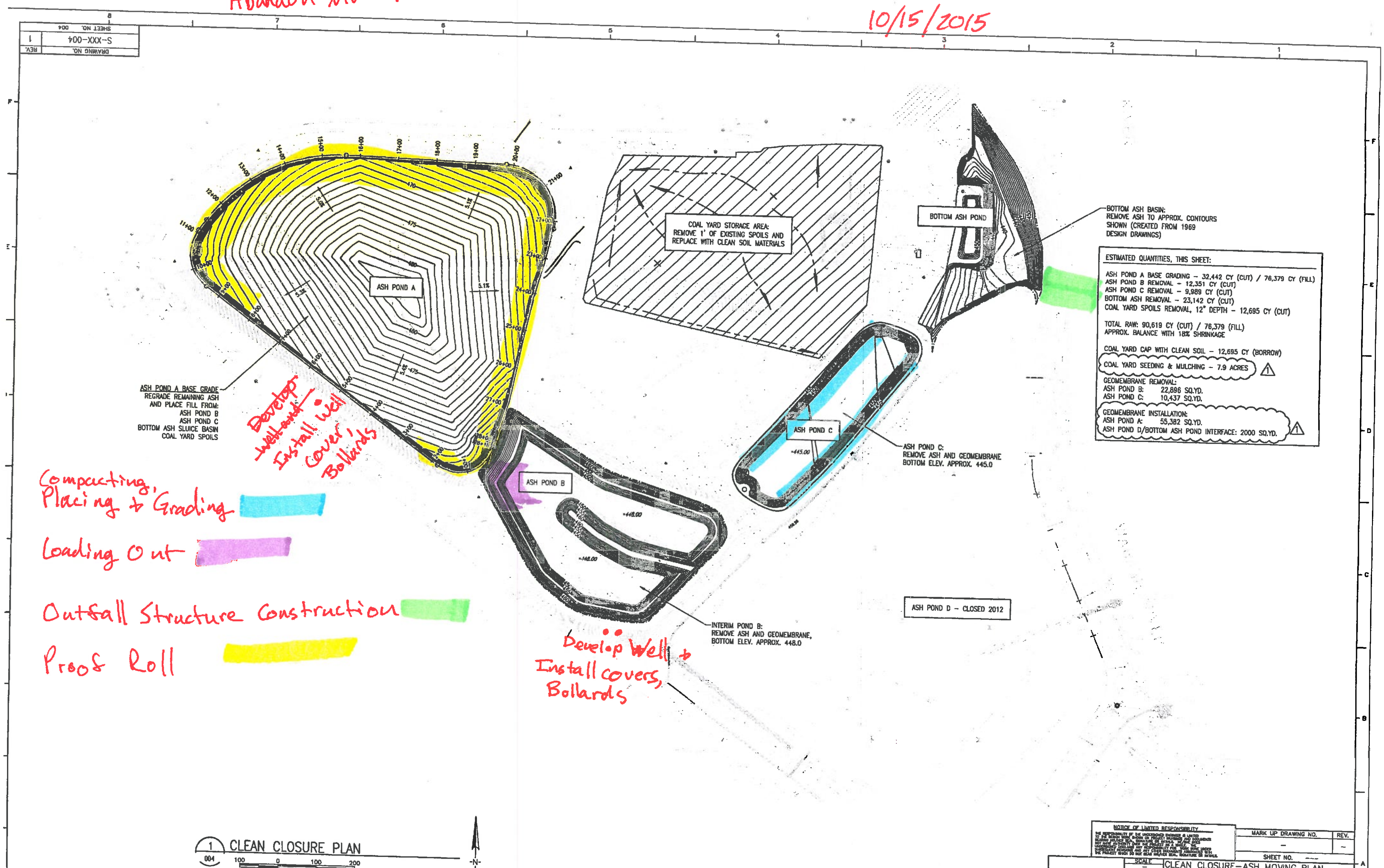
The water truck sprayed the roads to keep the dust down. The skidsteer cleaned the roads.

Skinner:

Developed two wells, abandoned one well, and installed covers and bollards at three wells. Locations are indicated on attached location drawing.

Abandon MW-1

10/15/2015



REV.	DATE	PROJECT NO.	AMEREN SUPV ENGR	DRFTR	CHK'D	SUPV	ENGR APPROVAL AMEREN	ENGR APPROVAL OTHER	DESCRIPTION
0	10.20.2014	JD4PT	–	DBH	SMB	SMB	–	–	ISSUED FOR PERMITTING – NOT FOR CONSTRUCTION
1	04.07.2014	JD4PT	–	DBH	SMB	SMB	–	–	ISSUED FOR CONSTRUCTION

NOTICE OF LIMITED RESPONSIBILITY

MARK UP DRAWING NO. – REV. –

SHEET NO. —

SCALE –

CLEAN CLOSURE–ASH MOVING PLAN

CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS

SITE: HUTSONVILLE POWER STATION

UNIT NO. –

DWG. SIZE 24X36

SUB CLASS –

Ameren MISSOURI

DRAWING NO. S-XXX-004 REV. 1

SHEET NO. 004

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/16/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0645 Depart: 1215 Travel: 3.00 Total: 8.50

AM Conditions: Clear AM Temperature: 41 F
PM Conditions: Clear PM Temperature: 62 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg, Skinner

Equipment: **WB Koester:** 2 excavators, 1 bulldozer, 1 haul truck (see notes)

Personnel: **WB Koester:** 10 employees; **Skinner:** 2 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Rip-rap, gravel, and filter fabric placed at the outfall.

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond C, Outfall. See attached location drawing for more information.

Jessie Hahn 10/16/2015
Geotechnology, Inc. Rep. Date

[signature] 10/19/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT DATE: 10/16/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment details: 2 excavators (1 Komatsu PC 350 LC, 1 Caterpillar 320B), 1 bulldozer (Caterpillar D6N LGP with GPS), 1 skidsteer, 1 haul truck (John Deere 400D).

One excavator loaded out excess material from Ash Pond B. Two haul trucks moved excess material to the levees of Ash Pond C. One GPS bulldozer graded Ash Pond C. One sheepsfoot roller compacted the Ash Pond C levees.

One excavator cleared trees and excavated the Bottom Ash Pond outfall location. A power line was uncovered (dug by hand once tape was revealed) at a higher elevation than expected, which would place it in the rip-rap of the final outfall. WB Koester dug out 50 feet from the exposed location in either direction in order to allow the line to sag to a lower elevation.

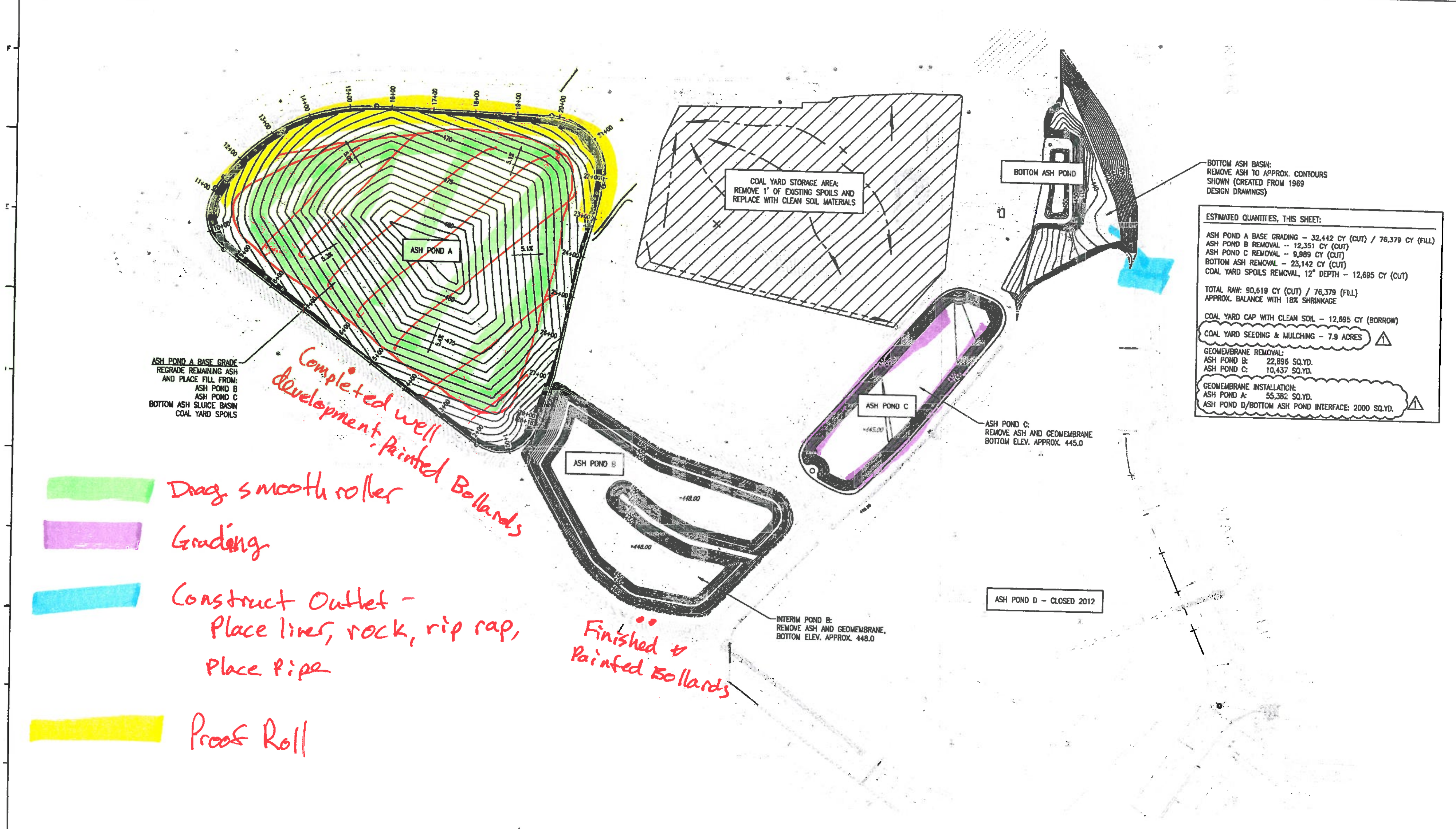
Proof rolling using a loaded haul truck was performed on select areas of Ash Pond A.

The water truck sprayed the roads keep the dust down. The skidsteer cleaned the roads.

Skinner:

Painted bollards at three wells and finished developing one well. Locations are indicated on attached location drawing.

10/16/2015



1 CLEAN CLOSURE PLAN
004
100 0 100 200

-N-

NOTICE OF LIMITED RESPONSIBILITY

MARK UP DRAWING NO.	REV.
–	–

SHEET NO. ---

SCALE –

CLEAN CLOSURE–ASH MOVING PLAN

CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS

SITE: HUTSONVILLE POWER STATION

UNIT NO. –

DWG. SIZE 24X36

SUB CLASS –

Ameren MISSOURI

DRAWING NO.	REV.
S-XXX-004	1

SHEET NO. 004

DRAWING RECORD

REV.	DATE	PROJECT NO.	AMEREN SUPV ENGR	DRAFTING DRFTR	DRAFTING CHK'D	DRAFTING SUPV	ENGR APPROVAL AMEREN	ENGR APPROVAL OTHER	DESCRIPTION
0	10.20.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR PERMITTING – NOT FOR CONSTRUCTION
1	04.07.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR CONSTRUCTION

DRAWING NO.	REV.
S-XXX-004	1

SHEET NO. 004

PHOTOGRAPH LOG

Photograph 1 ⮝ - View of placing and grading material at the Coal Yard, looking northwest.

Photograph 2 ⮝ - View of cleaning the edges of Ash Pond A, looking east.

Photograph 3 ⮝ - View of pump removal at the Ash Pond C lift structure.

Photograph 4 ⮝ - View of material load out at Ash Pond C, looking southeast.

Photograph 5 ⮝ - View of silt fence removal around Ash Pond D.

Photograph 6 ⮙ - View of grading the two feet of material placed on the Ash Pond C levees, looking northeast.

Photograph 7 ⮙ - View of materials for Monitoring Well MW-22D.

Photograph 8 ⮙ - View of placing sand as filter pack in the Monitoring Well MW-22D annular space.

Photograph 9 ⮙ - View of placing bentonite seal in Monitoring Well MW-22D annular space.

Photograph 10 ⮝ - View of setup for monitoring well development.

Photograph 11 ⮝ - View of compacting soil at the Ash Pond C levees, looking northeast.

Photograph 12 ⮝ - View of material load out at Ash Pond B, looking southwest.

Photograph 13 ⮝ - View of hand-exposing power lines at the outfall location.

Photograph 14 - View of installing well covers at Monitoring Wells MW-22S and MW-22D.

Photograph 15 ⮙ - View of Monitoring Well MW-1 abandonment.

Photograph 16 ⮝ - View of Monitoring Well MW-1 abandonment backfill.

Photograph 17 ⮝ - View of smooth drag roller on Ash Pond A, looking west.

Photograph 18 ⮝ - View of completed Monitoring Wells MW-22D and MW-22S.

Photograph 19 ⮝ - View of completed Monitoring Wells MW-2D.

Photograph 20 ⮝ - View of outfall construction showing filter fabric, gravel liner, and rip rap.

M E M O R A N D U M

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., R.G., Ph.D.
Geotechnology, Inc.

DATE: October 29, 2015

SUBJECT: Weekly Summary Report for October 19, 2015 to October 23, 2015

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

NOTE: A Geotechnology representative was not present on site on Monday, October 19, 2015.

Weather

The weather was generally partly cloudy. Temperature (^{O}F) lows ranged from 32 to 54^{O}F, and temperature highs ranged from 70 to 83^{O}F.

Construction Activities

On Monday, October 19, Ash Pond A was surveyed by Massman Surveying due to a loss of data from their previous survey.

Ash Pond B, Ash Pond C, and the Coal Yard were graded. A perforated pipe was installed with gravel in the Bottom Ash Pond to facilitate draining of the anchor trench at the east levee. Excess cementitious soil material was moved from the levees of Ash Pond A to the Bottom Ash Pond as backfill and graded.

Reinforced concrete pipe was installed at the new outfall location at Ash Pond B. Corrugated plastic culvert was installed under the road near the north corner of Ash Pond A.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 4 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC, 1 Caterpillar 308E, 1 Hyundai 290), 3 dump trucks (John Deere 400D), 3 bulldozers

(Caterpillar D6N LGP, 2 with GPS), 1 water truck (Caterpillar 623B), 1 sheepsfoot roller (CA251), 1 smooth drum roller (CS-433E), 1 skidsteer.

WB Koester had 8 employees working on site: 2 laborers, 1 mechanic, and 5 equipment operators.

Massman Surveying had 2 surveyors on site on October 19.

Meetings

The weekly progress meeting was held on Wednesday, October 21, 2015. Refer to the meeting minutes for additional information.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Gravel bedding, reinforced concrete pipe, and corrugated plastic culvert were installed on the site.

Testing/Sampling

Testing and sampling activities did not occur during the referenced time period.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/20/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0630 Depart: 1430 Travel: 0.00 Total: 8.00

AM Conditions: Clear AM Temperature: 60 F
PM Conditions: Clear PM Temperature: 73 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg
Equipment: **WB Koester:** 2 excavators, 2 bulldozer, 1 haul truck (see notes)

Personnel: **WB Koester:** 8 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B, Coal Yard. See attached location drawing for more information.

[signature] 10/20/2015
Geotechnology, Inc. Rep. Date

[signature] 10/26/15
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/20/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment details: 2 excavators (1 Komatsu PC 350 LC, 1 Caterpillar 320B), 1 bulldozer (Caterpillar D6N LGP with GPS), 1 skidsteer, 1 haul truck (John Deere 400D).

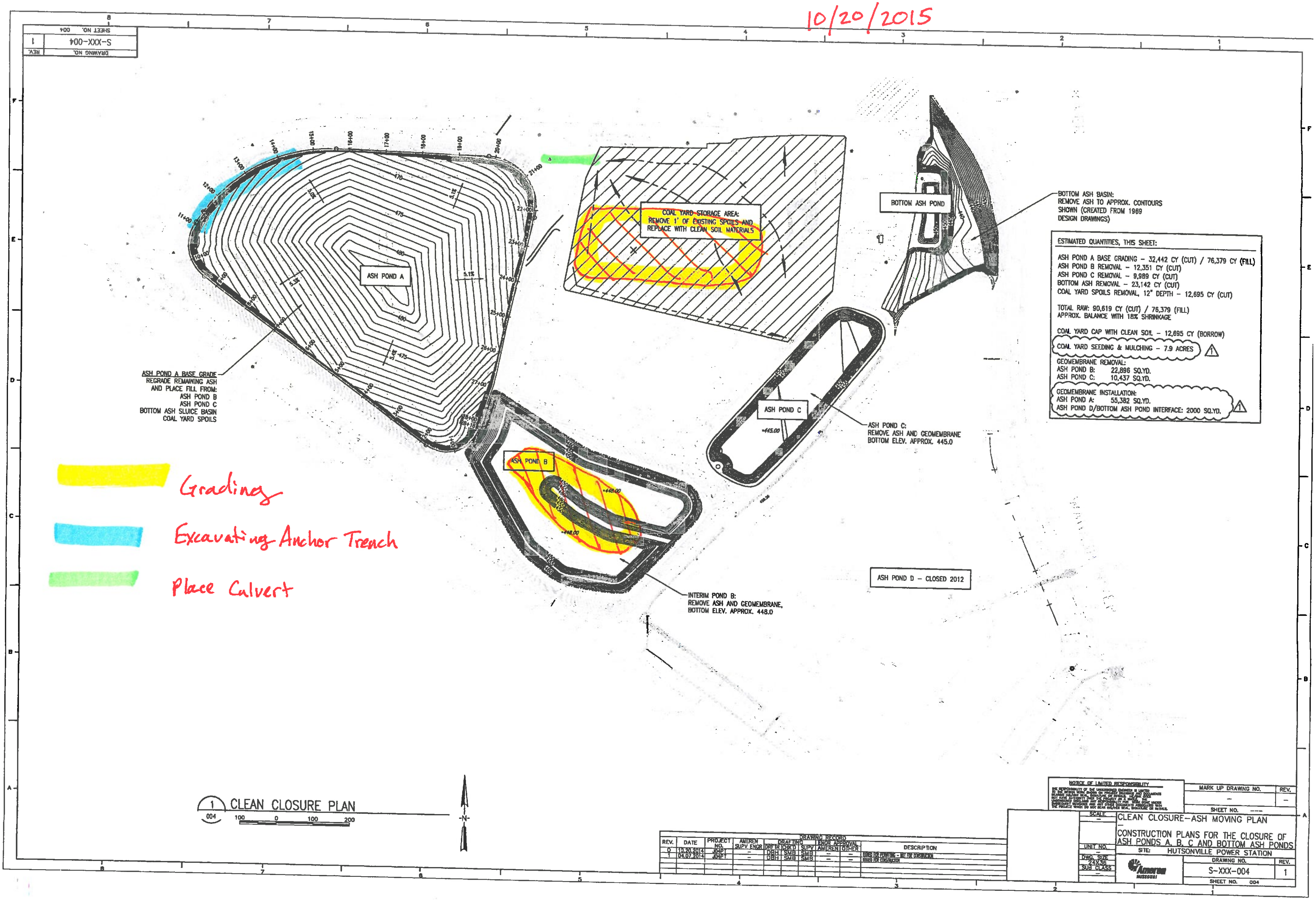
Two bulldozers graded Ash Pond B and the Coal Yard.

One excavator began excavating the anchor trench around Ash Pond A.

Laborers pumped ponded water out from location adjacent to the liner at Ash Pond A.

One excavator and one haul truck were used to place a plastic corrugated culvert under the road at the location indicated on the attached location drawing.

The water truck sprayed the roads keep the dust down. The skidsteer cleaned the roads.


10/20/2015
DRAWING NO. S-XXX-004 REV. 1 SHEET NO. 004
ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH
AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
COAL YARD STORAGE AREA:
REMOVE 1' OF EXISTING SPOILS AND
REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH POND
BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS
SHOWN (CREATED FROM 1969
DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
ASH POND C
ASH POND C:
REMOVE ASH AND GEOMEMBRANE
BOTTOM ELEV. APPROX. 445.0
ASH POND B
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
Grading
Excavating Anchor Trench
Place Calvert
1 CLEAN CLOSURE PLAN
004
N
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
REV.
SHEET NO.
SCALE
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
UNIT NO.
DWG. SIZE 24X36
SUB CLASS
Ameren MISSOURI
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
DRAWING RECORD
REV. | DATE | PROJECT NO. | AMEREN SUPV ENGR | DRAFTING DRFTR CHK'D SUPV | ENGR APPROVAL AMEREN OTHER | DESCRIPTION
0 | 13.20.2014 | J04PT | – | DBH | SMB | SMB | – | –
1 | 04.07.2014 | J04PT | – | DBH | SMB | SMB | – | –

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/21/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jessie Hahn
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0700 Depart: 1500 Travel: 0.00 Total: 8.00

AM Conditions: Partly Cloudy, light shower 0830-0845
AM Temperature: 54 F
PM Conditions: Clear
PM Temperature: 78 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg
Equipment: **WB Koester:** 2 excavators, 1 bulldozer (see notes)

Personnel: **WB Koester:** 8 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries: Concrete pipe was delivered to the site.

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond B, Bottom Ash Pond, Coal Yard. See attached location drawing for more information.

Jessie Hahn 10/21/2015
Geotechnology, Inc. Rep. Date

10/26/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/21/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment details: 2 excavators (1 Komatsu PC 350 LC, 1 Caterpillar 320B), 1 bulldozer (Caterpillar D6N LGP with GPS), 1 skidsteer.

One excavator and two laborers excavated and placed a perforated pipe as a drain in the Bottom Ash Pond, east of the temporary levee, in order to drain the pond and move the pump-out sump away from the location of anchor trench for the liner at the interface with Ash Pond D.

The lift structure at Ash Pond C was demolished to six feet below grade and filled with flowable fill.

Two excavators moved concrete piping in preparation for placment at the Ash Pond B outfall.

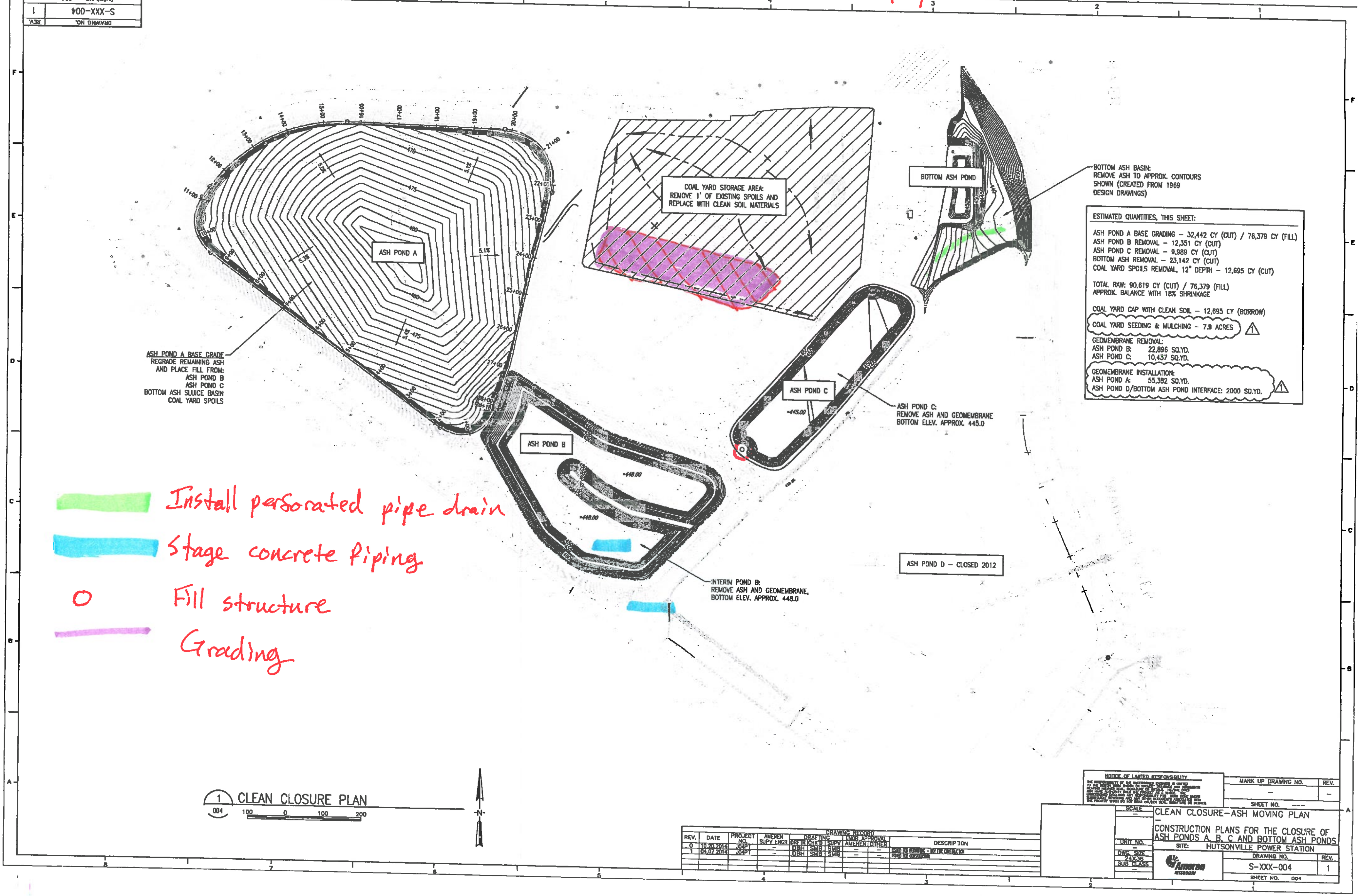
One bulldozer graded the Coal Yard.

The water truck sprayed the roads keep the dust down. The skidsteer cleaned the roads.

Other:

The weekly progress meeting was held at 0930. Refer to the meeting minutes for additional information.

10/21/2015



ASH POND A
ASH POND B
ASH POND C
BOTTOM ASH POND
ASH POND D – CLOSED 2012
COAL YARD STORAGE AREA: REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
ASH POND A BASE GRADE REGRADE REMAINING ASH AND PLACE FILL FROM: ASH POND B ASH POND C BOTTOM ASH SLUICE BASIN COAL YARD SPOILS
BOTTOM ASH BASIN: REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
ASH POND C: REMOVE ASH AND GEOMEMBRANE BOTTOM ELEV. APPROX. 445.0
INTERIM POND B: REMOVE ASH AND GEOMEMBRANE, BOTTOM ELEV. APPROX. 448.0
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
Install perforated pipe drain
Stage concrete piping
Fill structure
Grading
1 CLEAN CLOSURE PLAN 004
100 0 100 200
N
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
REV.
SHEET NO.
SCALE
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
UNIT NO.
DWG. SIZE 24X36
SUB CLASS
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
DRAWING RECORD
REV. DATE PROJECT NO. AMEREN SUPV ENGR DRAFTING DRFTR CHK'D SUPV ENGR APPROVAL AMEREN OTHER DESCRIPTION
0 10.20.2014 J04PT DBH SMB SMB
1 04.07.2014 J04PT DBH SMB SMB

Weekly Progress Meeting

Meeting Minutes

Date: 10-21-15

Attendees:

Ameren: Don Shaver, Mike Wagstaff , John Patterson (phone), Tim Free

WB Koester: Chris Atkinson

Geotechnology, Inc.: Jessie Hahn, Anna Saindon

Topics:

Safety/Housekeeping

- No issues
- Chris to make sure to wash and scrape the parking lot each Friday and as necessary.
- Continue to pick up loose liner pieces as encountered but most have been picked up by now.

Manpower

- Man hours
  - Start of Job (4-27-15) through 10-19-15
    - Total = 9807 hrs.
- Next week expected manpower
  - WBK = 1 superintendent, 1 mechanic, 4 operators, 6 laborer, 1 teamster
  - 8 hrs days approx.

Review old minutes and action items

- Waiting on liner company to complete project in North Carolina and then they will mobilize to Hutsonville.

Material Issues

- No issues

Quality Control Issues

- No issues

Schedule Compliance

- Liner roll off boxes and disposal on going.
- Liner guys scheduled for week of October 26th .
- Chris finished grading Pond C, Coal Yard and most of Pond B.
- Chris installed HDPE pipe across access road
- Chris installed RCP pipe outlet in Pond B.
- Chris installed rip rap at box culverts in Pond C.
- Chris demolished structure at Pond C and filled with flowable fill.
- Brandenberg may take 6-7 weeks for them to complete.
    - Installed the sampling outlet point through the berm to the river so we can divert the Brandenberg water through the outlet.
- Chris relocated the temporary fence at the bottom ash pond to allow for the outlet construction and levee removal.
- Looking to seed Coal yard, Pond C, Pond B and stockpile area outside fence week of October 26.
- Completed demo of silt fence at Pond D.

Cost and Budget Control

- n/a

Next Meeting Scheduled: October 28, 2015 at 9:00 CST

Action Items - n/a

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/22/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jessie Hahn
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0630 Depart: 1430 Travel: 0.00 Total: 8.00

AM Conditions: Clear
AM Temperature: 62 F
PM Conditions: Clear
PM Temperature: 81 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg
Equipment: **WB Koester:** 3 excavators, 1 bulldozer (see notes)

Personnel: **WB Koester:** 8 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B, Bottom Ash Pond. See attached location drawing for more information.

Jessie Hahn 10/22/2015
Geotechnology, Inc. Rep. Date

10/26/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/22/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment details: 4 excavators (1 Komatsu PC 350 LC, 1 Caterpillar 320B, 1 Hyundai 290, 1 Caterpillar 308E), 1 bulldozer (Caterpillar D6N LGP with GPS), 1 haul truck (John Deere 400D), 1 skidsteer.

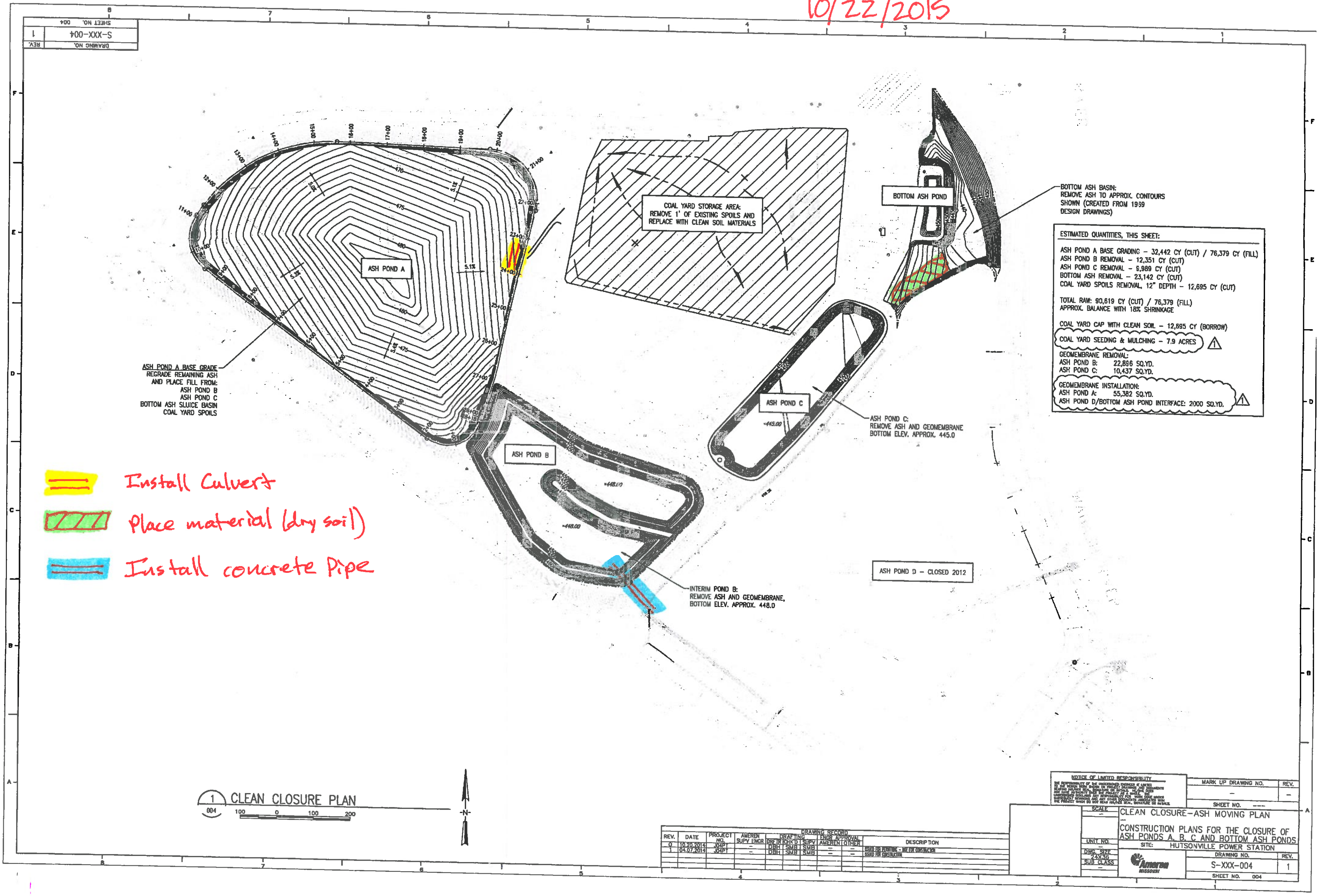
One excavator and the skidsteer installed a culvert at the Ash Pond A ramp adjacent to the liner.

One excavator and one bulldozer placed dry soil at Ash Pond D at the anchor trench location.

Two excavators and two laborers trenched, placed concrete piping, and backfilled at the outfall structure for Ash Pond B.

The water truck sprayed the roads keep the dust down. The skidsteer cleaned the roads.

10/22/2015



S-XXX-004
DRAWING NO.
REV.
1
SHEET NO. 004
ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH
AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
COAL YARD STORAGE AREA:
REMOVE 1' OF EXISTING SPOILS AND
REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH POND
BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS
SHOWN (CREATED FROM 1969
DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
ASH POND C
ASH POND C:
REMOVE ASH AND GEOMEMBRANE
BOTTOM ELEV. APPROX. 445.0
ASH POND B
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
Install Culvert
Place material (dry soil)
Install concrete Pipe
1 CLEAN CLOSURE PLAN
004
100 0 100 200
N
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
SHEET NO.
SCALE
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
UNIT NO.
DWG. SIZE 24X36
SUB CLASS
Ameren MISSOURI
DRAWING RECORD
REV. | DATE | PROJECT NO. | AMEREN SUPV ENGR | DRFTR | CHK'D | SUPV | AMEREN | OTHER | DESCRIPTION
0 | 10.20.2014 | J04PT | – | DBH | SMB | SMB | – | – | ISSUED FOR PERMITTING – NOT FOR CONSTRUCTION
1 | 04.07.2014 | J04PT | – | DBH | SMB | SMB | – | – | ISSUED FOR CONSTRUCTION

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/23/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jessie Hahn
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0630 Depart: 1300 Travel: 3.00 Total: 9.50

AM Conditions: Cloudy
AM Temperature: 57 F
PM Conditions: Cloudy
PM Temperature: 74 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg
Equipment: **WB Koester:** 1 excavator, 2 bulldozers, 1 haul truck (see notes)

Personnel: **WB Koester:** 8 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond C, Bottom Ash Pond. See attached location drawing for more information.

Jessie Hahn — Geotechnology, Inc. Rep. — 10/23/2015 Date

[signature] — Geotechnology, Inc. Engineer — 10/26/2015 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/23/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment details: 1 excavator (1 Komatsu PC 350), 2 bulldozers (Caterpillar D6N LGP with GPS), 1 haul truck (John Deere 400D), 1 skidsteer.

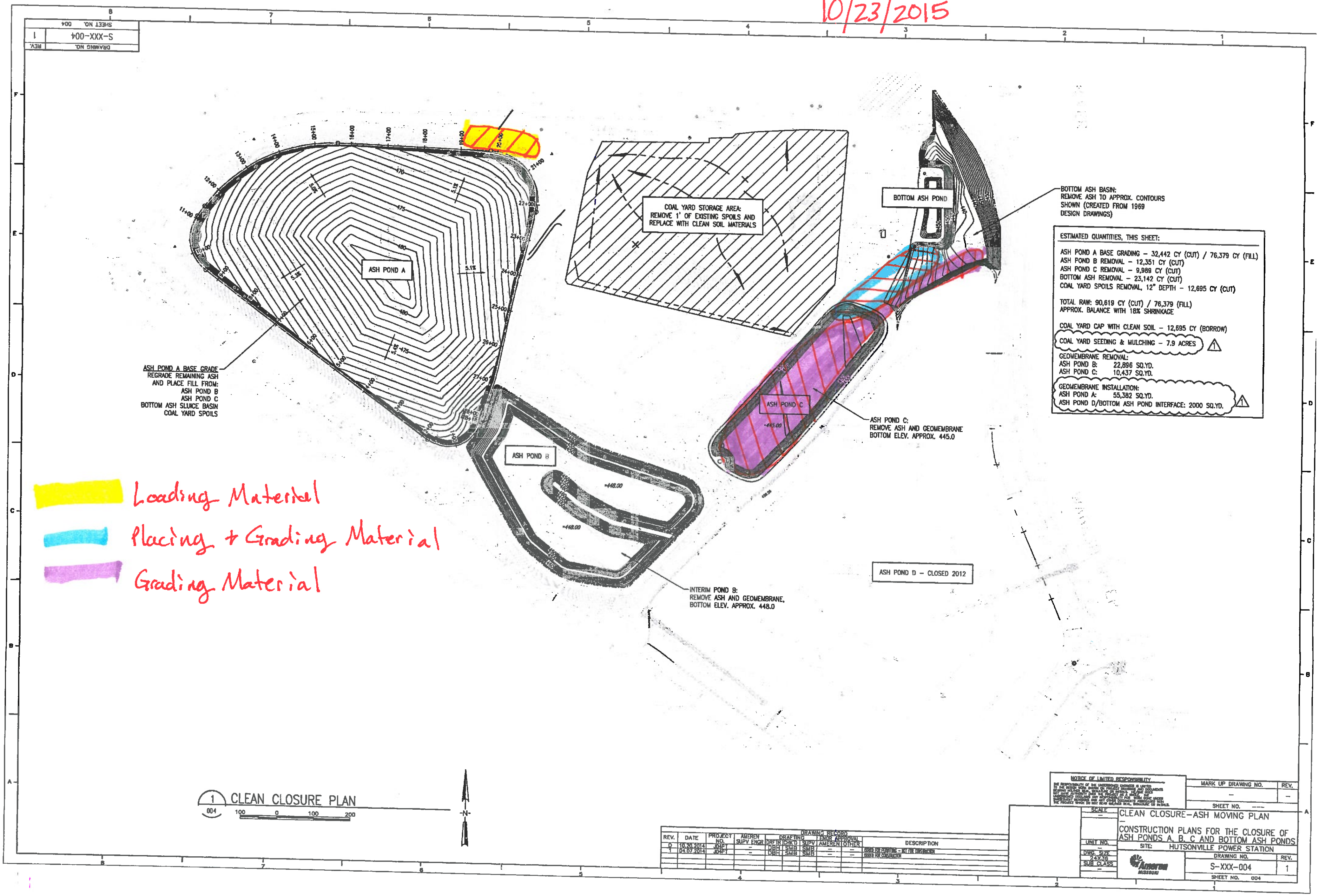
One bulldozer graded Ash Pond C.

One excavator was used to move the sump and pump away from the east side of the Bottom Ash Pond.

One excavator loaded large cementitious material from the levees of Ash Pond A into a haul truck. The material was deposited at the east end of the Bottom Ash Pond as fill. One bulldozer graded the Bottom Ash Pond.

The water truck sprayed the roads keep the dust down. The skidsteer cleaned the roads.

10/23/2015



Loading Material
Placing + Grading Material
Grading Material
ASH POND A
ASH POND B
ASH POND C
BOTTOM ASH POND
ASH POND D – CLOSED 2012
COAL YARD STORAGE AREA: REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
ASH POND A BASE GRADE REGRADE REMAINING ASH AND PLACE FILL FROM: ASH POND B ASH POND C BOTTOM ASH SLUICE BASIN COAL YARD SPOILS
INTERIM POND B: REMOVE ASH AND GEOMEMBRANE. BOTTOM ELEV. APPROX. 448.0
ASH POND C: REMOVE ASH AND GEOMEMBRANE BOTTOM ELEV. APPROX. 445.0
BOTTOM ASH BASIN: REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
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ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
1 CLEAN CLOSURE PLAN 004
100 0 100 200
N
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO. REV.
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-004 REV. 1
SHEET NO. 004
DWG. SIZE 24X36
Ameren MISSOURI
DRAWING RECORD
REV. DATE PROJECT NO.
0 10.20.2014 J04PT DBH SMB SMB
1 04.07.2014 J04PT DBH SMB SMB
DESCRIPTION

PHOTOGRAPH LOG

Photograph 1 ⮙ - View of culvert placement under the road between Ash Pond A and the Coal Yard.

Photograph 2 ⮙ - View of completed outfall from the Bottom Ash Pond.

Photograph 3 - View of rip-rap apron at culvert in the west levee of Ash Pond C.

Photograph 4 - View of rip-rap apron at culvert in the east levee of Ash Pond C.

Photograph 5 - View of anchor trench construction on the west edge of Ash Pond A.

Photograph 6 - View of grading Ash Pond B, looking south.

Photograph 7 ⮝ - View of grading the Coal Yard, looking northeast.

Photograph 8 ⮝ - View of flowable fill placed over the demolished lift station at Ash Pond C.

Photograph 9 ⮝ - View of perforated pipe installed to control seepage in the Bottom Ash Pond, looking south.

Photograph 10 ⮝ - View of concrete pipe staging for installation, looking east.

Photograph 11 ⮝ - View of placing dry soil over wet soil at the Bottom Ash Pond anchor trench.

Photograph 12 ⮝ - View of placing concrete pipe at the Ash Pond B outfall location, looking southwest.

Photographs taken by Jessie Hahn of Geotechnology, Inc. October 20-23, 2015.

Photograph 13 ⮝ - View of placing gravel pipe bedding over the concrete pipe at the Ash Pond B outfall.

Photograph 14 ⮝ - View of placing material with cementitious material blocks at the Bottom Ash Pond, looking south.

Photograph 15 ⮙ - View of loading material with cementitious material blocks at Ash Pond A, looking south.

MEMORANDUM

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DATE: November 5, 2015

SUBJECT: Weekly Summary Report for October 26, 2015 to October 31, 2015

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

Weather

The weather was generally cloudy. Temperature (^{O}F) lows ranged from 36 to 50^{O}F, and temperature highs ranged from 54 to 68^{O}F. No work was performed Tuesday, October 27, 2015 due to rain.

Construction Activities

Reinforced concrete pipe was installed under the main access road near the north corner of Ash Pond A and an associated ditch was excavated.

Excess material from Ash Pond B was placed at the former stockpile outside the gate. Ash Pond B and the former stockpile outside the gate were graded. Excess cementitious soil material was moved from the levees of Ash Pond A to the Bottom Ash Pond as backfill, then was graded and compacted.

After the rain on October 27, 2015 temporary drainage ditches were excavated at the Ash Pond A levees to promote drainage in preparation for HDPE geomembrane placement.

National Lining Systems (NLS) filled sand bags on October 28 and 29. NLS placed, seamed, and tested the 40 mil HDPE geomembrane on October 30 and 31, 2015.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 4 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC, 1 Caterpillar 308E, 1 Hyundai 290), 3 dump trucks (John Deere 400D), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 water truck (Caterpillar 623B), 1 sheepsfoot roller (CA251), 1 smooth drum roller (CS-433E), and 1 skidsteer.

WB Koester had 8 employees working on site on October 26 and 28-30, 2015: 2 laborers, 1 mechanic, and 5 equipment operators. WB Koester had 5 employees working on site on October 31, 2015: 2 laborers and 3 equipment operators.

NLS had 10 employees working on site on October 28-31, 2015.

Meetings

The weekly progress meeting was held on Wednesday, October 28, 2015. Refer to the meeting minutes for additional information.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Gravel bedding, reinforced concrete pipe, and 40 mil HDPE geomembrane were installed on the site.

Testing/Sampling

Non-destructive air testing of HDPE geomembrane seams was performed on October 31, 2015. Testing of trial seams for the HDPE geomembrane was performed on October 30 and 31, 2015. Refer to the geomembrane logs for additional information.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/26/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0830 Depart: 1430 Travel: 3.00 Total: 9.00

AM Conditions: Clear AM Temperature: 49 F
PM Conditions: Clear PM Temperature: 67 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg
Equipment: **WB Koester:** 2 excavators, 2 bulldozers, 2 haul trucks, 2 compactors (see notes)

Personnel: **WB Koester:** 8 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B, Bottom Ash Pond. See attached location drawing for more information.

[signature] 10/26/2015
Geotechnology, Inc. Rep. Date

[signature] 10/2/15
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/26/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment details: 2 excavators (1 Komatsu PC 350, 1 Caterpillar 320B), 2 bulldozers (Caterpillar D6N LGP with GPS), 2 haul trucks (John Deere 400D), 1 sheepsfoot roller (CA 251), 1 smooth drum roller (CS 433E), 1 skidsteer.

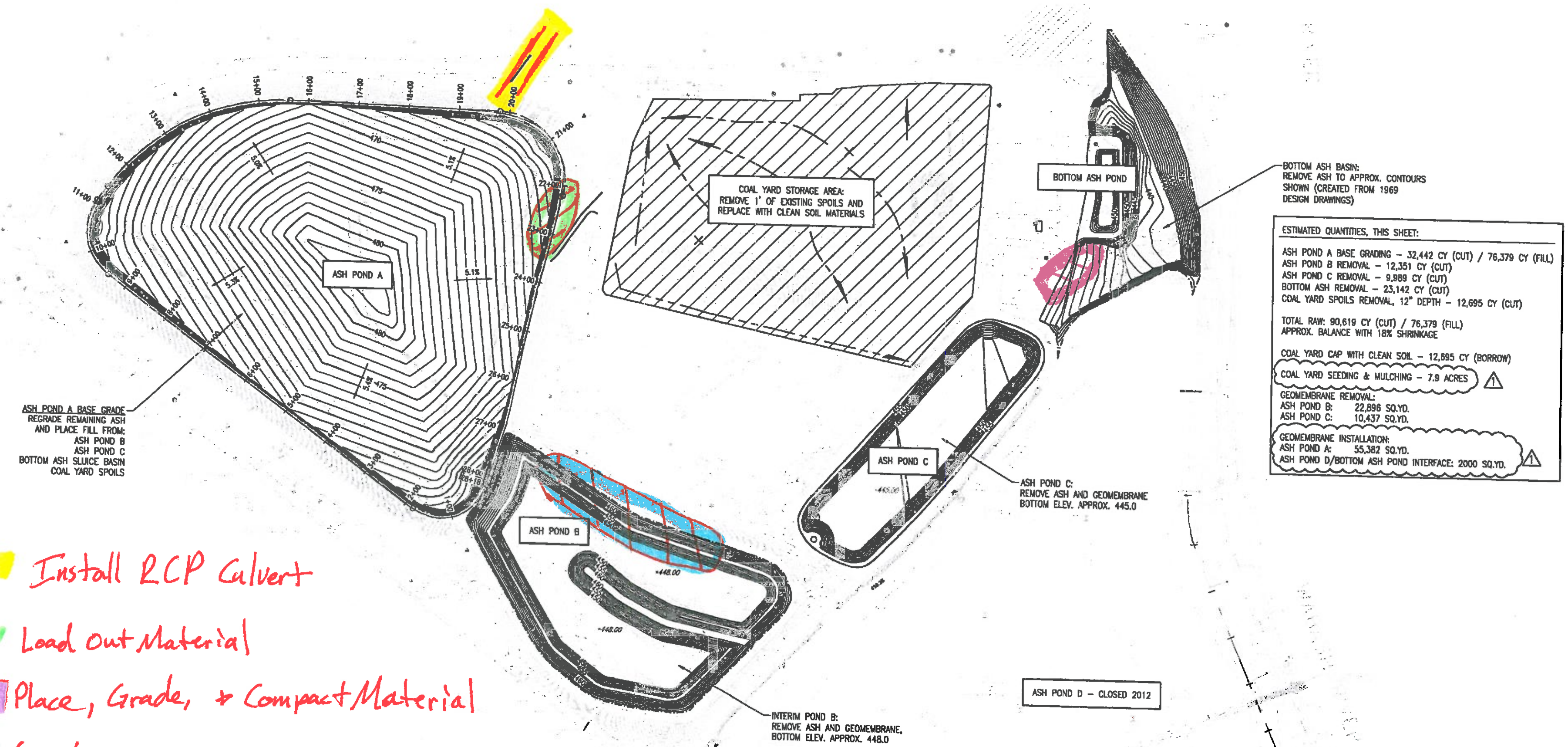
Two excavators, one skidsteer, one haul truck, and one smooth drum roller installed a RCP culvert on the main access road near the northern corner of Ash Pond A. Access to the road was restored by 1100.

One excavator loaded large cementitious material from the levees of Ash Pond A into one haul truck. The material was deposited at the east end of the Bottom Ash Pond as fill. One bulldozer graded the Bottom Ash Pond. One sheepsfoot roller compacted the fill at the Bottom Ash Pond.

One bulldozer graded Ash Pond B.

The skidsteer cleaned the roads.

10/26/2015



Install RCP Culvert

Load Out Material

Place, Grade, + Compact Material

Grading

1 / 004 CLEAN CLOSURE PLAN

100 0 100 200

NOTICE OF LIMITED RESPONSIBILITY

REV.	DATE	PROJECT NO.	AMEREN SUPV ENGR	DRAFTING DRFTR	DRAFTING CHK'D	DRAFTING SUPV	ENGR APPROVAL AMEREN	ENGR APPROVAL OTHER	DESCRIPTION
0	10.20.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR PERMITTING – NOT FOR CONSTRUCTION
1	04.07.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR CONSTRUCTION

MARK UP DRAWING NO. – REV. –

SCALE –

CLEAN CLOSURE–ASH MOVING PLAN

CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS

SITE: HUTSONVILLE POWER STATION

UNIT NO. –

DWG. SIZE 24X36

SUB CLASS –

Ameren MISSOURI

DRAWING NO. S-XXX-004 REV. 1

SHEET NO. 004

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/27/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0630 Depart: 1430 Travel: 0.00 Total: 8.00

AM Conditions: Cloudy with Rain
AM Temperature: 51 F
PM Conditions: Cloudy with Rain
PM Temperature: 60 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg
Equipment:
Personnel:
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:
Testing:

CONSTRUCTION SITE LOCATIONS:

Jessie Hahn 10/27/15
Geotechnology, Inc. Rep. Date

11/2/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/27/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Rain day. No work performed today.

The quantity of rain reported by accuweather.com for Hutsonville was 0.61 inches for the day.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/28/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jessie Hahn
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0630 Depart: 1430 Travel: 0.00 Total: 8.00

AM Conditions: Cloudy with misting rain
AM Temperature: 57 F
PM Conditions: Cloudy with misting rain
PM Temperature: 60 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, National Lining Systems, Brandenberg
Equipment: **WB Koester:** 2 excavators

Personnel: **WB Koester:** 6 employees; **NLS:** 10 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A. See attached location drawing for more information.

Jessie Hahn 10/28/15
Geotechnology, Inc. Rep. Date

[signature] 11/2/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/28/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment Details: 2 excavators (1 Caterpillar 320B, 1 Caterpillar 308E)

One excavator excavated a ditch to one culvert under the main entry road near the northern corner of Ash Pond A.

Two excavators developed and redeveloped drainage around the borders of Ash Pond A.

All employees except for the superintendent left site at 1200 due to the weather conditions.

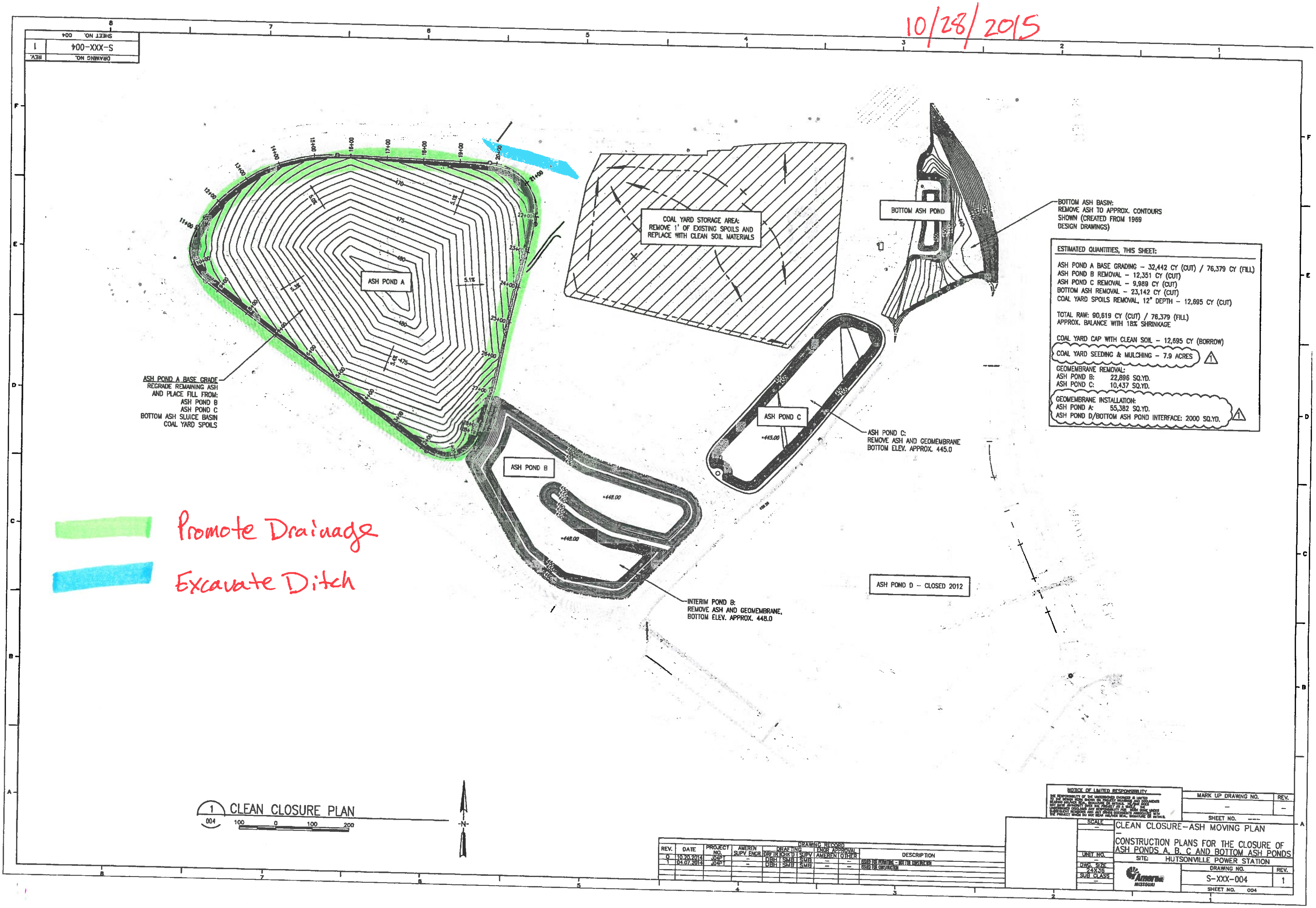
National Lining Systems:

Arrived on site at 1000. Went through site safety orientation. Filled sand bags.

Other:

The quantity of rain reported by accuweather.com for Hutsonville was 0.34 inches for the day.

The weekly progress meeting was held at 1030. Refer to the meeting minutes for additional information.


10/28/2015
ASH POND A
COAL YARD STORAGE AREA: REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH POND
BOTTOM ASH BASIN: REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
ASH POND A BASE GRADE
REGRADE REMAINING ASH AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
ASH POND C
ASH POND C: REMOVE ASH AND GEOMEMBRANE BOTTOM ELEV. APPROX. 445.0
ASH POND B
INTERIM POND B: REMOVE ASH AND GEOMEMBRANE, BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
Promote Drainage
Excavate Ditch
1 CLEAN CLOSURE PLAN
004
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
REV.
SHEET NO.
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
Ameren MISSOURI
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
DWG. SIZE 24X36

Weekly Progress Meeting

Meeting Minutes

Date: 10-28-15

Attendees:

Ameren: Don Shaver, Mike Wagstaff , John Patterson (phone), Tim Free, Ken Beckman (phone)

WB Koester: Chris Atkinson, Bob Fisher

Geotechnology, Inc.: Jessie Hahn

Topics:

Safety/Housekeeping

- No issues
- Chris to make sure to wash and scrape the parking lot each Friday and as necessary.

Manpower

- Man hours
  - Start of Job (4-27-15) through 10-26-15
    - Total = 10,075 hrs.
- Next week expected manpower
  - WBK = 8 total this week, 12 total next week
  - 5-8 hrs days approx. except Chris and operator will be on site whenever the Liner crew is working.
  - Liner crew (National Lining Systems) is on site and weather permitting will begin liner deployment this week. They have 10 employees and will likely work 6 – 5, and may work Saturdays and Sundays, weather permitting.
  - If Liner crew is working Sunday, Chris is to tell Don by Noon on Thursday.

Review old minutes and action items

- LAMAC has not been on site yet due to weather to locate the property boundaries of the borrow field.
- Archeological study has not been performed on field yet either.

Material Issues

- No issues

Quality Control Issues

- Steve with Geotechnology, Inc will be on site today to be QC for the liner install.

Schedule Compliance

- Natinal Lining Systems on site today filling sand bags. Will evaluate with Geotechnology to see if Pond A or the Pond D tie in location is stable/dry enough to begin installation this week.
- Likely will take 1 week after obtaining the liner destructive test samples to get results.
- Chris has about 1,000 CY of material to remove from Pond B to complete.
- Looking to seed Coal yard, Pond C, Pond B and stockpile area outside fence October 30 if it is dry enough.
- Existing Pond B outfall is still being utilized. Pump from BA pond to Pond B outfall. Once the BA Pond Levee is breached and turned into an outfall the pumping will stop and Pond B outfall will be plugged and abandoned. Bob to submit plugging procedure.
- New Pond B outlet pipe has 8" of soil cover, Mike would like it shaped up and additional vegetative soil cover placed. Can also use geotextile with Rip Rap.
- Brandenberg may take 6-7 weeks for them to complete.

Cost and Budget Control

- Bob to submit request for EWO to place erosion control blanket on slopes of Pond B and C.
- Mike will send Bob's Excel file on the EWO for Excess Ash and additional off site borrow needs to Don and Tim for review.
- August invoice should be paid this week. September invoice has been submitted and should be paid in a couple of weeks.

Next Meeting Scheduled: November 4, 2015 at 9:00 CST

Action Items -

- Bob to submit request for EWO for Erosion Control Blanket
- Bob to submit procedure for plugging pipe at Pond B outfall.
- Mike will send Bob's Excel file on the EWO for Excess Ash and additional off site borrow needs to Don and Tim for review.
- Chris to check on National Lining's operator's qualifications. They are deploying with a skid steer.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/29/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0630 Depart: 1730 Travel: 0.00 Total: 10.50

AM Conditions: Clear AM Temperature: 44 F
PM Conditions: Clear PM Temperature: 52 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, National Lining Systems, Brandenberg
Equipment: **WB Koester:** 2 excavators, 2 bulldozers, 2 haul trucks

Personnel: **WB Koester:** 8 employees; **NLS:** 10 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A. See attached location drawing for more information.

Geotechnology, Inc. Rep. 10/29/2015 Date
Geotechnology, Inc. Engineer 11/2/2015 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/29/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment Details: 2 excavators (1 Caterpillar 320B, 1 Caterpillar 308E), 2 bulldozers with GPS (Caterpillar D6N LGP), 2 haul trucks (John Deere 400D), 1 water truck, 1 skid steer.

In the early morning for 1 hour, one excavator loaded rip rap into a haul truck and another excavator placed the rip rap at the new outfall inlet in the southeast corner of Ash Pond B.

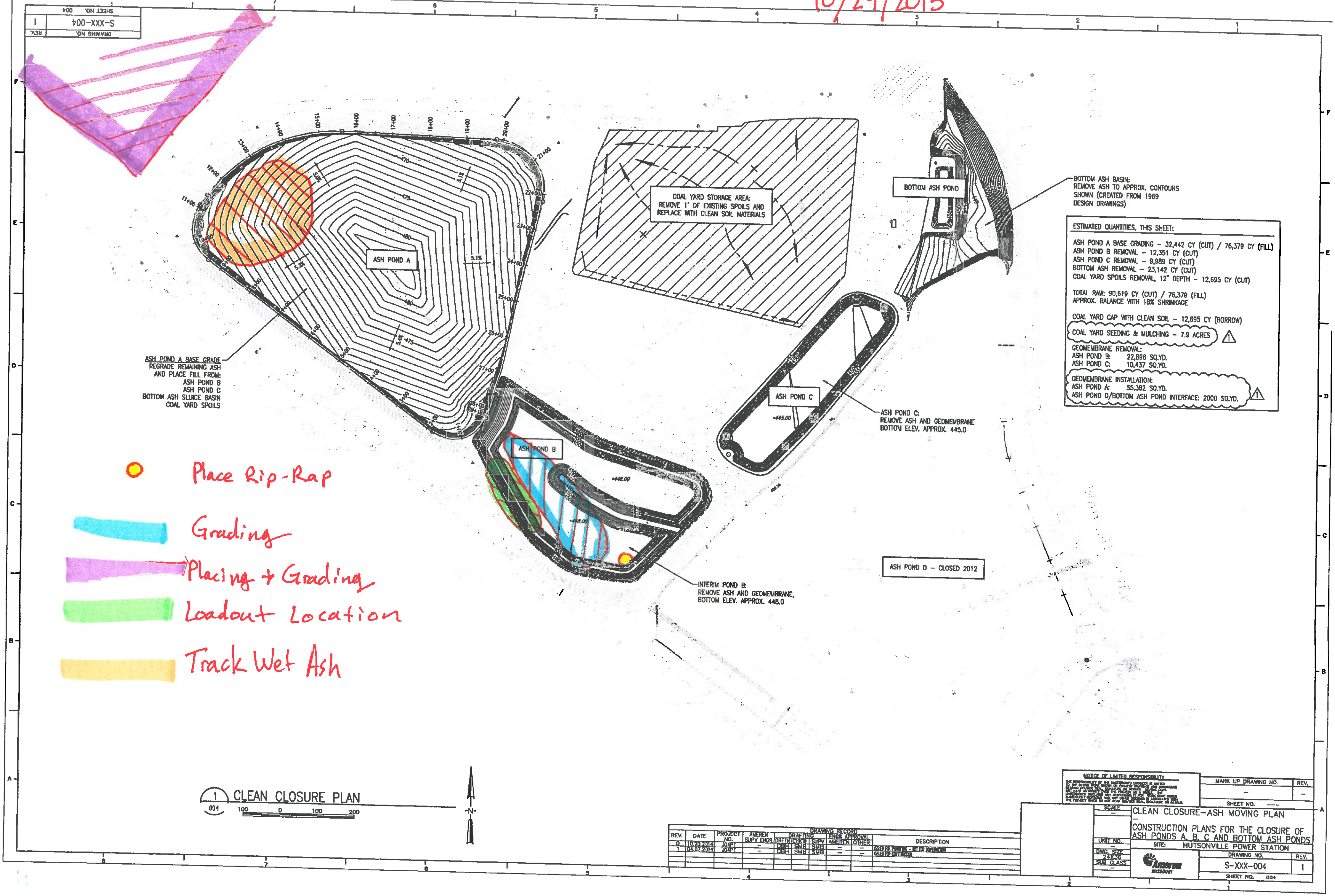
One bulldozer graded Ash Pond B. One excavator loaded excess material at Ash Pond B into haul trucks. Two haul trucks moved the excess material to the former stockpile location outside the gate. One bulldozer graded the material placed at the former stockpile location.

One bulldozer tracked ash in the southeast corner of Ash Pond A to promote drying.

National Lining Systems:

Filled sand bags. Site was too wet to begin liner.

10/29/2015



ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH
AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
COAL YARD STORAGE AREA:
REMOVE 1' OF EXISTING SPOILS AND
REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH POND
BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS
SHOWN (CREATED FROM 1969
DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
ASH POND C
ASH POND C:
REMOVE ASH AND GEOMEMBRANE
BOTTOM ELEV. APPROX. 445.0
ASH POND B
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
Place Rip-Rap
Grading
Placing + Grading
Loadout Location
Track Wet Ash
1 CLEAN CLOSURE PLAN
004
DRAWING NO. S-XXX-004 REV. 1 SHEET NO. 004
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DWG. SIZE 24X36
Ameren MISSOURI
DRAWING RECORD
REV. | DATE | PROJECT NO. | AMEREN SUPV ENGR | DRFTR | CHK'D | SUPV | AMEREN | OTHER | DESCRIPTION
0 | 10.20.2014 | J04PT | – | DBH | SMB | SMB | – | – | ISSUED FOR PERMITTING – NOT FOR CONSTRUCTION
1 | 04.07.2014 | J04PT | – | DBH | SMB | SMB | – | – | ISSUED FOR CONSTRUCTION

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/30/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jessie Hahn
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0630 Depart: Travel: 0.00 Total: 8.00

AM Conditions: Clear AM Temperature: 46 F
PM Conditions: Clear PM Temperature: 55 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, National Lining Systems, Brandenberg
Equipment: **WB Koester:** 2 excavators, 2 bulldozers, 1 skidsteer; **NLS:** 1 skidsteer

Personnel: **WB Koester:** 8 employees; **NLS:** 10 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A. See attached location drawing for more information.

Geotechnology, Inc. Rep. Date 10/30/2015

Geotechnology, Inc. Engineer Date 10/2/2015

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/30/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment Details: 2 excavators (1 Caterpillar 320B, 1 Caterpillar 308E), 2 bulldozers with GPS (Caterpillar D6N LGP), 1 water truck, 1 skid steer.

Two bulldozers graded Ash Pond B.

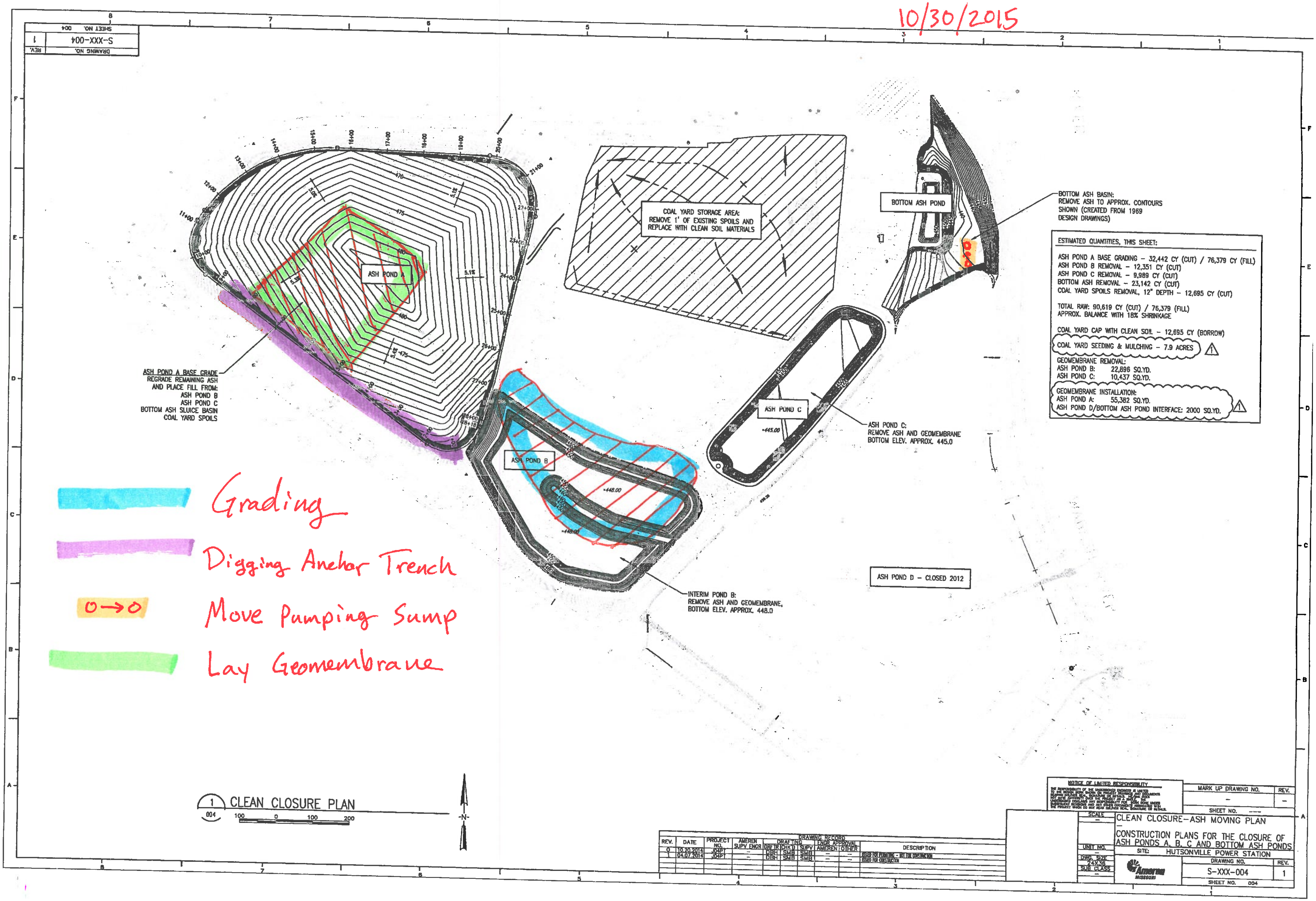
Two excavators dug an anchor trench at the south side of Ash Pond A for the HDPE geomembrane.

One excavator moved the pumping sump at the Bottom Ash Pond away from the location of the anchor trench at the base of the east levee.

National Lining Systems:

Installed liner on Ash Pond A. See field notes for additional information.

10/30/2015



REV.	DATE	PROJECT NO.	AMEREN SUPV ENGR	DRAFTING DRFTR	DRAFTING CHK'D	DRAFTING SUPV	ENGR APPROVAL AMEREN	ENGR APPROVAL OTHER	DESCRIPTION
0	10.20.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION
1	04.07.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR CONSTRUCTION

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/31/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jessie Hahn
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0630 Depart: 1330 Travel: 0.00 Total: 7.00

AM Conditions: Clear AM Temperature: 42 F
PM Conditions: Clear PM Temperature: 58 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, National Lining Systems, Brandenberg

Equipment: **WB Koester:** 2 excavators, 1 bulldozer, 1 compactor, 1 skidsteer; **NLS:** 1 skidsteer

Personnel: **WB Koester:** 5 employees; **NLS:** 10 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B. See attached location drawing for more information.

Geotechnology, Inc. Rep. — 10/31/15 Date

Geotechnology, Inc. Engineer — 11/2/2015 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 10/31/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment Details: 2 excavators (1 Komatsu PC 350 LC, 1 Caterpillar 308E), 1 bulldozer with GPS (Caterpillar D6N LGP), 1 smooth drum roller (CA 251), 1 skid steer.

One bulldozer graded Ash Pond B.

Two excavators dug an anchor trench at the south side of Ash Pond A for the HDPE geomembrane.

The skidsteer cleaned the road.

National Lining Systems:

Installed liner on Ash Pond A. See field notes for additional information.

10/31/2015

1 ASH POND A BASE GRADING PLAN
005

NOTES:

1. THIS PLAN SHOWS APPROXIMATE GRADES FOR FINAL ASH BASE. GRADING PLAN SHOWN INCLUDES MATERIAL FROM THE COAL YARD, ASH POND B, ASH POND C, AND BOTTOM ASH POND. CLEAN CLOSURE GRADING CONTOURS FOR THESE FACILITIES ARE SHOWN ON SHEET 004.
2. SEE COA PLAN FOR CLEAN CLOSURE APPROVAL GUIDELINES.
3. GEOMEMBRANE IN PONDS B AND C SHALL BE DISPOSED OF OFF SITE IN A LICENSED LANDFILL.

Anchor Trench Construction

Smooth-Rolling

Lay HDPE Geomembrane

+ Grading in Ash Pond B

NOTICE OF LIMITED RESPONSIBILITY

MARK UP DRAWING NO.	REV.
–	–

SHEET NO. ---

ASH POND A BASE GRADING PLAN

CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS

SITE: HUTSONVILLE POWER STATION

SCALE –
UNIT NO. –
DWG. SIZE 24X36
SUB CLASS –

Ameren MISSOURI

DRAWING NO.	REV.
S-XXX-005	1

SHEET NO. 005

PHOTOGRAPH LOG

Photograph 1 ⮙ - Placing RCP culvert under the main access road near the northeast corner of Ash Pond A, looking south.

Photograph 2 ⮙ - Placing gravel over RCP culvert under the main access road near the northeast corner of Ash Pond A, looking south.

Photograph 3 ⮝ - Loading out large cementitious material from the Ash Pond east levee, looking north.

Photograph 4 ⮝ - View of placing, grading, and compacting material from the Ash Pond Levee at the southwest corner of the Bottom Ash Pond, looking south.

Photograph 5 ⮝ - View of Ash Pond C, looking north, showing wet conditions after a rainy day on 10/27/2015.

Photograph 6 ⮝ - View of excavation of ditch between installed culverts at the intersection north of Ash Pond A, looking south.

Photograph 7 ⮝ - View of excavator moving soil to allow drainage of Ash Pond A looking west, showing wet conditions on Ash Pond A.

Photograph 8 ⮝ - View of National Lining Systems employees filling sand bags, looking northwest.

Photograph 9 ⮙ - View of installation of filter fabric and rip-rap at the RCP inlet at the southeast corner of Ash Pond B.

Photograph 10 ⮙ - View of loading out material from the southwest corner of Ash Pond B, looking southwest.

Photograph 11 ⮝ - View of placing and grading material at the former CCW stockpile outside the gate, looking north.

Photograph 12 ⮝ - View of testing trial seams on Ash Pond A, looking west.

Photograph 13 ⮝ - View of placing panels on Ash Pond A, looking southeast.

Photograph 14 ⮝ - View of new location for pumping sump at the Bottom Ash Pond, looking north.

Photograph 15 - View of smooth-roller on the southwest corner of Ash Pond A, looking southwest.

Photograph 16 - View of anchor trench excavation at the east levee of Ash Pond A, looking east.

Photograph 17 ⮝ - View of fusion-welding two HDPE geomembrane panels on Ash Pond A, looking west.

M E M O R A N D U M

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DATE: November 18, 2015

SUBJECT: Weekly Summary Report for November 1, 2015 to November 7, 2015

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

Weather

The weather was generally cloudy. Temperature (^{O}F) lows ranged from 34 to 57^{O}F, and temperature highs ranged from 58 to 74^{O}F. No work was performed Friday, November 6, due to rain.

Construction Activities

Excess material from Ash Pond B was placed at the Bottom Ash Pond and into a stockpile at the southern side of the Coal Yard. Ash Pond B and the Bottom Ash Pond were graded.

WB Koester excavated an anchor trench for the HDPE geomembrane at Ash Pond A and the Bottom Ash Pond. After HDPE geomembrane placement, WB Koester backfilled the anchor trenches at Ash Pond A between seams.

Earth Images seeded the field outside the gate, the Coal Yard, Ash Pond B, and Ash Pond C.

National Lining Systems (NLS) placed, seamed, and tested 40 mil HDPE geomembrane on Ash Pond A.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 4 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC, 1 Caterpillar 308E, 1 Hyundai 290), 3 dump trucks (John Deere 400D), 2 bulldozers (Caterpillar D6N LGP with GPS), 1 water truck (Caterpillar 623B), 1 sheepsfoot roller (CA251), 1 smooth drum roller (CS-433E), and 1 skidsteer.

WB Koester had 5 employees working on site: 2 laborers, 1 mechanic, and 2 equipment operators.

NLS had 10-11 employees working on site and 1 skidsteer.

Earth Images had 4 employees working on site and had 1 hydroseeder, 1 straw spreader, and 1 skidsteer on site.

Meetings

The weekly progress meeting was held on Wednesday, November 4, 2015. Refer to the meeting minutes for additional information.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

40 mil HDPE geomembrane and grass seed with straw were installed on the site.

Testing/Sampling

Testing of trial seams and non-destructive air testing of HDPE geomembrane seams were performed on site. Destructive samples of HDPE geomembrane seams were tested on site and then sent to an independent laboratory for further testing.

Signature of CQA Officer

Anna Saindon, P.E., R.G., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/01/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jessie Hahn
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0700 Depart: 1630 Travel: 0.00 Total: 9.00

AM Conditions: Clear
AM Temperature: 51 F
PM Conditions: Clear
PM Temperature: 66 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, National Lining Systems, Brandenberg

Equipment: **WB Koester:** 2 excavators, 1 bulldozer, 1 haul truck, 1 skidsteer; **NLS:** 1 skidsteer

Personnel: **WB Koester:** 5 employees; **NLS:** 10 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B. See attached location drawing for more information.

Geotechnology, Inc. Rep. — Date: 11/1/15

Geotechnology, Inc. Engineer — Date: 11/5/2015

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/01/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment Details: 2 excavators (1 Komatsu PC 350 LC, 1 Caterpillar 308E), 1 bulldozer with GPS (Caterpillar D6N LGP), 1 haul truck (John Deere 400D), 1 skidsteer.

One tractor with scraper/roller box cleaned the roads and central site.

Two excavators dug an anchor trench at Ash Pond A for the HDPE geomembrane.

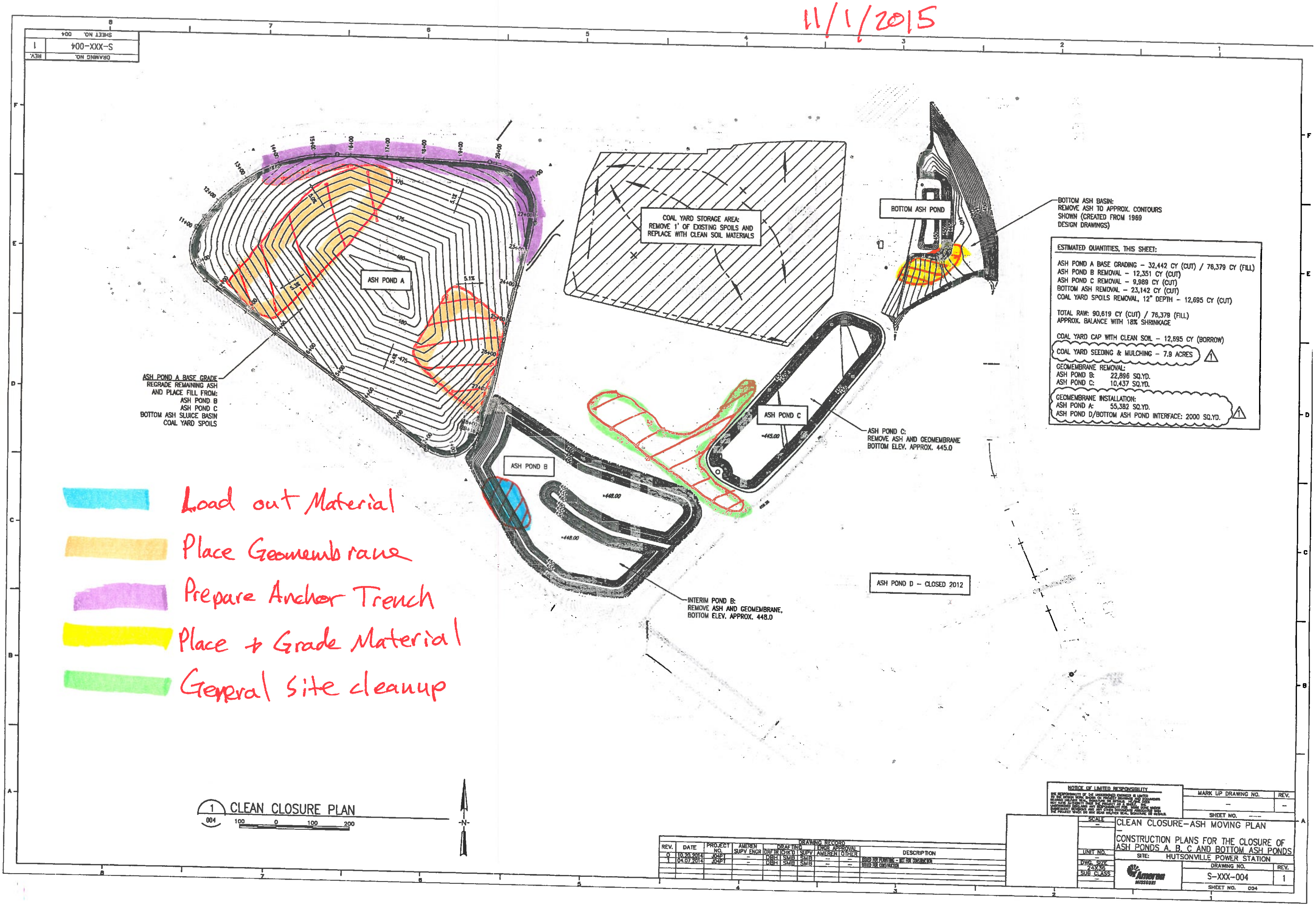
One bulldozer graded Ash Pond B. One excavator loaded out material from Ash Pond B. One haul truck transported the material to the Bottom Ash Pond. One bulldozer graded the material at the Bottom Ash Pond.

The skidsteer cleaned the road.

National Lining Systems:

Installed liner on Ash Pond A. See field notes for additional information.

11/1/2015


ASH POND A
ASH POND B
ASH POND C
BOTTOM ASH POND
ASH POND D – CLOSED 2012
COAL YARD STORAGE AREA: REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH BASIN: REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
ASH POND A BASE GRADE REGRADE REMAINING ASH AND PLACE FILL FROM: ASH POND B ASH POND C BOTTOM ASH SLUICE BASIN COAL YARD SPOILS
ASH POND C: REMOVE ASH AND GEOMEMBRANE BOTTOM ELEV. APPROX. 445.0
INTERIM POND B: REMOVE ASH AND GEOMEMBRANE, BOTTOM ELEV. APPROX. 448.0
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
Load out Material
Place Geomembrane
Prepare Anchor Trench
Place + Grade Material
General site cleanup
CLEAN CLOSURE PLAN
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
Ameren MISSOURI

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/02/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jessie Hahn
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0700 Depart: 1700 Travel: 0.00 Total: 9.50

AM Conditions: Foggy, clearing by 1000
AM Temperature: 47 F
PM Conditions: Clear
PM Temperature: 67 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, National Lining Systems, Brandenberg

Equipment: **WB Koester:** 2 excavators, 2 bulldozers, 1 haul truck, 1 skidsteer; **NLS:** 1 skidsteer

Personnel: **WB Koester:** 8 employees; **NLS:** 10 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B, Coal Yard. See attached location drawing for more information.

[signature] 11/2/2015
Geotechnology, Inc. Rep. Date

[signature] 11/5/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/02/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

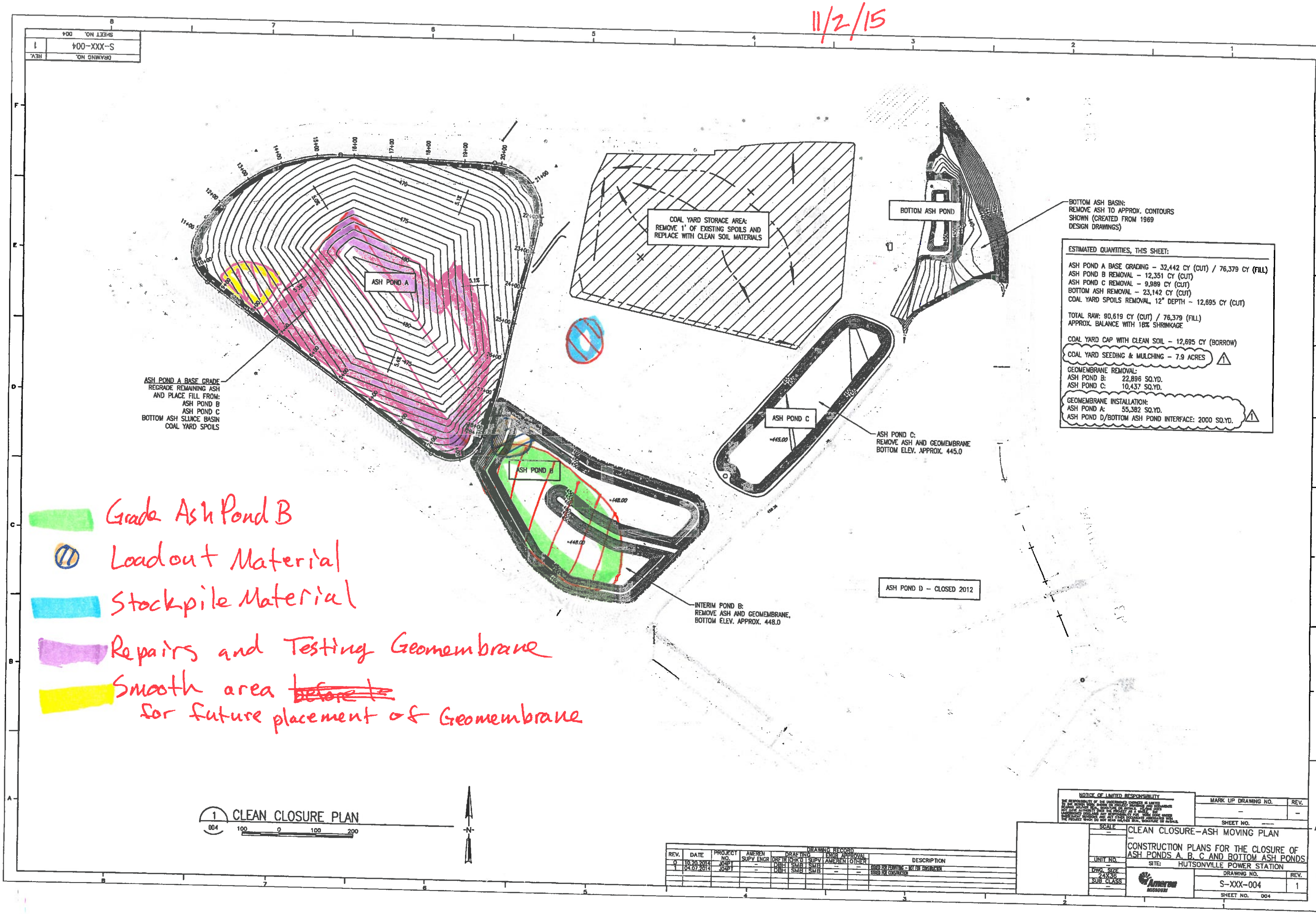
Equipment Details: 2 excavators (1 Komatsu PC 350 LC, 1 Caterpillar 308E), 2 bulldozers with GPS (Caterpillar D6N LGP), 1 haul truck (John Deere 400D), 1 skidsteer.

One bulldozer graded Ash Pond B. One excavator loaded out material from Ash Pond B. One haul truck transported the material to a stockpile location at the southeast corner of the Coal Yard. One bulldozer graded the material at the Coal Yard.

The skidsteer cleaned the road.

National Lining Systems:

Installed liner on Ash Pond A. See field notes for additional information.



11/2/15
BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 16% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
BOTTOM ASH POND
COAL YARD STORAGE AREA:
REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
ASH POND C
ASH POND C:
REMOVE ASH AND GEOMEMBRANE
BOTTOM ELEV. APPROX. 445.0
ASH POND B
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
Grade Ash Pond B
Loadout Material
Stockpile Material
Repairs and Testing Geomembrane
Smooth area ~~before to~~ for future placement of Geomembrane
1 CLEAN CLOSURE PLAN
004
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
Ameren MISSOURI
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
MARK UP DRAWING NO.
NOTICE OF LIMITED RESPONSIBILITY

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/03/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0630 Depart: 1700 Travel: 0.00 Total: 10.00

AM Conditions: Clear AM Temperature: 63 F
PM Conditions: Clear PM Temperature: 76 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, National Lining Systems, Brandenberg

Equipment: **WB Koester:** 1 tractor with scraper roller box, 1 bulldozer, 1 skidsteer; **NLS:** 1 skidsteer

Personnel: **WB Koester:** 8 employees; **NLS:** 10 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Ash Pond B, field outside site gate. See attached location drawing for more information.

Geotechnology, Inc. Rep. 11/3/15 Date

Geotechnology, Inc. Engineer 11/5/2015 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/03/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment Details: One tractor with scraper roller box, 1 bulldozer with GPS (Caterpillar D6N LGP), 1 skidsteer.

One bulldozer graded Ash Pond B. One tractor with scraper/roller box graded the field outside the gate (former CCW stockpile). One skidsteer transported temporary culvert to a location adjacent to the potential borrow field in preparation for clearance to access the land.

The skidsteer cleaned the road.

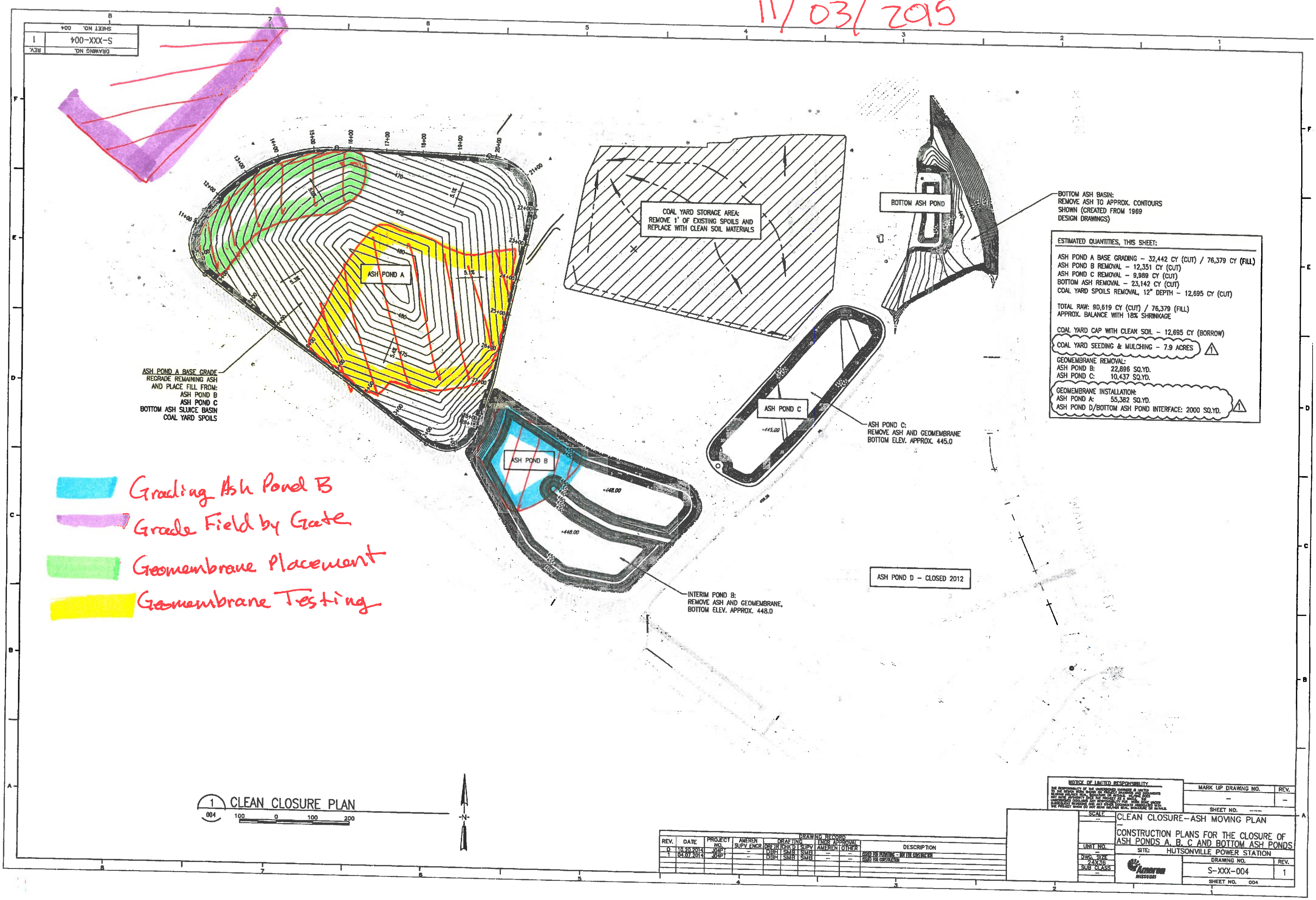
National Lining Systems:

Installed liner on Ash Pond A. See field notes for additional information.

At 1000, Jessie Hahn and Steve Graham of Geotechnology talked with Khamkhoun Thayravanh of NLS and indicated that they would like destructs cut and tested so that they could be sent off on 11/03/15. Thayravanh indicated that destructs would be cut and tested after lunch.

Destructs were tested immediately after trial welds after lunch.

11/03/2015



BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
BOTTOM ASH POND
COAL YARD STORAGE AREA:
REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
ASH POND B
ASH POND C
ASH POND C:
REMOVE ASH AND GEOMEMBRANE
BOTTOM ELEV. APPROX. 445.0
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
Grading Ash Pond B
Grade Field by Gate
Geomembrane Placement
Geomembrane Testing
1 004 CLEAN CLOSURE PLAN
100 0 100 200
N
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
REV.
SHEET NO.
SCALE
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
UNIT NO.
DWG. SIZE 24X36
SUB CLASS
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
REV. DATE PROJECT NO. AMEREN SUPV ENGR
0 10.20.2014
1 04.07.2014
DRAWING RECORD
DESCRIPTION
DRAWING NO. S-XXX-004
SHEET NO. 004

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/04/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jessie Hahn
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0630 Depart: 1700 Travel: 0.00 Total: 10.00

AM Conditions: Clear AM Temperature: 63 F
PM Conditions: Clear PM Temperature: 76 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, National Lining Systems, Brandenberg

Equipment: **WB Koester:** 1 trackhoe, 1 bulldozer, 1 skidsteer; **NLS:** 1 skidsteer
Earth Images: 1 tractor, 1 hydroseeder, 1 straw spreader

Personnel: **WB Koester:** 5 employees; **NLS:** 11 employees; **Earth Images:** 4 employees.

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Ponds A and B, Coal Yard, field outside gate. See attached location drawing for more information.

Geotechnology, Inc. Rep. Date

Geotechnology, Inc. Engineer 11/9/2015 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/04/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment Details: 1 bulldozer with GPS (Caterpillar D6N LGP), 1 trackhoe, 1 skidsteer.

One backhoe excavated the vertical anchor trenches at the Ash Pond D slope.

One backhoe backfilled the anchor trench at Ash Pond A at specific locations, which were coordinated with National Lining Systems. Two laborers were present to remove larger pieces of cementitious material.

The skidsteer cleaned the road.

National Lining Systems:

Installed liner on Ash Pond A. See field notes for additional information.

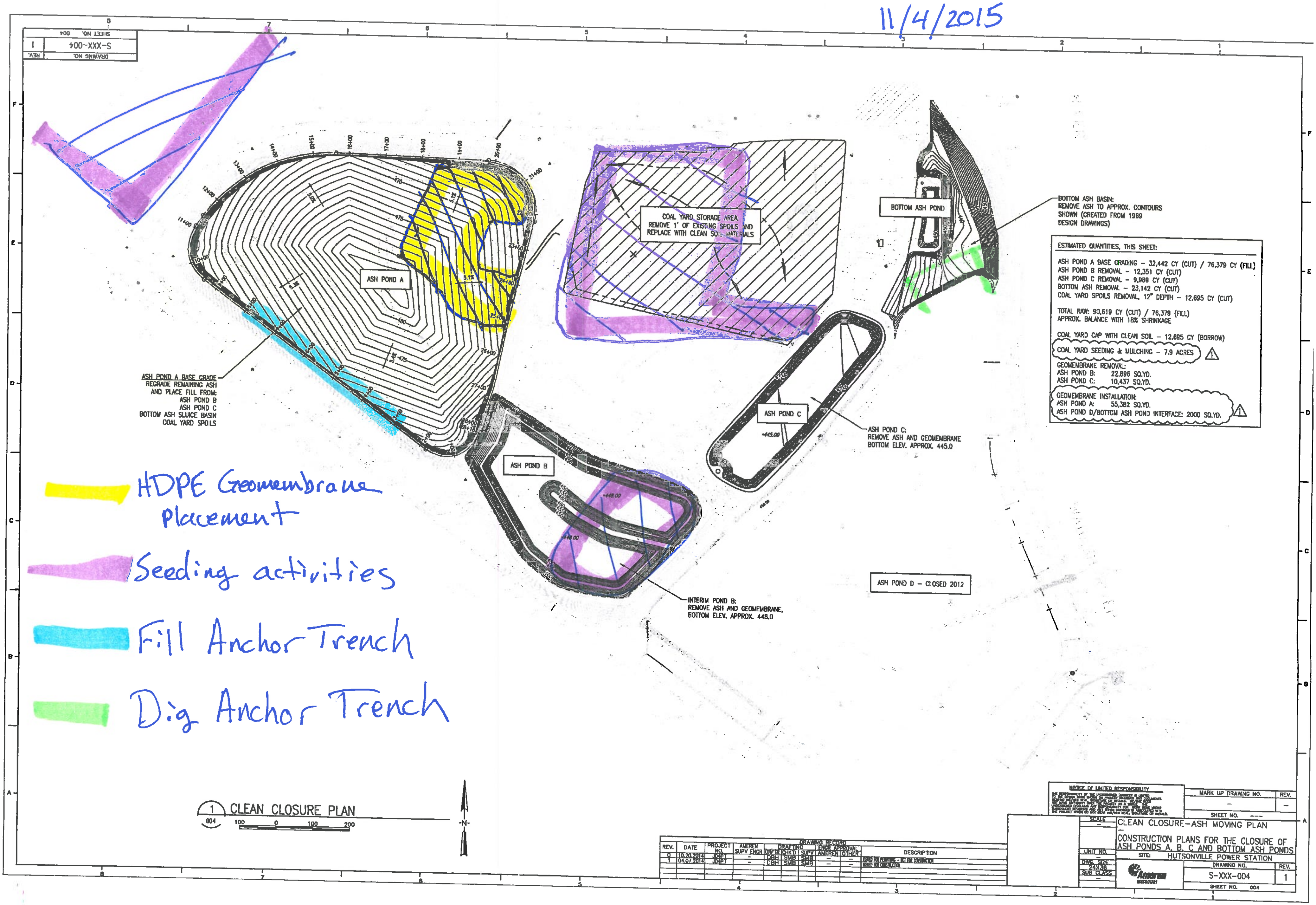
At 1445, the skidsteer became stuck in the Ash Pond A subgrade adjacent to the access ramp location. The skidsteer was removed by WB Koester's bulldozer. The disturbed location was not covered by HDPE geomembrane.

Earth Images:

Earth Images seeded the field outside the gate and the Coal Yard.

Other:

The weekly progress meeting was held at 0900. See the meeting minutes for additional information.


11/4/2015
BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS
SHOWN (CREATED FROM 1989
DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
BOTTOM ASH POND
COAL YARD STORAGE AREA
REMOVE 1' OF EXISTING SPOILS AND
REPLACE WITH CLEAN SOIL MATERIALS
ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH
AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
ASH POND B
ASH POND C
ASH POND C:
REMOVE ASH AND GEOMEMBRANE
BOTTOM ELEV. APPROX. 445.0
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
HDPE Geomembrane placement
Seeding activities
Fill Anchor Trench
Dig Anchor Trench
1 CLEAN CLOSURE PLAN 004
100 0 100 200
N
DRAWING NO. S-XXX-004 SHEET NO. 004 REV. 1
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO. REV.
SHEET NO.
SCALE
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF
ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
UNIT NO.
DWG. SIZE 24X36
SUB CLASS
Ameren MISSOURI
DRAWING NO. S-XXX-004 REV. 1
SHEET NO. 004
DRAWING RECORD
REV. DATE PROJECT NO. AMEREN SUPV ENGR DRAFTING DRF'TR CHK'D SUPV ENGR APPROVAL AMEREN OTHER DESCRIPTION
0 10.20.2014 JOHPT – DBH SMB SMB – –
1 04.07.2014 JOHPT – DBH SMB SMB – –

Weekly Progress Meeting

Meeting Minutes

Date: 11-4-15

Attendees:

Ameren: Don Shaver, Mike Wagstaff , John Patterson (phone), Mike Smallwood, Mike Bollinger

WB Koester: Chris Atkinson, Bob Fisher

Geotechnology, Inc.: Jessie Hahn

Topics:

Safety/Housekeeping

- No issues
- Chris to make sure to wash and scrape the parking lot each Friday and as necessary.

Manpower

- Man hours
    - Start of Job (4-27-15) through 11-2-15
        - Total = 11,020 hrs.
- Next week expected manpower
    - WBK = 5 total this week
        - 5-8 hrs days approx. except Chris and operator will be on site whenever the Liner crew is working.
    - National Lining – 11 this week
        - Working 7 am to 5 pm.
        - Will work Saturday but not Sunday this week. Looking to complete by next Tuesday

Review old minutes and action items

- LAMAC has not been on site yet due to weather to locate the property boundaries of the borrow field.
- Archeological study has been performed on field, waiting on report from State

- Bob submitted EWO for additional erosion control blanket on slopes. Bob gave Mike W. sketch in meeting today.
- Bob needs to submit procedure for filling pond B outlet pipe with grout.
- Chris "task trained" National lining systems operator. Appears to be a very good operator per Chris and Don. The operator did sign into union on a project agreement.

Material Issues

- No issues

Quality Control Issues

- Steve with Geotechnology, Inc will be on site today to be QC for the liner install.

Schedule Compliance

- Liner placement continuing. Should have Pond A "blacked out" by end of day today, will then continue with testing and repairs on Pond A and will also install liner at Pond D tie in likely tomorrow.
    - Jessie say the liner installation is going good after they adjusted their welder.
    - A little behind on testing/repairs.
    - Gut feel is that testing/repairs can be complete by Friday Nov 13th.
- Archeological survey complete on borrow area. Waiting on results. Hopefully we will be good to go by early next week.
    - WBK will install gate to borrow area but will wait to strip topsoil.
- Seed Coal yard, Pond C, Pond B and stockpile area outside fence today.
- Existing Pond B outfall is still being utilized. Pump from BA pond to Pond B outfall. Once the BA Pond Levee is breached and turned into an outfall the pumping will stop and Pond B outfall will be plugged and abandoned. Bob to submit plugging procedure.
- Brandenberg may take 2 more weeks of pumping and then 2 weeks of grouting for them to complete. Still need to keep berm in Bottom Ash pond that whole time.

Cost and Budget Control

- Bob submitted October invoice to Mike W. this week.
- Mike still evaluating EWO for the excess ash and borrow soil.

Next Meeting Scheduled: November 11, 2015 at 9:00 CST

Action Items -

- Bob to submit procedure for plugging pipe at Pond B outfall.
- Don to look into getting new locks for new wells. All keyed the same.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/05/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jessie Hahn
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0630 Depart: 1330 Travel: 0.00 Total: 7.00

AM Conditions: Cloudy AM Temperature: 63 F

PM Conditions: Cloudy, Rain PM Temperature: 68 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, National Lining Systems, Earth Images, Brandenberg

Equipment: **WB Koester:** 2 trackhoes, 1 skidsteer; **NLS:** 1 skidsteer
Earth Images: 1 tractor, 1 hydroseeder, 1 straw spreader

Personnel: **WB Koester:** 5 employees; **NLS:** 11 employees; **Earth Images:** 4 employees.

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Ponds A, B, and C and the Bottom Ash Pond. See attached location drawing for more information.

Jessie Hahn 11/5/15
Geotechnology, Inc. Rep. Date

[signature] 11/9/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/05/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Equipment Details: 2 trackhoes, 1 skidsteer.

One backhoe excavated the anchor trench at the base of the Ash Pond D slope.

One backhoe backfilled the anchor trench at Ash Pond A at specific locations, which were coordinated with National Lining Systems. Two laborers were present to remove larger pieces of cementitious material.

One backhoe removed the access ramp onto the Ash Pond A at the edge of the liner.

The skidsteer cleaned the road.

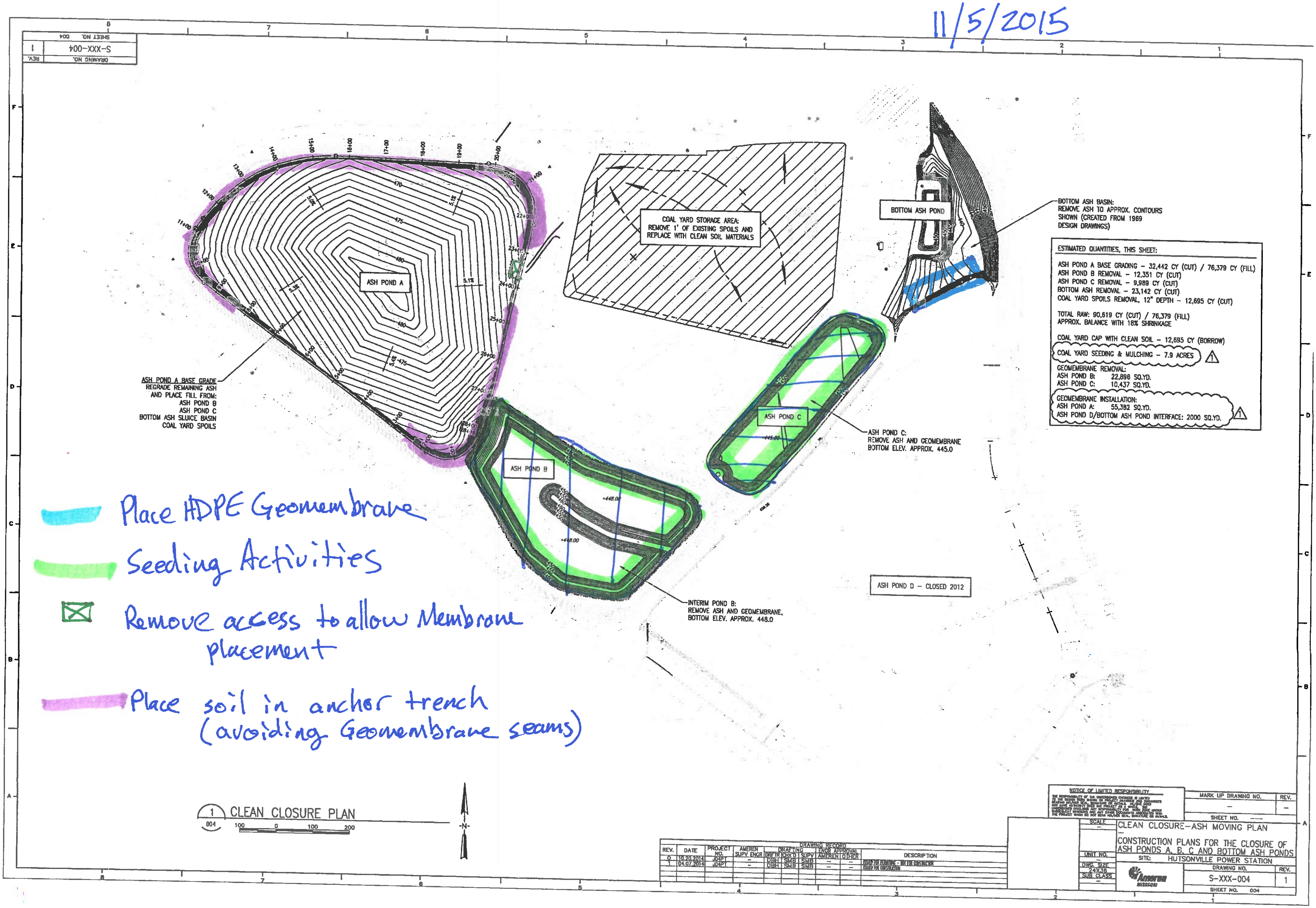
National Lining Systems:

Installed liner on Ash Pond A. See field notes for additional information.

A rain day was called at 1315 and no further work was performed.

Earth Images:

Earth Images seeded Ash Pond B and Ash Pond C.



11/5/2015
BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS
SHOWN (CREATED FROM 1969
DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
BOTTOM ASH POND
COAL YARD STORAGE AREA:
REMOVE 1' OF EXISTING SPOILS AND
REPLACE WITH CLEAN SOIL MATERIALS
ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH
AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
ASH POND B
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 448.0
ASH POND C
ASH POND C:
REMOVE ASH AND GEOMEMBRANE
BOTTOM ELEV. APPROX. 445.0
ASH POND D – CLOSED 2012
Place HDPE Geomembrane
Seeding Activities
Remove access to allow Membrane placement
Place soil in anchor trench (avoiding Geomembrane seams)
CLEAN CLOSURE PLAN
1
004
100 0 100 200
N
REV. | DATE | PROJECT NO. | AMEREN SUPV ENGR | DRAFTING DRFTR CHK'D SUPV | ENGR APPROVAL AMEREN OTHER | DESCRIPTION
0 | 10.20.2014 | J04PT | – | DBH SMB SMB | – – | ISSUED FOR PERMITTING – NOT FOR CONSTRUCTION
1 | 04.07.2014 | J04PT | – | DBH SMB SMB | – – | ISSUED FOR CONSTRUCTION
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
REV.
SHEET NO.
SCALE
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
UNIT NO.
DWG. SIZE 24X36
SUB CLASS
Ameren MISSOURI
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT DATE: 11/06/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures Representative: Jessie Hahn
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS: (-0.0) Lunch

Arrive: 0630 Depart: 0900 Travel: 3.00 Total: 6.00

AM Conditions: Cloudy AM Temperature: 63 F
PM Conditions: PM Temperature:

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, National Lining Systems, Brandenberg
Equipment: **WB Koester:** 2 trackhoes, 1 skidsteer; **NLS:** 1 skidsteer

Personnel: **WB Koester:** 5 employees; **NLS:** 11 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Ponds A, B, and C and the Bottom Ash Pond. See attached location drawing for more information.

11/6/15
Geotechnology, Inc. Rep. Date

11/9/15
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/06/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Rain day. No work performed.

National Lining Systems:

Rain Day. No work performed.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/07/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Cassandra Baresel

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0700 Depart:1630 Travel: 0.00 Total: 9.00

AM Conditions: Clear
AM Temperature: 49 F
PM Conditions: Clear
PM Temperature: 58 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, National Lining Systems, Brandenberg
Equipment: **WB Koester:**

Personnel: **WB Koester:** 1 employees; **NLS:** 11 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Bottom Ash Pond. See attached location drawing for more information.

Geotechnology, Inc. Rep. 11/18/15 Date

Geotechnology, Inc. Engineer 11/18/15 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/07/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

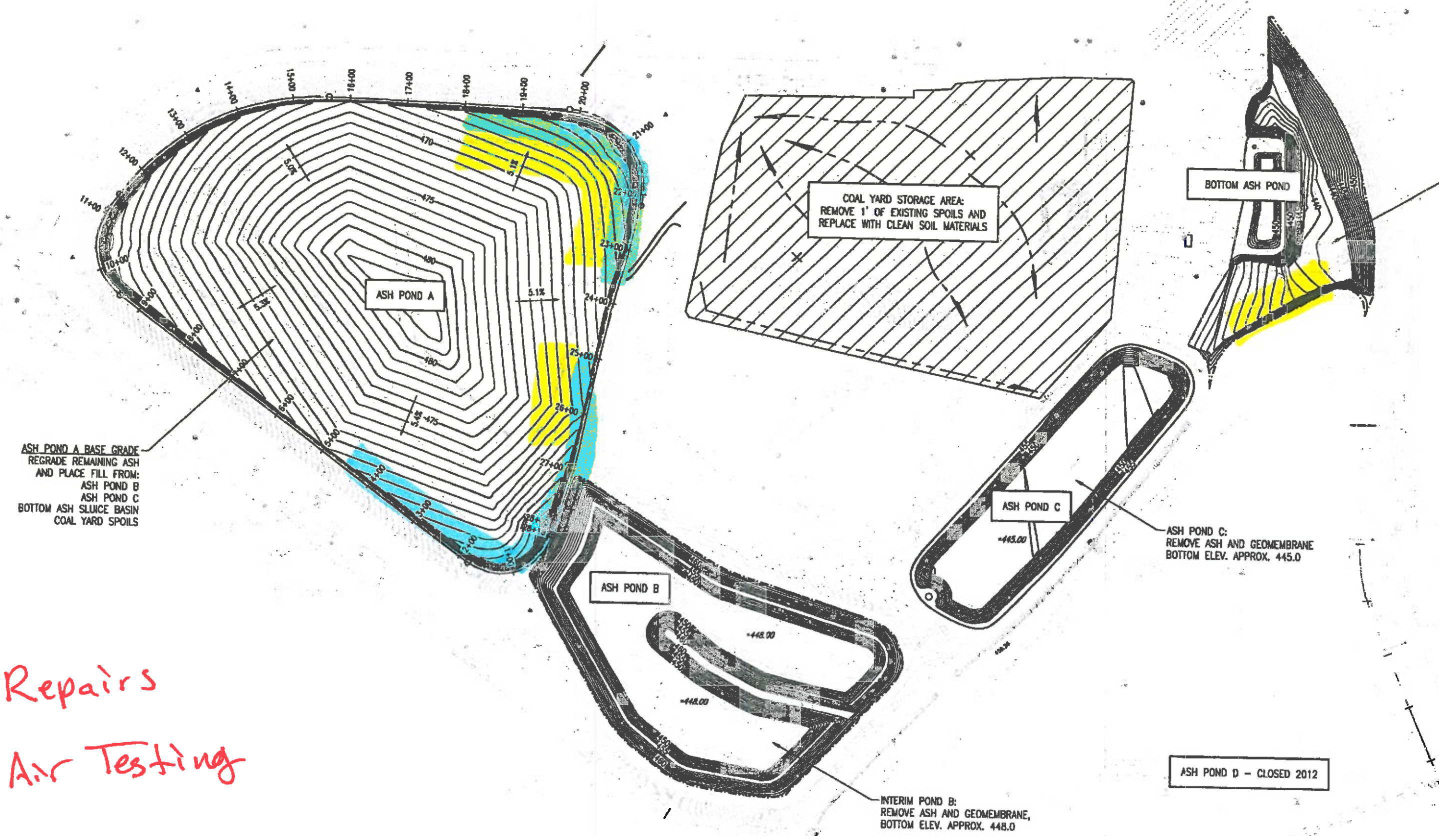
Ongoing demolition of buildings.

WB Koester:

National Lining Systems:

Repaired liner and ran air test on Ash Pond A. Ran air test on Ash Pond D slope. See field notes for additional information.

11/7/15



ESTIMATED QUANTITIES, THIS SHEET:

ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)

TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE

COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES ⚠1

GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.

GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD. ⚠1

Repairs

Air Testing

1 / 004 CLEAN CLOSURE PLAN

100 0 100 200

N

REV.	DATE	PROJECT NO.	AMEREN SUPV ENGR	DRAFTING DRFTR	DRAFTING CHK'D	DRAFTING SUPV	ENGR APPROVAL AMEREN	ENGR APPROVAL OTHER	DESCRIPTION
0	10.20.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR PERMITTING – NOT FOR CONSTRUCTION
1	04.07.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR CONSTRUCTION

NOTICE OF LIMITED RESPONSIBILITY

SCALE –
UNIT NO. –
DWG. SIZE 24X36
SUB CLASS –

CLEAN CLOSURE–ASH MOVING PLAN
–
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION

Ameren MISSOURI

MARK UP DRAWING NO. – REV. –
SHEET NO. –––
DRAWING NO. S-XXX-004 REV. 1
SHEET NO. 004

PHOTOGRAPH LOG

Photograph 1 ⮙ - Preparation of surface before HDPE geomembrane installation on the east slope of Ash Pond A, facing north.

Photograph 2 ⮙ - Excavating drainage swale in Ash Pond B, looking south.

Photograph 3 ⮝ - Anchor trench excavation at the northeast corner of Ash Pond A, looking north.

Photograph 4 ⮝ - Excess material excavation in Ash Pond B, looking south.

Photograph 5 - Material placement at the Bottom Ash Pond, looking north.

Photograph 6 - Trial fusion weld tests on Ash Pond A.

Photograph 7 ⮝ - Fusion welding HDPE geomembrane on Ash Pond A, looking northeast.

Photograph 8 ⮝ - Placing excess material from Ash Pond B into a stockpile in the south corner of the Coal Yard, looking west.

Photograph 9 ⮙ - Preparing the Coal Yard for seeding, looking west.

Photograph 10 ⮙ - Spreading straw over the seeded Coal Yard, looking northeast.

Photograph 11 - Placing HDPE geomembrane on the Ash Pond D slope, looking northeast.

Photograph 12 - Backfill material placement in the anchor trench.

Photograph 13 ⮝ - Excavating the access ramp to Ash Pond A.

Photograph 14 ⮝ - Preparing the Ash Pond D slope HDPE geomembrane for the tie-in to the existing Ash Pond D HDPE geomembrane, looking northeast.

Photograph 15 ⮝ - View of Ash Pond A from 1900 Avenue, looking northeast.

MEMORANDUM

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DATE: November 18, 2015

SUBJECT: Weekly Summary Report for November 9, 2015 to November 13, 2015

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

Weather

The weather was generally cloudy. Temperature (^{O}F) lows ranged from 26 to 42^{O}F, and temperature highs ranged from 53 to 70^{O}F.

Construction Activities

Bottom Ash Pond levee material was used to backfill the anchor trench at the Ash Pond D slope and the Bottom Ash Pond was graded. The fencing around the site parking area was removed.

After HDPE geomembrane placement, WB Koester backfilled the anchor trenches at Ash Pond A and the Ash Pond D slope.

National Lining Systems (NLS) placed, seamed, and tested 40 mil HDPE geomembrane on Ash Pond A and the Ash Pond D north slope.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 4 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC, 1 Caterpillar 308E, 1 Hyundai 290), 3 dump trucks (John Deere 400D), 2 bulldozers (Caterpillar D6N LGP with GPS), 1 water truck (Caterpillar 623B), 1 sheepsfoot roller (CA251), 1 smooth drum roller (CS-433E), and 1 skidsteer.

WB Koester had 4-5 employees working on site: 1-2 laborers, 1 mechanic, and 2 equipment operators.

NLS had 11 employees working on site and 1 skidsteer.

Meetings

The weekly progress meeting was held on Wednesday, November 11, 2015. Refer to the meeting minutes for additional information.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

40 mil HDPE geomembrane and grass seed with straw were installed on the site.

Testing/Sampling

Testing of trial seams and non-destructive air testing of HDPE geomembrane seams were performed on site. Destructive samples of HDPE geomembrane seams were tested on site and then sent to an independent laboratory for further testing. Non-destructive vacuum box testing was conducted at HDPE extrusion welds on site and spark testing was conducted at boots on HDPE vents on Ash Pond A.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/09/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jessie Hahn
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0630 Depart:1700 Travel: 0.00 Total: 10.50

AM Conditions: Clear
AM Temperature: 49 F
PM Conditions: Clear
PM Temperature: 58 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, National Lining Systems, Brandenberg
Equipment: **WB Koester:** 1 excavator

Personnel: **WB Koester:** 5 employees; **NLS:** 11 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Bottom Ash Pond. See attached location drawing for more information.

Geotechnology, Inc. Rep. 11/13/15
Date

Geotechnology, Inc. Engineer 11/13/2015
Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/09/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

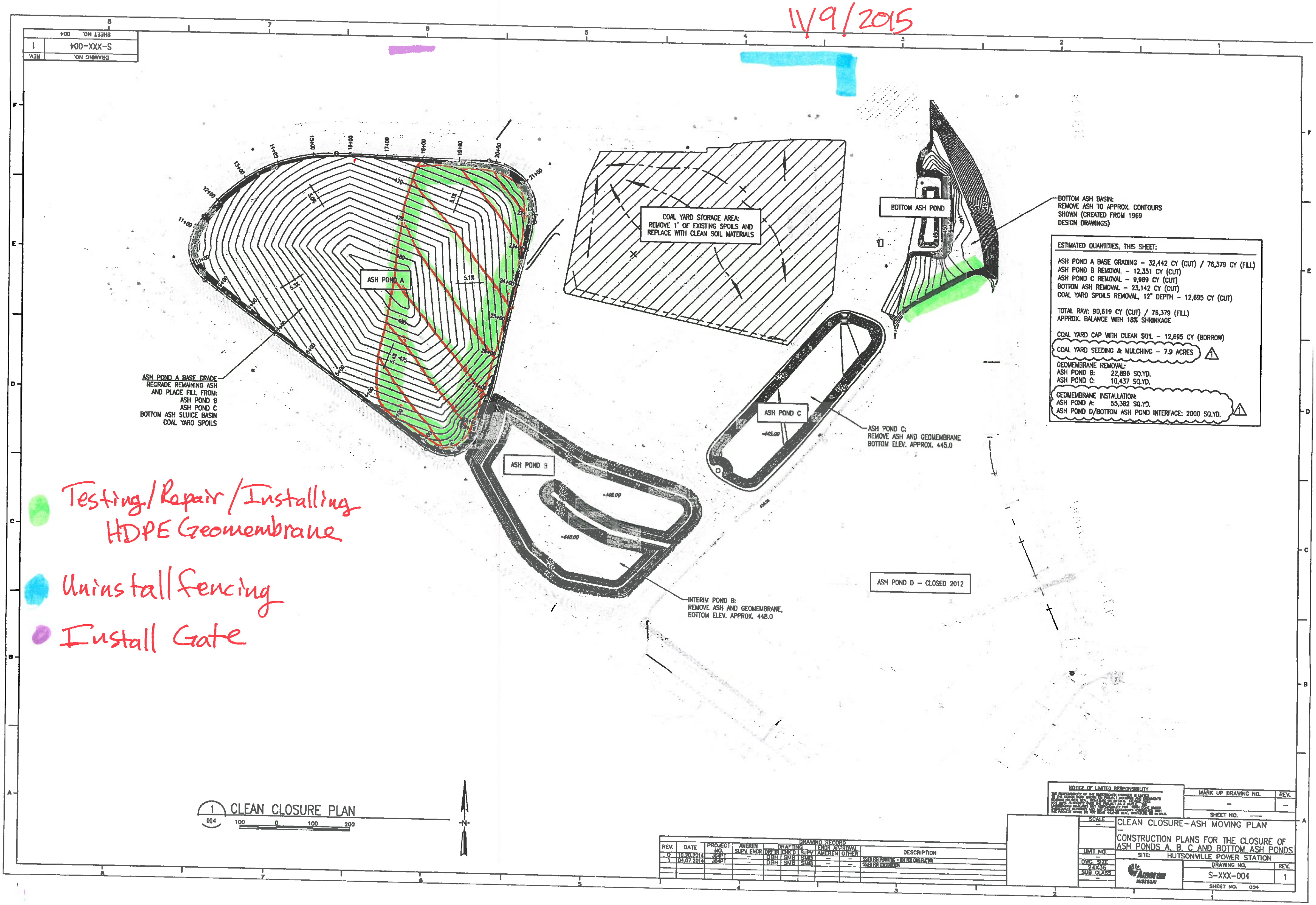
Ongoing demolition of buildings.

WB Koester:

Installed gate in fence north of Ash Pond A for access to borrow field. Removed fencing north of the construction trailers.

National Lining Systems:

Installed, repaired, and tested liner on Ash Pond A. Repaired and tested liner on the Ash Pond D slope. See field notes for additional information.


11/9/2015
Testing/Repair/Installing HDPE Geomembrane
Uninstall Fencing
Install Gate
ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH
AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
COAL YARD STORAGE AREA:
REMOVE 1' OF EXISTING SPOILS AND
REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH POND
BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS
SHOWN (CREATED FROM 1969
DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,898 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
ASH POND C
ASH POND C:
REMOVE ASH AND GEOMEMBRANE
BOTTOM ELEV. APPROX. 445.0
ASH POND B
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
1 CLEAN CLOSURE PLAN
004
N
NOTICE OF LIMITED RESPONSIBILITY
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
Ameren MISSOURI
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
DWG. SIZE 24X36
DRAWING RECORD
DESCRIPTION

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/10/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jessie Hahn
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0630 Depart:1700 Travel: 0.00 Total: 10.50

AM Conditions: Clear
AM Temperature: 49 F
PM Conditions: Clear
PM Temperature: 58 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, National Lining Systems, Brandenberg
Equipment: **WB Koester:** 1 excavator

Personnel: **WB Koester:** 5 employees; **NLS:** 11 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Bottom Ash Pond. See attached location drawing for more information.

Jessie Hahn 11/10/15
Geotechnology, Inc. Rep. Date

11/13/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/10/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

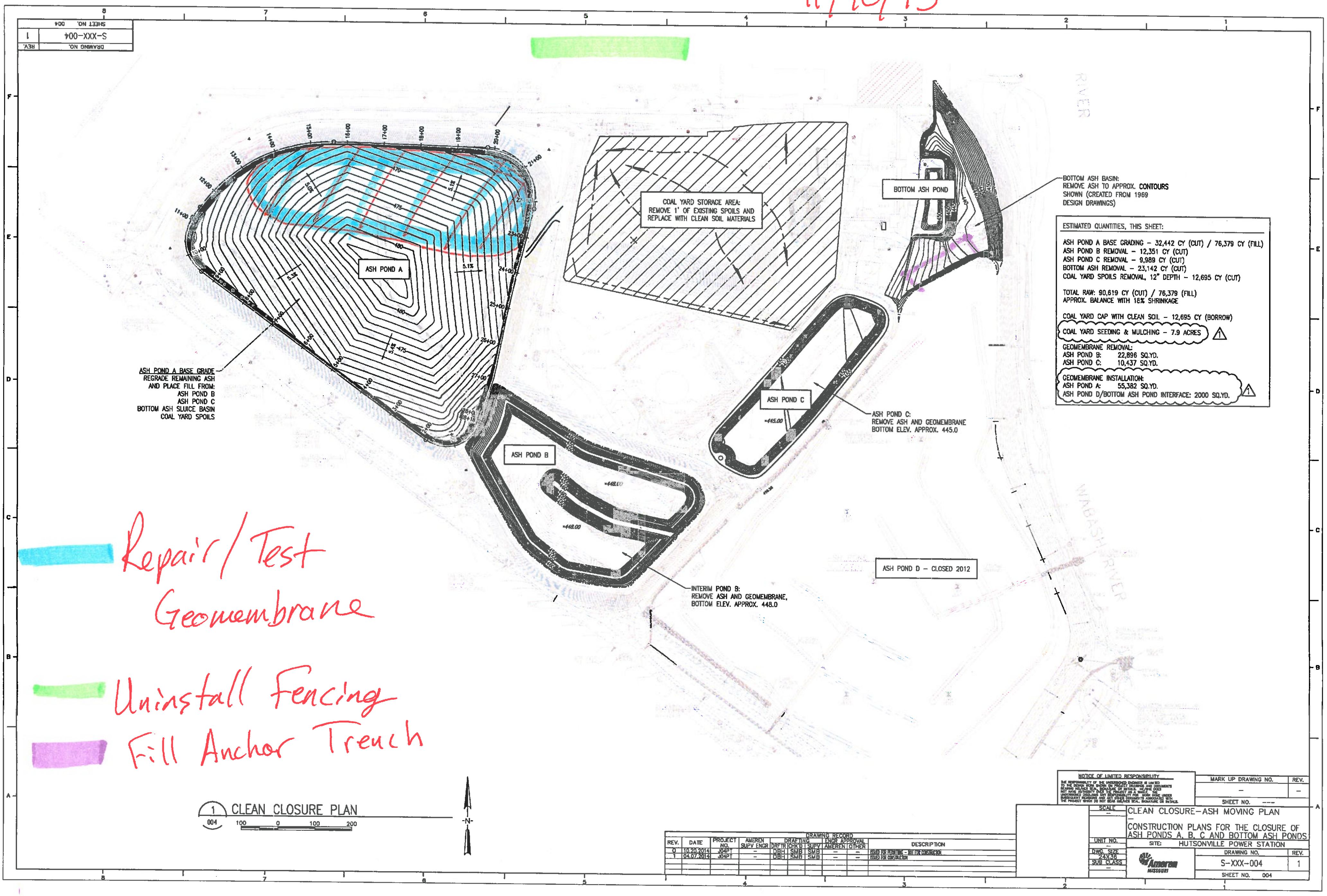
WB Koester:

Filled geomembrane anchor trench at the Bottom Ash Pond. Removed fencing north of the construction trailers.

National Lining Systems:

Repaired and tested liner on Ash Pond A. See field notes for additional information.

11/10/15


Repair/Test Geomembrane
Uninstall Fencing
Fill Anchor Trench
ASH POND A
ASH POND B
ASH POND C
BOTTOM ASH POND
ASH POND D – CLOSED 2012
COAL YARD STORAGE AREA: REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
ASH POND A BASE GRADE REGRADE REMAINING ASH AND PLACE FILL FROM: ASH POND B ASH POND C BOTTOM ASH SLUICE BASIN COAL YARD SPOILS
ASH POND C: REMOVE ASH AND GEOMEMBRANE BOTTOM ELEV. APPROX. 445.0
INTERIM POND B: REMOVE ASH AND GEOMEMBRANE, BOTTOM ELEV. APPROX. 448.0
BOTTOM ASH BASIN: REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
WABASH RIVER
RIVER
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
1 CLEAN CLOSURE PLAN 004
NOTICE OF LIMITED RESPONSIBILITY
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
DWG. SIZE 24X36
Ameren MISSOURI
DRAWING RECORD
REV. 0 10.20.2014 J04PT DBH SMB SMB ISSUED FOR PERMITTING – NOT FOR CONSTRUCTION
REV. 1 04.07.2014 J04PT DBH SMB SMB ISSUED FOR CONSTRUCTION

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/11/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jessie Hahn
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0630 Depart:1700 Travel: 0.00 Total: 10.50

AM Conditions: Clear, windy
AM Temperature: 49 F
PM Conditions: Cloudy, windy
PM Temperature: 55 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, National Lining Systems, Brandenberg

Equipment: **WB Koester:** 1 excavator

Personnel: **WB Koester:** 4 employees; **NLS:** 11 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Bottom Ash Pond. See attached location drawing for more information.

Jessie Hahn 11/11/2015
Geotechnology, Inc. Rep. Date

11/13/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/11/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Filled geomembrane anchor trench at select locations around Ash Pond A.

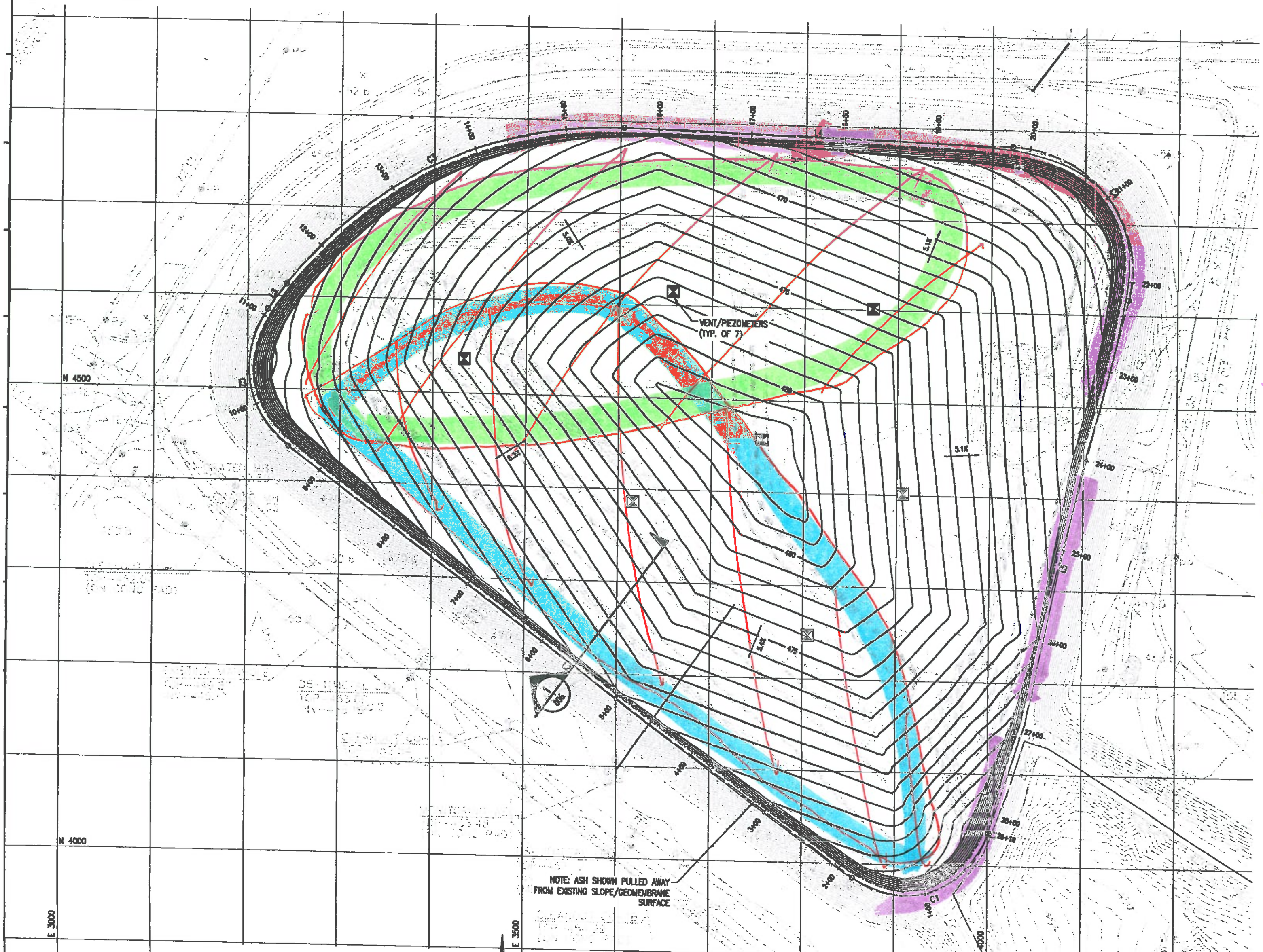
National Lining Systems:

Repaired and tested liner on Ash Pond A. See field notes for additional information.

Other:

The weekly progress meeting was held at 0900. See the meeting minutes for additional information.

11/11/15



1 ASH POND A BASE GRADING PLAN
005

50 0 50 100

NOTES:

1. THIS PLAN SHOWS APPROXIMATE GRADES FOR FINAL ASH BASE. GRADING PLAN SHOWN INCLUDES MATERIAL FROM THE COAL YARD, ASH POND B, ASH POND C, AND BOTTOM ASH POND. CLEAN CLOSURE GRADING CONTOURS FOR THESE FACILITIES ARE SHOWN ON SHEET 004.
2. SEE CQA PLAN FOR CLEAN CLOSURE APPROVAL GUIDELINES.
3. GEOMEMBRANE IN PONDS B AND C SHALL BE DISPOSED OF OFF SITE IN A LICENSED LANDFILL.

Fill Anchor Trench
Repairs
Vacuum Box Testing

REV.	DATE	PROJECT NO.	AMEREN SUPV	AMEREN ENGR	DRFTR	CHK'D	SUPV	ENGR APPROVAL AMEREN	ENGR APPROVAL OTHER	DESCRIPTION
0	10.20.2014	J04PT	–	–	DBH	SMB	SMB	–	–	
1	04.07.2014	J04PT	–	–	DBH	SMB	SMB	–	–	

NOTICE OF LIMITED RESPONSIBILITY

MARK UP DRAWING NO. – REV. –

SHEET NO. –

ASH POND A BASE GRADING PLAN

CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS

SITE: HUTSONVILLE POWER STATION

Ameren MISSOURI

DRAWING NO. S-XXX-005 REV. 1

SHEET NO. 005

Weekly Progress Meeting

Meeting Minutes

Date: 11-11-15

Attendees:

Ameren: Don Shaver, Mike Wagstaff (phone), Tim Free

WB Koester: Chris Atkinson, Greg Head

Geotechnology, Inc.: Jessie Hahn

Topics:

Safety/Housekeeping

- No issues
- Chris to make sure to wash and scrape the parking lot each Friday and as necessary.

Manpower

- Man hours
  - Start of Job (4-27-15) through 11-9-15
    - Total = 11,859 hrs.
- Next week expected manpower
  - WBK = 5 total this week
    - 5-8 hrs days approx. except Chris and operator will be on site whenever the Liner crew is working.
  - National Lining – 11 this week
    - Working 7 am to 5 pm.
    - Looking to complete by end of week.

Review old minutes and action items

- Archeological study has been performed on field, waiting on report from State
- Bob needs to submit procedure for filling pond B outlet pipe with grout.
  - Submitted and Mike W. approved.

Material Issues

- No issues

Quality Control Issues

- Liner testing and repairs is ongoing
- Soil from Bottom ash pond levee will need to be tested prior to placing on liner at Pond D tie in.

Schedule Compliance

- Liner testing/repairs ongoing. Should be complete by end of week.
- Archeological survey complete on borrow area. Waiting on results.
  - WBK installed gate to borrow area but will wait to strip topsoil.
- Existing Pond B outfall is still being utilized. Pump from BA pond to Pond B outfall. Once the BA Pond Levee is breached and turned into an outfall the pumping will stop and Pond B outfall will be plugged and abandoned. Should happen this week.
- Liner at Pond D tie in is complete. Waiting on environmental testing of Bottom Ash levee soil prior to filling on top of liner at this location.
- Chris demolished the remaining existing fence around the office trailers and parking areas.
- Brandenberg may take 2 more weeks of pumping and then 2 weeks of grouting for them to complete. Still need to keep berm in Bottom Ash pond that whole time.

Cost and Budget Control

- Mike still evaluating EWO for the excess ash and borrow soil. Hoping to have approval by next week.

Next Meeting Scheduled: November 18, 2015 at 9:00 CST

Action Items - None.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/12/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jessie Hahn
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0630 Depart:1700 Travel: 0.00 Total: 10.50

AM Conditions: Clear, windy AM Temperature: 49 F

PM Conditions: Clear, windy PM Temperature: 55 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, National Lining Systems, Brandenberg

Equipment: **WB Koester:** 1 excavator, 1 bulldozer

Personnel: **WB Koester:** 3 employees; **NLS:** 11 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Bottom Ash Pond. See attached location drawing for more information.

Geotechnology, Inc. Rep. 11/12/2015 Date

Geotechnology, Inc. Engineer 11/17/2015 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/12/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

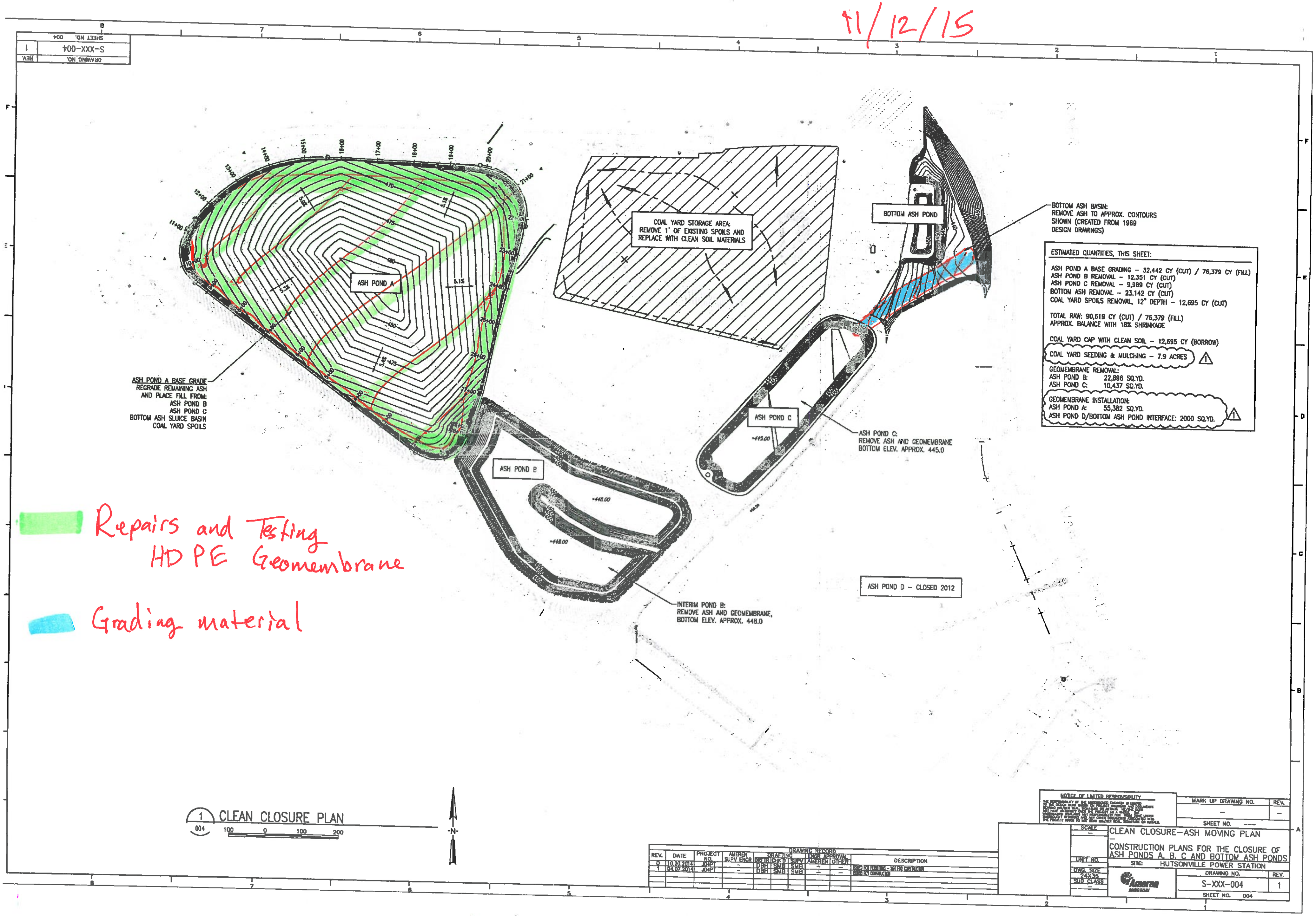
Ongoing demolition of buildings.

WB Koester:

Graded Bottom Ash Pond Levee material at the east end of the Bottom Ash Pond.

National Lining Systems:

Repaired and tested liner on Ash Pond A. See field notes for additional information.


11/12/15
ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH
AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
COAL YARD STORAGE AREA:
REMOVE 1' OF EXISTING SPOILS AND
REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH POND
BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS
SHOWN (CREATED FROM 1969
DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
ASH POND C
ASH POND C:
REMOVE ASH AND GEOMEMBRANE
BOTTOM ELEV. APPROX. 445.0
ASH POND B
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
Repairs and Testing
HDPE Geomembrane
Grading material
CLEAN CLOSURE PLAN
1
004
100 0 100 200
N
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
REV.
SHEET NO.
SCALE
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF
ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
UNIT NO.
DWG. SIZE 24X36
SUB CLASS
DRAWING NO.
S-XXX-004
REV. 1
SHEET NO. 004
Ameren
DRAWING RECORD
REV.
DATE
PROJECT NO.
AMEREN SUPV ENGR
DRAFTING DRFTR CHK'D SUPV
ENGR APPROVAL AMEREN OTHER
DESCRIPTION
0 10.20.2014 J04PT
1 01.07.2014 J04PT
DRAWING NO. S-XXX-004
SHEET NO. 004
REV. 1

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/13/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0630   Depart:1500   Travel: 3.00   Total: 11.50

AM Conditions: Clear   AM Temperature: 45 F
PM Conditions: Clear, windy   PM Temperature: 60 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, National Lining Systems, Brandenberg
Equipment: **WB Koester:** 1 bulldozer

Personnel: **WB Koester:** 4 employees; **NLS:** 11 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Bottom Ash Pond. See attached location drawing for more information.

Geotechnology, Inc. Rep.   11/13/15 Date

Geotechnology, Inc. Engineer   11/17/2015 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/13/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

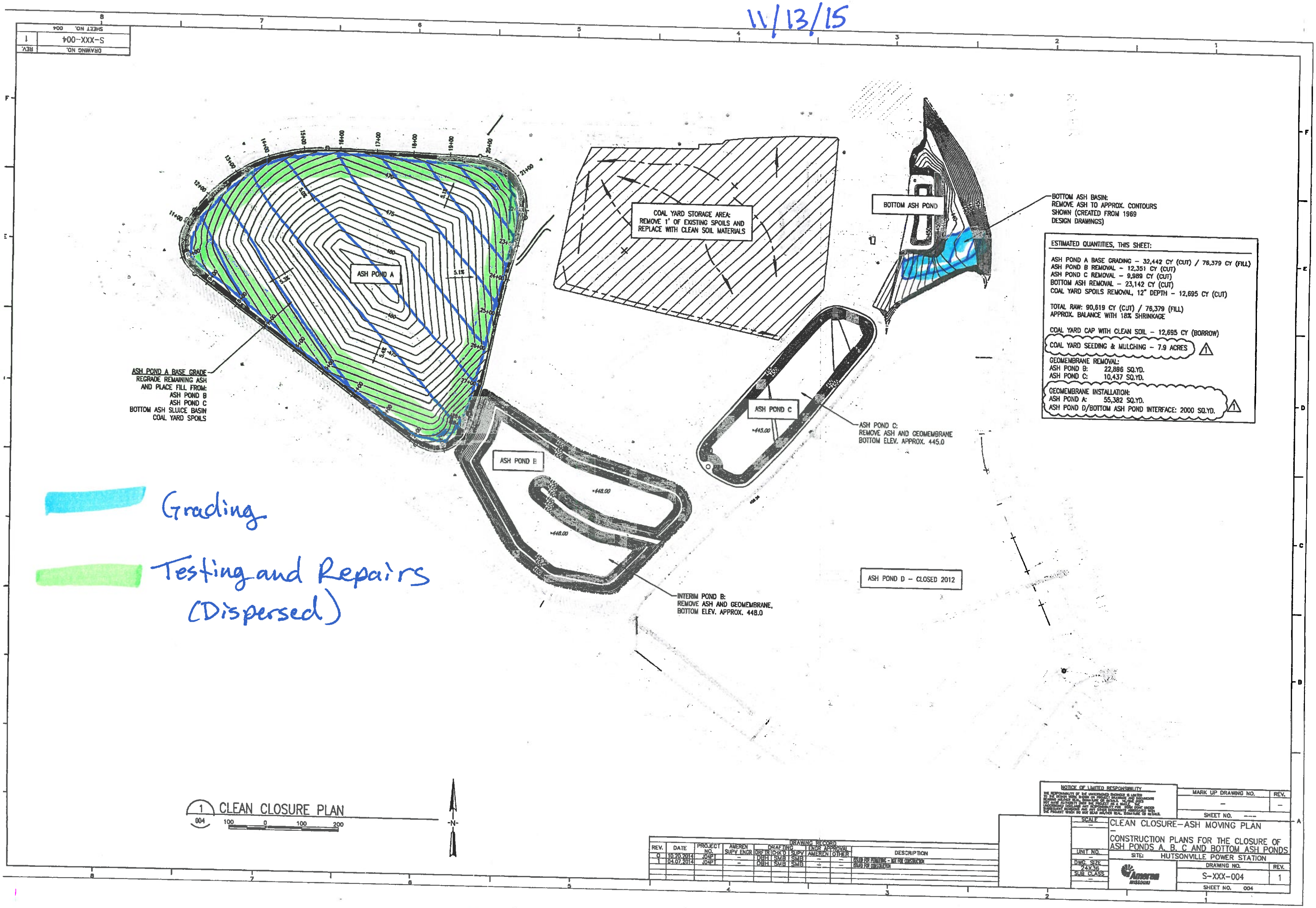
Graded Bottom Ash Pond levee material at the east end of the Bottom Ash Pond.

Installed safety signage under power lines in anticipation of access to the borrow field north of site.

Spread additional straw on seeded ground where it had been displaced by high winds.

National Lining Systems:

Repaired and tested liner on Ash Pond A. Spark tested the seven piezometer boots on Ash Pond A. See field notes for additional information.

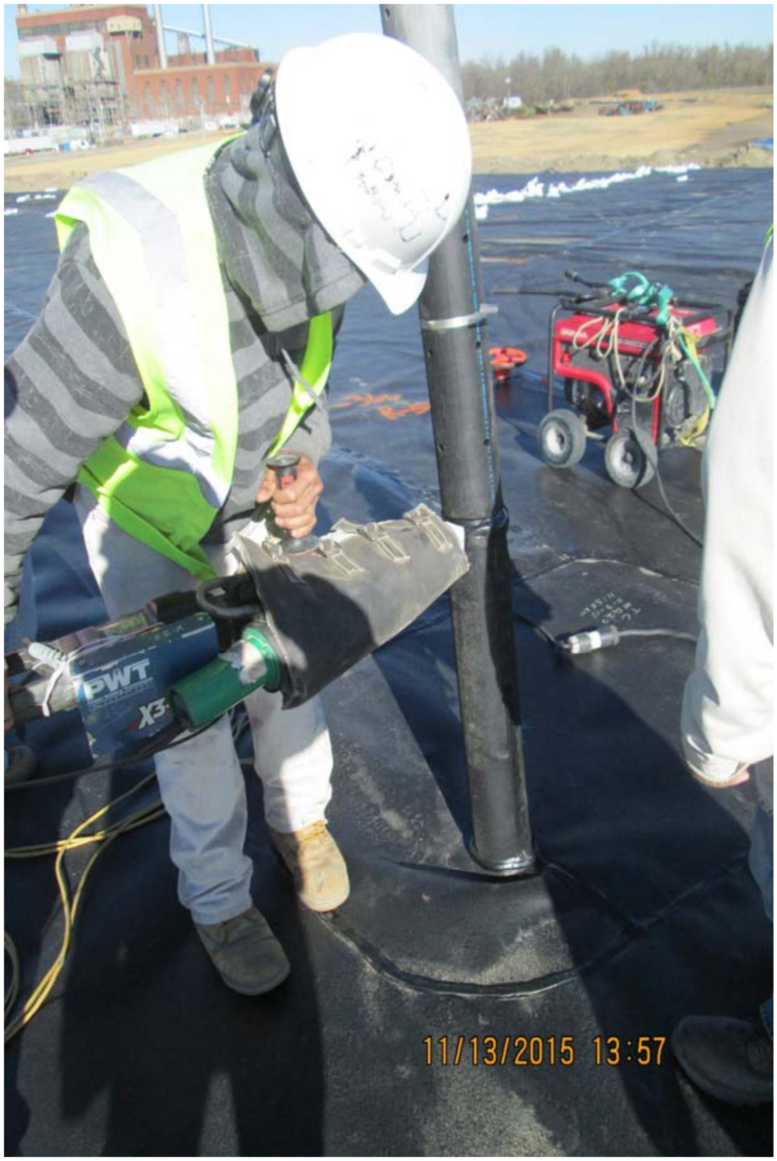

11/13/15
ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH
AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
COAL YARD STORAGE AREA:
REMOVE 1' OF EXISTING SPOILS AND
REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH POND
BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS
SHOWN (CREATED FROM 1969
DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
ASH POND C
ASH POND C:
REMOVE ASH AND GEOMEMBRANE
BOTTOM ELEV. APPROX. 445.0
ASH POND B
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
Grading
Testing and Repairs (Dispersed)
CLEAN CLOSURE PLAN
-N-
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004
Ameren MISSOURI

PHOTOGRAPH LOG

Photograph 1 ⮝ - View of excavator removing fencing around the parking area on site, looking north.

Photograph 2 ⮝ - View of bulldozer grading material in the Bottom Ash Pond.

Photographs taken by Jessie Hahn of Geotechnology, Inc. November 9-13, 2015.



Photograph 3 ⮙ - View of extrusion welding boots on a vent pipe in ash Pond A with a wire in place for spark testing.

Photograph 4 ⮙ - View of Ash Pond A from the north corner, looking south.

Photograph 5 ⮝ - View of Ash Pond A from the southwest corner, looking northeast.

Photograph 6 ⮝ - View of Ash Pond A from the southeast corner, looking northwest.

M E M O R A N D U M

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DATE: November 25, 2015

SUBJECT: Weekly Summary Report for November 16, 2015 to November 21, 2015

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

Weather

The weather was generally cloudy. Temperature (^{O}F) lows ranged from 25 to 48^{O}F, and temperature highs ranged from 49 to 65^{O}F.

Work was not performed on November 17 or November 18 due to rainy conditions.

Construction Activities

Ash Pond D protective cover material was placed over exposed Ash Pond D HDPE geomembrane. Bottom Ash Pond levee material was placed as protective cover over the HDPE geomembrane at the Ash Pond D Slope.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 2 excavators (1 Caterpillar 320B and 1 Komatsu PC 350 LC), 3 haul trucks (John Deere 400Ds), 2 bulldozers (Caterpillar D6N LGPs with GPS), 1 water truck (Caterpillar 623B), 1 skidsteer.

WB Koester had 4-7 employees working on site: 1 laborer, 1 mechanic, and 2-5 equipment operators.

Meetings

The weekly progress meeting was held on Wednesday, November 18, 2015. Refer to the meeting minutes for additional information.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Soil from the Bottom Ash Pond levee was used as protective cover for the HDPE geomembrane at the Ash Pond D Slope.

Testing/Sampling

Jessie Hahn (Geotechnology, Inc.) obtained CQA conformation samples before placement of borrow field soil began due to concern about the sand content of the soil.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/16/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0900 Depart:1400 Travel: 3.00 Total: 8.00

AM Conditions: Cloudy, light rain
AM Temperature: 48 F
PM Conditions: Cloudy, rain
PM Temperature: 52 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester, Brandenberg
Equipment: **WB Koester:** 1 bulldozer, 1 excavator

Personnel: **WB Koester:** 4 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond C, Bottom Ash Pond. See attached location drawing for more information.

Jessie Hahn 11/16/2015
Geotechnology, Inc. Rep. Date

11/16/15
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/16/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

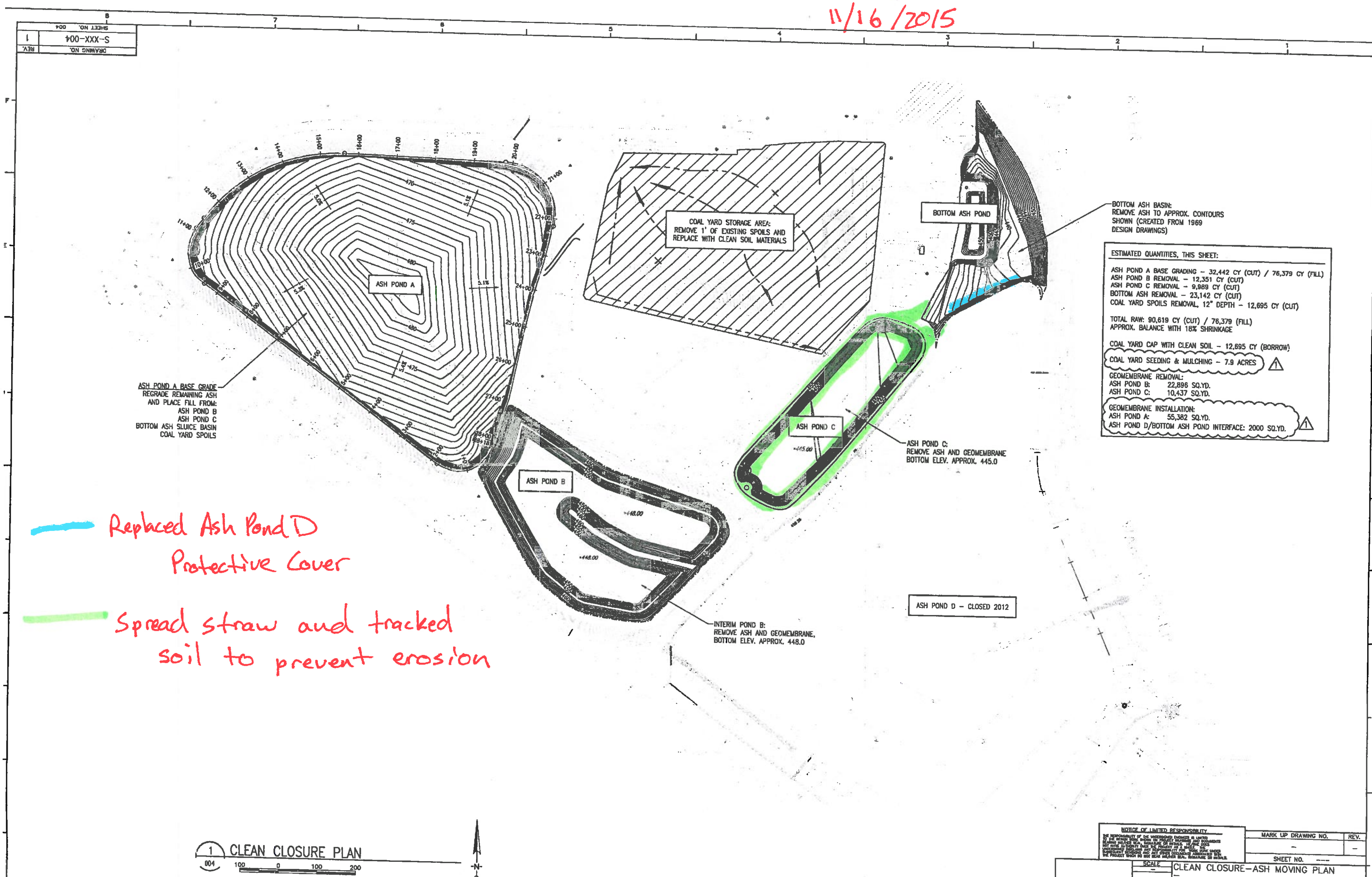
Ongoing demolition of buildings.

WB Koester:

Replaced previously removed protective cover onto Ash Pond D liner material.

Spread additional straw on seeded ground in Ash Pond C where it had been displaced by wind and tracked seeded ground to reduce erosion by the rain.

11/16/2015



REV.	DATE	PROJECT NO.	AMEREN SUPV ENGR	DRAFTING DRFTR	DRAFTING CHK'D	DRAFTING SUPV	ENGR APPROVAL AMEREN	ENGR APPROVAL OTHER	DESCRIPTION
0	10.20.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR PERMITTING – NOT FOR CONSTRUCTION
1	04.07.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR CONSTRUCTION

NOTICE OF LIMITED RESPONSIBILITY

MARK UP DRAWING NO. – REV. –
SHEET NO. ---
SCALE –
UNIT NO. –
DWG. SIZE 24X36
SUB CLASS –

CLEAN CLOSURE–ASH MOVING PLAN

CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS

SITE: HUTSONVILLE POWER STATION

Ameren MISSOURI

DRAWING NO. S-XXX-004 REV. 1

SHEET NO. 004

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/17/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: - Depart: - Travel: 0.00 Total: -

AM Conditions: Cloudy, rain
AM Temperature: 48 F
PM Conditions: Cloudy, rain
PM Temperature: 62 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg
Equipment: **WB Koester:** -

Personnel: **WB Koester:** -
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Rain day. No work performed on site.

Jessie Hahn 11/17/2015
Geotechnology, Inc. Rep. Date

11/17/2015
Geotechnology, Inc. Engineer Date

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Rain day. Work was not performed on site.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/18/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0615 Depart: 1315 Travel: 0.00 Total: 7.00

AM Conditions: Cloudy, rain
PM Conditions: Cloudy, rain

AM Temperature: 61 F
PM Temperature: 63 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg

Equipment: **WB Koester:** -

Personnel: **WB Koester:** -

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Rain day. No work performed on site.

Jessie Hahn
Geotechnology, Inc. Rep.

11/18/2015
Date

Geotechnology, Inc. Engineer

11/18/2015
Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/18/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Rain day. Work not performed on site.

Other:

The weekly progress meeting was held at 0900. See the meeting minutes for additional information.

Weekly Progress Meeting

Meeting Minutes

Date: 11-18-15

Attendees:

Ameren: Don Shaver, Ken Beckman (phone), Mike Wagstaff (phone), Tim Free

WB Koester: Chris Atkinson, Bob Fisher

Geotechnology, Inc.: Jessie Hahn

Topics:

Safety/Housekeeping

- No issues
- Chris to make sure to wash and scrape the parking lot each Friday and as necessary.

Manpower

- Man hours
    - Start of Job (4-27-15) through 11-16-15
        - Total = 12,466 hrs.
- Next week expected manpower
    - WBK = depending on weather, 2 to 12 total

Review old minutes and action items

- Archeological study has been performed on field, ok to proceed with borrow in field
- Update on EWO's – on VP desk waiting on approvals, should be approved in couple of days.
- Mike to send Bob SWPPP manual

Material Issues

- No issues

Quality Control Issues

- Liner testing and repairs is done

- Soil from Bottom ash pond levee is being tested. Waiting on results prior to placing on liner at Pond D tie in.

Schedule Compliance

- Liner at Pond D tie in is complete. Waiting on environmental testing of Bottom Ash levee soil prior to filling on top of liner at this location.
- 3" of rain this week, waiting on it to dry prior to hauling Borrow
- Erosion in pond C around box culverts. Needs to be repaired. Don to send Mike W. pictures to determine if we should add additional rip rap.
- Brandenberg pumping until week of Dec. 7th. Still need to keep berm in Bottom Ash pond that whole time.
- Seeding/blanket placement will be in Spring. Permanent fence install will be in Spring after Brandenberg finished with building demo.
- Discussion on how far to go with cover soil this year. Bob to revise schedule to show anticipated production, working Saturdays, Sundays, and day after Thanksgiving and don't take into account any rain days.
- Bob to submit a cost to work premium time days.

Cost and Budget Control

- Waiting on EWO approval.

Next Meeting Scheduled: November 25, 2015 at 9:00 CST

Action Items -

- Don to send Mike pictures of Erosion at Pond C box culverts.
- Bob to send Mike revised schedule showing working Saturdays, Sundays and day after thanksgiving.
- Bob to send Mike cost to work premium times.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/19/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0615 Depart: 1500 Travel: 0.00 Total: 8.75

AM Conditions: Clear AM Temperature: 46 F
PM Conditions: Clear PM Temperature: 51 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester

Equipment: **WB Koester:** 1 excavator, 2 bulldozers, 2 tractors with scraper boxes, 2 haul trucks, 1 skidsteer.

Personnel: **WB Koester:** 7 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Jessie Hahn 11/19/2015

Geotechnology, Inc. Rep. Date

11/23/2015

Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/19/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

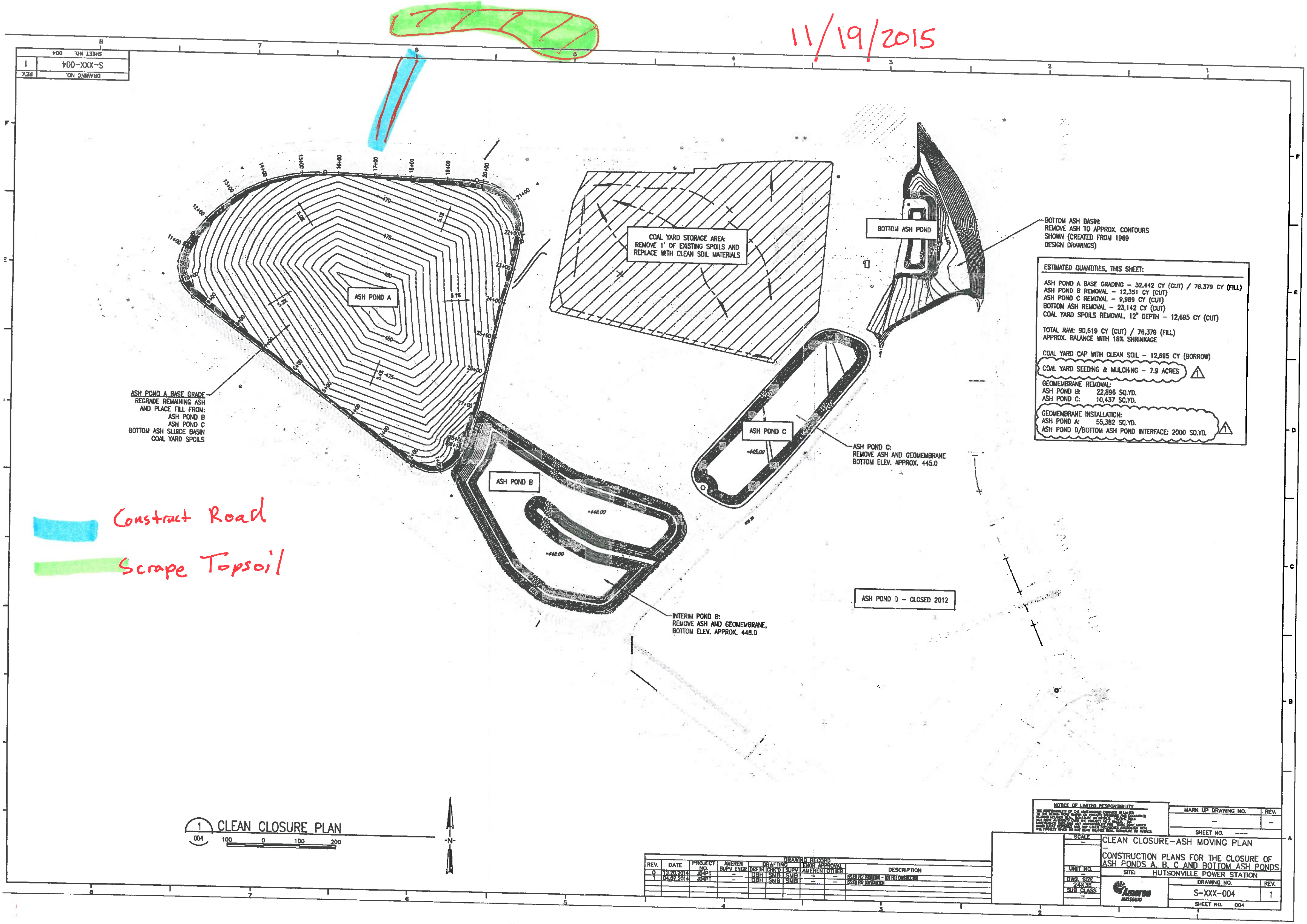
Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Constructed road to borrow field. Scraped topsoil off of the borrow field with two tractors with scraper boxes.

At 0900, Chris Atkinson (WB Koester) dug an observation pit in the borrow field and expressed concern to Jessie Hahn (Geotechnology) about the sand content, which appeared to be higher than it was in the prequalification sample for the borrow source. Hahn consulted with Anna Saindon (Geotechnology) via phone, who requested that samples be shipped to her for observation and analysis to visually assess if they would meet the specification. After additional sampling at other locations in the field, five samples were shipped overnight to Saindon.



REV.	DATE	PROJECT NO.	AMEREN SUPV ENGR	DRFTR	CHK'D	SUPV	AMEREN	OTHER	DESCRIPTION
0	11.20.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR PERMITTING – NOT FOR CONSTRUCTION
1	04.07.2014	J04PT	–	DBH	SMB	SMB	–	–	ISSUED FOR CONSTRUCTION

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/20/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jessie Hahn / Seth Lamble
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0615 Depart: 1600 Travel: 0.00 Total: 9.45

AM Conditions: Clear AM Temperature: 27 F
PM Conditions: Partly Cloudy PM Temperature: 59 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester
Equipment: **WB Koester:** 1 excavator, 2 bulldozers, 2 haul trucks, 1 skidsteer.

Personnel: **WB Koester:** 7 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Bottom Ash Pond. See attached location drawing for more information.

[signature] 11-23-15
Geotechnology, Inc. Rep. Date

[signature] 11/23/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/20/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

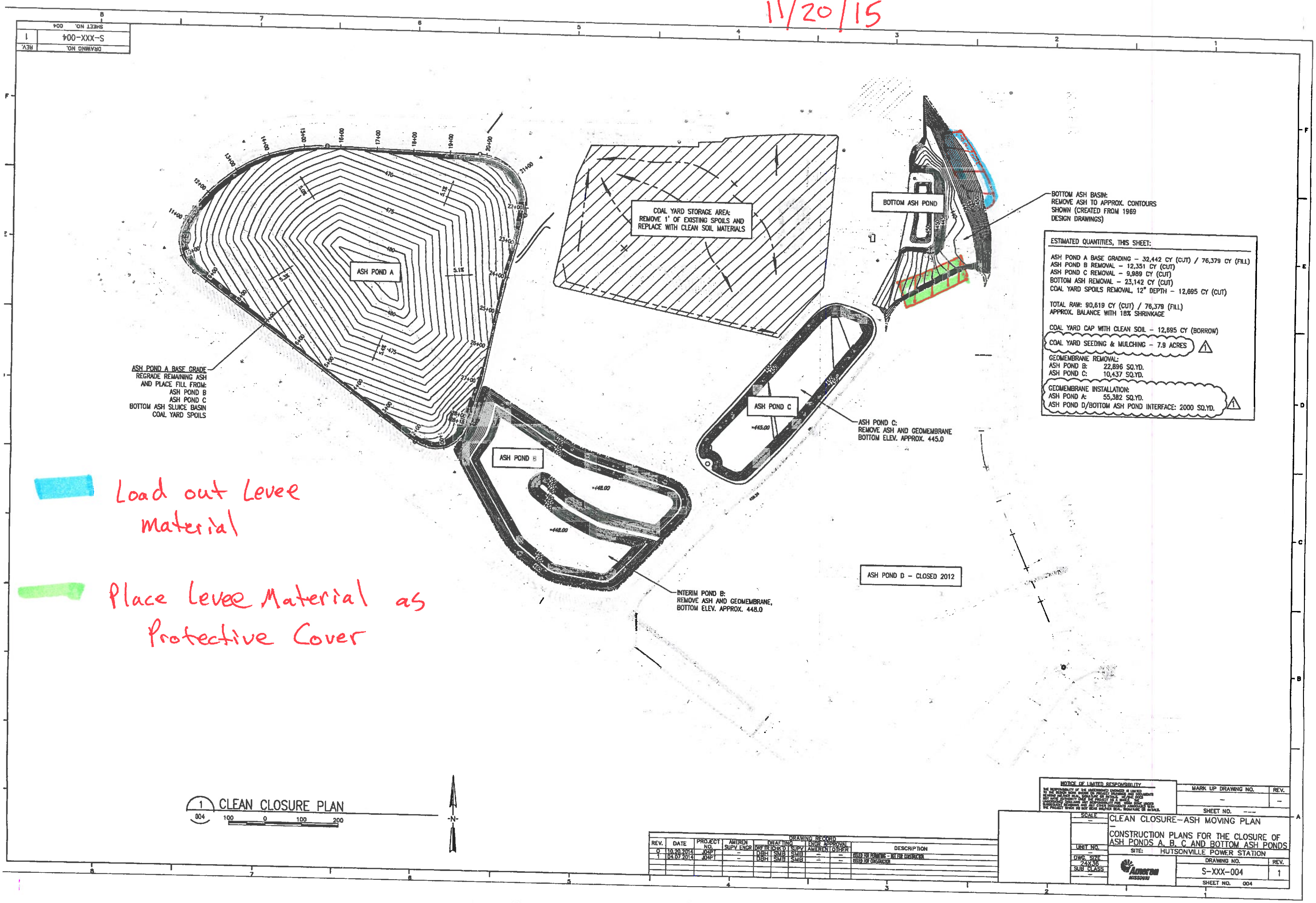
Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Placed levee material from the Bottom Ash Pond as protective cover on the Ash Pond D slope.

11/20/15


S-XXX-004
ASH POND A
COAL YARD STORAGE AREA: REMOVE 1' OF EXISTING SPOILS AND REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH POND
BOTTOM ASH BASIN: REMOVE ASH TO APPROX. CONTOURS SHOWN (CREATED FROM 1969 DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,896 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
ASH POND A BASE GRADE REGRADE REMAINING ASH AND PLACE FILL FROM: ASH POND B ASH POND C BOTTOM ASH SLUICE BASIN COAL YARD SPOILS
ASH POND B
ASH POND C
ASH POND C: REMOVE ASH AND GEOMEMBRANE BOTTOM ELEV. APPROX. 445.0
INTERIM POND B: REMOVE ASH AND GEOMEMBRANE, BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
Load out Levee material
Place levee Material as Protective Cover
1 CLEAN CLOSURE PLAN 004
100 0 100 200
N
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
REV.
SHEET NO.
SCALE
UNIT NO.
DWG. SIZE 24X36
SUB CLASS
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-004
REV. 1
SHEET NO. 004

PHOTOGRAPH LOG

Photograph 1 - View of tracking the slopes of Ash Pond C in preparation for anticipated rain, looking south.

Photograph 2 - View of placing straw over areas where it had been blown away by winds, looking southeast.

Photographs taken by Jessie Hahn of Geotechnology, Inc. November 16-21, 2015.

Photograph 3 ⮝ - View of Ash Pond D protective cover material replaced over Ash Pond D HDPE geomembrane, looking northeast.

Photograph 4 ⮝ - View of borrow field road construction north of Ash Pond A, looking southwest.

Photograph 5 ⮙ - View of borrow field road construction, looking northwest.

Photograph 6 ⮙ - View of culverts installed under the ditch crossing on the borrow field road, looking west.

Photograph 7 ⮝ - View of scraping topsoil at the borrow field, looking north.

Photograph 8 ⮝ - View of loading out Bottom Ash Pond levee material for use as protective cover, looking north.

Photograph 9 ⮝ - View of placing and grading protective cover on the Ash Pond D slope, looking northeast.

Photograph 10 ⮝ - View of completed protective cover on the Ash Pond D slope, looking southwest.

Photographs taken by Jessie Hahn of Geotechnology, Inc. November 16-21, 2015.

M E M O R A N D U M

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DATE: December 1, 2015

SUBJECT: Weekly Summary Report for November 23, 2015 to November 28, 2015

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

Weather

The weather was generally cloudy. Temperature (^{O}F) lows ranged from 25 to 34^{O}F, and temperature highs ranged from 50 to 58^{O}F.

Work was performed on November 23 through November 25. November 26 (Thanksgiving) was a holiday and work was not performed. Work was not performed November 27 or November 28 due to rainy and wet conditions.

Construction Activities

Material from the borrow field was placed on Ash Pond A and graded.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 2 excavators (1 Caterpillar 320B, 1 Komatsu PC 350 LC), 3 haul trucks (John Deere 400D), 2 bulldozers (Caterpillar D6N LGP with GPS), 1 water truck (Caterpillar 623B), 1 tractor with roller/scraper box, 2 tractors with scraper boxes, and 1 skidsteer.

WB Koester had 6-10 employees working on site: 1-2 laborers, 1 mechanic, and 4-7 equipment operators.

Meetings

The weekly progress meeting was held on Wednesday, November 25, 2015. Refer to the meeting minutes for additional information.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Protective cover soil from the borrow field was placed on Ash Pond A.

Testing/Sampling

Jessie Hahn (Geotechnology) collected a prequalification sample from a potential topsoil borrow source and Construction Quality Assurance samples of protective cover from the Bottom Ash Pond Levee and the borrow field.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/23/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jessie Hahn
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0600 Depart: 1500 Travel: 3.00 Total: 12.00

AM Conditions: Clear AM Temperature: 30 F
PM Conditions: Clear PM Temperature: 47 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester
Equipment: **WB Koester:** 1 excavator, 1 bulldozer, 3 haul trucks, 1 skidsteer

Personnel: **WB Koester:** 6 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Protective cover soil from the Bottom Ash Pond levee and the borrow field
Deliveries:
Testing: CQA protective cover samples were collected from the Bottom Ash Pond Levee and the borrow field.

CONSTRUCTION SITE LOCATIONS:

Bottom Ash Pond, Ash Pond A, and the borrow field. See the attached location drawing for additional information.

Jessie Hahn 11/23/2015
Geotechnology, Inc. Rep. Date

11/25/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/23/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

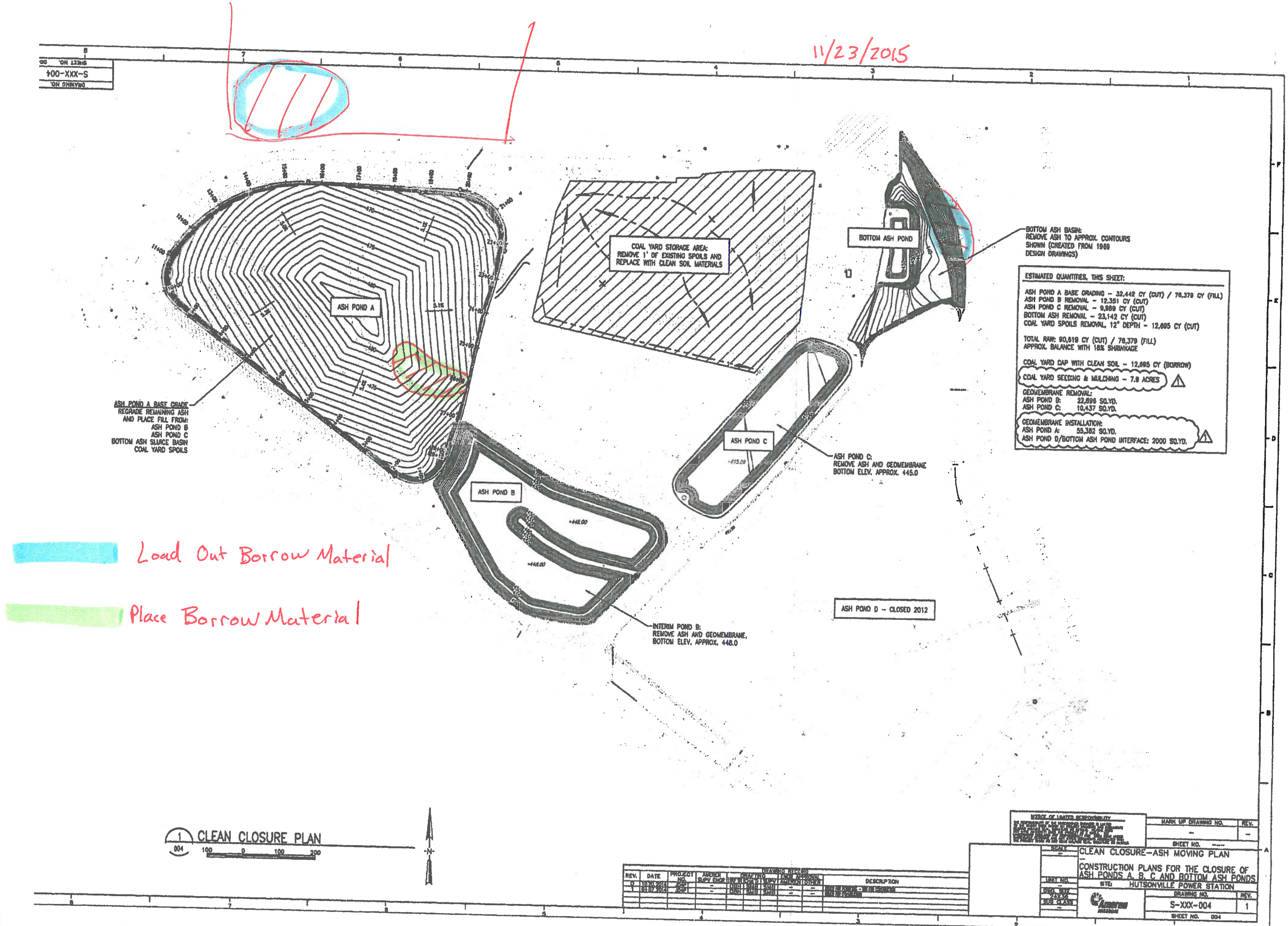
Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Placed levee material from the Bottom Ash Pond as protective cover on Ash Pond A. One excavator loaded out Bottom Ash Pond levee material. Two haul trucks transported the material to Ash Pond A. One bulldozer graded material placed at Ash Pond A.

At 0900, Mike Wagstaff (Ameren) communicated approval to use the borrow field material on Ash Pond A as protective cover. Koester then began placing material from the borrow field on Ash Pond A as protective cover. One excavator loaded out borrow field material. Three haul trucks transported the material to Ash Pond A. One bulldozer graded material placed at Ash Pond A.


11/23/2015
DRAWING NO.
S-XXX-004
SHEET NO. 00
COAL YARD STORAGE AREA:
REMOVE 1' OF EXISTING SPOILS AND
REPLACE WITH CLEAN SOIL MATERIALS
BOTTOM ASH POND
BOTTOM ASH BASIN:
REMOVE ASH TO APPROX. CONTOURS
SHOWN (CREATED FROM 1969
DESIGN DRAWINGS)
ESTIMATED QUANTITIES, THIS SHEET:
ASH POND A BASE GRADING – 32,442 CY (CUT) / 76,379 CY (FILL)
ASH POND B REMOVAL – 12,351 CY (CUT)
ASH POND C REMOVAL – 9,989 CY (CUT)
BOTTOM ASH REMOVAL – 23,142 CY (CUT)
COAL YARD SPOILS REMOVAL, 12" DEPTH – 12,695 CY (CUT)
TOTAL RAW: 90,619 CY (CUT) / 76,379 (FILL)
APPROX. BALANCE WITH 18% SHRINKAGE
COAL YARD CAP WITH CLEAN SOIL – 12,695 CY (BORROW)
COAL YARD SEEDING & MULCHING – 7.9 ACRES
GEOMEMBRANE REMOVAL:
ASH POND B: 22,696 SQ.YD.
ASH POND C: 10,437 SQ.YD.
GEOMEMBRANE INSTALLATION:
ASH POND A: 55,382 SQ.YD.
ASH POND D/BOTTOM ASH POND INTERFACE: 2000 SQ.YD.
ASH POND A
ASH POND A BASE GRADE
REGRADE REMAINING ASH
AND PLACE FILL FROM:
ASH POND B
ASH POND C
BOTTOM ASH SLUICE BASIN
COAL YARD SPOILS
ASH POND C
ASH POND C:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 445.0
ASH POND B
+448.00
INTERIM POND B:
REMOVE ASH AND GEOMEMBRANE,
BOTTOM ELEV. APPROX. 448.0
ASH POND D – CLOSED 2012
Load Out Borrow Material
Place Borrow Material
1 CLEAN CLOSURE PLAN
004
100 0 100 200
N
MARK UP DRAWING NO.
REV.
SHEET NO.
SCALE
CLEAN CLOSURE–ASH MOVING PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF
ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
UNIT NO.
DWG. SIZE
24X36
SUB CLASS
DRAWING NO.
S-XXX-004
REV.
1
SHEET NO. 004
REV.
DATE
PROJECT NO.
DESCRIPTION

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/24/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0600 Depart: 1700 Travel: 0.00 Total: 10.50

AM Conditions: Clear AM Temperature: 37 F
PM Conditions: Clear PM Temperature: 54 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester
Equipment: **WB Koester:** 1 excavator, 2 bulldozers, 3 haul trucks, 1 skidsteer

Personnel: **WB Koester:** 10 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Protective cover soil from the borrow field
Deliveries:
Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A and the borrow field. See the attached location drawing for additional information.

[signature] 11/24/2015
Geotechnology, Inc. Rep. Date

[signature] 11/25/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/24/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

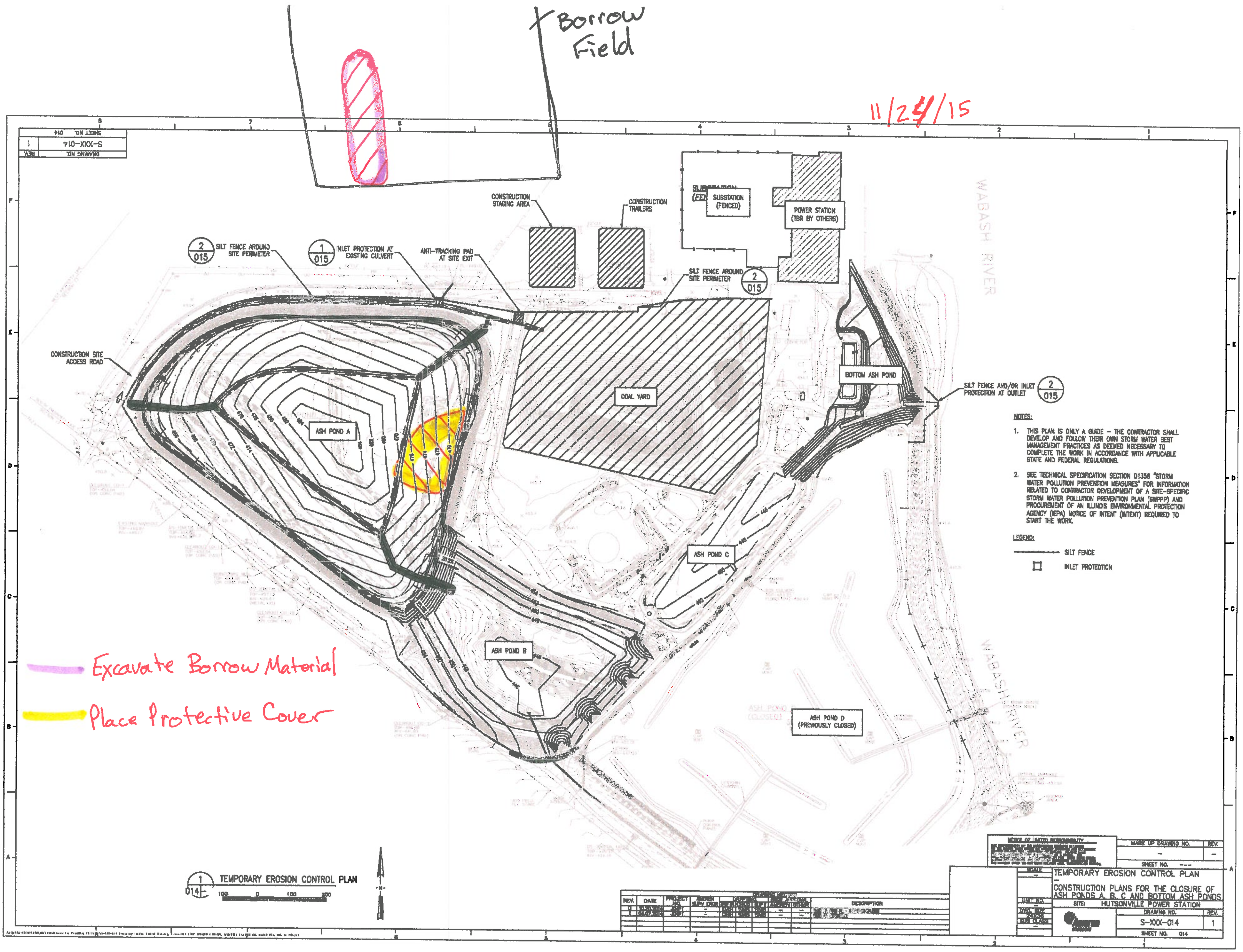
WB Koester:

Placed material from the borrow field on Ash Pond A as protective cover. One excavator loaded out borrow field material. Three haul trucks transported the material to Ash Pond A. One bulldozer graded material placed at Ash Pond A.

One bulldozer cleared topsoil (the top 6 inches) off of the borrow field.

One tractor with roller/scraper box flattened and compacted the ramps and horseshoe-shaped haul road built across the east side of Ash Pond A.

One skidsteer cleaned the roads.


Borrow Field
11/24/15
Excavate Borrow Material
Place Protective Cover
SHEET NO. 014
S-XXX-014
DRAWING NO.
REV.
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
WABASH RIVER
SILT FENCE AROUND SITE PERIMETER
INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
CONSTRUCTION SITE ACCESS ROAD
ASH POND A
COAL YARD
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
NOTES:
1. THIS PLAN IS ONLY A GUIDE – THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA) NOTICE OF INTENT (NOI) REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
TEMPORARY EROSION CONTROL PLAN
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO.
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-014
REV. 1
SHEET NO. 014
DESCRIPTION

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/25/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0600 Depart: 1630 Travel: 3.00 Total: 13.00

AM Conditions: Clear AM Temperature: 42 F
PM Conditions: Clear PM Temperature: 57 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester
Equipment: **WB Koester:** 1 excavator, 2 bulldozers, 3 haul trucks, 1 skidsteer

Personnel: **WB Koester:** 10 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Protective cover soil from the borrow field
Deliveries:
Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A and the borrow field. See the attached location drawing for additional information.

Jessie Hahn 11/25/2015
Geotechnology, Inc. Rep. Date

[signature] 11/25/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/25/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Placed material from the borrow field on Ash Pond A as protective cover. One excavator loaded out borrow field material. Three haul trucks transported the material to Ash Pond A. One bulldozer graded material placed at Ash Pond A.

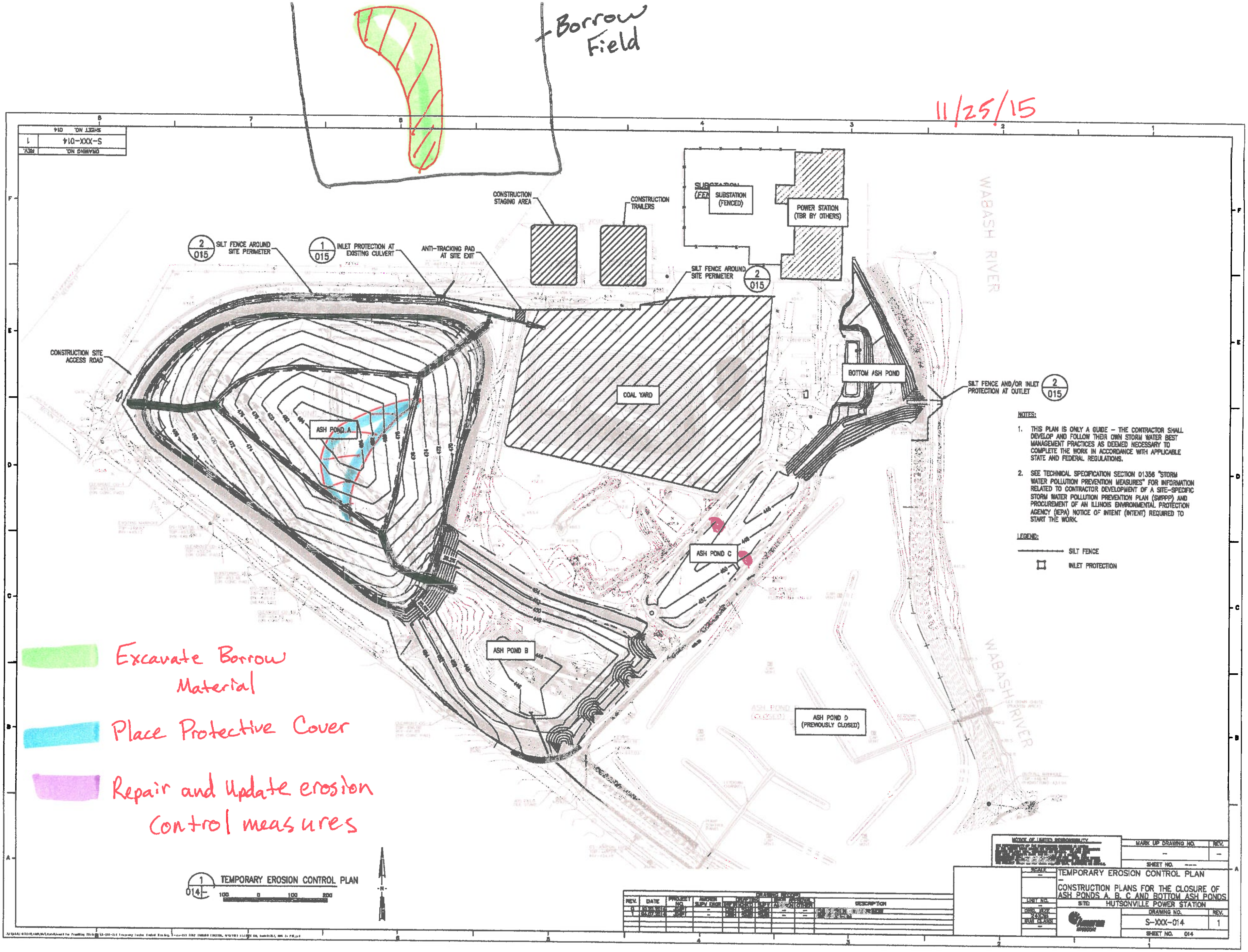
One bulldozer cleared topsoil (the top 6 inches) off of the borrow field.

One tractor with roller/scraper box flattened and compacted the ramps and horseshoe-shaped haul road built across the east side of Ash Pond A.

One skidsteer cleaned the roads throughout the day.

In the morning at approximately 1030, one skidsteer placed rip rap at the concrete box culverts on the east and west levees of Ash Pond C to prevent further erosion.

At 1600, hauling of material from the borrow pit ceased and erosion control measures were taken in anticipation of rain. Erosion control activities included an excavator digging a drainage sump for the borrow field haul road and two bulldozers and a tractor with a roller/scraper box shaping the material on Ash Pond A.



Borrow Field
11/25/15
S-XXX-014
SHEET NO. 014
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
WABASH RIVER
2 015 SILT FENCE AROUND SITE PERIMETER
1 015 INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
SILT FENCE AROUND SITE PERIMETER 2 015
CONSTRUCTION SITE ACCESS ROAD
COAL YARD
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET 2 015
ASH POND A
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
NOTES:
1. THIS PLAN IS ONLY A GUIDE – THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (EPA) NOTICE OF INTENT (INTENT) REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
Excavate Borrow Material
Place Protective Cover
Repair and Update erosion control measures
1 014 TEMPORARY EROSION CONTROL PLAN
100 0 100 200
N
MARK UP DRAWING NO.
REV.
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-014
REV. 1
SHEET NO. 014

Weekly Progress Meeting

Meeting Minutes

Date: 11-25-15

Attendees:

Ameren: Don Shaver, Tim Free

WB Koester: Chris Atkinson, Bob Fisher

Geotechnology, Inc.: Jessie Hahn

Topics:

Safety/Housekeeping

- No issues
- Tim had stand down meeting with crew to discuss hauling/digging near the overhead power lines in borrow field.
- Also discussed leaving cone of dirt 15' diameter around each pole in field.
- Borrrow hauling puts some soil on the plant roads. Chris is scraping it multiple times during day and will broom/wash it at end of day.

Manpower

- Man hours
    - Start of Job (4-27-15) through 11-23-15
        - Total = 12,700 hrs.
- Next week expected manpower
    - WBK = 10 this week, as many as 13 next week.

Review old minutes and action items

- Update on EWO's – Have email approval from Mike. Still waiting on Ameren official Change order paperwork.
- Bob submitted updated schedule and cost info to Mike regarding premium time for working weekends and holidays.
- Don sent pictures of washout around box culverts in Pond C after last rain. Bob to submit cost to widen the rip rap around the box culverts to around 40' wide, add more geotextile (anchor it in at top) and add more rip rap.

Material Issues

- No issues

Quality Control Issues

- No issues

Schedule Compliance

- Erosion in pond C around box culverts. Needs to be repaired. Chris will try and beef it up with rip rap today ahead of rains later in week.
- Brandenberg pumping until week of Dec. 7th. Still need to keep berm in Bottom Ash pond that whole time.
- Seeding/blanket placement will be in Spring. Permanent fence install will be in Spring after Brandenberg finished with building demo.
- Hauling borrow soil to top of Pond A and placing in a 3' layer. Excavator and three trucks for now while we are starting. 2-4 more days of hauling we will add in Tractor and pans to bump up the production. Also will look into adding another excavator and more trucks although congestion of traffic on haul roads and top may limit.
- Next week will work on the ditch north of Pond A and possibly start pushing the Pond A berms across.
- Chris thinks that the topsoil haul trucks from Quality Lime will have trouble with the ramps and turning around at the top. Looking into having them deliver and stockpile topsoil in laydown yard and then haul up with Artic trucks when we have an area ready.
- Forecast for Friday is 100% chance of rain (1" to 4") with high chance of rain Saturday Sunday and Monday as well. Decided in meeting to not work Friday. Chris will monitor site and contact Don is it looks like we can go Saturday and or Sunday and Don will contact Geotechnology. If we get a lot of rain Friday it may not dry out enough to allow productive and safe hauling on Saturday or Sunday. Chris will observe and update Don.

Cost and Budget Control

- Waiting on EWO official paperwork.

Next Meeting Scheduled: December 2, 2015 at 9:00 CST

Action Items -

- Bob to submit price to expand the riprap protection at the box culverts in Pond C.
- Chris to update Don on Friday about working on Saturday or Sunday.

PHOTOGRAPH LOG

Photograph 1 - View of Bottom Ash Pond levee excavation for use as protective cover, looking north.

Photograph 2 - View of protective cover placement on Ash Pond A, looking west.

Photograph 3 ⮝ - View of protective cover placement on Ash Pond A, looking west.

Photograph 4 ⮝ - View of protective cover placement on Ash Pond A, looking west.

Photograph 5 ⮝ - View of excavating borrow field material for use as protective cover, looking northeast.

Photograph 6 ⮝ - View of borrow field haul road, looking northwest.

Photograph 7 - View of tractor improving the haul road on Ash Pond A, looking west.

Photograph 8 - View of placing additional rip rap at the west Ash Pond C box culvert, looking north.

Photograph 9 ⮙ - View of placing and grading protective cover on Ash Pond A, looking west.

Photograph 10 ⮙ - View of excavating a drainage sump for the haul road in anticipation of rain.

Photograph 11 ⮝ - View of tractor improving the haul road on Ash Pond A, looking south.

Photograph 12 ⮝ - View of protective cover on Ash Pond A, looking west.

M E M O R A N D U M

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DATE: December 10, 2015

SUBJECT: Weekly Summary Report for November 30, 2015 to December 5, 2015

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

Weather

The weather was generally cloudy. Temperature (^{O}F) lows ranged from 27 to 35^{O}F, and temperature highs ranged from 42 to 47^{O}F.

Construction Activities

On Monday, the borrow field haul road was dewatered by digging drainage trenches and pumping water.

Protective cover was transported via haul truck from the borrow field to Ash Pond A. Haul trucks moved on the horseshoe-shaped haul road (maximum 3 foot thickness) on Ash Pond A. The material was placed by haul trucks near the center of Ash Pond A and pushed to the edges by a low-pressure bulldozer. The Ash Pond A haul road was maintained by a tractor with a scraper/roller box.

An excavator folded Ash Pond A levee material with the protective cover placement along the east levee of Ash Pond A.

On Wednesday, steel pipe was installed under the haul road ramp of the borrow field and an associated ditch was excavated to protect the telecommunications line.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 2 excavators (1 Caterpillar 320B, 1 Caterpillar 308E), 5 dump trucks (John Deere 400D), 2 bulldozers (Caterpillar D6N LGP with GPS), 1 Tractor (Case 9370) with smooth drum roller (CS-433E), 1 skidsteer (Caterpillar 274B3), 1 water truck (Caterpillar 623B) (unused), 2 Tractors (Case 435, Cast stx480) (unused) with scraper boxes (Reynolds).

WB Koester had 10-16 employees working on site: 1-2 laborers, 1 mechanic, and 8-13 equipment operators.

Meetings

The weekly progress meeting was held on Wednesday, December 2, 2015. Refer to the meeting minutes for additional information.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Protective cover from the borrow field located northeast of Ash Pond A.

Testing/Sampling

Jessie Hahn and Seth Lamble (Geotechnology) obtained a CQA prequalification sample of Ash Pond A levee material for placement as a protective cover.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/30/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Seth Lamble

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0745 Depart: 1430 Travel: 3.00 Total: 9.25

AM Conditions: Overcast AM Temperature: 42 F

PM Conditions: Overcast PM Temperature: 46 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester

Equipment: **WB Koester:** 1 excavator, 2 bulldozers, 1 skid steer

Personnel: **WB Koester:** 5 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Cover soil from haul road servicing the borrow field.

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Trenching haul road for borrow field to allow dewatering.

Seth Lamble 11-30-15
Geotechnology, Inc. Rep. Date

12/2/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 11/30/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

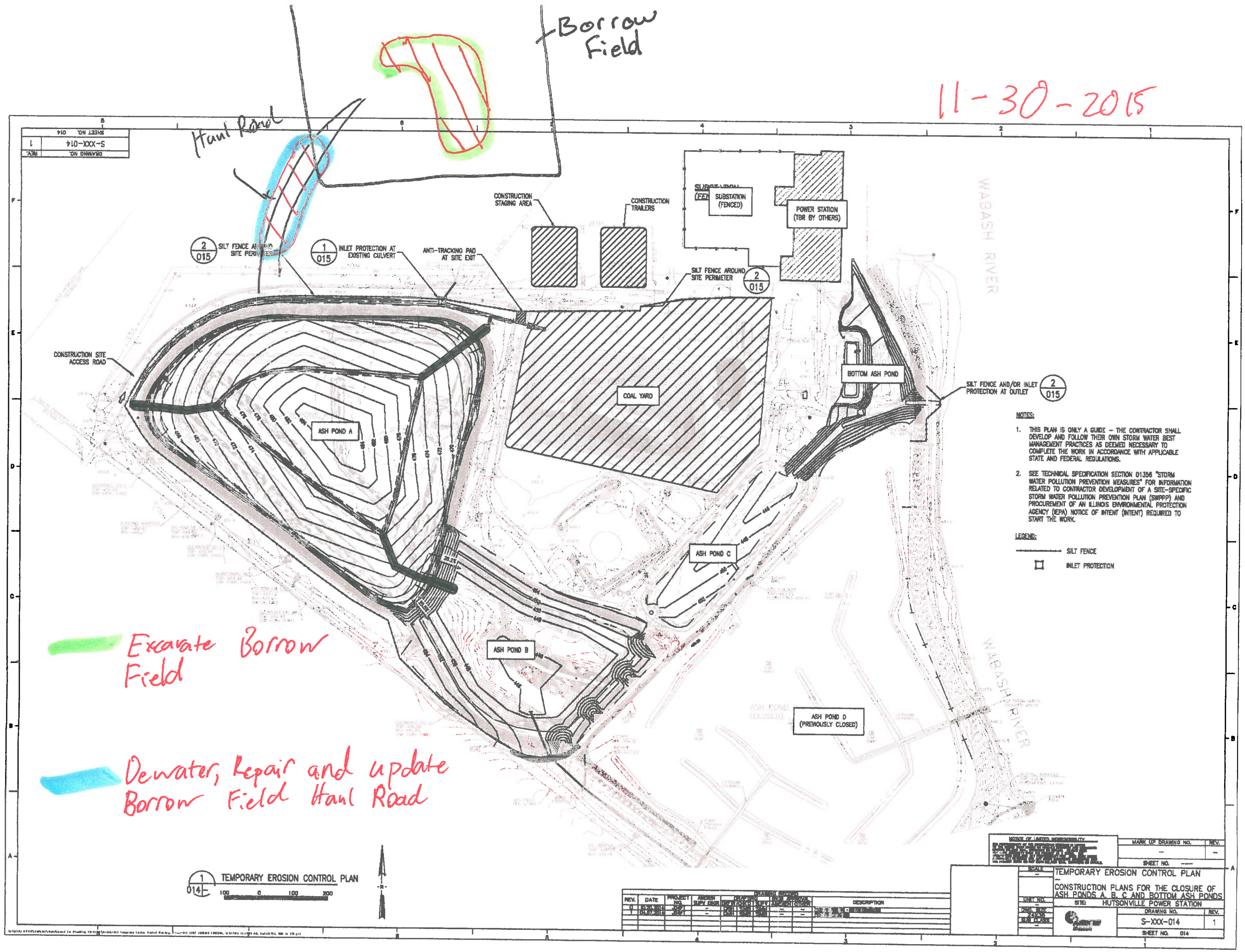
One excavator trenched borrow field haul road.

One bulldozer graded borrow field haul road.

One bulldozer cleared topsoil (the top 6 inches) off of the borrow field.

One skidsteer cleaned the roads throughout the day.

At 1600, trenching, clearing and grading of the haul road and borrow field ceased and the site was prepared for anticipated rain.


Borrow Field
Haul Road
11-30-2015
Excavate Borrow Field
Dewater, Repair and update Borrow Field Haul Road
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
WABASH RIVER
SILT FENCE AROUND SITE PERIMETER
INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
SILT FENCE AROUND SITE PERIMETER
CONSTRUCTION SITE ACCESS ROAD
ASH POND A
COAL YARD
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
NOTES:
1. THIS PLAN IS ONLY A GUIDE – THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (EPA) NOTICE OF INTENT (INTENT) REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
TEMPORARY EROSION CONTROL PLAN
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-014
REV. 1
SHEET NO. 014

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/01/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Seth Lamble

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0615 Depart: 1615 Travel: 0.00 Total: 9.50

AM Conditions: Overcast AM Temperature: 42 F
PM Conditions: Partly Cloudy PM Temperature: 47 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester

Equipment: **WB Koester:** 1 excavator, 2 bulldozers, 1 skid steer, 3 haul trucks, 1 tractor with roller/scraper box

Personnel: **WB Koester:** 10 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Cover soil from borrow field for Ash Pond A.

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Borrow Field, Ash Pond A and Haul Road.

Seth Lamble 12-1-15
Geotechnology, Inc. Rep. Date

[signature] 12/2/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT DATE: 12/01/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

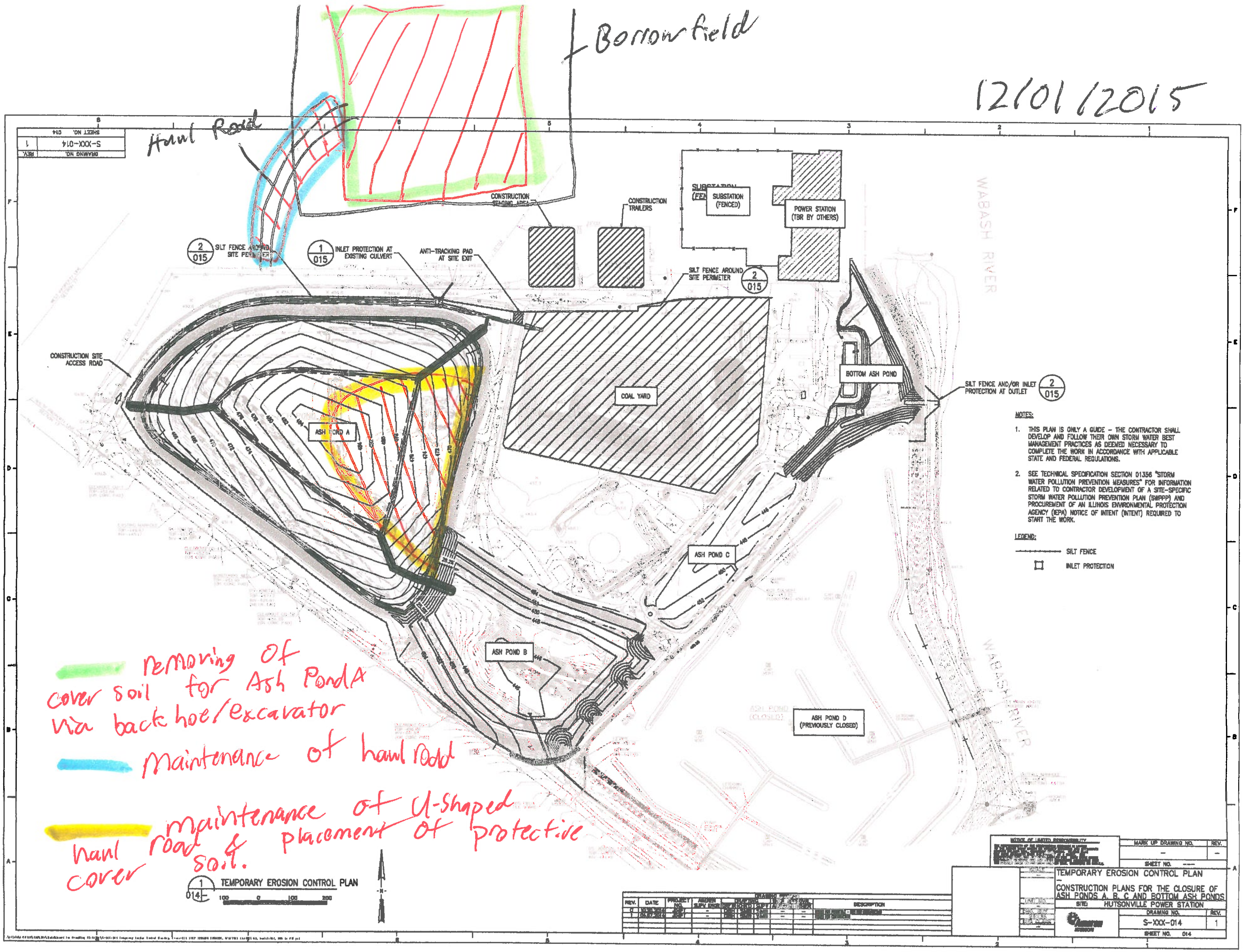
Placed material from the borrow field on Ash Pond A as protective cover. One excavator loaded out borrow field material. Three haul trucks transported the material to Ash Pond A. One bulldozer graded material placed at Ash Pond A.

One bulldozer cleared topsoil (the top 6 inches) off of the borrow field and cleaned and maintained haul road for borrow field.

One tractor with roller/scraper box flattened/compacted the ramps and horseshoe-shaped haul road built across the east side of Ash Pond A.

One skidsteer cleaned the roads throughout the day.

At 1600, hauling of material from the borrow pit ceased and the site was prepared for end of work day.



Borrow field
12/01/2015
Haul Road
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
WABASH RIVER
2 015 SILT FENCE AROUND SITE PERIMETER
1 015 INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
SILT FENCE AROUND SITE PERIMETER 2 015
CONSTRUCTION SITE ACCESS ROAD
COAL YARD
ASH POND A
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET 2 015
NOTES:
1. THIS PLAN IS ONLY A GUIDE – THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA) NOTICE OF INTENT (INTENT) REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
removing of cover soil for Ash Pond A via backhoe/excavator
Maintenance of haul road
maintenance of U-shaped haul road & placement of protective cover soil.
1 014 TEMPORARY EROSION CONTROL PLAN
100 0 100 200
N
MARK UP DRAWING NO.
REV.
SHEET NO.
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-014
REV. 1
SHEET NO. 014
DRAWING NO. S-XXX-014 REV. 1 SHEET NO. 014
REV. DATE PROJECT NO. DESCRIPTION

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/02/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Seth Lamble
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0630 Depart: 1630 Travel: 0.00 Total: 9.50

AM Conditions: Overcast
AM Temperature: 34 F
PM Conditions: Overcast
PM Temperature: 38 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester

Equipment: **WB Koester:** 2 excavator, 2 bulldozers, 1 skid steer, 5 haul trucks, 1 tractor with roller/scraper box

Personnel: **WB Koester:** 14 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Cover soil from borrow field for Ash Pond A.

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Borrow Field, Ash Pond A and Haul Road.

Seth Lamble
Geotechnology, Inc. Rep.

12-2-15
Date

Geotechnology, Inc. Engineer

12/2/2015
Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/02/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Placed material from the borrow field on Ash Pond A as protective cover. Two excavators loaded out borrow field material. Five haul trucks transported the material to Ash Pond A. One bulldozer graded material placed at Ash Pond A.

One bulldozer cleared topsoil (the top 6 inches) off of the borrow field and cleaned and maintained haul road for borrow field.

One tractor with roller/scraper box flattened/compacted the ramps and horseshoe-shaped haul road built across the east side of Ash Pond A.

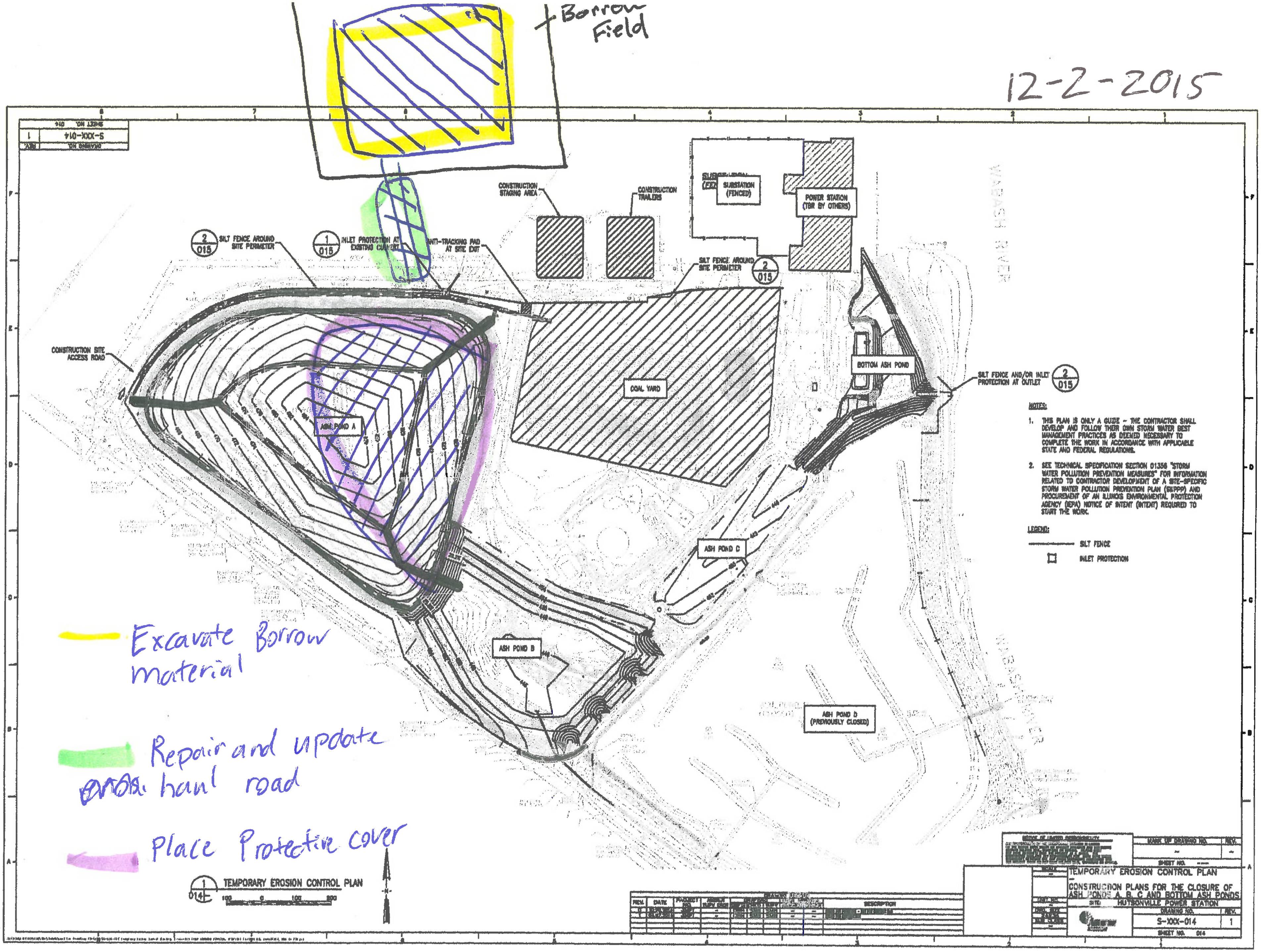
One skidsteer cleaned the roads throughout the day.

At 0900 hauling and excavating work ceased to allow internet provide to repair and protect site internet connection that was placed under the ramp for the borrow field haul road, repair work ended at 1200 and protective cover was hauled for placement.

The weekly progress meeting was held at 0930. See the meeting minutes for additional information.

At 1600, hauling of material from the borrow pit ceased and the site was prepared for end of work day.

12-2-2015



Borrow Field
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
WABASH RIVER
2/015 SILT FENCE AROUND SITE PERIMETER
1/015 INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
SILT FENCE AROUND SITE PERIMETER 2/015
CONSTRUCTION SITE ACCESS ROAD
ASH POND A
COAL YARD
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET 2/015
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
NOTES:
1. THIS PLAN IS ONLY A GUIDE – THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA) NOTICE OF INTENT (INTENT) REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
Excavate Borrow material
Repair and update haul road
Place Protective cover
1/014 TEMPORARY EROSION CONTROL PLAN
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-014
REV. 1
SHEET NO. 014

Weekly Progress Meeting

Meeting Minutes

Date: 12-2-15

Attendees:

Ameren: Don Shaver, Tim Free, Mike Wagstaff

WB Koester: Chris Atkinson

Geotechnology, Inc.: Jessie Hahn, Anna Saindon, Seth

Topics:

Safety/Housekeeping

- No issues
- Borrrow hauling puts some soil on the plant roads. Chris is scraping it multiple times during day and will broom/wash it at end of day.

Manpower

- Man hours
  - Start of Job (4-27-15) through 11-30-15
    - Total = 12,976 hrs.
- Next week expected manpower
  - WBK = 13 next week.

Review old minutes and action items

- None recorded

Material Issues

- No issues

Quality Control Issues

- No issues

Schedule Compliance

- Brandenberg pumping until week of Dec. 7th. Still need to keep berm in Bottom Ash pond that whole time. Will have to dry before grading can take place.

- Seeding/blanket placement will be in Spring. Permanent fence install will be in Spring after Brandenberg finished with building demo.
- Hauling borrow soil to top of Pond A and placing in a 3' layer.
- Chris thinks that the topsoil haul trucks from Quality Lime will have trouble with the ramps and turning around at the top. Looking into having them deliver and stockpile topsoil in laydown yard and then haul up with Artic trucks when we have an area ready.
- Will haul Saturday and Sunday this week.

Cost and Budget Control

- n/a

Next Meeting Scheduled: December 9, 2015 at 9:00 CST

Action Items -

- Chris to update Don about working on Saturday or Sunday.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/03/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Seth Lamble

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0645 Depart: 1630 Travel: 0.00 Total: 9.25

AM Conditions: Clear AM Temperature: 27 F
PM Conditions: Partly Sunny PM Temperature: 37 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester
Equipment: **WB Koester:** 2 excavator, 2 bulldozers, 1 skid steer, 5 haul trucks, 1 tractor with roller/scraper box
Personnel: **WB Koester:** 16 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Cover soil from borrow field for Ash Pond A.
Deliveries:
Testing:

CONSTRUCTION SITE LOCATIONS:

Borrow Field, Ash Pond A and Haul Road.

Seth Lamble 12-3-15
Geotechnology, Inc. Rep. Date

[signature] 12/7/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/03/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

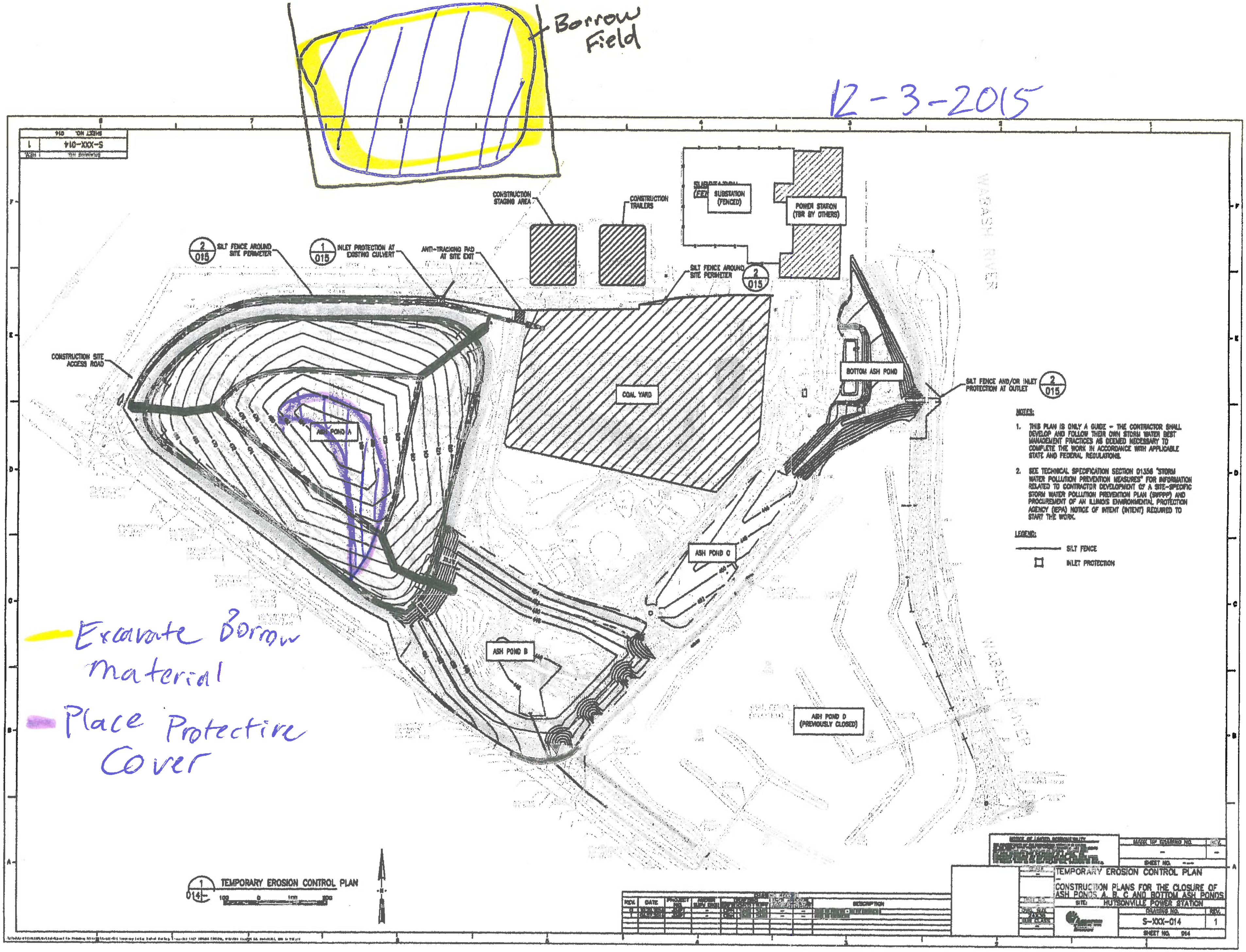
Placed material from the borrow field on Ash Pond A as protective cover. Two excavators loaded out borrow field material. Five haul trucks transported the material to Ash Pond A. One bulldozer graded material placed at Ash Pond A.

One bulldozer cleared topsoil (the top 6 inches) off of the borrow field and cleaned and maintained haul road for borrow field.

One tractor with roller/scraper box flattened/compacted the ramps and horseshoe-shaped haul road built across the east side of Ash Pond A.

One skidsteer cleaned the roads throughout the day.

At 1615, hauling of material from the borrow pit ceased and the site was prepared for end of work day.



Borrow Field
12-3-2015
S-XXX-014
1
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
WABASH RIVER
2 015 SILT FENCE AROUND SITE PERIMETER
1 015 INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
SILT FENCE AROUND SITE PERIMETER 2 015
CONSTRUCTION SITE ACCESS ROAD
ASH POND A
COAL YARD
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET 2 015
NOTES:
1. THIS PLAN IS ONLY A GUIDE - THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA) NOTICE OF INTENT (INTENT) REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
Excavate Borrow material
Place Protective Cover
1 014 TEMPORARY EROSION CONTROL PLAN
REV.
DATE
DESCRIPTION
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DRAWING NO.
S-XXX-014
REV.
1
SHEET NO. 014

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/04/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Seth Lamble

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0630 Depart: 1630 Travel: 0.00 Total: 9.50

AM Conditions: Dense Fog AM Temperature: 28 F
PM Conditions: Light Fog PM Temperature: 37 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester
Equipment: **WB Koester:** 2 excavator, 2 bulldozers, 1 skid steer, 5 haul trucks, 1 tractor with roller/scraper box
Personnel: **WB Koester:** 16 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Cover soil from borrow field for Ash Pond A.
Deliveries:
Testing:

CONSTRUCTION SITE LOCATIONS:

Borrow Field, Ash Pond A and Haul Road.

Seth Lamble 12-4-15
Geotechnology, Inc. Rep. Date

12/7/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/04/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Placed material from the borrow field on Ash Pond A as protective cover. Two excavators loaded out borrow field material. Five haul trucks transported the material to Ash Pond A. Two bulldozers graded material placed at Ash Pond A.

At 1000 one bulldozer cleared topsoil (the top 6 inches) off of the borrow field and cleaned and maintained haul road for borrow field.

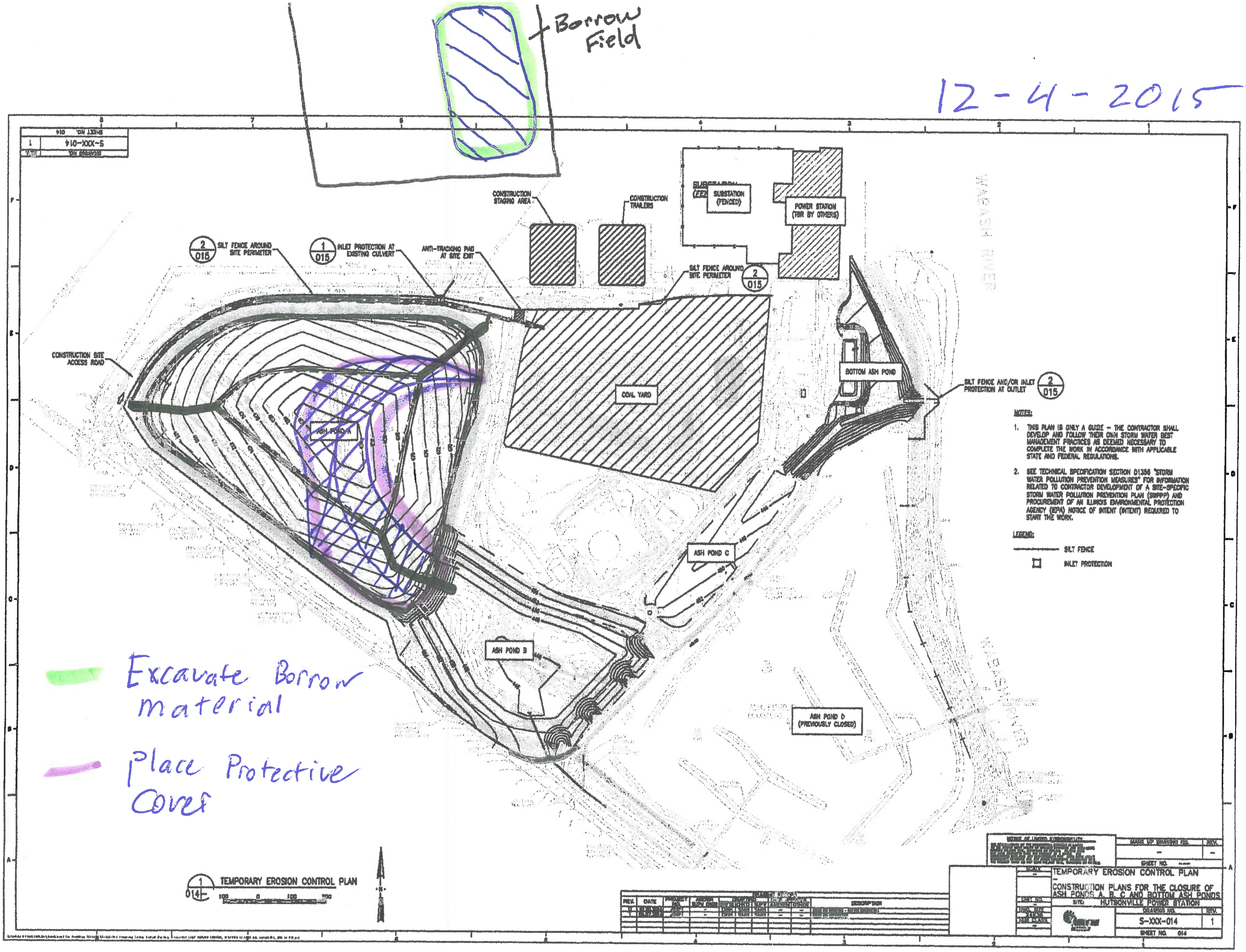
At 1300 bulldozer traveled to Ash Pond A Landfill and graded material placed at Ash Pond A.

One tractor with roller/scraper box flattened/compacted the ramps and horseshoe-shaped haul road built across the east side of Ash Pond A.

One skidsteer cleaned the roads throughout the day.

At 1615, hauling of material from the borrow pit ceased and the site was prepared for end of work day.

12-4-2015



Borrow Field
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
WABASH RIVER
SILT FENCE AROUND SITE PERIMETER
INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
CONSTRUCTION SITE ACCESS ROAD
COAL YARD
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET
ASH POND A
ASH POND B
ASH POND C
ASH POND D (PREVIOUSLY CLOSED)
NOTES:
1. THIS PLAN IS ONLY A GUIDE - THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (EPA) NOTICE OF INTENT (NOI) REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
Excavate Borrow material
Place Protective Cover
TEMPORARY EROSION CONTROL PLAN
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
HUTSONVILLE POWER STATION
S-XXX-014
SHEET NO. 014

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/05/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Seth Lamble

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0645 Depart: 1630 Travel: 0.00 Total: 9.25

AM Conditions: Dense Fog AM Temperature: 28 F
PM Conditions: Cloudy PM Temperature: 35 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester
Equipment: **WB Koester:** 2 excavator, 2 bulldozers, 1 skid steer, 5 haul trucks, 1 tractor with roller/scraper box
Personnel: **WB Koester:** 14 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Cover soil from borrow field for Ash Pond A.
Deliveries:
Testing:

CONSTRUCTION SITE LOCATIONS:

Borrow Field, Ash Pond A and Haul Road.

Scott Lamble 12-5-15
Geotechnology, Inc. Rep. Date

[signature] 12/7/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/05/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Technicians onsite to prepare equipment for ongoing demolition.

WB Koester:

Placed material from the borrow field on Ash Pond A as protective cover.

One excavator loaded out borrow field material. Five haul trucks transported the material to Ash Pond A.

Two bulldozers graded material placed at Ash Pond A. One excavator folded levee material with protective cover, beginning on northwest corner of Ash Pond A.

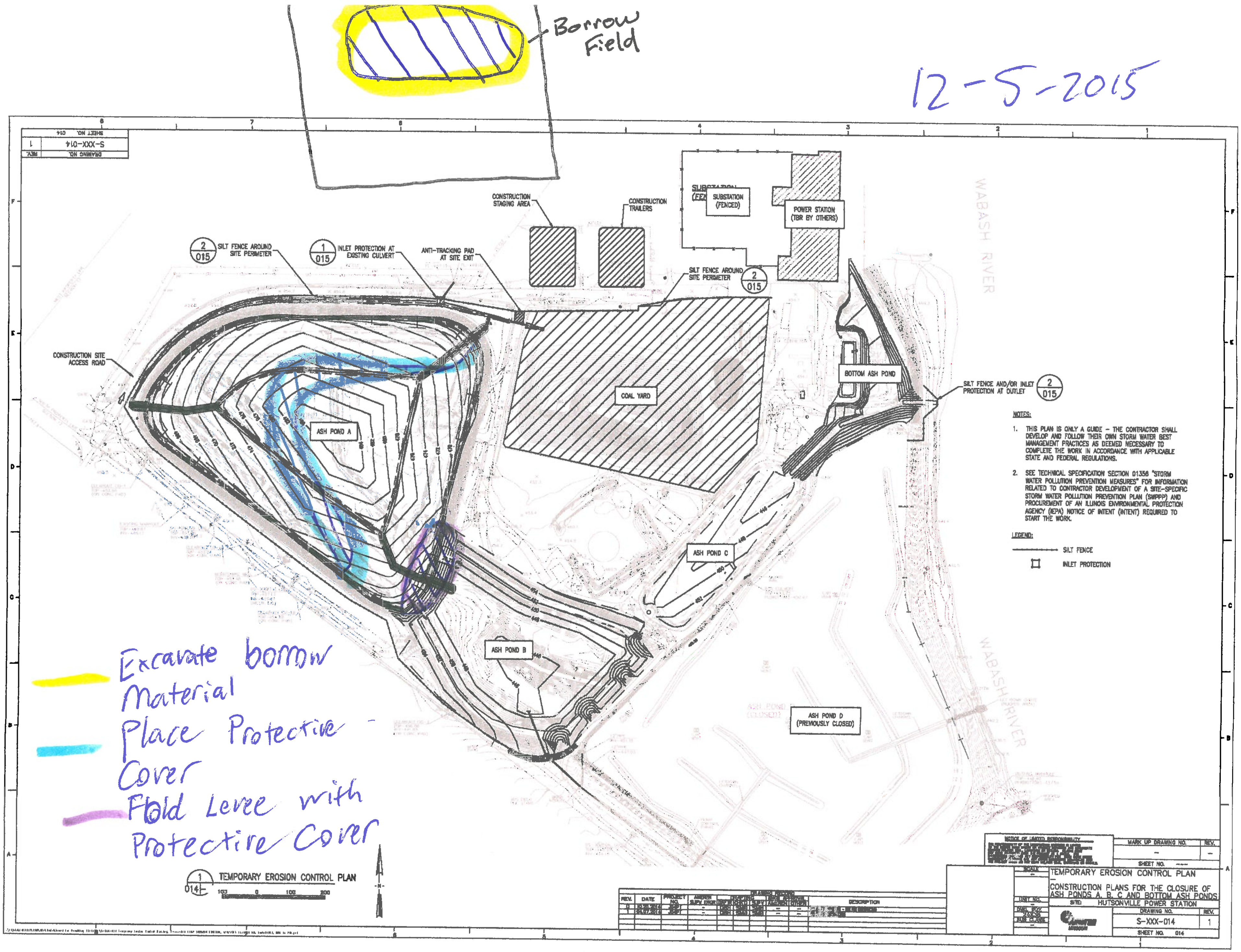
At 0900 one bulldozer cleared topsoil (the top 6 inches) off of the borrow field and cleaned and maintained haul road for borrow field.

At 1200 bulldozer traveled to Ash Pond A Landfill and graded material placed at Ash Pond A.

One tractor with roller/scraper box flattened/compacted the ramps and horseshoe-shaped haul road built across the east side of Ash Pond A.

One skidsteer cleaned the roads and graded borrow field throughout the day.

At 1600, hauling of material from the borrow pit ceased and the site was prepared for end of work day.


12-5-2015
Borrow Field
Excavate borrow material
Place Protective Cover
Fold Levee with Protective Cover
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
WABASH RIVER
2 015 SILT FENCE AROUND SITE PERIMETER
1 015 INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
SILT FENCE AROUND SITE PERIMETER 2 015
CONSTRUCTION SITE ACCESS ROAD
COAL YARD
ASH POND A
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET 2 015
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
NOTES:
1. THIS PLAN IS ONLY A GUIDE – THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA) NOTICE OF INTENT (INTENT) REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
1 014 TEMPORARY EROSION CONTROL PLAN
100 0 100 200
NOTICE OF LIMITED RESPONSIBILITY
MARK UP DRAWING NO. REV.
SHEET NO.
SCALE
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-014 REV. 1
SHEET NO. 014
UNIT NO.
DWG. SIZE 24X36
SUB CLASS
REV. DATE PROJECT NO. DESCRIPTION
DRAWING NO. S-XXX-014 SHEET NO. 014

PHOTOGRAPH LOG

Photograph 1 ⮙ - View of borrow field haul road, looking northwest.

Photograph 2 ⮙ - View of Ash Pond A with haul road and protective cover in place, looking northwest.

Photograph 3 ⮝ - View of borrow field, looking east.

Photograph 4 ⮝ - View of borrow field excavation, looking west.

Photograph 5 ⮝ - View of haul road from borrow field, looking west.

Photograph 6 ⮝ - View of the protective cover placement, looking east.

Photograph 7 ⮝ - View from top of Ash Pond A landfill, looking east.

Photograph 8 ⮝ - View of paved haul road cleaning, looking east.

Photograph 9 ⮝ - View of borrow field, looking northeast.

Photograph 10 ⮝ - View of west ramp for Ash Pond A, looking southeast.

Photograph 11 ⮙ - View of Ash Pond A protective cover placement, looking east.

Photograph 12 ⮙ - View of Ash Pond A sandbag removal prior to protective cover placement, looking southeast.

Photograph 13 ⮝ - View of borrow field, looking west.

Photograph 14 ⮝ - View of haul road ramp soil removal after repair of internet cable, looking southwest.

Photograph 15 ⮝ - View of Ash Pond A protective soil placement, looking east.

Photograph 16 ⮝ - View of Ash Pond A haul road maintenance, looking northeast.

Photograph 17 - View of Ash Pond A protective cover placement, looking west.

Photograph 18 - View of Ash Pond A protective cover placement, looking west.

Photograph 19 ⮝ - View of Ash Pond A sandbag removal process, looking southwest.

Photograph 20 ⮝ - View of borrow field, looking northeast.

Photograph 21 ⮝ - View of haul road repair and maintenance, looking northeast.

Photograph 22 ⮝ - View of borrow field, looking west.

Photograph 23 ⮝ - View of Ash Pond A protective cover placement, looking north.

Photograph 24 ⮝ - View of borrow field, looking east.

Photograph 25 ⮝ - View of Ash Pond A protective cover placement, looking south.

MEMORANDUM

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DATE: December 17, 2015

SUBJECT: Weekly Summary Report for December 6, 2015 to December 12, 2015

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

Weather

The weather was generally cloudy. Temperature (^{O}F) lows ranged from 23 to 56^{O}F, and temperature highs ranged from 43 to 70^{O}F.

Construction Activities

Protective cover was transported via haul truck from the borrow field to Ash Pond A. Haul trucks moved on the horseshoe-shaped haul road (minimum 3 foot thickness) on Ash Pond A. The material was placed by haul trucks near the center of Ash Pond A and pushed to the edges by two low-pressure bulldozers. The Ash Pond A haul road was maintained by a tractor with a scraper/roller box and a bulldozer.

An excavator folded Ash Pond A levee material with the protective cover placement along the north and east levees of Ash Pond A.

On December 12, no material was hauled from the borrow field. Material was removed from the north Ash Pond A ramp and placed on Ash Pond A.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 2 excavators (1 Caterpillar 320B, 1 Caterpillar 308E), 5 dump trucks (John Deere 400D), 3 bulldozers (Caterpillar D6N LGP, 2 with GPS), 1 Tractor (Case 9370) with roller/scraper box (CS-433E), 1 skidsteer (Caterpillar 274B3), 1 water truck (Caterpillar 623B) (unused), 2 Tractors (Case 435, Cast stx480) (unused) with scraper boxes (Reynolds).

WB Koester had 6-15 employees working on site: 1-2 laborers, 1 mechanic, and 4-12 equipment operators.

Meetings

The weekly progress meeting was held on Wednesday, December 9, 2015. Refer to the meeting minutes for additional information.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Protective cover from the borrow field located northeast of Ash Pond A.

Testing/Sampling

Testing and sampling were not performed on site this week.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/06/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Seth Lamble

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0630 Depart: 1630 Travel: 0.00 Total: 9.50

AM Conditions: Clear
AM Temperature: 24 F
PM Conditions: Cloudy
PM Temperature: 51 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester
Equipment: **WB Koester:** 2 excavator, 2 bulldozers, 1 skid steer, 5 haul trucks, 1 tractor with roller/scraper box
Personnel: **WB Koester:** 14 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Cover soil from borrow field for Ash Pond A.
Deliveries:
Testing:

CONSTRUCTION SITE LOCATIONS:

Borrow Field, Ash Pond A and Haul Road.

Seth Lamble
Geotechnology, Inc. Rep.
12-6-15
Date

Geotechnology, Inc. Engineer
12/6/2015
Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/06/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Brandenburg did not work this day.

WB Koester:

Placed material from the borrow field on Ash Pond A as protective cover.

One excavator loaded out borrow field material. Five haul trucks transported the material to Ash Pond A.

One bulldozer graded material placed at Ash Pond A. One excavator folded levee material with protective cover, beginning on the south levee of Ash Pond A.

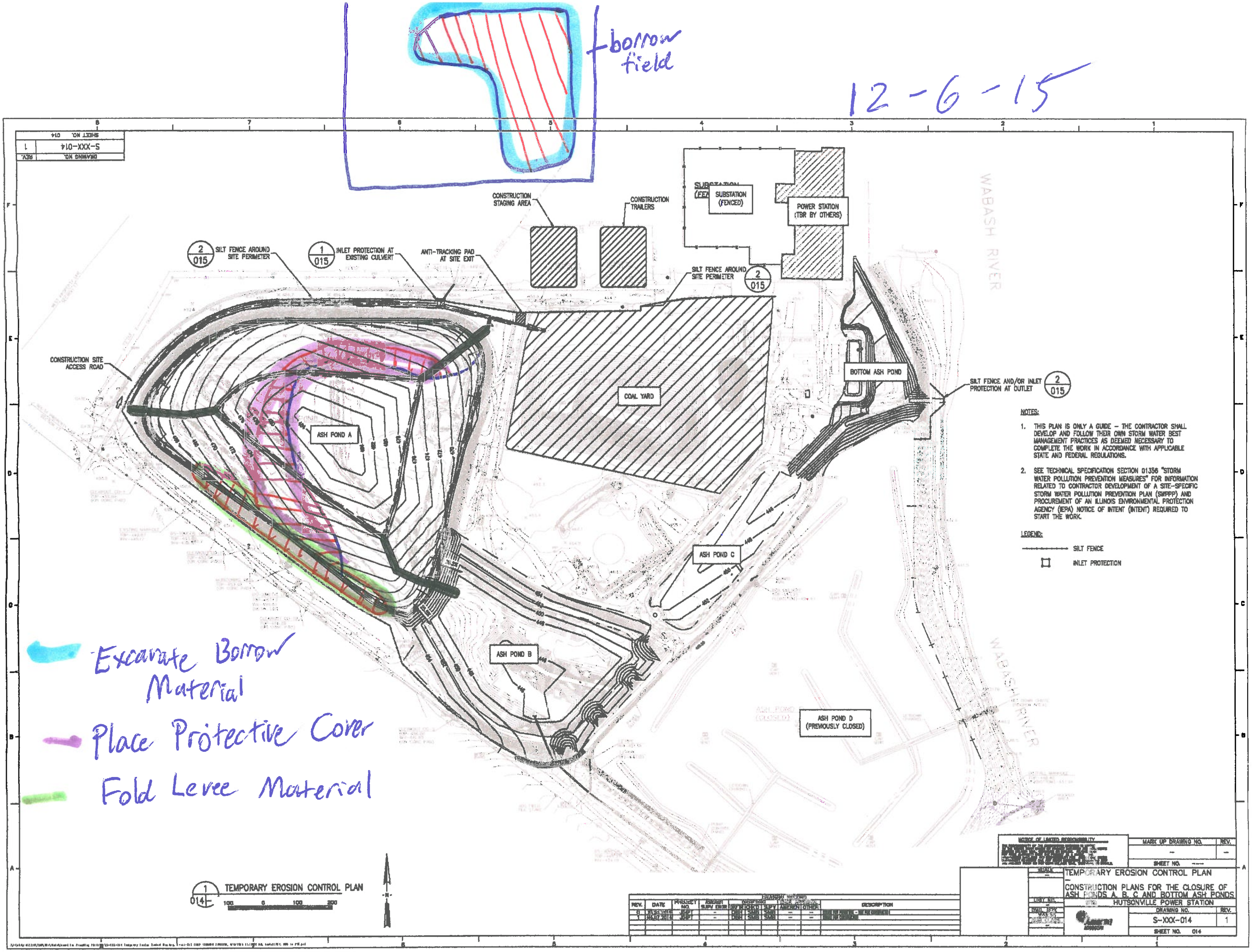
At 1200 one excavator traveled to borrow field to load out borrow field material.

One tractor with roller/scraper box flattened/compacted the ramps and horseshoe-shaped haul road built across the east side of Ash Pond A.

One skidsteer cleaned the roads and graded borrow field throughout the day.

At 1600, hauling of material from the borrow pit ceased and the site was prepared for end of work day.

12-6-15


borrow field
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
WABASH RIVER
2 015 SILT FENCE AROUND SITE PERIMETER
1 015 INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
SILT FENCE AROUND SITE PERIMETER 2 015
CONSTRUCTION SITE ACCESS ROAD
COAL YARD
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET 2 015
ASH POND A
ASH POND B
ASH POND C
ASH POND D (PREVIOUSLY CLOSED)
NOTES:
1. THIS PLAN IS ONLY A GUIDE – THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA) NOTICE OF INTENT (NOI) REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
Excavate Borrow Material
Place Protective Cover
Fold Levee Material
1 014 TEMPORARY EROSION CONTROL PLAN
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-014
REV. 1
SHEET NO. 014

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/07/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Seth Lamble
Cassandra Baresel

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0630 Depart: 1630 Travel: 0.00 Total: 11.5

AM Conditions: Cloudy AM Temperature: 39 F

PM Conditions: Cloudy PM Temperature: 42 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester

Equipment: **WB Koester:** 2 excavator, 2 bulldozers, 1 skid steer, 5 haul trucks, 1 tractor with roller/scraper box

Personnel: **WB Koester:** 14 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Cover soil from borrow field for Ash Pond A.

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Borrow Field, Ash Pond A and Haul Road. See attached location map for additional information.

Geotechnology, Inc. Rep. Date 12/07/15

Geotechnology, Inc. Engineer Date 12/8/2015

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/07/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Brandenburg demolition to the building.

WB Koester:

Placed material from the borrow field on Ash Pond A as protective cover.

One excavator loaded out borrow field material. Five haul trucks transported the material to Ash Pond A.

One bulldozer cleared topsoil (the top 6 inches) off of the borrow field and cleaned and maintained haul road for borrow field.

One bulldozer graded material placed at Ash Pond A.

One excavator folded levee material with protective cover, beginning on northwest corner of Ash Pond A.

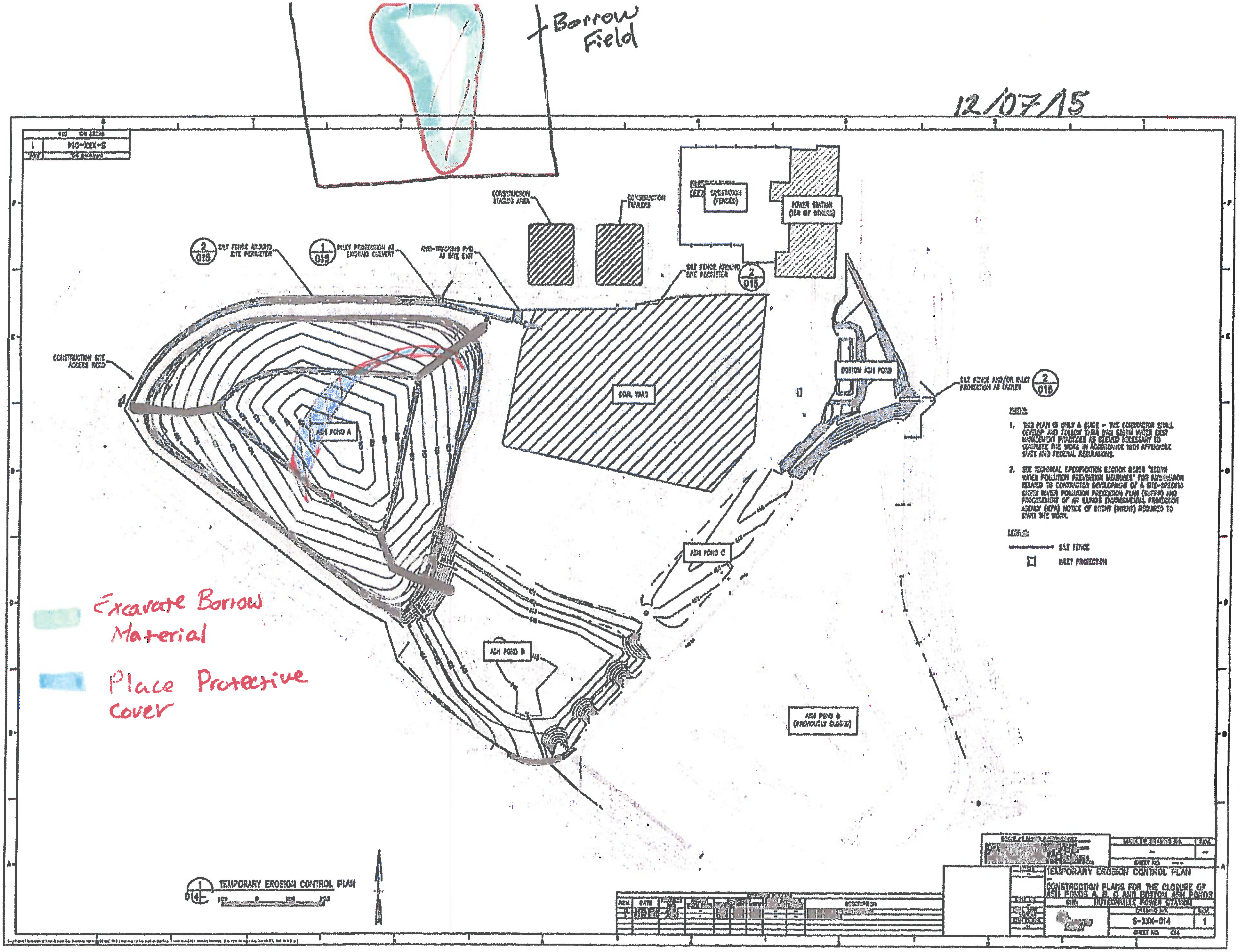
At 0900 two bulldozers graded material placed at Ash Pond A

One tractor with roller/scraper box flattened/compacted the ramps and horseshoe-shaped haul road built across the east side of Ash Pond A.

One skidsteer cleaned the roads and graded borrow field throughout the day.

At 1615, hauling of material from the borrow pit ceased and the site was prepared for end of work day.

12/07/15


Borrow Field
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (BY OTHERS)
SILT FENCE AROUND SITE PERIMETER
INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
CONSTRUCTION SITE ACCESS ROAD
ASH POND A
COAL YARD
BOTTOM ASH POND
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
NOTES:
LEGEND:
SILT FENCE
INLET PROTECTION
Excavate Borrow Material
Place Protective cover
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
S-XXX-014

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/08/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Cassandra Baresel

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0630 Depart: 1630 Travel: 0.00 Total: 9.5

AM Conditions: Cloudy
AM Temperature: 36 F
PM Conditions: Cloudy
PM Temperature: 56 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester
Equipment: **WB Koester:** 2 excavator, 3 bulldozers, 1 skid steer, 5 haul trucks, 1 tractor with roller/scraper box
Personnel: **WB Koester:** 14 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Cover soil from borrow field for Ash Pond A.
Deliveries:
Testing:

CONSTRUCTION SITE LOCATIONS:

Borrow Field, Ash Pond A and Haul Road. See attached location map for additional information.

[signature] 12/08/15
Geotechnology, Inc. Rep. Date

[signature] 12/8/2015
Geotechnology, Inc. Engineer Date

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of the building.

WB Koester:

Placed material from the borrow field on Ash Pond A as protective cover.

One excavator loaded out borrow field material. Five haul trucks transported the material to Ash Pond A. Two bulldozers graded material placed at Ash Pond A.

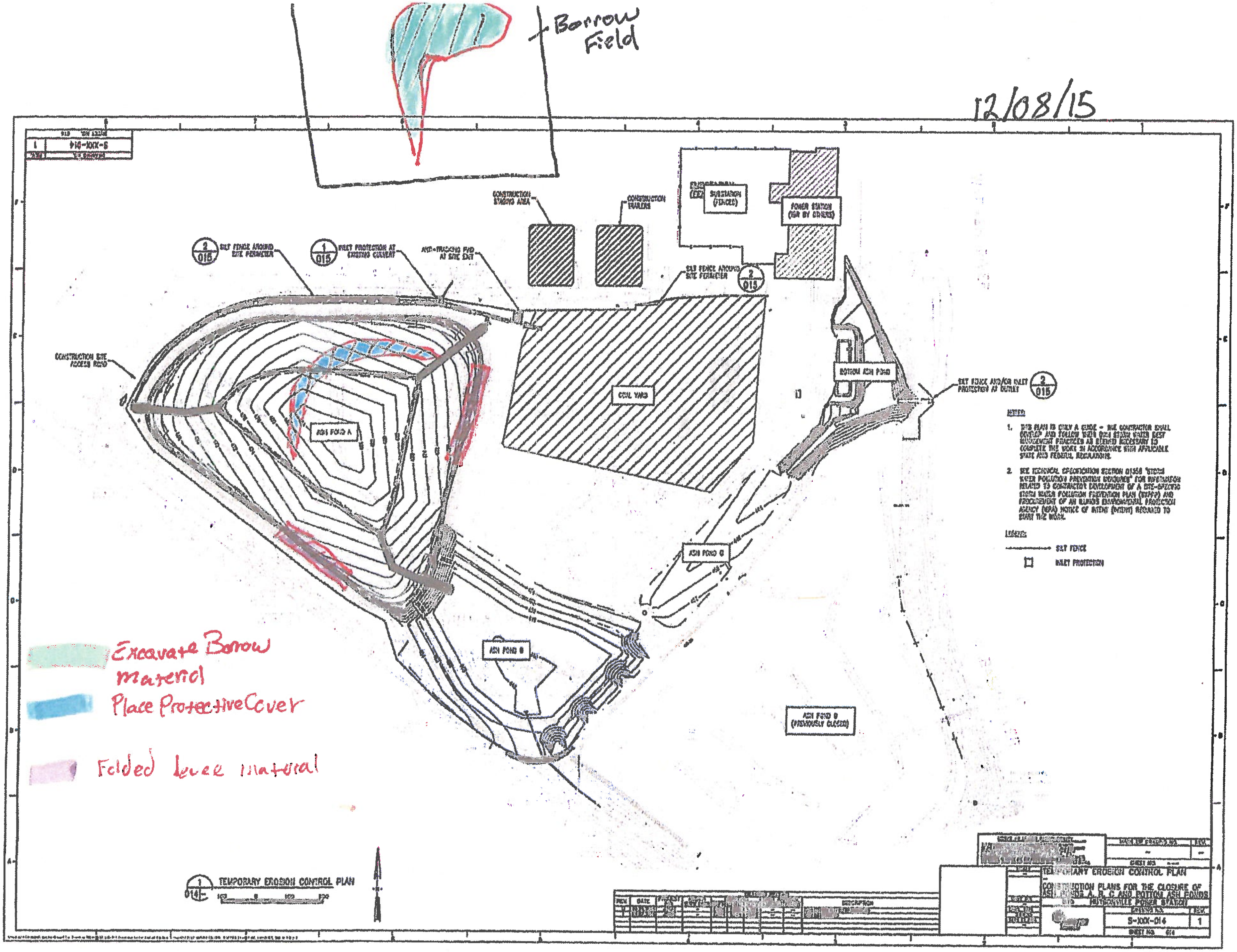
One bulldozer cleared topsoil (the top 6 inches) from the borrow field and cleaned and maintained the borrow field haul road.

One excavator folded levee material with protective cover, beginning on North/ Northeast corner and then the South boundary of Ash Pond A.

One tractor with roller/scraper box flattened/compacted the ramps and horseshoe-shaped haul road built across the east side of Ash Pond A. One bulldozer assisted the tractor beginning at 0930.
One skidsteer cleaned the roads and graded the borrow field throughout the day.

At 1615, hauling of material from the borrow pit ceased and the site was prepared for the end of the work day.

12/08/15



Borrow Field
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION
SILT FENCE AROUND SITE PERIMETER
INLET PROTECTION AT EXISTING CULVERT
CONSTRUCTION SITE ACCESS ROAD
ASH POND A
COAL YARD
BOTTOM ASH POND
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
NOTES:
LEGEND:
SILT FENCE
INLET PROTECTION
Excavate Borrow material
Place Protective Cover
Folded levee material
TEMPORARY EROSION CONTROL PLAN
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
HUTSONVILLE POWER STATION
S-XXX-014
1

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/09/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Cassandra Baresel
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0615 Depart: 1630 Travel: 0.00 Total: 9.75

AM Conditions: Cloudy AM Temperature: 47 F

PM Conditions: Cloudy PM Temperature: 56 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester

Equipment: **WB Koester:** 2 excavator, 3 bulldozers, 1 skid steer, 5 haul trucks, 1 tractor with roller/scraper box

Personnel: **WB Koester:** 15 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Cover soil from borrow field for Ash Pond A.

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Borrow Field, Ash Pond A, and the Haul Road. See attached location map for additional information.

Geotechnology, Inc. Rep. — Date: 12/09/15

Geotechnology, Inc. Engineer — Date: 12/11/2015

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/09/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Brandenburg demolition to the building.

WB Koester:

Placed material from the borrow field on Ash Pond A as protective cover.

One bulldozer cleared topsoil (the top 6 inches) off of the borrow field and cleaned and maintained haul road for borrow field.

One excavator loaded out borrow field material. Five haul trucks transported the material to Ash Pond A. Two bulldozers graded material placed at Ash Pond A.

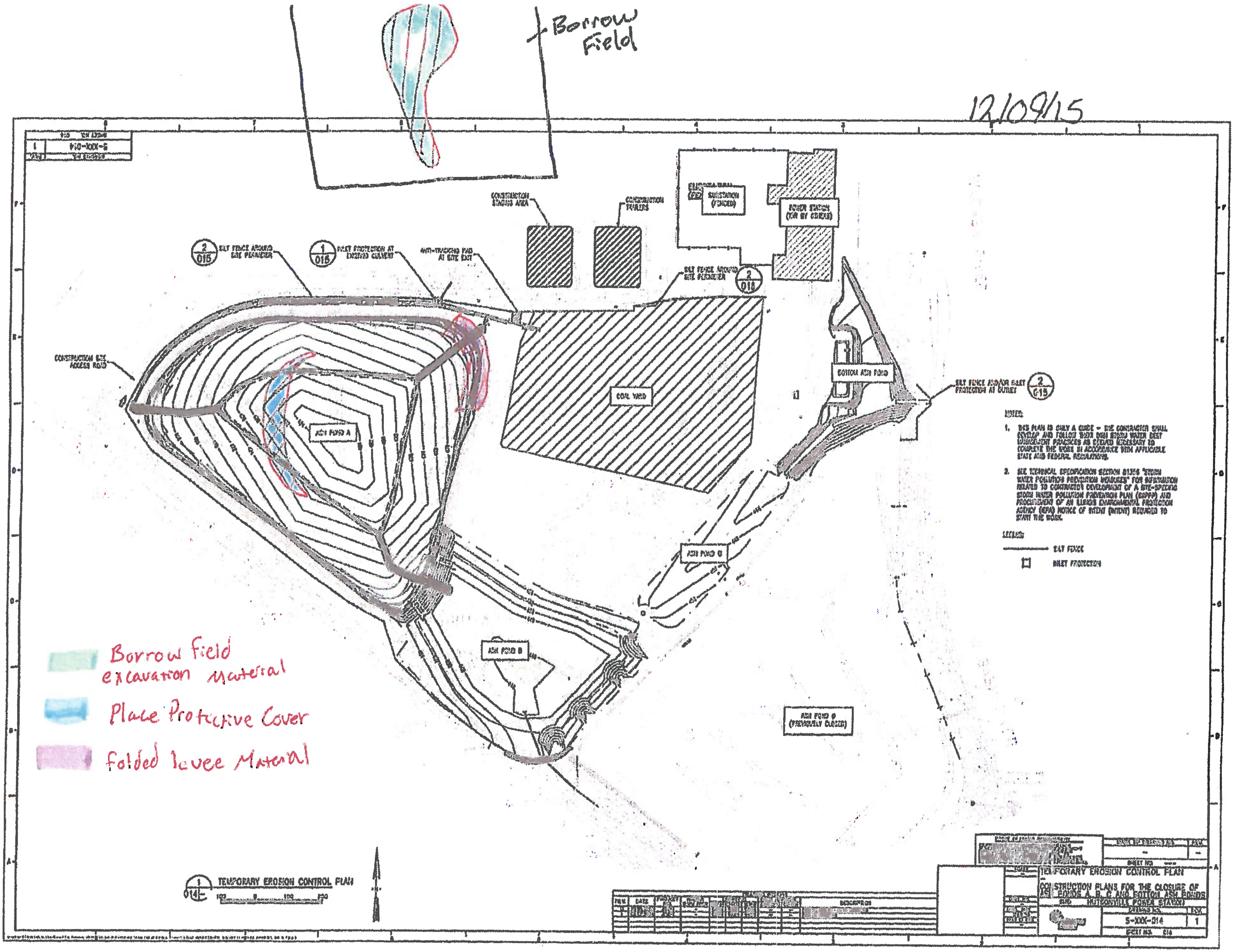
One excavator folded levee material with protective cover at the north corner levee of Ash Pond A.

One tractor with roller/scraper box and one bulldozer flattened/compacted the ramps and horseshoe-shaped haul road built across the east side of Ash Pond A.

One skidsteer cleaned the roads and graded the borrow field throughout the day.

The weekly progress meeting was held at 0900. See the meeting minutes for additional information.

At 1620, hauling of material from the borrow pit ceased and the site was prepared for end of work day.


Borrow Field
12/09/15
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (BY OTHERS)
SILT FENCE AROUND SITE PERIMETER 2/015
INLET PROTECTION AT EXISTING CULVERT 1/015
ANTI-TRACKING PAD AT SITE EXIT
SILT FENCE AROUND SITE PERIMETER 2/015
CONSTRUCTION SITE ACCESS ROAD
ASH POND A
COAL YARD
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET 2/015
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
NOTES:
1. THIS PLAN IS ONLY A GUIDE – THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA) NOTICE OF INTENT (NOI) REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
Borrow Field excavation Material
Place Protective Cover
Folded levee Material
1/014 TEMPORARY EROSION CONTROL PLAN
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
HUTSONVILLE POWER STATION
S-XXX-014
1

Weekly Progress Meeting

Meeting Minutes

Date: 12-9-15

Attendees:

Ameren: Don Shaver, Tim Free, Mike Wagstaff, Ken Beckman

WB Koester: Chris Atkinson, Bob Fisher

Geotechnology, Inc.: Jessie Hahn, Cassie

Topics:

Safety/Housekeeping

- No issues
- Borrrow hauling puts some soil on the plant roads. Chris is scraping it multiple times during day. Need to try and wash it at end of day.
- Chris to make sure to discuss with crew in morning the congestion in the trailer parking area. Need to slow down as there are more pedestrians.

Manpower

- Man hours
  - Start of Job (4-27-15) through 12-7-15
    - Total = 13,900 hrs.
- Next week expected manpower
  - WBK = 15 next week.
  - Rain Expected Sunday/Monday this week so likely only work Saturday this week.

Review old minutes and action items

- Geotechnology expects to get the topsoil testing results back by next Monday.

Material Issues

- No issues

Quality Control Issues

- No issues

Schedule Compliance

- Brandenberg pumping until end of year (flowable fill application) Still need to keep berm in Bottom Ash pond that whole time. Will have to dry before grading can take place (likely to take place in Spring)
- Seeding/blanket placement will be in Spring. Permanent fence install will be in Spring after Brandenberg finished with building demo.
- Hauling borrow soil to top of Pond A and placing in a 3' layer. Should be close to having all borrow to the top of Pond A by Friday/Saturday this week. Will then start shaping into 2.5' layer with dozers. Will also shape the diversion berms/downchutes.
- Chris thinks that the topsoil haul trucks from Quality Lime will have trouble with the ramps and turning around at the top. Looking into having them deliver and stockpile topsoil in laydown yard and then haul up with Artic trucks when we have an area ready. Currently waiting on approval from Geotechnology to give Quality Lime authorization to begin to build haul road to their topsoil area. Currently topsoil area is very wet and may be difficult to access. We will see what the rain this weekend does. Hope to be able to stockpile topsoil Thursday/Friday next week.
- Need approx. 2000 cy of topsoil in stockpile before we start hauling to top. Estimated to take 6 days to get it to the top.

Cost and Budget Control

- n/a

Next Meeting Scheduled: December 16, 2015 at 9:00 CST

Action Items -

- Chris to update Don about working on Saturday or Sunday.
- Bob to update schedule to show topsoil placement separated and bottom ash pond grading in spring.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/10/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures

Project Number: J019896.05

Project Client: Ameren

Representative: Cassandra Baresel

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0630 Depart: 1630 Travel: 0.00 Total: 9.50

AM Conditions: Foggy AM Temperature: 41 F

PM Conditions: Cloudy PM Temperature: 57 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester

Equipment: **WB Koester:** 2 excavator, 3 bulldozers, 1 skid steer, 5 haul trucks, 1 tractor with roller/scraper box

Personnel: **WB Koester:** 15 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Cover soil from borrow field for Ash Pond A.

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Borrow Field, Ash Pond A and Haul Road. See attached location map for additional information.

[signature] 12/10/15

Geotechnology, Inc. Rep. Date

[signature] 12/11/2015

Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/10/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of the power plant.

WB Koester:

Placed material from the borrow field on Ash Pond A as protective cover.

One excavator loaded out borrow field material. Five haul trucks transported the material to Ash Pond A. One bulldozer graded material placed at Ash Pond A.

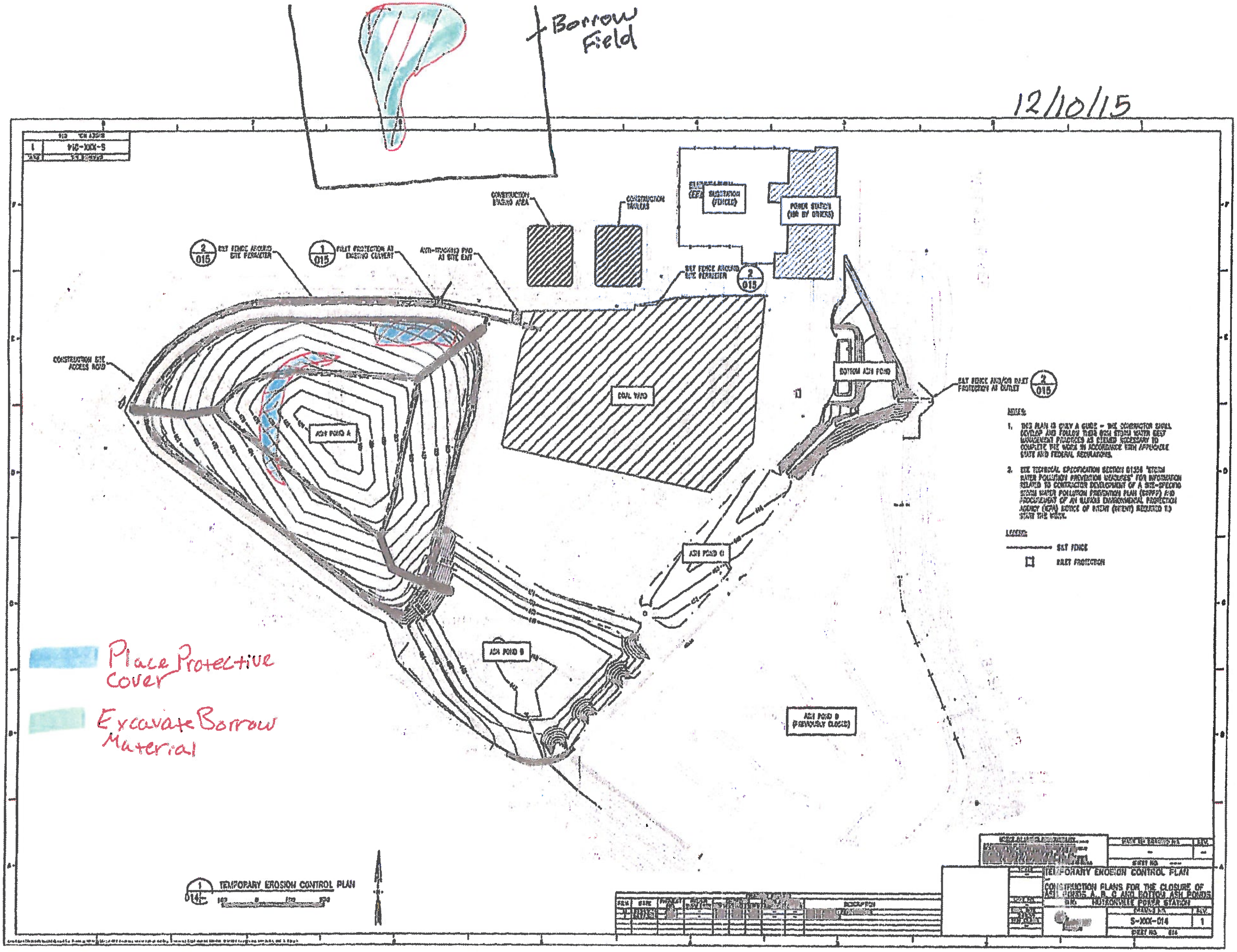
One bulldozer cleared topsoil (the top 6 inches) from the borrow field and cleaned and maintained haul road for borrow field.

One excavator folded levee material with protective cover on the north levee of Ash Pond A.

One tractor with roller/scraper box and one bulldozer flattened/compacted the ramps and horseshoe-shaped haul road built across the east side of Ash Pond A.

One skidsteer cleaned the roads and graded the borrow field throughout the day.

At 1615, hauling of material from the borrow pit ceased and the site was prepared for end of work day.


Borrow Field
12/10/15
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (VEHICLE)
POWER STATION (NOT BY OTHERS)
SILT FENCE AROUND SITE PERIMETER
INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
CONSTRUCTION SITE ACCESS ROAD
COAL YARD
ASH POND A
ASH POND B
ASH POND C
ASH POND D (PREVIOUSLY CLOSED)
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET
NOTES:
1. THIS PLAN IS ONLY A GUIDE - THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
LEGEND:
SILT FENCE
INLET PROTECTION
Place Protective cover
Excavate Borrow Material
TEMPORARY EROSION CONTROL PLAN
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
HUTSONVILLE POWER STATION
S-XXX-014
1

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/11/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Cassandra Baresel

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0630 Depart: 1615 Travel: 0.00 Total: 9.25

AM Conditions: Foggy AM Temperature: 41 F

PM Conditions: Cloudy PM Temperature: 60 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester

Equipment: **WB Koester:** 2 excavator, 3 bulldozers, 1 skid steer, 5 haul trucks, 1 tractor with roller/scraper box

Personnel: **WB Koester:** 15 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Cover soil from borrow field for Ash Pond A.

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Borrow Field, Ash Pond A and Haul Road. See attached location map for additional information.

Geotechnology, Inc. Rep. Date 12/11/15

Geotechnology, Inc. Engineer Date 12/11/2015

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/11/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of the power plant.

WB Koester:

Placed material from the borrow field on Ash Pond A as protective cover.

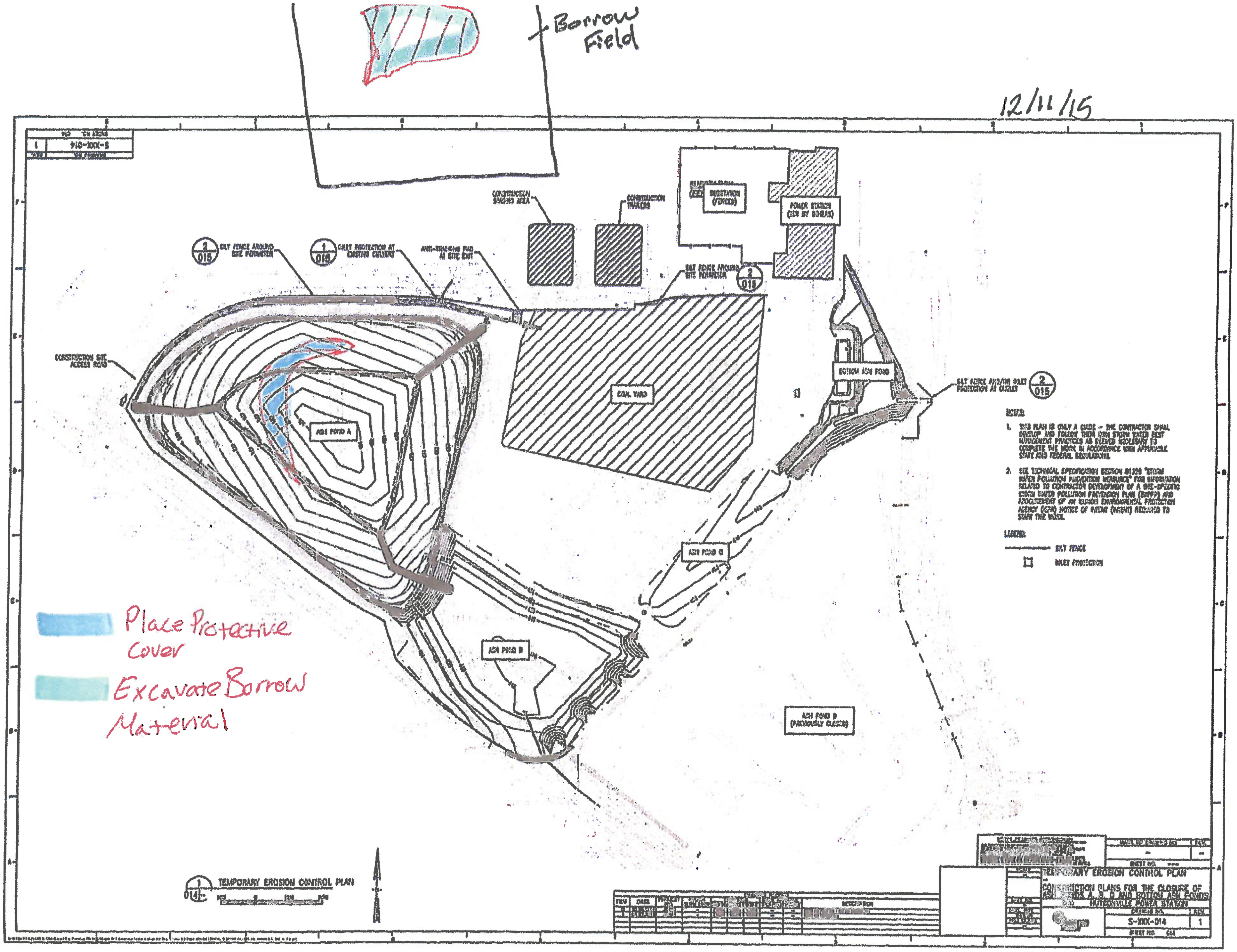
Two excavators loaded out borrow field material. Five haul trucks transported the material to Ash Pond A. One bulldozer graded material placed at Ash Pond A.

One bulldozer cleared topsoil (the top 6 inches) off of the borrow field and cleaned and maintained haul road for borrow field.

One tractor with roller/scraper box and one bulldozer flattened/compacted the ramps and horseshoe-shaped haul road built across the east side of Ash Pond A.

One skidsteer cleaned the roads and graded the borrow field throughout the day.

At 1600, hauling of material from the borrow pit ceased and the site was prepared for the end of the workday.


Borrow Field
12/11/15
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
SILT FENCE AROUND SITE PERIMETER
INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
CONSTRUCTION SITE ACCESS ROAD
COAL YARD
ASH POND A
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
NOTES:
1. THIS PLAN IS ONLY A GUIDE - THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (EPA) NOTICE OF INTENT REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
Place Protective cover
Excavate Borrow Material
TEMPORARY EROSION CONTROL PLAN
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
HUTSONVILLE POWER STATION
S-XXX-014
1
SHEET NO. 014

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/12/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Cassandra Baresel

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0630 Depart: 1630 Travel: 0.00 Total: 9.5

AM Conditions: Cloudy AM Temperature: 60 F

PM Conditions: Cloudy PM Temperature: 67 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester

Equipment: **WB Koester:** 2 excavator, 3 bulldozers only 2 used, 1 skid steer, 5 haul trucks on site 1 used, 1 tractor with roller/scraper box not used

Personnel: **WB Koester:** 6 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Cover soil from the north ramp on Ash Pond A.

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Borrow Field, Ash Pond A and Haul Road. See attached location map for additional information.

12/12/15

Geotechnology, Inc. Rep. Date

12/14/2015

Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/12/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

WB Koester:

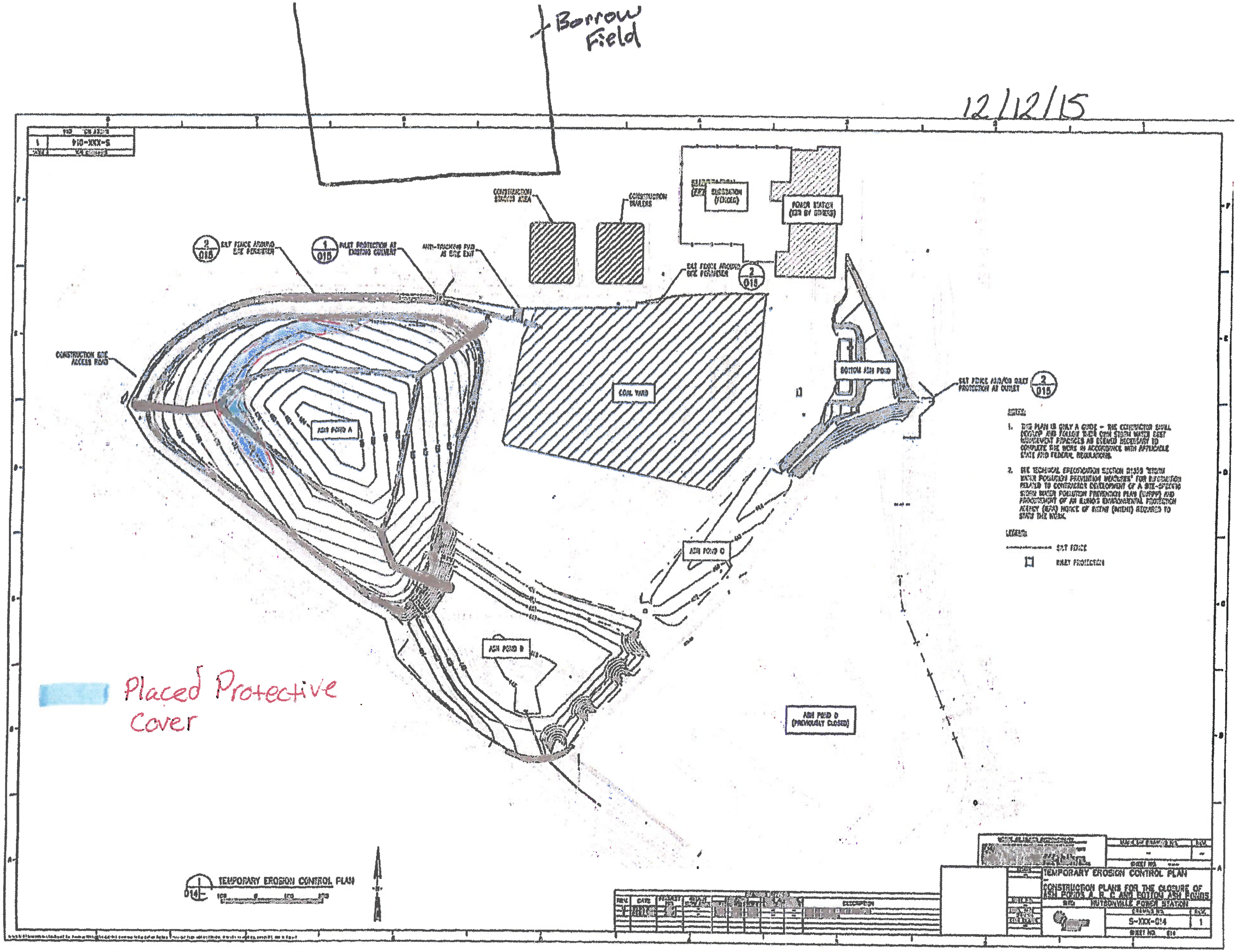
Two bulldozers graded protective cover on Ash Pond A.

Two excavators folded levee material with protective cover at the north and east levees of Ash Pond A.

In the afternoon, one excavator loaded out material from the north ramp. One haul truck transported the material to Ash Pond A.

One skidsteer cleaned the roads and graded the borrow field throughout the day.

At 1620, hauling of material from the north ramp ceased and the site was prepared for end of work day.



Borrow Field
12/12/15
CONSTRUCTION SITE ACCESS ROAD
ASH POND A
COAL YARD
BOTTOM ASH POND
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
Placed Protective Cover
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
HUTSONVILLE POWER STATION
S-XXX-014

PHOTOGRAPH LOG

Photograph 1 ⮝ - View of protective cover loadout at the borrow field, looking east.

Photograph 2 ⮝ - View of Ash Pond A protective cover placement, looking south.

Photographs taken by Seth Lamble and Cassandra Baresel of Geotechnology, Inc. December 6-12, 2015.

Photograph 3 ⮝ - View of topsoil removal at the borrow field, looking northeast.

Photograph 4 ⮝ - View of ramp maintenance at Ash Pond A, looking northwest.

Photograph 5 - View of Ash Pond A levee material placement, looking west.

Photograph 6 - View of Ash Pond A protective cover placement, looking southeast.

Photographs taken by Seth Lamble and Cassandra Baresel of Geotechnology, Inc. December 6-12, 2015.

Photograph 7 ⮝ - View of Ash Pond A levee material placement and incorporation, looking west.

Photograph 8 ⮝ - View of Ash Pond A north ramp material loadout, looking west.

M E M O R A N D U M

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DATE: December 28, 2015

SUBJECT: Weekly Summary Report for December 13, 2015 to December 18, 2015

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

Weather

The weather was generally cloudy. Temperature (^{O}F) lows ranged from 27 to 58^{O}F, and temperature highs ranged from 33 to 68^{O}F.

Construction Activities

Material was moved from the Ash Pond A north ramp to the Ash Pond A cap for use as protective cover. Material from the Ash Pond A levees was folded with material already present on the cap as supplementary protective cover. The protective cover material on Ash Pond A was graded and shaped.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 2 excavators (1 Caterpillar 320B, 1 Caterpillar 308E), 5 dump trucks (John Deere 400D), 2 bulldozers (Caterpillar D6N LGP with GPS), 1 Tractor (Case 9370) with smooth drum roller (CS-433E) (unused), 1 skidsteer (Caterpillar 274B3), 1 water truck (Caterpillar 623B) (unused), 2 Tractors (Case 435, Case stx480) with scraper boxes (Reynolds).

WB Koester had 4-5 employees working on site: 1-2 laborer and 3 equipment operators.

Meetings

The weekly progress meeting was held on Wednesday, December 16, 2015. Refer to the meeting minutes for additional information.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Protective cover from the borrow field located northeast of Ash Pond A.

Testing/Sampling

Material from the Ash Pond A levees was sampled by Cassandra Baresel of Geotechnology on December 15, 2015.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/13/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Cassandra Baresel
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0630 Depart: 1630 Travel: 0.00 Total: 9.5

AM Conditions: Cloudy
AM Temperature: 60 F
PM Conditions: Cloudy; light rain stopping shortly after 1400.
PM Temperature: 63 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: WB Koester
Equipment: **WB Koester:** 2 excavator, 2 bulldozers
Personnel: **WB Koester:** 4 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Ash Pond A north ramp material.
Deliveries:
Testing:

CONSTRUCTION SITE LOCATIONS:

Borrow Field, Ash Pond A and Haul Road. See attached location map for additional information.

12/13/15
Geotechnology, Inc. Rep. Date

12/16/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/13/2015

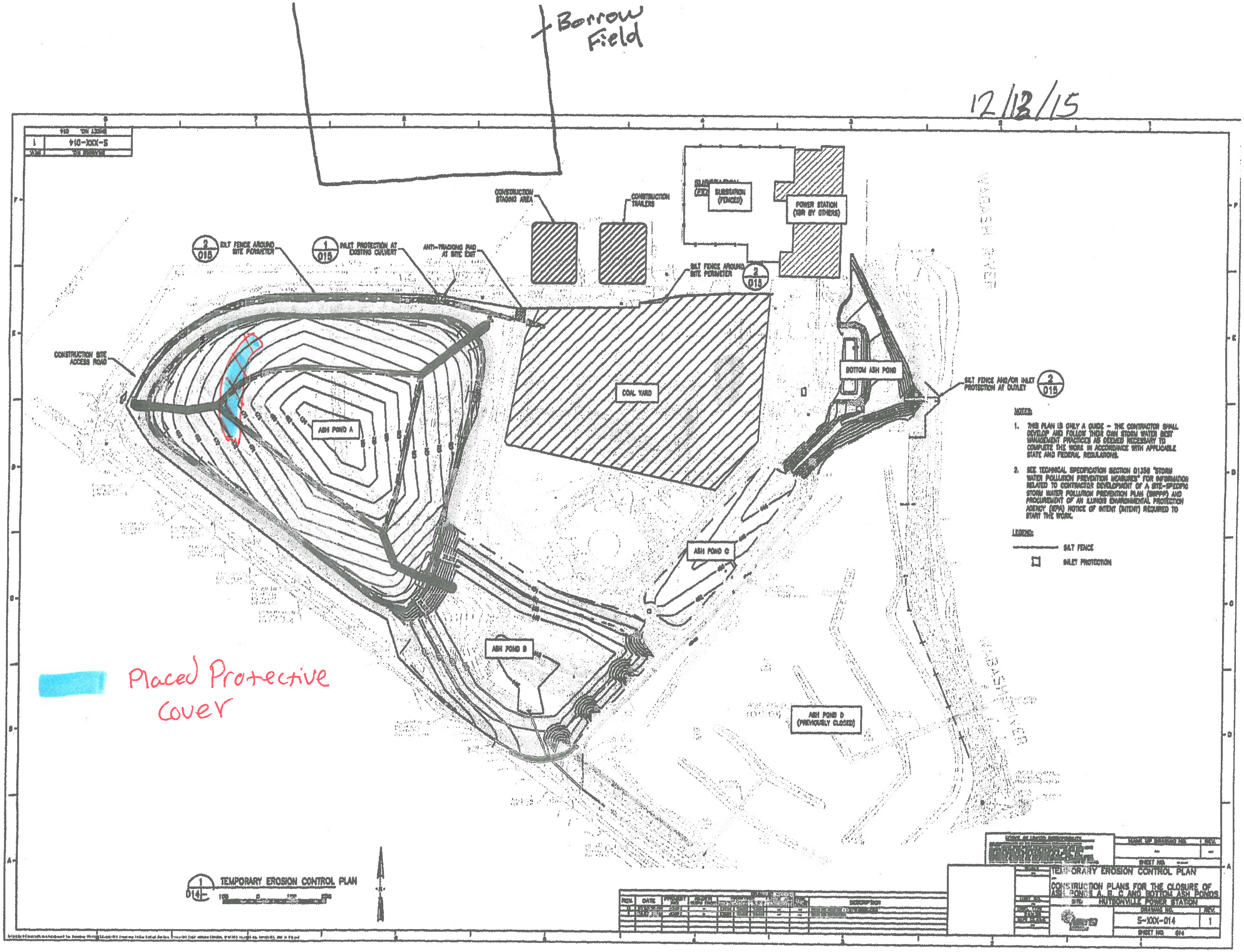
SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

WB Koester:

Two bulldozers graded material placed at Ash Pond A and spread protective cover to the west and northwest.

Two excavators folded levee material with protective cover on the north, northeast, and northwest levees of Ash Pond A.

At 1615 the site was prepared for the end of the workday.



Borrow Field
12/12/15
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
SILT FENCE AROUND SITE PERIMETER
INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
CONSTRUCTION SITE ACCESS ROAD
COAL YARD
ASH POND A
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
WABASH RIVER
NOTES:
1. THIS PLAN IS ONLY A GUIDE – THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (EPA) NOTICE OF INTENT (INTENT) REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
Placed Protective cover
TEMPORARY EROSION CONTROL PLAN
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
HUTSONVILLE POWER STATION
S-XXX-014
1

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/14/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Cassandra Baresel

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0630 Depart: 0730 Travel: 0.00 Total: 1

AM Conditions: Rainy AM Temperature: 44 F

PM Conditions: Rainy PM Temperature: 52 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester

Equipment: **WB Koester:**

Personnel: **WB Koester:** 4 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Geotechnology, Inc. Rep. Date

Geotechnology, Inc. Engineer Date 12/16/2015

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/14/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Demolition to the building.

WB Koester:

Rained out for the day.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/15/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Cassandra Baresel
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0630 Depart: 1630 Travel: 0.00 Total: 9.5

AM Conditions: Cloudy AM Temperature: 41 F

PM Conditions: Cloudy PM Temperature: 46 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester

Equipment: **WB Koester:** 1 excavator, 2 bulldozers

Personnel: **WB Koester:** 5 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing: Cassandra Barasel (Geotechnology) collected a sample of the Ash Pond A levee material for CQA Conformation Testing as protective cover.

CONSTRUCTION SITE LOCATIONS:

Ash Pond A. See attached location map for additional information.

Geotechnology, Inc. Rep. 12/15/15 Date

Geotechnology, Inc. Engineer 12/16/15 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/15/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Demolition of building.

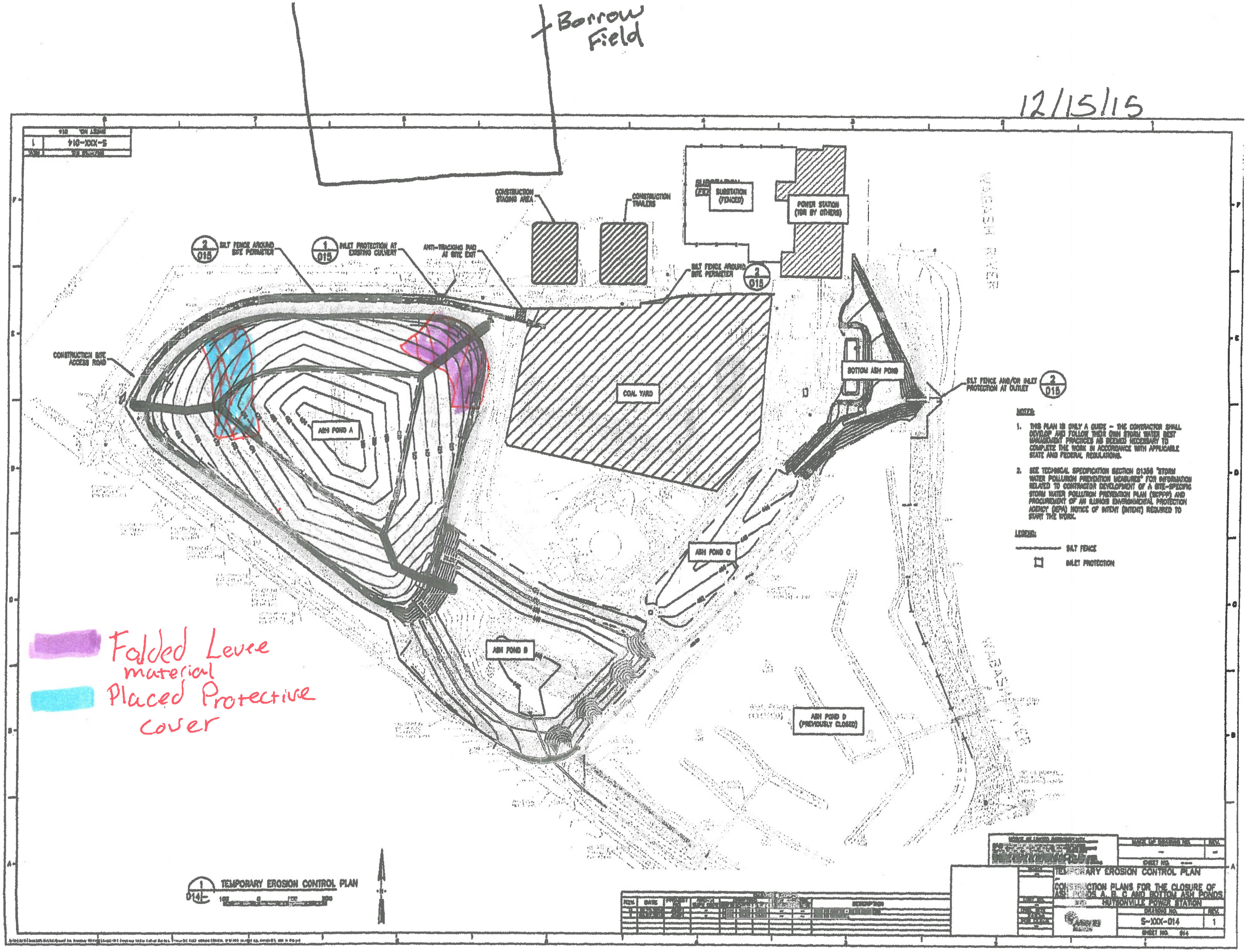
WB Koester:

Work proceeded in wet soil conditions.

Two bulldozer graded and shaped material on at Ash Pond A and spread protective cover to the west and northwest. One excavator moved levee material with protective cover on the northwest levee of Ash Pond A.

In the morning and early afternoon part of the crew cleaned equipment.

At 1615, the site was prepared for the end of the day.



Borrow Field
12/15/15
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
2 015 SILT FENCE AROUND SITE PERIMETER
1 015 INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
SILT FENCE AROUND SITE PERIMETER 2 015
CONSTRUCTION SITE ACCESS ROAD
COAL YARD
ASH POND A
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET 2 015
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
WABASH RIVER
NOTES:
1. THIS PLAN IS ONLY A GUIDE – THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA) NOTICE OF INTENT (INTENT) REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
Folded Levee material
Placed Protective cover
1 014 TEMPORARY EROSION CONTROL PLAN
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-014
REV. 1
SHEET NO. 014

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/16/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Cassandra Baresel

TIME AND WEATHER CONDITIONS:

(-0.5) Lunch

Arrive: 0630 Depart: 1630 Travel: 0.00 Total: 9.5

AM Conditions: Cloudy with a few rain showers AM Temperature: 38 F

PM Conditions: Cloudy PM Temperature: 55 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester

Equipment: **WB Koester:** 1 excavator, 2 bulldozers

Personnel: **WB Koester:** 5 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A. See attached location map for additional information

12/16/15

Geotechnology, Inc. Rep. Date

12/18/2015

Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/16/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Demolition of building.

WB Koester:

Work proceeded in wet soil conditions.

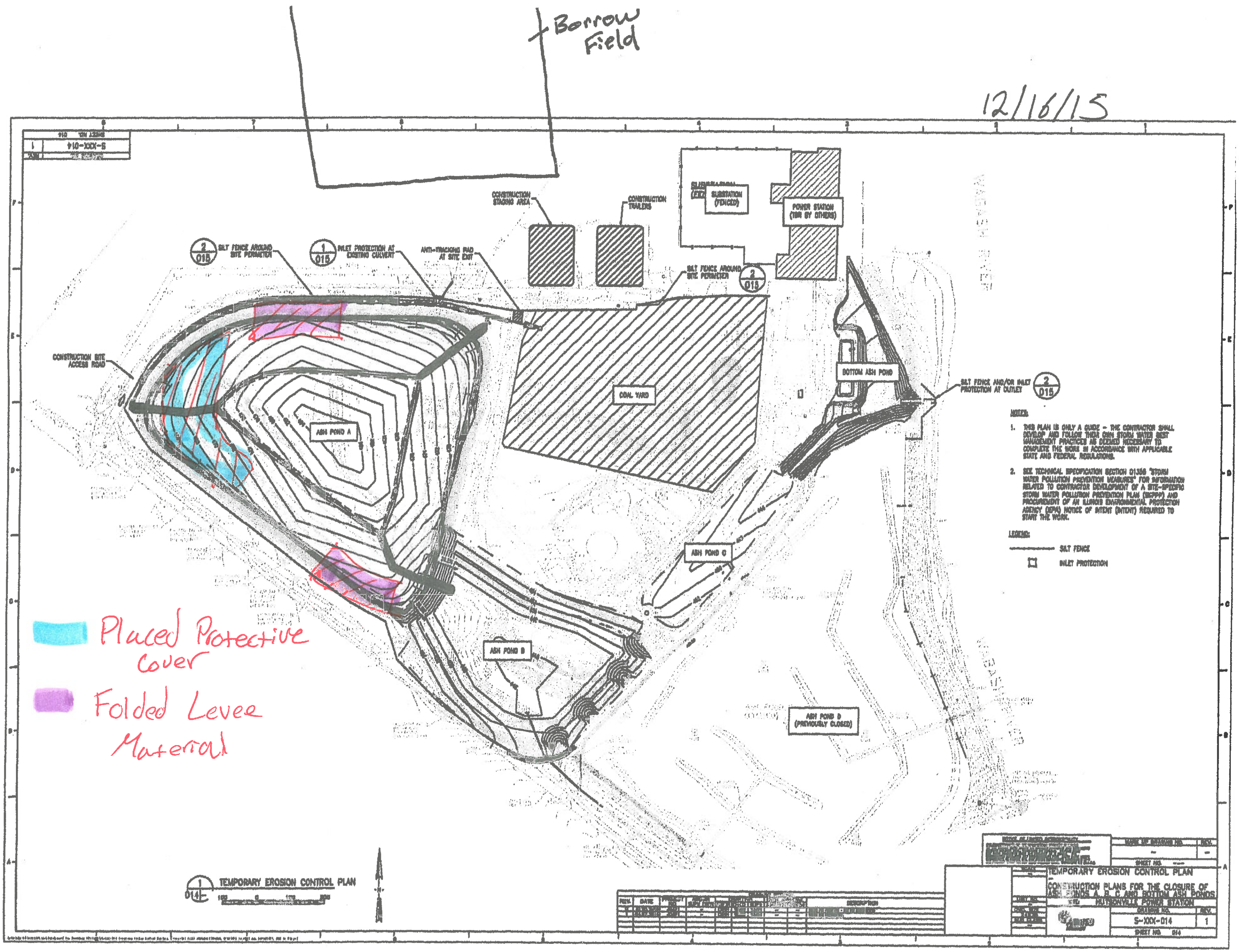
Two bulldozer graded and shaped material on Ash Pond A and spread protective cover to the west and southwest. One excavator moved levee material as protective cover on the northwest and south levees of Ash Pond A.

In the morning and early afternoon part of the crew cleaned equipment.

At 1615, the site was prepared for the end of the day.

Other:

The weekly coordination meeting was held on site at 0900. See the meeting minutes for additional information.



Borrow Field
12/16/15
S-XXX-014
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
SILT FENCE AROUND SITE PERIMETER
2
015
INLET PROTECTION AT EXISTING CULVERT
1
015
ANTI-TRACKING PAD AT SITE EXIT
SILT FENCE AROUND SITE PERIMETER
2
015
CONSTRUCTION SITE ACCESS ROAD
COAL YARD
ASH POND A
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET
2
015
NOTES:
1. THIS PLAN IS ONLY A GUIDE – THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
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LEGEND:
SILT FENCE
INLET PROTECTION
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
Placed Protective Cover
Folded Levee Material
1
014
TEMPORARY EROSION CONTROL PLAN
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
HUTSONVILLE POWER STATION
DRAWING NO.
S-XXX-014
REV.
1
SHEET NO. 014

Weekly Progress Meeting

Meeting Minutes

Date: 12-16-15

Attendees:

Ameren: Don Shaver, Mike Wagstaff, Ken Beckman

WB Koester: Chris Atkinson, Bob Fisher

Geotechnology, Inc.: Cassie, Anna

Topics:

Safety/Housekeeping

- No issues
- Chris to keep scraping and washing the roads.
- Don says they added reflectors to the main gate to help with visibility during foggy weather.
- 5 random drug screens were performed and all were compliant.
- Wait until spring to repair the road cuts. Don says it is fine for now and ok to wait until spring.

Manpower

- Man hours
    - Start of Job (4-27-15) through 12-14-15
        - Total = 14,580 hrs.
- Next week expected manpower
    - WBK = 5 next week.
    - No Saturday or Sunday work this week. Monday – Thursday next week. Plan on demobilizing until spring next Wednesday.

Review old minutes and action items

- Topsoil from quarry was approved this week.

Material Issues

- No issues

Quality Control Issues

- Topsoil from quarry was approved this week.

Schedule Compliance

- Chris will continue shaping the Pond A borrow material and reclaiming the borrow area. Plans on working rest of this week (not Saturday or Sunday) and Monday through Wednesday of next week.
- Brandenberg pumping until end of year (flowable fill application) Still need to keep berm in Bottom Ash pond that whole time. Will have to dry before grading can take place (likely to take place in Spring) Chris will likely come to the site over the winter to dewater the bottom ash pond after Brandenberg is complete with the bottom ash pond.
- Topsoil placement/Seeding/blanket placement will be in Spring. Permanent fence install will be in Spring after Brandenberg finished with building demo.
- Bob will update Ameren and Geotechnology on the anticipated date of spring startup. May try and deliver and stockpile topsoil prior to the hauling crews showing up. Depends on the weather in the spring.
- Other items for the spring: finish the downchutes/rip rap on pond A, finish the ditch north of pond A, place the aggregate on the roads, fix the road cuts with concrete, finish the piezometers, finish grade the bottom ash pond, closure of the Pond B outlet with flowable fill.

Cost and Budget Control

- Bob to submit invoice for December (including the two days of Sunday work) and submit an estimate of 2016 costs.
- Geotechnology to submit estimate of 2015 and 2016 cost.

Next Meeting Scheduled: December 23, 2015 at 9:00 CST

Action Items -

- Bob to submit invoice for December (including the two days of Sunday work) and submit an estimate of 2016 costs.
- Geotechnology to submit estimate of 2015 and 2016 cost.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/17/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Seth Lamble

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0615 Depart: 1630 Travel: 0.00 Total: 10.15

AM Conditions: Cloudy AM Temperature: 30 F
PM Conditions: Cloudy PM Temperature: 31 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester
Equipment: **WB Koester:** 1 excavator, 2 bulldozers, 2 tractors with pans

Personnel: **WB Koester:** 5 employees
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:
Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A. See attached location drawing for additional information.

Seth Lamble 12/17/15
Geotechnology, Inc. Rep. Date

12/18/2015
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/17/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Demolition of building.

WB Koester:

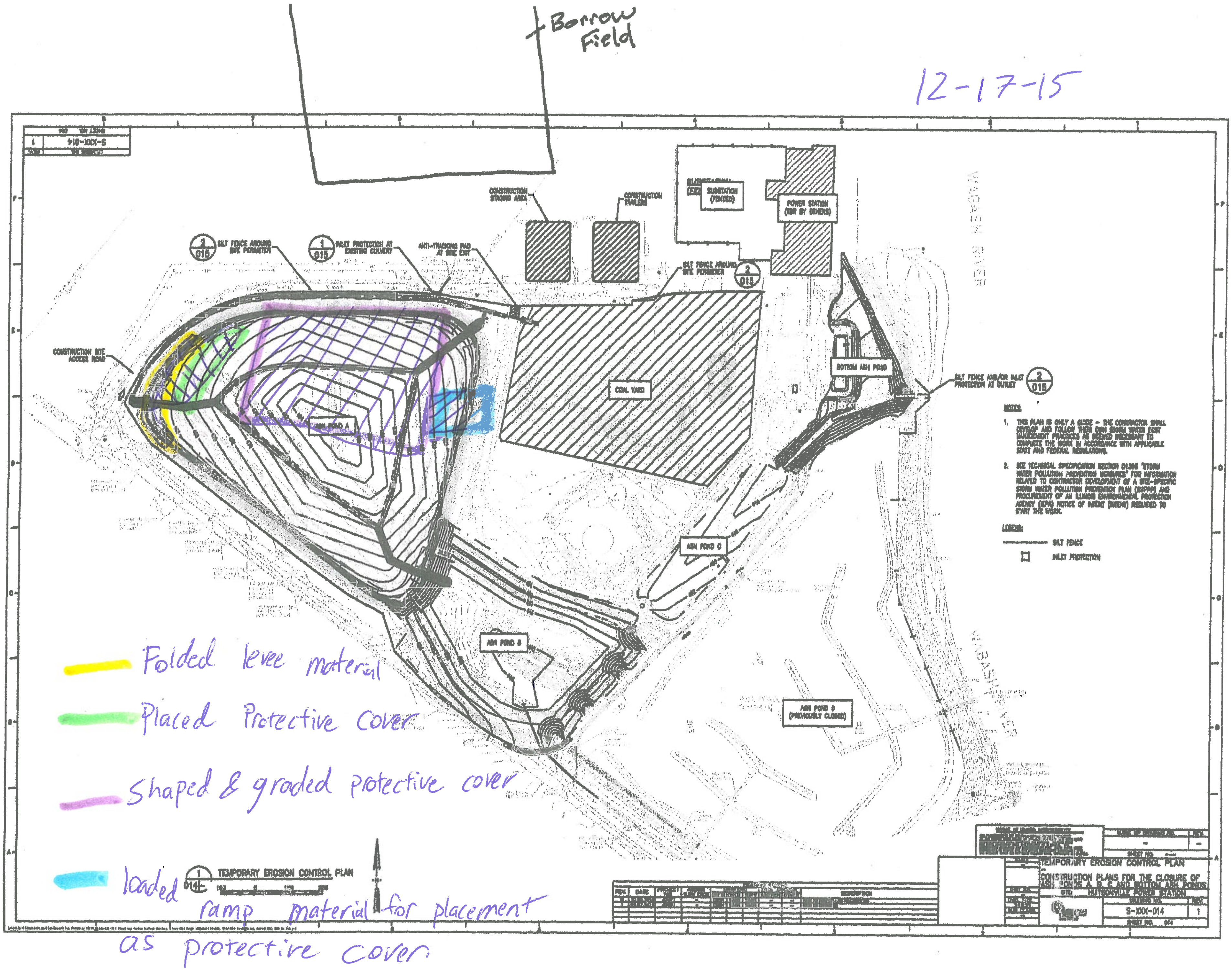
Two bulldozers graded material on at Ash Pond A and spread protective cover toward the southwest levee. One excavator moved levee material as protective cover on the south levee of Ash Pond A.

At 1000 the one excavator loaded material from the north ramp as protective cover into the two tractors with pans. The two tractors transported the north ramp material to the crest of Ash Pond A as protective cover. The two bulldozers graded the material into place.

At 1300 two bulldozers shaped Ash Pond A moving west and northwest from the crest.

In the morning and early afternoon part of the crew cleaned equipment.

At 1620 the site was prepared for the end of the day.



Borrow Field
12-17-15
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
SILT FENCE AROUND SITE PERIMETER
INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
CONSTRUCTION SITE ACCESS ROAD
COAL YARD
ASH POND A
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
NOTES:
1. THIS PLAN IS ONLY A GUIDE – THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA) NOTICE OF INTENT (NTENT) REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
Folded levee material
Placed Protective Cover
Shaped & graded protective cover
loaded ramp material for placement as protective cover.
1 / 014 TEMPORARY EROSION CONTROL PLAN
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
HUTSONVILLE POWER STATION
S-XXX-014

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/18/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Seth Lamble

TIME AND WEATHER CONDITIONS:

(-0.0) Lunch

Arrive: 0630 Depart: 1615 Travel: 0.00 Total: 09.75

AM Conditions: Sunny AM Temperature: 29 F

PM Conditions: Partly Cloudy PM Temperature: 37 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg, WB Koester

Equipment: **WB Koester:** 1 excavator, 2 bulldozers, 2 tractors with pans

Personnel: **WB Koester:** 5 employees

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A. See attached location drawing for additional information.

12/18/15

Geotechnology, Inc. Rep. Date

12/18/2015

Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/18/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Demolition of building.

WB Koester:

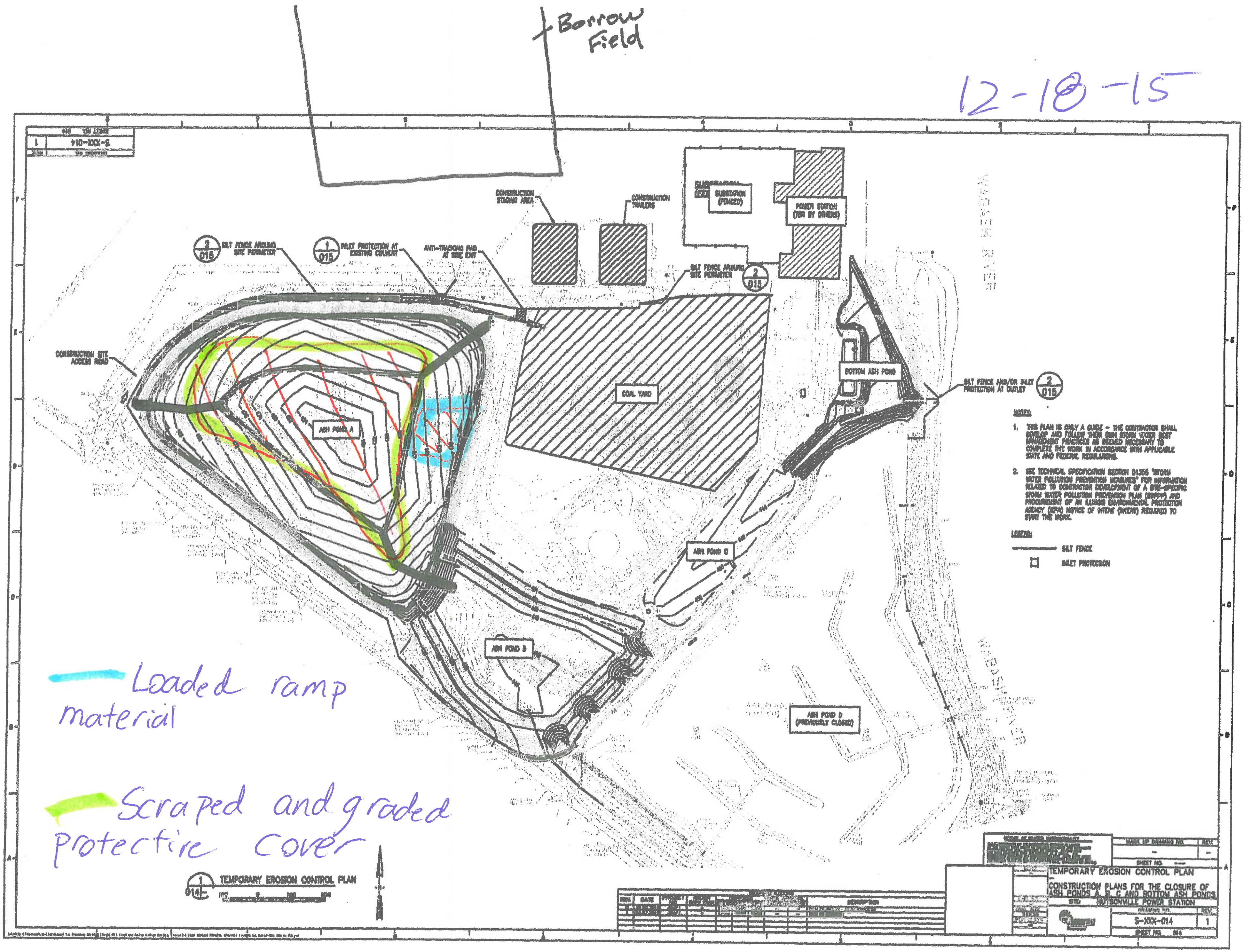
One excavator loaded out material from the north ramp for use as protective cover. Two tractors transported the north ramp material to the crest of Ash Pond A. Two bulldozers graded the material into place.

At 1000 the excavator ceased loading material. The two bulldozers and two tractors with pans graded and shaped the protective cover.

In the morning and early afternoon part of the crew cleaned equipment.

At 1605 the site was prepared for end of the day.

12-18-15



Borrow Field
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
SILT FENCE AROUND SITE PERIMETER
INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
CONSTRUCTION SITE ACCESS ROAD
COAL YARD
ASH POND A
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
WABASH RIVER
NOTES:
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LEGEND:
SILT FENCE
INLET PROTECTION
Loaded ramp material
Scraped and graded protective cover
TEMPORARY EROSION CONTROL PLAN
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-014
REV. 1
SHEET NO. 014

PHOTOGRAPH LOG

Photograph 1 - View of excavator on Ash Pond A levee folding levee material with protective cover, looking west.

Photograph 2 - View of folding and grading Ash Pond A levee material on Ash Pond A, looking west.

Photographs taken by Seth Lamble and Cassandra Baresel of Geotechnology, Inc. December 13-19, 2015.

Photograph 3 ⮝ - View of Ash Pond A north ramp removal for placement as protective cover, looking south.

Photograph 4 ⮝ - View of bulldozer grading Ash Pond A, looking south.

Photograph 5 - View of Ash Pond A protective cover maintenance, looking southwest.

GEOTECHNOLOGY INC
FROM THE GROUND UP

MEMORANDUM

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DATE: December 28, 2015

SUBJECT: Weekly Summary Report for December 21, 2015 to December 25, 2015

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

Weather

The weather was generally cloudy. Work was performed on December 22, 2015, which had a high of 55°F and a low of 41°F

Construction Activities

Work was not performed December 21, 2015 due to wet conditions.

The site was winterized and erosion control structures improved on December 22, 2015.

Site work ceased December 22, 2015 until the spring. WB Koester and Geotechnology demobilized.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 2 excavators (1 Caterpillar 320B, 1 Caterpillar 308E), 1 dump truck (John Deere 400D), 2 bulldozers (Caterpillar D6N LGP with GPS), 1 backhoe (Caterpillar), 1 water truck (Caterpillar 623B) (unused), 3 Tractors (Case 435, Case STX480, Case 9370) with scraper boxes (Reynolds) (unused).

WB Koester had 5 employees working on site: 2 laborers, 1 mechanic, and 2 equipment operators.

Meetings

Project meetings were not held this week.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Additional materials were not used this week.

Testing/Sampling

Testing and sampling did not occur on site this week.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

<u>DAILY REPORTS</u>

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/21/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Seth Lamble

TIME AND WEATHER CONDITIONS:

(-0.50) Lunch

Arrive: 0630 Depart: 0300 Travel: 0.00 Total: 08.00

AM Conditions: Cloudy, rain AM Temperature: 57 F

PM Conditions: Overcast PM Temperature: 54 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg

Equipment: **WB Koester:** -

Personnel: **WB Koester:** -

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Rain day. No work performed on site.

12/21/15

Geotechnology, Inc. Rep. Date

12/21/2015

Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/21/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Rain day. Construction work was not performed on site.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/22/2015

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Seth Lamble
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.00) Lunch

Arrive: 0600 Depart: 1315 Travel: 03.00 Total: 10.15

AM Conditions: Overcast AM Temperature: 42 F

PM Conditions: Overcast PM Temperature: 54 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg

Equipment: **WB Koester:** 2 excavators, 2 bulldozers (not used), 3 tractors with pans (not used), 1 haul truck (not used), 1 backhoe/loader

Personnel: **WB Koester:** 5

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Construction Vehicle Lot. See attached location drawing for additional information.

12/22/15

Geotechnology, Inc. Rep. Date

12/22/2015

Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 12/22/2015

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

One excavator dewatered and repaired the storm water drain near the northeast corner of Ash Pond A

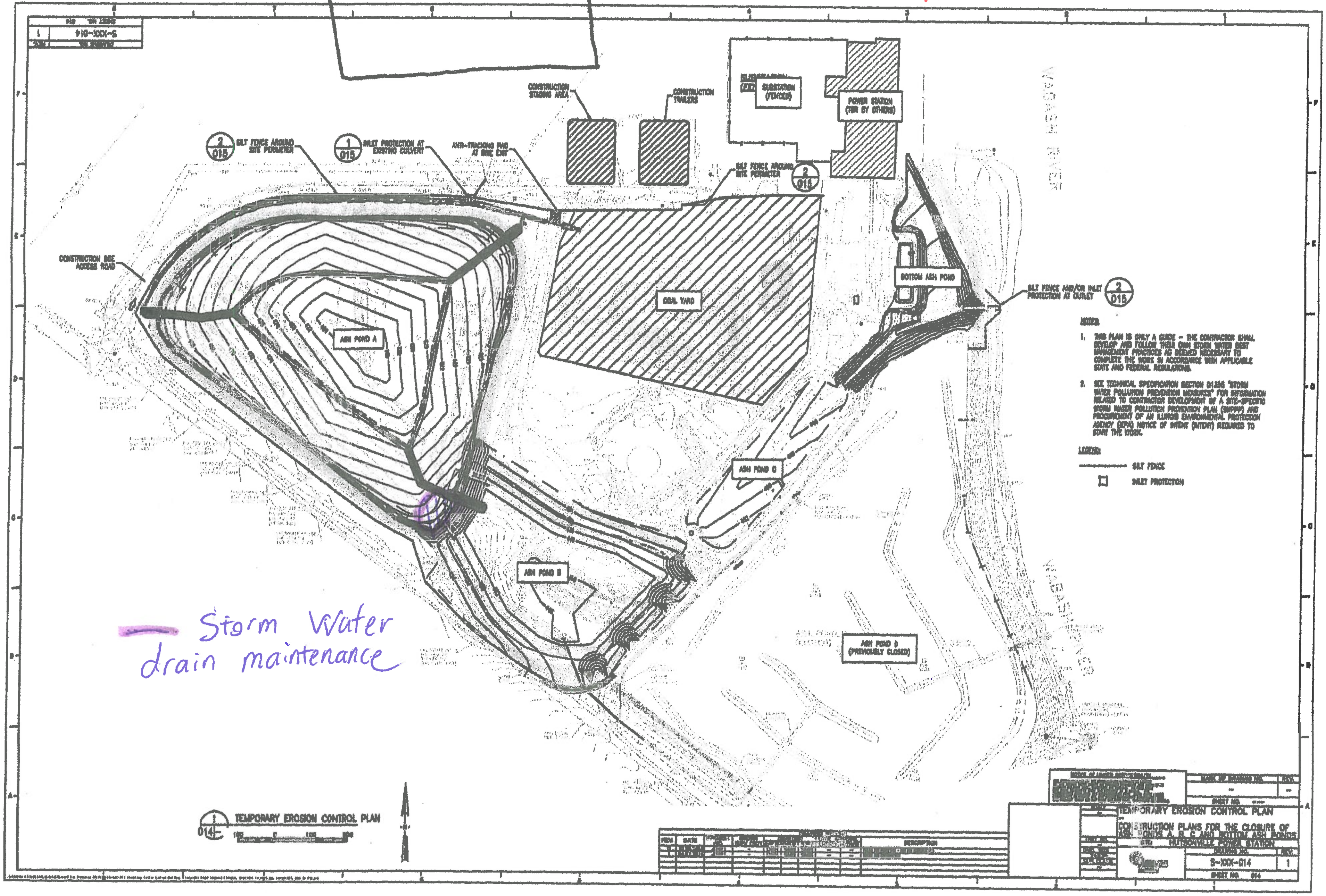
One backhoe cleaned the road throughout the day.

Winterized equipment; prepared for work cessation until March 2016.

At 1100 work ceased and the site was prepared for the end of the work day.

12-22-2015

Borrow Field



PHOTOGRAPH LOG

Photograph 1 - View of WB Koester demobilization, looking north.

Photograph 2 - View of Ash Pond A stormwater drain preparation, looking west.

Photograph 3 - View of Ash Pond A stormwater drain preparation, looking east.

Photograph 4 - View of WB Koester road maintenance, looking northeast.

Photographs taken by Seth Lamble of Geotechnology, Inc. December 20-26, 2015.

M E M O R A N D U M

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DATE: April 14, 2016

SUBJECT: Weekly Summary Report for April 4, 2016 to April 8, 2016

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site. The time covered in this weekly summary is April 6, 2016 to April 8, 2016, which is the period of time when Geotechnology had a representative on site.

Weather

The weather was generally cloudy with intermittent periods of rain. Work was not performed on Thursday, April 7, 2016 due to rain. Morning temperatures ranged from 35 F to 48 F. Afternoon temperatures ranged from 37 F to 47 F.

Construction Activities

Work was not performed April 7, 2016 due to rain.

Borrow material was transported for use as soil cover on Ash Pond A on April 6 and April 8, 2016.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 2 excavators (1 Caterpillar 320B, 1 Caterpillar 308E), 2 dump trucks (John Deere 400D), 2 bulldozers (Caterpillar D6N LGP with GPS), 1 backhoe (Caterpillar), 1 water truck (Caterpillar 623B) (unused), 3 Tractors (Case 435, Case STX480, Case 9370) with scraper boxes (Reynolds) (unused).

WB Koester had 5-6 employees working on site: 1 mechanic and 4-5 equipment operators.

Meetings

The project coordination meeting was held on Wednesday, April 6, 2016. See the attached meeting minutes for additional information.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Borrow field soil was placed on Ash Pond A.

Vegetative cover soil was transported and stockpiled on site from Quality Lime Service on April 5 and April 6, 2016.

Testing/Sampling

Testing and sampling did not occur on site this week.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

<u>DAILY REPORTS</u>

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/06/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jon Truesdale
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.25) Lunch

Arrive: 0700 Depart: 1500 Travel: 0.00 Total: 07.75

AM Conditions: Cloudy, intermittent rain, 35-40 mph S wind AM Temperature: 48 F

PM Conditions: Cloudy, intermittent rain, 35-40 mph SSW wind PM Temperature: 47 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg

Equipment: **WB Koester:** - 400D-qty.2 (only 1 used), Komatsu-PC350LC-qty.1, Caterpillar 416-C-qty.1, Caterpillar D6R-LGP-qty.2, 3 tractors with pans (unused)

Personnel: **WB Koester:** - 5 personnel (including on-site mechanic)

Visitors: none

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Borrow material as cover on ash pond A.

Deliveries: Approximately 1700 tons topsoil from off-site. Source is a soybean field.

Testing: None – observation only.

CONSTRUCTION SITE LOCATIONS:

Ash Pond A

Geotechnology, Inc. Rep. — 04/06/2016 Date

Geotechnology, Inc. Engineer — 4/11/16 Date

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Graded borrow field access and side slopes of Ash Pond A. Topsoil was stockpiled between coal yard and Ash Pond B. Started adding borrow material as cover ~1000. Added 10" cover material to complete three foot thick "roadway" across top of Ash Pond A from ramp to fill areas on Ash Pond A. Continued until rain-out at 1445. Ramps and roadways were graded periodically to prevent rutting.

Weekly progress meeting at 0900. Off-site members were not able to call in, so meeting was held with on-site personnel only.

Note: Directions provided relative to magnetic north and not plant north.

Weekly Progress Meeting

Meeting Minutes

Date: 4-6-16

Attendees:

Ameren: Don,

WB Koester: Chris

Geotechnology, Inc.: Jon

Topics:

Safety/Housekeeping

- Brandenberg will have 10-12 steel hauling trucks throughout the days so will need to keep an eye on traffic, especially when 10-15 topsoil trucks begin delivering topsoil

Manpower

- Man hours
  - Start of Job (4-27-15) through 4-4-16
    - Total = 14,850 hrs.
- Next week expected manpower
  - WBK = 4 operators, 1 laborer, 1 superintendent (6 total)
  - Plan on working 5-10 hr days.
  - No Saturday or Sunday work. May use Saturday as a rain makeup day if all feel it is necessary.

Review old minutes and action items

- n/a

Material Issues

- n/a

Quality Control Issues

- n/a

Schedule Compliance

- This week will get site in order (erosion control repairs, prep borrow area, prep topsoil stockpile area, prep Pond A). Started hauling topsoil in from off site. Total of approximately 2000 tons stockpiled yesterday. May start hauling borrow to Pond A to form the terraces today.
- Brandenberg pumping into Bottom ash pond until around April 8th. After that WBK should be able to dewater and grade the Bottom Ash pond.
- Other items for the spring: finish the downchutes/rip rap on pond A, finish the ditch north of pond A, place the aggregate on the roads, fix the road cuts with concrete, finish the piezometers, closure of the Pond B outlet with flowable fill (this may have already been done, Bob will check with Chris to make sure).
- Topo prior to topsoil placement was decided not to be necessary. Topo after topsoil placement is sufficient.
- Brandenberg will be working on site and in the way of the permanent fence until around the first week in June. WBK should plan on holding off on the permanent fence installation until then.

Cost and Budget Control

- n/a

Next Meeting Scheduled: April 13 at 9:00 CST

Action Items -

- n/a

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/07/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: John Truesdale

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 0615 Depart: 0645 Travel: 0.00 Total:0.5

AM Conditions: Cloudy, intermittent rain, 10 mph W wind
AM Temperature: 42 F

PM Conditions:
PM Temperature: NA

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg

Equipment: **WB Koester:** - 400D-qty.2, Komatsu-PC350LC-qty.1, Caterpillar 416-C-qty.1, Caterpillar D6R-LGP-qty.2 (none used – Rain day)

Personnel: **WB Koester:** - 0 personnel (including on-site mechanic)

Visitors: none

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: None
Deliveries: None
Testing: None

CONSTRUCTION SITE LOCATIONS:

Ash Pond A

Geotechnology, Inc. Rep. — 04/07/2016 Date

Geotechnology, Inc. Engineer — 4/11/16 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/07/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

No work performed due to rain.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/08/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jon Truesdale

TIME AND WEATHER CONDITIONS:

(-0.25) Lunch

Arrive: 0615 Depart: 16:15 Travel: 3.50 Total: 12.25

AM Conditions: Cloudy, intermittent rain, 35-40 mph SW wind AM Temperature: 35 F

PM Conditions: Cloudy, intermittent rain, 35-40 mph W wind PM Temperature: 37 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg

Equipment: **WB Koester:** - 400D-qty.2 (2 used), Komatsu-PC350LC-qty.1, Caterpillar 416-C-qty.1, Caterpillar D6R-LGP-qty.2, 3 tractors with pans (1 used)

Personnel: **WB Koester:** - 6 personnel (including on-site mechanic)

Visitors: none

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Borrow material as cover on ash pond A.

Deliveries: 0 tons topsoil from off-site.

Testing: NA – observation only.

CONSTRUCTION SITE LOCATIONS:

Ash Pond A

Geotechnology, Inc. Rep. 04/08/2016 Date

Geotechnology, Inc. Engineer 4/11/16 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

04/08/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Cover soils placed on Ash Pond A starting at 0640. Placed 10" of cover soil to make three foot thick roadway on top of Ash Pond A to the fill area. Ramps, roadways, and fill areas graded periodically to prevent rutting.

Note: Directions relative to true north map orientation.

PHOTOGRAPH LOG

Photograph 1 ⮙ - View of grading the northwest slope of Ash Pond A, looking west.

Photograph 2 ⮙ - View of the Bottom Ash Pond, looking north.

Photograph 3 ⮝ - View of Ash Pond A, looking south.

Photograph 4 ⮝ - View of Ash Pond A, looking southwest.

Photograph 5 ⮝ - View of Ash Pond A, looking northwest.

Photograph 6 ⮝ - View of the haul road to and from the borrow area.

Photograph 7 ⮝ - View of Ash Pond B, looking east.

Photograph 8 ⮝ - View of topsoil staging in the southern portion of the coal yard.

Photograph 9 ⮝ - View of Ash Pond A grading.

Photograph 10 ⮝ - View of hauling road across Ash Pond A.

Photograph 11 ⮝ - View of cover soil placement on Ash Pond A, looking southwest.

Photograph 12 ⮝ - View of cover soil placement on Ash Pond A, looking southeast.

Photograph 13 ⮝ - View of the cover soil on Ash Pond A, looking east.

M E M O R A N D U M

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DATE: April 19, 2016

SUBJECT: Weekly Summary Report for April 11, 2016 to April 15, 2016

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

Weather

The weather was generally cloudy with intermittent periods of rain. Work was not performed on Monday, April 11, 2016 due to rain. Morning temperatures ranged from 37 F to 40 F and afternoon temperatures ranged from 56 F to 67 F.

Construction Activities

Work was not performed April 11, 2016 due to rain. Borrow material was transported for use as soil cover on Ash Pond A on April 12 through April 15, 2016. Protective cover was transported to the site by Quality Lime Service on April 15, 2016.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 2 excavators (1 Caterpillar 320B, 1 Caterpillar 308E), 2 dump trucks (John Deere 400D), 2 bulldozers (Caterpillar D6N LGP with GPS), 1 backhoe (Caterpillar), 1 water truck (Caterpillar 623B) (unused), 3 Tractors (Case 435, Case STX480, Case 9370) with scraper boxes (Reynolds), and one broom.

WB Koester had 4-5 employees working on site: 1 mechanic and 3-4 equipment operators.

Meetings

The project coordination meeting was held on Wednesday, April 13, 2016. See the attached meeting minutes for additional information.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Borrow field soil was placed on Ash Pond A.

Topsoil was transported and stockpiled on site from Quality Lime Service on April 15, 2016.

Testing/Sampling

Jessie Hahn of Geotechnology collected one conformation sample of topsoil sourced from Quality Lime Service on April 14, 2016.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/11/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.00) Lunch

Arrive: 0630 Depart: 0715 Travel: 0.00 Total: 00.75

AM Conditions: Overcast, rain AM Temperature: 37 F

PM Conditions: Overcast, rain PM Temperature: 56 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg

Equipment: **WB Koester: -**

Personnel: **WB Koester: -**

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Rain day. No work performed on site.

Jessie Hahn 4/11/2016
Geotechnology, Inc. Rep. Date

[signature] 4/11/16
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/11/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

Rain day. Construction work was not performed on site.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/12/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.00) Lunch

Arrive: 0630 Depart: 1430 Travel: 0.00 Total: 8.00

AM Conditions: Clear AM Temperature: 37 F

PM Conditions: Clear PM Temperature: 54 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg

Equipment: **WB Koester:** 1 excavator, 2 bulldozers, 1 haul truck

Personnel: **WB Koester:** 4 operators, 1 mechanic

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries: One small bulldozer and one broom delivered to site in the morning.

Testing:

CONSTRUCTION SITE LOCATIONS:

Haul Road/Borrow Field, Ash Pond A, Sand stockpile/tank excavation.

Jessie Hahn 4/12/2016
Geotechnology, Inc. Rep. Date

[signature] 4/12/2016
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/12/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

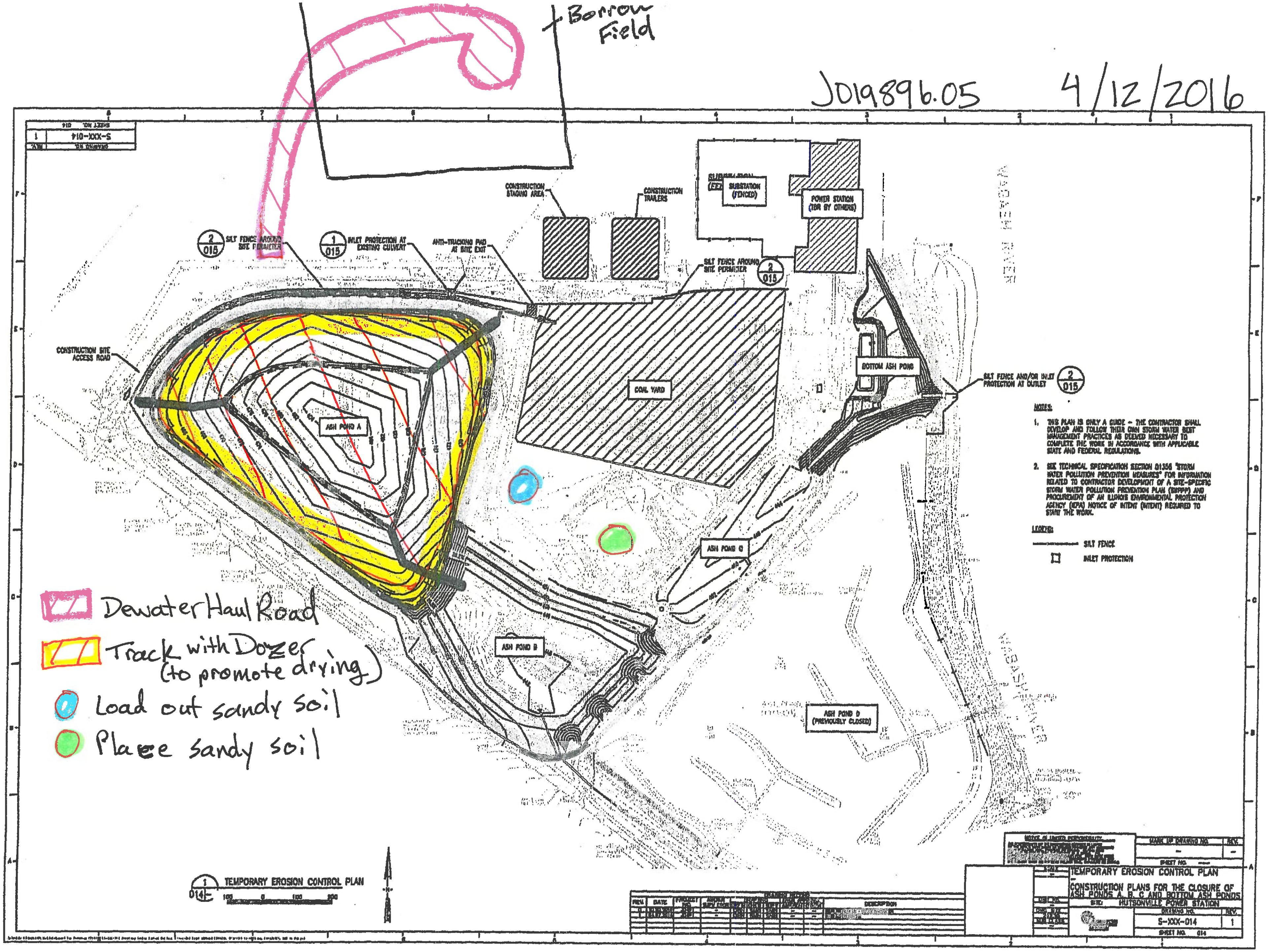
WB Koester:

In the morning, one excavator and one pump dewatered the haul road. One bulldozer assisted in dewatering the haul road and the borrow field.

One broom was delivered to site and cleaned the roads.

Two bulldozers tracked the top of Ash Pond A to promote drying of material.

In the afternoon, one excavator loaded stockpiled sandy material into a haul truck. The haul truck transported the material to an excavation left from the removal of contaminated soils.


Borrow Field
J019896.05
4/12/2016
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
WABASH RIVER
SILT FENCE AROUND SITE PERIMETER
INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
CONSTRUCTION SITE ACCESS ROAD
ASH POND A
COAL YARD
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
NOTES:
1. THIS PLAN IS ONLY A GUIDE – THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (EPA) NOTICE OF INTENT (INTENT) REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
Dewater Haul Road
Track with Dozer (to promote drying)
Load out sandy soil
Place sandy soil
TEMPORARY EROSION CONTROL PLAN
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
HUTSONVILLE POWER STATION
S-XXX-014

S0'9686100

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/13/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jessie Hahn
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-0.00) Lunch

Arrive: 0630 Depart: 1630 Travel: 0.00 Total: 10.00

AM Conditions: Clear
AM Temperature: 37 F
PM Conditions: Clear
PM Temperature: 59 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg
Equipment: **WB Koester:** 1 excavator, 1 bulldozer, 2 haul trucks
Personnel: **WB Koester:** 4 operators
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:
Deliveries:
Testing:

CONSTRUCTION SITE LOCATIONS:

Haul Road/Borrow Field and Ash Pond A.

Jessie Hahn 4/13/2016
Geotechnology, Inc. Rep. Date

4/13/2016
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/13/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

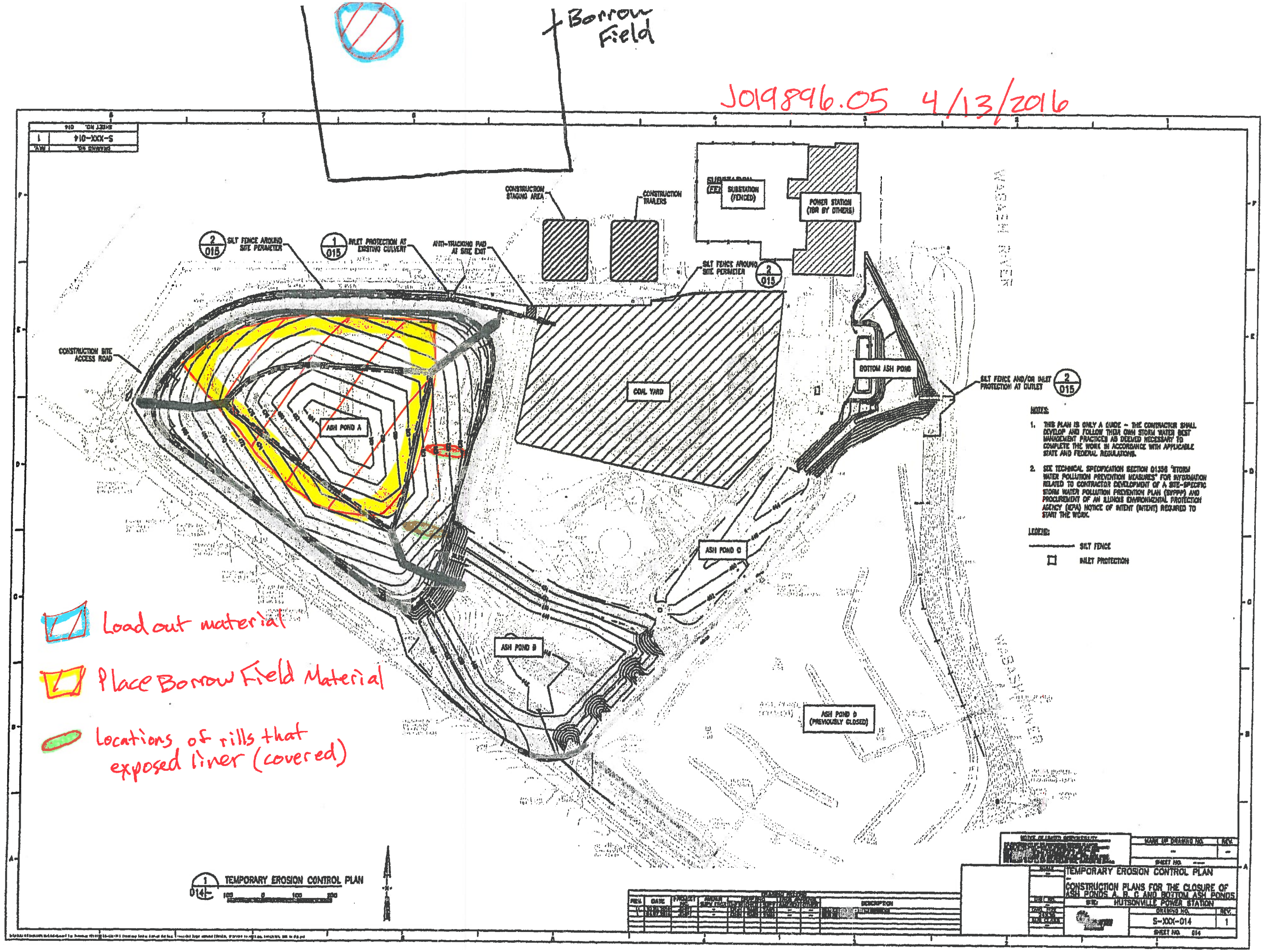
One excavator loaded out materials from the borrow field. Two haul trucks transported borrow field material to Ash Pond A. One bulldozer spread and graded material on Ash Pond A.

At various times throughout the day, the bulldozer scraped and maintained the haul road to the borrow field and on Ash Pond A.

The project coordination meeting was held at 0900 in the Ameren trailer. See the meeting minutes for additional details.

At 1015, Jessie Hahn (Geotechnology) observed two locations where erosion rills had exposed the HDPE geomembrane on Ash Pond A. Hahn told Chris Atkinson (WB Koester) about the locations. Atkinson, operating a bulldozer, placed soil in the rills to cover the exposed geomembrane by 1045.

At 1530, transport of borrow field soil ceased. One backhoe scraped the roads and one broom cleaned the roads. The bulldozer continued to maintain and scrape the haul road on Ash Pond A.



Borrow Field
J019896.05 4/13/2016
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
SILT FENCE AROUND SITE PERIMETER
INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
CONSTRUCTION SITE ACCESS ROAD
ASH POND A
COAL YARD
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET
WABASH RIVER
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
NOTES:
1. THIS PLAN IS ONLY A GUIDE – THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (EPA) NOTICE OF INTENT (INTENT) REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
Load out material
Place Borrow Field Material
locations of rills that exposed liner (covered)
TEMPORARY EROSION CONTROL PLAN
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-014
REV. 1
SHEET NO. 014

50'2686100

Weekly Progress Meeting

Meeting Minutes

Date: 4-13-16

Attendees:

Ameren: Don, Mike

WB Koester: Chris, Bob

Geotechnology, Inc.: Anna, Jessie

Topics:

Safety/Housekeeping

- Brandenberg will have 10-12 steel hauling trucks throughout the days so will need to keep an eye on traffic, especially when 10-15 topsoil trucks are delivering topsoil
- WBK has broom on site and will sweep roads when needed. Brandenberg has also been running water truck to help control dust.

Manpower

- Man hours
  - Start of Job (4-27-15) through 4-11-16
    - Total = 15,007 hrs.
- Next week expected manpower
  - WBK = 4 operators, 1 laborer, 1 superintendent (6 total)
  - Plan on working 5-10 hr days.
  - No Saturday or Sunday work. Brandenberg is working this Saturday if we feel like we need to.

Review old minutes and action items

- n/a

Material Issues

- n/a

Quality Control Issues

- National Lining Systems sent email with missing QC data requested by Geotechnology, Inc. Bob to forward after meeting.

Schedule Compliance

- Started hauling topsoil in from off site. Total of approximately 3,200 tons stockpiled. Started hauling borrow to Pond A to form the terraces last week. Will continue starting again today.
- Due to river being up, Brandenberg pumping into Bottom ash pond until around April 25th. After that WBK should be able to dewater and grade the Bottom Ash pond.
- Downchutes/rip rap on pond A will likely start next week. May need to widen Pond C rip rap as it is still eroding around the rip rap.
- Placing topsoil on Pond A may start next week.
- Continue to fix erosion around ponds B and C, plan is to seed B and C when we seed pond A.
- Other items to be done: finish the ditch north of pond A, place the aggregate on the roads, fix the road cuts with concrete, finish the piezometers, closure of the Pond B outlet with flowable fill.
- Topo prior to topsoil placement was decided not to be necessary. Topo after topsoil placement is sufficient.
- Brandenberg will be working on site and in the way of the permanent fence until around the first week in June. WBK should plan on holding off on the permanent fence installation until then.
- Don will work on a preliminary punch list to see if there are any items we need to add to future schedules.

Cost and Budget Control

- n/a

Next Meeting Scheduled: April 20 at 9:00 CST

Action Items -

- Bob to send National Lining Systems email to Anna and Mike
- Don to prepare preliminary punch list and Bob to put those items on schedule.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/14/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-0.00) Lunch

Arrive: 0630 Depart: 1545 Travel: 3.50 Total: 12.75

AM Conditions: Clear AM Temperature: 40 F

PM Conditions: Clear PM Temperature: 67 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg

Equipment: **WB Koester:** 1 excavator, 1 bulldozer, 2 haul trucks, 1 tractor with pan.

Personnel: **WB Koester:** 4 operators, 1 mechanic

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used:

Deliveries:

Testing:

CONSTRUCTION SITE LOCATIONS:

Haul Road/Borrow Field and Ash Pond A.

Jessie Hahn 4/14/2016
Geotechnology, Inc. Rep. Date

[signature] 4/14/2016
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/14/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

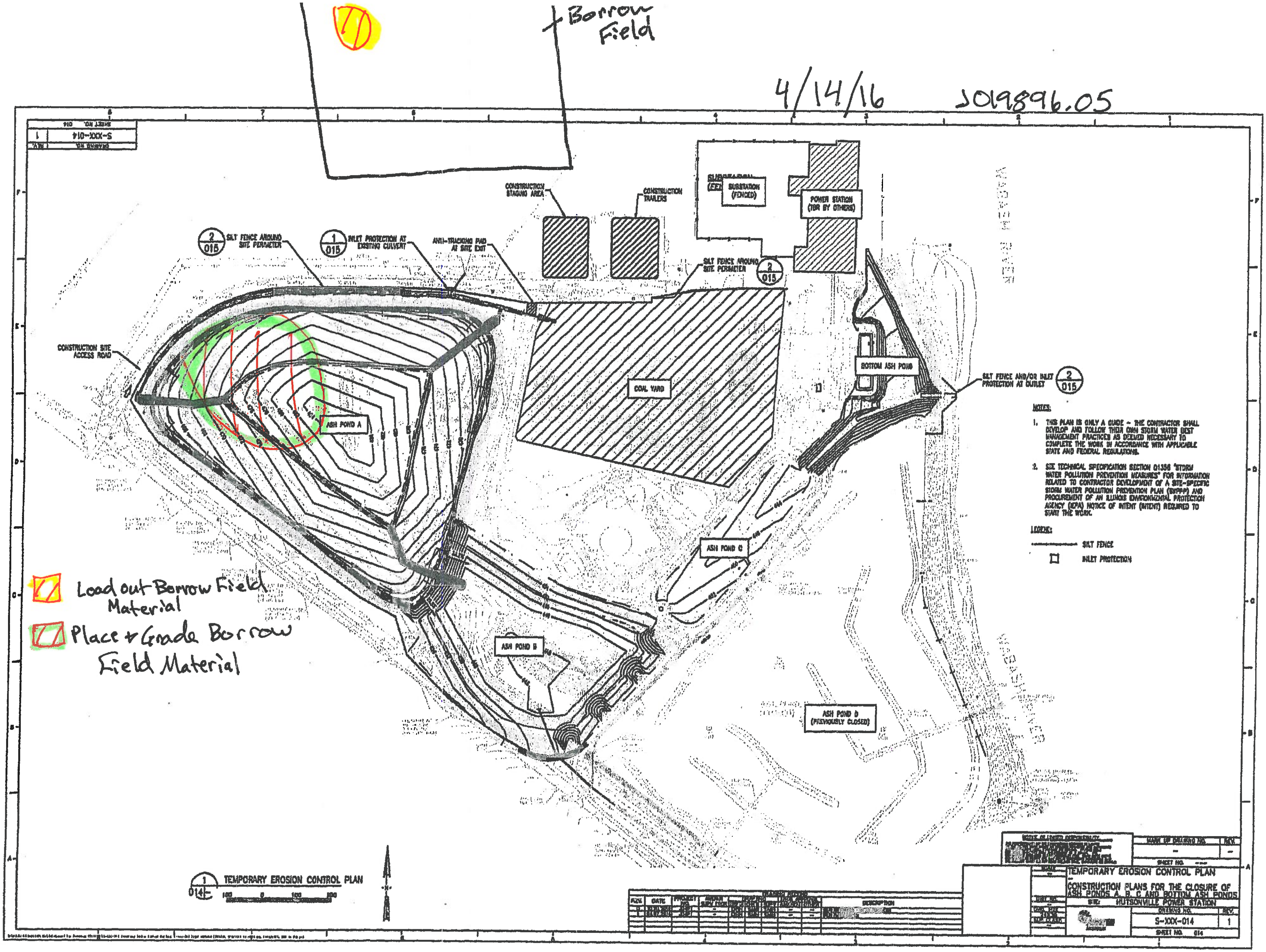
Ongoing demolition of buildings.

WB Koester:

One excavator loaded out materials from the borrow field. One haul truck and one tractor with a pan transported borrow field material to Ash Pond A. One bulldozer spread and graded material on Ash Pond A. The mechanic repaired the second haul truck.

At various times throughout the day, the bulldozer scraped and maintained the haul road to the borrow field and on Ash Pond A.

At 1530, transport of borrow field soil to Ash Pond A ceased. One backhoe scraped the roads and one broom cleaned the roads.



Borrow Field
4/14/16
J019896.05
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
WABASH RIVER
SILT FENCE AROUND SITE PERIMETER
INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
CONSTRUCTION SITE ACCESS ROAD
COAL YARD
ASH POND A
ASH POND B
ASH POND C
ASH POND D (PREVIOUSLY CLOSED)
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET
NOTES:
1. THIS PLAN IS ONLY A GUIDE – THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA) NOTICE OF INTENT (NOI) REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
Load out Borrow Field Material
Place + Grade Borrow Field Material
TEMPORARY EROSION CONTROL PLAN
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-014
REV. 1
SHEET NO. 014

S0'9686100

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/15/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Stephen Graham

TIME AND WEATHER CONDITIONS:

(-0.00) Lunch

Arrive: 0630 Depart: 1600 Travel: 3.50 Total: 13.00

AM Conditions: Clear AM Temperature: 50 F

PM Conditions: Clear PM Temperature: 70 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg

Equipment: **WB Koester:** 1 excavator, 1 bulldozer, 1 haul truck, 1 tractor with pan.

Personnel: **WB Koester:** 3 operators, 1 mechanic

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Clay liner material transported between borrow to Ash Pond A north East cover.

Deliveries: Several top soil trucks were delivered and stockpiled at base of Ash Pond A.

Testing: Observations were made.

CONSTRUCTION SITE LOCATIONS:

Haul Road/Borrow Field and Ash Pond A.

Stephen Graham 4/15/16
Geotechnology, Inc. Rep. Date

4/15/2016
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/15/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

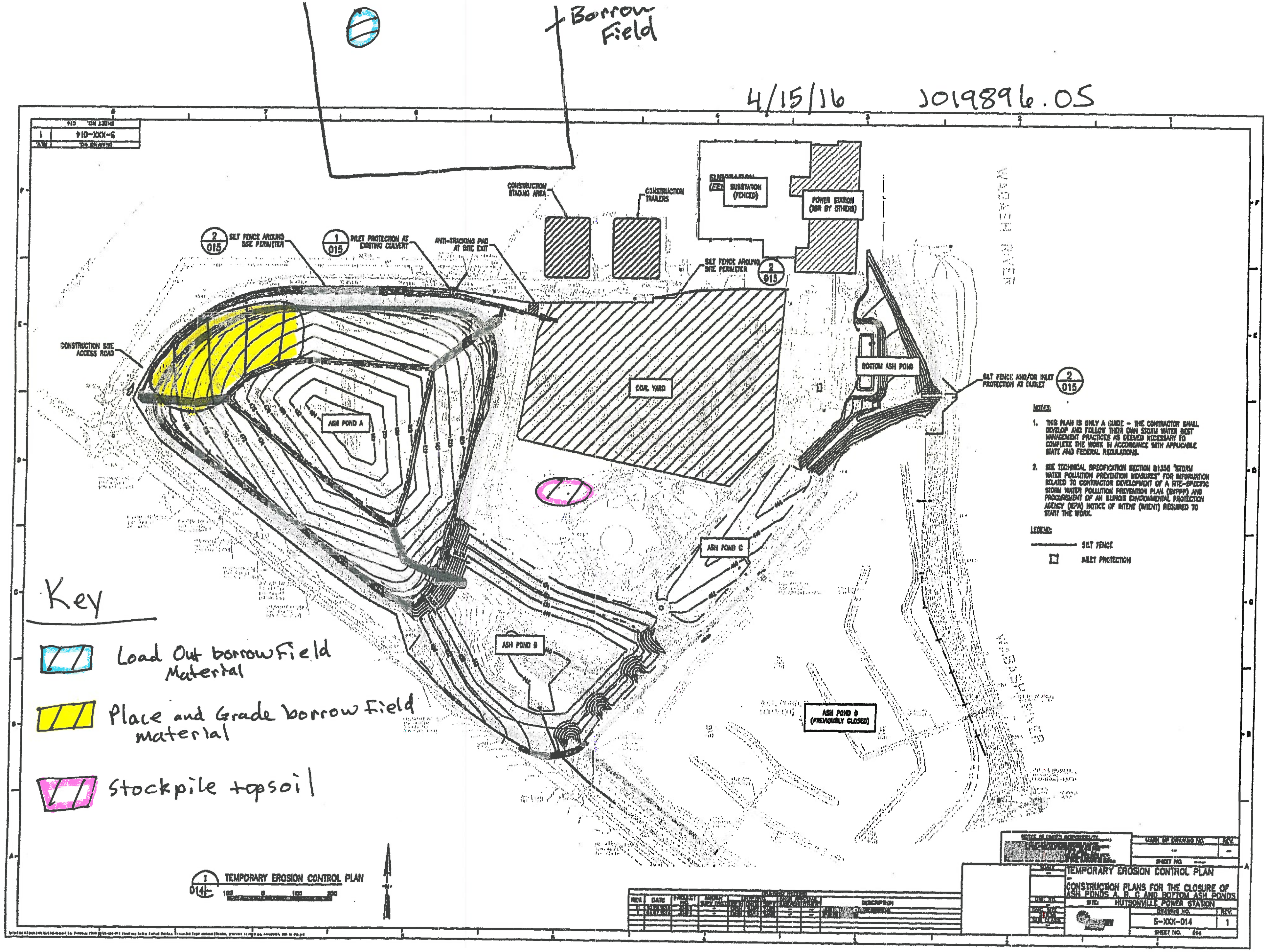
Ongoing demolition of buildings.

WB Koester:

One excavator loaded out materials from the borrow field. One haul truck transported borrow field material to Ash Pond A. One bulldozer spread and graded material on Ash Pond A. The mechanic repaired the second haul truck.

At various times throughout the day, the bulldozer maintained the haul road to the borrow field and on Ash Pond A.

At 1530, transport of borrow field soil to Ash Pond A ceased. One backhoe scraped the roads and one broom cleaned the roads.



Borrow Field
4/15/16
J019896.05
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (TBR BY OTHERS)
SILT FENCE AROUND SITE PERIMETER
INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
CONSTRUCTION SITE ACCESS ROAD
ASH POND A
COAL YARD
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
WABASH RIVER
NOTES:
1. THIS PLAN IS ONLY A GUIDE – THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION 01356 "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (EPA) NOTICE OF INTENT (NOI) REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
Key
Load Out borrow Field Material
Place and Grade borrow Field material
Stockpile topsoil
1 TEMPORARY EROSION CONTROL PLAN 014
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
SITE: HUTSONVILLE POWER STATION
DRAWING NO. S-XXX-014
REV. 1
SHEET NO. 014

PHOTOGRAPH LOG

Photograph 1 ⮝ - View of dewatering the haul road to the borrow field on April 12, 2016, looking northeast.

Photograph 2 ⮝ - View of material excavation from the borrow field for placement on Ash Pond A, looking northeast.

Photograph 3 - View of material placement on Ash Pond A, looking north.

Photograph 4 - View of sandy soil for use as backfill for removed soil at the former fuel tank location, looking east.

Photographs taken by Jessie Hahn of Geotechnology, Inc. April 11-15, 2016.

Photograph 5 ⮙ - View of sandy soil placement as backfill for removed soil at the former fuel tank location, looking south.

Photograph 6 ⮝ - View of typical exposed liner at a rill on Ash Pond A, Looking west. (Observed at two locations.)

Photograph 7 - View of placement of soil in rills to cover exposed liner on Ash Pond A, looking north.

MEMORANDUM

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DATE: April 26, 2016

SUBJECT: Weekly Summary Report for April 18, 2016 to April 22, 2016

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

Weather

The weather was generally cloudy with intermittent periods of rain. Work was not performed on April 21-22 due to rain. Morning temperatures ranged from 50 F to 52 F and afternoon temperatures ranged from 70 F to 80 F.

Construction Activities

Erosion repairs were performed on April 18. The borrow field was graded April 18-19. Borrow soil was transported to Ash Pond A on April 19. Vegetative cover was transported to the site by Quality Lime Service on April 18-20. Vegetative cover was placed on Ash Pond A on April 20. Work was not performed April 21-22 due to rain.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 1 excavator (Komatsu), 2 dump trucks (John Deere 400D), 2 bulldozers (Caterpillar D6N LGP with GPS), 1 backhoe (Caterpillar), 1 water truck (Caterpillar 623B) (unused), 3 Tractors (Case 435, Case STX480, Case 9370) with scraper boxes (Reynolds), and one broom.

WB Koester had 7 employees working on site: 1 mechanic, 1 laborer, and 5 equipment operators.

Meetings

The project coordination meeting was held on Wednesday, April 20, 2016. See the attached meeting minutes for additional information.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Borrow field soil was placed on Ash Pond A.

Topsoil was transported and stockpiled on site from Quality Lime Service. Topsoil from the stockpile was placed on Ash Pond A.

Testing/Sampling

Testing and sampling were not performed this week.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/18/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jon Truesdale

TIME AND WEATHER CONDITIONS:

(-0.25) Lunch

Arrive: 0630 Depart: 1630 Travel: 0 Total: 9.75

AM Conditions: Clear AM Temperature: 51 F

PM Conditions: Clear PM Temperature: 80 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg

Equipment: **WB Koester:** 1 Komatsu Excavator – 3 Tractors with Pans (not used), 1 Back-hoe, 1 D5C Bulldozer, 1 Sweeper, 2 – D6R bulldozers, 2 trucks (not used)

Personnel: **WB Koester:** 5 operators, 1 laborer, 1 mechanic

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: General use soil (for repair of washed out slopes on ash ponds B and C)

Deliveries: Topsoil trucks were delivered and stockpiled at base of Ash Pond A (S end of coal yard).

Testing: None – observation only

CONSTRUCTION SITE LOCATIONS:

Borrow field and Ash Pond A. Side slopes of Ash Ponds B and C.

Jon Truesdale 4/25/16
Geotechnology, Inc. Rep. Date

4/26/16
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/18/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

1 Komatsu excavator and 1 CAT D6R - LGP grading borrow area.

1 Sweeper running periodically along access roads.

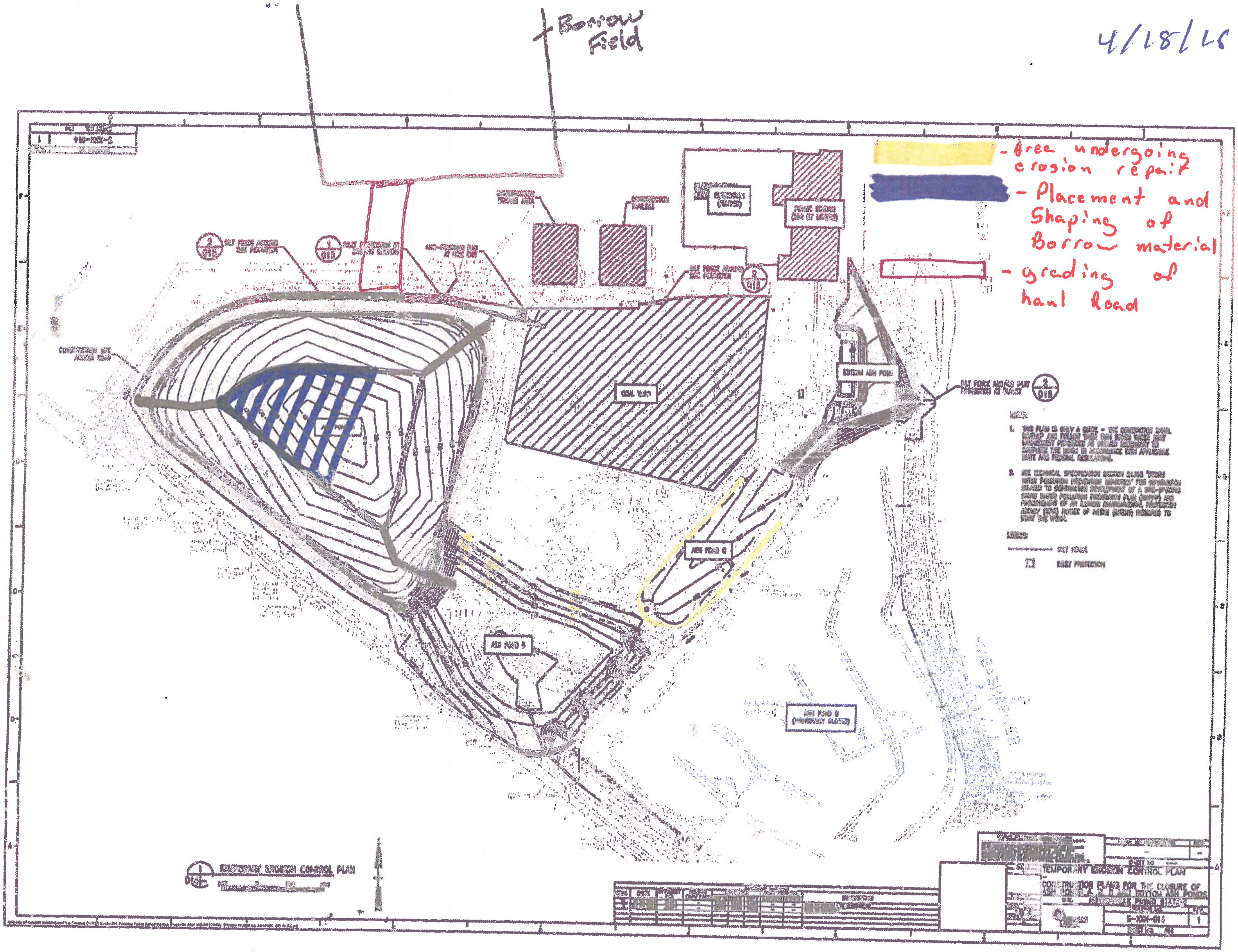
1 CAT D5C staging topsoil.

1 CAT D6R LPG grading Ash Pond A surface.

1 416-C backhoe repairing washed out areas along side-slopes of Ash Pond B and C.

Notes: Approximately 15 trucks hauling topsoil to the site.

4/18/16



J019896.05

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/19/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jon Truesdale

TIME AND WEATHER CONDITIONS:

(-0.25) Lunch

Arrive: 0630 Depart: 1630 Travel: 0 Total: 9.75

AM Conditions: Partly Cloudy AM Temperature: 50 F

PM Conditions: Partly Cloudy PM Temperature: 75 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg; PSC

Equipment: **WB Koester:** 1 Komatsu excavator – 3 tractors with pans (not used), 1 back-hoe, 1 D5C bulldozer, 1 sweeper, 2 – D6R bulldozers, 2 trucks, 1 CAT 623B Wheel Tractor-scraper

Personnel: **WB Koester:** 5 operators, 1 laborer, 1 mechanic

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Borrow area soil for additional cover on top of ash pond A.

Deliveries: Topsoil trucks delivered and stockpiled at South end of coal yard.

Testing: None – observation only.

CONSTRUCTION SITE LOCATIONS:

Borrow field and Ash Pond A. Side slopes of Ash Pond B. South end of coal yard. South end of Ash Pond A.

Jon Truesdale 4/25/16
Geotechnology, Inc. Rep. Date

4/26/16
Geotechnology, Inc. Engineer Date

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

PSC:

Work at aboveground storage tank (decommissioning).

WB Koester:

1-Komatsu excavator loading borrow material.

2-500D truck for transfer of soils to top of Ash Pond A.

1-CAT D6R - LGP grading borrow area.

1-Sweeper running periodically along access roads.

1-CAT D5C staging topsoil.

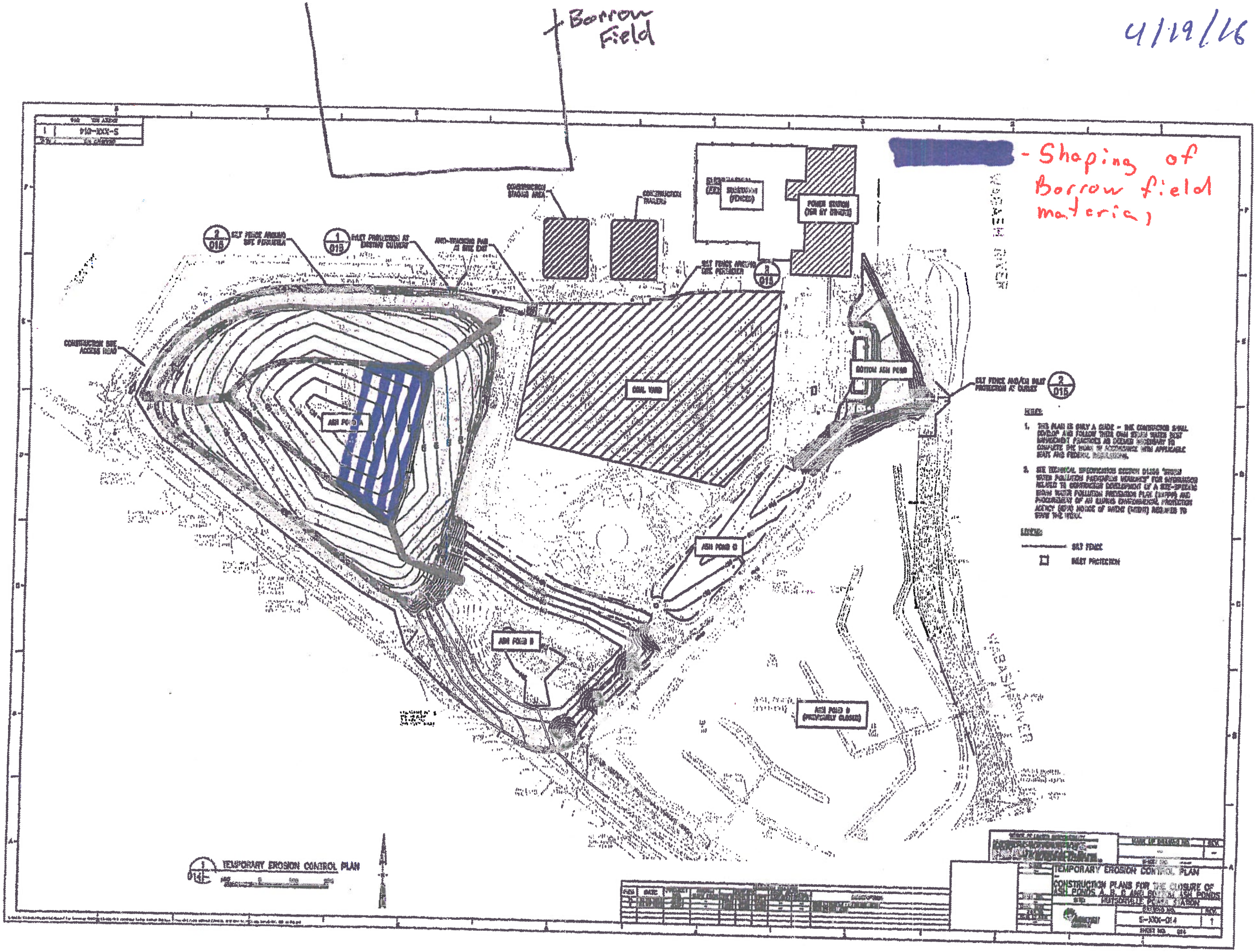
1-CAT D6R LPG grading Ash Pond A surface.

1-416C scraping access roadway surface as part of dust control in afternoon.

1-CAT 623B wheel tractor-scraper with water tank for last hour of day.

Notes: Approximately 1000 c.y. topsoil hauled to the site.

4/19/16



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GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/20/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jon Truesdale

TIME AND WEATHER CONDITIONS:

(-0.25) Lunch

Arrive: 0630 Depart: 1630 Travel: 0 Total: 9.75

AM Conditions: Overcast
AM Temperature: 52 F
PM Conditions: Overcast
PM Temperature: 70 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg; PSC
Equipment: **WB Koester:** 1 excavator (not used) – 3 tractors with pans/rollerblade, 1 back-hoe, 1 D5C bulldozer, 1 sweeper, 2 – D6R bulldozers, 2 trucks (none used), 1 CAT 623B.
Personnel: **WB Koester:** 5 operators; 1 mechanic, 1 laborer
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Topsoil for cover on top of Ash Pond A.
Deliveries: Topsoil trucks delivered and stockpiled at South end of coal yard.
Testing: None – observation only.

CONSTRUCTION SITE LOCATIONS:

Borrow field, borrow field access road, and Ash Pond A. South end of coal yard.

Jon Truesdale 4/25/16
Geotechnology, Inc. Rep. Date

4/26/2016
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/20/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

PSC:

Work at aboveground storage tank (decommissioning).

WB Koester:

1-CAT D6R - LGP grading borrow area access road.

1-Sweeper running periodically along access roads.

1-CAT D5C staging topsoil.

1-CAT D6R LPG grading Ash Pond A surface.

1-416C used for miscellaneous items.

1-CAT 623B wheel tractor-scraper with water tank for dust control.

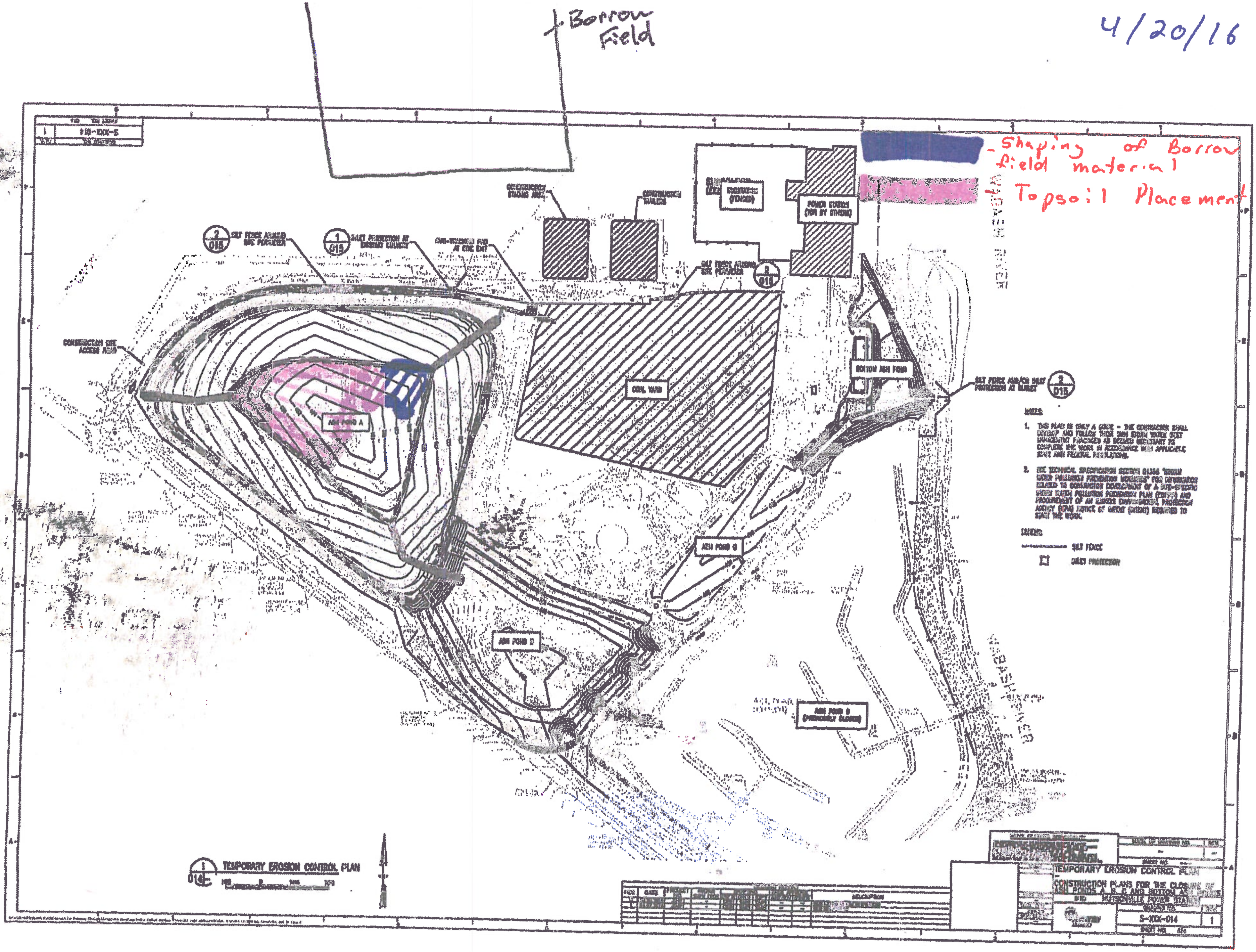
2-tractors with elevating pans transferring topsoil to Ash Pond A.

1-tractor with rollerblade grading placed topsoil on Ash Pond A.

The weekly progress meeting was held on site at 0900. See the attached meeting minutes for additional information.

Notes: Approximately 1100 c.y. topsoil hauled to the site.

4/20/16



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Weekly Progress Meeting

Meeting Minutes

Date: 4-20-16

Attendees:

Ameren: Don, Mike

WB Koester: Chris, Bob

Geotechnology, Inc.: Anna, John

Topics:

Safety/Housekeeping

- No accidents/near misses to report.
- Brandenberg will have 15 concrete trucks, 10-12 steel hauling trucks throughout the days so will need to keep an eye on traffic, especially when 12-15 topsoil trucks are delivering topsoil
- WBK has broom on site and will sweep roads when needed. WBK and Brandenberg have also been running water truck to help control dust.

Manpower

- Man hours
  - Start of Job (4-27-15) through 4-18-16
    - Total = 15,335 hrs.
- Next week expected manpower
  - WBK = 4 operators, 1 laborer, 1 superintendent (6 total)
  - Plan on working 5-10 hr days.
  - No Saturday or Sunday work.

Review old minutes and action items

- Jessie took topsoil sample on Friday, results likely in next Monday
- Don sent preliminary punch list to WBK.

Material Issues

- n/a

Quality Control Issues

- n/a

Schedule Compliance

- Continue to stockpile topsoil. Will start hauling topsoil to Pond A this week.
- Finished hauling out of borrow pit so have started reclaiming and regrading borrow pit.
- Repairing silt fence around sites.
- Mike asked Chris to regrade south end of coal yard where it is ponding water. Also said that the diversion channels on top of Pond A can be field fit to a certain extent to ensure water does not pond on Pond A.
- Due to river being up, Brandenberg pumping into Bottom ash pond until around May 2. After that WBK should be able to dewater and grade the Bottom Ash pond.
- Downchutes/rip rap on pond A will likely start this week. May need to widen Pond C rip rap as it is still eroding around the rip rap.
- Continue to fix erosion around ponds B and C, plan is to seed B and C when we seed pond A.
- Other items to be done: finish the ditch north of pond A, place the aggregate on the roads, fix the road cuts with concrete, finish the piezometers, closure of the Pond B outlet with flowable fill.
- Topo prior to topsoil placement was decided not to be necessary. Topo after topsoil placement is sufficient.
- Brandenberg will be working on site and in the way of the permanent fence until around the first week in June. WBK should plan on holding off on the permanent fence installation until then.

Cost and Budget Control

- n/a

Next Meeting Scheduled: April 27 at 9:00 CST

Action Items -

- N/A

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/21/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Jon Truesdale
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 0630 Depart: 1030 Travel: 0 Total: 4

AM Conditions: Overcast
AM Temperature: 52 F
PM Conditions:
PM Temperature:

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg; PSC

Equipment: **WB Koester:** 1 excavator, 3 tractors with pans/rollerblade, 1 back-hoe, 1 D5C bulldozer, 1 sweeper, 2 – D6R bulldozers, 2 trucks, 1 CAT 623B. (rain day-none used)

Personnel: **WB Koester:** 5 operators; 1 mechanic, 1 laborer

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: None
Deliveries: None
Testing: None

CONSTRUCTION SITE LOCATIONS:

None – rain day

Geotechnology, Inc. Rep. 4/25/16 Date
Geotechnology, Inc. Engineer 4/26/16 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/21/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

PSC:

Work at aboveground storage tank (decommissioning).

WB Koester:

No equipment used – rain day

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/22/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jon Truesdale

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 0630 Depart: 1030 Travel: 0 Total: 4

AM Conditions: Overcast AM Temperature: 52 F

PM Conditions: PM Temperature:

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg; PSC

Equipment: **WB Koester:** 1 excavator, 3 tractors with pans/rollerblade, 1 back-hoe, 1 D5C bulldozer, 1 sweeper, 2 – D6R bulldozers, 2 trucks, 1 CAT 623B. (rain day-none used)

Personnel: **WB Koester:** 5 operators; 1 mechanic, 1 laborer

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: None

Deliveries: None

Testing: None

CONSTRUCTION SITE LOCATIONS:

None – rain day

Geotechnology, Inc. Rep. Date 4/25/16

Geotechnology, Inc. Engineer Date 4/26/16

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/22/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

PSC:

Work at aboveground storage tank (decommissioning).

WB Koester:

No equipment used – rain day

PHOTOGRAPH LOG

Photograph 1 ⮙ - View of roadway being swept on the east side of Ash Pond A, looking northeast.

Photograph 2 ⮙ - View of topsoil staging activities on the southern portion of the coal yard, looking north.

Photographs taken by Jon Truesdale of Geotechnology, Inc. April 18-22, 2016.

Photograph 3 ⮝ - View of borrow area condition on April 18, 2016, looking northeast.

Photograph 4 ⮝ - View of erosion repairs at Ash Pond C, looking north-northeast.

Photograph 5 ⮙ - View of the borrow field from the southeast.

Photograph 6 ⮙ - View of hauling of topsoil to place on Ash Pond A, looking north.

Photograph 7 ⮝ - View of surface shaping prior to placement of topsoil in the southern portion of Ash Pond A, looking south.

Photograph 8 ⮝ - View of tractor with elevating pan conducting soil moving activities at the topsoil staging location, looking north.

Photograph 9 ⮝ - View from the top of Ash Pond A of regrading activities associated with the borrow field haul road, looking northwest.

Photograph 10 ⮝ - View of surface shaping of the northern portion of Ash Pond A prior to placement of topsoil, looking north-northwest.

Photograph 11 ⮙ - View of soil for erosion repair at Ash Pond C, looking east-northeast.

MEMORANDUM

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DATE: May 4, 2016

SUBJECT: Weekly Summary Report for April 25, 2016 to April 29, 2016

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

Weather

The weather was generally cloudy on days when work was performed. Work was not performed on April 27-29 due to rain and wet conditions. Morning temperatures ranged from 57 F to 63 F and afternoon temperatures ranged from 79 F to 80 F.

Construction Activities

The borrow field was graded April 25-26. Vegetative cover was transported to the site by Quality Lime Service on April 25. Vegetative cover was placed on Ash Pond A on April 25-26. Initial excavation of outfalls was performed on the Ash Pond A levee on April 26. Work was not performed April 27-29 due to rain and wet conditions.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 1 excavator (Komatsu), 2 dump trucks (John Deere 400D), 2 bulldozers (Caterpillar D6N LGP with GPS), 1 backhoe (Caterpillar), 1 water truck (Caterpillar 623B) (unused), 3 Tractors (Case 435, Case STX480, Case 9370) with scraper boxes (Reynolds), and one broom.

WB Koester had 7 employees working on site: 1 mechanic, 1 laborer, and 5 equipment operators.

Geotechnology had one representative on site on April 25-27. Anna Saindon, Geotechnology's CQA officer, visited the site on April 29. Geotechnology did not have representatives on site on April 28 due to the wet conditions.

Meetings

The project coordination meeting was held on Wednesday, April 27, 2016. See the attached meeting minutes for additional information.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Topsoil was transported and stockpiled on site from Quality Lime Service. Topsoil from the stockpile was placed on Ash Pond A.

Testing/Sampling

Cassandra Baresel of Geotechnology collected one sample of vegetative cover soil from the soil from Quality Lime Service stockpiled on site.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/25/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Cassandra Baresel

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 0630 Depart: 1830 Travel: 0 Total: 10

AM Conditions: Cloudy AM Temperature: 58 F

PM Conditions: Sunny PM Temperature: 79 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg; PSC

Equipment: **WB Koester:** 1 excavator, 3 tractors with pans/rollerblade, 1 back-hoe, 1 D5C bulldozer, 1 sweeper, 2 – D6R bulldozers, 2 trucks, 1 CAT 623B.

Personnel: **WB Koester:** 5 operators; 1 mechanic, 1 laborer

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: TOPSOIL

Deliveries: TOPSOIL

Testing: None

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Borrow Field

Geotechnology, Inc. Rep. 4/25/16 Date

Geotechnology, Inc. Engineer 4/27/2016 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/25/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

PSC:

Work at aboveground storage tank (decommissioning).

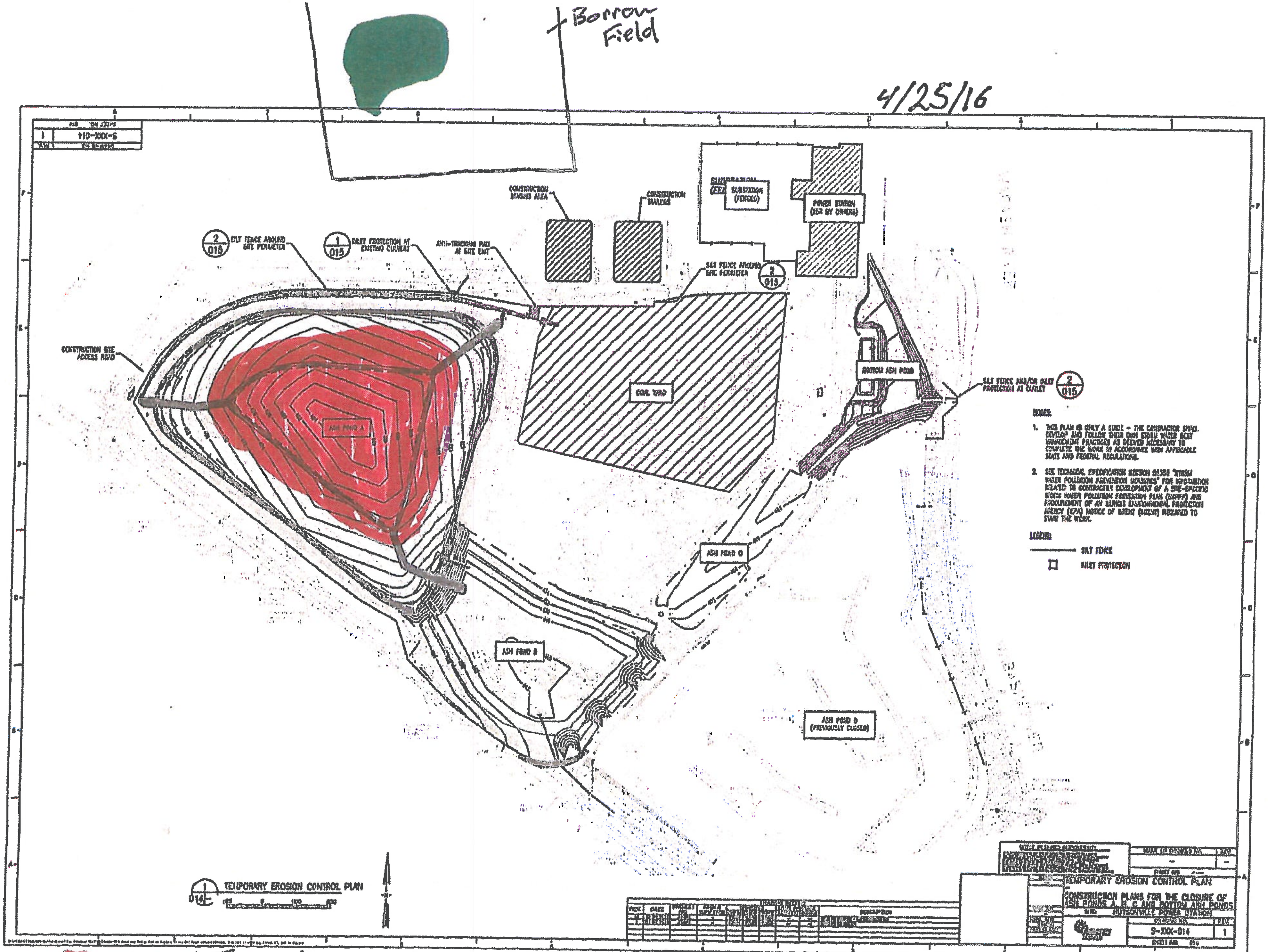
WB Koester:

Topsoil was brought in from off site. Tractors with pans hauled the soil onto Ash Pond A. One bulldozer graded the material on Ash Pond A. A tractor with a scraper was used to maintain the haul road.

One bulldozer shaped the borrow field.

One sweeper cleaned the roads.

All equipment was off Ash Pond A and the borrow field by 1825 and the site was prepped for the end of the day.



Placed Topsoil

Shaping Of Borrow Field

GEOTECHNOLOGY INC

FROM THE GROUND UP

DAILY REPORT

DATE: 04/26/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Cassandra Baresel

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 0630 Depart: 1830 Travel: 0 Total: 10

AM Conditions: Cloudy
AM Temperature: 63 F

PM Conditions: Overcast
PM Temperature: 80 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg;

Equipment: **WB Koester:** 1 excavator, 3 tractors with pans/rollerblade, 1 back-hoe, 1 D5C bulldozer, 1 sweeper, 2 – D6R bulldozers, 2 trucks, 1 CAT 623B.

Personnel: **WB Koester:** 5 operators; 1 mechanic, 1 laborer

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: TOPSOIL

Deliveries: None

Testing: None

CONSTRUCTION SITE LOCATIONS:

Ash Pond A, Borrow Field

4/26/16

Geotechnology, Inc. Rep. Date

4/27/2016

Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/26/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

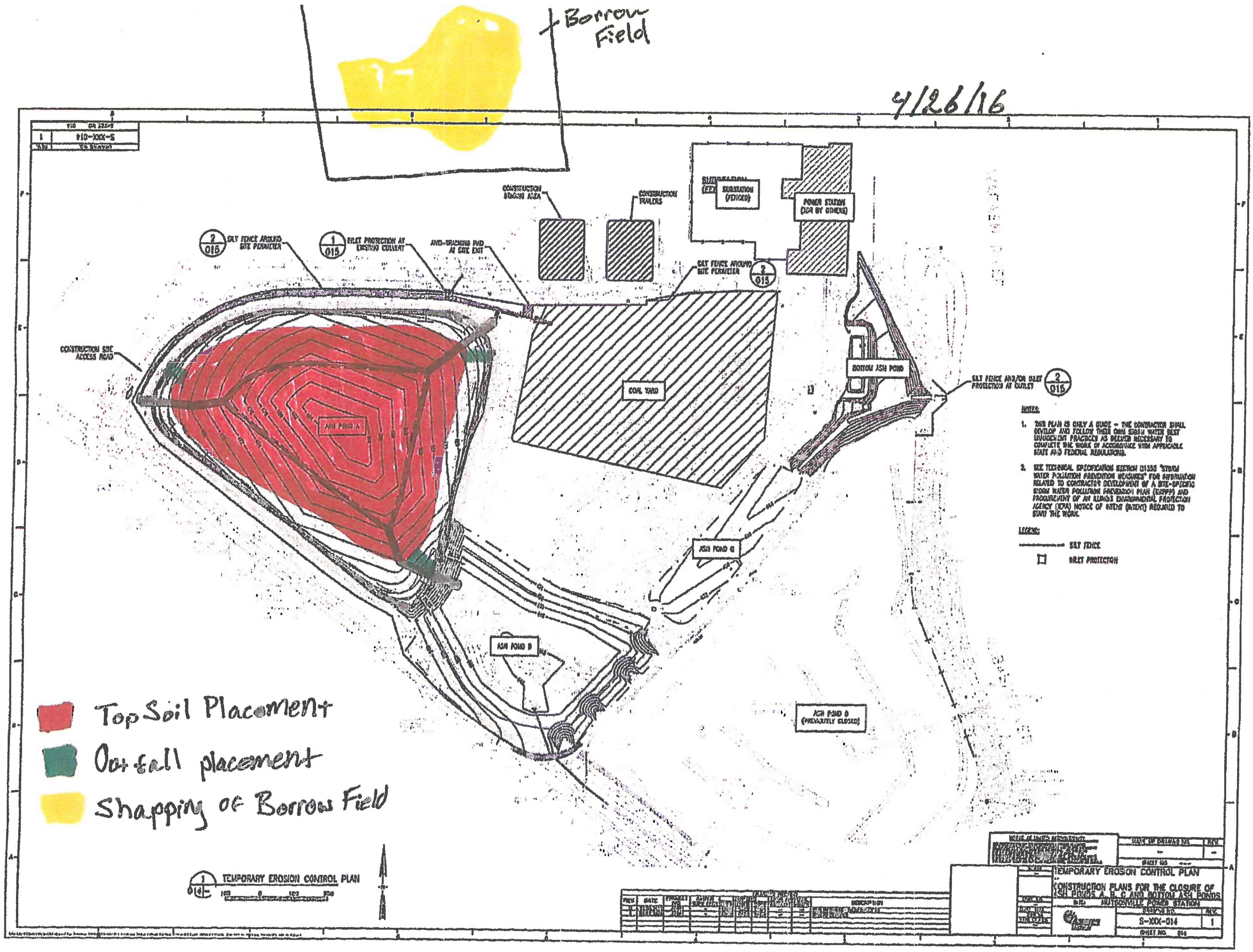
Ongoing demolition of buildings.

WB Koester:

Tractors with pans hauled topsoil onto Ash Pond A from the stock pile. One bulldozer spread the material on Ash Pond A. A tractor with a scraper was used to maintain the haul road.

One bulldozer and one tractor with a scraper box shaped the borrow field.

All equipment was off Ash Pond A and the borrow field by 1820 and the site was prepped for the end of the day.


Borrow Field
4/26/16
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
SUBSTATION (FENCED)
POWER STATION (NOT BY OTHERS)
SILT FENCE AROUND SITE PERIMETER
INLET PROTECTION AT EXISTING CULVERT
ANTI-TRACKING PAD AT SITE EXIT
CONSTRUCTION SITE ACCESS ROAD
ASH POND A
COAL YARD
BOTTOM ASH POND
SILT FENCE AND/OR INLET PROTECTION AT OUTLET
ASH POND C
ASH POND B
ASH POND D (PREVIOUSLY CLOSED)
NOTES:
1. THIS PLAN IS ONLY A GUIDE – THE CONTRACTOR SHALL DEVELOP AND FOLLOW THEIR OWN STORM WATER BEST MANAGEMENT PRACTICES AS DEEMED NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.
2. SEE TECHNICAL SPECIFICATION SECTION 01355 "STORM WATER POLLUTION PREVENTION MEASURES" FOR INFORMATION RELATED TO CONTRACTOR DEVELOPMENT OF A SITE-SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND PROCUREMENT OF AN ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA) NOTICE OF INTENT (NOI) REQUIRED TO START THE WORK.
LEGEND:
SILT FENCE
INLET PROTECTION
Top Soil Placement
Outfall placement
Shapping of Borrow Field
TEMPORARY EROSION CONTROL PLAN
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
HUTSONVILLE POWER STATION
S-XXX-014
1

50'9686100

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/27/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Cassandra Baresel

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 0630 Depart: 1230 Travel: 0 Total: 6

AM Conditions: Rainy
AM Temperature: 57 F
PM Conditions:
PM Temperature:

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg;
Equipment: **WB Koester:** 1 excavator, 3 tractors with pans/rollerblade, 1 back-hoe, 1 D5C bulldozer, 1 sweeper, 2 – D6R bulldozers, 2 trucks, 1 CAT 623B. (rain day-none used)
Personnel: **WB Koester:** 5 operators; 1 mechanic, 1 laborer
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: None
Deliveries: None
Testing: Casandra Baresel (Geotechnology) collected one sample of vegetative cover soil from the stockpile on site.

CONSTRUCTION SITE LOCATIONS:

None – rain day

Geotechnology, Inc. Rep. 4/28/16 Date
Geotechnology, Inc. Engineer 4/28/2016 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 04/27/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

No equipment used – rain day

The weekly progress meeting was held on site at 1000. Refer to the meeting minutes for additional information.

One soil sample was collected from the stockpiled vegetative cover soil from Quality Lime Service on site by Cassandra Baresel of Geotechnology.

Weekly Progress Meeting

Meeting Minutes

Date: 4-27-16

Attendees:

Ameren: Don, Mike

WB Koester: Bob

Geotechnology, Inc.: Anna, Cassie

Topics:

Safety/Housekeeping

- No accidents/near misses to report.
- Brandenberg will have 15 concrete trucks, 10-12 steel hauling trucks throughout the days so will need to keep an eye on traffic, especially when 12-15 topsoil trucks are delivering topsoil
- WBK has broom on site and will sweep roads when needed. WBK and Brandenberg have also been running water truck to help control dust.

Manpower

- Man hours
  - Start of Job (4-27-15) through 4-25-16
    - Total = 15,578 hrs.
- Next week expected manpower
  - WBK = 4 operators, 1 laborer, 1 superintendent (6 total)
    - May downsize slightly when topsoil is finished.
  - Plan on working 5-10 hr days.
  - No Saturday or Sunday work.

Review old minutes and action items

- Jessie took topsoil sample on Friday, results show high on Boron, Cassie to grab sample to run TCLP on sample.

Material Issues

- n/a

Quality Control Issues

- n/a

Schedule Compliance

- Finished stockpiling topsoil for now. Started hauling to Pond A from stockpile. Mid next week (weather permitting) should have all topsoil hauled to Pond A and terraces shaped. May need more topsoil delivered if we are short.
- Finished hauling out of borrow pit so have started reclaiming and regrading borrow pit.
- Mike asked Chris to regrade south end of coal yard where it is ponding water. Also said that the diversion channels on top of Pond A can be field fit to a certain extent to ensure water does not pond on Pond A.
- Due to river being up, Brandenberg pumping into Bottom ash pond until around May 2. After that WBK should be able to dewater and grade the Bottom Ash pond.
- Excavation of Downchutes/rip rap on pond A started this week. Need to place rip rap next week. May need to widen Pond C rip rap as it is still eroding around the rip rap.
- Continue to fix erosion around ponds B and C, plan is to seed B and C when we seed pond A.
- Other items to be done: finish the ditch north of pond A, place the aggregate on the roads, fix the road cuts with concrete, finish the piezometers, closure of the Pond B outlet with flowable fill.
- Topo prior to topsoil placement was decided not to be necessary. Topo after topsoil placement is sufficient. Need to topo prior to seeding. Maybe 2nd or 3rd week in May.
- Brandenberg will be working on site and in the way of the permanent fence until around the first week in June. WBK should plan on holding off on the permanent fence installation until then.

Cost and Budget Control

- n/a

Next Meeting Scheduled: May 4 at 10:00 CST

Action Items -

- Cassie to grab another sample of topsoil to run TCLP test
- Anna to give Massman a heads up that we may need Pond A topo done around 2nd or 3rd week in May prior to seeding.
- Bob to check with Chris to see if we will do any more work on Pond A this week.

PHOTOGRAPH LOG

Photograph 1 ⮙ - View of topsoil grading on Ash Pond A, looking north.

Photograph 2 ⮙ - View of topsoil placement on Ash Pond A, looking southwest.

Photographs taken by Cassandra Baresel of Geotechnology, Inc. April 25-27, 2016.

Photograph 3 - View of topsoil delivery, looking east.

Photograph 4 - View of topsoil stockpile maintenance, looking east.

Photograph 5 - View of reclamation activities in the borrow field, looking northeast.

Photograph 6 - View of reclamation activities in the borrow field, looking southeast.

Photograph 7 - View of stormwater outfall construction on Ash Pond A, looking south.

MEMORANDUM

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DATE: May 10, 2016

SUBJECT: Weekly Summary Report for May 2, 2016 to May 7, 2016

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the site activities at the referenced site.

Weather

The weather was generally overcast on May 3-5 and clear on May 6-7. Work was not performed on May 4 due to rain. Morning temperatures ranged from 50 F to 58 F and afternoon temperatures ranged from 62 F to 65 F.

Construction Activities

The culvert cuts in the access road were repaved on May 3. Concrete was placed in the upstream end of the former Ash Pond B outfall pipe. The borrow field was graded May 6-7. Vegetative cover on Ash Pond A was graded May 3 and 5-7 and placed May 6-7. Various storm water drainage grading was performed each day. Work was not performed May 4 due to rain and wet conditions.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 1 excavator (Komatsu), 2 dump trucks (John Deere 400D), 2 bulldozers (Caterpillar D6N LGP with GPS), 1 backhoe (Caterpillar), 1 water truck (Caterpillar 623B) (unused), 3 Tractors (Case 435, Case STX480, Case 9370) with scraper boxes (Reynolds), and one broom.

WB Koester had 4-7 employees working on site: 1 mechanic, 0-1 laborer, and 3-5 equipment operators.

Geotechnology had one representative on site on May 3-7. Geotechnology did not have representatives on site on May 2 due to the wet conditions.

Meetings

The project coordination meeting was not held on May 4, 2016 only involved on-site personnel. Meeting minutes are attached.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Topsoil from the stockpile was placed on Ash Pond A.

Testing/Sampling

Testing and sampling were not performed during the subject time period.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/03/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jon Truesdale

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 0615 Depart: 1430 Travel: 0 Total: 8.25

AM Conditions: Partly Cloudy AM Temperature: 55 F

PM Conditions: Partly Cloudy PM Temperature: 65 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg; PSC

Equipment: **WB Koester:** 1 excavator, 3 tractors with pans/rollerblade, 1 back-hoe, 1 D5C, 1 water truck 1 sweeper, 2 – D6R bulldozers, 2 trucks, 1 CAT 623B,*See site activities for use

Personnel: **WB Koester:** 4 operators; 1 mechanic

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: None

Deliveries: None

Testing: None

CONSTRUCTION SITE LOCATIONS:

Southeast Corner of Ash Pond B (overflow pipe), North access road, east access road (drainage crossings).

Jon Truesdale 5/3/16
Geotechnology, Inc. Rep. Date

[signature] 5/3/2016
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/03/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

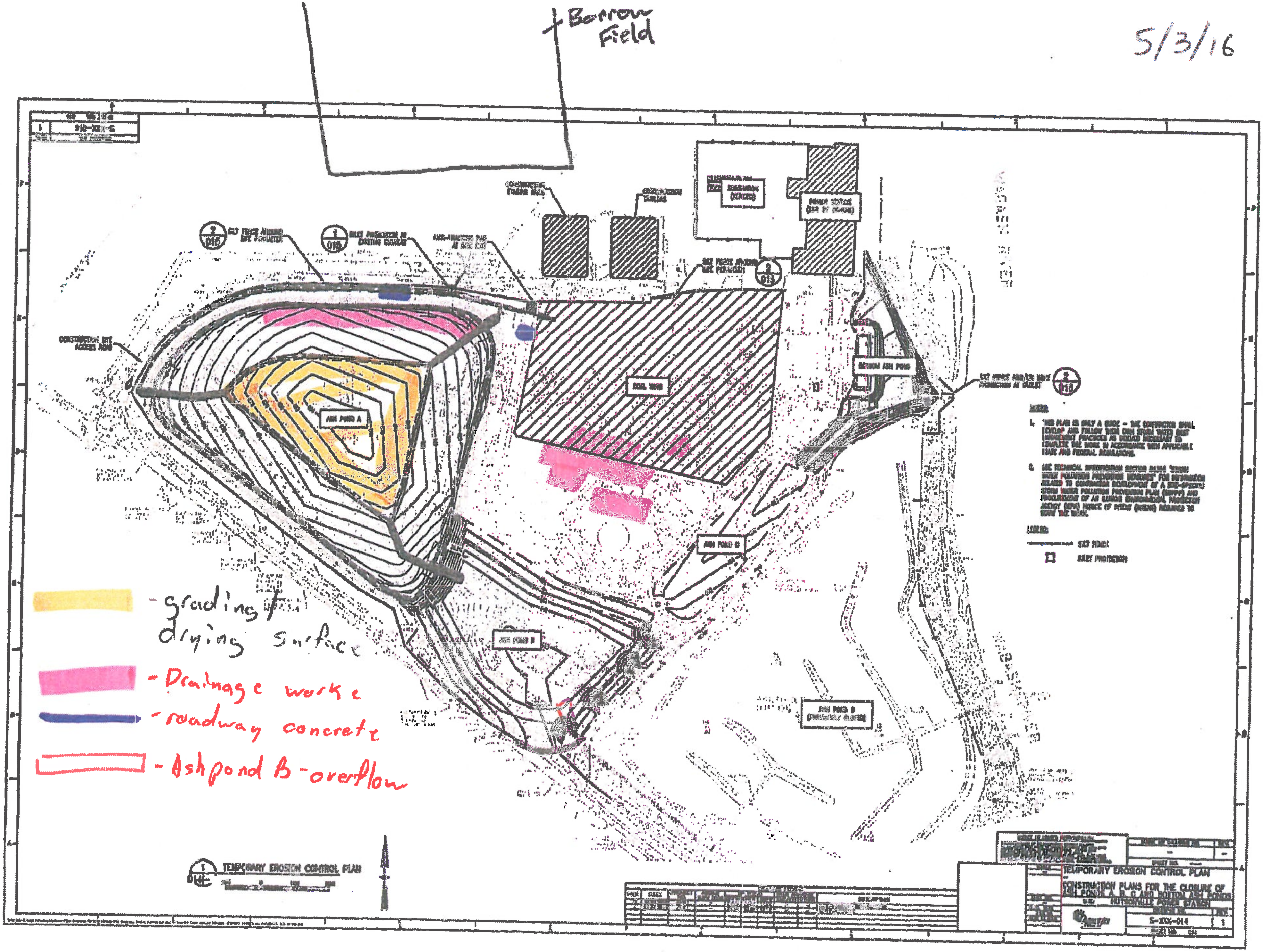
WB Koester:

2 D6R LGP bulldozers used to dry/shape surface of Ash Pond A in morning. 1 bulldozer used to grade southern area of the coal yard that was retaining surface water.

1 Komatsu Excavator used to move materials for overflow pipe closure in SE corner of Ash Pond B (1/2 day). Also prepared roadway drainage cut on northwest side of Ash Pond A (1/2 day). Material loaded onto John Deere truck and spread in gravel lot (same material).

1 CAT 416C Back-hoe used to move soils for overflow pipe closure in SE corner of Ash Pond B. Prepared roadway drainage crossing between north corner of Ash Pond A and coal yard, and southern half of access road culvert crossing for concrete. Concrete poured and finished in afternoon at both locations. Concrete placed in overflow pipe in Ash Pond B.

5/3/16



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GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/04/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jon Truesdale

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 0630 Depart: 1030 Travel: 0 Total: 4

AM Conditions: Rainy
AM Temperature: 50 F
PM Conditions:
PM Temperature:

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg;

Equipment: **WB Koester:** 1 excavator, 3 tractors with pans/rollerblade, 1 back-hoe, 1 D5C bulldozer, 1 sweeper, 2 – D6R bulldozers, 2 trucks, 1 CAT 623B. (rain day-none used)

Personnel: **WB Koester:** 5 operators; 1 mechanic, 1 laborer

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: None
Deliveries: None
Testing: None

CONSTRUCTION SITE LOCATIONS:

None – rain day

Geotechnology, Inc. Rep. Date 5/4/16
Geotechnology, Inc. Engineer Date 5/4/2016

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/04/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

No equipment used – rain day

Weekly progress meeting at 1000. (See attached meeting minutes.)

Weekly Progress Meeting

Meeting Minutes

Date: 5-4-16

Attendees:

Ameren: Don

WB Koester: None.

Geotechnology, Inc.: John

Topics:

Safety/Housekeeping

- N/A

Manpower

- Man hours
  - Start of Job (4-27-15) through 5-2-16
    - Total = 15,685 hrs.
- Next week expected manpower
  - WBK = 4 operators, 1 laborer, 1 superintendent (6 total)
    - May downsize slightly when topsoil is finished.
  - Plan on working 5-10 hr days.
  - May work Saturday, weather permitting

Review old minutes and action items

- n/a

Material Issues

- n/a

Quality Control Issues

- n/a

Schedule Compliance

- Due to river being up, Brandenberg pumping into Bottom ash pond until around May 9. After that WBK should be able to dewater and grade the Bottom Ash pond.
- Brandenberg will be working on site and in the way of the permanent fence until around the first week in June. WBK should plan on holding off on the permanent fence installation until then.

Cost and Budget Control

- n/a

Next Meeting Scheduled: May 11 at 10:00 CST

Action Items -

- n/a

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/05/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jon Truesdale

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 0615 Depart: 1530 Travel: 0 Total: 9.25

AM Conditions: Overcast AM Temperature: 55 F

PM Conditions: Overcast PM Temperature: 62 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg; PSC

Equipment: **WB Koester:** 1 excavator, 3 tractors with pans/rollerblade, 1 back-hoe, 1 D5C, 1 water truck 1 sweeper, 2 – D6R bulldozers, 2 trucks, 1 CAT 623B,*See site activities for use

Personnel: **WB Koester:** 3 operators; 1 mechanic

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: None

Deliveries: None

Testing: None

CONSTRUCTION SITE LOCATIONS:

Ash Pond A surface, drainage channels/slope of Ash pond A

Jon Truesdale
Geotechnology, Inc. Rep.

5/5/16
Date

Geotechnology, Inc. Engineer

5/5/2016
Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/05/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

1 D6R LGP bulldozers used to dry/shape surface of Ash Pond A.

1 Komatsu Excavator used shape drainage channels on north, east, and southwest sides of Ash Pond A.

1 John Deere truck used to haul excess materials from drainage shaping to "general use" stockpile, and to ramp to Ash Pond A.

1 CAT 416C Back-hoe used to place road plates and periodically scrape roadway clean.

5/5/16


Borrow Field
Surface grading/draining
Drainage Work
COAL YARD
ASH POND A
POWER STATION
TEMPORARY EROSION CONTROL PLAN
CONSTRUCTION PLANS FOR THE CLOSURE OF ASH PONDS A, B, C AND BOTTOM ASH PONDS
S-XXX-014

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/06/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jon Truesdale

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 0615 Depart: 1530 Travel: 0 Total: 9.25

AM Conditions: Clear
AM Temperature: 55 F

PM Conditions: Clear
PM Temperature: 65 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg

Equipment: **WB Koester:** 1 excavator, 3 tractors with pans/rollerblade, 1 back-hoe, 1 D5C, 1 water truck 1 sweeper, 2 – D6R bulldozers, 2 trucks, 1 CAT 623B,*See site activities for use

Personnel: **WB Koester:** 3 operators; 1 mechanic

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: None
Deliveries: None
Testing: None

CONSTRUCTION SITE LOCATIONS:

Ash Pond A surface, drainage channels/slope of Ash pond A, Borrow field.

Geotechnology, Inc. Rep. 5/6/16 Date

Geotechnology, Inc. Engineer 5/6/16 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/06/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

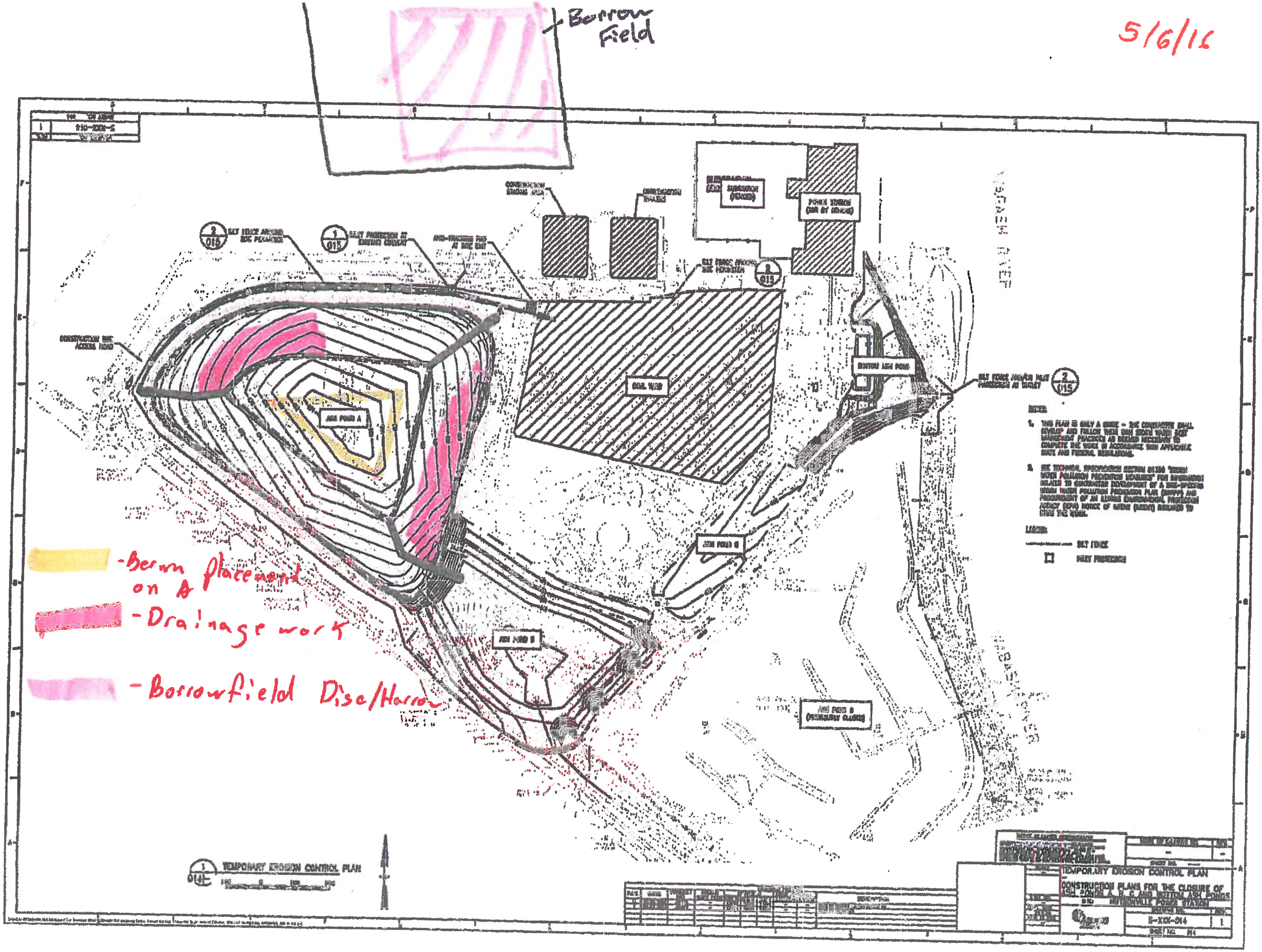
1 D6R LGP bulldozers used to shape berms on Ash Pond A.

1 D6R LGP bulldozers used to shape drainage slopes on Ash Pond A.

1 tractor with elevating pan placing topsoil for berm placement on Ash Pond A.

1 Tractor utilizing disc-harrow in borrow field to facilitate drying prior to shaping.

5/6/16



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GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/07/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jon Truesdale

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 0600   Depart: 1030   Travel: 3.5   Total: 8

AM Conditions: Clear   AM Temperature: 58 F
PM Conditions: Partly Cloudy   PM Temperature: 65 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg
Equipment: **WB Koester:** 1 excavator, 3 tractors with pans/rollerblade, 1 back-hoe, 1 D5C, 1 water truck 1 sweeper, 2 – D6R bulldozers, 2 trucks, 1 CAT 623B,*See site activities for use
Personnel: **WB Koester:** 3 operators; 1 mechanic
Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: None
Deliveries: None
Testing: None

CONSTRUCTION SITE LOCATIONS:

Ash Pond A surface, drainage channels/slope of Ash pond A, Borrow field.

Geotechnology, Inc. Rep.   5/7/16 Date

Geotechnology, Inc. Engineer   5/9/2016 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/07/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

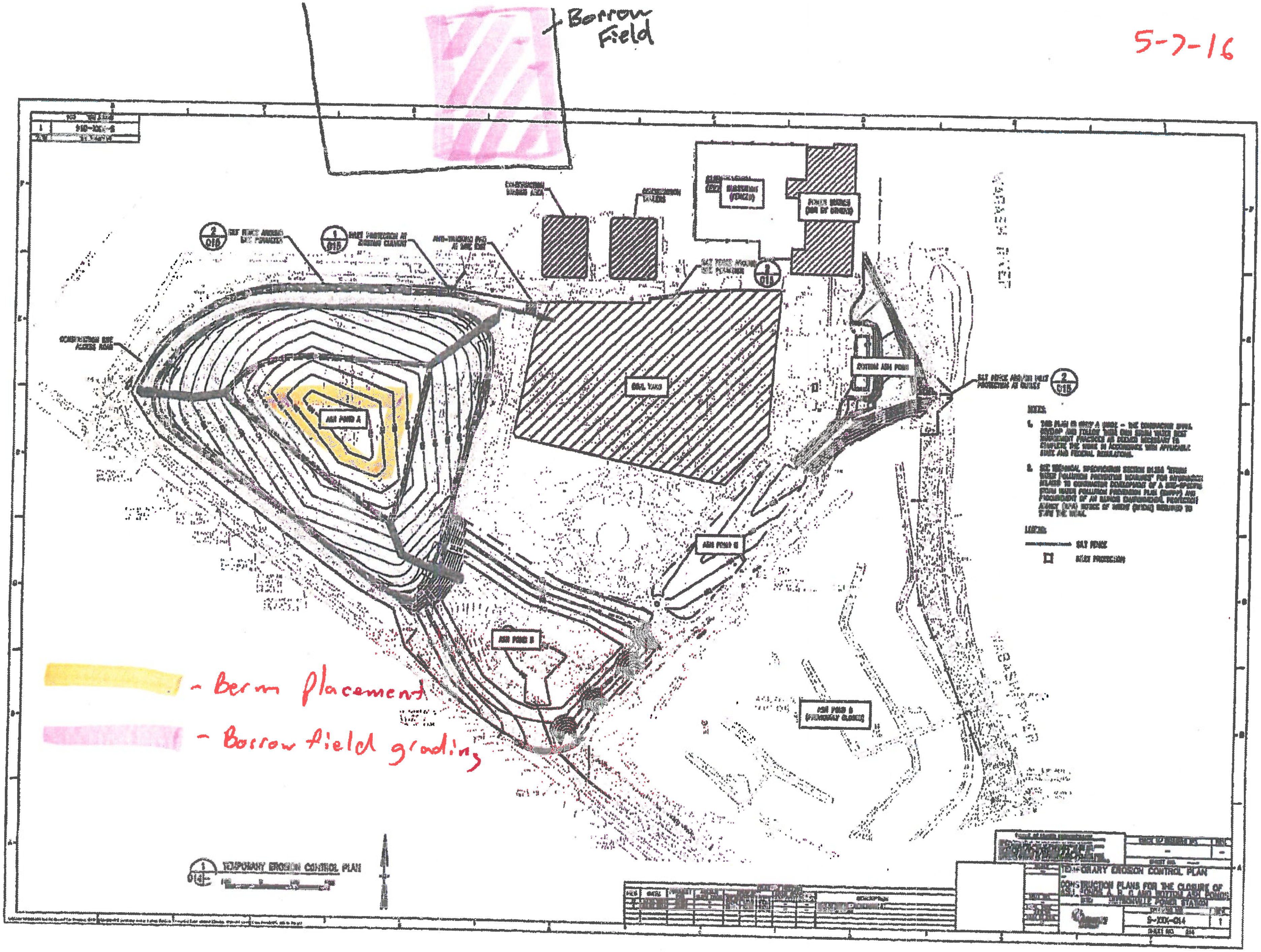
Ongoing demolition of buildings.

WB Koester:

1 D6R LGP bulldozer used to shape berms and drainage on Ash Pond A.

1 D6R LGP bulldozer grading borrow area.

5-7-16



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PHOTOGRAPH LOG

Photograph 1 ⮝ - View of the drainage channel on the north side of Ash Pond A, looking west.

Photograph 2 ⮝ - View of the coal yard, looking east.

Photograph 3 - View of Ash Pond B preparation for concrete plug.

Photograph 4 - View of grading/drying soils on the south side of Ash Pond A, looking southwest.

Photograph 5 ⮝ - View of grading/drying soils on the east slope of Ash Pond A, looking southwest.

Photograph 6 ⮝ - View of roadway surface, prepared for concrete replacement on the northeast side of Ash Pond A.

Photograph 7 ⮝ - View of coal yard grading, looking southeast.

Photograph 8 ⮝ - View of the roadway surface, prepared for concrete replacement on the north side of Ash Pond A, looking south.

Photograph 9 - View of finished concrete on the north side of Ash Pond A, looking southwest.

Photograph 10 - View of finished concrete on the northeast side of Ash Pond A, looking southwest.

Photograph 11 - View of drainage grading on the north side of Ash Pond A, looking south.

Photograph 12 - View of drainage grading on the southwest side of Ash Pond A, looking northeast.

Photograph 13 ⮝ - View of the north side of Ash Pond A, looking west.

Photograph 14 ⮝ - View of the east side of Ash Pond A, looking south.

Photograph 15 ⮝ - View of tractor with pan moving soil to Ash Pond A for berm placement, looking north.

Photograph 16 ⮝ - View of typical berm as placed on Ash Pond A surface, looking south.

Photograph 17 ⮙ - View of the borrow area grading, looking east.

MEMORANDUM

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DATE: June 1, 2016

SUBJECT: Weekly Summary Report for May 9, 2016 to May 20, 2016

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the activities at the referenced site.

Weather

The weather was overcast and raining on May 9 and rained out the week of May 9-13, 2016. The weather was generally cloudy from May 18-20, and began raining on May 20. Morning temperatures ranged from 45 F to 58 F and afternoon temperatures ranged from 60 F to 70 F.

Construction Activities

Vegetative cover on Ash Pond A was dried on May 18 and placed on May 19-20. Washouts on Ash Pond A, B, and C were regraded. Geotextile and rip-rap was widened at the east outfall structure of Ash Pond C. Precast concrete collars were placed around the piezometers on Ash Pond A and filled with gravel.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 1 excavator (Komatsu), 2 dump trucks (John Deere 400D), 2 bulldozers (Caterpillar D6N LGP with GPS), 1 backhoe (Caterpillar), 1 water truck (Caterpillar 623B) (unused), 3 Tractors (Case 435, Case STX480, Case 9370) with scraper boxes (Reynolds), and one broom.

WB Koester had 4-6 employees working on site: 1 mechanic and 3-5 equipment operators.

Geotechnology had one representative on site on May 9 and May 18-20. Geotechnology did not have representatives on site on May 10-13 or May 16-17 due to the wet conditions.

Meetings

The project coordination meeting was held on May 18, 2016. Meeting minutes are attached.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Topsoil from the stockpile was placed on Ash Pond A. Concrete rings and gravel were used around piezometers on Ash Pond A. Rip-rap was used along the stormwater down drains on Ash Pond A.

Testing/Sampling

Testing and sampling were not performed during the referenced time period.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/09/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Jessie Hahn

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 0600 Depart: 0700 Travel: 3.5 Total: 4.5

AM Conditions: Overcast, Raining AM Temperature: 58 F

PM Conditions: PM Temperature:

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg

Equipment: **WB Koester:** 1 excavator, 3 tractors with pans/rollerblade, 1 back-hoe, 1 D5C, 1 water truck 1 sweeper, 2 – D6R bulldozers, 2 trucks, 1 CAT 623B,*See site activities for use

Personnel: **WB Koester:** 3 operators; 1 mechanic

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: None

Deliveries: None

Testing: None

CONSTRUCTION SITE LOCATIONS:

None – Rain Day.

Geotechnology, Inc. Rep. 5/9/16 Date

Geotechnology, Inc. Engineer 5/10/16 Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/09/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings.

WB Koester:

None – Rain Day.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/18/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren
Representative: Elizabeth Rabbitt

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 0630 Depart: 1500 Travel: 0 Total: 8.5

AM Conditions: Cloudy AM Temperature: 53 F

PM Conditions: Partly cloudy PM Temperature: 65 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg;

Equipment: **WB Koester:** 1 excavator, 1 back-hoe, 1 D6R dozer, 1 dump truck

Personnel: **WB Koester:** 3 operators; 1 mechanic

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: 1 load rip rap from stockpile along main road by job trailers

Deliveries: None

Testing: None

CONSTRUCTION SITE LOCATIONS:

Used a dozer to track over previously placed fill material on Ash Pond A to help as a drying aid.
Re-graded washout gullies of Ash Ponds B and C. Worked on east Ash Pond C outfall.

Elizabeth Rabbitt 5/18/16
Geotechnology, Inc. Rep. Date

5/18/2016
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/18/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings. Using large magnet to remove metal from soil in demolished area near east edge of coal yard near north end of Ash Pond C.

WB Koester:

Dozer tracking contour fill on top of Ash Pond A to help dry the soil in preparation for top soil placement tomorrow. Not much sun, light winds, and cool conditions are making for a slow drying process. No membrane exposures found when arrived on site.

Dozer re-graded Ash Pond B and C slope washout gullies.

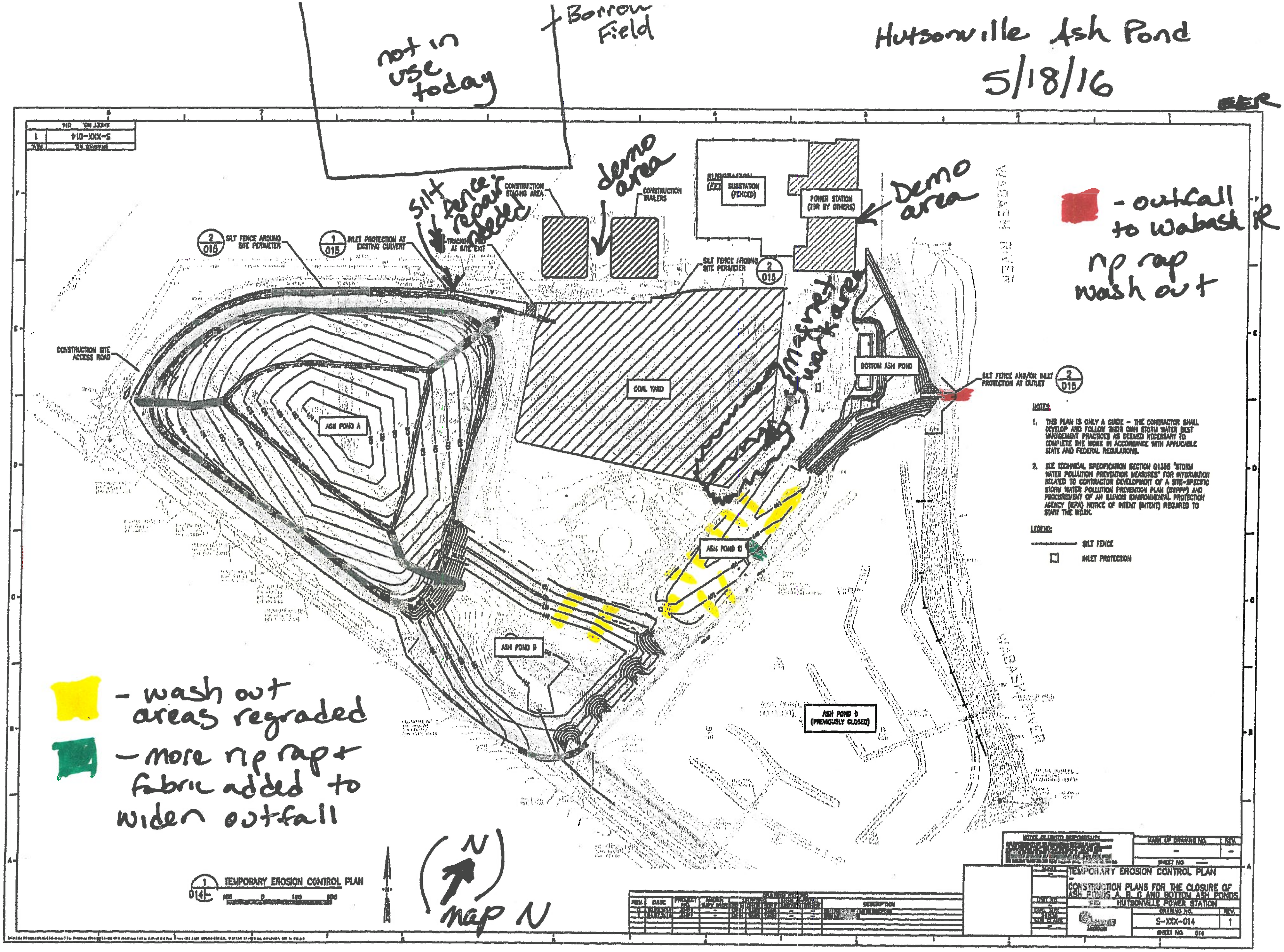
Widened geofabric and rip rap at east outfall structure of Ash Pond C.

Geotechnology:

Attended site safety talk with Don Shaver and 9am construction meeting.

Site photos taken walking counter clockwise around site from job trailer area. Included silt fences in need of repair and areas that have been repaired. Also, areas where rip rap has been placed in one down chute at N corner of Ash Pond A. The other two at W and SE corners have been excavated, but geofabric and rip rap have not been placed. Some washouts of slopes observed in Ash Ponds B and C. Also, observed washout of rip rap of outfall at the Wabash River east of the Bottom Ash Pond exposing geofabric.

Hutsonville Ash Pond
5/18/16



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Weekly Progress Meeting

Meeting Minutes

Date: 5-18-16

Attendees:

Ameren: Don, Mike

WB Koester: Chris

Geotechnology, Inc.: Anna, Elizabeth

Topics:

Safety/Housekeeping

- No accidents or near misses to report.

Manpower

- Man hours
  - Start of Job (4-27-15) through 5-17-16
    - Total = 15,967 hrs.
- Next week expected manpower
  - WBK = 3 operators, 1 mechanic, 1 superintendent (5 total)
    - May downsize slightly when topsoil is finished.
  - Plan on working 5-10 hr days.

Review old minutes and action items

- Chris repaired silt fence and silt buildup. Will be updating erosion inspection forms.

Material Issues

- n/a

Quality Control Issues

- n/a

Schedule Compliance

- Chris will put the manhole sections over each piezometer this week if dry enough.
- Chris will also try and finish placing the rip rap at the downchutes this week.
- Topsoil delivered and stockpiled on site. Will get on Pond A this week and try and dry it out enough to place topsoil
- Brandenberg done with major pumping into Bottom ash pond but may still need to pump collected groundwater and rain water. Discussing constructing a ditch to the outfall so they don't have to use as much hose/pipe and not adding more water to the Bottom ash pons.
- Brandenberg will be working on site and in the way of the permanent fence until around the last week in June. WBK should plan on holding off on the permanent fence installation until then.

Cost and Budget Control

- Bob submitted invoice to Mike.

Next Meeting Scheduled: May 25 at 9:00 CST

Action Items -

- Chris to update erosion inspection reports.

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/19/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Elizabeth Rabbitt

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 0600 Depart: 1700 Travel: 0 Total: 11.00

AM Conditions: Sunny AM Temperature: 45 F

PM Conditions: Sunny PM Temperature: 70 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg;

Equipment: **WB Koester:** 1 back-hoe, 2 D6R dozer, 2 tractors with pan, 1 tractor with disc, then blade
1 excavator

Personnel: **WB Koester:** 5 operators; 1 mechanic

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Contour material from stockpile

Deliveries: None

Testing: None

CONSTRUCTION SITE LOCATIONS:

Hauled contour material to Ash Pond A. Pumped water from Bottom Ash Pond.
Set precast concrete collars around piezometers on Ash Pond A.

Elizabeth Rabbitt 5/19/16
Geotechnology, Inc. Rep. Date

5/19/2016
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/19/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition of buildings. Using large magnet to remove metal from soil in demolished area near E edge of coal yard near north end of Ash Pond C.

WB Koester:

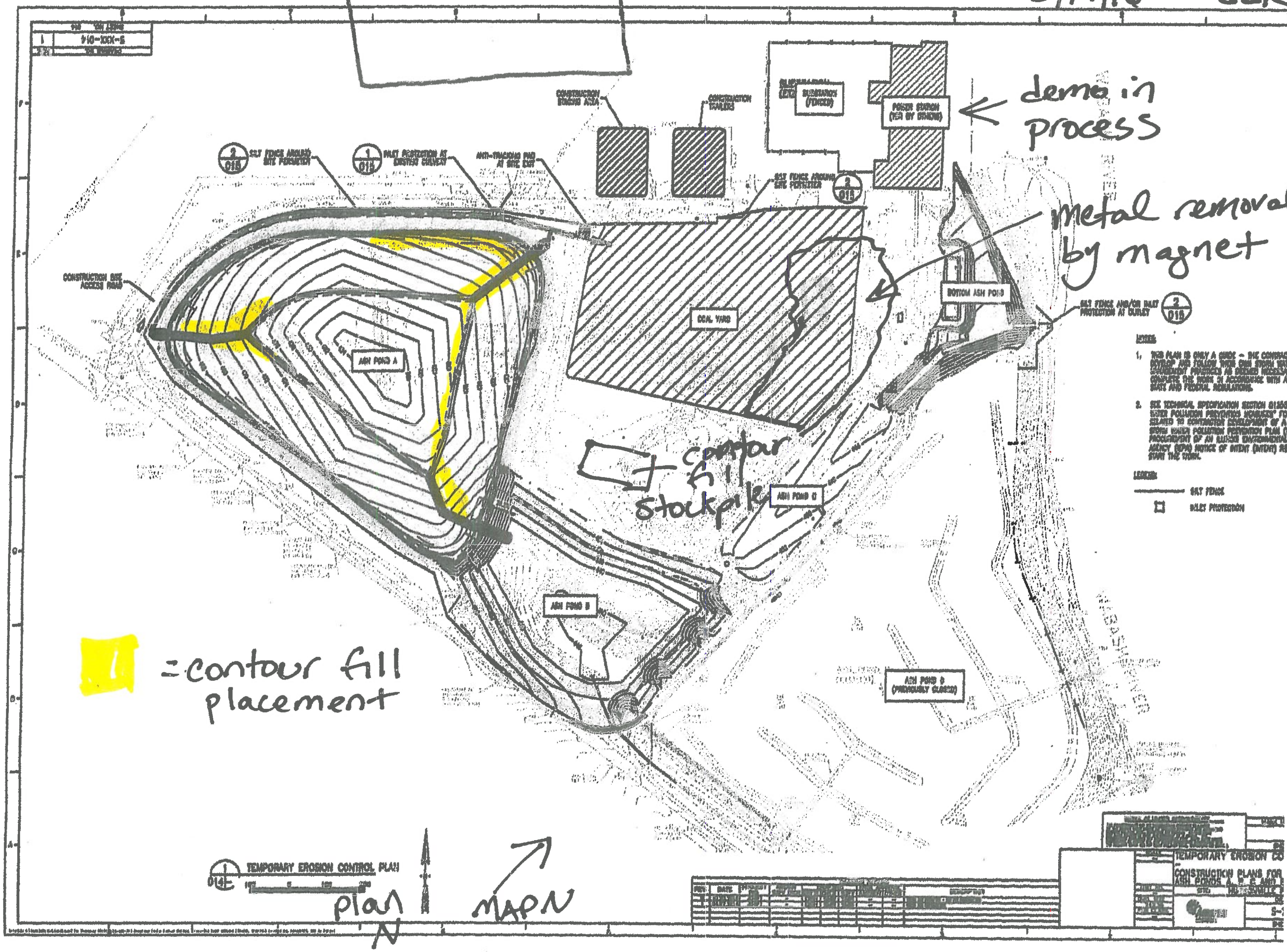
Hauling contour fill material to NE edge and drainage berms on top of Ash Pond A. Grading in with a dozer with onboard GPS for elevations (was told it is being graded .1" high). Disced the top for help with drying. Dressed up north borrow site. Pumping water to Wabash River outfall from Bottom Ash Pond.

Contour stockpile gone by 2:30 pm. Still need about 200 cyd to complete Ash Pond A to grade. Set concrete collars around piezometers with geofabric underneath.

Hutsonville Ash Pond

5/19/16 EER

Borrow Field



GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/20/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Representative: Elizabeth Rabbitt
Project Number: J019896.05
Project Client: Ameren

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 0600 Depart: 1500 Travel: 3.00 Total: 12.00

AM Conditions: Cloudy
AM Temperature: 50 F

PM Conditions: Light rain
PM Temperature: 60 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg;

Equipment: **WB Koester:** 2 D6R dozer, 1 tractor with pan, 1 excavator

Personnel: **WB Koester:** 4 operators; 1 mechanic

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: Topsoil hauled in from Marshall, ¾" clean rock

Deliveries: None

Testing: None

CONSTRUCTION SITE LOCATIONS:

Hauled topsoil material to Ash Pond A. Pumped water from Bottom Ash Pond.
¾ " clean rock placed inside concrete collars around piezometers.

Elizabeth Rabbitt 5/20/16
Geotechnology, Inc. Rep. Date

5/20/2016
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/20/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

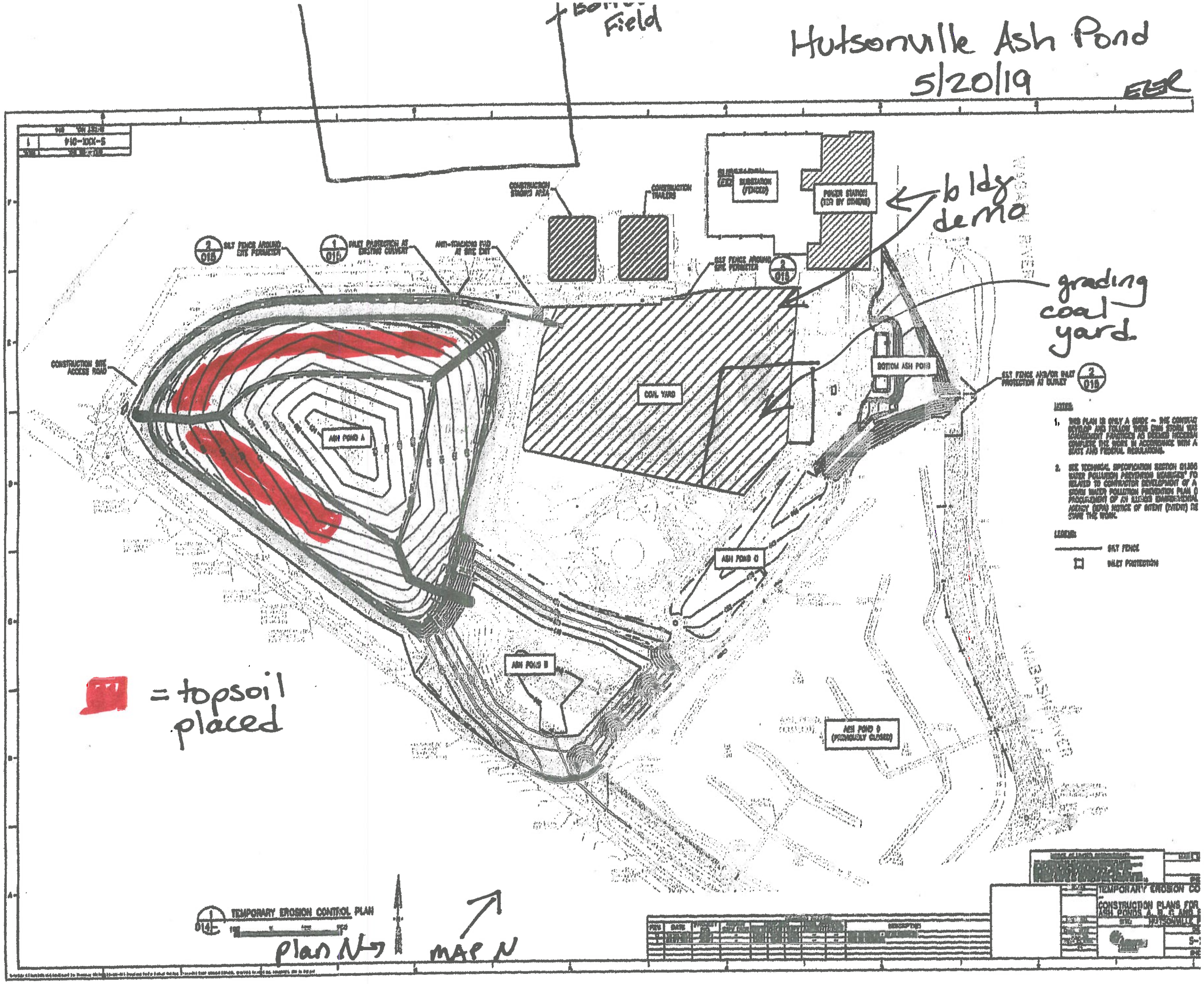
Brandenburg:

Ongoing demolition of buildings. Using large magnet to remove metal from soil in demolished area near east edge of coal yard near north end of Ash Pond C.

WB Koester:

Using dozer to grade out east end of coal yard. Hauling topsoil and grading berms on Ash Pond A. Straightened piezometers and placed one foot of ¾" clean rock inside of concrete collars. Shut down earlier than planned due to rain making for slick conditions.

Hutsonville Ash Pond
5/20/19



PHOTOGRAPH LOG

Photograph 1 ⮝ - View of drainage at the north corner of Ash Pond A, looking southwest.

Photograph 2 ⮝ - View of a silt fence around the culvert on the south side of the north access road, looking southeast.

Photograph 3 ⮝ - View of drainage at the southwest corner of Ash Pond A, looking east-northeast.

Photograph 4 ⮝ - View of Ash Pond B and erosion on the southwestern slope, looking north.

Photograph 5 ⮝ - View of Ash Pond B and erosion on the northern slope, looking north-northeast.

Photograph 6 ⮝ - View of Bottom Ash Pond, looking north.

Photograph 7 ⮝ - View of Bottom Ash Pond drainage, looking northeast.

Photograph 8 ⮝ - View of Ash Pond B, looking south.

Photograph 9 ⮝ - View of Ash Pond B, looking north-northwest.

Photograph 10 ⮝ - View of Ash Pond B, looking west.

Photograph 11 ⮝ - View of Ash Pond B after erosion repair, looking south.

Photograph 12 ⮝ - View of typical Ash Pond A vent well, prior to placement of protective barrier.

Photograph 13 ⮝ - View of typical Ash Pond A vent well during placement of protective barrier.

Photograph 14 - View of typical Ash Pond A vent well, following protective barrier placement.

Photograph 15 ⮝ - View of medial berm on the south side of Ash Pond A.

M E M O R A N D U M

TO: Mike Wagstaff, P.E.
Ameren Energy Resources

FROM: Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DATE: June 1, 2016

SUBJECT: Weekly Summary Report for May 23, 2016 to May 27, 2016

PROJECT: Hutsonville Ash Pond A Closure
Crawford County, Hutsonville, Illinois
Geotechnology Project No. J019896.05

The following is a weekly summary of the activities at the referenced site.

Weather

The weather was generally clear from May 23-25. Morning temperatures was approximately 65 F and afternoon temperatures ranged from 78 F to 80 F.

Construction Activities

Vegetative cover on Ash Pond A was placed and graded on May 23-25. Stormwater control structures were graded on Ash Pond A.

Equipment and Personnel On-Site

WB Koester had the following equipment on site: 1 excavator (Komatsu), 2 dump trucks (John Deere 400D), 2 bulldozers (Caterpillar D6N LGP with GPS), 1 backhoe (Caterpillar), 1 water truck (Caterpillar 623B) (unused), 3 Tractors (Case 435, Case STX480, Case 9370) with scraper boxes (Reynolds), and one broom.

WB Koester had 3-4 operators working on site.

Geotechnology had one representative on site on from May 23-25. Geotechnology did not have representatives on site on May 26-27 due to CQA not being required during that time.

Meetings

The project coordination meeting was held on May 25, 2016. Meeting minutes are attached.

Photographs

A photograph log with selected photographs obtained this week is attached.

Materials

Topsoil from the stockpile was placed on Ash Pond A.

Testing/Sampling

Testing and sampling were not performed during the referenced time period.

Signature of CQA Officer

Anna Saindon, P.E., Ph.D.
Geotechnology, Inc.

DAILY REPORTS

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/23/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jon Truesdale

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 0645 Depart: 1600 Travel: Total: 9.25

AM Conditions: Clear AM Temperature: 65 F

PM Conditions: Clear PM Temperature: 80 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg

Equipment: **WB Koester:** 1 excavator, 3 tractors with pans/rollerblade, 1 back-hoe, 1 D5C, 2 – D6R bulldozers, 2 trucks, 1 CAT 623B,*See site activities for use

Personnel: **WB Koester:** 3 operators

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: None

Deliveries: None

Testing: None

CONSTRUCTION SITE LOCATIONS:

Ash Pond A surface, drainage channels/slope of Ash pond A. Bottom Ash Pond.

Geotechnology, Inc. Rep. — Date: 5/23/2016

Geotechnology, Inc. Engineer — Date: 5/24/2016

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/23/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition.

WB Koester:

1 D6R LGP bulldozers used to shape berms and drainage on Ash Pond A.

1 tractor with pan placing additional topsoil on as needed basis on Ash Pond A.

1 excavator assisting in Bottom Ash Pond to facilitate drainage.

5/23/2016


Field
ASH POND A
COAL YARD
BOTTOM ASH POND
ASH POND B
ASH POND C
- Shaping drainage
- Topsoil Placement
- Bottom Ash Drainage
TEMPORARY EROSION CONTROL PLAN

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/24/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jon Truesdale

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 0545 Depart: 1600 Travel: Total: 10.25

AM Conditions: Clear
AM Temperature: 65 F

PM Conditions: Clear, windy
PM Temperature: 78 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg

Equipment: **WB Koester:** 1 excavator, 3 tractors with pans/rollerblade, 1 back-hoe, 1 D5C, 2 – D6R bulldozers, 2 trucks, 1 CAT 623B,*See site activities for use

Personnel: **WB Koester:** 3 operators

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: None

Deliveries: None

Testing: None

CONSTRUCTION SITE LOCATIONS:

Ash Pond A surface, drainage channels/slope of Ash pond A.

Geotechnology, Inc. Rep. — Date: 5/24/2016

Geotechnology, Inc. Engineer — Date: 5/24/16

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/24/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition.

WB Koester:

1 D6R LGP bulldozers used to shape berms (north and southwest corners) and drainage (southwest corner) on Ash Pond A.

2 tractors with pan placing additional topsoil (only six loads) on as needed basis on Ash Pond A.

1 excavator shaping surface drainage at Ash pond A corners and placement of rip-rap at southwest corner of Ash Pond A.

2 trucks for hailing rip-rap for drainage placement at Southwest corner of Ash Pond A..

5/24/2016


Field
ASH POND A
COAL YARD
BOTTOM ASH POND
ASH POND B
ASH POND C
ASH POND D (PREVIOUSLY CLOSED)
- Shaping Drainage
- Topsoil Placement
- Rip-rap
TEMPORARY EROSION CONTROL PLAN
LEGEND
SILT FENCE
INLET PROTECTION

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/25/2016

GENERAL INFORMATION:

Project Name: Hutsonville Ash Pond Closures
Project Number: J019896.05
Project Client: Ameren

Representative: Jon Truesdale

TIME AND WEATHER CONDITIONS:

(-) Lunch

Arrive: 0545 Depart: 1800 Travel: 3.75 Total: 16

AM Conditions: Clear AM Temperature: 65 F

PM Conditions: Clear, windy PM Temperature: 78 F

CONTRACTORS, EQUIPMENT, AND PERSONNEL:

Contractors: Brandenberg

Equipment: **WB Koester:** 1 excavator, 3 tractors with pans/rollerblade, 1 back-hoe, 1 D5C, 2 – D6R bulldozers, 2 trucks, 1 CAT 623B,*See site activities for use

Personnel: **WB Koester:** 4 operators

Visitors:

MATERIALS USED, DELIVERIES, AND TESTING:

Materials Used: None

Deliveries: None

Testing: None

CONSTRUCTION SITE LOCATIONS:

Ash Pond A surface, drainage channels/slope of Ash pond A.

[signature] 5/25/2016
Geotechnology, Inc. Rep. Date

[signature] 5-25-2016
Geotechnology, Inc. Engineer Date

GEOTECHNOLOGY INC
FROM THE GROUND UP

DAILY REPORT

DATE: 05/25/2016

SITE ACTIVITIES, OBSERVATIONS, CONTACTS, AND ADDITIONAL NOTES:

Brandenburg:

Ongoing demolition.

WB Koester:

1 D6R LGP bulldozer used to shape drainage and additional placed topsoil on Ash Pond A.

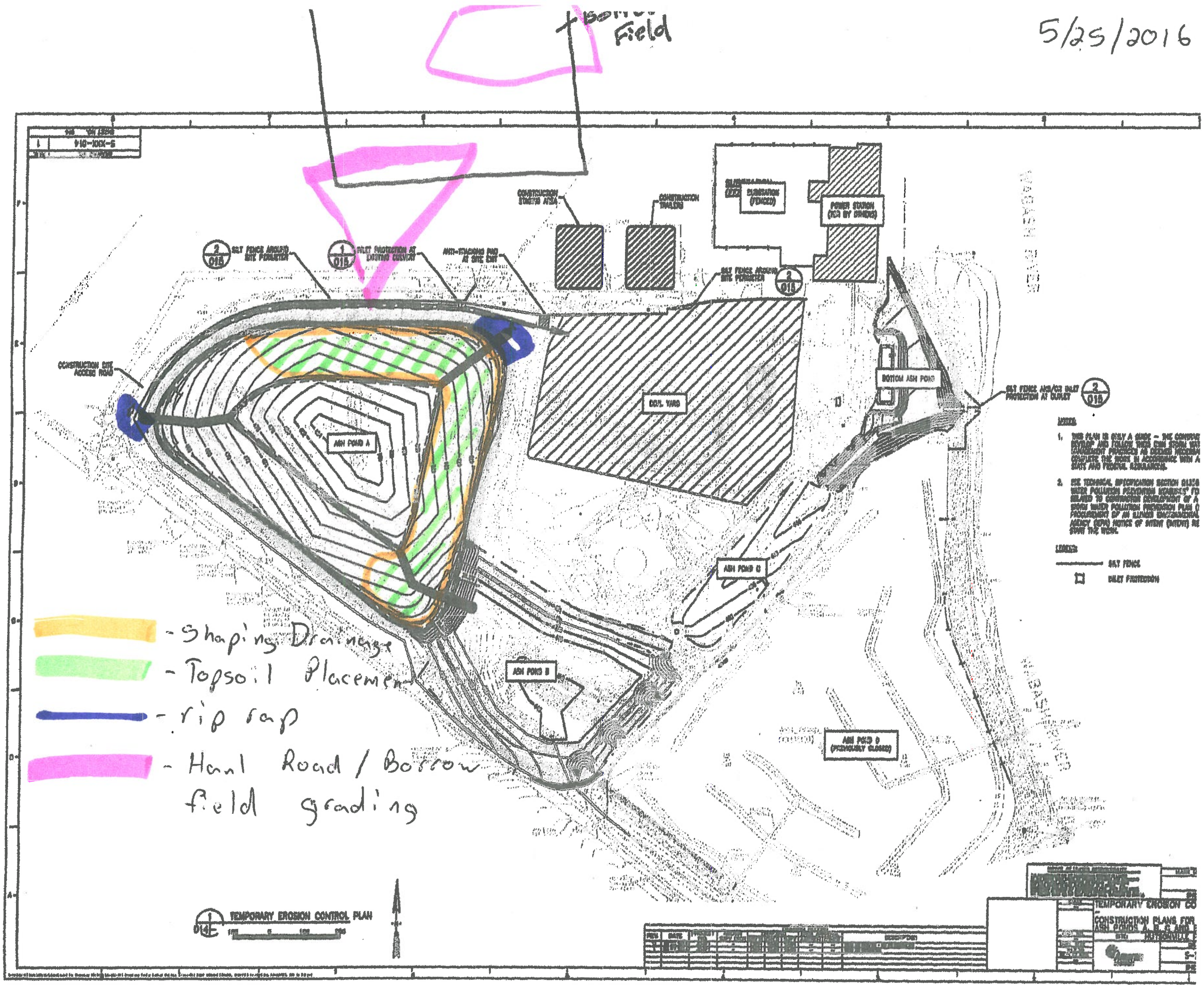
1 D6R LGP bulldozer used to grade borrow area, haul road, and northern portion of coal yard.

2 tractors with pans placing additional topsoil on Ash Pond A.

1 excavator shaping surface drainage at Ash pond A corners and placement of rip-rap at corners of Ash Pond A.

2 trucks for hauling rip-rap for drainage placement at southwest corner of Ash Pond A.

5/25/2016


Borrow Field
SILT FENCE AROUND SITE PERIMETER
SILT PROTECTION AT EXISTING CULVERT
CONSTRUCTION STAGING AREA
CONSTRUCTION TRAILERS
CONSTRUCTION SITE ACCESS ROAD
ASH POND A
COAL YARD
BOTTOM ASH POND
ASH POND B
ASH POND C
SILT FENCE
INLET PROTECTION
- Shaping Drainage
- Topsoil Placement
- rip rap
- Haul Road / Borrow field grading
TEMPORARY EROSION CONTROL PLAN
TEMPORARY EROSION CO
CONSTRUCTION PLANS FOR ASH PONDS A, B, C AND

Weekly Progress Meeting

Meeting Minutes

Date: 5-25-16

Attendees:

Ameren: Don, Mike

WB Koester: Chris, Bob

Geotechnology, Inc.: Anna, John

Topics:

Safety/Housekeeping

- No accidents or near misses to report.

Manpower

- Man hours
  - Start of Job (4-27-15) through 5-24-16
    - Total = 16,219 hrs.
- Next week expected manpower
  - WBK = 3 operators, 1 superintendent (4 total)
  - Plan on working 5-10 hr days.
  - Monday May 30th is holiday. No work.

Review old minutes and action items

- Chris working on catching the erosion inspection forms back up.
- Anna says Massman on schedule to topo Pond A May 31st.

Material Issues

- n/a

Quality Control Issues

- n/a

Schedule Compliance

- Piezometers completed.
- Rip rap at the downchutes, outfall at river should be completed this week
- Topsoil delivery and placement on Pond A should be done this week in preparation for Massman surveying on Tuesday.
- Massman to survey the liner portion of Pond A as well as the down chutes and the lower berms to the toe.
- Roll off box will be on site today and Chris will proceed with the general clean up of the work site areas.
- Brandenberg done with major pumping into Bottom ash pond. WB Koester pumped pond down but the 3-4' of silt is very soft. Chris will the end berm down to grade and see if the silt will dewater. Mike and Anna say that the silt will need to be compacted to around 80-85% and then seeded. May take a while for sun and wind to dry material out enough to reach compaction needed.
- Brandenberg will be working on site and in the way of the permanent fence until around the last week in June. WBK should plan on holding off on the permanent fence installation until then.
- Don has been updating As built drawings.
- Another contractor will be on site next Tuesday to begin well abandonment.

Cost and Budget Control

- n/a

Next Meeting Scheduled: June 1 at 9:00 CST

Action Items -

- Chris to finish updating erosion inspection reports.

PHOTOGRAPH LOG

Photograph 1 ⮝ - View of rip-rap and geofabric placement at southwest corner of Ash Pond A, looking east-northeast.

Photograph 2 ⮝ - View of placed rip-rap and geofabric at the southwest corner of Ash Pond A, looking east.

Photographs taken by Jon Truesdale of Geotechnology, Inc. May 23-25, 2016.

Photograph 3 ⮝ - View of rip-rap and geofabric placement at the northern corner of Ash Pond A, looking west.

Photograph 4 ⮝ - View of surface grading of eastern portion of coal yard, looking east.

Photograph 5 - View of excavator assisting with drainage work in Bottom Ash Pond, looking north.

Photograph 6 - View shaping of surface drainage in the southwestern portion of Ash Pond A, looking southwest.

Photograph 7 ⮙ - View placement of additional topsoil on the southern portion of Ash Pond A, looking southeast.

<u>APPENDIX B</u>

CQA CERTIFICATIONS

CQA CERTIFICATION
(Form CQAP-2.1)

The CQA certification as provided herein is based on a review of available inspection, testing and sampling results for the subject Work and is for the sole purpose of noting compliance of these results with established design parameters and taking no exceptions to initiation of new sequential Work. CQA certification by the Owner's Representative does not relieve the Contractor of its obligations to furnish all Work in accordance with the Contract.

1. LOCATION AND DESCRIPTION OF THE SUBJECT WORK:

Base Grade of Ash Pond A (prior to placement of geomembrane).

2. CONTRACTOR COMPLETING THE SUBJECT WORK:

WB Koester

3. NEW SEQUENTIAL WORK TO BEGIN:

Placement of Geomembrane.

By CQA Officer-in-Absentia: (if applicable) ________ (Signature) **Date:** 10/30/2015

By CQA Officer: ________ (Signature) **Date:** 10/30/2015

Distribution: Original To: Document Controller Copies To: ________

CQA CERTIFICATION
(Form CQAP-2.1)

The CQA certification as provided herein is based on a review of available inspection, testing and sampling results for the subject Work and is for the sole purpose of noting compliance of these results with established design parameters and taking no exceptions to initiation of new sequential Work. CQA certification by the Owner's Representative does not relieve the Contractor of its obligations to furnish all Work in accordance with the Contract.

1. LOCATION AND DESCRIPTION OF THE SUBJECT WORK:

40 mil HDPE Geomembrane installed in anchor trenches on Ash Pond A.

2. CONTRACTOR COMPLETING THE SUBJECT WORK:

National Lining Systems

3. NEW SEQUENTIAL WORK TO BEGIN:

Backfilling of anchor trenches

By CQA Officer-in-Absentia: (if applicable) ______ (Signature) **Date:** 11/4/2015

By CQA Officer: ______ (Signature) **Date:** 11/4/2015

Distribution: Original To: Document Controller Copies To: ______

CQA CERTIFICATION
(Form CQAP-2.1)

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1. LOCATION AND DESCRIPTION OF THE SUBJECT WORK:

40mil HDPE Geomembrane (prior to placement of protective cover) on Ash Pond A

2. CONTRACTOR COMPLETING THE SUBJECT WORK:

National Lining Systems

3. NEW SEQUENTIAL WORK TO BEGIN:

Placement of Protective Cover

By CQA Officer-in-Absentia: (if applicable) Jessie Hahn (Signature) **Date:** 11/13/2015

By CQA Officer: [signature] (Signature) **Date:** 11/13/2015

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CQA CERTIFICATION
(Form CQAP-2.1)

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1. LOCATION AND DESCRIPTION OF THE SUBJECT WORK:

Placement of Protective Cover on Ash Pond A.

2. CONTRACTOR COMPLETING THE SUBJECT WORK:

W.B. Koester

3. NEW SEQUENTIAL WORK TO BEGIN:

Surface Water Control Features

By CQA Officer-in-Absentia: (if applicable) ______________________ (Signature) **Date:** ______________________

By CQA Officer: [signature] (Signature) **Date:** 6/6/2016

Distribution: Original To: Document Controller Copies To: ______________________

CQA CERTIFICATION
(Form CQAP-2.1)

The CQA certification as provided herein is based on a review of available inspection, testing and sampling results for the subject Work and is for the sole purpose of noting compliance of these results with established design parameters and taking no exceptions to initiation of new sequential Work. CQA certification by the Owner's Representative does not relieve the Contractor of its obligations to furnish all Work in accordance with the Contract.

1. LOCATION AND DESCRIPTION OF THE SUBJECT WORK:

Construction of Surface Water Control Features on Ash Pond A

2. CONTRACTOR COMPLETING THE SUBJECT WORK:

W. B. Koester

3. NEW SEQUENTIAL WORK TO BEGIN:

Vegetation

By CQA Officer-in-Absentia: (if applicable) ______________ (Signature) Date: ______________

By CQA Officer: [signature] (Signature) Date: 6/6/2016

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CQA CERTIFICATION
(Form CQAP-2.1)

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1. LOCATION AND DESCRIPTION OF THE SUBJECT WORK:

Base Grade of the Ash Pond D slope
(prior to placement of geomembrane).

2. CONTRACTOR COMPLETING THE SUBJECT WORK:

WB Koester

3. NEW SEQUENTIAL WORK TO BEGIN:

Placement of Geomembrane.

By CQA Officer-in-Absentia: (if applicable) [signature] (Signature) **Date:** 11/4/2015

By CQA Officer: [signature] (Signature) **Date:** 11/4/2015

Distribution: Original To: Document Controller Copies To: ____

CQA CERTIFICATION
(Form CQAP-2.1)

The CQA certification as provided herein is based on a review of available inspection, testing and sampling results for the subject Work and is for the sole purpose of noting compliance of these results with established design parameters and taking no exceptions to initiation of new sequential Work. CQA certification by the Owner's Representative does not relieve the Contractor of its obligations to furnish all Work in accordance with the Contract.

1. LOCATION AND DESCRIPTION OF THE SUBJECT WORK:

40 mil HDPE Geomembrane on the Ash Pond D slope (prior to placement of protective cover)

2. CONTRACTOR COMPLETING THE SUBJECT WORK:

National Lining Systems

3. NEW SEQUENTIAL WORK TO BEGIN:

Placement of Protective Cover

By CQA Officer-in-Absentia: (if applicable) ____________ (Signature) **Date:** 11/9/2015

By CQA Officer: ____________ (Signature) **Date:** 11/9/2015

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CQA CERTIFICATION
(Form CQAP-2.1)

The CQA certification as provided herein is based on a review of available inspection, testing and sampling results for the subject Work and is for the sole purpose of noting compliance of these results with established design parameters and taking no exceptions to initiation of new sequential Work. CQA certification by the Owner's Representative does not relieve the Contractor of its obligations to furnish all Work in accordance with the Contract.

1. LOCATION AND DESCRIPTION OF THE SUBJECT WORK:

40 mil HDPE Geomembrane installed in anchor trenches on Ash Pond D slope.

2. CONTRACTOR COMPLETING THE SUBJECT WORK:

National Lining Systems

3. NEW SEQUENTIAL WORK TO BEGIN:

Backfilling of anchor trenches

By CQA Officer-in-Absentia: (if applicable) ________________ (Signature) **Date:** 11/9/2015

By CQA Officer: ________________ (Signature) **Date:** 11/9/2015

Distribution: Original To: Document Controller Copies To: ________________

CQA CERTIFICATION
(Form CQAP-2.1)

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1. LOCATION AND DESCRIPTION OF THE SUBJECT WORK:

Placement of Protective Cover on the Ash Pond D slope

2. CONTRACTOR COMPLETING THE SUBJECT WORK:

WB Koester

3. NEW SEQUENTIAL WORK TO BEGIN:

By CQA Officer-in-Absentia: ______ (Signature) **Date:** 11/23/2015
(if applicable)

By CQA Officer: ______ (Signature) **Date:** 11/23/2015

Distribution: Original To: Document Controller Copies To: ______

APPENDIX C

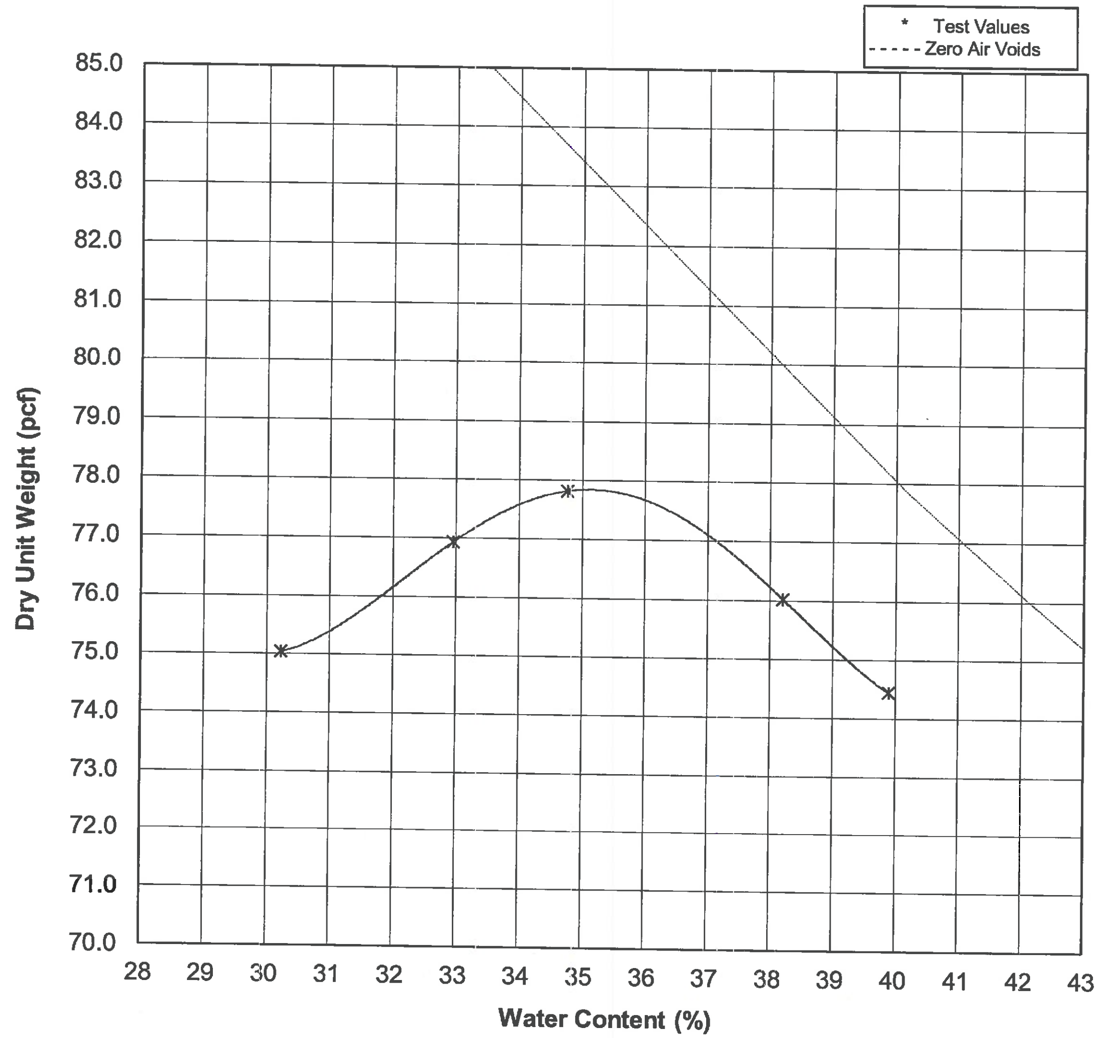
MATERIALS TESTING

11816 Lackland Road, Suite 150
St. Louis, MO 63146
Ph: 314-997-7740
Fax: 314-997-2067

GEOTECHNOLOGY INC
FROM THE GROUND UP

Project: Hutsonville Ash Pond ABC CQA
Client: Ameren Missouri
Sample Source: Pond A (South)
Supplier: N/A

LABORATORY COMPACTION TEST



Test Information	
Project No.:	J019896.05
Test Date:	09/03/15
Proctor No.:	ASH-1
Test Method:	ASTM D 698 Method A
Rammer Type:	Mechanical
Prep. Method:	Dry

Sample Description
Fly Ash

Sample Properties	
Moisture Content	–
Liquid Limit	–
Plastic Limit	–
Plasticity Index	–
Specific Gravity:	2.500 Actual
Classification	–

Test Results:	
Maximum Dry Unit Weight (pcf):	77.8
Optimum Water Content (%):	35.1
Oversize Correction Values:	
Maximum Dry Unit Weight (pcf):	–
Optimum Water Content (%):	–

Tested By: ZRB
Date: 09/03/15

Input By: ZRB
Date: 09/04/15

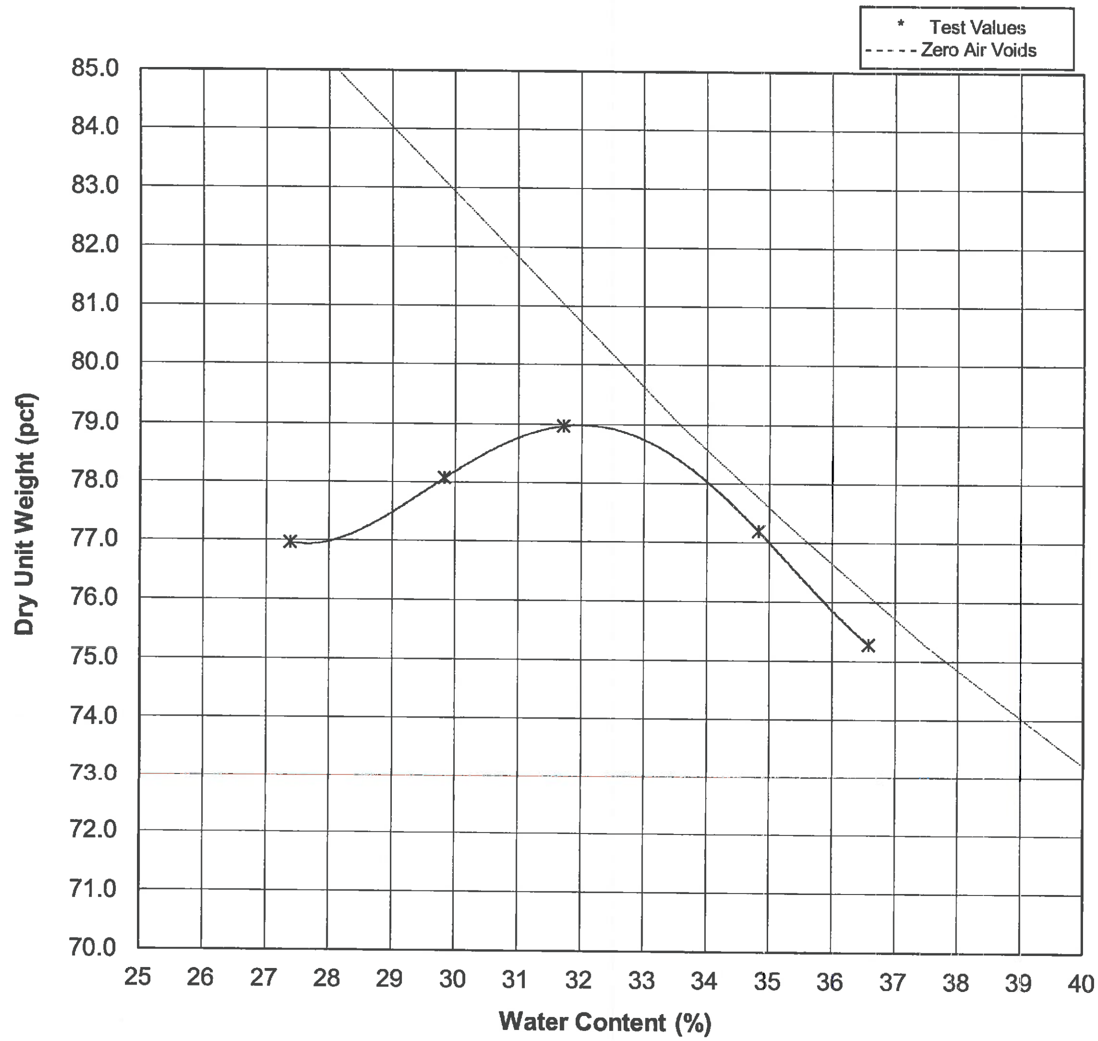
Checked By: DTC
Date: 09/03/15

11816 Lackland Road, Suite 150
St. Louis, MO 63146
Ph: 314-997-7740
Fax: 314-997-2067

GEOTECHNOLOGY INC
FROM THE GROUND UP

Project: Hutsonville Ash Pond ABC CQA
Client: Ameren Missouri
Sample Source: Pond A (West)
Supplier: N/A

LABORATORY COMPACTION TEST



Test Information	
Project No.:	J019896.05
Test Date:	09/03/15
Proctor No.:	ASH-2
Test Method:	ASTM D 698 Method A
Rammer Type:	Mechanical
Prep. Method:	Dry

Sample Description
Fly Ash

Sample Properties	
Moisture Content	–
Liquid Limit	–
Plastic Limit	–
Plasticity Index	–
Specific Gravity:	2.200 Actual
Classification	–

Test Results:	
Maximum Dry Unit Weight (pcf):	79.0
Optimum Water Content (%):	32.0
Oversize Correction Values:	
Maximum Dry Unit Weight (pcf):	–
Optimum Water Content (%):	–

Tested By: ZRB
Date: 09/03/15

Input By: ZRB
Date: 09/04/15

Checked By: DTC
Date: 09/04/15

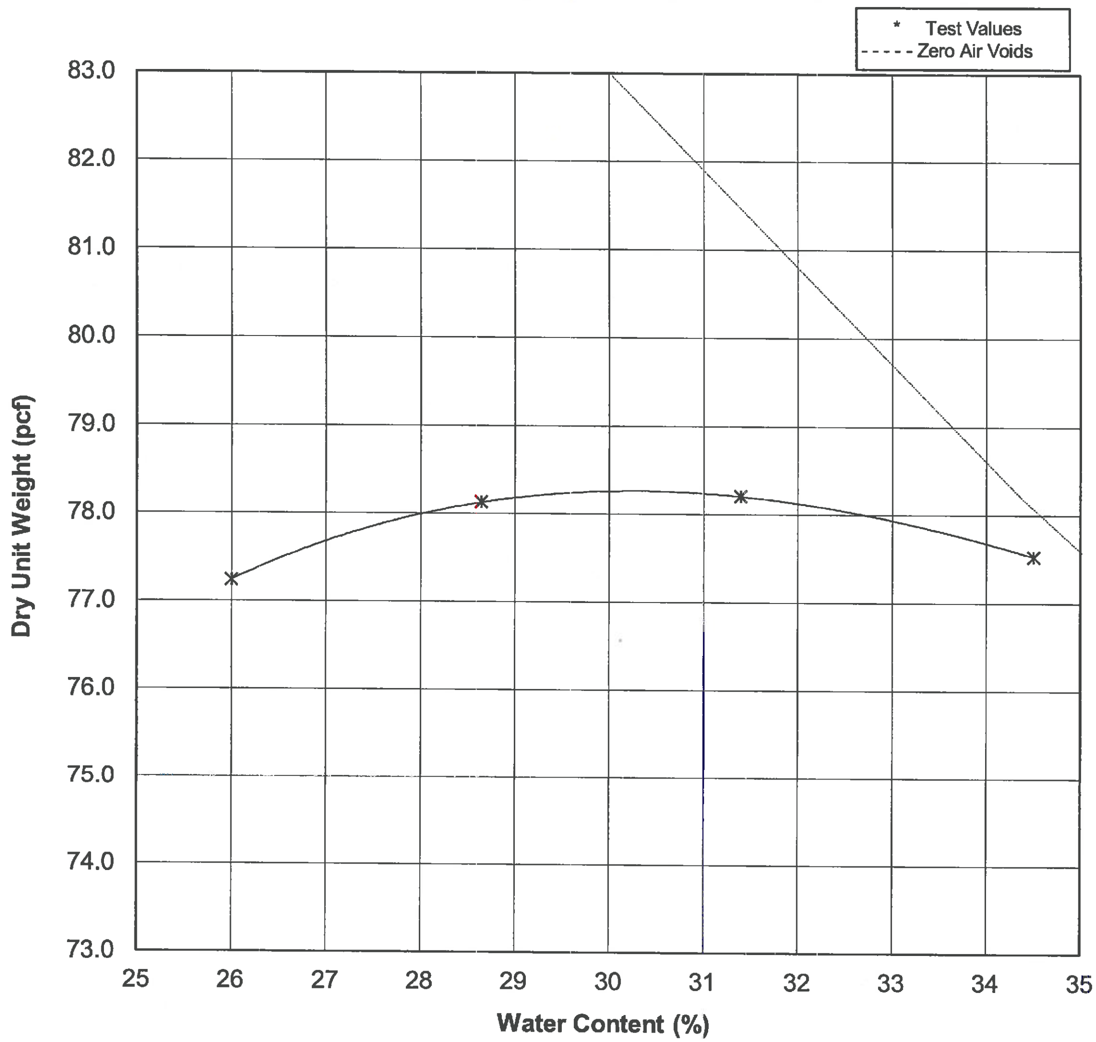
P401 (04/17/12)

11816 Lackland Road, Suite 150
St. Louis, MO 63146
Ph: 314-997-7740
Fax: 314-997-2067

GEOTECHNOLOGY INC
FROM THE GROUND UP

Project: Hutsonville Ash Pond ABC CQA
Client: Ameren Missouri
Sample Source: Pond A (Northeast Corner)
Supplier: N/A

LABORATORY COMPACTION TEST



Test Information	
Project No.:	J019896.05
Test Date:	09/11/15
Proctor No.:	ASH-3
Test Method:	ASTM D 698 Method A
Rammer Type:	Mechanical
Prep. Method:	Dry

Sample Description
Fly Ash

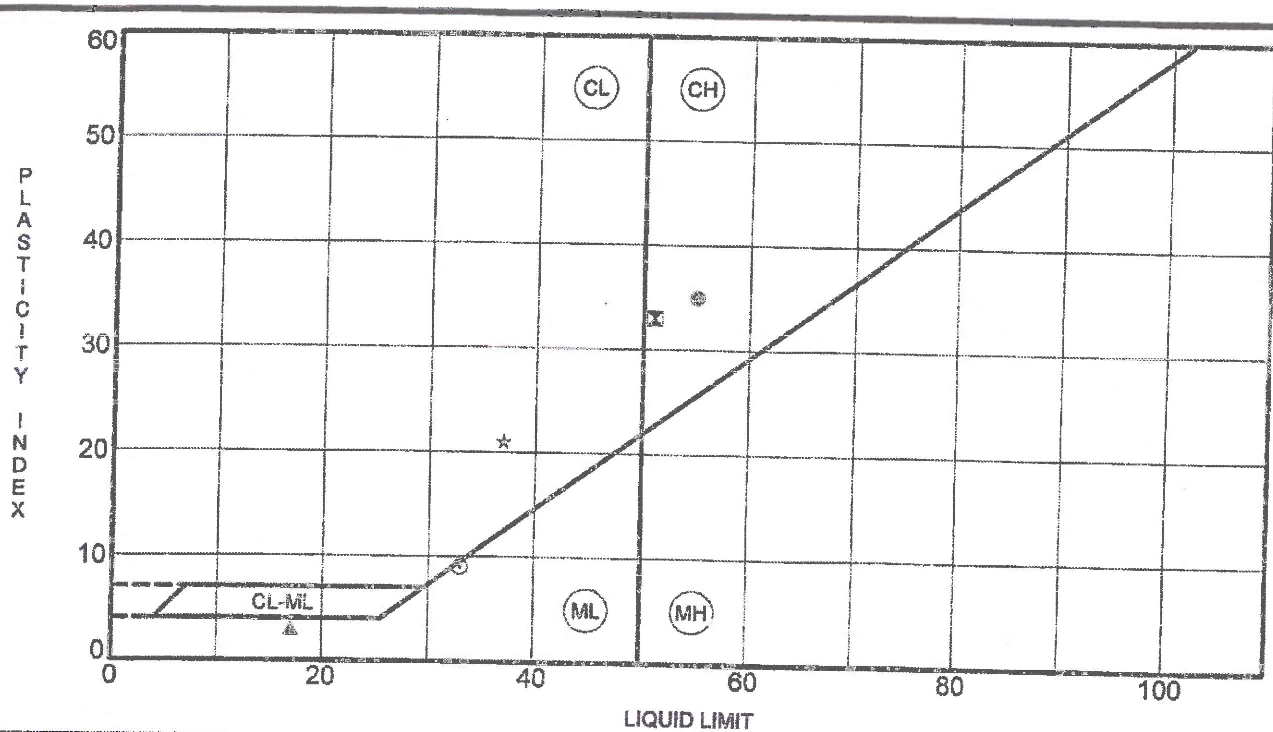
Sample Properties	
Moisture Content	–
Liquid Limit	–
Plastic Limit	–
Plasticity Index	–
Specific Gravity:	2.200 Actual
Classification	–

Test Results:	
Maximum Dry Unit Weight (pcf):	78.3
Optimum Water Content (%):	30.5
Oversize Correction Values:	
Maximum Dry Unit Weight (pcf):	–
Optimum Water Content (%):	–

Tested By: ZRB
Date: 09/11/15

Input By: ZRB
Date: 09/14/15

Checked By: DTC
Date: 09/14/15



	Sample Identification	LL	PL	PI	Fines	Sample Description
●	BAPL2	55	20	35	81	FAT CLAY with SAND(CH)
⊠	BF-4	51	18	33	34	CLAYEY SAND(SC)
▲	BF-6	17	14	3	20	SILTY SAND(SM)
★	BF-9	37	16	21	45	CLAYEY SAND(SC)
⊙	QLTS1	33	24	9	81	SILT with SAND(ML)

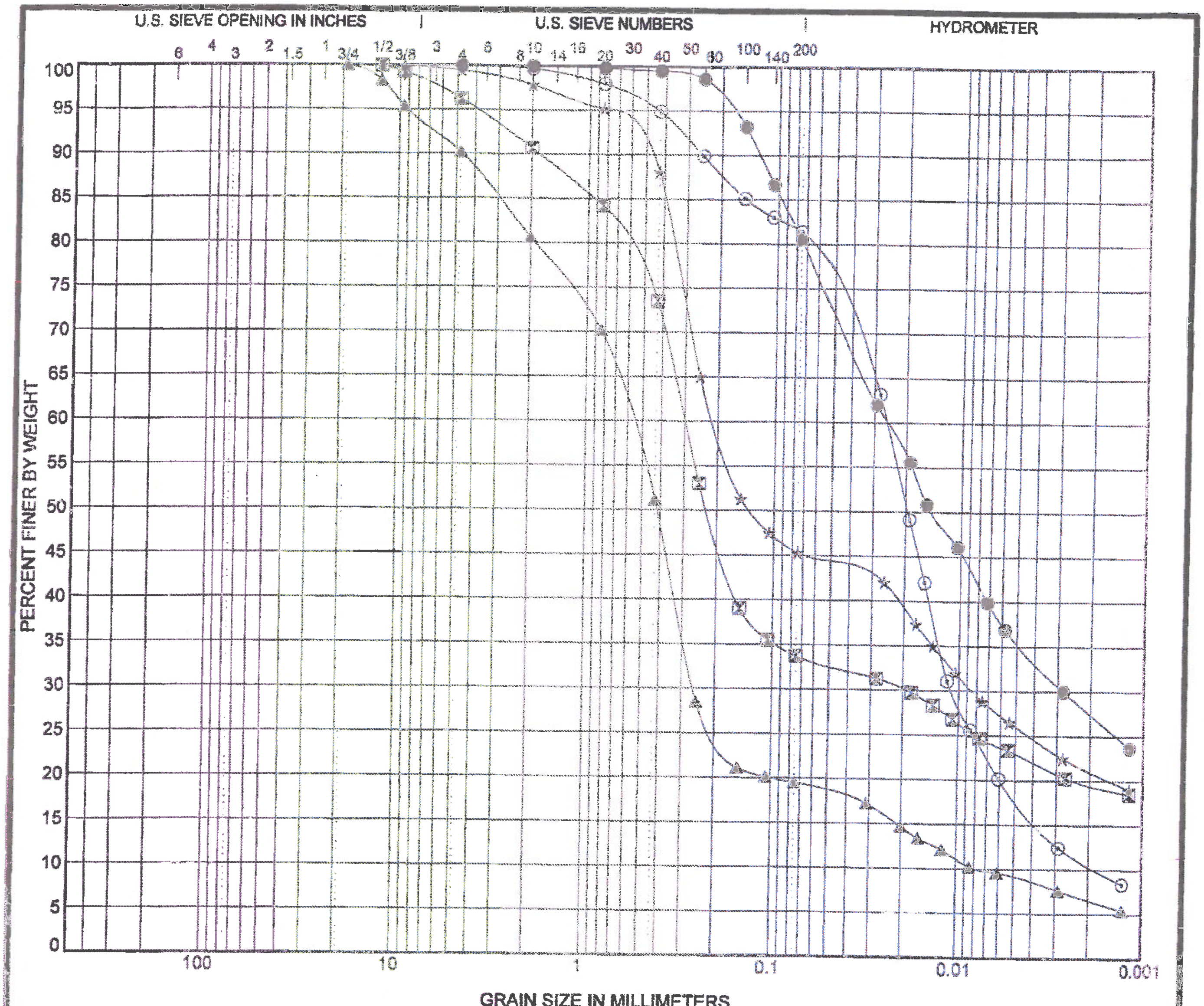
US_ATTERBERG_LIMITS J019896.05 - HUTSONVILLE.GPJ 00 CLONE ME.GPJ 12/8/15

GEOTECHNOLOGY INC
FROM THE GROUND UP

ATTERBERG LIMITS RESULTS

Hutsonville

J019896.05



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Sample Identification	Sample Description	LL	PL	PI	Cc	Cu
●	BAPL2	FAT CLAY with SAND(CH)	55	20	35		
⊠	BF-4	CLAYEY SAND(SC)	51	18	33		
▲	BF-6	SILTY SAND(SM)	17	14	3	15.17	77.08
★	BF-9	CLAYEY SAND(SC)	37	16	21		
⊙	QLTS1	SILT with SAND(ML)	33	24	9	2.57	14.34

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	BAPL2	4.75	0.03	0		0.0	19.5	45.0	35.5
⊠	BF-4	12.5	0.3	0.02		3.8	62.5	10.8	22.9
▲	BF-6	19	0.58	0.26	0.01	9.8	70.7	10.4	9.1
★	BF-9	9.5	0.21	0.01		0.6	54.1	19.3	26.0
⊙	QLTS1	4.75	0.03	0.01	0	0.0	18.6	63.3	18.1

GEOTECHNOLOGY INC
FROM THE GROUND UP

GRAIN SIZE DISTRIBUTION

Hutsonville
J019896.05

US_GRAIN_SIZE J019896.05 - HUTSONVILLE.GPJ 00 CLONE ME.GPJ 12/6/15

pH TESTS (ASTM D 4972 or AASHTO T-289)

GEOTECHNOLOGY INC
FROM THE GROUND UP

DATE	PROJECT NAME	PROJECT NO.
December 3, 2015	Hutsonville	J019896.05

General Test Information:
pH Meter: Accumet 13-620-109 or ______
Distilled Water: required pH=5.5 to 7.5 Measured value: 7.12
Soil/Water Ratio: 1:1

Boring No.	Sample No.	Depth (ft)	Visual Identification (Color, Group Name & Symbol)	Soil : Water Ratio (g/g) or (g/mL)	pH of Solution (Meter/ Paper)[1]	Tare No. Air Drying	Jar Number	Type
BAPL2				1:01	7.88	14	103	x Water / Calcium
QLTS1				1:01	7.01	24	K	x Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium

[1] pH by Meter is Method A; pH by Paper is Method B

Tested By: EG
Date: 12/03/15

Calculated By: AB
Date: 12/08/15

Checked By: EG
Date: 12/08/15

pH TESTS (ASTM D 4972 or AASHTO T-289)

GEOTECHNOLOGY INC
FROM THE GROUND UP

DATE	PROJECT NAME	PROJECT NO.
November 24, 2015	Hutsonville	J019896.05

General Test Information:
pH Meter: Accumet 13-620-109 or ______
Distilled Water: required pH=5.5 to 7.5 Measured value: 6.75
Soil/Water Ratio: 1:1

Boring No.	Sample No.	Depth (ft)	Visual Identification (Color, Group Name & Symbol)	Soil : Water Ratio (g/g) or (g/mL)	pH of Solution (Meter/ Paper)[1]	Tare No. Air Drying	Jar Number	Type
BF-4				01:01	7.04	15	106	x Water / Calcium
BF-6				01:01	5.92	25	99	x Water / Calcium
BF-9				01:01	6.59	16	2A	x Water / Calcium
					----------			Water / Calcium
					----------			Water / Calcium
					----------			Water / Calcium
					----------			Water / Calcium
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					----------			Water / Calcium
					----------			Water / Calcium
					----------			Water / Calcium
					----------			Water / Calcium
					----------			Water / Calcium

[1] pH by Meter is Method A; pH by Paper is Method B

Tested By: EG
Date: 11/24/15

Calculated By: AB
Date: 11/25/15

Checked By: AB
Date: 11/25/15

pH TESTS (ASTM D 4972 or AASHTO T-289)

GEOTECHNOLOGY INC
FROM THE GROUND UP

DATE November 24, 2015	PROJECT NAME Hutsonville	PROJECT NO. J019896.05

General Test Information: pH Meter: Accumet 13-620-109 or ______
Distilled Water: required pH=5.5 to 7.5 Measured value: 6.75
Soil/Water Ratio: 1:1

Boring No.	Sample No.	Depth (ft)	Visual Identification (Color, Group Name & Symbol)	Soil : Water Ratio (g/g) or (g/mL)	pH of Solution (Meter/ Paper)[1]	Tare No. Air Drying	Jar Number	Type
Borrow Field 1				01:01	5.83	18	102	x Water / Calcium
					----------			Water / Calcium
					----------			Water / Calcium
					----------			Water / Calcium
					----------			Water / Calcium
					----------			Water / Calcium
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					----------			Water / Calcium
					----------			Water / Calcium
					----------			Water / Calcium
					----------			Water / Calcium
					----------			Water / Calcium
					----------			Water / Calcium

[1]pH by Meter is Method A; pH by Paper is Method B

Tested By: EG
Date: 11/24/15

Calculated By: AB
Date: 11/25/15

Checked By: AB
Date: 11/25/15

pH TESTS (ASTM D 4972 or AASHTO T-289)

GEOTECHNOLOGY INC
FROM THE GROUND UP

DATE	PROJECT NAME Hutsonville	PROJECT NO. J019896.05

General Test Information: pH Meter: Accumet 13-620-109 or ____
Distilled Water: required pH=5.5 to 7.5 Measured value: 6.48
Soil/Water Ratio: 1:1

Boring No.	Sample No.	Depth (ft)	Visual Identification (Color, Group Name & Symbol)	Soil : Water Ratio (g/g) or (g/mL)	pH of Solution (Meter/ Paper)[1]	Tare No. Air Drying	Jar Number	Type
Quality Lime Co. 1				01:01	7.90	15	G	[x] Water [ ] Calcium
					----------			[ ] Water [ ] Calcium
					----------			[ ] Water [ ] Calcium
					----------			[ ] Water [ ] Calcium
					----------			[ ] Water [ ] Calcium
					----------			[ ] Water [ ] Calcium
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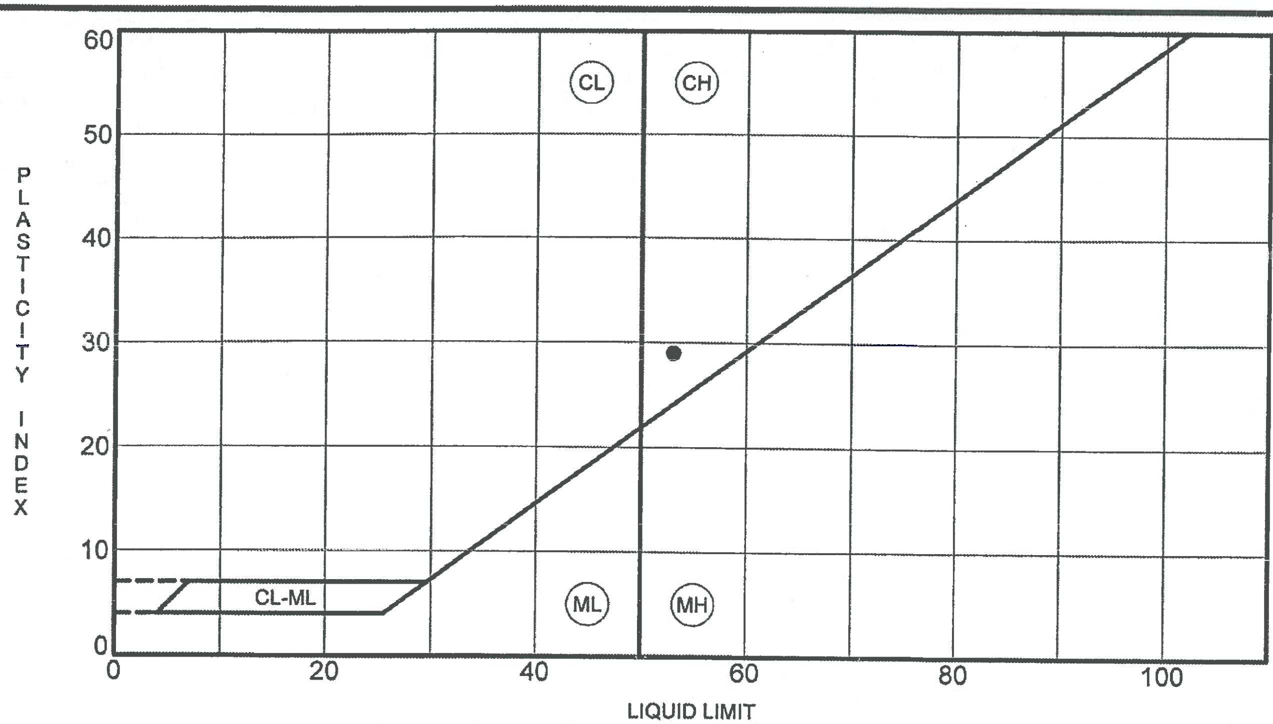
					----------			[ ] Water [ ] Calcium
					----------			[ ] Water [ ] Calcium
					----------			[ ] Water [ ] Calcium
					----------			[ ] Water [ ] Calcium

[1] pH by Meter is Method A; pH by Paper is Method B

Tested By: EG
Date: 09/15/15

Calculated By: AB
Date: 09/23/15

Checked By: AB
Date: 09/23/15



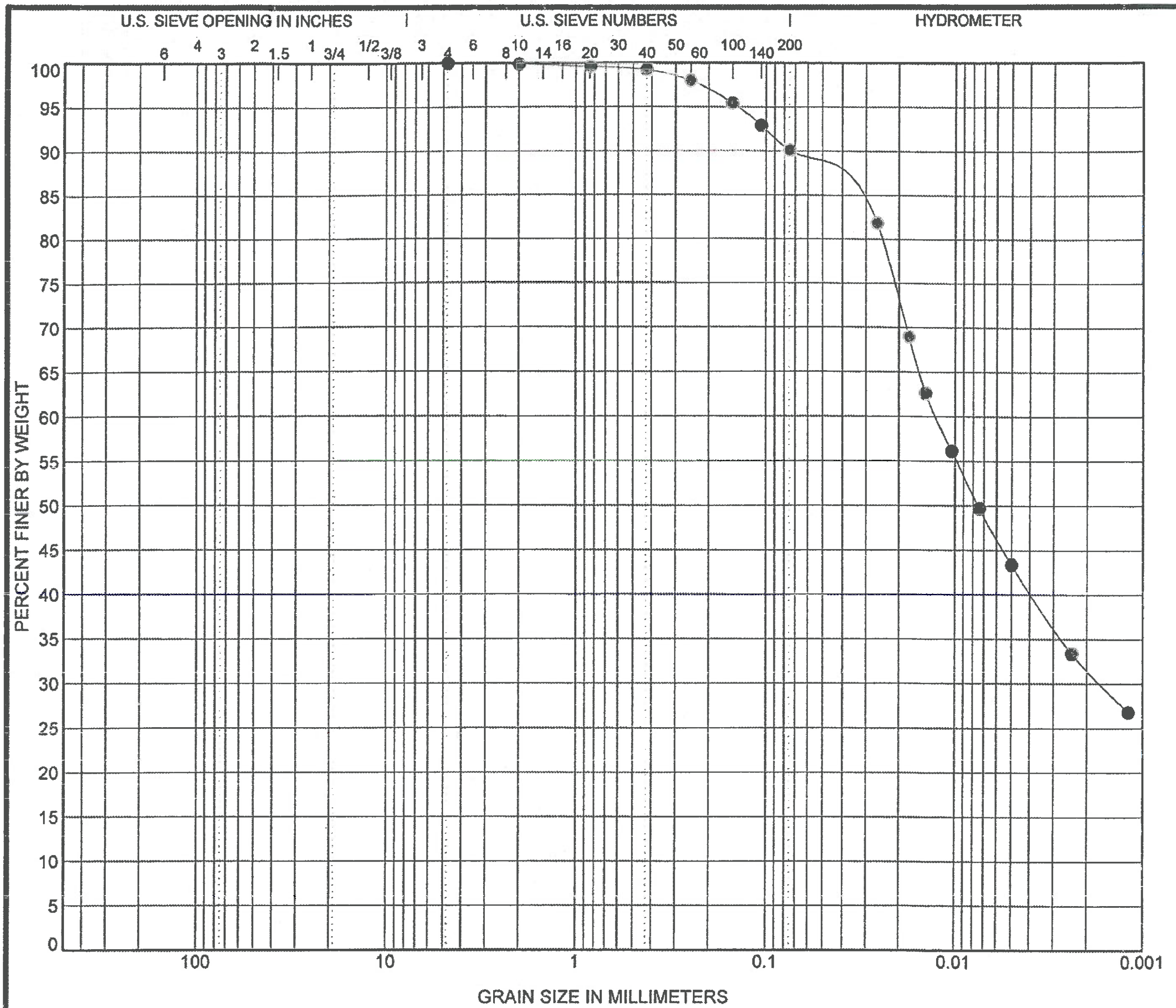
	Sample Identification	LL	PL	PI	Fines	Sample Description
●	**Bottom Ash Pond Levee**	**53**	**24**	**29**	**90**	**FAT CLAY(CH)**

GEOTECHNOLOGY INC
FROM THE GROUND UP

ATTERBERG LIMITS RESULTS

Hutsonville

J019896.05



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Sample Identification	Sample Description	LL	PL	PI	Cc	Cu
● Bottom Ash Pond Levee	**FAT CLAY(CH)**	**53**	**24**	**29**		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● Bottom Ash Pond Levee	**4.75**	**0.01**	**0**		**0.0**	**9.9**	**46.7**	**43.4**

US_GRAIN_SIZE J019896.05 - HUTSONVILLE.GPJ 00 CLONE ME.GPJ 11/18/15

GEOTECHNOLOGY INC
FROM THE GROUND UP

GRAIN SIZE DISTRIBUTION

Hutsonville

J019896.05

pH TESTS (ASTM D 4972 or AASHTO T-289)

GEOTECHNOLOGY INC
FROM THE GROUND UP

DATE	PROJECT NAME	PROJECT NO.
November 18, 2015	Hutsonville	J019896.05

General Test Information: pH Meter: Accumet 13-620-109 or ______
Distilled Water: required pH=5.5 to 7.5 Measured value: 6.01
Soil/Water Ratio: 1:1

Boring No.	Sample No.	Depth (ft)	Visual Identification (Color, Group Name & Symbol)	Soil : Water Ratio (g/g) or (g/mL)	pH of Solution (Meter/ Paper)[1]	Tare No. Air Drying	Jar Number	Type
Bottom Ash Pond Levee				1:01	7.79	8	2B	x Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium
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					------------			Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium
					------------			Water / Calcium

[1] pH by Meter is Method A; pH by Paper is Method B

Tested By: AB
Date: 11/18/15

Calculated By: AB
Date: 11/18/15

Checked By: AB
Date: 11/18/15

July 27, 2015

Vince Epps
Geotechnology, Inc.
11816 Lackland Road
St. Louis, MO 63146
TEL: (314) 997-7440
FAX: (314) 997-2067

RE: Hutsonville Bottom Ash **WorkOrder:** 15071241

Dear Vince Epps:

TEKLAB, INC received 1 sample on 7/22/2015 3:06:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Shelly A Hennessy

Shelly A. Hennessy
Project Manager
(618)344-1004 ex 36
SHennessy@teklabinc.com

Report Contents

http://www.teklabinc.com/

Client: Geotechnology, Inc.
Client Project: Hutsonville Bottom Ash

Work Order: 15071241
Report Date: 27-Jul-15

This reporting package includes the following:

Client: Geotechnology, Inc. **Work Order:** 15071241

Client Project: Hutsonville Bottom Ash **Report Date:** 27-Jul-15

Abbr Definition

Abbr	Definition
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# -	Unknown hydrocarbon	B -	Analyte detected in associated Method Blank
E -	Value above quantitation range	H -	Holding times exceeded
I -	Associated internal standard was outside method criteria	J -	Analyte detected below quantitation limits
M -	Manual Integration used to determine area response	ND -	Not Detected at the Reporting Limit
R -	RPD outside accepted recovery limits	S -	Spike Recovery outside recovery limits
T -	TIC(Tentatively identified compound)	X -	Value exceeds Maximum Contaminant Level

Case Narrative

http://www.teklabinc.com/

Client: Geotechnology, Inc. **Work Order:** 15071241

Client Project: Hutsonville Bottom Ash **Report Date:** 27-Jul-15

Cooler Receipt Temp: 31.02 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	3920 Pintail Dr Springfield, IL 62711-9415	8421 Nieman Road Lenexa, KS 66214	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2016	Collinsville
Kansas	KDHE	E-10374	NELAP	9/30/2015	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2016	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2016	Collinsville
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2015	Collinsville
Arkansas	ADEQ	88-0966		3/14/2016	Collinsville
Illinois	IDPH	17584		5/31/2015	Collinsville
Kentucky	KDEP	98006		12/31/2015	Collinsville
Kentucky	UST	0073		1/31/2016	Collinsville
Missouri	MDNR	00930		5/31/2015	Collinsville
Oklahoma	ODEQ	9978		8/31/2015	Collinsville

Laboratory Results

Client: Geotechnology, Inc. **Work Order:** 15071241
Client Project: Hutsonville Bottom Ash **Report Date:** 27-Jul-15
Lab ID: 15071241-001 **Client Sample ID:** Bottom Ash Comp.
Matrix: SOLID **Collection Date:** 07/22/2015 11:00

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP								
Arsenic	NELAP	0.250		**< 0.250**	mg/L	1	07/23/2015 18:50	110828
Barium	NELAP	0.0500		**0.145**	mg/L	1	07/23/2015 18:50	110828
Cadmium	NELAP	0.0200	J	**0.0070**	mg/L	1	07/23/2015 18:50	110828
Chromium	NELAP	0.100		**< 0.100**	mg/L	1	07/23/2015 18:50	110828
Lead	NELAP	0.400		**< 0.400**	mg/L	1	07/23/2015 18:50	110828
Selenium	NELAP	0.500		**< 0.500**	mg/L	1	07/23/2015 18:50	110828
Silver	NELAP	0.100		**< 0.100**	mg/L	1	07/23/2015 18:50	110828
SW-846 1311, 7470A IN TCLP EXTRACT								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	07/24/2015 11:55	110829

Client: Geotechnology, Inc. **Work Order:** 15071241

Client Project: Hutsonville Bottom Ash **Report Date:** 27-Jul-15

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 110828 **SampType:** MBLK Units **mg/L**

SampID: MBLK-110828

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**< 0.250**	0.2500	0	0	-100	100	07/23/2015
Barium	0.500		**< 0.500**	0.5000	0	0	-100	100	07/23/2015
Cadmium	0.0200		**< 0.0200**	0.02000	0	0	-100	100	07/23/2015
Chromium	0.100		**< 0.100**	0.1000	0	0	-100	100	07/23/2015
Lead	0.400		**< 0.400**	0.4000	0	0	-100	100	07/23/2015
Selenium	0.500		**< 0.500**	0.5000	0	0	-100	100	07/23/2015
Silver	0.100		**< 0.100**	0.1000	0	0	-100	100	07/23/2015

Batch 110828 **SampType:** LCS Units **mg/L**

SampID: LCS-110828

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.8**	20.00	0	99.0	85	115	07/23/2015
Barium	0.500		**20.1**	20.00	0	100.4	85	115	07/23/2015
Cadmium	0.0200		**0.489**	0.5000	0	97.8	85	115	07/23/2015
Chromium	0.100		**2.00**	2.000	0	99.8	85	115	07/23/2015
Lead	0.400		**4.94**	5.000	0	98.9	85	115	07/23/2015
Selenium	0.500		**19.6**	20.00	0	98.0	85	115	07/23/2015
Silver	0.100		**0.473**	0.5000	0	94.6	85	115	07/23/2015

Batch 110828 **SampType:** MS Units **mg/L**

SampID: 15071168-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.6**	20.00	0	98.2	75	125	07/23/2015
Barium	0.500		**20.1**	20.00	0.09700	100.1	75	125	07/23/2015
Cadmium	0.0200		**0.496**	0.5000	0.005000	98.2	75	125	07/23/2015
Chromium	0.100		**3.92**	2.000	1.994	96.4	75	125	07/23/2015
Lead	0.400		**4.94**	5.000	0	98.7	75	125	07/23/2015
Selenium	0.500		**19.4**	20.00	0	97.0	75	125	07/23/2015
Silver	0.100		**0.472**	0.5000	0	94.4	75	125	07/23/2015

Batch 110828 **SampType:** MSD Units **mg/L** RPD Limit **20**

SampID: 15071168-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Arsenic	0.250		**20.2**	20.00	0	101.1	19.64	2.91	07/23/2015
Barium	0.500		**20.5**	20.00	0.09700	101.8	20.11	1.73	07/23/2015
Cadmium	0.0200		**0.504**	0.5000	0.005000	99.8	0.4960	1.60	07/23/2015
Chromium	0.100		**4.00**	2.000	1.994	100.6	3.921	2.12	07/23/2015
Lead	0.400		**5.05**	5.000	0	100.9	4.935	2.24	07/23/2015
Selenium	0.500		**20.1**	20.00	0	100.4	19.39	3.50	07/23/2015
Silver	0.100		**0.486**	0.5000	0	97.2	0.4720	2.92	07/23/2015

Client: Geotechnology, Inc. **Work Order:** 15071241

Client Project: Hutsonville Bottom Ash **Report Date:** 27-Jul-15

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 110828 **SampType:** MS Units **mg/L**

SampID: 15071200-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.1**	20.00	0	95.4	75	125	07/23/2015
Barium	0.500		**20.5**	20.00	0.8000	98.4	75	125	07/23/2015
Cadmium	0.0200		**0.477**	0.5000	0	95.4	75	125	07/23/2015
Chromium	0.100		**2.69**	2.000	0.7720	96.0	75	125	07/23/2015
Lead	0.400		**4.84**	5.000	0	96.7	75	125	07/23/2015
Selenium	0.500		**18.8**	20.00	0	93.9	75	125	07/23/2015
Silver	0.100		**0.462**	0.5000	0	92.4	75	125	07/23/2015

Batch 110828 **SampType:** MS Units **mg/L**

SampID: 15071241-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.9**	20.00	0	99.6	75	125	07/23/2015
Barium	0.500		**20.6**	20.00	0.1450	102.3	75	125	07/23/2015
Cadmium	0.0200		**0.499**	0.5000	0.007000	98.4	75	125	07/23/2015
Chromium	0.100		**2.00**	2.000	0	100.2	75	125	07/23/2015
Lead	0.400		**5.02**	5.000	0	100.3	75	125	07/23/2015
Selenium	0.500		**19.6**	20.00	0	97.9	75	125	07/23/2015
Silver	0.100		**0.480**	0.5000	0	96.0	75	125	07/23/2015

SW-846 1311, 7470A IN TCLP EXTRACT

Batch 110829 **SampType:** MBLK Units **mg/L**

SampID: MBLK-110829

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**< 0.00020**	.000200	0	0	-100	100	07/24/2015

Batch 110829 **SampType:** LCS Units **mg/L**

SampID: LCS-110829

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00518**	.00500	0	103.6	85	115	07/24/2015

Batch 110829 **SampType:** MS Units **mg/L**

SampID: 15071168-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00512**	.00500	0	102.3	75	125	07/24/2015

Batch 110829 **SampType:** MSD Units **mg/L** RPD Limit **15**

SampID: 15071168-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Mercury	0.00020		**0.00507**	.00500	0	101.5	0.005117	0.83	07/24/2015

Client: Geotechnology, Inc. **Work Order:** 15071241

Client Project: Hutsonville Bottom Ash **Report Date:** 27-Jul-15

SW-846 1311, 7470A IN TCLP EXTRACT

Batch 110829 **SampType:** MS Units **mg/L**

SampID: 15071200-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00506**	).00500(	0	101.2	75	125	07/24/2015

Batch 110829 **SampType:** MS Units **mg/L**

SampID: 15071241-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00519**	).00500(	0	103.8	75	125	07/24/2015

Teklab, Inc. Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Geotechnology, Inc.
Client Project: Hutsonville Bottom Ash

Work Order: 15071241
Report Date: 27-Jul-15

Carrier: Vince Epps

Received By: MAK

Completed by: M. Kaminski
On: 22-Jul-15
Mary Anne Kaminski

Reviewed by: Elizabeth A. Hurley
On: 22-Jul-15
Elizabeth A. Hurley

Pages to follow: Chain of custody 1 Extra pages included 0

Shipping container/cooler in good condition?	Yes	☐	No	☐	Not Present	☑	Temp °C	31.02
Type of thermal preservation?	None	☑	Ice	☐	Blue Ice	☐	Dry Ice	☐
Chain of custody present?	Yes	☑	No	☐				
Chain of custody signed when relinquished and received?	Yes	☑	No	☐				
Chain of custody agrees with sample labels?	Yes	☑	No	☐				
Samples in proper container/bottle?	Yes	☑	No	☐				
Sample containers intact?	Yes	☑	No	☐				
Sufficient sample volume for indicated test?	Yes	☑	No	☐				
All samples received within holding time?	Yes	☑	No	☐				
Reported field parameters measured:	Field	☐	Lab	☐	NA	☑		
Container/Temp Blank temperature in compliance?	Yes	☑	No	☐				

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes	☐	No	☐	No VOA vials	☑
Water - TOX containers have zero headspace?	Yes	☐	No	☐	No TOX containers	☑
Water - pH acceptable upon receipt?	Yes	☐	No	☐	NA	☑
NPDES/CWA TCN interferences checked/treated in the field?	Yes	☐	No	☐	NA	☑

Any No responses must be detailed below or on the COC.

CHAIN OF CUSTODY

pg. 1 of 1 Work Order # 1507241

TEKLAB, INC. 5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618) 344-1004 ~ Fax: (618) 344-1005

Client: Geotechnology
Address: 11816 Lackland Rd.
City / State / Zip: St. Louis, MO
Contact: Vince Epps Phone: 314-997-7440
E-Mail: v_epps@geotechnology.com Fax:

Samples on: ☐ Ice ☐ Blue Ice ☒ No Ice 31.0 °C
Preserved in: ☐ Lab ☐ Field **FOR LAB USE ONLY**
Lab Notes:

Comments:

- Are these samples known to be involved in litigation? If yes, a surcharge will apply. ☐ Yes ☒ No
- Are these samples known to be hazardous? ☐ Yes ☒ No
- Are there any required reporting limits to be met on the requested analysis? If yes, please provide limits in comment section. ☐ Yes ☒ No

Project Name / Number	Sample Collector's Name
Hutsonville Bottom Ash	Vince Epps

Results Requested	Billing Instructions
☒ Standard ☐ 1-2 Day (100% Surcharge) ☐ Other_______ ☐ 3 Day (50% Surcharge)	P.O.

Lab Use Only	Sample Identification	Date/Time Sampled	UNPRES	HNO3	NaOH	H2SO4	HCL	MeOH	NaHSO4	Other	Water	Drinking Water	Soil	Sludge	Sp. Waste	RCRA 8 Metals TCLP
1507241-001	Bottom Ash Comp.	7/22/15 1100	X										X			X

Relinquished By	Date / Time	Received By	Date / Time
[signature]	7/22/15 1506	M. Hanckel	7/22/15 15:06

The individual signing this agreement on behalf of client acknowledges that he/she has read and understands the terms and conditions of this agreement, on the reverse side, and that he/she has the authority to sign on behalf of client.

WHITE – LAB YELLOW – SAMPLER'S COPY

September 16, 2015

Jessie Hahn
Geotechnology, Inc.
11816 Lackland Road
St. Louis, MO 63146
TEL: (573) 270-1313
FAX: (314) 997-2067

RE: J019896.05 Hutsonville **WorkOrder:** 15090606

Dear Jessie Hahn:

TEKLAB, INC received 1 sample on 9/10/2015 3:20:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Shelly A Hennessy

Shelly A. Hennessy
Project Manager
(618)344-1004 ex 36
SHennessy@teklabinc.com

Report Contents

Client: Geotechnology, Inc.
Work Order: 15090606
Client Project: J019896.05 Hutsonville
Report Date: 16-Sep-15

This reporting package includes the following:

Client: Geotechnology, Inc. **Work Order:** 15090606

Client Project: J019896.05 Hutsonville **Report Date:** 16-Sep-15

Abbr Definition

Abbr	Definition
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method’s recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# -	Unknown hydrocarbon	B -	Analyte detected in associated Method Blank
E -	Value above quantitation range	H -	Holding times exceeded
I -	Associated internal standard was outside method criteria	J -	Analyte detected below quantitation limits
M -	Manual Integration used to determine area response	ND -	Not Detected at the Reporting Limit
R -	RPD outside accepted recovery limits	S -	Spike Recovery outside recovery limits
T -	TIC(Tentatively identified compound)	X -	Value exceeds Maximum Contaminant Level

Client: Geotechnology, Inc.

Work Order: 15090606

Client Project: J019896.05 Hutsonville

Report Date: 16-Sep-15

Cooler Receipt Temp: 7.22 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road	3920 Pintail Dr	8421 Nieman Road	5445 Horseshoe Lake Road
	Collinsville, IL 62234-7425	Springfield, IL 62711-9415	Lenexa, KS 66214	Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2016	Collinsville
Kansas	KDHE	E-10374	NELAP	9/30/2015	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2016	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2016	Collinsville
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2016	Collinsville
Arkansas	ADEQ	88-0966		3/14/2016	Collinsville
Illinois	IDPH	17584		5/31/2017	Collinsville
Kentucky	KDEP	98006		12/31/2015	Collinsville
Kentucky	UST	0073		1/31/2016	Collinsville
Missouri	MDNR	00930		5/31/2017	Collinsville
Oklahoma	ODEQ	9978		8/31/2016	Collinsville

Teklab, Inc. Environmental Laboratory

Laboratory Results

http://www.teklabinc.com/

Client: Geotechnology, Inc.
Work Order: 15090606
Client Project: J019896.05 Hutsonville
Report Date: 16-Sep-15
Lab ID: 15090606-001
Client Sample ID: Quality Lime Co 1
Matrix: SOLID
Collection Date: 09/10/2015 13:00

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		**11.5**	%	1	09/10/2015 19:13	R209111
STANDARD METHODS 4500-CL E (TOTAL)								
Chloride		56	J	**29**	mg/Kg-dry	1	09/15/2015 1:05	112290
SW-846 1010								
Ignitability, Closed Cup	NELAP	60		**>200**	°F	1	09/11/2015 15:26	R209138
SW-846 9036 (TOTAL)								
Sulfate		112	JS	**78**	mg/Kg-dry	1	09/15/2015 1:05	112289
MS and/or MSD did not recover within control limits due to matrix interference.								
SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP								
Arsenic	NELAP	0.0250		**< 0.0250**	mg/L	1	09/15/2015 10:02	112284
Barium	NELAP	0.0050		**0.159**	mg/L	1	09/15/2015 10:02	112284
Cadmium	NELAP	0.0020		**< 0.0020**	mg/L	1	09/15/2015 10:02	112284
Chromium	NELAP	0.0100		**< 0.0100**	mg/L	1	09/15/2015 10:02	112284
Lead	NELAP	0.0070		**< 0.0070**	mg/L	1	09/15/2015 10:02	112284
Selenium	NELAP	0.0500		**< 0.0500**	mg/L	1	09/15/2015 10:02	112284
Silver	NELAP	0.0100		**< 0.0100**	mg/L	1	09/15/2015 10:02	112284
SW-846 1311, 7470A IN TCLP EXTRACT								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	09/11/2015 12:36	112285
SW-846 3050B, 6010B, METALS BY ICP								
Boron	NELAP	1.89		**7.55**	mg/Kg-dry	1	09/15/2015 19:39	112294
SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Benzene	NELAP	0.6		**ND**	µg/Kg-dry	1	09/11/2015 12:22	112295
Ethylbenzene	NELAP	2.8		**ND**	µg/Kg-dry	1	09/11/2015 12:22	112295
Toluene	NELAP	2.8		**ND**	µg/Kg-dry	1	09/11/2015 12:22	112295
Xylenes, Total	NELAP	2.8		**ND**	µg/Kg-dry	1	09/11/2015 12:22	112295
Surr: 1,2-Dichloroethane-d4		72.2-131		**97.5**	%REC	1	09/11/2015 12:22	112295
Surr: 4-Bromofluorobenzene		82.1-116		**89.6**	%REC	1	09/11/2015 12:22	112295
Surr: Dibromofluoromethane		77.7-120		**101.4**	%REC	1	09/11/2015 12:22	112295
Surr: Toluene-d8		86-116		**94.4**	%REC	1	09/11/2015 12:22	112295

Client: Geotechnology, Inc. **Work Order:** 15090606

Client Project: J019896.05 Hutsonville **Report Date:** 16-Sep-15

EPA SW846 3550C, 5035A, ASTM D2974

Batch R209111 **SampType:** LCS Units %

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Percent Moisture	0.1		**99.0**	99.00	0	100.0	90	110	09/10/2015

Batch R209111 **SampType:** LCSQC Units %

SampID: LCSQC

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Percent Moisture	0.1		**99.0**	99.00	0	100.0	90	110	09/10/2015

Batch R209111 **SampType:** DUP Units % RPD Limit **15**

SampID: 15090385-001A DUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Percent Moisture	0.1		**13.4**				13.02	2.88	09/10/2015

Batch R209111 **SampType:** DUP Units % RPD Limit **15**

SampID: 15090422-007A DUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Percent Moisture	0.1		**17.0**				17.99	5.48	09/10/2015

Batch R209111 **SampType:** DUP Units % RPD Limit **15**

SampID: 15090492-010A DUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Percent Moisture	0.1		**15.0**				15.25	1.45	09/10/2015

Batch R209111 **SampType:** DUP Units % RPD Limit **15**

SampID: 15090492-014A DUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Percent Moisture	0.1		**17.3**				17.80	3.08	09/10/2015

Batch R209111 **SampType:** DUP Units % RPD Limit **15**

SampID: 15090492-020A DUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Percent Moisture	0.1		**19.6**				18.00	8.41	09/10/2015

STANDARD METHODS 4500-CL E (TOTAL)

Batch 112290 **SampType:** MBLK Units **mg/Kg**

SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5	J	**2**						09/14/2015

STANDARD METHODS 4500-CL E (TOTAL)

Batch 112290 **SampType:** MBLK Units **mg/Kg**
SampID: MBLK 150913

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	50	J	**17**						09/15/2015

Batch 112290 **SampType:** LCS Units **mg/Kg**
SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5		**20**	20.00	0	101.2	90	110	09/14/2015

Batch 112290 **SampType:** MS Units **mg/Kg-dry**
SampID: 15090606-001BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	56		**226**	223.1	29.45	88.3	85	115	09/15/2015

Batch 112290 **SampType:** MSD Units **mg/Kg-dry** RPD Limit **15**
SampID: 15090606-001BMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride	56		**238**	223.1	29.45	93.6	226.5	5.09	09/15/2015

SW-846 1010

Batch R209138 **SampType:** LCS Units **°F**
SampID: LCS-R209138

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ignitability, Closed Cup	60		**81**	81.00	0	100.0	97	103	09/11/2015

Batch R209138 **SampType:** DUP Units **°F** RPD Limit **5**
SampID: LCS-R209138DUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Closed Cup	60		**81**				81.00	0.00	09/11/2015

SW-846 9036 (TOTAL)

Batch 112289 **SampType:** MBLK Units **mg/Kg**
SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		**< 10**						09/14/2015

Batch 112289 **SampType:** MBLK Units **mg/Kg**
SampID: MBLK 150913

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	100		**< 100**						09/15/2015

Client: Geotechnology, Inc. **Work Order:** 15090606

Client Project: J019896.05 Hutsonville **Report Date:** 16-Sep-15

SW-846 9036 (TOTAL)

Batch 112289 **SampType:** LCS Units **mg/Kg**

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		**20**	20.00	0	98.4	90	110	09/14/2015

Batch 112289 **SampType:** MS Units **mg/Kg-dry**

SampID: 15090606-001BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	112	S	**155**	111.6	77.64	69.7	85	115	09/15/2015

Batch 112289 **SampType:** MSD Units **mg/Kg-dry** RPD Limit **10**

SampID: 15090606-001BMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate	112	S	**157**	111.6	77.64	70.9	155.4	0.86	09/15/2015

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 112284 **SampType:** MBLK Units **mg/L**

SampID: MBLK-112284

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.0250		**< 0.0250**	0.02500	0	0	-100	100	09/15/2015
Barium	0.0500		**< 0.0500**	0.05000	0	0	-100	100	09/15/2015
Cadmium	0.0020		**< 0.0020**	).00200(	0	0	-100	100	09/15/2015
Chromium	0.0100		**< 0.0100**	0.01000	0	0	-100	100	09/15/2015
Lead	0.0400		**< 0.0400**	0.04000	0	0	-100	100	09/15/2015
Selenium	0.0500		**< 0.0500**	0.05000	0	0	-100	100	09/15/2015
Silver	0.0100		**< 0.0100**	0.01000	0	0	-100	100	09/15/2015

Batch 112284 **SampType:** LCS Units **mg/L**

SampID: LCS-112284

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.0250		**2.28**	2.000	0	114.1	85	115	09/15/2015
Barium	0.0500		**2.04**	2.000	0	102.2	85	115	09/15/2015
Cadmium	0.0020		**0.0510**	0.05000	0	102.0	85	115	09/15/2015
Chromium	0.0100		**0.212**	0.2000	0	105.9	85	115	09/15/2015
Lead	0.0400		**0.520**	0.5000	0	103.9	85	115	09/15/2015
Selenium	0.0500		**2.22**	2.000	0	111.0	85	115	09/15/2015
Silver	0.0100		**0.0530**	0.05000	0	106.0	85	115	09/15/2015

Client: Geotechnology, Inc. **Work Order:** 15090606

Client Project: J019896.05 Hutsonville **Report Date:** 16-Sep-15

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 112284 **SampType:** MS Units **mg/L**

SampID: 15090606-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.0250		**2.25**	2.000	0	112.5	75	125	09/15/2015
Barium	0.0500		**2.18**	2.000	0.1586	101.2	75	125	09/15/2015
Cadmium	0.0020		**0.0509**	0.05000	0	101.8	75	125	09/15/2015
Chromium	0.0100		**0.211**	0.2000	0	105.5	75	125	09/15/2015
Lead	0.0400		**0.518**	0.5000	0	103.5	75	125	09/15/2015
Selenium	0.0500		**2.22**	2.000	0	110.9	75	125	09/15/2015
Silver	0.0100		**0.0528**	0.05000	0	105.6	75	125	09/15/2015

Batch 112284 **SampType:** MSD Units **mg/L** RPD Limit **20**

SampID: 15090606-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Arsenic	0.0250		**2.31**	2.000	0	115.4	2.250	2.54	09/15/2015
Barium	0.0500		**2.24**	2.000	0.1586	104.2	2.182	2.71	09/15/2015
Cadmium	0.0020		**0.0516**	0.05000	0	103.2	0.05090	1.37	09/15/2015
Chromium	0.0100		**0.215**	0.2000	0	107.6	0.2110	1.97	09/15/2015
Lead	0.0400		**0.522**	0.5000	0	104.3	0.5176	0.75	09/15/2015
Selenium	0.0500		**2.26**	2.000	0	113.0	2.218	1.88	09/15/2015
Silver	0.0100		**0.0545**	0.05000	0	109.0	0.05280	3.17	09/15/2015

SW-846 1311, 7470A IN TCLP EXTRACT

Batch 112285 **SampType:** MBLK Units **mg/L**

SampID: MBLK-112285

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**< 0.00020**	.000200	0	0	-100	100	09/11/2015

Batch 112285 **SampType:** LCS Units **mg/L**

SampID: LCS-112285

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00515**	).00500(	0	103.0	85	115	09/11/2015

Batch 112285 **SampType:** MS Units **mg/L**

SampID: 15090606-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00514**	).00500(	0	102.8	75	125	09/11/2015

Batch 112285 **SampType:** MSD Units **mg/L** RPD Limit **15**

SampID: 15090606-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Mercury	0.00020		**0.00499**	).00500(	0	99.7	0.005138	3.00	09/11/2015

Client: Geotechnology, Inc. **Work Order:** 15090606

Client Project: J019896.05 Hutsonville **Report Date:** 16-Sep-15

SW-846 3050B, 6010B, METALS BY ICP

Batch 112294 **SampType:** MBLK Units **mg/Kg-dry**

SampID: MBLK-112294

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron	2.00		**< 2.00**	2.000	0	0	-100	100	09/15/2015

Batch 112294 **SampType:** LCS Units **mg/Kg-dry**

SampID: LCS-112294

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron	2.00		**48.2**	50.00	0	96.5	85	115	09/15/2015

SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 112295 **SampType:** MBLK Units **µg/Kg**

SampID: MBLK-Y150911A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	1.0		**ND**						09/11/2015
Ethylbenzene	5.0		**ND**						09/11/2015
Toluene	5.0		**ND**						09/11/2015
Xylenes, Total	5.0	J	**1.1**						09/11/2015
Surr: 1,2-Dichloroethane-d4			**44.4**	50.00		88.9	72.2	131	09/11/2015
Surr: 4-Bromofluorobenzene			**45.3**	50.00		90.6	82.1	116	09/11/2015
Surr: Dibromofluoromethane			**48.6**	50.00		97.2	77.7	120	09/11/2015
Surr: Toluene-d8			**47.5**	50.00		95.0	86	116	09/11/2015

Batch 112295 **SampType:** LCSD Units **µg/Kg** RPD Limit **40**

SampID: LCSD-Y150911A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Benzene	1.0		**44.8**	50.00	0	89.5	45.93	2.56	09/11/2015
Ethylbenzene	5.0		**47.0**	50.00	0	94.0	45.51	3.18	09/11/2015
Toluene	5.0		**47.5**	50.00	0	94.9	46.08	2.97	09/11/2015
Xylenes, Total	5.0		**142**	150.0	0	94.5	138.3	2.46	09/11/2015
Surr: 1,2-Dichloroethane-d4			**44.0**	50.00		88.1			09/11/2015
Surr: 4-Bromofluorobenzene			**43.8**	50.00		87.6			09/11/2015
Surr: Dibromofluoromethane			**50.3**	50.00		100.7			09/11/2015
Surr: Toluene-d8			**45.6**	50.00		91.2			09/11/2015

Batch 112295 **SampType:** LCS Units **µg/Kg**

SampID: LCS-Y150911A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	1.0		**45.9**	50.00	0	91.9	80.8	117	09/11/2015
Ethylbenzene	5.0		**45.5**	50.00	0	91.0	84.8	116	09/11/2015
Toluene	5.0		**46.1**	50.00	0	92.2	81.3	113	09/11/2015
Xylenes, Total	5.0		**138**	150.0	0	92.2	85.3	118	09/11/2015
Surr: 1,2-Dichloroethane-d4			**46.0**	50.00		92.0	72.2	131	09/11/2015
Surr: 4-Bromofluorobenzene			**45.7**	50.00		91.5	82.1	116	09/11/2015
Surr: Dibromofluoromethane			**52.3**	50.00		104.5	77.7	120	09/11/2015
Surr: Toluene-d8			**45.2**	50.00		90.4	86	116	09/11/2015

SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch **112295** **SampType:** **LCSGD** Units **%REC** RPD Limit **0**

SampID: LCSGD-Y150911A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Surr: 1,2-Dichloroethane-d4			**45.1**	50.00		90.3			09/11/2015
Surr: 4-Bromofluorobenzene			**46.0**	50.00		92.0			09/11/2015
Surr: Dibromofluoromethane			**50.4**	50.00		100.8			09/11/2015
Surr: Toluene-d8			**48.2**	50.00		96.3			09/11/2015

Batch **112295** **SampType:** **LCSG** Units **%REC**

SampID: LCSG-Y150911A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Surr: 1,2-Dichloroethane-d4			**45.3**	50.00		90.6	72.2	131	09/11/2015
Surr: 4-Bromofluorobenzene			**45.1**	50.00		90.3	82.1	116	09/11/2015
Surr: Dibromofluoromethane			**50.1**	50.00		100.2	77.7	120	09/11/2015
Surr: Toluene-d8			**46.6**	50.00		93.1	86	116	09/11/2015

Teklab Inc. Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Geotechnology, Inc. **Work Order:** 15090606

Client Project: J019896.05 Hutsonville **Report Date:** 16-Sep-15

Carrier: Tim Mathis **Received By:** KF

Completed by: Emily E. Pohlman
On: 10-Sep-15

Reviewed by: Elizabeth A. Hurley
On: 10-Sep-15

Pages to follow: Chain of custody 1 Extra pages included 1

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C 7.22
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice ☐
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐		

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes ☐	No ☐	No VOA vials ☑
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	NA ☑
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA ☑

Any No responses must be detailed below or on the COC.

15090606

CHAIN OF COUNT CUSTODY

pg. 1 of 1 Work Order # 41887

TEKLAB, INC. 5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618) 344-1004 ~ Fax: (618) 344-1005

Client: Geotechnology
Address: 11816 Lackland Road, Suite 150
City / State / Zip: St. Louis, MO 63146
Contact: Jessie Hahn Phone: 573-270-1313
E-Mail: j-hahn@geotechnology.com Fax: 314-997-2067

Samples on: ☒ Ice ☐ Blue Ice ☐ No Ice 7.2 °C
Preserved in: ☐ Lab ☐ Field FOR LAB USE ONLY
Lab Notes:

Comments: Sample obtained by Client
See attached sheet for testing Details

- Are these samples known to be involved in litigation? If yes, a surcharge will apply. ☐ Yes ☒ No
- Are these samples known to be hazardous? ☐ Yes ☒ No
- Are there any required reporting limits to be met on the requested analysis? If yes, please provide limits in comment section. ☐ Yes ☐ No

Project Name / Number: J019896.05 Hutsonville
Sample Collector's Name: Jessie Hahn

Results Requested: ☒ Standard ☐ 1-2 Day (100% Surcharge) ☐ Other_______ ☐ 3 Day (50% Surcharge)
Billing Instructions:

Courier

Lab Use Only	Sample Identification	Date/Time Sampled	UNPRES	HNO3	NaOH	H2SO4	HCL	MeOH	NaHSO4	Other	Water	Drinking Water	Soil	Sludge	Sp. Waste	RCRA Metals as TCLP	CCW Ions	BTEX	Flash Point									
15090606-001	Quality Lime Co 1	9/10/15 1300	3							3			X			X	X	X	X									

Relinquished By	Date / Time	Received By	Date / Time
		[signature]	9-10-15 1440
[signature]	9-10-15 1520	Kalyn Jeeche	9/10/15 1520

WHITE – LAB YELLOW – SAMPLER'S COPY

Table A-1. Material Testing and Frequency

Property/Test Method	Requirement/ Specification	Frequency	Responsibility
PREQUALIFICATION TESTING 3-FT. SOIL/FINAL COVER			
Atterberg Limits - ASTM D 4318	USCS Soil Classification (Note 1)	One Test per Borrow Source	Contractor
Grain Size Analysis - ASTM D 422	USCS Soil Classification (Note 1)		
RCRA Metals (as TCLP): SW 846 1311 - Arsenic, Barium, Cadmium, Chromium, Lead, Silver, Selenium SW 846 7478 - Mercury	Below the Class I Groundwater Standards at Title 35 Illinois Administrative Code [IAC] 620.410(a)		
CCW Ions (as total concentrations): SW 846 6010B – Boron SW 846 M4500-CLE – Chloride SW 846 9036- Sulfate	Below the Class I Groundwater Standards at 35 IAC 620.410(a)		
BETX Constituents: SW 846 8260B - Benzene, Ethylbenzene, Toluene, Xylene	Below the Class I Groundwater Standards at 35 IAC 620.410(c)		
pH - SW 846 9045C	Within the Class I Groundwater Standard range at 35 IAC 620.410(d)		
Flash Point (Pensky-Martens Closed Cup) - SW 846 1010	Ignitability characteristic as defined in 35 IAC721.121		

Note 1 - Satisfactory Soils: ASTM D 2487 Soil Classification Groups CL-ML, or as approved by the CQA Officer. Satisfactory soil shall further be free of rock or gravel (larger than 0.75 inches in any dimension), debris, waste, frozen materials, vegetation, and other deleterious matter.

To be done by Teklab

A-1. Final Cover

September 24, 2015

Anna Saindon
Geotechnology, Inc.
11816 Lackland Road
St. Louis, MO 63146
TEL: (314) 997-7440
FAX: (314) 997-2067

RE: Hutsonville J019896.05 **WorkOrder:** 15091079

Dear Anna Saindon:

TEKLAB, INC received 1 sample on 9/18/2015 3:35:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Shelly A Hennessy

Shelly A. Hennessy
Project Manager
(618)344-1004 ex 36
SHennessy@teklabinc.com

Report Contents

http://www.teklabinc.com/

Client: Geotechnology, Inc.
Client Project: Hutsonville J019896.05

Work Order: 15091079
Report Date: 24-Sep-15

This reporting package includes the following:

Abbr Definition

Abbr	Definition
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# -	Unknown hydrocarbon	B -	Analyte detected in associated Method Blank
E -	Value above quantitation range	H -	Holding times exceeded
I -	Associated internal standard was outside method criteria	J -	Analyte detected below quantitation limits
M -	Manual Integration used to determine area response	ND -	Not Detected at the Reporting Limit
R -	RPD outside accepted recovery limits	S -	Spike Recovery outside recovery limits
T -	TIC(Tentatively identified compound)	X -	Value exceeds Maximum Contaminant Level

Client: Geotechnology, Inc.
Work Order: 15091079
Client Project: Hutsonville J019896.05
Report Date: 24-Sep-15

Cooler Receipt Temp: 11.22 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road	3920 Pintail Dr	8421 Nieman Road	5445 Horseshoe Lake Road
	Collinsville, IL 62234-7425	Springfield, IL 62711-9415	Lenexa, KS 66214	Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2016	Collinsville
Kansas	KDHE	E-10374	NELAP	9/30/2015	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2016	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2016	Collinsville
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2016	Collinsville
Arkansas	ADEQ	88-0966		3/14/2016	Collinsville
Illinois	IDPH	17584		5/31/2017	Collinsville
Kentucky	KDEP	98006		12/31/2015	Collinsville
Kentucky	UST	0073		1/31/2016	Collinsville
Missouri	MDNR	00930		5/31/2017	Collinsville
Oklahoma	ODEQ	9978		8/31/2016	Collinsville

Laboratory Results

http://www.teklabinc.com/

Client: Geotechnology, Inc.
Client Project: Hutsonville J019896.05
Lab ID: 15091079-001
Matrix: SOLID

Work Order: 15091079
Report Date: 24-Sep-15
Client Sample ID: Quality Lime Co 2
Collection Date: 09/18/2015 12:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		**11.5**	%	1	09/23/2015 15:16	R209582
SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Benzene	NELAP	0.8		**ND**	µg/Kg-dry	1	09/22/2015 13:45	112572
Ethylbenzene	NELAP	4.1		**ND**	µg/Kg-dry	1	09/22/2015 13:45	112572
Toluene	NELAP	4.1		**ND**	µg/Kg-dry	1	09/22/2015 13:45	112572
Xylenes, Total	NELAP	4.1		**ND**	µg/Kg-dry	1	09/22/2015 13:45	112572
Surr: 1,2-Dichloroethane-d4		72.2-131		**102.6**	%REC	1	09/22/2015 13:45	112572
Surr: 4-Bromofluorobenzene		82.1-116		**89.2**	%REC	1	09/22/2015 13:45	112572
Surr: Dibromofluoromethane		77.7-120		**105.1**	%REC	1	09/22/2015 13:45	112572
Surr: Toluene-d8		86-116		**90.1**	%REC	1	09/22/2015 13:45	112572

Quality Control Results

http://www.teklabinc.com/

Client: Geotechnology, Inc.
Client Project: Hutsonville J019896.05
Work Order: 15091079
Report Date: 24-Sep-15

EPA SW846 3550C, 5035A, ASTM D2974

Batch R209582 **SampType:** LCS Units %
SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Percent Moisture	0.1		**99.0**	99.00	0	100.0	90	110	09/23/2015

Batch R209582 **SampType:** LCSQC Units %
SampID: LCSQC

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Percent Moisture	0.1		**99.0**	99.00	0	100.0	90	110	09/23/2015

Batch R209582 **SampType:** DUP Units % RPD Limit **15**
SampID: 15091166-001A DUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Percent Moisture	0.1		**29.3**				29.46	0.54	09/23/2015

Batch R209582 **SampType:** DUP Units % RPD Limit **15**
SampID: 15091314-001A DUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Percent Moisture	0.1		**26.8**				26.73	0.19	09/23/2015

SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 112572 **SampType:** MBLK Units µg/Kg
SampID: MBLK-A150922A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	1.0		**ND**						09/22/2015
Ethylbenzene	5.0		**ND**						09/22/2015
Toluene	5.0		**ND**						09/22/2015
Xylenes, Total	5.0		**ND**						09/22/2015
Surr: 1,2-Dichloroethane-d4			**47.9**	50.00		95.8	72.2	131	09/22/2015
Surr: 4-Bromofluorobenzene			**45.3**	50.00		90.7	82.1	116	09/22/2015
Surr: Dibromofluoromethane			**52.3**	50.00		104.7	77.7	120	09/22/2015
Surr: Toluene-d8			**45.5**	50.00		90.9	86	116	09/22/2015

Batch 112572 **SampType:** LCS Units µg/Kg
SampID: LCS-A150922A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	1.0		**51.0**	50.00	0	102.0	80.8	117	09/22/2015
Ethylbenzene	5.0		**44.3**	50.00	0	88.7	84.8	116	09/22/2015
Toluene	5.0		**46.1**	50.00	0	92.2	81.3	113	09/22/2015
Xylenes, Total	5.0		**138**	150.0	0	91.7	85.3	118	09/22/2015
Surr: 1,2-Dichloroethane-d4			**46.1**	50.00		92.2	72.2	131	09/22/2015
Surr: 4-Bromofluorobenzene			**45.3**	50.00		90.5	82.1	116	09/22/2015
Surr: Dibromofluoromethane			**52.4**	50.00		104.7	77.7	120	09/22/2015
Surr: Toluene-d8			**46.1**	50.00		92.3	86	116	09/22/2015

Client: Geotechnology, Inc. **Work Order:** 15091079

Client Project: Hutsonville J019896.05 **Report Date:** 24-Sep-15

SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 112572 **SampType:** LCSD Units µg/Kg RPD Limit 40

SampID: LCSD-A150922A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Benzene	1.0		**53.1**	50.00	0	106.2	50.98	4.07	09/22/2015
Ethylbenzene	5.0		**45.8**	50.00	0	91.5	44.34	3.13	09/22/2015
Toluene	5.0		**47.1**	50.00	0	94.1	46.11	2.04	09/22/2015
Xylenes, Total	5.0		**141**	150.0	0	93.8	137.6	2.24	09/22/2015
Surr: 1,2-Dichloroethane-d4			**46.6**	50.00		93.2			09/22/2015
Surr: 4-Bromofluorobenzene			**44.5**	50.00		88.9			09/22/2015
Surr: Dibromofluoromethane			**52.4**	50.00		104.7			09/22/2015
Surr: Toluene-d8			**45.7**	50.00		91.3			09/22/2015

Batch 112572 **SampType:** LCSG Units %REC

SampID: LCSG-A150922A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Surr: 1,2-Dichloroethane-d4			**47.6**	50.00		95.3	72.2	131	09/22/2015
Surr: 4-Bromofluorobenzene			**45.8**	50.00		91.7	82.1	116	09/22/2015
Surr: Dibromofluoromethane			**52.7**	50.00		105.5	77.7	120	09/22/2015
Surr: Toluene-d8			**46.0**	50.00		92.0	86	116	09/22/2015

Batch 112572 **SampType:** LCSGD Units %REC RPD Limit 0

SampID: LCSGD-A150922A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Surr: 1,2-Dichloroethane-d4			**47.1**	50.00		94.3			09/22/2015
Surr: 4-Bromofluorobenzene			**45.8**	50.00		91.7			09/22/2015
Surr: Dibromofluoromethane			**52.8**	50.00		105.6			09/22/2015
Surr: Toluene-d8			**45.9**	50.00		91.8			09/22/2015

Teklab Inc. Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Geotechnology, Inc.
Client Project: Hutsonville J019896.05

Work Order: 15091079
Report Date: 24-Sep-15

Carrier: Jessie Hahn

Received By: KF

Completed by: Emily Pohlman
On: 18-Sep-15
Emily E. Pohlman

Reviewed by: Elizabeth A. Hurley
On: 18-Sep-15
Elizabeth A. Hurley

Pages to follow: Chain of custody 1 Extra pages included 0

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C	11.22
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice	☐
Chain of custody present?	Yes ☑	No ☐			
Chain of custody signed when relinquished and received?	Yes ☑	No ☐			
Chain of custody agrees with sample labels?	Yes ☑	No ☐			
Samples in proper container/bottle?	Yes ☑	No ☐			
Sample containers intact?	Yes ☑	No ☐			
Sufficient sample volume for indicated test?	Yes ☐	No ☑			
All samples received within holding time?	Yes ☑	No ☐			
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑		
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐			

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes ☐	No ☐	No VOA vials ☑
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	NA ☑
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA ☑

Any No responses must be detailed below or on the COC.

No unpreserved container was received for moisture correction. Per Anna Saindon, use the percent moisture result from 15090606-001 for moisture correction on this sample. EEP 9/18/15

15091079

CHAIN OF CUSTODY

pg. 1 of 1 Work Order # 42009

TEKLAB, INC. 5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618) 344-1004 ~ Fax: (618) 344-1005

Client: Geotechnology
Address: 11816 Lackland Road, Suite 150
City / State / Zip: St. Louis, MO 63146
Contact: Anna Saindon Phone: (314) 997-7440
E-Mail: a_saindon@geotechnology.com Fax: (314) 997-2067

Samples on: ☒ Ice ☐ Blue Ice ☐ No Ice 11.2 °C
Preserved in: ☐ Lab ☐ Field **FOR LAB USE ONLY**
Lab Notes: Per Anna Saindon, use pmoist from 15090[illegible] [illegible] 9/18/15
Comments:

- Are these samples known to be involved in litigation? If yes, a surcharge will apply. ☐ Yes ☒ No
- Are these samples known to be hazardous? ☐ Yes ☒ No
- Are there any required reporting limits to be met on the requested analysis? If yes, please provide limits in comment section. ☐ Yes ☒ No

Project Name / Number: Hutsonville J019896.05
Sample Collector's Name: Jessie Hahn

Results Requested: ☒ Standard ☐ 1-2 Day (100% Surcharge) ☐ Other_______ ☐ 3 Day (50% Surcharge)
Billing Instructions:

Lab Use Only	Sample Identification	Date/Time Sampled	UNPRES	HNO_3	NaOH	H_2SO_4	HCL	MeOH	$NaHSO_4$	Other	Water	Drinking Water	Soil	Sludge	Sp. Waste	BTEX
15091079 -001	QualityLimeCo 2	9/18/2015 1230								3			3			x

Relinquished By	Date / Time	Received By	Date / Time
Jessie Hahn [signature]	9/18/15 1535	[signature]	9/18/15 1535

The individual signing this agreement on behalf of client acknowledges that he/she has read and understands the terms and conditions of this agreement, on the reverse side, and that he/she has the authority to sign on behalf of client.

WHITE – LAB YELLOW – SAMPLER'S COPY KF 9/15

November 16, 2015

Anna Saindon
Geotechnology, Inc.
11816 Lackland Road
St. Louis, MO 63146
TEL: (314) 997-7440
FAX: (314) 997-2067

NELAP ACCREDITED TNI LABORATORY

RE: Hutsonville J019896.05 **WorkOrder:** 15110660

Dear Anna Saindon:

TEKLAB, INC received 1 sample on 11/11/2015 2:39:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Shelly A Hennessy

Shelly A. Hennessy
Project Manager
(618)344-1004 ex 36
SHennessy@teklabinc.com

Teklab, Inc. Environmental Laboratory

Report Contents

http://www.teklabinc.com/

Client: Geotechnology, Inc. **Work Order:** 15110660

Client Project: Hutsonville J019896.05 **Report Date:** 16-Nov-15

This reporting package includes the following:

Abbr	Definition
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# -	Unknown hydrocarbon	B -	Analyte detected in associated Method Blank
E -	Value above quantitation range	H -	Holding times exceeded
I -	Associated internal standard was outside method criteria	J -	Analyte detected below quantitation limits
M -	Manual Integration used to determine area response	ND -	Not Detected at the Reporting Limit
R -	RPD outside accepted recovery limits	S -	Spike Recovery outside recovery limits
T -	TIC(Tentatively identified compound)	X -	Value exceeds Maximum Contaminant Level

Case Narrative

http://www.teklabinc.com/

Client: Geotechnology, Inc.
Client Project: Hutsonville J019896.05

Work Order: 15110660
Report Date: 16-Nov-15

Cooler Receipt Temp: 16.02 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road	3920 Pintail Dr	8421 Nieman Road	5445 Horseshoe Lake Road
	Collinsville, IL 62234-7425	Springfield, IL 62711-9415	Lenexa, KS 66214	Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2016	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2016	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2016	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2016	Collinsville
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2016	Collinsville
Arkansas	ADEQ	88-0966		3/14/2016	Collinsville
Illinois	IDPH	17584		5/31/2017	Collinsville
Kentucky	KDEP	98006		12/31/2015	Collinsville
Kentucky	UST	0073		1/31/2016	Collinsville
Missouri	MDNR	00930		5/31/2017	Collinsville
Oklahoma	ODEQ	9978		8/31/2016	Collinsville

Client: Geotechnology, Inc. **Work Order:** 15110660

Client Project: Hutsonville J019896.05 **Report Date:** 16-Nov-15

Lab ID: 15110660-001 **Client Sample ID:** Bottom Ash Pond Levee

Matrix: SOLID **Collection Date:** 11/11/2015 10:45

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
ASTM D92								
Ignitability, Open Cup		60		**>200**	°F	1	11/12/2015 11:36	R211517
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		**19.2**	%	1	11/13/2015 16:49	R211626
STANDARD METHODS 4500-CL E (TOTAL)								
Chloride		61	JSR	**24**	mg/Kg-dry	1	11/12/2015 21:29	114180
MSD and RPD did not recover within control limits. Result verified by reanalysis at dilution.								
SW-846 9036 (TOTAL)								
Sulfate		122	S	**149**	mg/Kg-dry	1	11/12/2015 21:29	114179
MS and/or MSD did not recover within control limits due to matrix interference.								
SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP								
Arsenic	NELAP	0.250		**< 0.250**	mg/L	1	11/13/2015 8:28	114093
Barium	NELAP	0.0500		**0.458**	mg/L	1	11/12/2015 14:56	114093
Cadmium	NELAP	0.0200		**< 0.0200**	mg/L	1	11/12/2015 14:56	114093
Chromium	NELAP	0.100		**< 0.100**	mg/L	1	11/12/2015 14:56	114093
Lead	NELAP	0.400		**< 0.400**	mg/L	1	11/12/2015 14:56	114093
Selenium	NELAP	0.500		**< 0.500**	mg/L	1	11/13/2015 8:28	114093
Silver	NELAP	0.100		**< 0.100**	mg/L	1	11/12/2015 14:56	114093
SW-846 1311, 7470A IN TCLP EXTRACT								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	11/12/2015 12:36	114092
SW-846 3050B, 6010B, METALS BY ICP								
Boron	NELAP	2.00		**7.21**	mg/Kg-dry	1	11/12/2015 11:48	114071
SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Benzene	NELAP	1.0		**ND**	µg/Kg-dry	1	11/12/2015 13:38	114099
Ethylbenzene	NELAP	4.9		**ND**	µg/Kg-dry	1	11/12/2015 13:38	114099
Toluene	NELAP	4.9	J	**1.3**	µg/Kg-dry	1	11/12/2015 13:38	114099
Xylenes, Total	NELAP	4.9		**ND**	µg/Kg-dry	1	11/12/2015 13:38	114099
Surr: 1,2-Dichloroethane-d4		72.2-131		**112.5**	%REC	1	11/12/2015 13:38	114099
Surr: 4-Bromofluorobenzene		82.1-116		**107.8**	%REC	1	11/12/2015 13:38	114099
Surr: Dibromofluoromethane		77.7-120		**99.8**	%REC	1	11/12/2015 13:38	114099
Surr: Toluene-d8		86-116		**105.6**	%REC	1	11/12/2015 13:38	114099

Client: Geotechnology, Inc. **Work Order:** 15110660

Client Project: Hutsonville J019896.05 **Report Date:** 16-Nov-15

ASTM D92

Batch R211517 **SampType:** DUP **Units** °F **RPD Limit** 5

SampID: 15110510-005BDUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Open Cup	60		**>200**				0	0.00	11/12/2015

EPA SW846 3550C, 5035A, ASTM D2974

Batch R211626 **SampType:** LCS **Units** %

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Percent Moisture	0.1		**99.0**	99.00	0	100.0	90	110	11/13/2015

Batch R211626 **SampType:** LCSQC **Units** %

SampID: LCSQC

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Percent Moisture	0.1		**99.0**	99.00	0	100.0	90	110	11/13/2015

Batch R211626 **SampType:** DUP **Units** % **RPD Limit** 15

SampID: 15110665-001A DUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Percent Moisture	0.1		**17.9**				18.01	0.50	11/13/2015

Batch R211626 **SampType:** DUP **Units** % **RPD Limit** 15

SampID: 15110756-004A DUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Percent Moisture	0.1		**10.7**				11.06	3.03	11/13/2015

Batch R211626 **SampType:** DUP **Units** % **RPD Limit** 15

SampID: 15110807-001A DUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Percent Moisture	0.1		**19.4**				21.50	10.53	11/13/2015

STANDARD METHODS 4500-CL E (TOTAL)

Batch 114180 **SampType:** MBLK **Units** mg/Kg

SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5	J	**2**						11/12/2015

Batch 114180 **SampType:** MBLK **Units** mg/Kg

SampID: MBLK 151111

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	50	J	**17**						11/12/2015

Client: Geotechnology, Inc. **Work Order:** 15110660

Client Project: Hutsonville J019896.05 **Report Date:** 16-Nov-15

STANDARD METHODS 4500-CL E (TOTAL)

Batch 114180 **SampType:** LCS Units **mg/Kg**

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5		**21**	20.00	0	104.2	90	110	11/12/2015

Batch 114180 **SampType:** MS Units **mg/Kg-dry**

SampID: 15110660-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	61		**244**	243.1	23.70	90.8	85	115	11/12/2015

Batch 114180 **SampType:** MSD Units **mg/Kg-dry** RPD Limit **15**

SampID: 15110660-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride	61	SR	**326**	243.1	23.70	124.3	244.4	28.56	11/12/2015

SW-846 9036 (TOTAL)

Batch 114179 **SampType:** MBLK Units **mg/Kg**

SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		**< 10**						11/12/2015
Sulfate	10		**< 10**						11/13/2015

Batch 114179 **SampType:** MBLK Units **mg/Kg**

SampID: MBLK 151111

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	100	J	**51**						11/12/2015

Batch 114179 **SampType:** LCS Units **mg/Kg**

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		**19**	20.00	0	96.6	90	110	11/12/2015
Sulfate	10		**19**	20.00	0	94.6	90	110	11/13/2015

Batch 114179 **SampType:** MS Units **mg/Kg-dry**

SampID: 15110660-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	122	S	**249**	121.5	148.5	82.8	85	115	11/12/2015

Batch 114179 **SampType:** MSD Units **mg/Kg-dry** RPD Limit **10**

SampID: 15110660-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate	122	S	**250**	121.5	148.5	83.4	249.2	0.29	11/12/2015

Client: Geotechnology, Inc. **Work Order:** 15110660

Client Project: Hutsonville J019896.05 **Report Date:** 16-Nov-15

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 114093 **SampType:** MBLK Units **mg/L**

SampID: MBLK-114093

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**< 0.250**	0.2500	0	0	-100	100	11/12/2015
Barium	0.500		**< 0.500**	0.5000	0	0	-100	100	11/12/2015
Cadmium	0.0200		**< 0.0200**	0.02000	0	0	-100	100	11/12/2015
Chromium	0.100		**< 0.100**	0.1000	0	0	-100	100	11/12/2015
Lead	0.400		**< 0.400**	0.4000	0	0	-100	100	11/12/2015
Selenium	0.500		**< 0.500**	0.5000	0	0	-100	100	11/12/2015
Silver	0.100		**< 0.100**	0.1000	0	0	-100	100	11/12/2015

Batch 114093 **SampType:** LCS Units **mg/L**

SampID: LCS-114093

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**18.1**	20.00	0	90.6	85	115	11/12/2015
Barium	0.500		**18.6**	20.00	0	93.2	85	115	11/12/2015
Cadmium	0.0200		**0.455**	0.5000	0	91.0	85	115	11/12/2015
Chromium	0.100		**1.90**	2.000	0	95.2	85	115	11/12/2015
Lead	0.400		**4.61**	5.000	0	92.1	85	115	11/12/2015
Selenium	0.500		**18.4**	20.00	0	91.8	85	115	11/12/2015
Silver	0.100		**0.455**	0.5000	0	91.0	85	115	11/12/2015

Batch 114093 **SampType:** MS Units **mg/L**

SampID: 15110659-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.400		**4.57**	5.000	0	91.3	75	125	11/12/2015

Batch 114093 **SampType:** MS Units **mg/L**

SampID: 15110660-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**20.4**	20.00	0	101.9	75	125	11/13/2015
Barium	0.500		**19.3**	20.00	0.4580	94.4	75	125	11/12/2015
Cadmium	0.0200		**0.461**	0.5000	0	92.2	75	125	11/12/2015
Chromium	0.100		**1.94**	2.000	0	96.9	75	125	11/12/2015
Lead	0.400		**4.64**	5.000	0	92.9	75	125	11/12/2015
Selenium	0.500		**20.6**	20.00	0	102.9	75	125	11/13/2015
Silver	0.100		**0.461**	0.5000	0	92.2	75	125	11/12/2015

Client: Geotechnology, Inc. **Work Order:** 15110660

Client Project: Hutsonville J019896.05 **Report Date:** 16-Nov-15

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 114093 SampType: MSD Units mg/L RPD Limit 20

SampID: 15110660-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Arsenic	0.250		**20.2**	20.00	0	101.1	20.38	0.79	11/13/2015
Barium	0.500		**19.3**	20.00	0.4580	94.0	19.34	0.41	11/12/2015
Cadmium	0.0200		**0.462**	0.5000	0	92.4	0.4610	0.22	11/12/2015
Chromium	0.100		**1.94**	2.000	0	96.8	1.938	0.05	11/12/2015
Lead	0.400		**4.64**	5.000	0	92.7	4.644	0.19	11/12/2015
Selenium	0.500		**20.4**	20.00	0	102.0	20.58	0.83	11/13/2015
Silver	0.100		**0.462**	0.5000	0	92.4	0.4610	0.22	11/12/2015

SW-846 1311, 7470A IN TCLP EXTRACT

Batch 114092 SampType: MBLK Units mg/L

SampID: MBLK-114092

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**< 0.00020**	.000200	0	0	-100	100	11/12/2015

Batch 114092 SampType: LCS Units mg/L

SampID: LCS-114092

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00556**	).00500(	0	111.2	85	115	11/12/2015

Batch 114092 SampType: MS Units mg/L

SampID: 15110660-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00565**	).00500(	0	113.1	75	125	11/12/2015

Batch 114092 SampType: MSD Units mg/L RPD Limit 15

SampID: 15110660-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Mercury	0.00020		**0.00571**	).00500(	0	114.2	0.005654	1.02	11/12/2015

SW-846 3050B, 6010B, METALS BY ICP

Batch 114071 SampType: MBLK Units mg/Kg-dry

SampID: MBLK-114071

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron	2.00		**< 2.00**	2.000	0	0	-100	100	11/12/2015

Batch 114071 SampType: LCS Units mg/Kg-dry

SampID: LCS-114071

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron	2.00		**46.1**	50.00	0	92.2	85	115	11/12/2015

SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114099 SampType: **MBLK** Units **µg/Kg**
SampID: MBLK-Y151112A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	1.0		**ND**						11/12/2015
Ethylbenzene	5.0		**ND**						11/12/2015
Toluene	5.0		**ND**						11/12/2015
Xylenes, Total	5.0		**ND**						11/12/2015
Surr: 1,2-Dichloroethane-d4			**49.8**	50.00		99.6	72.2	131	11/12/2015
Surr: 4-Bromofluorobenzene			**51.9**	50.00		103.8	82.1	116	11/12/2015
Surr: Dibromofluoromethane			**48.5**	50.00		96.9	77.7	120	11/12/2015
Surr: Toluene-d8			**52.0**	50.00		104.1	86	116	11/12/2015

Batch 114099 SampType: **LCSD** Units **µg/Kg** RPD Limit **40**
SampID: LCSD-Y151112A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Benzene	1.0		**48.7**	50.00	0	97.5	47.87	1.80	11/12/2015
Ethylbenzene	5.0		**51.8**	50.00	0	103.7	52.49	1.23	11/12/2015
Toluene	5.0		**51.1**	50.00	0	102.1	51.41	0.68	11/12/2015
Xylenes, Total	5.0		**155**	150.0	0	103.6	157.5	1.37	11/12/2015
Surr: 1,2-Dichloroethane-d4			**49.4**	50.00		98.9			11/12/2015
Surr: 4-Bromofluorobenzene			**51.9**	50.00		103.8			11/12/2015
Surr: Dibromofluoromethane			**50.8**	50.00		101.6			11/12/2015
Surr: Toluene-d8			**51.3**	50.00		102.5			11/12/2015

Batch 114099 SampType: **LCS** Units **µg/Kg**
SampID: LCS-Y151112A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	1.0		**47.9**	50.00	0	95.7	80.8	117	11/12/2015
Ethylbenzene	5.0		**52.5**	50.00	0	105.0	84.8	116	11/12/2015
Toluene	5.0		**51.4**	50.00	0	102.8	81.3	113	11/12/2015
Xylenes, Total	5.0		**158**	150.0	0	105.0	85.3	118	11/12/2015
Surr: 1,2-Dichloroethane-d4			**49.7**	50.00		99.4	72.2	131	11/12/2015
Surr: 4-Bromofluorobenzene			**51.4**	50.00		102.8	82.1	116	11/12/2015
Surr: Dibromofluoromethane			**51.3**	50.00		102.6	77.7	120	11/12/2015
Surr: Toluene-d8			**51.6**	50.00		103.3	86	116	11/12/2015

Batch 114100 SampType: **MBLK** Units **µg/Kg**
SampID: MBLK-F151112A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	1.0		**ND**						11/12/2015
Ethylbenzene	5.0		**ND**						11/12/2015
Toluene	5.0		**ND**						11/12/2015
Xylenes, Total	5.0		**ND**						11/12/2015
Surr: 1,2-Dichloroethane-d4			**46.9**	50.00		93.8	72.2	131	11/12/2015
Surr: 4-Bromofluorobenzene			**52.3**	50.00		104.6	82.1	116	11/12/2015
Surr: Dibromofluoromethane			**47.9**	50.00		95.8	77.7	120	11/12/2015
Surr: Toluene-d8			**54.1**	50.00		108.1	86	116	11/12/2015

SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114100 **SampType:** LCSD Units µg/Kg RPD Limit 40

SampID: LCSD-F151112A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Benzene	1.0		**48.2**	50.00	0	96.3	47.85	0.62	11/12/2015
Ethylbenzene	5.0		**53.7**	50.00	0	107.4	53.30	0.75	11/12/2015
Toluene	5.0		**52.7**	50.00	0	105.4	45.70	14.23	11/12/2015
Xylenes, Total	5.0		**164**	150.0	0	109.3	166.1	1.29	11/12/2015
Surr: 1,2-Dichloroethane-d4			**48.2**	50.00		96.3			11/12/2015
Surr: 4-Bromofluorobenzene			**49.9**	50.00		99.9			11/12/2015
Surr: Dibromofluoromethane			**49.2**	50.00		98.5			11/12/2015
Surr: Toluene-d8			**52.8**	50.00		105.5			11/12/2015

Batch 114100 **SampType:** LCS Units µg/Kg

SampID: LCS-F151112A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	1.0		**47.8**	50.00	0	95.7	80.8	117	11/12/2015
Ethylbenzene	5.0		**53.3**	50.00	0	106.6	84.8	116	11/12/2015
Toluene	5.0		**45.7**	50.00	0	91.4	81.3	113	11/12/2015
Xylenes, Total	5.0		**166**	150.0	0	110.8	85.3	118	11/12/2015
Surr: 1,2-Dichloroethane-d4			**48.2**	50.00		96.4	72.2	131	11/12/2015
Surr: 4-Bromofluorobenzene			**49.0**	50.00		98.0	82.1	116	11/12/2015
Surr: Dibromofluoromethane			**49.3**	50.00		98.7	77.7	120	11/12/2015
Surr: Toluene-d8			**46.2**	50.00		92.4	86	116	11/12/2015

Batch 114100 **SampType:** LCSGD Units %REC RPD Limit 0

SampID: LCSGD-F151112A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Surr: 1,2-Dichloroethane-d4			**47.0**	50.00		93.9			11/12/2015
Surr: 4-Bromofluorobenzene			**51.6**	50.00		103.2			11/12/2015
Surr: Dibromofluoromethane			**47.0**	50.00		93.9			11/12/2015
Surr: Toluene-d8			**54.7**	50.00		109.3			11/12/2015

Batch 114100 **SampType:** LCSG Units %REC

SampID: LCSG-F151112A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Surr: 1,2-Dichloroethane-d4			**47.6**	50.00		95.1	72.2	131	11/12/2015
Surr: 4-Bromofluorobenzene			**49.3**	50.00		98.5	82.1	116	11/12/2015
Surr: Dibromofluoromethane			**47.4**	50.00		94.7	77.7	120	11/12/2015
Surr: Toluene-d8			**47.3**	50.00		94.5	86	116	11/12/2015

Teklab Inc.
Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Geotechnology, Inc.
Client Project: Hutsonville J019896.05

Work Order: 15110660
Report Date: 16-Nov-15

Carrier: Employee

Received By: SAH

Completed by:
On:
11-Nov-15

Emily E. Pohlman

Reviewed by:
On:
11-Nov-15

Elizabeth A. Hurley

Pages to follow: Chain of custody 1 Extra pages included 0

Shipping container/cooler in good condition?	Yes	☑	No	☐	Not Present	☐	Temp °C	16.02
Type of thermal preservation?	None	☐	Ice	☑	Blue Ice	☐	Dry Ice	☐
Chain of custody present?	Yes	☑	No	☐				
Chain of custody signed when relinquished and received?	Yes	☑	No	☐				
Chain of custody agrees with sample labels?	Yes	☑	No	☐				
Samples in proper container/bottle?	Yes	☑	No	☐				
Sample containers intact?	Yes	☑	No	☐				
Sufficient sample volume for indicated test?	Yes	☑	No	☐				
All samples received within holding time?	Yes	☑	No	☐				
Reported field parameters measured:	Field	☐	Lab	☐	NA	☑		
Container/Temp Blank temperature in compliance?	Yes	☑	No	☐				

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes	☐	No	☐	No VOA vials	☑
Water - TOX containers have zero headspace?	Yes	☐	No	☐	No TOX containers	☑
Water - pH acceptable upon receipt?	Yes	☐	No	☐	NA	☑
NPDES/CWA TCN interferences checked/treated in the field?	Yes	☐	No	☐	NA	☑

Any No responses must be detailed below or on the COC.

CHAIN OF CUSTODY

pg. ____ of ____ Work order # 1511a60

TEKLAB, INC. 5445 Horseshoe Lake Road - Collinsville, IL 62234 - Phone: (618) 344-1004 - Fax: (618) 344-1005

Client: Geotechnology, Inc.
Address: 11816 Lackland Road
City / State / Zip: St. Louis, MO 63146
Contact: Anna Saindon Phone: (314) 997-7440
E-Mail: a_saindon@geotechnology.com Fax: (314) 997-2067

Samples on: [X] ICE [ ] BLUE ICE [ ] NO ICE 16.02 °C
Preserved in: [ ] LAB [ ] FIELD
FOR LAB USE ONLY
Lab Notes

Client Comments:

Are these samples known to be involved in litigation? If yes, a surcharge will apply [ ] Yes [X] No
Are these samples known to be hazardous? [ ] Yes [X] No
Are there any required reporting limits to be met on the requested analysis?. If yes, please provide limits in the comment section. [ ] Yes [X] No

Project Name/Number: Hutsonville J019896.05
Sample Collector's Name: Jessie Hahn

Results Requested: [ ] Standard [ ] 1-2 Day (100% Surcharge) [ ] Other ____ [X] 3 Day (50% Surcharge)

Billing Instructions

Lab Use Only	Sample Identification	Date/Time Sampled	UNPRES	HNO3	NaOH	H2SO4	HCL	MeOH	NaHSO4	OTHER	Aqueous	Drinking Water	Soil	Sludge	Special Waste	Groundwater	% Moisture	Boron	BTEX	Chloride	Flash Point	Sulfate	TCLP 8 RCRA
1511060 -001	Bottom Ash Pond Level	11/11/15 10:45	2				3										X	X	X	X	X	X	X

3 DAY

Relinquished By	Date/Time	Received By	Date/Time
[signature]	11/11/15 2:30	Shelley Hennessy	11/11/15 1430

The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client.

BottleOrder: 27213

December 03, 2015

Anna Saindon
Geotechnology, Inc.
11816 Lackland Road
St. Louis, MO 63146
TEL: (314) 997-7440
FAX: (314) 997-2067

NELAP ACCREDITED TNI LABORATORY

RE: Hutsonville J019896.06 **WorkOrder:** 15111371

Dear Anna Saindon:

TEKLAB, INC received 1 sample on 11/24/2015 9:48:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Shelly A Hennessy

Shelly A. Hennessy
Project Manager
(618)344-1004 ex 36
SHennessy@teklabinc.com

Client: Geotechnology, Inc. **Work Order:** 15111371

Client Project: Hutsonville J019896.06 **Report Date:** 03-Dec-15

This reporting package includes the following:

Abbr Definition

Abbr	Definition
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# -	Unknown hydrocarbon	B -	Analyte detected in associated Method Blank
E -	Value above quantitation range	H -	Holding times exceeded
I -	Associated internal standard was outside method criteria	J -	Analyte detected below quantitation limits
M -	Manual Integration used to determine area response	ND -	Not Detected at the Reporting Limit
R -	RPD outside accepted recovery limits	S -	Spike Recovery outside recovery limits
T -	TIC(Tentatively identified compound)	X -	Value exceeds Maximum Contaminant Level

Client: Geotechnology, Inc.

Client Project: Hutsonville J019896.06

Work Order: 15111371

Report Date: 03-Dec-15

Cooler Receipt Temp: 4.62 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road	3920 Pintail Dr	8421 Nieman Road	5445 Horseshoe Lake Road
	Collinsville, IL 62234-7425	Springfield, IL 62711-9415	Lenexa, KS 66214	Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2016	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2016	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2016	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2016	Collinsville
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2016	Collinsville
Arkansas	ADEQ	88-0966		3/14/2016	Collinsville
Illinois	IDPH	17584		5/31/2017	Collinsville
Kentucky	KDEP	98006		12/31/2015	Collinsville
Kentucky	UST	0073		1/31/2016	Collinsville
Missouri	MDNR	00930		5/31/2017	Collinsville
Oklahoma	ODEQ	9978		8/31/2016	Collinsville

Teklab, Inc. Environmental Laboratory

Laboratory Results

http://www.teklabinc.com/

Client: Geotechnology, Inc. **Work Order:** 15111371

Client Project: Hutsonville J019896.06 **Report Date:** 03-Dec-15

Lab ID: 15111371-001 **Client Sample ID:** QLTS-1

Matrix: SOLID **Collection Date:** 11/23/2015 15:45

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
ASTM D92								
Ignitability, Open Cup		60		**>200**	°F	1	11/24/2015 14:18	R211997
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		**20.0**	%	1	12/01/2015 19:21	R212169
STANDARD METHODS 4500-CL E (TOTAL)								
Chloride	NELAP	63	J	**26**	mg/Kg-dry	1	12/02/2015 15:42	114537
SW-846 9036 (TOTAL)								
Sulfate	NELAP	126	J	**76**	mg/Kg-dry	1	12/01/2015 17:37	114538
SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP								
Arsenic	NELAP	0.250		**< 0.250**	mg/L	1	11/30/2015 14:12	114455
Barium	NELAP	0.0500		**0.216**	mg/L	1	11/30/2015 14:12	114455
Cadmium	NELAP	0.0200		**< 0.0200**	mg/L	1	11/30/2015 14:12	114455
Chromium	NELAP	0.100		**< 0.100**	mg/L	1	11/30/2015 14:12	114455
Lead	NELAP	0.400		**< 0.400**	mg/L	1	11/30/2015 14:12	114455
Selenium	NELAP	0.500		**< 0.500**	mg/L	1	11/30/2015 14:12	114455
Silver	NELAP	0.100		**< 0.100**	mg/L	1	11/30/2015 14:12	114455
SW-846 1311, 7470A IN TCLP EXTRACT								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	11/30/2015 13:59	114452
SW-846 3050B, 6010B, METALS BY ICP								
Boron	NELAP	1.89		**4.19**	mg/Kg-dry	1	11/26/2015 1:14	114435
SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Benzene	NELAP	1.1		**ND**	µg/Kg-dry	1	11/24/2015 16:57	114424
Ethylbenzene	NELAP	5.5		**ND**	µg/Kg-dry	1	11/24/2015 16:57	114424
Toluene	NELAP	5.5		**ND**	µg/Kg-dry	1	11/24/2015 16:57	114424
Xylenes, Total	NELAP	5.5		**ND**	µg/Kg-dry	1	11/24/2015 16:57	114424
Surr: 1,2-Dichloroethane-d4		72.2-131		**116.3**	%REC	1	11/24/2015 16:57	114424
Surr: 4-Bromofluorobenzene		82.1-116		**104.2**	%REC	1	11/24/2015 16:57	114424
Surr: Dibromofluoromethane		77.7-120		**103.2**	%REC	1	11/24/2015 16:57	114424
Surr: Toluene-d8		86-116		**102.6**	%REC	1	11/24/2015 16:57	114424

Client: Geotechnology, Inc. **Work Order:** 15111371

Client Project: Hutsonville J019896.06 **Report Date:** 03-Dec-15

ASTM D92

Batch R211997 **SampType:** DUP Units °F RPD Limit 5

SampID: 15111370-001ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Open Cup	60		**194**				192.0	1.04	11/24/2015

Batch R211997 **SampType:** DUP Units °F RPD Limit 5

SampID: 15111370-002ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Open Cup	60		**196**				196.0	0.00	11/24/2015

Batch R211997 **SampType:** DUP Units °F RPD Limit 5

SampID: 15111370-003ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Open Cup	60		**196**				190.0	3.11	11/24/2015

EPA SW846 3550C, 5035A, ASTM D2974

Batch R212169 **SampType:** LCS Units %

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Percent Moisture	0.1		**99.0**	99.00	0	100.0	90	110	12/01/2015

Batch R212169 **SampType:** LCSQC Units %

SampID: LCSQC

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Percent Moisture	0.1		**99.1**	99.00	0	100.1	90	110	12/01/2015

STANDARD METHODS 4500-CL E (TOTAL)

Batch 114537 **SampType:** MBLK Units mg/Kg

SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5	J	**3**						12/02/2015

Batch 114537 **SampType:** MBLK Units mg/Kg

SampID: MBLK 151130

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	50	J	**20**						12/01/2015

Batch 114537 **SampType:** LCS Units mg/Kg

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5		**20**	20.00	0	100.8	90	110	12/02/2015

STANDARD METHODS 4500-CL E (TOTAL)

Batch 114537 **SampType:** MS Units **mg/Kg-dry**

SampID: 15111370-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	58		**246**	230.2	28.20	94.5	85	115	12/02/2015

Batch 114537 **SampType:** MSD Units **mg/Kg-dry** RPD Limit **15**

SampID: 15111370-002AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride	58		**246**	230.2	28.20	94.5	245.8	0.05	12/02/2015

SW-846 9036 (TOTAL)

Batch 114538 **SampType:** MBLK Units **mg/Kg**

SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		**< 10**						12/01/2015

Batch 114538 **SampType:** MBLK Units **mg/Kg**

SampID: MBLK 151130

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	100		**< 100**						12/01/2015

Batch 114538 **SampType:** LCS Units **mg/Kg**

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		**20**	20.00	0	101.5	90	110	12/01/2015

Batch 114538 **SampType:** MS Units **mg/Kg-dry**

SampID: 15111370-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	115	S	**151**	115.1	77.82	64.0	85	115	12/01/2015

Batch 114538 **SampType:** MSD Units **mg/Kg-dry** RPD Limit **10**

SampID: 15111370-002AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate	115	S	**148**	115.1	77.82	61.3	151.5	2.07	12/01/2015

Client: Geotechnology, Inc. **Work Order:** 15111371

Client Project: Hutsonville J019896.06 **Report Date:** 03-Dec-15

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 114455 **SampType:** MBLK Units **mg/L**

SampID: MBLK-114455

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**< 0.250**	0.2500	0	0	-100	100	11/30/2015
Barium	0.500		**< 0.500**	0.5000	0	0	-100	100	11/30/2015
Cadmium	0.0200		**< 0.0200**	0.02000	0	0	-100	100	11/30/2015
Chromium	0.100		**< 0.100**	0.1000	0	0	-100	100	11/30/2015
Lead	0.400		**< 0.400**	0.4000	0	0	-100	100	11/30/2015
Selenium	0.500		**< 0.500**	0.5000	0	0	-100	100	11/30/2015
Silver	0.100		**< 0.100**	0.1000	0	0	-100	100	11/30/2015

Batch 114455 **SampType:** LCS Units **mg/L**

SampID: LCS-114455

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.2**	20.00	0	96.2	85	115	11/30/2015
Barium	0.500		**19.7**	20.00	0	98.3	85	115	11/30/2015
Cadmium	0.0200		**0.472**	0.5000	0	94.4	85	115	11/30/2015
Chromium	0.100		**2.04**	2.000	0	102.0	85	115	11/30/2015
Lead	0.400		**4.84**	5.000	0	96.9	85	115	11/30/2015
Selenium	0.500		**19.2**	20.00	0	95.8	85	115	11/30/2015
Silver	0.100		**0.488**	0.5000	0	97.6	85	115	11/30/2015

Batch 114455 **SampType:** MS Units **mg/L**

SampID: 15111370-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.5**	20.00	0	97.6	75	125	11/30/2015
Barium	0.500		**19.7**	20.00	0.1040	98.0	75	125	11/30/2015
Cadmium	0.0200		**0.478**	0.5000	0	95.6	75	125	11/30/2015
Chromium	0.100		**2.05**	2.000	0	102.6	75	125	11/30/2015
Lead	0.400		**4.95**	5.000	0	99.0	75	125	11/30/2015
Selenium	0.500		**19.4**	20.00	0	97.3	75	125	11/30/2015
Silver	0.100		**0.493**	0.5000	0	98.6	75	125	11/30/2015

Batch 114455 **SampType:** MSD Units **mg/L** RPD Limit **20**

SampID: 15111370-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Arsenic	0.250		**19.6**	20.00	0	98.0	19.51	0.41	11/30/2015
Barium	0.500		**20.1**	20.00	0.1040	99.8	19.71	1.81	11/30/2015
Cadmium	0.0200		**0.478**	0.5000	0	95.6	0.4780	0.00	11/30/2015
Chromium	0.100		**2.05**	2.000	0	102.5	2.053	0.15	11/30/2015
Lead	0.400		**4.94**	5.000	0	98.9	4.952	0.16	11/30/2015
Selenium	0.500		**19.5**	20.00	0	97.4	19.45	0.21	11/30/2015
Silver	0.100		**0.487**	0.5000	0	97.4	0.4930	1.22	11/30/2015

Client: Geotechnology, Inc. **Work Order:** 15111371

Client Project: Hutsonville J019896.06 **Report Date:** 03-Dec-15

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 114455 **SampType:** MS Units **mg/L**

SampID: 15111370-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.4**	20.00	0	97.3	75	125	11/30/2015
Barium	0.500		**19.9**	20.00	0.1550	98.6	75	125	11/30/2015
Cadmium	0.0200		**0.480**	0.5000	0	96.0	75	125	11/30/2015
Chromium	0.100		**2.06**	2.000	0	103.0	75	125	11/30/2015
Lead	0.400		**4.91**	5.000	0	98.2	75	125	11/30/2015
Selenium	0.500		**19.4**	20.00	0	97.0	75	125	11/30/2015
Silver	0.100		**0.487**	0.5000	0	97.4	75	125	11/30/2015

Batch 114455 **SampType:** MS Units **mg/L**

SampID: 15111371-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.3**	20.00	0	96.6	75	125	11/30/2015
Barium	0.500		**19.6**	20.00	0.2160	96.9	75	125	11/30/2015
Cadmium	0.0200		**0.477**	0.5000	0	95.4	75	125	11/30/2015
Chromium	0.100		**2.06**	2.000	0	103.0	75	125	11/30/2015
Lead	0.400		**4.90**	5.000	0	98.1	75	125	11/30/2015
Selenium	0.500		**19.3**	20.00	0	96.6	75	125	11/30/2015
Silver	0.100		**0.488**	0.5000	0	97.6	75	125	11/30/2015

Batch 114455 **SampType:** MS Units **mg/L**

SampID: 15111394-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.2**	20.00	0	96.0	75	125	11/30/2015
Barium	0.500		**20.6**	20.00	0.6920	99.3	75	125	11/30/2015
Cadmium	0.0200		**0.474**	0.5000	0	94.8	75	125	11/30/2015
Chromium	0.100		**2.04**	2.000	0	102.2	75	125	11/30/2015
Lead	0.400		**4.84**	5.000	0	96.9	75	125	11/30/2015
Selenium	0.500		**19.3**	20.00	0	96.5	75	125	11/30/2015
Silver	0.100		**0.480**	0.5000	0	96.0	75	125	11/30/2015

Batch 114455 **SampType:** MS Units **mg/L**

SampID: 15111445-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**20.0**	20.00	0	100.2	75	125	11/30/2015
Barium	0.500		**20.4**	20.00	0.07300	101.8	75	125	11/30/2015
Cadmium	0.0200		**0.491**	0.5000	0.005000	97.2	75	125	11/30/2015
Chromium	0.100		**2.10**	2.000	0	105.1	75	125	11/30/2015
Lead	0.400		**5.70**	5.000	0.6820	100.4	75	125	11/30/2015
Selenium	0.500		**19.7**	20.00	0	98.7	75	125	11/30/2015
Silver	0.100		**0.499**	0.5000	0	99.8	75	125	11/30/2015

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Geotechnology, Inc.
Client Project: Hutsonville J019896.06

Work Order: 15111371
Report Date: 03-Dec-15

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 114455 **SampType:** MS Units **mg/L**
SampID: 15111447-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.7**	20.00	0	98.6	75	125	11/30/2015
Barium	0.500		**20.4**	20.00	0.2260	101.0	75	125	11/30/2015
Cadmium	0.0200		**0.484**	0.5000	0	96.8	75	125	11/30/2015
Chromium	0.100		**2.08**	2.000	0	104.2	75	125	11/30/2015
Lead	0.400		**4.99**	5.000	0	99.8	75	125	11/30/2015
Selenium	0.500		**19.6**	20.00	0	97.8	75	125	11/30/2015
Silver	0.100		**0.496**	0.5000	0	99.2	75	125	11/30/2015

Batch 114455 **SampType:** MS Units **mg/L**
SampID: 15111464-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.5**	20.00	0	97.6	75	125	11/30/2015
Barium	0.500		**20.2**	20.00	0.2880	99.6	75	125	11/30/2015
Cadmium	0.0200		**0.478**	0.5000	0	95.6	75	125	11/30/2015
Chromium	0.100		**2.04**	2.000	0	102.2	75	125	11/30/2015
Lead	0.400		**4.91**	5.000	0	98.3	75	125	11/30/2015
Selenium	0.500		**19.5**	20.00	0	97.4	75	125	11/30/2015
Silver	0.100		**0.485**	0.5000	0	97.0	75	125	11/30/2015

SW-846 1311, 7470A IN TCLP EXTRACT

Batch 114452 **SampType:** MBLK Units **mg/L**
SampID: MBLK-114452

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**< 0.00020**	.000200	0	0	-100	100	11/30/2015

Batch 114452 **SampType:** LCS Units **mg/L**
SampID: LCS-114452

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00482**	).00500(	0	96.4	85	115	11/30/2015

Batch 114452 **SampType:** MS Units **mg/L**
SampID: 15111370-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00475**	).00500(	0	95.0	75	125	11/30/2015

Batch 114452 **SampType:** MS Units **mg/L**
SampID: 15111370-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00472**	).00500(	0	94.5	75	125	11/30/2015

Client: Geotechnology, Inc. **Work Order:** 15111371

Client Project: Hutsonville J019896.06 **Report Date:** 03-Dec-15

SW-846 1311, 7470A IN TCLP EXTRACT

Batch 114452 **SampType:** MS Units **mg/L**

SampID: 15111371-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00462**	).00500(	0	92.3	75	125	11/30/2015

Batch 114452 **SampType:** MS Units **mg/L**

SampID: 15111394-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00459**	).00500(	0	91.8	75	125	11/30/2015

Batch 114452 **SampType:** MSD Units **mg/L** RPD Limit **15**

SampID: 15111394-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Mercury	0.00020		**0.00467**	).00500(	0	93.3	0.004590	1.67	11/30/2015

Batch 114452 **SampType:** MS Units **mg/L**

SampID: 15111445-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00540**	).00500(	0.0005590	96.7	75	125	11/30/2015

Batch 114452 **SampType:** MS Units **mg/L**

SampID: 15111447-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00460**	).00500(	0	92.0	75	125	11/30/2015

Batch 114452 **SampType:** MS Units **mg/L**

SampID: 15111464-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00468**	).00500(	0	93.5	75	125	11/30/2015

SW-846 3050B, 6010B, METALS BY ICP

Batch 114435 **SampType:** MBLK Units **mg/Kg-dry**

SampID: MBLK-114435

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron	2.00		**< 2.00**	2.000	0	0	-100	100	11/25/2015

Batch 114435 **SampType:** LCS Units **mg/Kg-dry**

SampID: LCS-114435

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron	2.00		**49.4**	50.00	0	98.8	85	115	11/25/2015

Client: Geotechnology, Inc. **Work Order:** 15111371

Client Project: Hutsonville J019896.06 **Report Date:** 03-Dec-15

SW-846 3050B, 6010B, METALS BY ICP

Batch 114435 **SampType:** MS Units **mg/Kg-dry**

SampID: 15111371-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron	1.89		**41.5**	47.17	4.189	79.2	75	125	11/26/2015

Batch 114435 **SampType:** MSD Units **mg/Kg-dry** RPD Limit **20**

SampID: 15111371-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Boron	1.89		**42.0**	47.17	4.189	80.1	41.54	1.06	11/26/2015

SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114424 **SampType:** MBLK Units **µg/Kg**

SampID: MBLK-Y151124A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	1.0		**ND**						11/24/2015
Ethylbenzene	5.0		**ND**						11/24/2015
Toluene	5.0		**ND**						11/24/2015
Xylenes, Total	5.0		**ND**						11/24/2015
Surr: 1,2-Dichloroethane-d4			**52.7**	50.00		105.4	72.2	131	11/24/2015
Surr: 4-Bromofluorobenzene			**50.3**	50.00		100.7	82.1	116	11/24/2015
Surr: Dibromofluoromethane			**50.3**	50.00		100.5	77.7	120	11/24/2015
Surr: Toluene-d8			**50.1**	50.00		100.2	86	116	11/24/2015

Batch 114424 **SampType:** LCSD Units **µg/Kg** RPD Limit **40**

SampID: LCSD-Y151124A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Benzene	1.0		**50.1**	50.00	0	100.3	50.23	0.20	11/24/2015
Ethylbenzene	5.0		**51.1**	50.00	0	102.1	50.69	0.73	11/24/2015
Toluene	5.0		**49.8**	50.00	0	99.6	49.36	0.93	11/24/2015
Xylenes, Total	5.0		**154**	150.0	0	102.3	150.3	2.11	11/24/2015
Surr: 1,2-Dichloroethane-d4			**49.8**	50.00		99.7			11/24/2015
Surr: 4-Bromofluorobenzene			**50.2**	50.00		100.4			11/24/2015
Surr: Dibromofluoromethane			**50.6**	50.00		101.2			11/24/2015
Surr: Toluene-d8			**50.4**	50.00		100.8			11/24/2015

Batch 114424 **SampType:** LCS Units **µg/Kg**

SampID: LCS-Y151124A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	1.0		**50.2**	50.00	0	100.5	80.8	117	11/24/2015
Ethylbenzene	5.0		**50.7**	50.00	0	101.4	84.8	116	11/24/2015
Toluene	5.0		**49.4**	50.00	0	98.7	81.3	113	11/24/2015
Xylenes, Total	5.0		**150**	150.0	0	100.2	85.3	118	11/24/2015
Surr: 1,2-Dichloroethane-d4			**50.4**	50.00		100.8	72.2	131	11/24/2015
Surr: 4-Bromofluorobenzene			**50.0**	50.00		100.0	82.1	116	11/24/2015
Surr: Dibromofluoromethane			**51.6**	50.00		103.1	77.7	120	11/24/2015
Surr: Toluene-d8			**50.1**	50.00		100.2	86	116	11/24/2015

Teklab Inc. Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Geotechnology, Inc.

Client Project: Hutsonville J019896.06

Work Order: 15111371

Report Date: 03-Dec-15

Carrier: UPS

Received By: EEP

Completed by: M. Kaminski
On: 24-Nov-15
Mary Anne Kaminski

Reviewed by: Shelly A Hennessy
On: 24-Nov-15
Shelly A. Hennessy

Pages to follow: Chain of custody 1 Extra pages included 0

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C	4.62
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice	☐
Chain of custody present?	Yes ☑	No ☐			
Chain of custody signed when relinquished and received?	Yes ☑	No ☐			
Chain of custody agrees with sample labels?	Yes ☑	No ☐			
Samples in proper container/bottle?	Yes ☑	No ☐			
Sample containers intact?	Yes ☑	No ☐			
Sufficient sample volume for indicated test?	Yes ☑	No ☐			
All samples received within holding time?	Yes ☑	No ☐			
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑		
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐			

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes ☐	No ☐	No VOA vials ☑
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	NA ☐
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA ☑

Any No responses must be detailed below or on the COC.

15111371

CHAIN OF CUSTODY

pg. 1 of 1 Work order # PO. 42370

TEKLAB, INC. 5445 Horseshoe Lake Road - Collinsville, IL 62234 - Phone: (618) 344-1004 - Fax: (618) 344-1005

Client: Geotechnology, Inc.
Address: 11816 Lackland Road
City / State / Zip St. Louis, MO 63146
Contact: Anna Saindon **Phone:** (314) 997-7440
E-Mail: a_saindon@geotechnology.com **Fax:** (314) 997-2067

re these samples known to be involved in litigation? If yes, a surcharge will apply ☐ Yes ☒ No
re these samples known to be hazardous? ☐ Yes ☒ No
re there any required reporting limits to be met on the requested analysis?. If yes, please provide nits in the comment section. ☐ Yes ☒ No

Samples on: ☒ ICE ☐ BLUE ICE ☐ NO ICE 4.102 °C
Preserved in: ☐ LAB ☐ FIELD **FOR LAB USE ONLY**
Lab Notes

Client Comments:

Project Name/Number: Hutsonville ~~J019896.05~~ J019896.06

Sample Collector's Name: Jessie Hahn

Results Requested: ☒ Standard ☐ 1-2 Day (100% Surcharge) ☐ Other ___ ☐ 3 Day (50% Surcharge)

Billing Instructions

Lab Use Only	Sample Identification	Date/Time Sampled	UNPRES	HNO3	NaOH	H2SO4	HCL	MeOH	NaHSO4	OTHER	Aqueous	Drinking Water	Soil	Sludge	Special Waste	Groundwater	% Moisture	Boron	BTEX	Chloride	Flash Point	Sulfate	TCLP 8 RCRA
15111371.001	QLTS-1	11/23/15 1545	2					1	2				5				1	1	1	1	1	1	1

Relinquished By	Date/Time	Received By	Date/Time
Jessie Hahn [signature]	11/23/15 1700	[signature] UPS	11/24/15 948

The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client.

BottleOrder: 28267

AMN 11.24.15

December 03, 2015

Anna Saindon
Geotechnology, Inc.
11816 Lackland Road
St. Louis, MO 63146
TEL: (314) 997-7440
FAX: (314) 997-2067

RE: Hutsonville J019896.05 **WorkOrder:** 15111370

Dear Anna Saindon:

TEKLAB, INC received 3 samples on 11/24/2015 9:48:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Shelly A Hennessy

Shelly A. Hennessy
Project Manager
(618)344-1004 ex 36
SHennessy@teklabinc.com

Report Contents

http://www.teklabinc.com/

Client: Geotechnology, Inc.
Client Project: Hutsonville J019896.05

Work Order: 15111370
Report Date: 03-Dec-15

This reporting package includes the following:

Abbr	Definition
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method’s recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# -	Unknown hydrocarbon	B -	Analyte detected in associated Method Blank
E -	Value above quantitation range	H -	Holding times exceeded
I -	Associated internal standard was outside method criteria	J -	Analyte detected below quantitation limits
M -	Manual Integration used to determine area response	ND -	Not Detected at the Reporting Limit
R -	RPD outside accepted recovery limits	S -	Spike Recovery outside recovery limits
T -	TIC(Tentatively identified compound)	X -	Value exceeds Maximum Contaminant Level

Case Narrative

http://www.teklabinc.com/

Client: Geotechnology, Inc. **Work Order:** 15111370

Client Project: Hutsonville J019896.05 **Report Date:** 03-Dec-15

Cooler Receipt Temp: 1.62 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	3920 Pintail Dr Springfield, IL 62711-9415	8421 Nieman Road Lenexa, KS 66214	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2016	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2016	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2016	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2016	Collinsville
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2016	Collinsville
Arkansas	ADEQ	88-0966		3/14/2016	Collinsville
Illinois	IDPH	17584		5/31/2017	Collinsville
Kentucky	KDEP	98006		12/31/2015	Collinsville
Kentucky	UST	0073		1/31/2016	Collinsville
Missouri	MDNR	00930		5/31/2017	Collinsville
Oklahoma	ODEQ	9978		8/31/2016	Collinsville

Laboratory Results

http://www.teklabinc.com/

Client: Geotechnology, Inc. **Work Order:** 15111370

Client Project: Hutsonville J019896.05 **Report Date:** 03-Dec-15

Lab ID: 15111370-001 **Client Sample ID:** BF-4

Matrix: SOLID **Collection Date:** 11/23/2015 11:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
ASTM D92								
Ignitability, Open Cup		60		**192**	°F	1	11/24/2015 12:49	R211997
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		**12.9**	%	1	12/01/2015 19:20	R212169
STANDARD METHODS 4500-CL E (TOTAL)								
Chloride	NELAP	57	J	**17**	mg/Kg-dry	1	12/01/2015 16:43	114537
SW-846 9036 (TOTAL)								
Sulfate	NELAP	115	J	**63**	mg/Kg-dry	1	12/01/2015 16:43	114538
SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP								
Arsenic	NELAP	0.250		**< 0.250**	mg/L	1	11/30/2015 13:35	114455
Barium	NELAP	0.0500		**0.104**	mg/L	1	11/30/2015 13:35	114455
Cadmium	NELAP	0.0200		**< 0.0200**	mg/L	1	11/30/2015 13:35	114455
Chromium	NELAP	0.100		**< 0.100**	mg/L	1	11/30/2015 13:35	114455
Lead	NELAP	0.400		**< 0.400**	mg/L	1	11/30/2015 13:35	114455
Selenium	NELAP	0.500		**< 0.500**	mg/L	1	11/30/2015 13:35	114455
Silver	NELAP	0.100		**< 0.100**	mg/L	1	11/30/2015 13:35	114455
SW-846 1311, 7470A IN TCLP EXTRACT								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	11/30/2015 13:48	114452
SW-846 3050B, 6010B, METALS BY ICP								
Boron	NELAP	1.92		**5.62**	mg/Kg-dry	1	11/26/2015 0:56	114435
SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Benzene	NELAP	0.8		**ND**	µg/Kg-dry	1	11/24/2015 15:37	114424
Ethylbenzene	NELAP	4.1		**ND**	µg/Kg-dry	1	11/24/2015 15:37	114424
Toluene	NELAP	4.1		**ND**	µg/Kg-dry	1	11/24/2015 15:37	114424
Xylenes, Total	NELAP	4.1		**ND**	µg/Kg-dry	1	11/24/2015 15:37	114424
Surr: 1,2-Dichloroethane-d4		72.2-131		**111.7**	%REC	1	11/24/2015 15:37	114424
Surr: 4-Bromofluorobenzene		82.1-116		**107.0**	%REC	1	11/24/2015 15:37	114424
Surr: Dibromofluoromethane		77.7-120		**101.9**	%REC	1	11/24/2015 15:37	114424
Surr: Toluene-d8		86-116		**101.8**	%REC	1	11/24/2015 15:37	114424

Client: Geotechnology, Inc. **Work Order:** 15111370

Client Project: Hutsonville J019896.05 **Report Date:** 03-Dec-15

Lab ID: 15111370-002 **Client Sample ID:** BF-9

Matrix: SOLID **Collection Date:** 11/23/2015 11:45

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
ASTM D92								
Ignitability, Open Cup		60		**196**	°F	1	11/24/2015 13:18	R211997
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		**13.6**	%	1	12/01/2015 19:20	R212169
STANDARD METHODS 4500-CL E (TOTAL)								
Chloride	NELAP	58	J	**28**	mg/Kg-dry	1	12/02/2015 15:13	114537
SW-846 9036 (TOTAL)								
Sulfate	NELAP	115	JS	**78**	mg/Kg-dry	1	12/01/2015 17:07	114538
MS and/or MSD did not recover within control limits due to matrix interference.								
SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP								
Arsenic	NELAP	0.250		**< 0.250**	mg/L	1	11/30/2015 13:54	114455
Barium	NELAP	0.0500		**0.155**	mg/L	1	11/30/2015 13:54	114455
Cadmium	NELAP	0.0200		**< 0.0200**	mg/L	1	11/30/2015 13:54	114455
Chromium	NELAP	0.100		**< 0.100**	mg/L	1	11/30/2015 13:54	114455
Lead	NELAP	0.400		**< 0.400**	mg/L	1	11/30/2015 13:54	114455
Selenium	NELAP	0.500		**< 0.500**	mg/L	1	11/30/2015 13:54	114455
Silver	NELAP	0.100		**< 0.100**	mg/L	1	11/30/2015 13:54	114455
SW-846 1311, 7470A IN TCLP EXTRACT								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	11/30/2015 13:52	114452
SW-846 3050B, 6010B, METALS BY ICP								
Boron	NELAP	1.85		**4.09**	mg/Kg-dry	1	11/26/2015 1:02	114435
SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Benzene	NELAP	0.9		**ND**	µg/Kg-dry	1	11/24/2015 16:04	114424
Ethylbenzene	NELAP	4.3		**ND**	µg/Kg-dry	1	11/24/2015 16:04	114424
Toluene	NELAP	4.3		**ND**	µg/Kg-dry	1	11/24/2015 16:04	114424
Xylenes, Total	NELAP	4.3		**ND**	µg/Kg-dry	1	11/24/2015 16:04	114424
Surr: 1,2-Dichloroethane-d4		72.2-131		**113.3**	%REC	1	11/24/2015 16:04	114424
Surr: 4-Bromofluorobenzene		82.1-116		**100.8**	%REC	1	11/24/2015 16:04	114424
Surr: Dibromofluoromethane		77.7-120		**101.7**	%REC	1	11/24/2015 16:04	114424
Surr: Toluene-d8		86-116		**100.2**	%REC	1	11/24/2015 16:04	114424

Laboratory Results

http://www.teklabinc.com/

Client: Geotechnology, Inc. | **Work Order:** 15111370
Client Project: Hutsonville J019896.05 | **Report Date:** 03-Dec-15
Lab ID: 15111370-003 | **Client Sample ID:** BAPL-2
Matrix: SOLID | **Collection Date:** 11/23/2015 12:15

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
ASTM D92								
Ignitability, Open Cup		60		**190**	°F	1	11/24/2015 13:48	R211997
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		**19.4**	%	1	12/01/2015 19:21	R212169
STANDARD METHODS 4500-CL E (TOTAL)								
Chloride	NELAP	62	J	**23**	mg/Kg-dry	1	12/02/2015 15:40	114537
SW-846 9036 (TOTAL)								
Sulfate	NELAP	124	J	**92**	mg/Kg-dry	1	12/01/2015 17:29	114538
SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP								
Arsenic	NELAP	0.250		**< 0.250**	mg/L	1	11/30/2015 14:06	114455
Barium	NELAP	0.0500		**0.415**	mg/L	1	11/30/2015 14:06	114455
Boron	NELAP	0.200		**0.280**	mg/L	1	11/30/2015 14:06	114455
Cadmium	NELAP	0.0200		**< 0.0200**	mg/L	1	11/30/2015 14:06	114455
Chromium	NELAP	0.100		**< 0.100**	mg/L	1	11/30/2015 14:06	114455
Lead	NELAP	0.400		**< 0.400**	mg/L	1	11/30/2015 14:06	114455
Selenium	NELAP	0.500		**< 0.500**	mg/L	1	11/30/2015 14:06	114455
Silver	NELAP	0.100		**< 0.100**	mg/L	1	11/30/2015 14:06	114455
SW-846 1311, 7470A IN TCLP EXTRACT								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	11/30/2015 13:57	114452
SW-846 3050B, 6010B, METALS BY ICP								
Boron	NELAP	2.00		**11.3**	mg/Kg-dry	1	11/26/2015 1:08	114435
SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Benzene	NELAP	1.0		**1.2**	µg/Kg-dry	1	11/24/2015 16:30	114424
Ethylbenzene	NELAP	4.8		**ND**	µg/Kg-dry	1	11/24/2015 16:30	114424
Toluene	NELAP	4.8	J	**2.3**	µg/Kg-dry	1	11/24/2015 16:30	114424
Xylenes, Total	NELAP	4.8	J	**1.1**	µg/Kg-dry	1	11/24/2015 16:30	114424
Surr: 1,2-Dichloroethane-d4		72.2-131		**102.4**	%REC	1	11/24/2015 16:30	114424
Surr: 4-Bromofluorobenzene		82.1-116		**110.6**	%REC	1	11/24/2015 16:30	114424
Surr: Dibromofluoromethane		77.7-120		**89.7**	%REC	1	11/24/2015 16:30	114424
Surr: Toluene-d8		86-116		**105.8**	%REC	1	11/24/2015 16:30	114424

Client: Geotechnology, Inc. **Work Order:** 15111370

Client Project: Hutsonville J019896.05 **Report Date:** 03-Dec-15

ASTM D92

Batch R211997 **SampType:** DUP Units °F RPD Limit 5

SampID: 15111370-001ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Open Cup	60		**194**				192.0	1.04	11/24/2015

Batch R211997 **SampType:** DUP Units °F RPD Limit 5

SampID: 15111370-002ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Open Cup	60		**196**				196.0	0.00	11/24/2015

Batch R211997 **SampType:** DUP Units °F RPD Limit 5

SampID: 15111370-003ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Open Cup	60		**196**				190.0	3.11	11/24/2015

EPA SW846 3550C, 5035A, ASTM D2974

Batch R212169 **SampType:** LCS Units %

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Percent Moisture	0.1		**99.0**	99.00	0	100.0	90	110	12/01/2015

Batch R212169 **SampType:** LCSQC Units %

SampID: LCSQC

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Percent Moisture	0.1		**99.1**	99.00	0	100.1	90	110	12/01/2015

STANDARD METHODS 4500-CL E (TOTAL)

Batch 114537 **SampType:** MBLK Units mg/Kg

SampID: MBLK 151130

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	50	J	**20**						12/01/2015

Batch 114537 **SampType:** MS Units mg/Kg-dry

SampID: 15111370-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	58		**246**	230.2	28.20	94.5	85	115	12/02/2015

Batch 114537 **SampType:** MSD Units mg/Kg-dry RPD Limit 15

SampID: 15111370-002AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride	58		**246**	230.2	28.20	94.5	245.8	0.05	12/02/2015

Client: Geotechnology, Inc.
Work Order: 15111370
Client Project: Hutsonville J019896.05
Report Date: 03-Dec-15

STANDARD METHODS 4500-CL E (TOTAL)

Batch R212264 **SampType:** MBLK Units **mg/L**
SampID: ICB/MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5	J	**3**						12/02/2015

Batch R212264 **SampType:** MBLK Units **mg/Kg**
SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5	J	**3**						12/02/2015

Batch R212264 **SampType:** LCS Units **mg/L**
SampID: ICV/LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5		**20**	20.00	0	100.8	90	110	12/02/2015

Batch R212264 **SampType:** LCS Units **mg/Kg**
SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5		**20**	20.00	0	100.8	90	110	12/02/2015

Batch R212264 **SampType:** MS Units **mg/L**
SampID: 15120074-002BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5		**37**	20.00	17.05	102.0	85	115	12/02/2015

Batch R212264 **SampType:** MSD Units **mg/L** RPD Limit **15**
SampID: 15120074-002BMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride	5		**37**	20.00	17.05	98.8	37.45	1.70	12/02/2015

SW-846 9036 (TOTAL)

Batch 114538 **SampType:** MBLK Units **mg/Kg**
SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		**< 10**						12/01/2015

Batch 114538 **SampType:** MBLK Units **mg/Kg**
SampID: MBLK 151130

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	100		**< 100**						12/01/2015

Client: Geotechnology, Inc. **Work Order:** 15111370

Client Project: Hutsonville J019896.05 **Report Date:** 03-Dec-15

SW-846 9036 (TOTAL)

Batch 114538 **SampType:** LCS Units **mg/Kg**

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		**20**	20.00	0	101.5	90	110	12/01/2015

Batch 114538 **SampType:** MS Units **mg/Kg-dry**

SampID: 15111370-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	115	S	**151**	115.1	77.82	64.0	85	115	12/01/2015

Batch 114538 **SampType:** MSD Units **mg/Kg-dry** RPD Limit **10**

SampID: 15111370-002AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate	115	S	**148**	115.1	77.82	61.3	151.5	2.07	12/01/2015

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 114455 **SampType:** MBLK Units **mg/L**

SampID: MBLK-114455

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**< 0.250**	0.2500	0	0	-100	100	11/30/2015
Barium	0.500		**< 0.500**	0.5000	0	0	-100	100	11/30/2015
Boron	0.200		**< 0.200**	0.2000	0	0	-100	100	11/30/2015
Cadmium	0.0200		**< 0.0200**	0.02000	0	0	-100	100	11/30/2015
Chromium	0.100		**< 0.100**	0.1000	0	0	-100	100	11/30/2015
Lead	0.400		**< 0.400**	0.4000	0	0	-100	100	11/30/2015
Selenium	0.500		**< 0.500**	0.5000	0	0	-100	100	11/30/2015
Silver	0.100		**< 0.100**	0.1000	0	0	-100	100	11/30/2015

Batch 114455 **SampType:** LCS Units **mg/L**

SampID: LCS-114455

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.2**	20.00	0	96.2	85	115	11/30/2015
Barium	0.500		**19.7**	20.00	0	98.3	85	115	11/30/2015
Boron	0.200		**4.91**	5.000	0	98.1	85	115	11/30/2015
Cadmium	0.0200		**0.472**	0.5000	0	94.4	85	115	11/30/2015
Chromium	0.100		**2.04**	2.000	0	102.0	85	115	11/30/2015
Lead	0.400		**4.84**	5.000	0	96.9	85	115	11/30/2015
Selenium	0.500		**19.2**	20.00	0	95.8	85	115	11/30/2015
Silver	0.100		**0.488**	0.5000	0	97.6	85	115	11/30/2015

Client: Geotechnology, Inc. **Work Order:** 15111370

Client Project: Hutsonville J019896.05 **Report Date:** 03-Dec-15

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 114455 **SampType:** MS Units **mg/L**

SampID: 15111370-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.5**	20.00	0	97.6	75	125	11/30/2015
Barium	0.500		**19.7**	20.00	0.1040	98.0	75	125	11/30/2015
Cadmium	0.0200		**0.478**	0.5000	0	95.6	75	125	11/30/2015
Chromium	0.100		**2.05**	2.000	0	102.6	75	125	11/30/2015
Lead	0.400		**4.95**	5.000	0	99.0	75	125	11/30/2015
Selenium	0.500		**19.4**	20.00	0	97.3	75	125	11/30/2015
Silver	0.100		**0.493**	0.5000	0	98.6	75	125	11/30/2015

Batch 114455 **SampType:** MSD Units **mg/L** RPD Limit **20**

SampID: 15111370-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Arsenic	0.250		**19.6**	20.00	0	98.0	19.51	0.41	11/30/2015
Barium	0.500		**20.1**	20.00	0.1040	99.8	19.71	1.81	11/30/2015
Cadmium	0.0200		**0.478**	0.5000	0	95.6	0.4780	0.00	11/30/2015
Chromium	0.100		**2.05**	2.000	0	102.5	2.053	0.15	11/30/2015
Lead	0.400		**4.94**	5.000	0	98.9	4.952	0.16	11/30/2015
Selenium	0.500		**19.5**	20.00	0	97.4	19.45	0.21	11/30/2015
Silver	0.100		**0.487**	0.5000	0	97.4	0.4930	1.22	11/30/2015

Batch 114455 **SampType:** MS Units **mg/L**

SampID: 15111370-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.4**	20.00	0	97.3	75	125	11/30/2015
Barium	0.500		**19.9**	20.00	0.1550	98.6	75	125	11/30/2015
Cadmium	0.0200		**0.480**	0.5000	0	96.0	75	125	11/30/2015
Chromium	0.100		**2.06**	2.000	0	103.0	75	125	11/30/2015
Lead	0.400		**4.91**	5.000	0	98.2	75	125	11/30/2015
Selenium	0.500		**19.4**	20.00	0	97.0	75	125	11/30/2015
Silver	0.100		**0.487**	0.5000	0	97.4	75	125	11/30/2015

Batch 114455 **SampType:** MS Units **mg/L**

SampID: 15111371-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.3**	20.00	0	96.6	75	125	11/30/2015
Barium	0.500		**19.6**	20.00	0.2160	96.9	75	125	11/30/2015
Cadmium	0.0200		**0.477**	0.5000	0	95.4	75	125	11/30/2015
Chromium	0.100		**2.06**	2.000	0	103.0	75	125	11/30/2015
Lead	0.400		**4.90**	5.000	0	98.1	75	125	11/30/2015
Selenium	0.500		**19.3**	20.00	0	96.6	75	125	11/30/2015
Silver	0.100		**0.488**	0.5000	0	97.6	75	125	11/30/2015

Client: Geotechnology, Inc. **Work Order:** 15111370

Client Project: Hutsonville J019896.05 **Report Date:** 03-Dec-15

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 114455 **SampType:** MS Units **mg/L**

SampID: 15111394-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.2**	20.00	0	96.0	75	125	11/30/2015
Barium	0.500		**20.6**	20.00	0.6920	99.3	75	125	11/30/2015
Cadmium	0.0200		**0.474**	0.5000	0	94.8	75	125	11/30/2015
Chromium	0.100		**2.04**	2.000	0	102.2	75	125	11/30/2015
Lead	0.400		**4.84**	5.000	0	96.9	75	125	11/30/2015
Selenium	0.500		**19.3**	20.00	0	96.5	75	125	11/30/2015
Silver	0.100		**0.480**	0.5000	0	96.0	75	125	11/30/2015

Batch 114455 **SampType:** MS Units **mg/L**

SampID: 15111445-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**20.0**	20.00	0	100.2	75	125	11/30/2015
Barium	0.500		**20.4**	20.00	0.07300	101.8	75	125	11/30/2015
Cadmium	0.0200		**0.491**	0.5000	0.005000	97.2	75	125	11/30/2015
Chromium	0.100		**2.10**	2.000	0	105.1	75	125	11/30/2015
Lead	0.400		**5.70**	5.000	0.6820	100.4	75	125	11/30/2015
Selenium	0.500		**19.7**	20.00	0	98.7	75	125	11/30/2015
Silver	0.100		**0.499**	0.5000	0	99.8	75	125	11/30/2015

Batch 114455 **SampType:** MS Units **mg/L**

SampID: 15111447-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.7**	20.00	0	98.6	75	125	11/30/2015
Barium	0.500		**20.4**	20.00	0.2260	101.0	75	125	11/30/2015
Cadmium	0.0200		**0.484**	0.5000	0	96.8	75	125	11/30/2015
Chromium	0.100		**2.08**	2.000	0	104.2	75	125	11/30/2015
Lead	0.400		**4.99**	5.000	0	99.8	75	125	11/30/2015
Selenium	0.500		**19.6**	20.00	0	97.8	75	125	11/30/2015
Silver	0.100		**0.496**	0.5000	0	99.2	75	125	11/30/2015

Batch 114455 **SampType:** MS Units **mg/L**

SampID: 15111464-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.5**	20.00	0	97.6	75	125	11/30/2015
Barium	0.500		**20.2**	20.00	0.2880	99.6	75	125	11/30/2015
Cadmium	0.0200		**0.478**	0.5000	0	95.6	75	125	11/30/2015
Chromium	0.100		**2.04**	2.000	0	102.2	75	125	11/30/2015
Lead	0.400		**4.91**	5.000	0	98.3	75	125	11/30/2015
Selenium	0.500		**19.5**	20.00	0	97.4	75	125	11/30/2015
Silver	0.100		**0.485**	0.5000	0	97.0	75	125	11/30/2015

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Geotechnology, Inc. **Work Order:** 15111370

Client Project: Hutsonville J019896.05 **Report Date:** 03-Dec-15

SW-846 1311, 7470A IN TCLP EXTRACT

Batch 114452 **SampType:** MBLK Units **mg/L**

SampID: MBLK-114452

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**< 0.00020**	.000200	0	0	-100	100	11/30/2015

Batch 114452 **SampType:** LCS Units **mg/L**

SampID: LCS-114452

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00482**	).00500(	0	96.4	85	115	11/30/2015

Batch 114452 **SampType:** MS Units **mg/L**

SampID: 15111370-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00475**	).00500(	0	95.0	75	125	11/30/2015

Batch 114452 **SampType:** MS Units **mg/L**

SampID: 15111370-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00472**	).00500(	0	94.5	75	125	11/30/2015

Batch 114452 **SampType:** MS Units **mg/L**

SampID: 15111371-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00462**	).00500(	0	92.3	75	125	11/30/2015

Batch 114452 **SampType:** MS Units **mg/L**

SampID: 15111394-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00459**	).00500(	0	91.8	75	125	11/30/2015

Batch 114452 **SampType:** MSD Units **mg/L** RPD Limit **15**

SampID: 15111394-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Mercury	0.00020		**0.00467**	).00500(	0	93.3	0.004590	1.67	11/30/2015

Batch 114452 **SampType:** MS Units **mg/L**

SampID: 15111445-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00540**	).00500(	0.0005590	96.7	75	125	11/30/2015

Batch 114452 **SampType:** MS Units **mg/L**

SampID: 15111447-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00460**	).00500(	0	92.0	75	125	11/30/2015

Client: Geotechnology, Inc. **Work Order:** 15111370

Client Project: Hutsonville J019896.05 **Report Date:** 03-Dec-15

SW-846 1311, 7470A IN TCLP EXTRACT

Batch 114452 **SampType:** MS Units **mg/L**

SampID: 15111464-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00468**	).00500(	0	93.5	75	125	11/30/2015

SW-846 3050B, 6010B, METALS BY ICP

Batch 114435 **SampType:** MBLK Units **mg/Kg-dry**

SampID: MBLK-114435

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron	2.00		**< 2.00**	2.000	0	0	-100	100	11/25/2015

Batch 114435 **SampType:** LCS Units **mg/Kg-dry**

SampID: LCS-114435

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron	2.00		**49.4**	50.00	0	98.8	85	115	11/25/2015

Batch 114435 **SampType:** MS Units **mg/Kg-dry**

SampID: 15111371-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron	1.89		**41.5**	47.17	4.189	79.2	75	125	11/26/2015

Batch 114435 **SampType:** MSD Units **mg/Kg-dry** RPD Limit **20**

SampID: 15111371-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Boron	1.89		**42.0**	47.17	4.189	80.1	41.54	1.06	11/26/2015

SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114424 **SampType:** MBLK Units **µg/Kg**

SampID: MBLK-Y151124A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	1.0		**ND**						11/24/2015
Ethylbenzene	5.0		**ND**						11/24/2015
Toluene	5.0		**ND**						11/24/2015
Xylenes, Total	5.0		**ND**						11/24/2015
Surr: 1,2-Dichloroethane-d4			**52.7**	50.00		105.4	72.2	131	11/24/2015
Surr: 4-Bromofluorobenzene			**50.3**	50.00		100.7	82.1	116	11/24/2015
Surr: Dibromofluoromethane			**50.3**	50.00		100.5	77.7	120	11/24/2015
Surr: Toluene-d8			**50.1**	50.00		100.2	86	116	11/24/2015

SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch **114424** **SampType:** **LCSD** Units **µg/Kg** RPD Limit **40**

SampID: LCSD-Y151124A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Benzene	1.0		**50.1**	50.00	0	100.3	50.23	0.20	11/24/2015
Ethylbenzene	5.0		**51.1**	50.00	0	102.1	50.69	0.73	11/24/2015
Toluene	5.0		**49.8**	50.00	0	99.6	49.36	0.93	11/24/2015
Xylenes, Total	5.0		**154**	150.0	0	102.3	150.3	2.11	11/24/2015
Surr: 1,2-Dichloroethane-d4			**49.8**	50.00		99.7			11/24/2015
Surr: 4-Bromofluorobenzene			**50.2**	50.00		100.4			11/24/2015
Surr: Dibromofluoromethane			**50.6**	50.00		101.2			11/24/2015
Surr: Toluene-d8			**50.4**	50.00		100.8			11/24/2015

Batch **114424** **SampType:** **LCS** Units **µg/Kg**

SampID: LCS-Y151124A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	1.0		**50.2**	50.00	0	100.5	80.8	117	11/24/2015
Ethylbenzene	5.0		**50.7**	50.00	0	101.4	84.8	116	11/24/2015
Toluene	5.0		**49.4**	50.00	0	98.7	81.3	113	11/24/2015
Xylenes, Total	5.0		**150**	150.0	0	100.2	85.3	118	11/24/2015
Surr: 1,2-Dichloroethane-d4			**50.4**	50.00		100.8	72.2	131	11/24/2015
Surr: 4-Bromofluorobenzene			**50.0**	50.00		100.0	82.1	116	11/24/2015
Surr: Dibromofluoromethane			**51.6**	50.00		103.1	77.7	120	11/24/2015
Surr: Toluene-d8			**50.1**	50.00		100.2	86	116	11/24/2015

Teklab Inc. Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Geotechnology, Inc.　　**Work Order:** 15111370

Client Project: Hutsonville J019896.05　　**Report Date:** 03-Dec-15

Carrier: UPS　　**Received By:** EEP

Completed by: Emily Pohlman　　**Reviewed by:** Shelly A Hennessy

On: 24-Nov-15　　**On:** 24-Nov-15

Emily E. Pohlman　　Shelly A. Hennessy

Pages to follow: Chain of custody [1]　Extra pages included [0]

Shipping container/cooler in good condition?	Yes	☑	No	☐	Not Present	☐	Temp °C	1.62
Type of thermal preservation?	None	☐	Ice	☑	Blue Ice	☐	Dry Ice	☐
Chain of custody present?	Yes	☑	No	☐				
Chain of custody signed when relinquished and received?	Yes	☑	No	☐				
Chain of custody agrees with sample labels?	Yes	☑	No	☐				
Samples in proper container/bottle?	Yes	☑	No	☐				
Sample containers intact?	Yes	☑	No	☐				
Sufficient sample volume for indicated test?	Yes	☑	No	☐				
All samples received within holding time?	Yes	☑	No	☐				
Reported field parameters measured:	Field	☐	Lab	☐	NA	☑		
Container/Temp Blank temperature in compliance?	Yes	☑	No	☐				

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes	☐	No	☐	No VOA vials	☑		
Water - TOX containers have zero headspace?	Yes	☐	No	☐	No TOX containers	☑		
Water - pH acceptable upon receipt?	Yes	☐	No	☐	NA	☑		
NPDES/CWA TCN interferences checked/treated in the field?	Yes	☐	No	☐	NA	☑		

Any No responses must be detailed below or on the COC.

15111370

CHAIN OF CUSTODY

pg. 1 of 1 Work order # P.O. 42369

TEKLAB, INC. 5445 Horseshoe Lake Road - Collinsville, IL 62234 - Phone: (618) 344-1004 - Fax: (618) 344-1005

Client: Geotechnology, Inc.
Address: 11816 Lackland Road
City / State / Zip: St. Louis, MO 63146
Contact: Anna Saindon Phone: (314) 997-7440
E-Mail: a_saindon@geotechnology.com Fax: (314) 997-2067

Samples on: [x] ICE [ ] BLUE ICE [ ] NO ICE 1.0 °C
Preserved in: [ ] LAB [ ] FIELD **FOR LAB USE ONLY**
Lab Notes

Client Comments:

Are these samples known to be involved in litigation? If yes, a surcharge will apply [ ] Yes [x] No
Are these samples known to be hazardous? [ ] Yes [x] No
Are there any required reporting limits to be met on the requested analysis?. If yes, please provide limits in the comment section. [ ] Yes [x] No

Project Name/Number: Hutsonville J019896.05
Sample Collector's Name: Jessie Hahn

Results Requested: [x] Standard [ ] 1-2 Day (100% Surcharge) [ ] Other ____ [ ] 3 Day (50% Surcharge)

Billing Instructions

Lab Use Only	Sample Identification	Date/Time Sampled	UNPRES	HNO3	NaOH	H2SO4	HCL	MeOH	NaHSO4	OTHER	Aqueous	Drinking Water	Soil	Sludge	Special Waste	Groundwater	% Moisture	Boron	BTEX	Chloride	Flash Point	Sulfate	TCLP 8 RCRA	TCLP Boron
15111370-001	BF-4	11/23/15 1130	2					1	2				S				1	1	1	1	1	1	1	
002	BF-9	11/23/15 1145	2					1	2				S				1	1	1	1	1	1	1	
003	BAPL-2	11/23/15 1215	2					1	2				S				1	1	1	1	1	1	1	1

Relinquished By	Date/Time	Received By	Date/Time
Jessie Hahn	11/23/15 1700	UPS	11/24/15 948 AM

The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client.

BottleOrder: 28267

AMN 24-15

December 09, 2015

Jessie Hahn
Geotechnology, Inc.
11816 Lackland Road
St. Louis, MO 63146
TEL: (573) 270-1313
FAX: (314) 997-2067

RE: Hutsonville J019896.06 **WorkOrder:** 15120342

Dear Jessie Hahn:

TEKLAB, INC received 1 sample on 12/3/2015 4:05:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Shelly A Hennessy

Shelly A. Hennessy
Project Manager
(618)344-1004 ex 36
SHennessy@teklabinc.com

Report Contents

http://www.teklabinc.com/

Client: Geotechnology, Inc.
Client Project: Hutsonville J019896.06

Work Order: 15120342
Report Date: 09-Dec-15

This reporting package includes the following:

Client: Geotechnology, Inc. **Work Order:** 15120342

Client Project: Hutsonville J019896.06 **Report Date:** 09-Dec-15

Abbr Definition

Abbr	Definition
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# -	Unknown hydrocarbon	B -	Analyte detected in associated Method Blank
E -	Value above quantitation range	H -	Holding times exceeded
I -	Associated internal standard was outside method criteria	M -	Manual Integration used to determine area response
ND -	Not Detected at the Reporting Limit	R -	RPD outside accepted recovery limits
S -	Spike Recovery outside recovery limits	T -	TIC(Tentatively identified compound)
X -	Value exceeds Maximum Contaminant Level		

Client: Geotechnology, Inc.

Work Order: 15120342

Client Project: Hutsonville J019896.06

Report Date: 09-Dec-15

Cooler Receipt Temp: 2.62 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	3920 Pintail Dr Springfield, IL 62711-9415	8421 Nieman Road Lenexa, KS 66214	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2016	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2016	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2016	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2016	Collinsville
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2016	Collinsville
Arkansas	ADEQ	88-0966		3/14/2016	Collinsville
Illinois	IDPH	17584		5/31/2017	Collinsville
Kentucky	KDEP	98006		12/31/2015	Collinsville
Kentucky	UST	0073		1/31/2016	Collinsville
Missouri	MDNR	00930		5/31/2017	Collinsville
Oklahoma	ODEQ	9978		8/31/2016	Collinsville

Client: Geotechnology, Inc. **Work Order:** 15120342

Client Project: Hutsonville J019896.06 **Report Date:** 09-Dec-15

Lab ID: 15120342-001 **Client Sample ID:** A PA Levee 1

Matrix: SOLID **Collection Date:** 12/02/2015 10:00

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
ASTM D92								
Ignitability, Open Cup		60		**>200**	°F	1	12/04/2015 13:26	R212302
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		**14.7**	%	1	12/04/2015 15:17	R212335
STANDARD METHODS 4500-CL E (TOTAL)								
Chloride	NELAP	58	J	**14**	mg/Kg-dry	1	12/08/2015 15:49	114711
SW-846 1311, 9036, IN TCLP EXTRACT								
Sulfate		10	JS	**8**	mg/L	1	12/04/2015 21:04	R212329
MS and/or MSD did not recover within control limits due to matrix interference.								
SW-846 1311, 9251, IN TCLP EXTRACT								
Chloride	NELAP	5	JS	**2**	mg/L	1	12/04/2015 21:04	R212357
MS and/or MSD did not recover within control limits. Results verified by dilution.								
SW-846 9036 (TOTAL)								
Sulfate	NELAP	116		**278**	mg/Kg-dry	1	12/08/2015 15:49	114710
SW-846 9045C								
pH (1:1)	NELAP	1.00		**7.78**		1	12/08/2015 17:41	R212418
SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP								
Arsenic	NELAP	0.250		**< 0.250**	mg/L	1	12/04/2015 21:18	114611
Barium	NELAP	0.0500		**0.201**	mg/L	1	12/04/2015 21:18	114611
Boron	NELAP	0.200		**0.577**	mg/L	1	12/04/2015 21:18	114611
Cadmium	NELAP	0.0200		**< 0.0200**	mg/L	1	12/04/2015 21:18	114611
Chromium	NELAP	0.100		**< 0.100**	mg/L	1	12/04/2015 21:18	114611
Lead	NELAP	0.400		**< 0.400**	mg/L	1	12/04/2015 21:18	114611
Selenium	NELAP	0.500		**< 0.500**	mg/L	1	12/04/2015 21:18	114611
Silver	NELAP	0.100		**< 0.100**	mg/L	1	12/04/2015 21:18	114611
SW-846 1311, 7470A IN TCLP EXTRACT								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	12/04/2015 16:10	114612
SW-846 3050B, 6010B, METALS BY ICP								
Boron	NELAP	1.89		**32.5**	mg/Kg-dry	1	12/07/2015 8:48	114619
SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Benzene	NELAP	0.9		**ND**	µg/Kg-dry	1	12/09/2015 12:59	114749
Ethylbenzene	NELAP	4.3		**ND**	µg/Kg-dry	1	12/09/2015 12:59	114749
Toluene	NELAP	4.3		**ND**	µg/Kg-dry	1	12/09/2015 12:59	114749
Xylenes, Total	NELAP	4.3		**ND**	µg/Kg-dry	1	12/09/2015 12:59	114749
Surr: 1,2-Dichloroethane-d4		72.2-131		**103.4**	%REC	1	12/09/2015 12:59	114749
Surr: 4-Bromofluorobenzene		82.1-116	S	**118.0**	%REC	1	12/09/2015 12:59	114749
Surr: Dibromofluoromethane		77.7-120		**98.1**	%REC	1	12/09/2015 12:59	114749
Surr: Toluene-d8		86-116		**108.6**	%REC	1	12/09/2015 12:59	114749
Surrogate recovery is outside QC limits due to matrix interference.								

Client: Geotechnology, Inc. **Work Order:** 15120342

Client Project: Hutsonville J019896.06 **Report Date:** 09-Dec-15

EPA SW846 3550C, 5035A, ASTM D2974

Batch R212335 **SampType:** LCS Units %
SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Percent Moisture	0.1		**99.0**	99.00	0	100.0	90	110	12/04/2015

Batch R212335 **SampType:** LCSQC Units %
SampID: LCSQC

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Percent Moisture	0.1		**99.0**	99.00	0	100.0	90	110	12/04/2015

STANDARD METHODS 4500-CL E (TOTAL)

Batch 114711 **SampType:** MBLK Units mg/Kg
SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5	J	**1**						12/08/2015

Batch 114711 **SampType:** MBLK Units mg/Kg
SampID: MBLK 151207

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	50	J	**11**						12/08/2015

Batch 114711 **SampType:** LCS Units mg/Kg
SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5		**21**	20.00	0	102.6	90	110	12/08/2015

Batch 114711 **SampType:** MS Units mg/Kg-dry
SampID: 15120342-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	58		**233**	232.6	13.84	94.0	85	115	12/08/2015

Batch 114711 **SampType:** MSD Units mg/Kg-dry RPD Limit **15**
SampID: 15120342-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride	58		**235**	232.6	13.84	94.9	232.6	0.90	12/08/2015

SW-846 1311, 9036, IN TCLP EXTRACT

Batch R212329 **SampType:** MBLK Units mg/L
SampID: ICB/MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		**< 10**						12/04/2015

Client: Geotechnology, Inc. | **Work Order:** 15120342

Client Project: Hutsonville J019896.06 | **Report Date:** 09-Dec-15

SW-846 1311, 9036, IN TCLP EXTRACT

Batch R212329 **SampType:** MBLK Units **mg/L**
SampID: MBLK 151203

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		**< 10**						12/04/2015

Batch R212329 **SampType:** LCS Units **mg/L**
SampID: ICV/LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		**20**	20.00	0	99.0	90	110	12/04/2015

Batch R212329 **SampType:** MS Units **mg/L**
SampID: 15120122-004BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	100		**384**	100.0	277.8	106.2	90	110	12/04/2015

Batch R212329 **SampType:** MS Units **mg/L**
SampID: 15120342-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10	S	**15**	10.00	7.590	72.2	85	115	12/04/2015

Batch R212329 **SampType:** MSD Units **mg/L** RPD Limit **10**
SampID: 15120342-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate	10	S	**15**	10.00	7.590	69.4	14.81	1.91	12/04/2015

SW-846 1311, 9251, IN TCLP EXTRACT

Batch R212357 **SampType:** MBLK Units **mg/L**
SampID: ICB/MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5	J	**2**						12/04/2015

Batch R212357 **SampType:** MBLK Units **mg/L**
SampID: MBLK 151203

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5	J	**2**						12/04/2015

Batch R212357 **SampType:** LCS Units **mg/L**
SampID: ICV/LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5		**20**	20.00	0	99.6	90	110	12/04/2015

Client: Geotechnology, Inc. **Work Order:** 15120342

Client Project: Hutsonville J019896.06 **Report Date:** 09-Dec-15

SW-846 1311, 9251, IN TCLP EXTRACT

Batch R212357 **SampType:** MS **Units** mg/L
SampID: 15120253-005AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5		**31**	20.00	11.35	98.5	85	115	12/04/2015

Batch R212357 **SampType:** MSD **Units** mg/L **RPD Limit** 15
SampID: 15120253-005AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride	5		**31**	20.00	11.35	98.1	31.04	0.23	12/04/2015

Batch R212357 **SampType:** MS **Units** mg/L
SampID: 15120265-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	2500		**14800**	10000	4481	103.1	85	115	12/04/2015

Batch R212357 **SampType:** MSD **Units** mg/L **RPD Limit** 15
SampID: 15120265-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride	2500		**15800**	10000	4481	113.4	14790	6.76	12/04/2015

Batch R212357 **SampType:** MS **Units** mg/L
SampID: 15120342-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5	S	**19**	20.00	2.200	83.7	85	115	12/04/2015

Batch R212357 **SampType:** MSD **Units** mg/L **RPD Limit** 15
SampID: 15120342-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride	5	S	**19**	20.00	2.200	83.8	18.94	0.05	12/04/2015

SW-846 9036 (TOTAL)

Batch 114710 **SampType:** MBLK **Units** mg/Kg
SampID: MBLK

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		**< 10**						12/08/2015

Batch 114710 **SampType:** MBLK **Units** mg/Kg
SampID: MBLK 151207

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	100		**< 100**						12/08/2015

Client: Geotechnology, Inc. **Work Order:** 15120342

Client Project: Hutsonville J019896.06 **Report Date:** 09-Dec-15

SW-846 9036 (TOTAL)

Batch 114710 **SampType:** LCS Units **mg/Kg**

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		**19**	20.00	0	97.3	90	110	12/08/2015

Batch 114710 **SampType:** MS Units **mg/Kg-dry**

SampID: 15120342-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	116		**379**	116.3	277.9	86.8	85	115	12/08/2015

Batch 114710 **SampType:** MSD Units **mg/Kg-dry** RPD Limit **10**

SampID: 15120342-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate	116		**381**	116.3	277.9	89.0	378.9	0.67	12/08/2015

SW-846 9045C

Batch R212418 **SampType:** LCS Units

SampID: LCS-R212418

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
pH (1:1)	1.00		**7.02**	7.000	0	100.3	99.1	100.8	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120342-001ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00		**8.08**				7.780	3.78	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-001ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**6.12**				6.020	1.65	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-002ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**6.14**				5.990	2.47	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-003ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**6.15**				6.150	0.00	12/08/2015

SW-846 9045C

Batch	SampType	SampID	Analyses	RL	Qual	Units	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	RPD Limit	Date Analyzed
R212418	DUP	15120340-004ADUP	pH (1:1)	1.00	H		**5.20**				5.370	3.22	10	12/08/2015
R212418	DUP	15120340-005ADUP	pH (1:1)	1.00	H		**5.24**				5.370	2.45	10	12/08/2015
R212418	DUP	15120340-006ADUP	pH (1:1)	1.00	H		**5.17**				5.070	1.95	10	12/08/2015
R212418	DUP	15120340-007ADUP	pH (1:1)	1.00	H		**5.13**				5.020	2.17	10	12/08/2015
R212418	DUP	15120340-008ADUP	pH (1:1)	1.00	H		**5.34**				5.720	6.87	10	12/08/2015
R212418	DUP	15120340-009ADUP	pH (1:1)	1.00	H		**5.33**				5.180	2.85	10	12/08/2015
R212418	DUP	15120340-010ADUP	pH (1:1)	1.00	H		**5.15**				5.110	0.78	10	12/08/2015
R212418	DUP	15120340-011ADUP	pH (1:1)	1.00	H		**5.12**				5.140	0.39	10	12/08/2015
R212418	DUP	15120340-012ADUP	pH (1:1)	1.00	H		**4.86**				4.940	1.63	10	12/08/2015

Client: Geotechnology, Inc. **Work Order:** 15120342

Client Project: Hutsonville J019896.06 **Report Date:** 09-Dec-15

SW-846 9045C

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-013ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**4.67**				4.750	1.70	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-016ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**5.98**				5.650	5.67	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-017ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**6.01**				6.030	0.33	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-018ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**6.14**				6.130	0.16	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-019ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**6.16**				6.210	0.81	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-020ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**6.01**				6.060	0.83	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-021ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**5.80**				5.490	5.49	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-022ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**5.27**				5.370	1.88	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-023ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**6.09**				6.150	0.98	12/08/2015

Client: Geotechnology, Inc. **Work Order:** 15120342

Client Project: Hutsonville J019896.06 **Report Date:** 09-Dec-15

SW-846 9045C

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-024ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**5.39**				5.400	0.19	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-025ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**5.38**				5.380	0.00	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-026ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**5.49**				5.610	2.16	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-027ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**6.14**				6.210	1.13	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-028ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**6.11**				6.250	2.27	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-029ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**5.20**				5.200	0.00	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120340-030ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00	H	**6.29**				6.240	0.80	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120428-001ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00		**6.54**				6.660	1.82	12/08/2015

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120516-001ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00		**7.62**				7.670	0.65	12/08/2015

Client: Geotechnology, Inc. **Work Order:** 15120342

Client Project: Hutsonville J019896.06 **Report Date:** 09-Dec-15

SW-846 9045C

Batch R212418 **SampType:** DUP Units RPD Limit **10**

SampID: 15120516-002ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
pH (1:1)	1.00		**8.66**				8.960	3.41	12/08/2015

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 114611 **SampType:** MBLK Units **mg/L**

SampID: MBLK-114611

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**< 0.250**	0.2500	0	0	-100	100	12/04/2015
Barium	0.500		**< 0.500**	0.5000	0	0	-100	100	12/04/2015
Boron	0.200		**< 0.200**	0.2000	0	0	-100	100	12/04/2015
Cadmium	0.0200		**< 0.0200**	0.02000	0	0	-100	100	12/04/2015
Chromium	0.100		**< 0.100**	0.1000	0	0	-100	100	12/04/2015
Lead	0.400		**< 0.400**	0.4000	0	0	-100	100	12/04/2015
Selenium	0.500		**< 0.500**	0.5000	0	0	-100	100	12/04/2015
Silver	0.100		**< 0.100**	0.1000	0	0	-100	100	12/04/2015

Batch 114611 **SampType:** LCS Units **mg/L**

SampID: LCS-114611

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.6**	20.00	0	98.2	85	115	12/04/2015
Barium	0.500		**20.3**	20.00	0	101.6	85	115	12/04/2015
Boron	0.200		**4.97**	5.000	0	99.3	85	115	12/04/2015
Cadmium	0.0200		**0.495**	0.5000	0	99.0	85	115	12/04/2015
Chromium	0.100		**2.10**	2.000	0	105.0	85	115	12/04/2015
Lead	0.400		**5.02**	5.000	0	100.3	85	115	12/04/2015
Selenium	0.500		**19.6**	20.00	0	97.8	85	115	12/04/2015
Silver	0.100		**0.491**	0.5000	0	98.2	85	115	12/04/2015

Batch 114611 **SampType:** MS Units **mg/L**

SampID: 15120267-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.2**	20.00	0	96.0	75	125	12/04/2015
Barium	0.500		**20.5**	20.00	0.5840	99.8	75	125	12/04/2015
Cadmium	0.0200		**0.492**	0.5000	0.007000	97.0	75	125	12/04/2015
Chromium	0.100		**2.07**	2.000	0	103.4	75	125	12/04/2015
Lead	0.400		**4.96**	5.000	0	99.1	75	125	12/04/2015
Selenium	0.500		**19.1**	20.00	0	95.6	75	125	12/04/2015
Silver	0.100		**0.479**	0.5000	0	95.8	75	125	12/04/2015

Batch 114611 **SampType:** MS Units **mg/L**

SampID: 15120317-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.400		**4.97**	5.000	0.1140	97.2	75	125	12/04/2015

Client: Geotechnology, Inc. **Work Order:** 15120342

Client Project: Hutsonville J019896.06 **Report Date:** 09-Dec-15

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 114611 **SampType:** MSD Units **mg/L** RPD Limit **20**

SampID: 15120317-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lead	0.400		**4.97**	5.000	0.1140	97.2	4.974	0.02	12/04/2015

Batch 114611 **SampType:** MS Units **mg/L**

SampID: 15120319-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.0**	20.00	0	95.2	75	125	12/04/2015
Barium	0.500		**20.0**	20.00	0.1770	99.1	75	125	12/04/2015
Cadmium	0.0200		**0.475**	0.5000	0	95.0	75	125	12/04/2015
Chromium	0.100		**2.01**	2.000	0	100.6	75	125	12/04/2015
Lead	0.400		**4.81**	5.000	0	96.1	75	125	12/04/2015
Selenium	0.500		**18.9**	20.00	0	94.5	75	125	12/04/2015
Silver	0.100		**0.476**	0.5000	0	95.2	75	125	12/04/2015

Batch 114611 **SampType:** MS Units **mg/L**

SampID: 15120320-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**18.7**	20.00	0	93.4	75	125	12/04/2015
Barium	0.500		**19.8**	20.00	0.3040	97.3	75	125	12/04/2015
Cadmium	0.0200		**0.532**	0.5000	0.07500	91.4	75	125	12/04/2015
Chromium	0.100		**2.00**	2.000	0	100.0	75	125	12/04/2015
Lead	0.400		**4.70**	5.000	0	93.9	75	125	12/04/2015
Selenium	0.500		**18.5**	20.00	0	92.5	75	125	12/04/2015
Silver	0.100		**0.469**	0.5000	0	93.8	75	125	12/04/2015

Batch 114611 **SampType:** MS Units **mg/L**

SampID: 15120322-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**19.2**	20.00	0	96.2	75	125	12/04/2015
Barium	0.500		**20.2**	20.00	0.1950	100.0	75	125	12/04/2015
Cadmium	0.0200		**0.477**	0.5000	0	95.4	75	125	12/04/2015
Chromium	0.100		**2.03**	2.000	0	101.7	75	125	12/04/2015
Lead	0.400		**4.83**	5.000	0	96.6	75	125	12/04/2015
Selenium	0.500		**19.1**	20.00	0	95.4	75	125	12/04/2015
Silver	0.100		**0.482**	0.5000	0	96.4	75	125	12/04/2015

Client: Geotechnology, Inc. **Work Order:** 15120342

Client Project: Hutsonville J019896.06 **Report Date:** 09-Dec-15

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 114611 **SampType:** MS Units **mg/L**

SampID: 15120342-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**18.9**	20.00	0	94.4	75	125	12/04/2015
Barium	0.500		**19.8**	20.00	0.2010	98.1	75	125	12/04/2015
Boron	0.200		**5.23**	5.000	0.5770	93.1	75	125	12/04/2015
Cadmium	0.0200		**0.467**	0.5000	0	93.4	75	125	12/04/2015
Chromium	0.100		**1.99**	2.000	0	99.3	75	125	12/04/2015
Lead	0.400		**4.72**	5.000	0	94.4	75	125	12/04/2015
Selenium	0.500		**18.6**	20.00	0	93.1	75	125	12/04/2015
Silver	0.100		**0.473**	0.5000	0	94.6	75	125	12/04/2015

SW-846 1311, 7470A IN TCLP EXTRACT

Batch 114612 **SampType:** MBLK Units **mg/L**

SampID: MBLK-114612

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**< 0.00020**	.000200	0	0	-100	100	12/04/2015

Batch 114612 **SampType:** LCS Units **mg/L**

SampID: LCS-114612

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00531**	).00500(	0	106.3	85	115	12/04/2015

Batch 114612 **SampType:** MS Units **mg/L**

SampID: 15120267-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00521**	).00500(	0	104.2	75	125	12/04/2015

Batch 114612 **SampType:** MS Units **mg/L**

SampID: 15120319-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00504**	).00500(	0	100.8	75	125	12/04/2015

Batch 114612 **SampType:** MSD Units **mg/L** RPD Limit **15**

SampID: 15120319-002AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Mercury	0.00020		**0.00489**	).00500(	0	97.8	0.005042	3.12	12/04/2015

Batch 114612 **SampType:** MS Units **mg/L**

SampID: 15120320-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00458**	).00500(	0	91.6	75	125	12/04/2015

Client: Geotechnology, Inc. **Work Order:** 15120342

Client Project: Hutsonville J019896.06 **Report Date:** 09-Dec-15

SW-846 1311, 7470A IN TCLP EXTRACT

Batch 114612 **SampType:** MS Units **mg/L**

SampID: 15120322-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00500**	).00500(	0	100.1	75	125	12/04/2015

Batch 114612 **SampType:** MS Units **mg/L**

SampID: 15120342-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00470**	).00500(	0	94.0	75	125	12/04/2015

SW-846 3050B, 6010B, METALS BY ICP

Batch 114619 **SampType:** MBLK Units **mg/Kg-dry**

SampID: MBLK-114619

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron	2.00		**< 2.00**	2.000	0	0	-100	100	12/07/2015

Batch 114619 **SampType:** LCS Units **mg/Kg-dry**

SampID: LCS-114619

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron	2.00		**48.4**	50.00	0	96.8	85	115	12/07/2015

Batch 114619 **SampType:** MS Units **mg/Kg-dry**

SampID: 15120342-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron	1.89		**72.9**	47.17	32.52	85.7	75	125	12/07/2015

Batch 114619 **SampType:** MSD Units **mg/Kg-dry** RPD Limit **20**

SampID: 15120342-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Boron	1.89		**72.2**	47.17	32.52	84.1	72.94	1.04	12/07/2015

SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114642 **SampType:** MBLK Units **µg/Kg**

SampID: MBLK-F151204A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	1.0		**ND**						12/04/2015
Ethylbenzene	5.0		**ND**						12/04/2015
Toluene	5.0		**ND**						12/04/2015
Xylenes, Total	5.0		**ND**						12/04/2015
Surr: 1,2-Dichloroethane-d4			**49.6**	50.00		99.2	72.2	131	12/04/2015
Surr: 4-Bromofluorobenzene			**52.0**	50.00		104.1	82.1	116	12/04/2015
Surr: Dibromofluoromethane			**49.9**	50.00		99.8	77.7	120	12/04/2015
Surr: Toluene-d8			**49.2**	50.00		98.5	86	116	12/04/2015

Client: Geotechnology, Inc. **Work Order:** 15120342

Client Project: Hutsonville J019896.06 **Report Date:** 09-Dec-15

SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114642 **SampType:** LCSD Units **µg/Kg** RPD Limit **40**

SampID: LCSD-F151204A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Benzene	1.0		**56.1**	50.00	0	112.2	54.36	3.11	12/04/2015
Ethylbenzene	5.0		**53.9**	50.00	0	107.8	51.62	4.30	12/04/2015
Toluene	5.0		**53.4**	50.00	0	106.9	51.57	3.58	12/04/2015
Xylenes, Total	5.0		**162**	150.0	0	108.3	156.9	3.53	12/04/2015
Surr: 1,2-Dichloroethane-d4			**53.3**	50.00		106.5			12/04/2015
Surr: 4-Bromofluorobenzene			**49.7**	50.00		99.4			12/04/2015
Surr: Dibromofluoromethane			**52.4**	50.00		104.7			12/04/2015
Surr: Toluene-d8			**48.9**	50.00		97.9			12/04/2015

Batch 114642 **SampType:** LCS Units **µg/Kg**

SampID: LCS-F151204A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	1.0		**54.4**	50.00	0	108.7	80.8	117	12/04/2015
Ethylbenzene	5.0		**51.6**	50.00	0	103.2	84.8	116	12/04/2015
Toluene	5.0		**51.6**	50.00	0	103.1	81.3	113	12/04/2015
Xylenes, Total	5.0		**157**	150.0	0	104.6	85.3	118	12/04/2015
Surr: 1,2-Dichloroethane-d4			**54.1**	50.00		108.3	72.2	131	12/04/2015
Surr: 4-Bromofluorobenzene			**49.8**	50.00		99.6	82.1	116	12/04/2015
Surr: Dibromofluoromethane			**52.8**	50.00		105.6	77.7	120	12/04/2015
Surr: Toluene-d8			**48.6**	50.00		97.2	86	116	12/04/2015

Batch 114642 **SampType:** LCSGD Units **%REC** RPD Limit **0**

SampID: LCSGD-F151204A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Surr: 1,2-Dichloroethane-d4			**50.3**	50.00		100.6			12/04/2015
Surr: 4-Bromofluorobenzene			**49.0**	50.00		98.0			12/04/2015
Surr: Dibromofluoromethane			**50.8**	50.00		101.5			12/04/2015
Surr: Toluene-d8			**50.2**	50.00		100.4			12/04/2015

Batch 114642 **SampType:** LCSG Units **%REC**

SampID: LCSG-F151204A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Surr: 1,2-Dichloroethane-d4			**50.5**	50.00		100.9	72.2	131	12/04/2015
Surr: 4-Bromofluorobenzene			**52.3**	50.00		104.6	82.1	116	12/04/2015
Surr: Dibromofluoromethane			**50.6**	50.00		101.1	77.7	120	12/04/2015
Surr: Toluene-d8			**51.0**	50.00		101.9	86	116	12/04/2015

Client: Geotechnology, Inc. **Work Order:** 15120342

Client Project: Hutsonville J019896.06 **Report Date:** 09-Dec-15

SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 114749 **SampType:** MBLK Units **µg/Kg**

SampID: MBLK-Y151209A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	1.0		**ND**						12/09/2015
Ethylbenzene	5.0		**ND**						12/09/2015
Toluene	5.0		**ND**						12/09/2015
Xylenes, Total	5.0		**ND**						12/09/2015
Surr: 1,2-Dichloroethane-d4			**49.8**	50.00		99.7	72.2	131	12/09/2015
Surr: 4-Bromofluorobenzene			**49.5**	50.00		99.0	82.1	116	12/09/2015
Surr: Dibromofluoromethane			**47.7**	50.00		95.5	77.7	120	12/09/2015
Surr: Toluene-d8			**50.0**	50.00		100.0	86	116	12/09/2015

Batch 114749 **SampType:** LCSD Units **µg/Kg** RPD Limit **40**

SampID: LCSD-Y151209A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Benzene	1.0		**47.8**	50.00	0	95.7	43.26	10.08	12/09/2015
Ethylbenzene	5.0		**48.5**	50.00	0	97.0	44.70	8.15	12/09/2015
Toluene	5.0		**48.2**	50.00	0	96.3	43.73	9.64	12/09/2015
Xylenes, Total	5.0		**145**	150.0	0	96.6	133.3	8.30	12/09/2015
Surr: 1,2-Dichloroethane-d4			**46.6**	50.00		93.2			12/09/2015
Surr: 4-Bromofluorobenzene			**50.2**	50.00		100.4			12/09/2015
Surr: Dibromofluoromethane			**49.3**	50.00		98.5			12/09/2015
Surr: Toluene-d8			**50.3**	50.00		100.6			12/09/2015

Batch 114749 **SampType:** LCS Units **µg/Kg**

SampID: LCS-Y151209A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	1.0		**43.3**	50.00	0	86.5	80.8	117	12/09/2015
Ethylbenzene	5.0		**44.7**	50.00	0	89.4	84.8	116	12/09/2015
Toluene	5.0		**43.7**	50.00	0	87.5	81.3	113	12/09/2015
Xylenes, Total	5.0		**133**	150.0	0	88.9	85.3	118	12/09/2015
Surr: 1,2-Dichloroethane-d4			**47.7**	50.00		95.4	72.2	131	12/09/2015
Surr: 4-Bromofluorobenzene			**49.7**	50.00		99.4	82.1	116	12/09/2015
Surr: Dibromofluoromethane			**49.1**	50.00		98.1	77.7	120	12/09/2015
Surr: Toluene-d8			**50.5**	50.00		101.0	86	116	12/09/2015

Batch 114749 **SampType:** LCSGD Units **%REC** RPD Limit **0**

SampID: LCSGD-Y151209A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Surr: 1,2-Dichloroethane-d4			**48.3**	50.00		96.5			12/09/2015
Surr: 4-Bromofluorobenzene			**49.5**	50.00		99.0			12/09/2015
Surr: Dibromofluoromethane			**48.2**	50.00		96.5			12/09/2015
Surr: Toluene-d8			**51.0**	50.00		102.0			12/09/2015

Client: Geotechnology, Inc.

Client Project: Hutsonville J019896.06

Work Order: 15120342

Report Date: 09-Dec-15

SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch **114749** **SampType:** **LCSG** Units **%REC**

SampID: LCSG-Y151209A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Surr: 1,2-Dichloroethane-d4			**47.6**	50.00		95.3	72.2	131	12/09/2015
Surr: 4-Bromofluorobenzene			**49.6**	50.00		99.3	82.1	116	12/09/2015
Surr: Dibromofluoromethane			**47.9**	50.00		95.9	77.7	120	12/09/2015
Surr: Toluene-d8			**51.0**	50.00		102.0	86	116	12/09/2015

Receiving Check List

Client: Geotechnology, Inc.
Work Order: 15120342
Client Project: Hutsonville J019896.06
Report Date: 09-Dec-15

Carrier: Nick Harvey
Received By: KF

Completed by: Emily E. Pohlman
On: 03-Dec-15

Reviewed by: Elizabeth A. Hurley
On: 03-Dec-15

Pages to follow: Chain of custody 1 Extra pages included 0

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C 2.62
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice ☐
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐		

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes ☐	No ☐	No VOA vials ☑	
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	NA ☑	
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA ☑	

Any No responses must be detailed below or on the COC.

Collection time was added per sample containers. KF/EAH 12/3/15

15120342

CHAIN OF CUSTODY

pg. 1 of 1 Work Order # 42388

TEKLAB, INC. 5445 Horseshoe Lake Road ~ Collinsville, IL 62234 ~ Phone: (618) 344-1004 ~ Fax: (618) 344-1005

Client: Geotechnology, Inc
Address: 11816 Lackland Road, Suite 150
City / State / Zip: St. Louis, MO 63146
Contact: Jessie Hahn Phone: (314)625-9854
E-Mail: j-hahn@geotechnology.com Fax: (314) 997-2067

Samples on: ☒ Ice ☐ Blue Ice ☐ No Ice 2.6 °C
Preserved in: ☐ Lab ☐ Field **FOR LAB USE ONLY**
Lab Notes:
Comments:
Teklab Inc.
Courier Pick Up

- Are these samples known to be involved in litigation? If yes, a surcharge will apply. ☐ Yes ☒ No
- Are these samples known to be hazardous? ☐ Yes ☒ No
- Are there any required reporting limits to be met on the requested analysis? If yes, please provide limits in comment section. ☐ Yes ☒ No

Project Name / Number: Hutsonville J019896.06
Sample Collector's Name: Jessie Hahn

Results Requested: ☒ Standard ☐ 1-2 Day (100% Surcharge) ☐ Other_______ ☐ 3 Day (50% Surcharge)
Billing Instructions:

Lab Use Only	Sample Identification	Date/Time Sampled	UNPRES	HNO3	NaOH	H2SO4	HCL	MeOH	NaHSO4	Other	Water	Drinking Water	Soil	Sludge	Sp. Waste	% Moisture	Boron	BTEX	Chloride	Flash Point	Sulfate	TCLP 8RCRA	TCLP Boron	TCLP Chloride	TCLP sulfate	pH		
15120342-001	A PA Levee 1	12/2/15	2					1	2				5			1	1	1	1	1	1	1	1	1	1	1		

Relinquished By	Date / Time	Received By	Date / Time
Jessie Hahn	12/3/2015 2:50	[signature]	12/3/15 2:50
[signature]	12/3/15 4:05	Kalyn Jerde	12/3/15 405

The individual signing this agreement on behalf of client acknowledges that he/she has read and understands the terms and conditions of this agreement on the reverse side and that he/she has the authority to sign on behalf of client.

WHITE – LAB YELLOW – SAMPLER'S COPY

Teklab Inc.
Environmental Laboratory

http://www.teklabinc.com/

April 21, 2016

Anna Saindon
Geotechnology, Inc.
11816 Lackland Road
St. Louis, MO 63146
TEL: (314) 997-7440
FAX: (314) 997-2067

NELAP ACCREDITED TNI LABORATORY

RE: Hutsonville J019896.05

WorkOrder: 16041043

Dear Anna Saindon:

TEKLAB, INC received 1 sample on 4/15/2016 4:05:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Emily Pohlman

Emily E. Pohlman
Project Manager
(618)344-1004 ex 44
epohlman@teklabinc.com

Report Contents

Client: Geotechnology, Inc.
Client Project: Hutsonville J019896.05

Work Order: 16041043
Report Date: 21-Apr-16

This reporting package includes the following:

Client: Geotechnology, Inc. **Work Order:** 16041043

Client Project: Hutsonville J019896.05 **Report Date:** 21-Apr-16

Abbr Definition

Abbr	Definition
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# -	Unknown hydrocarbon	B -	Analyte detected in associated Method Blank
E -	Value above quantitation range	H -	Holding times exceeded
I -	Associated internal standard was outside method criteria	J -	Analyte detected below quantitation limits
M -	Manual Integration used to determine area response	ND -	Not Detected at the Reporting Limit
R -	RPD outside accepted recovery limits	S -	Spike Recovery outside recovery limits
T -	TIC(Tentatively identified compound)	X -	Value exceeds Maximum Contaminant Level

Teklab Inc. Environmental Laboratory

Case Narrative

http://www.teklabinc.com/

Client: Geotechnology, Inc.

Client Project: Hutsonville J019896.05

Work Order: 16041043

Report Date: 21-Apr-16

Cooler Receipt Temp: 1.22 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road	3920 Pintail Dr	8421 Nieman Road	5445 Horseshoe Lake Road
	Collinsville, IL 62234-7425	Springfield, IL 62711-9415	Lenexa, KS 66214	Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2017	Collinsville
Kansas	KDHE	E-10374	NELAP	5/31/2016	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2016	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2016	Collinsville
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2016	Collinsville
Arkansas	ADEQ	88-0966		3/14/2017	Collinsville
Illinois	IDPH	17584		5/31/2017	Collinsville
Kentucky	KDEP	98006		12/31/2016	Collinsville
Kentucky	UST	0073		1/31/2017	Collinsville
Missouri	MDNR	00930		5/31/2017	Collinsville
Oklahoma	ODEQ	9978		8/31/2016	Collinsville

Teklab, Inc. Environmental Laboratory

Laboratory Results

http://www.teklabinc.com/

Client: Geotechnology, Inc.

Client Project: Hutsonville J019896.05

Lab ID: 16041043-001

Matrix: SOLID

Work Order: 16041043

Report Date: 21-Apr-16

Client Sample ID: QLS-Conf-1

Collection Date: 04/14/2016 14:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
ASTM D92								
Ignitability, Open Cup		60		**>200**	°F	1	04/19/2016 9:42	R217428
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		**18.8**	%	1	04/19/2016 17:48	R217497
STANDARD METHODS 4500-CL E (TOTAL)								
Chloride	NELAP	60	J	**31**	mg/Kg-dry	1	04/19/2016 18:27	118243
SW-846 9036 (TOTAL)								
Sulfate	NELAP	120	S	**136**	mg/Kg-dry	1	04/19/2016 18:28	118244
MS and/or MSD did not recover within control limits due to matrix interference.								
SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP								
Arsenic	NELAP	0.250		**< 0.250**	mg/L	1	04/20/2016 14:42	118221
Barium	NELAP	0.500		**0.522**	mg/L	1	04/20/2016 14:42	118221
Cadmium	NELAP	0.0200		**< 0.0200**	mg/L	1	04/20/2016 14:42	118221
Chromium	NELAP	0.100		**< 0.100**	mg/L	1	04/20/2016 14:42	118221
Lead	NELAP	0.400		**< 0.400**	mg/L	1	04/20/2016 14:42	118221
Selenium	NELAP	0.500		**< 0.500**	mg/L	1	04/20/2016 14:42	118221
Silver	NELAP	0.100		**< 0.100**	mg/L	1	04/20/2016 14:42	118221
SW-846 1311, 7470A IN TCLP EXTRACT								
Mercury	NELAP	0.00020		**< 0.00020**	mg/L	1	04/19/2016 16:09	118216
SW-846 3050B, 6010B, METALS BY ICP								
Boron	NELAP	1.96		**2.08**	mg/Kg-dry	1	04/19/2016 11:38	118203
SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
Benzene	NELAP	1.0	J	**0.6**	µg/Kg-dry	1	04/19/2016 14:33	118230
Ethylbenzene	NELAP	4.8		**ND**	µg/Kg-dry	1	04/19/2016 14:33	118230
Toluene	NELAP	4.8		**ND**	µg/Kg-dry	1	04/19/2016 14:33	118230
Xylenes, Total	NELAP	4.8		**ND**	µg/Kg-dry	1	04/19/2016 14:33	118230
Surr: 1,2-Dichloroethane-d4		72.2-131		**97.0**	%REC	1	04/19/2016 14:33	118230
Surr: 4-Bromofluorobenzene		82.1-116		**104.1**	%REC	1	04/19/2016 14:33	118230
Surr: Dibromofluoromethane		77.7-120		**96.2**	%REC	1	04/19/2016 14:33	118230
Surr: Toluene-d8		86-116		**99.0**	%REC	1	04/19/2016 14:33	118230

Teklab Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Geotechnology, Inc.

Client Project: Hutsonville J019896.05

Work Order: 16041043

Report Date: 21-Apr-16

ASTM D92

Batch R217428 **SampType:** DUP **Units** °F **RPD Limit** 5

SampID: 16041077-001ADUP

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ignitability, Open Cup	60		**>200**				0	0.00	04/19/2016

EPA SW846 3550C, 5035A, ASTM D2974

Batch R217497 **SampType:** LCS **Units** %

SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Percent Moisture	0.1		**99.0**	99.00	0	100.0	90	110	04/19/2016

Batch R217497 **SampType:** LCSQC **Units** %

SampID: LCSQC

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Percent Moisture	0.1		**99.0**	99.00	0	100.0	90	110	04/19/2016

STANDARD METHODS 4500-CL E (TOTAL)

Batch 118243 **SampType:** MBLK **Units** mg/Kg

SampID: MBLK 160418

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	50	J	**18**						04/19/2016

Batch 118243 **SampType:** MBLK **Units** mg/Kg

SampID: MB-R217503

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5	J	**2**						04/19/2016

Batch 118243 **SampType:** LCS **Units** mg/Kg

SampID: LCS-R217503

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	5		**20**	20.00	0	98.8	90	110	04/19/2016

Batch 118243 **SampType:** MS **Units** mg/Kg-dry

SampID: 16041043-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Chloride	60		**259**	240.2	31.23	94.7	85	115	04/19/2016

Batch 118243 **SampType:** MSD **Units** mg/Kg-dry **RPD Limit** 15

SampID: 16041043-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Chloride	60		**260**	240.2	31.23	95.0	258.7	0.32	04/19/2016

Teklab Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Geotechnology, Inc.

Client Project: Hutsonville J019896.05

Work Order: 16041043

Report Date: 21-Apr-16

SW-846 9036 (TOTAL)

Batch 118244 **SampType:** MBLK Units mg/Kg

SampID: MBLK 160418

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	100		< 100						04/19/2016

Batch 118244 **SampType:** MBLK Units mg/Kg

SampID: MB-R217500

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		< 10						04/19/2016

Batch 118244 **SampType:** LCS Units mg/Kg

SampID: LCS-R217500

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	10		19	20.00	0	95.2	90	110	04/19/2016

Batch 118244 **SampType:** MS Units mg/Kg-dry

SampID: 16041043-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Sulfate	120		239	120.1	135.8	85.7	85	115	04/19/2016

Batch 118244 **SampType:** MSD Units mg/Kg-dry RPD Limit 10

SampID: 16041043-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Sulfate	120	S	231	120.1	135.8	79.5	238.8	3.17	04/19/2016

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 118221 **SampType:** MBLK Units mg/L

SampID: MBLK-118221

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		< 0.250	0.2500	0	0	-100	100	04/20/2016
Arsenic	0.250		< 0.250	0.2500	0	0	-100	100	04/19/2016
Barium	0.500		< 0.500	0.5000	0	0	-100	100	04/19/2016
Barium	0.500		< 0.500	0.5000	0	0	-100	100	04/20/2016
Cadmium	0.0200		< 0.0200	0.02000	0	0	-100	100	04/20/2016
Cadmium	0.0200		< 0.0200	0.02000	0	0	-100	100	04/19/2016
Chromium	0.100		< 0.100	0.1000	0	0	-100	100	04/20/2016
Chromium	0.100		< 0.100	0.1000	0	0	-100	100	04/19/2016
Lead	0.400		< 0.400	0.4000	0	0	-100	100	04/19/2016
Lead	0.400		< 0.400	0.4000	0	0	-100	100	04/20/2016
Selenium	0.500		< 0.500	0.5000	0	0	-100	100	04/19/2016
Selenium	0.500		< 0.500	0.5000	0	0	-100	100	04/20/2016
Silver	0.100		< 0.100	0.1000	0	0	-100	100	04/19/2016
Silver	0.100		< 0.100	0.1000	0	0	-100	100	04/20/2016

Teklab Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Geotechnology, Inc. **Work Order:** 16041043

Client Project: Hutsonville J019896.05 **Report Date:** 21-Apr-16

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 118221 **SampType:** LCS Units mg/L

SampID: LCS-118221

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**4.93**	5.000	0	98.7	85	115	04/20/2016
Arsenic	0.250		**4.91**	5.000	0	98.2	85	115	04/19/2016
Barium	0.500		**20.6**	20.00	0	103.2	85	115	04/20/2016
Barium	0.500		**20.2**	20.00	0	101.0	85	115	04/19/2016
Cadmium	0.0200		**0.500**	0.5000	0	100.0	85	115	04/19/2016
Cadmium	0.0200		**0.512**	0.5000	0	102.4	85	115	04/20/2016
Chromium	0.100		**2.08**	2.000	0	103.9	85	115	04/20/2016
Chromium	0.100		**2.01**	2.000	0	100.3	85	115	04/19/2016
Lead	0.400		**5.15**	5.000	0	103.0	85	115	04/19/2016
Lead	0.400		**5.25**	5.000	0	104.9	85	115	04/20/2016
Selenium	0.500		**5.11**	5.000	0	102.2	85	115	04/19/2016
Selenium	0.500		**5.04**	5.000	0	100.9	85	115	04/20/2016
Silver	0.100		**0.516**	0.5000	0	103.2	85	115	04/19/2016
Silver	0.100		**0.525**	0.5000	0	105.0	85	115	04/20/2016

Batch 118221 **SampType:** MS Units mg/L

SampID: 16040971-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.400		**5.05**	5.000	0	101.0	75	125	04/20/2016

Batch 118221 **SampType:** MS Units mg/L

SampID: 16040979-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**4.67**	5.000	0	93.4	75	125	04/20/2016
Barium	0.500		**20.3**	20.00	0	101.7	75	125	04/20/2016
Cadmium	0.0200		**0.496**	0.5000	0	99.2	75	125	04/20/2016
Chromium	0.100		**2.00**	2.000	0	99.8	75	125	04/20/2016
Lead	0.400		**5.10**	5.000	0	101.9	75	125	04/20/2016
Selenium	0.500		**4.77**	5.000	0	95.4	75	125	04/20/2016
Silver	0.100		**0.505**	0.5000	0	101.0	75	125	04/20/2016

Batch 118221 **SampType:** MS Units mg/L

SampID: 16040979-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**4.59**	5.000	0	91.8	75	125	04/20/2016
Barium	0.500		**20.8**	20.00	0.8180	99.8	75	125	04/20/2016
Cadmium	0.0200		**0.483**	0.5000	0	96.6	75	125	04/20/2016
Chromium	0.100		**1.96**	2.000	0	98.0	75	125	04/20/2016
Lead	0.400		**4.96**	5.000	0	99.2	75	125	04/20/2016
Selenium	0.500		**4.61**	5.000	0	92.2	75	125	04/20/2016
Silver	0.100		**0.496**	0.5000	0	99.2	75	125	04/20/2016

Teklab, Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Geotechnology, Inc. **Work Order:** 16041043

Client Project: Hutsonville J019896.05 **Report Date:** 21-Apr-16

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 118221 **SampType:** MS Units mg/L

SampID: 16041030-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**4.81**	5.000	0	96.2	75	125	04/20/2016
Barium	0.500		**20.6**	20.00	0	103.0	75	125	04/20/2016
Cadmium	0.0200		**0.487**	0.5000	0	97.4	75	125	04/20/2016
Chromium	0.100		**2.01**	2.000	0	100.3	75	125	04/20/2016
Lead	0.400		**5.11**	5.000	0	102.2	75	125	04/20/2016
Selenium	0.500		**4.85**	5.000	0	97.0	75	125	04/20/2016
Silver	0.100		**0.521**	0.5000	0	104.2	75	125	04/20/2016

Batch 118221 **SampType:** MSD Units mg/L RPD Limit 20

SampID: 16041030-002AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Arsenic	0.250		**4.83**	5.000	0	96.6	4.809	0.46	04/20/2016
Barium	0.500		**20.7**	20.00	0	103.4	20.61	0.34	04/20/2016
Cadmium	0.0200		**0.481**	0.5000	0	96.2	0.4870	1.24	04/20/2016
Chromium	0.100		**2.00**	2.000	0	100.1	2.006	0.20	04/20/2016
Lead	0.400		**5.09**	5.000	0	101.9	5.112	0.35	04/20/2016
Selenium	0.500		**4.81**	5.000	0	96.2	4.850	0.83	04/20/2016
Silver	0.100		**0.526**	0.5000	0	105.2	0.5210	0.96	04/20/2016

Batch 118221 **SampType:** MS Units mg/L

SampID: 16041043-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**4.73**	5.000	0	94.6	75	125	04/20/2016
Barium	0.500		**20.8**	20.00	0.5220	101.5	75	125	04/20/2016
Cadmium	0.0200		**0.491**	0.5000	0	98.2	75	125	04/20/2016
Chromium	0.100		**2.02**	2.000	0	100.8	75	125	04/20/2016
Lead	0.400		**5.12**	5.000	0	102.3	75	125	04/20/2016
Selenium	0.500		**4.94**	5.000	0	98.8	75	125	04/20/2016
Silver	0.100		**0.515**	0.5000	0	103.0	75	125	04/20/2016

Batch 118221 **SampType:** MS Units mg/L

SampID: 16041096-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**4.77**	5.000	0	95.3	75	125	04/20/2016
Barium	0.500		**20.8**	20.00	0	104.0	75	125	04/20/2016
Cadmium	0.0200		**0.504**	0.5000	0	100.8	75	125	04/20/2016
Chromium	0.100		**2.03**	2.000	0	101.4	75	125	04/20/2016
Lead	0.400		**5.12**	5.000	0	102.4	75	125	04/20/2016
Selenium	0.500		**4.84**	5.000	0	96.9	75	125	04/20/2016
Silver	0.100		**0.515**	0.5000	0	103.0	75	125	04/20/2016

Teklab Inc. Environmental Laboratory

Quality Control Results

http://www.teklabinc.com/

Client: Geotechnology, Inc. **Work Order:** 16041043

Client Project: Hutsonville J019896.05 **Report Date:** 21-Apr-16

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 118221 **SampType:** MS Units mg/L
SampID: 16041101-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Arsenic	0.250		**4.93**	5.000	0	98.6	75	125	04/19/2016
Barium	0.500		**20.9**	20.00	0.7880	100.7	75	125	04/19/2016
Cadmium	0.0200		**0.502**	0.5000	0	100.4	75	125	04/19/2016
Chromium	0.100		**2.00**	2.000	0	100.0	75	125	04/19/2016
Lead	0.400		**5.14**	5.000	0	102.8	75	125	04/19/2016
Selenium	0.500		**5.02**	5.000	0	100.5	75	125	04/19/2016
Silver	0.100		**0.515**	0.5000	0	103.0	75	125	04/19/2016

Batch 118221 **SampType:** MS Units mg/L
SampID: 16041118-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Lead	0.400		**5.17**	5.000	0.07100	102.0	75	125	04/19/2016

Batch 118221 **SampType:** MSD Units mg/L RPD Limit 20
SampID: 16041118-002AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Lead	0.400		**5.06**	5.000	0.07100	99.8	5.172	2.13	04/19/2016

SW-846 1311, 7470A IN TCLP EXTRACT

Batch 118216 **SampType:** MBLK Units mg/L
SampID: MBLK-118216

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**< 0.00020**	.000200	0	0	-100	100	04/19/2016

Batch 118216 **SampType:** LCS Units mg/L
SampID: LCS-118216

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00467**	).00500C	0	93.3	85	115	04/19/2016

Batch 118216 **SampType:** MS Units mg/L
SampID: 16040979-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00477**	).00500C	0	95.3	75	125	04/19/2016

Batch 118216 **SampType:** MS Units mg/L
SampID: 16040979-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00455**	).00500C	0	91.1	75	125	04/19/2016

Client: Geotechnology, Inc. **Work Order:** 16041043

Client Project: Hutsonville J019896.05 **Report Date:** 21-Apr-16

SW-846 1311, 7470A IN TCLP EXTRACT

Batch 118216 **SampType:** MS **Units** mg/L

SampID: 16041003-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020	S	**0.00439**	0.00500	0.001079	66.3	75	125	04/19/2016

Batch 118216 **SampType:** MS **Units** mg/L

SampID: 16041030-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00410**	0.00500	0	82.1	75	125	04/19/2016

Batch 118216 **SampType:** MSD **Units** mg/L RPD Limit **15**

SampID: 16041030-002AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Mercury	0.00020		**0.00425**	0.00500	0	84.9	0.004105	3.37	04/19/2016

Batch 118216 **SampType:** MS **Units** mg/L

SampID: 16041043-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00456**	0.00500	0	91.3	75	125	04/19/2016

Batch 118216 **SampType:** MS **Units** mg/L

SampID: 16041096-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00457**	0.00500	0	91.4	75	125	04/19/2016

Batch 118216 **SampType:** MS **Units** mg/L

SampID: 16041101-002AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Mercury	0.00020		**0.00479**	0.00500	0	95.9	75	125	04/19/2016

SW-846 3050B, 6010B, METALS BY ICP

Batch 118203 **SampType:** MBLK **Units** mg/Kg-dry

SampID: MBLK-118203

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron	2.00		**< 2.00**	2.000	0	0	-100	100	04/19/2016

Batch 118203 **SampType:** LCS **Units** mg/Kg-dry

SampID: LCS-118203

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron	2.00		**48.2**	50.00	0	96.3	85	115	04/19/2016

Client: Geotechnology, Inc. **Work Order:** 16041043

Client Project: Hutsonville J019896.05 **Report Date:** 21-Apr-16

SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 118230 **SampType:** MBLK Units µg/Kg

SampID: MBLK-A160419A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	1.0		**ND**						04/19/2016
Ethylbenzene	5.0		**ND**						04/19/2016
Toluene	5.0		**ND**						04/19/2016
Xylenes, Total	5.0		**ND**						04/19/2016
Surr: 1,2-Dichloroethane-d4			**46.0**	50.00		91.9	72.2	131	04/19/2016
Surr: 4-Bromofluorobenzene			**48.0**	50.00		95.9	82.1	116	04/19/2016
Surr: Dibromofluoromethane			**47.4**	50.00		94.9	77.7	120	04/19/2016
Surr: Toluene-d8			**49.8**	50.00		99.5	86	116	04/19/2016

Batch 118230 **SampType:** LCS Units µg/Kg

SampID: LCS-A160419A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	1.0		**57.6**	50.00	0	115.1	80.8	117	04/19/2016
Ethylbenzene	5.0		**53.0**	50.00	0	106.1	84.8	116	04/19/2016
Toluene	5.0		**52.9**	50.00	0	105.8	81.3	113	04/19/2016
Xylenes, Total	5.0		**157**	150.0	0	104.4	85.3	118	04/19/2016
Surr: 1,2-Dichloroethane-d4			**48.3**	50.00		96.7	72.2	131	04/19/2016
Surr: 4-Bromofluorobenzene			**48.4**	50.00		96.7	82.1	116	04/19/2016
Surr: Dibromofluoromethane			**49.8**	50.00		99.6	77.7	120	04/19/2016
Surr: Toluene-d8			**47.6**	50.00		95.3	86	116	04/19/2016

Batch 118230 **SampType:** LCSD Units µg/Kg RPD Limit **40**

SampID: LCSD-A160419A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Benzene	1.0		**57.7**	50.00	0	115.5	57.55	0.31	04/19/2016
Ethylbenzene	5.0		**53.3**	50.00	0	106.6	53.05	0.45	04/19/2016
Toluene	5.0		**52.9**	50.00	0	105.8	52.91	0.04	04/19/2016
Xylenes, Total	5.0		**157**	150.0	0	104.6	156.7	0.15	04/19/2016
Surr: 1,2-Dichloroethane-d4			**48.1**	50.00		96.2			04/19/2016
Surr: 4-Bromofluorobenzene			**48.9**	50.00		97.7			04/19/2016
Surr: Dibromofluoromethane			**50.5**	50.00		100.9			04/19/2016
Surr: Toluene-d8			**48.0**	50.00		96.0			04/19/2016

Batch 118230 **SampType:** LCSG Units %REC

SampID: LCSG-A160419A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Surr: 1,2-Dichloroethane-d4			**44.7**	50.00		89.4	72.2	131	04/19/2016
Surr: 4-Bromofluorobenzene			**48.6**	50.00		97.2	82.1	116	04/19/2016
Surr: Dibromofluoromethane			**46.4**	50.00		92.7	77.7	120	04/19/2016
Surr: Toluene-d8			**50.7**	50.00		101.4	86	116	04/19/2016

Client: Geotechnology, Inc. **Work Order:** 16041043

Client Project: Hutsonville J019896.05 **Report Date:** 21-Apr-16

SW-846 5035, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 118230 **SampType:** LCSGD Units %REC RPD Limit 0

SampID: LCSGD-A160419A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Surr: 1,2-Dichloroethane-d4			**45.0**	50.00		89.9			04/19/2016
Surr: 4-Bromofluorobenzene			**49.2**	50.00		98.4			04/19/2016
Surr: Dibromofluoromethane			**45.9**	50.00		91.8			04/19/2016
Surr: Toluene-d8			**49.7**	50.00		99.4			04/19/2016

Teklab Inc. Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Geotechnology, Inc.

Client Project: Hutsonville J019896.05

Work Order: 16041043

Report Date: 21-Apr-16

Carrier: Nicholas Reed

Received By: KF

Completed by: M. Kaminski
On: 15-Apr-16
Mary Anne Kaminski

Reviewed by: MLA
On: 15-Apr-16
Michael L. Austin

Pages to follow: Chain of custody 1 Extra pages included 0

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C 1.22
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice ☐
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐		

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes ☐	No ☐	No VOA vials ☑	
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	NA ☑	
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA ☑	

Any No responses must be detailed below or on the COC.

CHAIN OF CUSTODY

pg. 1 of 1 Work order # ~~16041042~~ 16041043

TEKLAB, INC. 5445 Horseshoe Lake Road - Collinsville, IL 62234 - Phone: (618) 344-1004 - Fax: (618) 344-1005

Client: Geotechnology, Inc.
Address: 11816 Lackland Road
City / State / Zip St. Louis, MO 63146
Contact: Anna Saindon **Phone:** (314) 997-7440
E-Mail: a_saindon@geotechnology.com **Fax:** (314) 997-2067

Samples on: ☒ ICE ☐ BLUE ICE ☐ NO ICE 1.22 °C
Preserved in: ☐ LAB ☐ FIELD **FOR LAB USE ONLY**
Lab Notes

Client Comments:

Are these samples known to be involved in litigation? If yes, a surcharge will apply ☐ Yes ☒ No
Are these samples known to be hazardous? ☐ Yes ☒ No
Are there any required reporting limits to be met on the requested analysis?. If yes, please provide limits in the comment section. ☐ Yes ☒ No

Project Name/Number: Hutsonville J019896.05
Sample Collector's Name: Jessie Hahn

Results Requested: ☒ Standard ☐ 1-2 Day (100% Surcharge) ☐ Other ____ ☐ 3 Day (50% Surcharge)
Billing Instructions: P.O.#43312

Lab Use Only	Sample Identification	Date/Time Sampled	UNPRES	HNO3	NaOH	H2SO4	HCL	MeOH	NaHSO4	OTHER	Aqueous	Drinking Water	Soil	Sludge	Special Waste	Groundwater	% Moisture	Boron	BTEX	Chloride	Flash Point	Sulfate	TCLP 8 RCRA
16041043 001	QLS-Conf-1	04/14/2016 1430	2					1	2				X				X	X	X	X	X	X	X

Relinquished By	Date/Time	Received By	Date/Time
Jessie Hahn [signature]	4/15/16 1725	[signature]	4/15/16 0700
[signature] Rosanna Saindon	4/15/16	Nicholas Reed	4/15/16 1500
Nicholas Reed	4/15/16 1605	[signature]	4/15/16 1605

The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client.

BottleOrder: 28877

http://www.teklabinc.com/

May 04, 2016

Anna Saindon
Geotechnology, Inc.
11816 Lackland Road
St. Louis, MO 63146
TEL: (314) 997-7440
FAX: (314) 997-2067

RE: J019896.05 Hutsonville

WorkOrder: 16041804

Dear Anna Saindon:

TEKLAB, INC received 1 sample on 4/28/2016 3:40:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Emily Polh

Emily E. Pohlman
Project Manager
(618)344-1004 ex 44
epohlman@teklabinc.com

Teklab Inc. Environmental Laboratory

Report Contents

http://www.teklabinc.com/

Client: Geotechnology, Inc.

Work Order: 16041804

Client Project: J019896.05 Hutsonville

Report Date: 04-May-16

This reporting package includes the following:

Abbr	Definition
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.
DNI	Did not ignite
DUP	Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

- \# - Unknown hydrocarbon
- B - Analyte detected in associated Method Blank
- E - Value above quantitation range
- H - Holding times exceeded
- I - Associated internal standard was outside method criteria
- J - Analyte detected below quantitation limits
- M - Manual Integration used to determine area response
- ND - Not Detected at the Reporting Limit
- R - RPD outside accepted recovery limits
- S - Spike Recovery outside recovery limits
- T - TIC(Tentatively identified compound)
- X - Value exceeds Maximum Contaminant Level

Teklab Inc
Environmental Laboratory

Case Narrative

http://www.teklabinc.com/

Client: Geotechnology, Inc.

Client Project: J019896.05 Hutsonville

Work Order: 16041804

Report Date: 04-May-16

Cooler Receipt Temp: 2.62 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road	3920 Pintail Dr	8421 Nieman Road	5445 Horseshoe Lake Road
	Collinsville, IL 62234-7425	Springfield, IL 62711-9415	Lenexa, KS 66214	Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2017	Collinsville
Kansas	KDHE	E-10374	NELAP	7/31/2016	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2016	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2016	Collinsville
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2016	Collinsville
Arkansas	ADEQ	88-0966		3/14/2017	Collinsville
Illinois	IDPH	17584		5/31/2017	Collinsville
Kentucky	KDEP	98006		12/31/2016	Collinsville
Kentucky	UST	0073		1/31/2017	Collinsville
Missouri	MDNR	00930		5/31/2017	Collinsville
Oklahoma	ODEQ	9978		8/31/2016	Collinsville

Teklab Inc.
Environmental Laboratory

Laboratory Results

http://www.teklabinc.com/

Client: Geotechnology, Inc.
Client Project: J019896.05 Hutsonville
Lab ID: 16041804-001
Matrix: SOLID

Work Order: 16041804
Report Date: 04-May-16
Client Sample ID: Stock Pile
Collection Date: 04/27/2016 11:57

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		**21.9**	%	1	05/02/2016 20:31	R218077
SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP								
Boron	NELAP	0.200		**0.351**	mg/L	1	05/02/2016 17:00	118598

Quality Control Results

http://www.teklabinc.com/

Client: Geotechnology, Inc.
Client Project: J019896.05 Hutsonville

Work Order: 16041804
Report Date: 04-May-16

EPA SW846 3550C, 5035A, ASTM D2974

Batch R218077 **SampType:** LCS **Units** %
SampID: LCS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Percent Moisture	0.1		**99.0**	99.00	0	100.0	90	110	05/02/2016

Batch R218077 **SampType:** LCSQC **Units** %
SampID: LCSQC

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Percent Moisture	0.1		**99.0**	99.00	0	100.0	90	110	05/02/2016

SW-846 1311, 3010A, 6010B, METALS IN TCLP EXTRACT BY ICP

Batch 118598 **SampType:** MBLK **Units** mg/L
SampID: MBLK-118598

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron	0.200	J	**0.088**	0.2000	0	44.0	-100	100	05/02/2016
Boron	0.200	J	**0.088**	0.2000	0	44.0	-100	100	05/02/2016

Batch 118598 **SampType:** LCS **Units** mg/L
SampID: LCS-118598

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron	0.200		**4.93**	5.000	0	98.6	85	115	05/02/2016
Boron	0.200		**4.53**	5.000	0	90.6	85	115	05/02/2016

Batch 118598 **SampType:** MS **Units** mg/L
SampID: 16041804-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Boron	0.200		**5.18**	5.000	0.3510	96.5	75	125	05/02/2016

Teklab Inc. Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Geotechnology, Inc.

Client Project: J019896.05 Hutsonville

Work Order: 16041804

Report Date: 04-May-16

Carrier: Nick Reed

Received By: AMD

Completed by: Kalyn Foecke

On: 28-Apr-16

Kalyn Foecke

Reviewed by: Elizabeth A. Hurley

On: 28-Apr-16

Elizabeth A. Hurley

Pages to follow: Chain of custody 1 Extra pages included 0

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C 2.62
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice ☐
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐		

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes ☐	No ☐	No VOA vials ☑	
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	NA ☑	
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA ☑	

Any No responses must be detailed below or on the COC.

APPENDIX D

40-MIL HDPE GEOMEMBRANE

Hutsonville Power Station
Ash Pond A Closure
Geomembrane Roll List

Roll Number	Material	Thickness (Nominal)	Textured/ Smooth	Manufacturer	Color	Length	Width	On-Site
108183102	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/21/2015
108183949	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/21/2015
108183950	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/21/2015
108183951	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/21/2015
108183952	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/21/2015
108183953	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/21/2015
108183954	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/21/2015
108183955	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/21/2015
108183956	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/21/2015
108183957	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/21/2015
108183958	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/21/2015
108183959	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/21/2015
108184058	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184059	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184060	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184061	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184062	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184063	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184064	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184065	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184066	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184067	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184068	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184069	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184070	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184071	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184072	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184073	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184074	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184075	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184076	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184077	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184078	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184079	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184080	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015
108184081	HDPE	40 mil	Textured	GSE	black	700 feet	22.5 feet	9/28/2015

GSE Roll Allocation

Order SO-076747
Customer National Lining Systems
Project Name NLS Ameren Hutsonville Closure

Roll#	Resin Lot	Product Code	Mfg Date	Length
108183102	D150520932	HDT-040GE-BBB-B-W0	7/28/2015	700
108183949	HFH820390	HDT-040GE-BBB-B-W0	9/14/2015	700
108183950	HFH820390	HDT-040GE-BBB-B-W0	9/14/2015	700
108183951	HFH820390	HDT-040GE-BBB-B-W0	9/14/2015	700
108183952	HFH820390	HDT-040GE-BBB-B-W0	9/14/2015	700
108183953	HFH820390	HDT-040GE-BBB-B-W0	9/14/2015	700
108183954	HFH820390	HDT-040GE-BBB-B-W0	9/14/2015	700
108183955	HFH820400	HDT-040GE-BBB-B-W0	9/14/2015	700
108183956	HFH820400	HDT-040GE-BBB-B-W0	9/14/2015	700
108183957	HFH820400	HDT-040GE-BBB-B-W0	9/14/2015	700
108183958	HFH820400	HDT-040GE-BBB-B-W0	9/14/2015	700
108183959	HFH820400	HDT-040GE-BBB-B-W0	9/14/2015	700

GSE ENVIRONMENTAL™

GSE Environmental, LLC

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: Sep/15/2015

Sales Order No.	*Customer Name*	*Project Location*	*Product Name*	*BOL Number*
SO-076747	National Lining Systems	Hutsonville IL US	HDT-040GE-BBB-B-W0	

Roll Number	Average Thickness ASTM D5994 (mils)	Minimum Thickness ASTM D5994 (mils)	Yield Strength ASTM D6693 (ppi) MD	Yield Strength ASTM D6693 (ppi) TD	Yield Elongation ASTM D6693 (%) MD	Yield Elongation ASTM D6693 (%) TD	Break Strength ASTM D6693 (ppi) MD	Break Strength ASTM D6693 (ppi) TD	Break Elongation ASTM D6693 (%) MD	Break Elongation ASTM D6693 (%) TD	Tear Resistance ASTM D1004 (lbs) MD	Tear Resistance ASTM D1004 (lbs) TD	Puncture Resistance ASTM D4833 (lbs)	Density ASTM D1505 (g/cc)	Carbon Black Content ASTM D4218 (%)	Carbon Black Dispersion ASTM D5596 (Views In Cat1-Cat2)	Asperity Height ASTM D7466 (mils) A Side	Asperity Height ASTM D7466 (mils) B Side
108183102	41	38	125	136	16	16	146	128	516	452	43	48	110	0.945	2.4	10	22	22
108183949	40	37	105	88	16	15	134	112	479	442	40	38	113	0.944	2.4	10	22	21
108183950	40	37	103	103	16	15	147	115	548	456	39	37	114	0.945	2.6	10	22	20
108183951	40	37	103	103	16	15	147	115	548	456	39	37	114	0.945	2.6	10	22	20
108183952	39	36	103	103	16	15	147	115	548	456	39	37	114	0.945	2.6	10	22	20
108183953	40	37	106	112	16	16	157	135	588	548	40	39	110	0.944	2.6	10	21	22
108183954	38	35	106	112	16	16	157	135	588	548	40	39	110	0.944	2.6	10	22	23
108183955	38	34	106	112	16	16	157	135	588	548	40	39	110	0.944	2.6	10	22	23
108183956	38	35	104	108	16	16	145	132	518	528	43	40	122	0.944	2.5	10	23	22
108183957	38	35	104	108	16	16	145	132	518	528	43	40	122	0.944	2.5	10	23	22
108183958	38	35	104	108	16	16	145	132	518	528	43	40	122	0.944	2.5	10	24	21
108183959	38	35	111	117	16	16	151	131	539	508	42	42	117	0.944	2.6	10	24	21

Laboratory Manager ______________________

TOTAL

Total Petrochemicals & Refining USA, Inc.
Bayport Polyethylene Plant
Bayport, TX 77555
U.S.A.

GSE / Attn: Sue P.
fax#281-230-8630
PALESTINE TX

Quality certificate

Date
06/24/2015
Purchase order item/date
03-501864
Delivery item/date
85633921 000001 / 06/24/2015
Order item
32223036 000001
Customer number
80131640

SHIPPED TO:
GSE LINING TECHNOLOGY, LLC.
UP Track 14732 Westfield
WESTFIELD TX 77090

Material: Our / Your reference
MDPE 37120 (441840) /

Please find below test data and pertinent information on TOTAL PETROCHEMICALS & REFINING USA, INC. Polyethylene material shipped to your plant.

Batch D150520932 **Quantity** 188,600 LB **Railcar** UTCX001873

Characteristic	Unit	Value
Density	g/cc	0.938
Melt Index 21.6/190	g/10 min	10.9
Railcar Prefix	-	UTCX
Railcar Number	-	001873

Sincerely,

Charles R. St. Ama

Charles R. St. Ama
Quality Control Laboratory Supervisor
12212 Port Road, Pasadena, Texas 77507
P.O. Box 5010, LaPorte, Texas 77572-5010

Questions? Contact Customer Service at 1-800-344-3462

CPChem

CoA Date: 08/21/2015

Certificate of Analysis

Shipped To: GSE ENVIRONMENTAL, LLC 19103 GUNDLE ROAD HOUSTON TX 77073 USA	Delivery #: 89111763 PO #: 03-504080 Weight: 181000 LB Ship Date: 08/21/2015 Package: BULK Mode: Hopper Car Car #: CHVX892001 Seal No: 35589
Recipient: Phouangsavanh Fax:	

Product:
MARLEX POLYETHYLENE K306 BULK

Lot Number: HFH820390

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.1	g/10mi
HLMI Flow Rate	ASTM D1238	11.5	g/10mi
Density	D1505 or D4883	0.937	g/cm3
Production Date		08/10/2015	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPChem). **However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.**

Troy Griffin

Troy Griffin
Quality Systems Coordinator

For CoA questions contact Customer Service Representative at 800-231-1212

CPChem

CoA Date: 08/21/2015

Certificate of Analysis

Shipped To: GSE ENVIRONMENTAL, LLC 19103 GUNDLE ROAD HOUSTON TX 77073 USA Recipient: Phouangsavanh Fax:	Delivery #: 89111759 PO #: 03-504080 Weight: 180900 LB Ship Date: 08/21/2015 Package: BULK Mode: Hopper Car Car #: GACX201058 Seal No: 33207

Product:
MARLEX POLYETHYLENE K306 BULK

Lot Number: HFH820400

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.1	g/10mi
HLMI Flow Rate	ASTM D1238	11.7	g/10mi
Density	D1505 or D4883	0.937	g/cm3
Production Date		08/10/2015	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPChem).
However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.

Troy Griffin

Troy Griffin
Quality Systems Coordinator

For CoA questions contact Customer Service Representative at 800-231-1212

Report Date
9/15/2015

GSE ENVIRONMENTAL™

Quality Assurance Laboratory Test Results

Job Name: NLS Ameren Hutsonville Closure
Sales Order: 76747

Required Testing: ASTM D 3895 -- Standard Test Method for Oxidative Induction Time of Polyolefins by Differential Scanning Calorimetry
ASTM D 5397 -- Standard Test Method for Evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Constant Tensile Load Test

Specification: D 3895 - > 100 Minutes
D 5397 - > 500 Hours

Product Code	Resin Lot Number	Test Results
HDT-040GE-BBB-B-W0	D150520932	PASS
HDT-040GE-BBB-B-W0	HFH820390	PASS
HDT-040GE-BBB-B-W0	HFH820400	PASS

Approved By:	Debra Gortemiller
Date Approved:	September 15, 2015

The above stated data shall not be reproduced except in full, without the written approval of the laboratory.

Report Date
9/15/2015

GSE ENVIRONMENTAL™

Quality Assurance Laboratory Test Results

Job Name: NLS Ameren Hutsonville Closure
SO Number: 76747

The table below summarizes additive performance of GSE Houston products as perceived by OIT retention after Oven and UV Aging per GRI Test Method GM13:

		Oven Aging @ 85° C (ASTM D 5721)				UV Resistance per GRI GM11			
		90 days per ASTM D 5885				1600 hours UV Aging per ASTM D 5885			
Product Type	**Formulation**	Initial HP OIT (min)	Final HP OIT (min)	Retained (%)	GRI Criteria (%)	Initial HP OIT (min)	Final OIT (min)	Retained (%)	GRI Criteria (%)
HDPE Geomembrane	Total 37120	995	812	82	80	995	937	94	50

Approved By: Debra Gortemiller
Date: September 15, 2015

The above stated data shall not be reproduced except in full, without the written approval of the laboratory.

Report Date
9/15/2015

GSE ENVIRONMENTAL™

Quality Assurance Laboratory Test Results

Job Name: NLS Ameren Hutsonville Closure
SO Number: 76747

The table below summarizes additive performance of GSE Houston products as perceived by OIT retention after UV and Oven Aging per GRI Test Method GM13:

		Oven Aging @ 85° C (ASTM D 5721)				UV Resistance per GRI GM11			
		90 days per ASTM D 5885				1600 hours UV Aging per ASTM D 5885			
Product Type	**Formulation**	Initial HP OIT (min)	Final HP OIT (min)	Retained (%)	GRI Criteria (%)	Initial HP OIT (min)	Final HP OIT (min)	Retained (%)	GRI Criteria (%)
HDPE Geomembrane	Chevron Phillips Marlex® K306 + Carbon Black	697	661	94	80	697	565	81	50

Approved By: Debra Gortemiller
Date: September 15, 2015

GSE Roll Allocation

Order SO-076747
Customer National Lining Systems
Project Name NLS Ameren Hutsonville Closure

Roll#	Resin Lot	Product Code	Mfg Date	Length
108184058	HFH820360	HDT-040GE-BBB-B-W0	9/20/2015	700
108184059	HFH820360	HDT-040GE-BBB-B-W0	9/20/2015	700
108184060	HFH820360	HDT-040GE-BBB-B-W0	9/20/2015	700
108184061	HFH820360	HDT-040GE-BBB-B-W0	9/20/2015	700
108184062	HFH820360	HDT-040GE-BBB-B-W0	9/20/2015	700
108184063	HFH820360	HDT-040GE-BBB-B-W0	9/20/2015	700
108184064	HFH820360	HDT-040GE-BBB-B-W0	9/20/2015	700
108184065	HFH820360	HDT-040GE-BBB-B-W0	9/20/2015	700
108184066	HFH820360	HDT-040GE-BBB-B-W0	9/20/2015	700
108184067	HFH820360	HDT-040GE-BBB-B-W0	9/20/2015	700
108184068	HFH820360	HDT-040GE-BBB-B-W0	9/20/2015	700
108184069	HFH820360	HDT-040GE-BBB-B-W0	9/20/2015	700
108184070	HFH820360	HDT-040GE-BBB-B-W0	9/20/2015	700
108184071	HFH820420	HDT-040GE-BBB-B-W0	9/20/2015	700
108184072	HFH820420	HDT-040GE-BBB-B-W0	9/20/2015	700
108184073	HFH820420	HDT-040GE-BBB-B-W0	9/20/2015	700
108184074	HFH820420	HDT-040GE-BBB-B-W0	9/20/2015	700
108184075	HFH820420	HDT-040GE-BBB-B-W0	9/20/2015	700
108184076	HFH820420	HDT-040GE-BBB-B-W0	9/20/2015	700
108184077	HFH820420	HDT-040GE-BBB-B-W0	9/20/2015	700
108184078	HFH820420	HDT-040GE-BBB-B-W0	9/20/2015	700
108184079	HFH820420	HDT-040GE-BBB-B-W0	9/21/2015	700
108184080	HFH820420	HDT-040GE-BBB-B-W0	9/21/2015	700
108184081	HFH820420	HDT-040GE-BBB-B-W0	9/21/2015	700

GSE Environmental, LLC

GSE ENVIRONMENTAL™

ROLL TEST DATA REPORT

GSE QC APPROVED

Report Date: Sep/21/2015

Sales Order No.	*Customer Name*	*Project Location*	*Product Name*	*BOL Number*
SO-076747	National Lining Systems	Hutsonville IL US	HDT-040GE-BBB-B-W0	

Roll Number	Average Thickness ASTM D5994 (mils)	Minimum Thickness ASTM D5994 (mils)	Yield Strength ASTM D6693 (ppi) MD	Yield Strength ASTM D6693 (ppi) TD	Yield Elongation ASTM D6693 (%) MD	Yield Elongation ASTM D6693 (%) TD	Break Strength ASTM D6693 (ppi) MD	Break Strength ASTM D6693 (ppi) TD	Break Elongation ASTM D6693 (%) MD	Break Elongation ASTM D6693 (%) TD	Tear Resistance ASTM D1004 (lbs) MD	Tear Resistance ASTM D1004 (lbs) TD	Puncture Resistance ASTM D4833 (lbs)	Density ASTM D1505 (g/cc)	Carbon Black Content ASTM D4218 (%)	Carbon Black Dispersion ASTM D5596 (Views in Cat1-Cat2)	Asperity Height ASTM D7466 (mils) A Side	Asperity Height ASTM D7466 (mils) B Side
108184058	38	36	104	113	15	15	143	108	541	390	40	37	114	0.945	2.3	10	21	21
108184059	39	36	106	112	16	15	153	121	554	467	40	39	118	0.945	2.5	10	21	21
108184060	39	37	106	112	16	15	153	121	554	467	40	39	118	0.945	2.5	10	21	22
108184061	39	37	106	112	16	15	153	121	554	467	40	39	118	0.945	2.5	10	21	22
108184062	38	36	103	102	16	16	160	123	590	497	42	41	111	0.945	2.6	10	22	20
108184063	40	37	103	102	16	16	160	123	590	497	42	41	111	0.945	2.6	10	22	20
108184064	40	35	103	102	16	16	160	123	590	497	42	41	111	0.945	2.6	10	22	22
108184065	39	35	102	107	16	16	161	122	611	494	41	37	110	0.945	2.6	10	22	22
108184066	39	35	102	107	16	16	161	122	611	494	41	37	110	0.945	2.6	10	21	22
108184067	39	35	102	107	16	16	161	122	611	494	41	37	110	0.945	2.6	10	21	22
108184068	38	35	100	109	16	16	143	122	528	447	39	37	115	0.944	2.7	10	22	23
108184069	39	35	100	109	16	16	143	122	528	447	39	37	115	0.944	2.7	10	22	23
108184070	39	35	100	109	16	16	143	122	528	447	39	37	115	0.944	2.7	10	23	23
108184071	39	35	102	111	16	15	144	124	548	513	39	38	117	0.944	2.5	10	23	23
108184072	38	35	102	111	16	15	144	124	548	513	39	38	117	0.944	2.5	10	22	22
108184073	38	35	102	111	16	15	144	124	548	513	39	38	117	0.944	2.5	10	22	22
108184074	39	35	100	105	16	16	134	116	489	471	40	39	131	0.945	2.5	10	23	23
108184075	38	35	100	105	16	16	134	116	489	471	40	39	131	0.945	2.5	10	23	23
108184076	38	36	100	105	16	16	134	116	489	471	40	39	131	0.945	2.5	10	23	23
108184077	39	35	102	107	16	16	157	122	587	432	39	38	115	0.944	2.6	10	23	23
108184078	39	36	102	107	16	16	157	122	587	432	39	38	115	0.944	2.6	10	22	23
108184079	39	37	102	107	16	16	157	122	587	432	39	38	115	0.944	2.6	10	22	23
108184080	38	36	103	104	16	15	156	135	583	574	40	38	116	0.945	2.6	10	22	22
108184081	39	35	103	104	16	15	156	135	583	574	40	38	116	0.945	2.6	10	22	22

Laboratory Manager ______________________

CPChem

CoA Date: 08/21/2015

Certificate of Analysis

Shipped To: GSE ENVIRONMENTAL, LLC 19103 GUNDLE ROAD HOUSTON TX 77073 USA	Delivery #: 89111766 PO #: 03-504080 Weight: 183400 LB Ship Date: 08/21/2015 Package: BULK Mode: Hopper Car Car #: CHVX898144 Seal No: 33255
Recipient: Phouangsavanh Fax:	

Product:
MARLEX POLYETHYLENE K306 BULK

Lot Number: HFH820360

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.1	g/10mi
HLMI Flow Rate	ASTM D1238	11.6	g/10mi
Density	D1505 or D4883	0.937	g/cm3
Production Date		08/09/2015	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPChem). **However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.**

Troy Griffin

Troy Griffin
Quality Systems Coordinator

For CoA questions contact Customer Service Representative at 800-231-1212

CPChem

CoA Date: 08/21/2015

Certificate of Analysis

Shipped To: GSE ENVIRONMENTAL, LLC 19103 GUNDLE ROAD HOUSTON TX 77073 USA Recipient: Phouangsavanh Fax:	Delivery #: 89111761 PO #: 03-504080 Weight: 184300 LB Ship Date: 08/21/2015 Package: BULK Mode: Hopper Car Car #: CHVX890107 Seal No: 33471

Product:
MARLEX POLYETHYLENE K306 BULK

Lot Number: HFH820420

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.1	g/10mi
HLMI Flow Rate	ASTM D1238	12.0	g/10mi
Density	D1505 or D4883	0.937	g/cm3
Production Date		08/10/2015	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP (CPChem). **However, there is no warranty of any kind, either expressed or implied, applicable to its use, and the user assumes all risk and liability in connection therewith.**

Troy Griffin

Troy Griffin
Quality Systems Coordinator

For CoA questions contact Customer Service Representative at 800-231-1212

GSE ENVIRONMENTAL™

Report Date
9/21/2015

Quality Assurance Laboratory Test Results

Job Name: NLS Ameren Hutsonville Closure
Sales Order: 76747

Required Testing: ASTM D 3895 -- Standard Test Method for Oxidative Induction Time of Polyolefins by Differential Scanning Calorimetry
ASTM D 5397 -- Standard Test Method for Evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Constant Tensile Load Test

Specification: D 3895 - > 100 Minutes
D 5397 - > 500 Hours

Product Code	Resin Lot Number	Test Results
HDT-040GE-BBB-B-W0	D150520932	PASS
HDT-040GE-BBB-B-W0	HFH820390	PASS
HDT-040GE-BBB-B-W0	HFH820400	PASS
HDT-040GE-BBB-B-W0	HFH820360	PASS
HDT-040GE-BBB-B-W0	HFH820420	PASS

Approved By:	Debra Gortemiller
Date Approved:	September 21, 2015

The above stated data shall not be reproduced except in full, without the written approval of the laboratory.

Report Date
9/21/2015

GSE ENVIRONMENTAL

Quality Assurance Laboratory Test Results

Job Name: NLS Ameren Hutsonville Closure
SO Number: 76747

The table below summarizes additive performance of GSE Houston products as perceived by OIT retention after UV and Oven Aging per GRI Test Method GM13:

		Oven Aging @ 85° C (ASTM D 5721) 90 days per ASTM D 5885				UV Resistance per GRI GM11 1600 hours UV Aging per ASTM D 5885			
Product Type	**Formulation**	Initial HP OIT (min)	Final HP OIT (min)	Retained (%)	GRI Criteria (%)	Initial HP OIT (min)	Final HP OIT (min)	Retained (%)	GRI Criteria (%)
HDPE Geomembrane	Chevron Phillips Marlex® K306 + Carbon Black	697	661	94	80	697	565	81	50

Approved By: Debra Gortemiller
Date: September 15, 2015

September 24, 2015

Mail To:

Anna Saindon
Geotechnology, Inc.
11816 Lackland Road, Suite 150
St. Louis, MO 63146

email: a_saindon@geotechnology.com

Bill To:

<= Same (P.O. #: 41782)

Dear Ms. Saindon:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project:	**Ameren Hutsonville Power Station Closure**
TRI Job Reference Number:	E2401-99-04
Material(s) Tested:	Two, GSE 40 mil Textured HDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5994) Tensile Properties (ASTM D 6693) Puncture Strength (ASTM D 4833) Tear Resistance (ASTM D 1004)

If you have any questions or require any additional information, please call us at 1-800-880-8378

Sincerely,

Jarrett A. Nelson

Jarrett A. Nelson
Technical Director
Geosynthetic Services Division
www.GeosyntheticTesting.com

*Signature is on file

TRI ENVIRONMENTAL, INC.
9063 BEE CAVES RD. – AUSTIN, TX 78733 – USA | PH: 800.880.TEST OR 512.263.2101

GEOMEMBRANE TEST RESULTS
TRI Client: Geotechnology, Inc.
Project: Ameren Hutsonville Power Station Closure

Material: GSE 40 mil Textured HDPE Geomembrane
Sample Identification: 108183102
TRI Log #: E2401-99-04

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Thickness (ASTM D 5994)												
Thickness (mils)	43	44	44	47	42	40	40	43	40	39	**42**	2
											39	<< min
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	150	147	142	142	135						**143**	6
TD Yield Strength (ppi)	119	132	136	138	141						**133**	9
MD Break Strength (ppi)	162	177	163	143	159						**161**	12
TD Break Strength (ppi)	107	104	95	116	102						**105**	8
MD Yield Elongation (%)	18	16	17	17	17						**17**	1
TD Yield Elongation (%)	12	13	14	12	15						**13**	1
MD Break Elongation (%)	482	546	516	402	510						**491**	55
TD Break Elongation (%)	314	265	347	217	113						**251**	92
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	114	111	114	116	122						**115**	4
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	40.5	47.4	48.9	46.0	43.1	41.0	41.9	42.9	43.5	44.6	**44.0**	2.7
TD Tear Strength (lbs)	39.0	41.3	41.4	43.0	39.6	44.1	42.9	42.4	44.0	39.6	**41.7**	1.9

MD Machine Direction TD Transverse Direction

TRI ENVIRONMENTAL, INC.
9063 BEE CAVES RD. - AUSTIN, TX 78733 - USA | PH: 800.880.TEST OR 512.263.2101

GEOMEMBRANE TEST RESULTS
TRI Client: Geotechnology, Inc.
Project: Ameren Hutsonville Power Station Closure

Material: GSE 40 mil Textured HDPE Geomembrane
Sample Identification: 108183955
TRI Log #: E2401-99-04

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Thickness (ASTM D 5994)												
Thickness (mils)	39	42	38	36	41	38	40	41	38	40	39	2
											36	<< min
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	125	117	111	123	124						120	6
TD Yield Strength (ppi)	118	120	116	120	115						118	2
MD Break Strength (ppi)	148	145	154	127	138						142	10
TD Break Strength (ppi)	137	112	131	94	132						121	18
MD Yield Elongation (%)	16	15	13	17	17						16	2
TD Yield Elongation (%)	14	12	14	14	14						14	1
MD Break Elongation (%)	481	483	541	381	423						462	61
TD Break Elongation (%)	494	399	498	239	441						414	106
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	114	112	114	106	101						109	6
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	40.5	41.9	44.4	43.0	42.6	38.5	42.4	37.4	41.4	44.6	41.7	2.3
TD Tear Strength (lbs)	37.0	34.8	34.4	37.4	39.0	38.0	40.3	37.4	40.9	40.1	37.9	2.2

MD Machine Direction   TD Transverse Direction

TRI ENVIRONMENTAL, INC.
9063 BEE CAVES RD. - AUSTIN, TX 78733 - USA | PH: 800.880.TEST OR 512.263.2101

September 24, 2015

Mail To:

Anna Saindon
Geotechnology, Inc.
11816 Lackland Road, Suite 150
St. Louis, MO 63146

email: a_saindon@geotechnology.com

Bill To:

<= Same (P.O. #: 41782)

Dear Ms. Saindon:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project:	**Ameren Hutsonville Power Station Closure**
TRI Job Reference Number:	E2402-06-09
Material(s) Tested:	Four, GSE 40 mil Textured HDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D 5994) Tensile Properties (ASTM D 6693) Puncture Strength (ASTM D 4833) Tear Resistance (ASTM D 1004)

If you have any questions or require any additional information, please call us at 1-800-880-8378

Sincerely,

Jarrett A. Nelson

Jarrett A. Nelson
Technical Director
Geosynthetic Services Division
www.GeosyntheticTesting.com

*Signature is on file

TRI ENVIRONMENTAL, INC.
9063 BEE CAVES RD. - AUSTIN, TX 78733 - USA | PH: 800.880.TEST OR 512.263.2101

GEOMEMBRANE TEST RESULTS
TRI Client: Geotechnology, Inc.
Project: Ameren Hutsonville Power Station Closure

Material: GSE 40 mil Textured HDPE Geomembrane
Sample Identification: 108184058
TRI Log #: E2402-06-09

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Thickness (ASTM D 5994)												
Thickness (mils)	48	44	45	43	43	48	42	48	44	41	45	3
											41	<< min
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	125	124	125	125	127						125	1
TD Yield Strength (ppi)	116	116	122	113	120						117	4
MD Break Strength (ppi)	152	135	138	121	138						137	11
TD Break Strength (ppi)	121	119	129	134	130						127	6
MD Yield Elongation (%)	15	17	15	15	18						16	1
TD Yield Elongation (%)	14	14	14	14	15						14	0
MD Break Elongation (%)	483	437	443	266	430						412	84
TD Break Elongation (%)	439	452	484	532	500						481	37
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	120	111	106	118	111						113	6
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	42.0	41.3	44.4	38.4	42.6	39.5	41.3	44.9	45.5	42.6	42.3	2.3
TD Tear Strength (lbs)	40.0	37.8	41.4	43.5	42.6	40.0	42.4	37.9	43.0	38.5	40.7	2.2

MD Machine Direction TD Transverse Direction

TRI ENVIRONMENTAL, INC.
9063 BEE CAVES RD. - AUSTIN, TX 78733 - USA | PH: 800.880.TEST OR 512.263.2101

GEOMEMBRANE TEST RESULTS
TRI Client: Geotechnology, Inc.
Project: Ameren Hutsonville Power Station Closure

Material: GSE 40 mil Textured HDPE Geomembrane
Sample Identification: 108184064
TRI Log #: E2402-06-09

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Thickness (ASTM D 5994)												
Thickness (mils)	44	45	47	41	44	46	44	41	42	44	**44**	2
											41	<< min
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	117	120	112	112	117						**116**	4
TD Yield Strength (ppi)	114	116	124	118	112						**117**	5
MD Break Strength (ppi)	161	182	138	139	158						**156**	18
TD Break Strength (ppi)	135	127	145	126	122						**131**	9
MD Yield Elongation (%)	17	17	15	15	17						**16**	1
TD Yield Elongation (%)	13	13	14	16	14						**14**	1
MD Break Elongation (%)	528	590	451	431	495						**499**	63
TD Break Elongation (%)	493	461	537	481	467						**488**	30
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	104	108	105	105	105						**105**	2
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	43.6	39.3	41.9	43.0	39.0	45.1	42.4	47.4	46.0	45.6	**43.3**	2.8
TD Tear Strength (lbs)	38.0	38.3	38.4	42.4	41.6	36.0	38.3	39.9	40.4	40.6	**39.4**	1.9

MD Machine Direction TD Transverse Direction

TRI ENVIRONMENTAL, INC.
9063 BEE CAVES RD. - AUSTIN, TX 78733 - USA | PH: 800.880.TEST OR 512.263.2101

GEOMEMBRANE TEST RESULTS
TRI Client: Geotechnology, Inc.
Project: Ameren Hutsonville Power Station Closure

Material: GSE 40 mil Textured HDPE Geomembrane
Sample Identification: 108184070
TRI Log #: E2402-06-09

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	6	7	8	9	10	MEAN	STD. DEV.
Thickness (ASTM D 5994)												
Thickness (mils)	41	46	49	48	43	46	44	46	41	41	45	3
											41	<< min
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	108	109	117	115	118						113	5
TD Yield Strength (ppi)	116	107	117	118	122						116	6
MD Break Strength (ppi)	152	142	157	151	164						153	8
TD Break Strength (ppi)	89	124	119	112	134						116	17
MD Yield Elongation (%)	18	16	17	15	17						17	1
TD Yield Elongation (%)	15	12	13	14	15						14	1
MD Break Elongation (%)	492	439	497	493	530						490	33
TD Break Elongation (%)	326	473	446	354	478						415	71
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	98	105	110	109	105						105	5
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	43.1	41.3	44.9	46.5	40.1	43.1	48.4	46.4	45.5	43.6	44.3	2.5
TD Tear Strength (lbs)	38.5	37.8	38.9	43.0	37.0	41.0	39.3	37.4	42.4	39.6	39.5	2.1

MD Machine Direction TD Transverse Direction

TRI ENVIRONMENTAL, INC.
9063 BEE CAVES RD. - AUSTIN, TX 78733 - USA | PH: 800.880.TEST OR 512.263.2101

GEOMEMBRANE TEST RESULTS
TRI Client: Geotechnology, Inc.
Project: Ameren Hutsonville Power Station Closure

Material: GSE 40 mil Textured HDPE Geomembrane
Sample Identification: 108184076
TRI Log #: E2402-06-09

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D 5994)												
Thickness (mils)	48	42	45	48	46	43	43	46	48	43	**45**	2
											42	<< min
Tensile Properties (ASTM D 6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	112	114	113	117	107						**113**	4
TD Yield Strength (ppi)	134	131	125	117	119						**125**	7
MD Break Strength (ppi)	148	157	157	158	161						**156**	5
TD Break Strength (ppi)	141	150	121	90	141						**129**	24
MD Yield Elongation (%)	17	14	16	16	17						**16**	1
TD Yield Elongation (%)	15	13	12	13	13						**13**	1
MD Break Elongation (%)	499	521	503	501	544						**514**	19
TD Break Elongation (%)	467	519	399	38	487						**382**	197
Puncture Resistance (ASTM D 4833)												
Puncture Strength (lbs)	107	112	104	103	100						**105**	5
Tear Resistance (ASTM D 1004)												
MD Tear Strength (lbs)	39.5	41.9	39.9	41.4	44.1	44.1	41.3	40.9	37.9	43.6	**41.5**	2.1
TD Tear Strength (lbs)	41.5	38.3	40.4	40.9	38.0	40.5	45.4	42.9	38.9	44.6	**41.1**	2.5

MD Machine Direction TD Transverse Direction

TRI ENVIRONMENTAL, INC.
9063 BEE CAVES RD. - AUSTIN, TX 78733 - USA | PH: 800.880.TEST OR 512.263.2101

Date: 2015-11-04

Mail To:

Anna Saindon
Geotechnology, Inc
11816 Lackland Road
St. Louis , MO , 63146

Bill To:
Geotechnology, Inc
Accounts Payable
ap@geotechnology.com
, ,
Proj: J019896.05.2370, PO 42190

e-mail:a_saindon@geotechnology.com

Dear Ms. Saindon,

Thank you for consulting with TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Hutsonville Ash Pond A**
TRI job Reference Number:	**18725**
Material(s) Tested:	(19) Heat Fusion Weld Seam(s) (1) Single Extrusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

If you have any questions or require any additional information, please call us at 1-800-880-8378.
Sincerely,

Jennifer Tenney
Project Manager
Geosynthetic Services Division
http://www.geosyntheticstestinc.com

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18725

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-1 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	82	80	76	79	84	80
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	100	93	98	105	98	99
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	127	121	125	124	129	125
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: D-2B | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	78	88	77	72	96	82
Peel Incursion (%)	15	<5	<5	10	<5	
Peel Locus Of Failure Code	AD-BRK	SE	SE	AD-BRK	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	98	106	97	98	100	100
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	124	121	127	126	124	124
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18725

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-4A | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	95	90	89	93	95	**92**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	99	97	100	90	106	**98**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	125	126	130	123	125	**126**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: D-5 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	103	98	102	111	90	**101**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	105	102	111	107	102	**105**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	124	123	123	124	121	**123**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18725

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-6 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	89	85	100	104	91	**94**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	110	111	109	112	118	**112**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	125	123	123	125	123	**124**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: D-8 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	99	103	102	94	110	**102**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	93	103	94	100	101	**98**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	127	125	125	123	125	**125**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18725

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-9 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	80	86	87	97	63	**83**
Peel Incursion (%)	20	<5	<5	<5	20	
Peel Locus Of Failure Code	AD-BRK	SE	SE	SE	AD-BRK	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	88	93	100	104	96	**96**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	131	126	127	126	125	**127**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: D-10 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	102	102	101	99	100	**101**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	106	103	108	110	99	**105**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	128	123	126	123	125	**125**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18725

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-11 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	93	97	93	95	96	**95**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	105	106	111	107	109	**108**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	122	132	131	123	126	**127**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: D-12 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	103	97	108	115	105	**106**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	102	90	98	103	100	**99**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	124	124	122	127	128	**125**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18725

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-13 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	104	101	110	104	103	104
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	101	97	107	99	113	103
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	130	125	126	122	125	126
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-14 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	88	95	98	99	59	88
Peel Incursion (%)	75	<5	<5	<5	30	
Peel Locus Of Failure Code	AD-BRK	SE	SE	SE	AD-BRK	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	63	102	101	111	102	96
Peel Incursion (%)	20	<5	<5	<5	<5	
Peel Locus Of Failure Code	AD-BRK	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	118	120	119	126	122	121
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18725

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	MEAN
Sample ID: D-16 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	105	108	106	80	73	**94**
Peel Incursion (%)	<5	<5	<5	<5	10	
Peel Locus Of Failure Code	SE	SE	SE	SE	AD-BRK	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	92	100	98	111	108	**102**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	120	127	123	124	126	**124**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-17 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	90	90	112	103	110	**101**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	98	103	99	94	104	**100**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	125	123	124	119	120	**122**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18725

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-18 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	95	82	78	104	81	88
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	90	100	101	102	96	98
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	124	120	121	120	122	121
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: D-19 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	88	93	100	84	93	92
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	108	102	114	94	103	104
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	120	121	122	125	124	122
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18725

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-20 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	104	111	112	86	110	**105**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	85	96	102	111	114	**102**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	122	121	118	122	116	**120**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-21 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	113	102	113	96	111	**107**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	92	90	96	92	96	**93**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	125	127	123	123	121	**124**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18725

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-22 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	99	114	116	93	111	**107**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	117	117	118	106	110	**114**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	121	118	123	118	124	**121**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS - SINGLE TRACK
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18725

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-30 | Weld: Single Extrusion						
Side: Peel						**Peel**
Peel Strength (ppi)	73	61	58	90	83	**73**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	116	116	114	116	115	**115**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Date: 2015-11-05

Mail To:

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, ,
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e-mail:a_saindon@geotechnology.com

Dear Ms. Saindon,

Thank you for consulting with TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Hutsonville Ash Pond A**
TRI Job Reference Number:	**18748**
Material(s) Tested:	(10) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

If you have any questions or require any additional information, please call us at 1-800-880-8378.
Sincerely,

Jennifer T. Tenney

Jennifer Tenney
Project Manager
Geosynthetic Services Division
http://www.geosynthetictestinc.com

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18748

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-24 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	93	88	98	92	98	**94**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	102	100	97	102	106	**101**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	121	122	118	120	116	**119**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: D-25 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	101	101	99	103	101	**101**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	98	100	99	97	99	**99**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	121	121	118	118	115	**119**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

TRI ENVIRONMENTAL, INC.
9063 BEE CAVES RD. – AUSTIN, TX 78733 – USA | PH: 800.880.TEST OR 512.263.2101

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18748

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-26 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	86	80	93	88	89	**87**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	93	95	96	102	101	**97**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	119	119	116	117	114	**117**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: D-27 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	79	84	90	83	88	**85**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	93	95	93	99	97	**95**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	120	119	118	117	115	**118**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18748

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-28 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	99	101	94	102	103	**100**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	102	102	98	102	103	**101**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	121	119	119	116	115	**118**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: D-29 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	74	96	84	102	89	**89**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	92	94	89	100	94	**94**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	118	117	116	116	114	**116**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18748

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-32 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	92	102	95	99	94	**96**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	89	105	90	109	102	**99**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	127	126	122	123	120	**124**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: D-33 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	109	88	104	88	109	**100**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	105	105	108	105	104	**105**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	120	120	116	118	111	**117**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18748

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-35 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	97	108	102	104	99	102
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	106	115	107	113	104	109
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	128	128	123	124	121	125
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: D-39 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	94	96	96	98	101	97
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	95	93	96	92	97	95
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	124	123	121	121	118	121
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Date: 2015-11-10

Mail To:

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e-mail:a_saindon@geotechnology.com

Dear Ms. Saindon,

Thank you for consulting with TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Hutsonville Ash Pond A**
TRI Job Reference Number:	**18789**
Material(s) Tested:	(18) Heat Fusion Weld Seam(s) (1) Single Extrusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

If you have any questions or require any additional information, please call us at 1-800-880-8378.
Sincerely,

Jennifer Tenney
Project Manager
Geosynthetic Services Division
http://www.geosynthetictestinc.com

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18789

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-31 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	103	94	100	101	101	**100**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	91	91	91	93	97	**93**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	122	121	124	125	118	**122**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: D-34 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	100	106	103	95	105	**102**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	112	93	106	109	99	**104**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	119	130	125	129	115	**124**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18789

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-36 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	104	84	86	90	91	**91**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	97	88	91	74	90	**88**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	115	121	115	112	115	**116**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: D-37 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	97	95	96	96	95	**96**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	110	103	105	109	105	**106**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	123	124	125	118	122	**122**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18789

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-38 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	102	101	113	107	106	**106**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	107	109	115	106	115	**110**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	121	129	120	121	116	**121**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: D-40 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	92	103	101	104	102	**100**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	100	98	98	98	98	**98**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	125	120	121	121	122	**122**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18789

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-41 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	99	94	103	94	92	**96**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	112	114	111	104	108	**110**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	125	122	122	126	119	**123**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-42 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	98	102	97	95	92	**97**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	95	96	94	100	87	**94**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	122	128	126	124	122	**124**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18789

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-43 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	96	100	99	95	96	**97**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	97	103	92	88	98	**96**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	124	123	121	121	122	**122**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: D-44 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	88	90	91	83	88	**88**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	97	92	95	94	94	**94**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	121	123	126	121	126	**123**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18789

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	MEAN
Sample ID: D-45 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	104	96	94	94	100	**98**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	96	113	95	108	96	**102**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	123	128	126	124	128	**126**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: D-46 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	95	84	94	93	96	**92**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	98	98	103	90	97	**97**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	122	121	120	123	123	**122**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18789

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-47 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	88	90	94	92	99	**93**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	97	90	100	94	103	**97**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	121	122	127	125	125	**124**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: D-50 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	103	106	104	103	102	**104**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	93	90	97	94	96	**94**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	122	123	125	126	127	**125**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18789

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-52 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	102	91	87	99	97	**95**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	86	88	85	101	90	**90**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	128	129	135	134	130	**131**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: D-53 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	89	91	93	93	91	**91**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	98	98	92	89	100	**95**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	117	123	129	128	127	**125**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18789

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-54 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	87	93	83	103	86	**90**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	101	102	96	102	89	**98**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	119	124	122	126	120	**122**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-55 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	91	95	100	98	106	**98**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	97	98	100	99	104	**100**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	126	132	126	130	127	**128**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS - SINGLE TRACK
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18789

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-56 | Weld: Single Extrusion						
Side: Peel						**Peel**
Peel Strength (ppi)	102	114	112	107	134	**114**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	126	131	127	122	125	**126**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Date: 2015-11-11

Mail To:

Anna Saindon
Geotechnology, Inc
11816 Lackland Road
St. Louis , MO , 63146

Bill To:
Geotechnology, Inc
Accounts Payable
ap@geotechnology.com
, ,
Proj: J019896.05.2370, PO 42220

e-mail:a_saindon@geotechnology.com

Dear Ms. Saindon,

Thank you for consulting with TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Hutsonville Ash Pond A**
TRI Job Reference Number:	**18807**
Material(s) Tested:	(12) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

If you have any questions or require any additional information, please call us at 1-800-880-8378.
Sincerely,

Jennifer Tenney
Project Manager
Geosynthetic Services Division
http://www.geosyntheticstestinc.com

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18807

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-14A | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	100	96	97	107	89	**98**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	92	97	107	104	98	**100**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	124	119	118	121	120	**120**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: D-14B | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	91	79	65	92	67	**79**
Peel Incursion (%)	<5	45	30	<5	100	
Peel Locus Of Failure Code	SE	AD-BRK	AD-BRK	SE	AD	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	NON-FTB	
Side: B						**Peel B**
Peel Strength (ppi)	91	98	99	100	98	**97**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	118	120	120	121	123	**120**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18807

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-15A | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	85	96	95	102	103	**96**
Peel Incursion (%)	15	<5	<5	<5	<5	
Peel Locus Of Failure Code	AD-BRK	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	94	89	95	96	99	**95**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	121	121	123	125	127	**123**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: D-15B | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	108	114	113	115	107	**111**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	110	104	113	116	109	**110**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	122	125	126	122	127	**124**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18807

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-23A | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	103	108	101	97	106	103
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	107	108	103	103	110	106
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	125	125	124	123	127	125
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: D-23B | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	95	99	76	99	93	92
Peel Incursion (%)	<5	<5	40	<5	<5	
Peel Locus Of Failure Code	SE	SE	AD-BRK	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	107	98	99	95	102	100
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	122	121	121	120	125	122
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18807

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-48A | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	83	92	92	86	81	**87**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	91	102	95	95	100	**97**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	122	117	116	115	118	**118**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: D-48B | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	90	99	85	95	82	**90**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	92	107	113	104	105	**104**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	118	118	121	121	122	**120**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18807

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-49B | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	77	82	58	88	85	78
Peel Incursion (%)	<5	<5	40	<5	<5	
Peel Locus Of Failure Code	SE	SE	AD-BRK	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	99	109	78	103	65	91
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	114	120	120	123	124	120
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: D-51A | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	103	107	107	84	109	102
Peel Incursion (%)	<5	<5	<5	10	<5	
Peel Locus Of Failure Code	SE	SE	SE	AD-BRK	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	108	113	104	116	103	109
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	127	116	123	120	127	123
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18807

PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-51B | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	115	116	113	110	115	**114**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	99	117	110	105	105	**107**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	119	121	121	123	121	**121**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-57 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	98	96	102	94	94	**97**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	92	93	96	91	96	**94**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	124	123	122	126	129	**125**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Date: 2015-11-12

Mail To:

Anna Saindon
Geotechnology, Inc
11816 Lackland Road
St. Louis , MO , 63146

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ap@geotechnology.com
, ,
Proj: J019896.05.2370, PO 42233

e-mail:a_saindon@geotechnology.com

Dear Ms. Saindon,

Thank you for consulting with TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Hutsonville Ash Pond A**
TRI Job Reference Number:	**18823**
Material(s) Tested:	(6) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

If you have any questions or require any additional information, please call us at 1-800-880-8378.
Sincerely,

Jennifer Tenney
Project Manager
Geosynthetic Services Division
http://www.geosyntheticstestinc.com

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18823

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-14B1 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	93	97	94	99	95	**96**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	100	97	103	106	89	**99**
Peel Incursion (%)	<5	<5	<5	<5	30	
Peel Locus Of Failure Code	SE	SE	SE	SE	AD-BRK	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	120	116	115	114	113	**116**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: D-23B1 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	97	95	93	92	89	**93**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	98	111	97	102	102	**102**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	122	123	119	125	116	**121**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18823

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-49B1 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	90	84	91	87	86	**88**
Peel Incursion (%)	<5	50	<5	<5	<5	
Peel Locus Of Failure Code	SE	AD-BRK	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	106	102	110	107	105	**106**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	111	115	111	118	110	**113**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: D-58 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	95	104	98	103	97	**99**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	89	94	95	104	95	**95**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	118	121	120	118	122	**120**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18823

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-59 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	81	96	89	90	91	**89**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	90	85	91	82	92	**88**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	122	123	125	123	123	**123**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: D-61 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	102	97	105	99	97	**100**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	98	101	94	102	99	**99**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	136	131	130	128	131	**131**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Date: 2015-11-13

Mail To:

Anna Saindon
Geotechnology, Inc
11816 Lackland Road
St. Louis , MO , 63146

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e-mail:a_saindon@geotechnology.com

Dear Ms. Saindon,

Thank you for consulting with TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Hutsonville Ash Pond A**
TRI Job Reference Number:	**18835**
Material(s) Tested:	(8) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

If you have any questions or require any additional information, please call us at 1-800-880-8378.
Sincerely,

Jennifer Tenney
Project Manager
Geosynthetic Services Division
http://www.geosyntheticstestinc.com

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18835

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-3A | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	100	97	102	95	92	**97**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	99	106	94	93	97	**98**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	121	124	124	122	124	**123**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

Sample ID: D-14B2 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	103	107	102	104	105	**104**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	110	106	105	103	106	**106**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	131	132	133	132	138	**133**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18835

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-49B2 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	106	112	105	115	106	**109**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	105	106	113	101	111	**107**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	121	131	122	123	123	**124**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: D-60A | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	113	106	106	102	110	**107**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	98	101	105	96	95	**99**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	127	130	131	127	133	**130**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18835

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-60B | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	103	99	98	101	109	**102**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	108	94	104	98	104	**102**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	131	131	134	136	140	**134**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: D-62 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	100	100	95	101	99	**99**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	93	93	88	85	92	**90**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	113	116	116	115	117	**115**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Geotechnology, Inc
Project: Hutsonville Ash Pond A

Material: 40 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 18835

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: D-63 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	103	106	94	99	99	100
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	102	107	96	94	97	99
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	122	123	124	129	130	126
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: D-64 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	88	94	95	86	93	91
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	88	96	91	81	93	90
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	114	117	117	118	119	117
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

National Lining Systems, Inc.

16970-3 San Carlos Blvd., Suite 191
Ft Myers, FL 33908

WB Koester Construction LLC

Ameren Hutsonville Energy Center
15142 E 1900th Avenue
Hutsonville, IL 62433

Ameren Ash Ponds Closure

Quality Control Project Book
Project # 1000-332

QC Daily

Date: Oct. 28' 2015

Material	Daily Quantity	To Date Quantity

Install: [ ] Liner [ ] GCL [ ] Composite [ ] Geo-textile [ ] Geo-net
[ ] Other:
Liner: [ ] Repaired [ ] Tie-in [ ] Boot [ ] Battening [ ] Air test
[ ] V- box [ ] Other:
Composite / Textile: [ ] Sewing / Heat bond [ ] Tie -seam [ ] Repaired
[ ] Other:
Destuctive Sample: ______ Passed ______ Failed   % Detail Complete ______
Weather ______ AM ______ PM
Commennt Sandbags

Date: Oct. 29' 2015

Material	Daily Quantity	To Date Quantity

Install: [ ] Liner [ ] GCL [ ] Composite [ ] Geo-textile [ ] Geo-net
[ ] Other:
Liner: [ ] Repaired [ ] Tie-in [ ] Boot [ ] Battening [ ] Air test
[ ] V- box [ ] Other:
Composite / Textile: [ ] Sewing / Heat bond [ ] Tie -seam [ ] Repaired
[ ] Other:
Destuctive Sample: ______ Passed ______ Failed   % Detail Complete ______
Weather ______ AM ______ PM
Commennt Sandbags, set up wedge, clean-up trailer,

Date: Oct. 30' 2015

Material	Daily Quantity	To Date Quantity

Install: [X] Liner [ ] GCL [ ] Composite [ ] Geo-textile [ ] Geo-net
[ ] Other:
Liner: [ ] Repaired [ ] Tie-in [ ] Boot [ ] Battening [ ] Air test
[ ] V- box [ ] Other:
Composite / Textile: [ ] Sewing / Heat bond [ ] Tie -seam [ ] Repaired
[ ] Other:
Destuctive Sample: ______ Passed ______ Failed   % Detail Complete ______
Weather 57° AM ______ PM
Commennt

Date: Oct. 31' 2015

Material	Daily Quantity	To Date Quantity
Liner 40m		41,228.5

Install: [X] Liner [ ] GCL [ ] Composite [ ] Geo-textile [ ] Geo-net
[ ] Other:
Liner: [ ] Repaired [ ] Tie-in [ ] Boot [ ] Battening [X] Air test
[ ] V- box [ ] Other:
Composite / Textile: [ ] Sewing / Heat bond [ ] Tie -seam [ ] Repaired
[ ] Other:
Destuctive Sample: ______ Passed ______ Failed   % Detail Complete ______
Weather 57° windy AM ______ PM
Commennt half day !!!

QC Daily

Date: Nov . 1. 2015

Material	Daily Quantity	To Date Quantity
Liner 40 mil	47,513	88,741.5

Install: [X] Liner [ ] GCL [ ] Composite [ ] Geo-textile [ ] Geo-net [ ] Other: ______

Liner: [ ] Repaired [ ] Tie-in [ ] Boot [ ] Battening [X] Air test [ ] V- box [ ] Other: ______

Composite / Textile: [ ] Sewing / Heat bond [ ] Tie -seam [ ] Repaired [ ] Other: ______

Destuctive Sample: ______ Passed ______ Failed % Detail Complete ______

Weather ______ AM ______ PM

Commennt ______

Date: Nov 2. 2015

Material	Daily Quantity	To Date Quantity

Install: [ ] Liner [ ] GCL [ ] Composite [ ] Geo-textile [ ] Geo-net [ ] Other: ______

Liner: [X] Repaired [ ] Tie-in [X] Boot [ ] Battening [X] Air test [ ] V- box [ ] Other: ______

Composite / Textile: [ ] Sewing / Heat bond [ ] Tie -seam [ ] Repaired [ ] Other: ______

Destuctive Sample: 13 Passed 4 Failed % Detail Complete ______

Weather 54° AM 70° PM

Commennt ______

Date: Nov 3' 2015

Material	Daily Quantity	To Date Quantity
Liner 40mil	87,601.5	176,343

Install: [X] Liner [ ] GCL [ ] Composite [ ] Geo-textile [ ] Geo-net [ ] Other: ______

Liner: [ ] Repaired [ ] Tie-in [ ] Boot [ ] Battening [X] Air test [ ] V- box [ ] Other: ______

Composite / Textile: [ ] Sewing / Heat bond [ ] Tie -seam [ ] Repaired [ ] Other: ______

Destuctive Sample: 6 Passed 2 Failed % Detail Complete ______

Weather 54° AM 75° PM

Commennt ______

Date: Nov 4'2015

Material	Daily Quantity	To Date Quantity
Liner	203,951	
Liner	80,190	
	21,477.5	481,961.5
	305,618.5	

Install: [X] Liner [ ] GCL [ ] Composite [ ] Geo-textile [ ] Geo-net [ ] Other: ______

Liner: [ ] Repaired [ ] Tie-in [ ] Boot [ ] Battening [X] Air test [ ] V- box [ ] Other: ______

Composite / Textile: [ ] Sewing / Heat bond [ ] Tie -seam [ ] Repaired [ ] Other: ______

Destuctive Sample: 10 Passed ______ Failed % Detail Complete ______

Weather ______ AM ______ PM

Commennt ______

QC Daily

Date: Nov 5 '2015

Material	Daily Quantity	To Date Quantity
Liner	15,314	497,275.5
Ash Pond "D"		

Install: [X] Liner [ ] GCL [ ] Composite [ ] Geo-textile [ ] Geo-net
[ ] Other:

Liner: [ ] Repaired [ ] Tie-in [ ] Boot [ ] Battening [X] Air test
[ ] V- box [ ] Other:

Composite / Textile: [ ] Sewing / Heat bond [ ] Tie -seam [ ] Repaired
[ ] Other:

Destuctive Sample: ____ Passed ____ Failed % Detail Complete ____

Weather 55 cloudy AM 67 PM

Commennt

Date: Nov. 7 '2015

Material	Daily Quantity	To Date Quantity

Install: [ ] Liner [ ] GCL [ ] Composite [ ] Geo-textile [ ] Geo-net
[ ] Other:

Liner: [X] Repaired [ ] Tie-in [ ] Boot [ ] Battening [X] Air test
[ ] V- box [ ] Other:

Composite / Textile: [ ] Sewing / Heat bond [ ] Tie -seam [ ] Repaired
[ ] Other:

Destuctive Sample: 16 Passed 3 Failed % Detail Complete ____

Weather 39° AM 59° PM

Commennt

Date: Nov. 9 '2015

Material	Daily Quantity	To Date Quantity
Liner 40 mil	6,110	503,385.5

Install: [X] Liner [ ] GCL [ ] Composite [ ] Geo-textile [ ] Geo-net
[ ] Other:

Liner: [X] Repaired [ ] Tie-in [ ] Boot [ ] Battening [X] Air test
[X] V- box [ ] Other:

Composite / Textile: [ ] Sewing / Heat bond [ ] Tie -seam [ ] Repaired
[ ] Other:

Destuctive Sample: 4 Passed 3 Failed % Detail Complete ____

Weather 39° AM 55 PM

Commennt

Date: Nov 10' 2015

Material	Daily Quantity	To Date Quantity

Install: [ ] Liner [ ] GCL [ ] Composite [ ] Geo-textile [ ] Geo-net
[ ] Other:

Liner: [X] Repaired [ ] Tie-in [ ] Boot [ ] Battening [ ] Air test
[X] V- box [ ] Other:

Composite / Textile: [ ] Sewing / Heat bond [ ] Tie -seam [ ] Repaired
[ ] Other:

Destuctive Sample: ____ Passed ____ Failed % Detail Complete ____

Weather 52° AM 57° PM

Commennt

QC Daily

Date: nov 11, 2015

Material	Daily Quantity	To Date Quantity

Install: [ ] Liner [ ] GCL [ ] Composite [ ] Geo-textile [ ] Geo-net

[ ] Other:

Liner: [X] Repaired [ ] Tie-in [ ] Boot [ ] Battening [X] Air test

[ ] V- box [ ] Other:

Composite / Textile: [ ] Sewing / Heat bond [ ] Tie -seam [ ] Repaired

[ ] Other: cap,

Destuctive Sample: ______ Passed ______ Failed % Detail Complete ______

Weather 54° windy AM 57° PM

Commennt

Date: Nov. 12'2015

Material	Daily Quantity	To Date Quantity

Install: [ ] Liner [ ] GCL [ ] Composite [ ] Geo-textile [ ] Geo-net

[ ] Other:

Liner: [X] Repaired [ ] Tie-in [ ] Boot [ ] Battening [X] Air test

[X] V- box [ ] Other:

Composite / Textile: [ ] Sewing / Heat bond [ ] Tie -seam [ ] Repaired

[ ] Other:

Destuctive Sample: ______ Passed ______ Failed % Detail Complete ______

Weather 54° windy AM 57 windy PM

Commennt

Date: Nov. 13' 2015

Material	Daily Quantity	To Date Quantity

Install: [ ] Liner [ ] GCL [ ] Composite [ ] Geo-textile [ ] Geo-net

[ ] Other:

Liner: [X] Repaired [ ] Tie-in [X] Boot [ ] Battening [ ] Air test

[X] V- box [ ] Other: clean-up

Composite / Textile: [ ] Sewing / Heat bond [ ] Tie -seam [ ] Repaired

[ ] Other:

Destuctive Sample: ______ Passed ______ Failed % Detail Complete ______

Weather ______ AM ______ PM

Commennt

Date:

Material	Daily Quantity	To Date Quantity

Install: [ ] Liner [ ] GCL [ ] Composite [ ] Geo-textile [ ] Geo-net

[ ] Other:

Liner: [ ] Repaired [ ] Tie-in [ ] Boot [ ] Battening [ ] Air test

[ ] V- box [ ] Other:

Composite / Textile: [ ] Sewing / Heat bond [ ] Tie -seam [ ] Repaired

[ ] Other:

Destuctive Sample: ______ Passed ______ Failed % Detail Complete ______

Weather ______ AM ______ PM

Commennt

National Lining Systems, Inc.

Trial Weld Log

Page: 1 of 1

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: #1000-332

Material Type: 40 mil

Fusion (PPI) 60 Min. Peel 80 Min. Shear

Extrusion (PPI) 52 Min. Peel 80 Min. Shear

Test Date	Time	Material type	Op. Int	Mch. #	Set Temp	Speed / Preheat	Peel	Peel	Peel	Peel	Peel	Shear	Shear	Shear	Shear	Shear	P/F P=Pass F= Fail
Oct / 30	9:50	S/S	LP	W#10	850	13	103 / 100	105 / 88	90 / 105	94 / 105	94 / 97	140	140	149	133	133	P
Oct / 30	9:56	T/T	LP	W#10	850	10	90 / 95	105 / 96	102 / 100	101 / 107	90 / 105	119	118	129	114	111	P
Oct / 30	11:14	S/S	DE	W#11	850	13	103 / 93	91 / 92	93 / 101	92 / 106	89 / 80	128	126	125	120	120	P
Oct / 30	11:30	S/S	JL	W#102	850	14	91 / 88	76 / 83	85 / 92	83 / 81	81 / 73	121	117	123	118	122	P
Oct / 30	10:40	T/T	JL	W#102	850	13	98 / 66	109 / 108	104 / 97	103 / 85	98 / 90	129	127	125	130	128	P
Oct / 30	1:25	S/S	LP	W#10	850	13	85 / 91	78 / 88	98 / 91	90 / 82	85 / 87	106	108	106	107	112	P
Oct / 30	1:35	S/S	DE	W# 101	850	12	95 / 93	96 / 82	86 / 92	84 / 85	94 / 86	110	111	108	109	114	P
Oct / 30	1:45	S/S	JL	W#102	850	12	90 / 89	73 / 67	82 / 69	78 / 69	73 / 84	109	106	106	108	107	P
Oct / 31	8:55	S/S	DE	W#101	850	10	94 / 93	90 / 87	106 / 97	101 / 94	104 / 99	128	132	136	133	126	P
Oct / 31	8:10	S/T	DE	W#101	850	9	97 / 87	101 / 91	94 / 74	100 / 78	111 / 98	142	140	148	141	144	P
Oct / 31	8:15	S/S	JL	W# 102	850	10	103 / 102	102 / 85	103 / 106	95 / 90	100 / 87	146	135	131	140	111	P
Oct / 31	8:32	T/T	JL	W#102	850	8	95 / 83	100 / 106	85 / 96	74 / 99	112 / 115	130	145	143	139	138	P
Oct / 31	9:30	S/T	JL	W#102	850	7	93 / 84	108 / 102	98 / 96	88 / 98	102 / 107	137	135	129	130	134	P
Oct / 31	10:30	S/S	LP	W#10	850	10	101 / 94	89 / 93	105 / 95	106 / 90	98 / 93	139	136	139	137	138	P

Peel / Shear = Pounds Per Inch Width   Weld Type= F - Fusion / Ext - E   Material Type= T- Textured/ S- Smooth

National Lining Systems, Inc.

Trial Weld Log

Page: ______ of 2

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: # 1000-332

Material Type: 40 mil

Fusion (PPI) 60 Min. Peel 80 Min. Shear

Extrusion (PPI) 52 Min. Peel 80 Min. Shear

Test Date	Time	Material type	Op. Int	Mch. #	Set Temp	Speed / Preheat	Peel	Peel	Peel	Peel	Peel	Shear	Shear	Shear	Shear	Shear	P/F P=Pass F= Fail
Oct /31	11:10	S/T	LP	W#10	850	8	107 102	88 89	107 75	101 88	101 98	137	130	135	134	129	P
Nov./1	8:05	S/S	JL	W#102	850	9	89 100	88 105	97 80	97 82	103 105	133	128	127	122	120	P
Nov/1	8:15	S/S	DE	W#101	850	9	103 79	102 87	89 79	90 92	91 103	129	128	129	127	118	P
Nov/1	8:25	S/T	DE	W#101	850	8	86 92	88 100	92 80	87 87	97 86	122	121	124	124	124	P
Nov/1	9:05	T/T	JL	W#102	850	8	85 94	87 103	90 116	93 102	74 92	110	112	112	118	116	P
Nov/1	9:47	T/T	DE	W#101	850	8	100 109	105 99	100 99	111 103	99 104	111	117	112	110	104	P
Nov/1	1:15	S/S	DE	W#101	850	10	85 96	91 91	94 96	86 85	87 80	112	110	110	108	109	P
Nov/1	1:23	S/S	LP	W#10	850	10	87 84	83 81	94 83	85 87	95 87	118	108	121	120	116	P
Nov/1	1:30	S/T	JL	W#102	850	8	109 86	102 76	97 83	96 90	98 101	108	110	108	111	109	P
Nov/1	1:40	S/S	JL	W#102	850	10	93 74	92 97	94 98	93 88	92 92	108	109	104	109	108	P
Nov/2	8:03	S/S	SS	G#10	280	240	105	109	120	104	128	132	124	117	97	129	P
Nov/2	8:12	S/S	DE	G#20	240	220	105	91	110	111	112	127	121	125	117	124	P
Nov/2	8:22	S/S	TC	G#19	240	220	103	66	101	97	78	128	129	118	119	123	P
Nov/2	1:00	S/S	SS	G#10	280	240	100	93	101	111	100	103	103	102	103	103	P

Peel / Shear = Pounds Per Inch Width

Weld Type= F - Fusion / Ext - E Material Type= T- Textured/ S- Smooth

National Lining Systems, Inc.

Trial Weld Log

Page: ____ of 3

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: # 1000-332

Material Type: 40 mil

Fusion (PPI) 60 Min. Peel 80 Min. Shear

Extrusion (PPI) 52 Min. Peel 80 Min. Shear

Test Date	Time	Material type	Op. Int	Mch. #	Set Temp	Speed / Preheat	Peel	Peel	Peel	Peel	Peel	Shear	Shear	Shear	Shear	Shear	P/F P=Pass F= Fail
Nov / 2	1:10	S/S	DE	G#20	240	220	91	96	70	86	71	108	106	104	108	109	P
Nov / 3	8:19	S/S	SS	W#12	455	8	86 / 80	83 / 78	83 / 77	81 / 73	83 / 73	123	105	127	117	119	P
Nov / 3	8:00	S/S	DE	W#101	840	12	84 / 92	85 / 85	101 / 77	96 / 83	101 / 73	83	125	93	119	120	P
Nov / 3	8:09	S/S	JL	W#102	850	10	107 / 102	93 / 94	112 / 91	106 / 89	90 / 100	133	128	111	125	129	P
Nov / 3	8:27	S/T	JL	W#102	850	8	107 / 89	92 / 96	89 / 100	80 / 95	91 / 93	122	116	126	115	110	P
Nov / 3.	8:39	T/T	DE	W#101	840	8	107 / 112	97 / 102	115 / 106	95 / 102	114 / 97	115	115	122	113	111	P
Nov / 3	8:57	T/T	SS	W#12	450	7	96 / 87	80 / 96	107 / 104	90 / 94	95 / 83	122	112	116	116	116	P
Nov / 3	9:06	S/S	JL	W#20	450	10	101 / 71	93 / 95	84 / 93	97 / 85	101 / 96	108	113	110	116	119	P
Nov / 3	9:14	S/T	JL	W#20	450	8	94 / 92	89 / 83	72 / 81	90 / 91	89 / 82	106	108	113	107	105	P
Nov / 3	1:10	S/S	DE	W#101	850	12	99 / 79	78 / 82	93 / 86	88 / 81	80 / 80	106	101	102	103	99	P.
Nov / 3	1:15	S/T	SS	W#12	450	9	73 / 78	85 / 79	82 / 73	77 / 68	85 / 86	97	99	98	97	106	P
Nov / 3	1:20	S/S	LP	W#20	450	10	89 / 79	78 / 84	95 / 77	79 / 91	72 / 70	108	106	107	100	110	P
Nov / 3	1:25	T/T	DE	W#101	850	8	101 / 104	97 / 103	98 / 99	99 / 101	103 / 92	98	105	105	99	101	P
Nov / 3	1:30	S/T	DE	W#101	850	8	77 / 87	78 / 75	82 / 86	99 / 73	81 / 78	97	102	101	95	104	P

Peel / Shear = Pounds Per Inch Width　　Weld Type= F - Fusion / Ext - E Material Type= T- Textured/ S- Smooth

National Lining Systems, Inc.

Trial Weld Log

Page: ____ of 4

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimira

Project Number: #1000-332

Material Type: 40 mil

Fusion (PPI) 60 Min. Peel 80 Min. Shear

Extrusion (PPI) 52 Min. Peel 80 Min. Shear

Test Date	Time	Material type	Op. Int	Mch. #	Set Temp	Speed / Preheat	Peel	Peel	Peel	Peel	Peel	Shear	Shear	Shear	Shear	Shear	P/F P=Pass F= Fail
Nov / 3	1:25	S/S	S.S	W#12	450	10	81 90	80 89	85 88	82 86	93 84	104	104	109	104	108	P
Nov / 3	1:40	T/T	S.S	W#12	450	9	92 96	99 94	94 104	95 104	98 85						F
Nov / 3	1:45	S/T	L.P	W#20	450	8	76 76	82 94	98 90	92 83	89 83	104	101	102	102	106	P
Nov / 4	8:25	S/S	D.E	W#102	850	11	81 87	103 92	89 96	81 92	81 89	113	108	116	108	119	P
Nov / 4	8:35	S/S	S.S.	W#12	450	8	87 95	81 95	96 96	90 106	89 75	117	109	120	112	122	P
Nov / 4	8:45	S/S	J.L	W#20	450	10	99 84	84 75	93 101	93 95	99 102	118	106	119	100	121	P
Nov / 4	9:01	S/T	J.L	W#20	450	9	102 92	90 85	97 88	101 89	100 91	119	127	118	109	109	P
Nov / 4	9:10	T/T	D.E	W#101	850	11	106 89	102 99	108 105	102 101	111 112	108	109	117	108	119	P
Nov / 4	9:17	S/T	D.E	W#101	850	11	85 80	104 87	97 78	88 97	96 78	106	114	117	113	119	P
Nov / 4	9:22	T/T	S.S	W#12	450	8	92 104	85 78	93 94	80 88	99 99	98	103	116	104	109	P
Nov / 4	9:33	S/T	S.S.	W#12	450	8	78 84	87 89	84 78	91 93	83 77	108	97	119	109	107	P
Nov / 4	10:30	T/T	JL	W#20	450	9	101 95	110 110	96 96	110 98	107 98	107	109	117	106	114	P
Nov / 4	1:45	S/S	S.S.	W#12	450	10	88 81	68 86	78 80	77 88	72 85	119	104	107	114	104	P
Nov / 4	1:50	S/S	DE	W#20	450	10	79 85	83 78	77 93	72 78	79 74	112	119	109	115	105	P

Peel / Shear = Pounds Per Inch Width Weld Type= F - Fusion / Ext - E Material Type= T- Textured/ S- Smooth

National Lining Systems, Inc.

Trial Weld Log

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Caramiro

Project Number: #1000-332

Material Type: 40 mil

Fusion (PPI) 60 Min. Peel 80 Min. Shear

Extrusion (PPI) 52 Min. Peel 80 Min. Shear

Test Date	Time	Material type	Op. Int	Mch. #	Set Temp	Speed / Preheat	Peel	Peel	Peel	Peel	Peel	Shear	Shear	Shear	Shear	Shear	P/F P=Pass F= Fail
Nov / 4	2 : 00	T/T	DE	W#20	450	8	82 / 84	92 / 83	81 / 76	86 / 81	87 / 76	99	109	102	107	101	P
Nov / 4	2 : 06	S/T	DE	W#20	450	8	82 / 84	73 / 84	84 / 91	82 / 84	79 / 94	109	98	112	107	99	P
Nov / 4	2 : 12	S/T	S.S.	W#12	450	8	80 / 82	71 / 72	87 / 86	74 / 75	74 / 75	107	91	103	105	109	P
Nov / 4	2 : 18	T/T	S.S	W#12	450	8	83 / 95	84 / 75	89 / 83	78 / 89	82 / 83	103	93	104	94	105	P
Nov / 5	8 : 30	S/S	D.E	W#20	450	9	85 / 91	85 / 85	82 / 85	80 / 86	86 / 79	118	101	121	113	120	P
Nov / 5	8 : 35	S/S	J.L	W#12	450	9	82 / 80	85 / 74	73 / 71	85 / 78	78 / 80	119	113	111	117	110	P
Nov / 5	9 : 18	S/T	JL	W#12	450	7	77 / 84	70 / 86	88 / 67	77 / 88	82 / 73	98	102	115	104	116	P
Nov / 7	7 : 47	T/T	TC	G#20	250	220	89	90	75	77	91	104	106	112	108	112	P
Nov / 7	8 : 22	T/T	SS	G#10	280	240	100	102	109	108	116	130	120	124	119	113	P
Nov / 7	1 : 20	T/T	TC	G#20	250	220	113	110	115	116	110	117	102	102	107	114	P
Nov / 7	1 : 38	T/T	SS	G#10	280	240	108	110	103	102	113	109	104	110	107	106	P
Nov / 9	7 : 49	T/T	RT	G#20	250	220	106	84	104	95	107	118	109	128	124	127	P
Nov / 9	8 : 19	T/T	SS	G#10	280	240	84	78	93	101	100	129	117	135	124	131	P
Nov / 9	1 : 42	S/S	JL	W#20	450	9	91 / 92	77 / 79	90 / 86	79 / 81	89 / 92	114	102	110	119	108	P

Peel / Shear = Pounds Per Inch Width   Weld Type= F - Fusion / Ext - E Material Type= T- Textured/ S- Smooth

National Lining Systems, Inc.

Trial Weld Log

Page: ______ of ______

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: #1000-332

Material Type: 40 mil

Fusion (PPI) 60 Min. Peel 80 Min. Shear

Extrusion (PPI) 52 Min. Peel 80 Min. Shear

Test Date	Time	Material type	Op. Int	Mch. #	Set Temp	Speed / Preheat	Peel	Peel	Peel	Peel	Peel	Shear	Shear	Shear	Shear	Shear	P/F P=Pass F= Fail
nov / 9	1 :45	T/T	RT	G#20	240	220	82	89	94	69	93	113	111	118	109	119	P
nov / 9	1 :52	S/T	JL	W#20	450	8	87 105	79 74	88 97	82 90	78 78	112	101	112	101	105	P
nov / 9	2 :10	T/T	SS	G#10	280	240	119	109	114	117	120	116	104	111	115	120	P
nov / 10	8 :10	T/T	SS	G#10	280	240	129	112	135	112	125	133	123	136	129	126	P
nov / 10	8 :20	T/T	TC	G#20	240	220	100	87	74	104	97	122	116	123	112	125	P
nov / 10	1 :10	T/T	TC	G#20	240	220	85	97	104	103	114	120	123	112	105	107	P
nov / 10	1 :20	T/T	SS	G#10	280	240	85	82	95	89	82	108	108	99	102	105	P
nov / 11	8 :00	T/T	TC	G#20	240	220	91	83	76	80	84	140	130	147	124	133	P
nov / 11	8 :10	T/T	SS	G#10	280	240	124	113	140	111	133	129	120	122	118	121	P
nov / 11	8 :20	T/T	JL	W#12	450	6.5	110 120	99 103	108 108	101 107	113 115	134	123	135	124	133	P
nov / 11	8 :30	S/T	JL	W#12	450	6.5	107 86	82 94	89 95	83 93	94 117	136	121	134	121	135	P
nov / 11	11 :20	T/T	DE	W#20	450	7	92 104	89 84	92 97	82 83	101 94	116	107	117	106	120	P
nov / 11	1 :20	T/T	JL	W#12	450	6.5	94 94	86 88	97 95	96 94	100 98	121	109	108	99	109	P
nov / 11	1 :25	T/T	SS	G#10	280	240	81	93	109	88	99	110	105	112	108	103	P

Peel / Shear = Pounds Per Inch Width   Weld Type= F - Fusion / Ext - E Material Type= T- Textured/ S- Smooth

National Lining Systems, Inc.

Trial Weld Log

Page: ______ of ______

Project Name: AmeRen - Ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: #1000-332

Material Type: 40 mil

Fusion (PPI) 60 Min. Peel 80 Min. Shear

Extrusion (PPI) 52 Min. Peel 80 Min. Shear

Test Date	Time	Material type	Op. Int	Mch. #	Set Temp	Speed / Preheat	Peel	Peel	Peel	Peel	Peel	Shear	Shear	Shear	Shear	Shear	P/F P=Pass F= Fail
Nov / 11	1 : 30	S/T	JL	W#12	450	6.5	73 90	70 70	77 88	78 76	93 93	113	104	116	106	112	P
Nov / 11	3 : 18	T/T	TC	G#20	240	220	104	92	86	85	94	113	120	115	120	119	P
Nov / 12	8 : 11	T/T	TC	G#20	240	220	92	85	102	101	114	114	109	102	111	120	P
Nov / 12	8 : 23	T/T	SS	G#10	280	240	100	77	92	88	96	100	98	125	104	127	P
Nov / 12	8 : 31	S/T	JL	W#12	450	6	99 86	79 82	97 107	81 70	81 91	126	107	102	111	128	P
Nov / 12	8 : 36	T/T	JL	W#12	450	6	80 88	85 90	93 101	85 87	86 92	128	119	128	124	128	P
Nov / 12	1 : 27	T/T	TC	G#20	240	220	108	96	97	91	88	125	100	114	120	133	P
Nov / 12	1 : 32	T/T	S.S.	G#10	280	240	94	85	91	71	82	134	115	108	117	120	P
Nov / 13	8 : 00	T/T	SS	#10	280	240	82	80	80	69	92	99	107	111	119	117	P
/	:																
/	:																
/	:																
/	:																
/	:																
/	:																

Peel / Shear = Pounds Per Inch Width   Weld Type= F - Fusion / Ext - E   Material Type= T- Textured/ S- Smooth

National Lining Systems, Inc.

Panel Placement Log

Page: 1

Project Name: Ameren, Ash Pond A Project Number: 1000-332

QA/QC Name: Michelle Casimiro Material Type: 40 mil

Secondary [ ] Primary [ ]

Panel No.	Roll No.	Date	Length	Width	Square Feet	Comments
P1	4072	Nov.4	624.5	22	13,739	632 | 617
P2	4073	Nov 4	639	22	14,058	645 | 633
P3	4066	Nov 4	654.5	22	14,399	663 | 646
P4	4061	Nov 4	670	22	14,740	676 | 664
P5	4075	Nov 4	683.5	22	15,037	690 | 677
P6	3953	Nov 4	679	22	14,938	
P7	3952	Nov 4	694	22	15,268	
P8	4065	Nov 4	693	22	15,246	
P9	4060	Nov 4	688	22	15,136	
P10	4059	Nov 4	686	22	15,092	
P11	4062	Nov.4	684	22	15,048	
P12	3958	Nov.4	690	22	15,180	
P13	3957	Nov 4	632.5	22	14,322	651 | 614
P14	3954	Nov.4	534	22	11,748	203,951
P15	4081	Oct. 31	64	22	1,408	
P16	4081	Oct. 31	66	22	1,452	
P17	4081	Oct. 31	69	22	1,518	
P18	4081	Oct. 31	71	22	1,562	
P19	4081	Oct. 31	74	22	1,628	
P20	4081	Oct. 31	77	22	1,694	
P21	4081	Oct. 31	79	22	1,738	
P22	4081	Oct. 31	81	22	1,782	
P23	4074	Oct. 31	67.5	22	1,485	80 | 55
P24	4074	Oct. 31	40	22	880	53 | 27
P25	4074	Oct. 31	23.5	19	218.5	Δ
P26	4074	Oct. 31	41	28	574	Δ
P27	4074	Oct. 31	55	22	1,210	68 | 42
P28	4074	Oct. 31	77.5	22	1,705	87 | 68
P29	4074	Oct. 31	262	22	5,764	
P30	4074	Oct. 31	69	22	1,518	
P31	4068	Oct 31	189	22	4,158	
P32	4068	Oct 31	252	22	5,544	
P33	4068	Oct 31	233	22	5,126	
P34	4071	Oct 31	12	22	264	41,2285
P35	4071	Nov 1	236	22	5,192	
P36	4071	Nov. 1	226	22	4,972	

National Lining Systems, Inc.

Panel Placement Log

Page: 2

Project Name: Ameren, Ash Pond A

Project Number: # 1000-332

QA/QC Name: Michelle Casimiro

Material Type: 40 mil

Secondary [ ] Primary [ ]

Panel No.	Roll No.	Date	Length	Width	Square Feet	Comments
P37	4071	Nov. 1	186	22	4,092	
P38	4081	Nov. 1	35	22	770	
P39	4070	Nov. 1	211	22	4,642	
P40	4070	Nov. 1	203	22	4,466	
P41	4070	Nov. 1	192	22	4,224	
P42	4070	Nov. 1	61	22	1,342	
P43	4076	Nov. 1	123	22	2,706	
P44	4076	Nov. 1	93	19	883.5	
P45	4076	Nov. 1	171	22	3,762	
P46	4076	Nov. 1	167	22	3,674	
P47	4076	Nov. 1	155	22	3,410	
P48	4076	Nov. 1	26	22	572	
P49	4069	Nov. 1	117	22	2,574	
P50	4069	Nov. 1	135	22	2,970	47,573.5
P51	4078	Nov. 4	610	22	13,420	
P52	4080	Nov 4	594.5	22	13,079	
P53	4067	Nov 4	579	22	12,738	
P54	4063	Nov 4	490.5	22	10,791	
P55	4079	Nov 4	475	22	10,450	
P56	3955	Nov 4	456.5	22	10,043	
P57	3950	Nov 4	439.5	22	9,669	80,190
P58	3950	Nov 3	242.5	22	5,335	251/234
P59	3955	Nov 3	233	22	5,126	242/224
P60	4079	Nov 3	214	22	4,708	224/204
P61	4063	Nov 3	201.5	22	4,433	207/196
P62	3102	Nov 3	179	22	3,938	
P63	3102	Nov 3	170	22	3,740	
P64	3102	Nov 3	172	22	3,784	
P65	3102	Nov 3	159	22	3,498	
P65 A	4064	Nov 3	8	22	176	
P66	4064	Nov 3	328.5	22	7,227	
P67	4064	Nov 3	292.5	22	6,435	
P68	4064	Nov. 3	20	6	60	Δ
P69	4064	Nov. 3	35	22	770	20/19
P70	4077	Nov. 3	56.5	22	1,243	50/20
P71	4077	Nov. 3	66.5	22	1,463	

National Lining Systems, Inc.

Panel Placement Log

Project Name: Ameren, Ash Pond A **Project Number:** # 1000-332

QA/QC Name: Michelle Casimiro **Material Type:** 40 mil

Secondary [ ] Primary [ ]

Panel No.	Roll No.	Date	Length	Width	Square Feet	Comments
P 72	# 4077	nov 3	71.5	22	1,573	
P 73	4077	nov.3	74	22	1,628	
P 74	4077	nov 3	74.5	22	1,639	
P 75	4077	nov.3	74	22	1,628	
P 76	4077	nov 3	72.5	22	1,595	
P 77	4077	nov 3	69.5	22	1,529	
P 78	4077	nov 3	59	22	1,298	
P 79	# 4058	nov 3	7	22	154	
P 80	4058	nov 3	61.5	22	1,353	
P 81	4058	nov 3	55.5	22	1,221	
P 82	4058	nov 3	26	9	117	Δ
P 83	4058	nov 3	52	22	990	
P84	4058	nov 3	54	22	1,188	
P 85	4058	nov 3	57	22	1,254	
P 86	4058	nov 3	59	22	1,298	
P87	4058	nov 3	61.5	22	1,353	
P88	4058	nov 3	29	9	130.5	Δ
P89	4058	nov.3	46	22	1,016	
P90	4058	nov. 3	64	22	1,408	
P91	4058	nov.3	54	22	1,188	
P92	# 4069	nov.3	12	22	264	
P93	4069	nov.3	67.5	22	1,485	
P94	4069	nov.3	67	22	1,474	
P95	4069	nov.3	65.5	22	1,441	
P96	4069	nov.3	65	22	1,430	
P97	4069	nov.3	64	22	1,408	
P98	4069	nov.3	19	22	418	21 | 17
P99	# 4067	nov.3	43.5	22	957	45 | 42
P100	4067	nov.3	41.5	22	913	48 | 35
P 101	4078	nov.3	14	22	308	18 | 10
P 102	4080	nov.3	51.5	22	1,133	66 | 37
P 103	4080	nov.3	26	22	572	37 | 15
P 104	4078	nov.3	17	12	102	Δ 87.6015
P 105	# 4066	nov.4	17.5	22	385	23 | 12
P 106	# 4072	nov 4	14	22	308	20 | 8
P107	# 4073	nov 4	25	22	550	30 | 20

National Lining Systems, Inc.

Panel Placement Log

Page: ________

Project Name: Ameren - Ash Pond A **Project Number:** # 1000-332

QA/QC Name: Michelle Casimiro **Material Type:** 40 mil

Secondary [ ] Primary [ ]

Panel No.	Roll No.	Date	Length	Width	Square Feet	Comments
P 108	# 3959	nov. 4	36	22	792	42/30
P 109	3959	nov. 4	49.5	22	1,089	51/48
P 110	3959	nov. 4	51.5	22	1,133	52/51
P 111	# 3957	nov. 4	61.5	22	1,353.	80/43 -
P 112	# 3954	nov. 4	40.5	22	891	44/37
P 113	3954	nov. 4	25	17	212.5	Δ
P 114	3954	nov. 4	32.5	22	715	44/21
P 115	3954	nov. 4	43.5	22	957	44/43
P 116	3954	nov. 4	20	16	160	Δ
P 117	# 4078	nov. 4	25	22	550	27/23
P 118	# 3959	nov 4	33	22	726	34/32
P 119	3959	nov 4	26	9	117	Δ
P 120	3959	nov 4	44.5	22	979	
P 121	3959	nov 4	55	22	1,210	
P 122	3959	nov 4	121.5	22	2,673	127/116
P 123	3959	nov 4	111	22	2,442	116/106
P 124	3959	nov 4	101	22	2,222	106/96
P 125	3959	nov. 4	12.5	22	275	17/8
P 126	# 3949	nov. 4	79	22	1,738	80/78 21,497
P 127	# 3956	nov. 9	55.5	22	1,221	56/55
P 128	# 3956	nov. 9	60	22	1,320	64/56
P 129	3956	nov. 9	69.5	22	1,529	64/75
P 130	3956	nov. 9	79.5	22	1,749	83/76
P 131	3956	nov. 9	33	4	66	Δ
P 132	3956	nov. 9	45	10	225	Δ 6,110.-
P 133	# 3951	nov. 11	417			
P 134	3951	nov 11	81			
P 135	3951	nov 11	94'			
P 136	3951	nov 11	62'			CAP STRIPS
P 137	3951	nov 11	81			
P 138	3951	nov 11	170'			
P 139	3951	nov 11	122			
P 140	3951	nov 12'	287			
P 141	3951	nov 11	109			

National Lining Systems, Inc.

Seaming Log

Project Name: ameren- ash Pond A **Project Number:** # 1000 · 332

QA/QC Name: Michelle Casimiro **Material Type:** 40 mil

	Seam No.	Length	Date	Time	Operator Int.	Machine No.	Set Temp.	Speed / Preheat	Comments
	P1- P2	446	Oct. 30	10:42	LP	W# 10	850	13	
	P2 - P3	440	Oct. 30	11:00	DE	W# 11	850	13	
	P3 - P4	170	Oct. 30	10:31	JL	W# 102	850	13	
	P3 - P4	674	Oct. 30	11:40	JL	W# 102	850	13	
	P4 - P5	443'	Oct 30	1:28	LP	W# 10	850	13	
	P5 - P6	440	Oct. 30	1:59	JL	W# 102	850	12	
	P6 - P7	436	Oct. 30	1:40	DE	W# 101	850	12	
7	P7 - P8	434	Oct. 30	2:32	LP	W# 10	850	13	
	P8 - P9	433	Oct. 30	2:55	DE	W# 101	850	12	
	P9 - P10	432	Oct. 30	2:58	JL	W# 102	850	12	
	P10 - P11	428	Oct. 30	3:43	JL	W# 102	850	12	
	P11 - P12	429	Oct. 30	3:45	DE	W# 101	850	12	
	P12 . P13	425	Oct. 30	4:25	JL	W# 102	850	12	
	P13 - P14	255	Oct 30	4:35	DE	W# 101	850	12	
	P13 - P14	168	Oct. 30	5:00	DE	W# 101	850	12	
	P14 . P15	63	Oct 31	8:15	DE	W# 101	850	10	
	P15 . P16	65	Oct 31	8:26	JL	W# 102	850	10	
	P16 . P17	68	Oct 31	8:30	DE	W# 101	850	10	
	P17 . P18	69	Oct. 31	8:34	JL	W# 102	850	10	
	P18 . P19	71	Oct. 31	8:45	DE	W# 101	850	10	
	P19 . P20	74	Oct. 31	8:47	JL	W# 102	850	10	
	P20 - P21	77	Oct 31	9:02	JL	W# 102	850	10	
	P21 - P22	79	Oct 31	9:00	DE	W# 101	850	10	
14	P22 . P23	81	Oct 31	9:15	DE	W# 101	850	10	
	P23 . P24	53	Oct. 31	9:30	DE	W# 101	850	10	
	P24 - P25	26	Oct. 31	9:45	DE	W# 101	850	10	
	P23 . P28	32	Oct 31	10:06	JL	W# 102	850	10	
	P23 . P27	4	Oct 31	10:10	JL	W# 102	850	10	
	P24 P27	23	Oct 31	10:12	JL	W# 102	850	10	
	P24 . P26	7	Oct 31	10:15	JL	W# 102	850	10	
	P25 . P26	30	Oct 31	10:16	JL	W# 102	850	10	
	P26 . P27	41	Oct 31	9:50	JL	W# 102	850	10	
	P27 . P28	68	Oct 31	11:00	DE	W# 101	850	10	
	P28 . P29	87	Oct 31	10:10	DE	W# 101	850	10	
	P29 . P30	69	Oct 31	10:30	DE	W# 101	850	10	
15	P29 . P31	189	Oct 31	10:35	DE	W# 101	850	10	

National Lining Systems, Inc.

Seaming Log

Project Name: Ameren, Ash Pond A **Project Number:** #1000-332

QA/QC Name: Michelle Casimiro **Material Type:** 40 mil

Seam No.	Length (lf)	Date	Time	Operator Int.	Machine No.	Set Temp. Fahrenheit	Speed / Preheat	Comments
P30-P31	22	Oct 31	10:43	JL	W#102	850	10	
P30-P32	69	Oct 31	11:05	DE	W#101	850	10	
P31-P32	189	Oct. 31	11:15	DE	W#101	850	10	
P32-P34	12	Oct. 31	10:26	LP	W#10	850	10	
P32-P33	233	Oct 31	10:27	LP	W#10	850	10	
P33-P34	22	Oct. 31	10:28	JL	W#102	850	10	
P22-P29	11	Oct. 31	10:51	JL	W#102	850	10	
P21-P29	22	Oct. 31	10:53	JL	W# 102	850	10	
P20-P29	17	Oct 31	11:14	LP	W# 10	850	10	
P19-P29	22	Oct. 31	11:17	LP	W#10	850	10	
P18-P29	22	Oct 31	11:21	LP	W#10	850	10	
P17-P29	22	Oct. 31	11:24	LP	W#10	850	10	
P16-P29	22	Oct. 31	11:27	LP	W#10	850	10	
P15-P29	22	Oct 31	11:33	LP	W#10	850	10	
P14-P34	22	Oct. 31	11:37	LP	W#10	850	10	
P14-P32	22	Oct. 31	11:40	LP	W#10	850	10	
P14-P30	22	Oct. 31	11:43	LP	W#10	850	10	
P14-P29	22	Oct. 31	11:46	LP	W#10	850	10	
P33-P35	18	Nov. 1	8:30	JL	W# 102	850	9	
P33-P35	211	Nov. 1	8:36	JL	W#102	850	9	
P34-P35	10'	Nov 1	9:00	JL	W#102	850	9	
P35-P36	226	Nov. 1	8:32	DE	W#101	850	9	
P36-P37	185	Nov 1	9:06	JL	W#102	850	9	
P36-P38	35	Nov 1	9:30	JL	W#102	850	9	
P37-P38	22	Nov 1	9:07	DE	W#101	850	8	
P37-P39	185	Nov 1	9:15	DE	W#101	850	9	
P38-P39	35	Nov 1	9:35	DE	W#101	850	9	
P39-P40	203	Nov 1	9:40	JL	W#102	850	9	
P40-P41	192	Nov 1	9:45	DE	W#101	850	9	
P41-P42	61	Nov 1	10:16	JL	W#102	850	9	
P41-P43	123	Nov 1	10:24	JL	W#102	850	9	
P42-P43	19'	Nov 1	10:11	JL	W#102	850	8	
P42-P45	61	Nov 1	10:42	DE	W#101	850	9	
P43-P45	35	Nov 1	10:47	DE	W#101	850	9	
P43-P44	93	Nov 1	10:56	DE	W#101	850	9	
P44-P45	82	Nov 1	10:35	DE	W#101	850	9	

National Lining Systems, Inc.

Seaming Log

Project Name: Ameren, ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: # 1000-332

Material Type: 40 mil

Seam No.	Length (lf)	Date	Time	Operator Int.	Machine No.	Set Temp. Fahrenheit	Speed / Preheat	Comments
P45 - P46	171	nov 1	10:40	JL	W# 102	850	9	
P46 - P47	155	nov 1	11:06	JL	W# 102	850	9	
P47 - P49	117	nov 1	11:25	DE	W# 101	850	9	
P48 - P49	22	nov 1	11:40	DE	W# 101	850	8	
P47 - P48	26	nov 1	11:42	DE	W# 101	850	9	
P49 - P50	117	nov 1	11:29	JL	W# 102	850	9	
P48 - P50	26	nov 1	11:41	JL	W# 102	850	9	
P14 - P50	24	nov 1	1:39	JL	W# 102	850	8	
P14 - P49	24	nov 1	1:42	JL	W# 102	850	8	
P14 - P47	24	nov 1	1:45	JL	W# 102	850	8	
P14 - P46	24	nov 1	1:49	JL	W# 102	850	8	
P14 - P42	22	nov 1	1:53	JL	W# 102	850	8	
P14 - P41	22	nov 1	1:57	JL	W# 102	850	8	
P14 - P40	22	nov 1	2:01	JL	W# 102	850	8	
P14 - P39	22	nov 1	2.05	JL	W# 102	850	8	
P14 - P38	22	nov 1	2:09	JL	W# 102	850	8	
P14 - P36	22	nov 1	2:13	JL	W# 102	850	8	
P14 - P35	22	nov 1	2:17	JL	W# 102	850	8	
P1 - P51	449	nov 1	1:30	DE	W# 101	850	10	
P51 - P52	513	nov 1	1:31	LP	W# 10	850	10	
P52 - P53	504	nov 1	2:15	DE	W# 101	850	10	
P53 - P54	495	nov 1	2:22	JL	W# 102	850	10	
P54 - P55	484	nov 1	2:46	LP	W# 10	850	10	
P55 - P56	464	nov 1	3:20	DE	W# 101	850	10	
P56 - P57	450	nov 3	9:00	SS	W# 12	455	8	
P57 - P62	179	nov 3	9:13	JL	W# 102	850	10	
P57 - P58	251	nov.3	8.15	DE	W# 101	840	12	
P58 - P62	22	nov.3	10:04	SS	W# 12	450	7	
P62 - P63	170	nov 3	9:20	DE	W# 101	850	10	
P59 - P63	22	nov 3	10.10	SS	W# 12	450	7	
P59 - P62	9	nov 3	9:35	DE	W# 101	840	12	
P58 - P59	234	nov 3	8:16	JL	W# 102	850	10	
P63 - P64	170	nov 3	9.44	JL	W# 20	450	10	
P59 - P60	224	nov 3	8.20	SS	W# 12	455	8	
P64 - P65	159	nov 3	9:05	DE	W# 101	840	12	
P60 - P64	22	nov 3	10.22	SS	W# 12	450	7	

National Lining Systems, Inc.

Seaming Log

Project Name: Ameren, Ash Pond A
Project Number: # 1000 - 332
QA/QC Name: Michelle Casimiro
Material Type: 40 mil

Seam No.	Length	Date	Time	Operator Int.	Machine No.	Set Temp.	Speed / Preheat	Comments
P60 - P61	204	Nov 3	8:48	DE	W# 101	840	12	
P65 - P65A	22	Nov 3	10:12	DE	W# 101	840	8	
P61 - P65A	22	Nov 3	10:27	SS	W # 12	450	7	
P65 - P66	159	Nov 3	10:06	JL	W# 20	450	10	
P 65A - P66	7	Nov 3	10:25	JL	W#20	450	10	
P61 - P66	196	Nov 3	10:26	JL	W#20	450	10	
P66 - P67	311	Nov 3	10:25	DE	W#101	840	12	
P67 - P68	6	Nov 3	2:00	SS	W# 12	450	9	
P67 - P69	22	Nov 3	2.07	SS	W#12	450	9	
P67 - P70	22	Nov 3	2.10	SS	W # 12	450	9	
P67 - P71	22	Nov 3	2:13	SS	W # 12	450	9	
P67 - P72	22	Nov 3	2:15	SS	W # 12	450	9	
P67 - P73	22	Nov 3	2:18	SS	W # 12	450	9	
P67 - P74	22	Nov 3	2.22	SS	W # 12	450	9	
P67 - P75	22	Nov 3	2:24	SS	W # 12	450	9	
P67 - P76	22	Nov 3	2:26	SS	W # 12	450	9	
P67 - P77	22	Nov 3	2:28	SS	W # 12	450	9	
P67 - P79	22	Nov. 3	2:31	SS	W # 12	450	9	
P67 - P80	22	Nov. 3	2.34	SS	W # 12	450	9	
P67 - P81	22	Nov 3	2:36	SS	W # 12	450	9	
P68 - P69	20	Nov 3	10:47	SS	W # 12	450	9	
P69 - P70	50	Nov 3	10:54	JL	W # 20	450	10	
P70 - P71	63	Nov 3	10:56	SS	W# 12	455	8	
P71 - P72	70	Nov 3	11:06	JL	W#20	450	10	
P72 - P73	73	Nov 3	11:15	JL	W#20	450	10	
P73 - P74	75	Nov. 3	11:05	DE	W # 101	840	12	
P74 - P75	74	Nov 3	11:18	DE	W# 101	840	12	
P75 - P76	74	Nov 3	11:08	SS	W# 12	455	8	
P76 - P77	71	Nov 3	11:20	SS	W # 12	455	8	
P77 - P79	7	Nov 3	11:34	SS	W # 12	455	8	
P77 - P78	61	Nov 3	11:35	SS	W # 12	455	8	
P78 - P79	22	Nov 3	11:35	DE	W# 101	840	8	
P79 - P80	7	Nov 3	11:42	DE	W# 101	840	12	
P78 - P80	57	Nov 3	11:45	DE	W# 101	840	12	
P80 - P81	58	Nov 3	11:34	JL	W#20	450	10	
P81 - P82	26	Nov 3	11:50	JL	W# 20	450	8	

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National Lining Systems, Inc.

Seaming Log

Project Name: Ameren, Ash Pond A **Project Number:** # 1000-332
QA/QC Name: Michelle Casimiro **Material Type:** 40 mil

Seam No.	Length (lf)	Date	Time	Operator Int.	Machine No.	Set Temp. Fahrenheit	Speed / Preheat	Comments
P81-P83	26	Nov 3	11:46	JL	W#20	450	8	
P82-P83	24	Nov 3	11:41	JL	W#20	450	8	
P83-P84	52	Nov 3	1:35	DE	W#101	850	12	
P84-P85	56	Nov 3	1:50	DE	W#101	850	12	
P85-P86	58	Nov 3	2:05	DE	W#101	850	12	
P86-P87	60	Nov 3	1:47	LP	W#20	450	10	
P87-P88	28	Nov 3	2:19	LP	W#20	450	8	
P87-P89	34	Nov 3	2:14	LP	W#20	450	8	
P88-P89	29	Nov 3	2:03	LP	W#20	450	8	
P89-P90	63	Nov 3	2:28	LP	W#20	450	10	
P90-P92	11	Nov 3	2:25	DE	W#101	850	12	
P90-P91	54	Nov. 3	2:27	DE	W#101	850	12	
P91-P92	22	Nov 3	2:20	DE	W#101	850	8	
P92-P93	13	Nov 3	2:43	LP	W#20	450	10	
P91-P93	54	Nov 3	2:46	LP	W#20	450	10	
P93-P94	68	Nov 3	2.45	DE	W#101	850	12	
P94-P95	66	Nov 3	3:05	DE	W#101	850	12	
P95-P96	65	Nov 3	3:25	DE	W#101	850	12	
P96-P97	65	Nov 3	3:05	SS	W#12	450	10	
P97-99	42	Nov. 3	3:23	SS	W#12	450	10	
P97-P98	21	Nov 3	3:27	SS	W#12	450	10	
P98-P99	22	Nov 3	3:20	DE	W#101	850	8	
P98-P100	17	Nov 3	3:28	LP	W#20	450	10	
P99-P100	35	Nov 3	3:25	LP	W#20	450	10	
P99 P101	10	Nov 3	3:36	SS	W#12	450	10	
P100-101	22	Nov 3	3:30	DE	W#101	850	8	
P101-102	21	Nov 3	3:40	DE	W#101	850	12	
P100-102	48	Nov 3	3:42	DE	W#101	850	12	
P102-103	37	Nov 3	3:44	LP	W#20	450	10	
P103-104	15	Nov 3	3:54	LP	W#20	450	8	
P67-P83	11	Nov 3	4:13	DE	W#101	850	8	
P67-P84	23	Nov 3	4:16	DE	W#101	850	8	
P67-P85	5	Nov 3	4:18	DE	W#101	850	8	
P66-85	16	Nov 3	4:19	DE	W#101	850	8	
P66-86	21	Nov 3	4:20	DE	W#101	850	8	
P61-87	23	Nov 3	4:22	DE	W#101	850	8	

National Lining Systems, Inc.

Seaming Log

Project Name: Ameren, Ash Pond A **Project Number:** #1000-332

QA/QC Name: Michelle Casimiro **Material Type:** 40 mil

Seam No.	Length (lf)	Date	Time	Operator Int.	Machine No.	Set Temp. Fahrenheit	Speed / Preheat	Comments
P61-P89	10	Nov 3	4:24	DE	W# 101	850	8	
P60-P89	2	Nov 3	4:25	DE	W# 101	850	8	
P60-P90	22	Nov 3	4:26	DE	W# 101	850	8	
P60-P92	7	Nov 3	4:28	DE	W# 101	850	8	
P59-P92	16	Nov 3	4:30	DE	W# 101	850	8	
P59-P93	14	Nov 3	4:33	DE	W# 101	850	8	
P58-P93	9	Nov 3	4:32	DE	W# 101	850	8	
P58-P94	20	Nov 3	4:33	DE	W# 101	850	8	
P57-94	2	Nov 3	4:34	DE	W# 101	850	8	
P57-95	23	Nov 3	4:35	DE	W# 101	850	8	
P57-96	5	Nov 3	4:37	DE	W# 101	850	8	
P56-96	18	Nov 3	4:38	DE	W# 101	850	8	
P56-97	13	Nov 3	4:40	DE	W# 101	850	8	
P55-97	10	Nov 3	4:41	DE	W# 101	850	8	
P55-99	21	Nov 3	4:42	DE	W# 101	850	8	
P54-101	23	Nov 3	4:47	DE	W# 101	850	8	
P53-104	17	Nov 3	4:42	SS	W# 12	450	9	
P53-103	30	Nov 3	4:39	SS	W# 12	450	9	
P53-102	30	Nov 3	4:35	SS	W# 12	450	9	
P1-P2	187	Nov 4	8:50	SS	W# 12	450	8	
P2-P3	204	Nov 4	8:55	JL	W# 20	450	10	
P3-P4	218	Nov 4	9:21	JL	W# 20	450	10	
P4-P5	237	Nov 4	9:30	SS	W# 12	450	8	
P5-P6	232	Nov 4	9:30	DE	W# 102	850	11	
P6-P7	59	Nov 4	10:00	JL	W# 20	450	10	
P6-P7	179	Nov 4	10:15	JL	W# 20	450	10	
P7-P8	259	Nov 4	9:58	SS	W# 12	450	8	
P8-P9	254	Nov 4	10:40	JL	W# 20	450	10	
P9-P10	251	Nov 4	11:23	JL	W# 20	450	10	
P10-P11	253	Nov 4	11:33	SS	W# 12	450	8	
P11-P12	261	Nov 4	11:55	DE	W# 102	850	11	
P5-P105	12	Nov 4	11:06	SS	W# 12	450	8	
P6-P105	22	Nov 4	10:58	SS	W# 12	450	8	
P7-P105	14	Nov 4	11:05	SS	W# 12	450	8	
P105-P106	8	Nov 4	11:04	SS	W# 12	450	8	
P7-P106	22	Nov 4	10:44	SS	W# 12	450	8	

National Lining Systems, Inc.

Seaming Log

Project Name: ameren, ash Pond A **Project Number:** # 1000-332

QA/QC Name: Michelle Casimiro **Material Type:** 40 mil

Seam No.	Length (lf)	Date	Time	Operator Int.	Machine No.	Set Temp. Fahrenheit	Speed / Preheat	Comments
P106-P107	20	nov 4	10:48	SS	W# 12	450	8	
P8-P107	22	nov. 4	10:35	SS	W # 12	450	8	
P107-P108	30	nov. 4	11:13	JL	W#20	450	10	
P9-P108	22	nov 4	11:13	SS	W# 12	450	8	
P9-P109	6	nov. 4	11:48	JL	W# 20	450	9	
* P108-P109	42	nov. 4	11:49	JL	W# 20	450	10	
P10-P109	22	nov 4	11:16	SS	W# 12	450	8	
P109-P110	51	nov. 4	11:29	SS	W# 12	450	8	
P11-P110	22	nov 4	11:21	SS	W # 12	450	8	
P 110-P112	44	nov. 4	11:50	DE	W# 101	850	11	
P12-P112	22	nov. 4	2:00	DE	W# 20	450	8	
P112-P113	25	nov 4	2:29	SS	W# 12	450	8	
P112-P114	11	nov. 4	2:31	SS	W# 12	450	8	
P12-P114	22	nov. 4	2:34	SS	W # 12	450	8	
P12-P116	15	nov. 4	2:44	SS	W # 12	450	8	
P13-P116	11	nov 4	3:33	SS	W # 12	450	8	
P13-P118	23	nov 4	3:40	SS	W# 12	450	8	
P13-P120	9	nov. 4	3:41	SS	W# 12	450	8	
P 111-121	22	nov. 4	3:42	SS	W# 12	450	8	
P 113-114	21	nov. 4	2:11	SS	W# 12	450	8	
P 114-115	44	nov 4	2:19	SS	W# 12	450	8	
P 115-116	20	nov. 4	2:40	DE	W # 20	450	8	
P 116-118	16	nov. 4	2:50	SS	W# 12	450	8	
P 115-118	16	nov. 4	2:52	SS	W# 12	450	8	
P 115-117	27	nov. 4	2:53	SS	W# 12	450	8	
P117-118	22	nov 4	2:45	DE	W# 20	450	8	
P 118-120	34	nov. 4	3:06	SS	W# 12	450	8	
P 117-119	23	nov. 4	3:10	SS	W# 12	450	8	
P 119-120	24	nov 4	2:55	DE	W# 20	450	8	
P 120-121	55	nov. 4	3:19	SS	W# 12	450	8	
P12-P13	226	nov. 4	1:44	DE	W# 20	450	10	
P13-P14	110	nov. 4	3:25	SS	W# 12	450	10	
P 52-53	81	nov. 3	3:57	LP	W# 20	450	10	
P 51-52	90	nov. 3	4:08	LP	W# 20	450	10	
P 1-51	168	nov. 4	9:30	DE	W 102	850	11	
P14-111	22	nov. 4	3:05	DE	W# 20	450	8	

National Lining Systems, Inc.

Seaming Log

Project Name: Ameren, Ash Pond A **Project Number:** # 1000 - 332

QA/QC Name: Michelle Casimiro **Material Type:** 40 mil

Seam No.	Length (lf)	Date	Time	Operator Int.	Machine No.	Set Temp. Fahrenheit	Speed / Preheat	Comments
P13- 111	80	nov. 4	3:18	DE	W#20	450	10	
P14- 125	24	nov 4	3:25	DE	W#20	450	8	
P14- 124	24	nov. 4	4:30	DE	W# 20	450	8	
P14- 123	24	nov. 4	4:34	DE	W# 20	450	8	
P14- 122	24	nov 4	4:38	DE	W # 20	450	8	
P 125- 126	22	nov. 4	4:15	SS	W# 12	450	8	
P 124- 126	80	nov 4	4:13	SS	W# 12	450	10	
P 124- 125	17	nov. 4	4:16	SS	W#12	450	10	
P 123- 124	106	nov 4	4:10	DE	W# 20	450	10	
P 122- 123	116	nov. 4	3:54	SS	W# 12	450	10	
P 50- 122	127	nov 4	3:55	DE	W# 20	450	10	
P 121- 127	55	nov. 9	3:03	JL	W# 20	450	9	
P 127- 128	56	nov. 9	2:11	JL	W # 20	450	9	
P 128- 129	64	nov. 9	1:57	JL	W #20	450	9	
P 129- 130	75	nov. 9	1:44	JL	W #20	450	9	
P 130. 131	33	nov. 9	2:47	JL	W# 20	450	9	
P 130- 132	44	nov. 9	2:52	JL	W# 20	450	9	
P 125- 130	8	nov. 9	2:26	JL	W#20	450	9	
P 126- 131	33	nov. 9	2:27	JL	W #20	450	9	
P 126- 132	45	nov. 9	2:32	JL	W #20	450	9	
P 111- 127	22	nov 9	3:41	JL	W# 20	450	8	
P 111- 128	25	nov 9	3:43	JL	W# 20	450	8	
P 111- 129	15	nov. 9	3:47	JL	W# 20	450	8	
P14- 129	10	nov. 9	3:51	JL	W #20	450	8	
P14- 130	19	nov. 9	3:54	JL	W#20	450	8	
P 64- 65A	7	nov. 10	1:52	SS	G# 10	280	240	
P61- 64	5	nov 10	1:55	SS	G # 10	280	240	

National Lining Systems, Inc.

Seaming Log

Project Name: Ameren : Ash Pond A

Project Number: #1000-332

QA/QC Name: Michelle Casamiro

Material Type: 40 mil

Seam No.	Length (lf)	Date	Time	Operator Int.	Machine No.	Set Temp. Fahrenheit	Speed / Preheat	Comments
P2-P133	417	Nov 11	10:12	JL	W#12	450	6.5	
P2-P134	31	Nov 11	10.06	JL	W#12	450	6.5	
P3-P133	417	Nov 11	8:49	JL	W#12	450	6.5	
P3-P134	31	Nov 11	9:57	JL	W#12	450	6.5	
P3-P135	94	Nov 11	1:32	JL	W#12	450	6.5	
P4-P135	94	Nov 11	11:37	JL	W#12	450	6.5	
P3-P138	170	Nov 11	3:23	JL	W#12	450	6.5	
P4-P138	170	Nov 11	2.50	JL	W#12	450	6.5	
P7-P139	122	Nov 11	3:59	JL	W#12	450	6.5	
P8-P139	122	Nov 11	4.24	JL	W#12	450	6.5	
P22-P137	81	Nov 11	2:00	DE	W#20	450	7	
P23-P137	81	Nov 11	1:40	DE	W#20	450	7	
P29-P136	62	Nov. 11	11:40	DE	W#20	450	7	
P31-P136	62	Nov. 11	11:59	DE	W#20	450	7	
P7-140	287	Nov. 12	8:48	JL	W#12	450	6	
P8-140	287	Nov. 12	9:57	JL	W#12	450	6	
P4-141	109	Nov. 11	2:20	JL	W#12	450	6.5	
P5-141	109	Nov 11	2:00	JL	W#12	450	6.5	

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National Lining Systems, Inc.

Non-Destructive Test Log

Project Name: ameRen, Ash Pond A **Project Number:** #1000-332

QA/QC Name: michelle Casimiro **Material Type:** 40 mil

Seam No.	Test Date	Tester Int.	Test Type A=Air V=Vacuum	Start Time	End Time	PSI Start	PSI End	Test P= Pass F=Fail	Test Length / Location
P13-P14	Oct 31	LP	A	8:56	9:01	35	35	P	0-54
P13-P14	Oct 31	LP	A	8:56	9:01	35	35	P	54-67
P13-P14	Oct 31	LP	A	9:05	9:10	35	35	P	67-240
P13-P14	Oct. 31	LP	A	9:14	9:19	35	34	P	240-255
P13-P14	Oct 31	LP	A	9:16	9:21	32	30	P	255-423
P12-P13	Oct 31	LP	A	9:26	9:31	35	34	P	0-16
P12-P13	Oct 31	LP	A	9:26	9:31	31	30	P	16-425
P11-P12	Oct 31	LP	A	9:34	9:39	31	30	P	0-133
P11-P12	Oct 31	LP	A	9:38	9:43	34	32	P	133 343
P10-P11	Oct 31	LP	A	9:43	9:48	34	34	P	0-428
P9-P10	Oct 31	LP	A	9:50	9:55	33	33	P	0-422
P8-P9	Nov 1	LP	A	7:27	7:32	32	32	P	0-433
P7-P8	Nov 1	LP	A	8:06	8:11	32	31	P	0-200
P7-P8	Nov 1	LP	A	8:45	8:50	32	31	P	200-237
P7-P8	Nov 1	LP	A	8:51	8:56	33	31	P	237-285
P7-P8	Nov 1	LP	A	9:01	9:06	33	31	P	318-355
P7-P8	Nov 1	LP	A	9:03	9:08	31	31	P	355-434
P6-P7	Nov 1	LP	A	8:15	8:20	34	34	P	0-56
P6-P7	Nov 1	LP	A	8:15	8:20	32	31	P	56-92
P6-P7	Nov 1	LP	A	8:23	8:28	35	35	P	92-176
P6-P7	Nov 1	LP	A	8:30	8:35	34	34	P	176-214
P6-P7	Nov 1	LP	A	9:46	9:51	34	33	P	214-296
P6-P7	Nov 1	LP	A	9:44	9:49	32	31	P	296-349
P6-P7	Nov 1	LP	A	9:33	9:38	33	33	P	349-372
P6-P7	Nov 1	LP	A	9:33	9:38	32	32	P	372-389 / 389-405 (cap)
P6-P7	Nov 1	LP	A	9:21	9:26	32	32	P	408-486
P5-P6	Nov 1	LP	A	9:55	10:00	32	32	P	0-440
P4-P5	Nov 1	LP	A	9:55	10:00	33	32	P	0-443
P3-P4	Nov 1	LP	A	10:17	10:22	33	33	P	0-170 / 170-444 (cap)
P2-P3	Nov 1	LP	A	10:06	10:11	34	33	P	0-17
P2-P3	Nov 1	LP	A	10:17	10:21	32	31	P	17-291
P2-P3	Nov 1	LP	A	11:10	11:15	35	34	P	291-337 (337-351 /cap)
P2-P3	Nov 1	LP	A	11:20	11:25	31	31	P	351-373
P2-P3	Nov 1	LP	A	11:11	11:16	32	31	P	373-440
P1-P2	Nov 1	LP	A	10:24	10:29	32	32	P	0-446
P40-P41	Nov 2	LP	A	10:44	10:49	35	34	P	

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National Lining Systems, Inc.

Non-Destructive Test Log

Project Name: Ameren, Ash Pmd A **Project Number:** #1000-332

QA/QC Name: Michelle Cassimiro **Material Type:** 40 mil

Seam No.	Test Date	Tester Int.	Test Type A=Air V=Vacuum	Start Time	End Time	PSI Start	PSI End	Test P= Pass F=Fail	Test Length / Location
P39-P40	Nov 2	LP	A	11:05	11:10	32	32	P	
P38-P39	Nov 2	LP	A	11:14	11:19	32	31	P	
P37-P38	Nov 2	LP	A	11:21	11:26	33	33	P	
P37-P39	Nov 2	LP	A	11:21	11:26	33	32	P	
P36-P38	Nov 2	LP	A	11:30	11:35	34	32	P	0-7
P36-P38	Nov 2	LP	A	11:39	11:44	32	31	P	7-E.O.S
P36-P37	Nov 2	LP	A	11:35	11:40	33	31	P	0-60
P36-P37	Nov 2	LP	A	8:43	8:48	30	30	P	60-125
P36-P37	Nov 2	LP	A	8:55	9:00	29	28	P	125-E.O.S
P35-P36	Nov 2	LP	A	11:43	11:48	34	33	P	0-153
P35-P36	Nov 2	LP	A	8:58	9:03	31	30	P	153-E.O.S
P34-P35	Nov 2	LP	A	11:49	11:54	33	33	P	
P32-P34	Nov 2	LP	A	1:27	1:32	33	31	P	
P33-35	Nov 2	LP	A	1:12	1:17	32	32	P	0-209
P33-P35	Nov 2	LP	A	9:01	9:06	31	29	P	209-E.O.S
P33-34	Nov 2	LP	A	1:12	1:17	32	32	P	
P32-33	Nov 2	LP	A	1:30	1:35	35	34	P	
P30-31	Nov 2	LP	A	3:03	3:08	30	30	P	
P29-30	Nov 2	LP	A	1:46	1:51	31	28	P	
P14-P41	Nov 2	LP	A	10:33	10:38	34	32	P	
P14-40	Nov 2	LP	A	10:50	10:56	33	32	P	
P14-P39	Nov 2	LP	A	11:06	11:10	33	32	P	
P14-P38	Nov 2	LP	A	11:14	11:19	32	32	P	
P14-P36	Nov 2	LP	A	11:43	11:48	32	32	P	
P14-P35	Nov 2	LP	A	11:49	11:54	31	31	P	
P14-P34	Nov 2	LP	A	1:12	1:17	31	30	P	
P14-P32	Nov 2	LP	A	1:27	1:32	34	32	P	
P14-P30	Nov 2	LP	A	1:34	1:39	32	31	P	
P14-P29	Nov 2	LP	A	1:46	1:51	32	31	P	
P15 P29	Nov 2	LP	A	1:57	2:02	33	31	P	
P16-P29	Nov 2	LP	A	2:09	2:14	31	30	P	
P17-P29	Nov 2	LP	A	2:19	2:24	34	33	P	
P18-P29	Nov 2	LP	A	–	–	–	–	F	NO A.T) CAP 22'
P19-P29	Nov 2	LP	A	3:11	3:16	31	31	P	
P20-29	Nov 2	LP	A	3:24	3:29	31	29	P	
P21-P29	Nov 2	LP	A	3:33	3:38	29	26	P	

(3)

National Lining Systems, Inc.

Non-Destructive Test Log

Project Name: Ameren, Ash Pond A **Project Number:** # 1000-332

QA/QC Name: Michelle Casimiro **Material Type:** 40 mil

Seam No.	Test Date	Tester Int.	Test Type A=Air V=Vacuum	Start Time	End Time	PSI Start	PSI End	Test P= Pass F=Fail	Test Length / Location
P22-P29	Nov 2	LP	A	3:43	3:48	30	30	P	
P23-P28	Nov 2	LP	A	5:53	5:58	33	32	P	0-10
P23-P28	Nov 2	LP	A	4:09	4:14	32	31	P	10-E.O.S
P24-P27	Nov 2	LP	A	4:17	4:22	30	31	P	
P24-P26	Nov 2	LP	A	4:17	4:22	30	29	P	
P25-P26	Nov 2	LP	A	4:29	4:34	33	32	P	
P24-P25	Nov 2	LP	A	4:35	4:40	30	36	P	0-12 / 12-E.O.S cap B'
P26-P27	Nov 2	LP	A	4:19	4:24	32	29	P	0-21 / 21-E.O.S cap 21
P27-P28	Nov 2	LP	A	4:09	4:14	30	28	P	
P28-P29	Nov 2	LP	A	3:53	3:58	31	30	P	
P14-P15	Nov 2	LP	A	2:03	2:08	32	32	P	
P15-P16	Nov 2	LP	A	2:09	2:14	31	30	P	
P16-P17	Nov 2	LP	A	2:25	2:30	31	28	P	
P17-P18	Nov 2	LP	A	2:25	2:30	31	30	P	
P18-P19	Nov 2	LP	A	3:19	3:24	31	29	P	
P19-P20	Nov 2	LP	A	3:30	3:35	32	30	P	
P20-P21	Nov 2	LP	A	3:26	3:31	30	28	P	
P21-P22	Nov 2	LP	A	4:03	4:08	31	29	P	
P22-P23	Nov 2	LP	A	3:43	3:48	30	29	P	
P23-P24	Nov 2	LP	A	4:09	4:14	30	29	P	
P29-P31	Nov 3	LP	A	2:56	3:01	30	29	P	0-59
P29-P31	Nov 3	LP	A	9:28	9:33	30	30	P	59-79
P29-P31	Nov 3	LP	A	9:33	9:38	30	30	P	79-E.O.S
P41-P42	Nov 3	LP	A	8:37	8:42	31	29	P	0-28
P41-P42	Nov 3	LP	A	8:32	8:37	30	30	P	28-43
P41-P42	Nov 3	LP	A	8:22	8:27	28	27	P	43-E.O.S
P42-P43	Nov 3	LP	A	8:02	8:07	30	29	P	
P41-P43	Nov 3	LP	A	8:02	8:07	32	30	P	
P42-P45	Nov 3	LP	A	10:16	10:21	33	32	P	
P43-P45	Nov 3	LP	A	7:52	7:57	33	31	P	
P43-P44	Nov 3	LP	A	7:52	7:57	31	31	P	
P44-P45	Nov 3	LP	A	7:52	7:57	32	31	P	0-19
P44-P45	Nov 3	LP	A	8:04	8:09	31	31	P	19-E.O.S
P45-P46	Nov 3	LP	A	10:11	10:16	33	33	P	
P46-P47	Nov 3	LP	A	10:08	10:13	32	31	P	
P47-P49	Nov 3	LP	A	10:05	10:10	33	32	P	

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National Lining Systems, Inc.

Non-Destructive Test Log

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: # 1000 - 332

Material Type: 40 mil

Seam No.	Test Date	Tester Int.	Test Type A=Air V=Vacuum	Start Time	End Time	PSI Start	PSI End	Test P= Pass F=Fail	Test Length / Location
* P49-P50	nov 3	LP	A	9:48	9:53	33	31	P	
P 48 - P49	nov 3	LP	A	7:32	7:37	32	30	P	
P 47 - 48	nov 3	LP	A	7:40	7:45	31	31	P	
* P48-50	nov 3	LP	A	7:32	7:37	31	31	P	
P 14 - 49	nov 3	LP	A	9:48	9:53	33	31	P	
P 14 - 47	nov 3	LP	A	9:54	9:59	35	34	P	
P 14 - 46	nov 3	LP	A	10:08	10:13	31	31	P	
P 14 - 42	nov 3	LP	A	10:28	10:33	33	32	P	
P 67 - 68	nov 4	LP	A	1:46	1:51	30	29	P	
P 67 - 69	nov 4	LP	A	2:45	2:50	30	30	P	
P 67 - 70	nov 4	LP	A	2:48	2:53	29	28	P	
P 67 - 71	nov 4	LP	A	2:56	3:01	30	29	P	
P 67-72	nov 4	LP	A	3:01	3:06	30	30	P	
P 67 - 73	nov 4	LP	A	3:08	3:13	29	29	P	
P 67 - 74	nov 4	LP	A	3:09	3:14	30	30	P	
P 67 - 75	nov 4	LP	A	2:53	2:58	30	30	P	
P 67 - 76	nov 4	LP	A	3:42	3:47	28	28	P	
P 67 - 77	nov 4	LP	A	3:42	3:47	30	30	P	
P 67 - 79	nov 4	LP	A	3:42	3:47	30	29	P	
P 67 - 80	nov 4	LP	A	3:58	4:03	30	30	P	
P 67 - 81	nov 4	LP	A	3:58	4:03	31	30	P	
P 67 - 83	nov 4	LP	A	4:09	4:14	29	29	P	
P 67 - 84	nov 4	LP	A	4:17	4:22	28	28	P	
P 67-85	nov 4	LP	A	4:17	4:22	29	29	P	
P 66 - 85	nov 4	LP	A	4:29	4:34	29	29	P	
P 66 - 86	nov 4	LP	A	4:29	4:34	30	29	P	
P 61 - 87	nov 5	LP	A	7:50	7:55	30	29	P	0-11
P 61 - 87	nov 5	LP	A	7:50	7:55	30	30	P	11-EOS
P87 - 89	nov 5	LP	A	8:14	8:19	29	29	P	
P61 - 89	nov 5	LP	A	8:08	8:13	30	29	P	
P60 - 90	nov 5	LP	A	8:17	8:22	29	29	P	
P60-92	nov 5	LP	A	8:20	8:25	29	28	P	
P59-92	nov 5	LP	A	8:26	8:31	29	28	P	
P59-93	nov 5	LP	A	8:44	8:49	30	29	P	
P58-93	nov 5	LP	A	8:44	8:49	29	28	P	
P58-94	nov 5	LP	A	9:15	9:20	30	30	P	

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National Lining Systems, Inc.

Non-Destructive Test Log

Project Name: Ameren, Ash Pond A **Project Number:** # 1000-332

QA/QC Name: Michelle Casimiro **Material Type:** 40 mil

Seam No.	Test Date	Tester Int.	Test Type A=Air V=Vacuum	Start Time	End Time	PSI Start	PSI End	Test P= Pass F=Fail	Test Length / Location
P57-95	nov 5	LP	A	9:15	9:20	28	28	P	
P57-96	-	-	-	-	-	-	-	-	5' cap
P56-96	nov 5	LP	A	9:26	9:31	30	30	P	
P56-97	nov 5	LP	A	9:30	9:35	29	29	P	
P55-97	nov 5	LP	A	9:26	9:31	30	28	P	
P55-99	nov 5	LP	A	1:59	2:04	29	29	P	
P54-101	nov 5	LP	A	10:07	10:12	30	30	P	
P68-69	nov 5	LP	A	2:45	2:50	31	31	P	
P69-70	nov 5	LP	A	2:45	2:50	28	28	P	
P70-71	nov 5	LP	A	2:56	3:01	30	29	P	
P71-72	nov 5	LP	A	3:01	3:06	30	28	P	
P72-73	nov 5	LP	A	3:05	3:10	30	29	P	
P73-74	nov 5	LP	A	3:09	3:14	28	28	P	
P74-75	nov 5	LP	A	3:12	3:17	29	29	P	
P75-76	nov 5	LP	A	2:53	2:58	30	30	P	
P76-77	nov 5	LP	A	3:42	3:47	30	29	P	
P77-78	nov 5	LP	A	3:51	3:56	30	30	P	
P77-79	nov 5	LP	A	3:51	3:56	31	30	P	
P78-80	nov 5	LP	A	3:51	3:56	31	30	P	
P79-80	nov 5	LP	A	3:58	4:03	29	28	P	
P78-79	nov 5	LP	A	3:51	3:56	30	29	P	
P80-81	nov 5	LP	A	3:58	4:03	30	29	P	
P81-82	nov 5	LP	A	4:08	4:13	29	29	P	
P82-83	nov 5	LP	A	4:08	4:13	29	29	P	
P83-84	nov 5	LP	A	4:17	4:22	29	28	P	
P84-85	nov 5	LP	A	4:17	4:22	30	30	P	
P85-86	nov 5	LP	A	7:40	7:45	30	29	P	
P86-87	nov 5	LP	A	7:50	7:55	29	29	P	
P87-88	nov 5	LP	A	7:58	8:03	29	29	P	
P88-89	nov 5	LP	A	7:58	8:03	29	28	P	
P89-90	nov 5	LP	A	8:08	8:13	31	30	F	0-12
P89-90	nov 5	LP	A	8:17	8:22	30	30	P	12-E O.S
P90-92	nov 5	LP	A	8:17	8:22	29	28	P	
P92-93	nov 5	LP	A	8:32	8:37	28	28	P	
P90-91	nov 5	LP	A	8:23	8:28	29	29	F	0-41
P90-91	nov 5	LP	A	8:36	8:41	30	30	P	41-E O.S

National Lining Systems, Inc.

Non-Destructive Test Log

Project Name: Ameren. Ash Pond A
Project Number: #1000 - 332
QA/QC Name: Michelle Casimiro
Material Type: 40 mil

Seam No.	Test Date	Tester Int.	Test Type A=Air V=Vacuum	Start Time	End Time	PSI Start	PSI End	Test P= Pass F=Fail	Test Length / Location
P91-93	Nov5	LP	A	8:32	8:37	30	29	P	
P93-94	Nov5	LP	A	8:48	8:53	28	28	P	0-33
P93-94	Nov5	LP	A	8:58	9:03	30	30	P	33- E.O.S
P94-95	Nov5	LP	A	9:15	9:20	29	29	P	
P95-96	Nov5	LP	A	9:15	9:20	29	28	P	
P96-97	Nov5	LP	A	9:27	9:32	30	29	P	
P97-99	Nov5	LP	A	9:36	9:41	29	28	P	
P97-98	Nov5	LP	A	9:36	9:41	29	28	P	
P98-100	Nov5	LP	A	9:43	9:48	28	28	P	
P98-99	Nov5	LP	A	9:36	9:41	29	28	P	
P99-100	Nov5	LP	A	9:43	9:48	30	28	P	0-23
P99-100	Nov5	LP	A	9:59	10:04	29	28	P	23- E.O.S
P99-101	Nov5	LP	A	—	—	—	—	—	10' cap no A.T
P100-~~101~~	Nov5	LP	A	10:06	10:11	29	29	P	
P101-102	Nov5	LP	A	10:06	10:11	30	29	P	
P100-102	Nov5	LP	A	9:56	10:01	28	28	P	0-24
P100-102	Nov5	LP	A	9:55	10:00	30	29	P	24-34
P100-102	Nov5	LP	A	9:53	9:58	30	29	P	34-E.O.S
P102-103	Nov5	LP	A	7:30	7:35	29	28	P	
P103-104	Nov5	LP	A	7:30	7:35	30	30	P	
P53-102	Nov5	LP	A	10:10	10:15	31	30	P	
P53-103	Nov5	LP	A	7:30	7:35	30	29	P	
P53-104	Nov5	LP	A	7:30	7:35	29	29	P	
P1-51	Nov4	LP	A	8:02	8:07	29	28	P	0-12
P1-51	Nov4	LP	A	8:02	8:07	30	30	P	12-24
P1-51	Nov4	LP	A	10:35	10:40	29	28	P	24-392 / 392-403 cap
P1-51	Nov4	LP	A	10:35	10:40	30	30	P	403-451
P1-51	Nov4	LP	A	7:48	7:53	31	31	P	451-515
P1-51	Nov4	LP	A	7:48	7:53	30	30	P	515-531
P1-51	Nov.4	LP	A	7:58	8:03	30	29	P	531-568
P1-51	Nov.4	LP	A	7:58	8:03	29	29	P	568-576
P1-51	Nov4	LP	A	7:58	8:03	29	28	P	576-595
P1-51	Nov4	LP	A	7:58	8:03	30	30	P	595- E.O.S
P51-52	Nov4	LP	A	7:53	7:58	31	31	P	0-97
P51-52	Nov4	LP	A	10:45	10:50	30	29	P	97-513
P51-52	Nov4	LP	A	7:41	7:46	28	28	P	513-524

National Lining Systems, Inc.

Non-Destructive Test Log

Project Name: Ameren Ash Pond A **Project Number:** # 1000-332
QA/QC Name: Michelle Cassimiro **Material Type:** 40 mil

Seam No.	Test Date	Tester Int.	Test Type A=Air V=Vacuum	Start Time	End Time	PSI Start	PSI End	Test P= Pass F=Fail	Test Length / Location
P51-52	nov 4	LP	A	7:46	7:51	30	29	P	504- EOS
P52-53	nov 4	LP	A	7:57	8:02	30	29	P	0-40
P52-53	nov 4	LP	A	7:33	7:38	30	30	P	40-88
P52-53	nov 4	LP	A	11:04	11:09	29	28	P	88-332
P52-53	nov 4	LP	A	11:02	11:07	30	30	P	332-377
P52-53	nov 4	LP	A	10:51	10:56	29	29	P	377-504
P52-53	nov 4	LP	A	7:41	7:46	30	30	P	504-E O.S
P53-54	nov 4	LP	A	11:27	11:32	28	28	P	0-185
P53-54	nov 4	LP	A	11:16	11:21	29	29	P	185- E.O.S.
P54-55	nov 4	LP	A	11:31	11:36	30	28	P	
P55-56	nov 4	LP	A	11:30	11:35	31	30	P	0-62 162-74 (cap)
P55-56	nov 4	LP	A	7:28	7:33	31	31	P	74-200
P55-56	nov 4	LP	A	7:41	7:46	30	28	P	200- E.O.S.
P56-57	nov 4	LP	A	1:17	1:22	30	29	P	
P57-62	nov 4	LP	A	1:09	1:14	30	30	P	
P62-63	nov 4	LP	A	1:50	1:55	28	28	P	
P63-64	nov 4	LP	A	1:50	1:55	29	29	P	
P64-65	nov 4	LP	A	2:21	2:26	28	27	P	
P65-66	nov 4	LP	A	1:24	1:29	29	28	P	0-112
P65-66	nov 4	LP	A	1:53	1:58	30	29	P	112- E O.S
P58-62	nov 4	LP	A	1:09	1:14	31	31	P	
P59-62	nov 4	LP	A	1:33	1:38	29	28	P	
P57-58	nov 4	LP	A	1:09	1:14	30	29	P	
P58-59	nov 4	LP	A	8:44	8:49	30	28	P	0-8
P58-59	nov 4	LP	A	8:58	9:03	28	28	P	8-28
P58-59	nov 4	LP	A	9:07	9:12	29	28	P	28-37
P58-59	nov 4	LP	A	1:31	1:36	30	30	P	37-131
P58-59	nov 4	LP	A	1:31	1:36	30	29	P	131-192
P58-59	nov 4	LP	A	1:39	1:44	29	28	P	192- E O S.
P59-63	nov 4	LP	A	1:43	1:48	29	29	P	
P59-60	nov 4	LP	A	2:16	2:21	28	28	P	0-27
P59-60	nov 4	LP	A	2:24	2:29	30	30	P	27-E O S
P60-64	nov 4	LP	A	2:00	2:05	30	30	P	
P60-61	nov 4	LP	A	2:24	2:29	29	29	P	
P66-65A	nov 4	LP	A	2:33	2:38	28	28	P	
P64-65A	nov 4	LP	A	–	–	–	–	–	cap

National Lining Systems, Inc.

Non-Destructive Test Log

Project Name: Ameren, Ash Pond A **Project Number:** #1000-332

QA/QC Name: Michelle Casimiro **Material Type:** 40 mil

Seam No.	Test Date	Tester Int.	Test Type A=Air V=Vacuum	Start Time	End Time	PSI Start	PSI End	Test P= Pass F=Fail	Test Length / Location
P65-65A	Nov 4	LP	A	2:16	2:21	30	30	P	
P65A-61	Nov 4	LP	A	—	—	—	—	—	cap 22'
P61-66	Nov 4	LP	A	2:33	2:38	30	28	P	
P66-67	Nov 4	LP	A	4:29	4:34	30	29	P	0-133
P66-67	Nov 4	LP	A	2:35	2:40	28	28	P	133-182
P66-67	Nov 4	LP	A	1:24	1:29	30	29	P	182-E.O.S
P1-2	Nov 7	LP	A	8:10	8:15	31	30	P	446-EOS
P2-3	Nov 7	LP	A	8:10	8:15	29	28	P	445-EOS
P3-4	Nov 7	LP	A	8:10	8:15	30	29	P	446-EOS
P4-5	Nov 7	LP	A	8:10	8:15	29	29	P	445-EOS
P5-6	Nov 7	LP	A	8:23	8:28	31	31	P	440-497
P5-6	Nov 7	LP	A	8:23	8:28	29	29	P	497-508
P5-6	Nov 7	LP	A	8:23	8:28	30	30	P	508-519
P5-6	Nov 7	LP	A	8:23	8:28	30	29	P	519-575
P5-6	Nov 7	LP	A	8:36	8:41	30	30	P	575-606
P5-6	Nov 7	LP	A	8:36	8:41	29	28	P	606-644
P5-6	Nov 7	LP	A	8:36	8:41	31	30	P	644-670
P5-6	Nov 7	LP	A	8:47	8:52	29	28	P	670-EOS
P6-7	Nov 7	LP	A	9:10	9:15	31	30	P	436-497
P6-7	Nov 7	LP	A	9:06	9:11	30	29	P	497-EOS.
P7-8	Nov 7	LP	A	8:56	9:01	29	29	P	434-EOS
P8-9	Nov 7	LP	A	9:08	9:13	30	29	P	435-600
P8-9	Nov 7	LP	A	9:19	9:24	28	28	P	600-EOS
P9-10	Nov 7	LP	A	9:24	9:29	29	28	P	433-EOS
P10-11	Nov 7	LP	A	9:29	9:34	30	30	P	429-EOS
P11-12	Nov 7	LP	A	9:44	9:49	29	28	P	430-EOS
P12-13	Nov 7	LP	A	10:44	10:49	29	28	P	425-EOS
P13-14	Nov 7	LP	A	11:39	11:44	30	29	P	423-486
P13-14	Nov 7	LP	A	11:39	11:44	31	31	P	486-498 / 498-509 (cap)
P13-14	Nov 7	LP	A	2:06	2:11	30	29	P	509-EOS.
P13-111	Nov 7	LP	A	11:30	11:35	29	29	P	0-67
P13-111	Nov 7	LP	A	11:30	11:35	28	27	P	67-EOS.
P14-111	Nov 7	LP	A	11:32	11:37	29	29	P	
P112-113	Nov 7	LP	A	2:29	2:34	30	30	P	
P112-114	Nov 7	LP	A	11:01	11:06	30	30	P	
P12-114	Nov 7	LP	A	10:36	10:41	31	30	P	

National Lining Systems, Inc.

Non-Destructive Test Log

Project Name: Amcren, Ash Pond A **Project Number:** #1000-332

QA/QC Name: Michelle Casimiro **Material Type:** 40 mil

Seam No.	Test Date	Tester Int.	Test Type A=Air V=Vacuum	Start Time	End Time	PSI Start	PSI End	Test P= Pass F=Fail	Test Length / Location
P12-116	Nov. 7	LP	A	10:44	10:49	30	30	P	
P13-116	Nov 7	LP	A	11:01	11:06	29	29	P	
P113-114	Nov 7	LP	A	10:36	10:41	29	29	P	
P114-115	Nov 7	LP	A	10:44	10:49	30	28	P	
P115-117	Nov 7	LP	A	10:52	10:57	30	29	P	
P115-116	Nov 7	LP	A	10:44	10:49	28	28	P	
P115-118	Nov 7	LP	A	10:52	10:57	28	28	P	
P116-118	Nov 7	LP	A	10:52	10:57	31	30	P	
P117-118	Nov 7	LP	A	10:52	10:57	30	28	P	
P117-119	Nov 7	LP	A	11:10	11:15	30	29	P	
P118-120	Nov 7	LP	A	11:10	11:15	30	30	P	
P119-120	Nov 7	LP	A	11:10	11:15	29	29	P	
P120-121	Nov 7	LP	A	11:12	11:17	30	30	P	
P13-118	Nov 7	LP	A	11:01	11:06	28	28	P	
P13-120	Nov 7	LP	A	11:01	11:06	29	28	P	
P111-121	Nov 7	LP	A	11:30	11:35	28	28	P	
P14-125	Nov 7	LP	A	1:24	1:29	29	28	P	
P14-124	Nov 7	LP	A	1:24	1:29	30	28	P	
P14-123	Nov 7	LP	A	1:15	1:20	29	29	P	
P14-122	Nov 7	LP	A	1:15	1:20	29	28	P	
P125-126	Nov 7	LP	A	1:31	1:36	30	29	P	
P124-125	Nov 7	LP	A	1:24	1:29	30	29	P	
P124-126	Nov 7	LP	A	1:31	1:36	28	28	P	
P123-124	Nov 7	LP	A	1:24	1:29	30	29	P	
P122-123	Nov 7	LP	A	1:15	1:20	30	29	P	
P50-122	Nov 7	LP	A	1:15	1:20	30	30	P	
P6-105	Nov 7	LP	A	9:06	9:11	31	31	P	
P5-105	Nov 7	LP	A	8:36	8:41	28	28	P	
P7-105	Nov 7	LP	A	8:47	8:52	30	30	P	
P105-106	Nov 7	LP	A	8:47	8:52	30	29	P	
P7-106	Nov. 7	LP	A	8:47	8:52	29	28	P	
P106-107	Nov 7	LP	A	9:01	9:06	29	28	P	
P8-107	Nov 7	LP	A	8:56	9:01	30	30	P	
P107-108	Nov 7	LP	A	8:56	9:01	28	28	P	
P9-108	Nov 7	LP	A	9:19	9:24	30	30	P	
P9-109	Nov 7	LP	A	9:14	9:19	30	29	P	

National Lining Systems, Inc.

Non-Destructive Test Log

Project Name: AmeRen, Ash Pond A **Project Number:** # 1000-332

QA/QC Name: Michelle Casimiro **Material Type:** 40 mil

Seam No.	Test Date	Tester Int.	Test Type A=Air V=Vacuum	Start Time	End Time	PSI Start	PSI End	Test P=Pass F=Fail	Test Length / Location
P 108-109	nov 7	LP	A	9:19	9:24	28	27	P	
P 10-109	nov 7	LP	A	9:29	9:34	30	30	P	
P 109-110	nov 7	LP	A	9:29	9:34	28	28	P	
P 11-110	nov 7	LP	A	9:44	9:49	30	30	P	
P 12-110	nov 7	LP	A	9:44	9:49	30	30	P	
P 110-112	nov 7	LP	A	9:54	9:59	30	30	P	
P 12-112	nov 7	LP	A	10:36	10:41	30	29	P	
P81-83	nov 7	LP	A	4:08	4:13	30	30	P	
P 121-127	nov 9	LP	A	3:30	3:35	30	30	P	
P 128-129	nov 9	LP	A	2:25	2:30	29	29	P	
P 129-130	nov 9	LP	A	2:25	2:30	29	28	P	0-26
P 129-130	nov 9	LP	A	2:25	2:30	30	30	P	26-E.O.S.
P125-130	nov 9	LP	A	4:07	4:12	28	28	P	
P130-131	nov 9	LP	A	3:08	3:13	29	29	P	
P131-132	-	-	-	-	-	-	-	-	cap 4'
P 130-132	nov 9	LP	A	3:08	3:13	29	28	P	
P 126-131	nov 9	LP	A	3:14	3:19	31	30	P	
P 126-132	nov 9	LP	A	3:14	3:19	29	29	P	
P 111-127	nov 9	LP	A	3:58	4:03	30	29	P	
P 111-128	nov 9	LP	A	3:58	4:03	29	29	P	
P 111-129	nov 9	LP	A	3:58	4:03	30	29	P	
P 14-129	nov 9	LP	A	3:58	4:03	29	28	P	
P 14-130	nov 9	LP	A	4:07	4:12	31	30	P	
P2-P133	nov 11	LP	A	11:47	11:52	29	29	P	
P 2-P134	nov 11	LP	A	1:05	1:10	30	30	P	0-20
P 2-134	nov 11	LP	A	1:05	1:10	30	29	P	20-E.O.S
P3-133	nov 11	LP	A	11:47	11:52	29	28	P	
P3-134	nov. 11	LP	A	1:05	1:10	28	28	P	
P3-135	nov 11	LP	A	1:52	1:57	30	30	P	
P4-135	nov 11	LP	A	12:57	1:02	30	29	P	
P8-138	nov 11	LP	A	3:52	3:57	31	30	P	
P4-138	nov 11	LP	A	3:40	3:45	29	28	P	0-55
P4-138	nov 11	LP	A	3:40	3:45	30	30	P	55-86
P4-138	nov 11	LP	A	3:40	3:45	28	28	P	86-95
P4-138	nov 11	LP	A	3:40	3:45	29	29	P	95-E.O.S
P7-139	nov 11	LP	A	4:27	4:32	30	30	P	

National Lining Systems, Inc.

Non-Destructive Test Log

Project Name: Ameren, Ash Pond A **Project Number:** # 1000 - 332

QA/QC Name: Michelle Casimiro **Material Type:** 40 mil

Seam No.	Test Date	Tester Int.	Test Type A=Air V=Vacuum	Start Time	End Time	PSI Start	PSI End	Test P= Pass F=Fail	Test Length / Location
P8 . P139	Nov 11	LP	A	4:44	4:49	29	29	P	
P23. 137	Nov. 11	LP	A	2:42	2:47	28	28	P	0-11
P 23. 137	Nov. 11	LP	A	2:35	2:40	30	29	P	11-E OS
P 22 - 137	Nov 11	LP	A	2:35	2:40	30	29	P	0 . 29
P 22. 137	Nov 11	LP	A	2:35	2:40	29	28	P	29-56
P 22 . 137	Nov 11	LP	A	2:35	2:40	29	29	P	56. E.O.S.
P 29. 136	Nov. 11	LP	A	2:06	2:11	29	29	P	
P 31 - 136	Nov 11	LP	A	2:06	2:11	30	29	P	
P 4 - 141	Nov 11	LP	A	3:00	3:05	29	29	P	
P 5 - 141	Nov 11	LP	A	3:00	3:05	30	30	P	
P 7 . 140	Nov. 12	LP	A	9:44	9:49	30	30	P	
P 8 . 140	Nov. 12	LP	A	10:59	11:04	28	27	P	
P 14-50	Nov 3	LP	A	7:29	7:34	31	30	P	0 . 7
14-50	Nov 3	LP	A	-	-	-	-	-	7- E OS (QAP) R-38
P 31-32	Nov 3	LP	A	7:30	7:35	29	29	P	
P 91-92	Nov 3	LP	A	8:23	8:28	30	30	P	
P 127. 128	Nov 9	LP	A	2:25	2:30	30	30	P	

National Lining Systems, Inc.

Destructive Test Log

Project Name: AmeRen - Ash Pond A
QA/QC Name: Michelle Casimiro

Project Number: # 1077-332
Material Type: 40 mil

Fusion (PPI) 60 Min. Peel 80 Min. Shear **Extrusion (PPI)** 52 Min. Peel 80 Min. Shear

DS No.	Date	Seam No.	Op. Int	Mch No.	Location	Peel	Peel	Peel	Peel	Peel	Peel	Shear	Shear	Shear	Shear	Shear	Result P=Pass F= Fail
1	Nov/2	P2/P1	LP	W# 10	P1/P2 @ 275	74 / 75	94 / 96	81 / 92	80 / 95	90 / 93		130	125	120	140	120	P
2	Nov/2	P3/P2	DE	W# 101	P2/P3 @ 23												F
3	Nov/2	P4/P3	JL	W# 102	P1/P3 @ 400'							CAP					F
4	Nov/2	P5/P4	LP	W# 10	P4/P5 @ 310												F
4a	Nov/2	P4/P5	LP	W# 10		80 / 82	88 / 92	85 / 81	86 / 78	78 / 82		105	113	102	111	109	P
4B	Nov/2	P4/P5	LP	W# 10													F
5	Nov/2	P5/P6	J.L.	W# 102	P5/P6 @ 340'	86 / 86	100 / 91	100 / 97	94 / 82	90 / 92		117	120	125	118	119	P
6	Nov/2	P6/P7	D.E	W# 101	P6/P7 @ 275'	97 / 102	96 / 100	101 / 103	95 / 89	103 / 89		117	118	130	135	120	P
7	Nov/2	P7/P8	LP	W# 10	P7/P8 @ 422							C	A	P			F
8	Nov/2	P8/P9	D.E	W# 101	P8/P9 @ 367	84 / 86	98 / 88	86 / 90	86 / 92	85 / 82		101	109	112	110	101	P
9	Nov/2	P9/P10	J.L	W# 102	P9/P10 @ 410	71 / 94	78 / 73	79 / 84	85 / 83	78 / 79		113	108	119	113	110	P
10	Nov/2	P11/P12	D.E	W# 101	P11/P12 @ 200	94 / 90	84 / 93	88 / 94	78 / 89	95 / 82		111	109	108	107	111	P
11	Nov/2	P10/P11	J.L	W# 102	P10/P11 @ 10	96 / 94	91 / 85	93 / 90	96 / 81	93 / 80		112	109	118	113	112	P
12	Nov/2	P12/P13	J.L	W# 102	P12/P13 @ 30	96 / 85	93 / 73	92 / 91	90 / 92	90 / 94		109	120	123	106	107	P

Peel / Shear = Pounds Per Inch W **Weld Type**= F - Fusion / Ex **Material Type**= T- Textured/ S- Smooth

National Lining Systems, Inc.

Destructive Test Log

Project Name: Ameren · Ash Pond A

QA/QC Name: Michelle Carmiko

Project Number: # 1000 - 332

Material Type: 40 mil

Fusion (PPI) 60 Min. Peel 80 Min. Shear

Extrusion (PPI) 52 Min. Peel 80 Min. Shear

DS No.	Date	Seam No.	Op. Int	Mch No.	Location	Peel	Peel	Peel	Peel	Peel	Peel	Shear	Shear	Shear	Shear	Shear	Result P=Pass F= Fail
13	Nov/2	P13 / P14	D.E	W#101	P13/P14 @ 200	87 / 86	90 / 82	90 / 92	86 / 85	85 / 91		101	101	107	104	109	P
14	Oct/31	P22 / 23	D.E	W#101	P22/P23 @ 50	80 / 66	80 / 82	74 / 84	95 / 93	86 / 83		105	109	99	103	91	P
15	Oct/31	P29 / 31	D.E	W#101	P29/31 @ 20	90 / 87	78 / 77	97 / 84	94 / 88	96 / 86		SAMPLE		PEELED			F
15A	Oct/31	P30 / 32	DE	W#101		103 / 93	85 / 90	85 / 92	85 / 90	102 / 95		107	111	104	110	110	P
15B	Oct/31	P29 / 31	DE	W#101		107 / 113	108 / 96	114 / 109	123 / 125	116 / 110		117	100	98	102	119	P
16	Oct/31	P23 / 28	J.L	W#102	P23/28 @ 15	88 / 101	99 / 93	86 / 91	96 / 100	96 / 79		91	115	98	120	103	P
17	Oct/31	P29 / 17	LP	W#10	P29/17 @ 10	86 / 90	98 / 103	84 / 90	93 / 98	90 / 94		114	99	109	98	101	P
18	Oct/31	P36 / 37	J.L	W#102	P36/37 @ 89	93 / 75	71 / 70	98 / 98	86 / 81	96 / 86		110	107	108	99	112	P
19	Nov/3	P41 / 43	J.L	W#102	P41/43 @ 25	87 / 89	73 / 97	88 / 94	89 / 92	92 / 87		105	100	108	110	111	P
20	Nov/3	P14 / 50	J.L	W#102	P14/50 @ 12	98 / 84	106 / 85	99 / 86	99 / 81	95 / 88		99	99	105	107	101	P
21	Nov/3	R53 / 54	J.L	W#102	P53/54 @ 100	90 / 95	86 / 84	85 / 76	96 / 101	85 / 97		109	104	111	104	107	P
22	Nov/2	P37 / 38	D.E	W#101	P37/38 @ 12'	101 / 88	99 / 93	114 / 105	109 / 81	110 / 95		104	107	103	105	103	P
23	Nov/3	P43 / 45	DE	W#101	P43/45 @ 20'	SAMPLE		PEELED									F
23A	Nov/10	P43 / 45	DE	W#101		100 / 101	86 / 93	93 / 102	89 / 90	99 / 98		103	102	94	109	120	P

Peel / Shear = Pounds Per Inch Width

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National Lining Systems, Inc.

Destructive Test Log

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casamiro

Project Number: #1000-332

Material Type: 40 mil

Fusion (PPI) 60 Min. Peel 80 Min. Shear

Extrusion (PPI) 50' Min. Peel 80 Min. Shear

DS No.	Date	Seam No.	Op. Int	Mch No.	Location	Peel	Peel	Peel	Peel	Peel	Peel	Shear	Shear	Shear	Shear	Shear	Result P=Pass F= Fail
23 B	nov/1	P43/45	DE	W#101		91 / 99	90 / 86	106 / 183	97 / 87	92 / 87							F
24	nov/4	P1/51	DE	#101	P1/51 @ 250	83 / 85	81 / 93	99 / 84	82 / 86	93 / 78		105	101	110	100	108	P
25	nov/4	P52/53	DE	#101	P52/53 @ 490	96 / 88	88 / 82	91 / 84	91 / 89	83 / 86		100	101	110	103	109	P
26	nov/4	P51/52	LP	#10	P51/52 @ 400	97 / 80	77 / 85	91 / 86	86 / 68	95 / 84		108	100	109	99	106	P
27	nov/4	P54/55	LP	#10	P54/55 @ 259	74 / 78	89 / 89	80 / 82	98 / 82	70 / 93		111	102	112	100	103	P
28	nov/4	P55/56	DE	#101	P55/56 @ 100	82 / 89	91 / 91	88 / 85	92 / 90	95 / 87		108	102	108	101	105	P
29	nov/4	P55/56	J.L	#102	P55/56 @ 420'	87 / 91	74 / 92	92 / 87	66 / 66	85 / 91		111	103	104	114	114	P
30	nov/2	P3/005	SS	#10	DX	89	89	87	68	93		94	107	101	102	93	P
31	nov/9	60/61	DE	W#101		103 / 95	91 / 94	94 / 104	105 / 112	96 / 87		122	129	124	125	127	P
32	nov/4	58/59	JL	W#102	P58/59 @ 150'	82 / 89	88 / 77	85 / 90	89 / 79	84 / 92		111	100	112	101	112	P
33	nov/4	P65/66	JL	W#20	P65/66 @ 100	92 / 91	95 / 89	91 / 97	95 / 88	87 / 95		108	100	112	105	101	P
34	nov/9	P80/81	JL	W# 20	P81/82 @ 15'	88 / 96	93 / 82	90 / 95	89 / 92	94 / 86		128	125	136	130	122	P
35	nov/4	P66/67	D.E	W#101	P66/67 @ 100'	94 / 92	97 / 96	98 / 94	94 / 96	103 / 92		116	105	116	107	114	P
36	nov/13	P78/80	D.E	W#101	P78/80 @ 30'	103 / 99	105 / 95	96 / 94	97 / 105	91 / 101		124	126	123	122	122	P

Peel / Shear = Pounds Per Inch Width

National Lining Systems, Inc.

Destructive Test Log

Page: ____ of 4

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casamira

Project Number: #11000-332

Material Type: 40 mil

Fusion (PPI) 60 Min. Peel 80' Min. Shear

Extrusion (PPI) 52 Min. Peel 80 Min. Shear

DS No.	Date	Seam No.	Op. Int	Mch No.	Location	Peel	Peel	Peel	Peel	Peel	Peel	Shear	Shear	Shear	Shear	Shear	Result P=Pass F= Fail
37	Nov/17	P102/100	DE	W#101	P100/102 @ 20'	92 / 101	89 / 98	115 / 95	90 / 92	97 / 98		121	127	123	119	127	P
38	Nov/17	P54/101	DE	W#101	P54/101 @ 10'	109 / 110	95 / 93	98 / 104	100 / 106	96 / 93		125	105	97	126	98	P
39	Nov/4	P56/57	J.L	W#102	P56/57 @ 50'	87 / 91	74 / 92	92 / 87	66 / 66	85 / 91		111	103	104	114	114	P
40	Nov/17	P75/76	S.S	W#12	P75/76 @ 40'	88 / 92	82 / 93	85 / 92	81 / 94	94 / 97		104	105	120	122	121	P
41	11/17	P67/75	SS	#12	P67/75 @ 10'	89 / 89	85 / 94	89 / 89	94 / 98	98 / 89		114	104	111	105	109	P
42	11/17	P87/88	LP	#20	P87/88 @ 15'	100 / 91	98 / 96	92 / 88	97 / 89	99 / 93		122	124	115	120	123	P
43	11/17	P52/53	LP	#20	P52/53 @ 40'	98 / 92	91 / 87	95 / 88	87 / 87	91 / 91		125	112	118	112	115	P
44	11/17	P3/4	JL	#20	P3/4 @ 50'	96 / 92	84 / 93	92 / 87	84 / 91	84 / 82		120	114	113	113	102	P
45	11/17	P8/9	JL	#20	P8/9 @ 100	98 / 91	91 / 87	93 / 91	88 / 96	81 / 84		124	115	122	117	123	P
46	11/17	P108/109	JL	#20	P108/109 @ 15'	100 / 92	97 / 83	96 / 100	89 / 93	92 / 89		126	117	128	127	120	P
47	11/17	P5/6	CE	#101	P5/6 @ 100	86 / 111	85 / 102	99 / 103	87 / 92	83 / [illegible]		129	131	122	120	127	P
? 48	11/17	P14/111	DE	#20	P14/111 @ 10'	105 / 92	104 / 86	103 / 100	90 / 97	102 / 101		124	130	126	122	124	P
? 49	11/17	P14/122	"	"	P14/122 @ 10'	102 / 86	81 / 84	96 / [illegible]	86 / 84	104 / 84		127	129	124	122	124	P
50	11/17	P4/5	SS	#12	P4/5 @ 150'	100 / 86	91 / 92	54 / 99	95 / 99	86 / 80		125	107	122	110	128	P

Peel / Shear = Pounds Per Inch Width

National Lining Systems, Inc.

Destructive Test Log

Page: ____ of 3

Project Name: ____________________

QA/QC Name: ____________________

Project Number: ____________________

Material Type: ____________________

Fusion (PPI) 60 Min. Peel 80 Min. Shear

Extrusion (PPI) 52 Min. Peel 80 Min. Shear

DS No.	Date	Seam No.	Op. Int	Mch No.	Location	Peel	Peel	Peel	Peel	Peel	Peel	Shear	Shear	Shear	Shear	Shear	Result P=Pass F= Fail
51	nov / 7	P9 / 108	SS	W#12	P9 / 108 @ 10'	87 / 115	109 / 94	97 / 84	86 / 90	120 / 117		123	127	131	126	124	F
52	nov / 7	P12 / 13	SS	W#12	P12 / 13 @ 200'	100 / 98	94 / 85	99 / 92	90 / 94	93 / 96		125	120	133	127	118	P
53	nov / 7	P118 / 120	SS	W#12	P118 / 120 @ 10'	101 / 87	91 / 98	106 / 110	99 / 89	100 / 105		126	131	128	126	130	P
54	11 / 10	P2D / 3D	DE	#20	P2D / 3D @ 10	101 / 89	91 / 94	106 / 110	100 / 105	99 / 89		126	131	128	126	130	P
55	11 / 10	P9D / 10D	JL	#12	P9D / 10D @ 30	103 / 82	87 / 82	105 / 75	82 / 101	91 / 97		115	133	109	102	117	P
56	11 / 10	APD / 8D	SS	#10	ASh PandD / 8D DX	109	101	98	105	85		123	109	124	115	105	P
57	11 / 10	121 / 127	JL	#20	P121 / 127 @ 25'	94 / 88	78 / 81	80 / 85	81 / 75	92 / 98		108	110	114	112	114	P
58	11 / 10	3 / 133	|	|		90 / 98	70 / 88	84 / 81	88 / 90	88 / 92		118	103	118	104	120	P
59	11 / 11	2 / 133	JL	#12		79 / 87	84 / 89	96 / 80	94 / 85	84 / 89		109	120	114	102	115	P
60	11 / 11	31 / 136	DE	#20	69'W	—	—	—	—	—							Fail
61	11 / 11	4 / 138	JL	#12		90 / 86	81 / 91	86 / 97	85 / 97	9[illegible] / 9[illegible]		118	121	123	126	128	P
14-A	11 / 10	22 / 23	DE	#101	under R 375	92 / 94	84 / 77	85 / 85	86 / 81	90 / 85		102	111	113	109	114	P
51-A	11 / 10	9 / 108	SS	#12		104 / 110	103 / 98	111 / 105	90 / 98	110 / 105		108	80	100	98	113	P
51-B	11 / 10	9 / 108	|	|		102 / 101	98 / 93	104 / 106	107 / 96	110 / 108		104	84	119	104	108	P

Peel / Shear = Pounds Per Inch Width

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Destructive Test Log

Project Name: ______________________

QA/QC Name: ______________________

Project Number: 6

Material Type: ______________________

Fusion (PPI) 60 Min. Peel 80 Min. Shear

Extrusion (PPI) 52 Min. Peel 80 Min. Shear

DS No.	Seam No.	Test Date	Tester Int.	Weld Type	Operator Int.	Machine No.	Peel	Peel	Peel	Peel	Peel	Peel	Shear	Shear	Shear	Shear	FTP Result	Result P=Pass F= Fail
63	140/8	11-12	D.C	T/T	JL	#12	98 97	85 98	98 96	95 87	95 95		122 91	90	102	122 7	P	
64	140/17			S/T	JL	#12	91 87	87 94	100 90	82 85	100 90		113	100	116	108	P	
60A	137/22			T/T	DE	#20	86 90	97 82	73 74	86 73	89 95		127 133	130	124	128	P	
60B	136/31			T/T	DE	#20	89 95	99 104	113 102	88 92	98 93		117 130	113	121	124	P	
14B2	21/22			SS	DE	#101	101 100	85 107	92 112	74 81	45 100		127	108	102		P	
49B2	14/125			STT	DE	#20	88 108	76 70	84 102	79 76	71 98		120 92	99	114	108	P	
3A	4/5			SS	JL	#102	112 96	109 84	105 102	85 89	91 89		109 122	122	118	122	P	
48A	13/111	nov 10	DC	S/S	DE	#20	88 88	80 80	90 82	81 83	75 81		114	104	104	101	P	
DS49B1	14/124	nov 12	DC		DE	#20	—	—	—	—	—						F	
DS-62	7/139	nov 12	DC	S/T	JL	#12	90 92	85 92	95 87	96 81	78 83		112	107	120	127	P	
DS-60	136/31	—	—	—	—	—											F	
DS-49B	14/123	nov 12	DC	S/T	DE	#20	—	—	—	—	—		—	—	—	—	F	
DS-48B	120/119	nov 10	DC	S/T	DE	#20	91 100	81 88	95 92	80 98	92 108		93	101	106	108/114	P	
DS-7A+B	7/8	nov 2	DC	Cap	LP	#10	—	—	—	—	—		—	—	—	—	F	

Peel / Shear = Pounds Per Inch Width Weld Type= F - Fusion / Ext - Extrusion

NLS
National Lining Systems, Inc.

Repair / Vacuum Test Log

Page: ____ of 1

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: # 1000 - 332

Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Tester Int.	Result P=Pass F=Fail
1	1 / 2	nov 2	DE	G# 20	1X1	P	@ S. AT	nov 10	RJ	P
2	1 / 2	nov 2	DE	G#20	2X5	DS-1	270'n	nov 10	RJ	P
3	1 / 2	nov 2	DE	G#20	1X1	P	446'n	nov 10	RJ	P
4	2 / 3	nov 2	SS	G#10	2X8	P	440'n	nov 10	RJ	P
5	2 / 3	nov 2	SS	G#10	1X1	P	342'n	nov 10	RJ	P
6	2 / 3	nov. 2	SS	G#10	2X15	cap	272'n	nov 10	RJ	P
7	2 / 3	nov. 2	SS	G#10	1X2	P	291'N	nov 10	RJ	P
8	2 / 3	nov 2	SS	G#10	2X5	DS-2	224'n	nov 10	RJ	P
9	2 / 3	nov. 2	SS	G#10	2X4	P	17'n / 17'n of R10	nov 10	RJ	P
10	2 / 3	nov 2	DE	G#20	1X2	P	@ S. AT	nov 10	RJ	P
11	3 / 4	nov 2	SS	G#10	2X230	cap	(230' cap) / 170'n-400'n	nov 10	RJ	P
12	3 / 4	nov 2	SS	G#10	2X5	DS-3	403'n	nov 10	RJ	P
13	3 / 4	nov 11	JL	WH 12	3X91	CAP	444'n / 42'n of R12 } CAP	nov 10	RJ	P
14	4 / 5	—	—	—	—	CAP	442'n	x		
15	4 / 5	nov 2	SS	G#10	2X5	DS-4	858'n			
16	4 / 5	nov 2	DE	G#20	2X5	P	@ S. AT	nov 10	RJ	P
17	5 / 1	nov 2	DE	G#20	1X1	P	1'n / 2'E of R-16	nov 9	RJ	P
18	5 / 6	nov 2	DE	#20	1X4	P	@ S. AT	nov 9	RJ	P
19	5 / 6	nov 2	SS	G#10	2X5	DS-5	340'n	nov 10	RJ	P
20	5 / 6	nov 2	SS	#10	3X4		440'n	nov 10	RJ	P
21	6 / 7	nov 2	SS	#10	2X2	P	429'n	nov 10	RJ	P

Repair Type P=Patch DS= Destructive Test Location

Location TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Page: ____ of 2

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: #1000-332

Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Tester Int.	Result P=Pass F=Fail
22	6 / 17	Nov. 2	DE	#20	1X20	cap	400'n | 17'n of R23	Nov 9	RJ	P
23	6 / 17	Nov 2	DE	#20	1X2	P	376'n | 24'n of R24	Nov 9	RJ	P
24	6 / 17	Nov 2	DE	#20	1X2	P	352'n | 24's of R23	Nov 9	RJ	P
25	6 /	Nov 2	DE	#20	3X4	Boot	311'n | 3'N of P17	Nov 9	RJ	P
26	6 / 17	Nov 2	DE	#20	2X2	P	300'n | 29'n of R27	Nov 9	RJ	P
27	6 / 17	Nov 2	DE	#20	2X5	DS-6	270'n | 29'n of R28	Nov 9	RJ	P
28	6 / 17	Nov 2	DE	#20	1X1	P	243'n | 26'n of R-29	Nov 9	RJ	P
29	6 / 17	Nov 2	DE	#20	1X2	P	217'n | 37'n of R-30	Nov 9	RJ	P
30	6 / 17	Nov 2	DE	#20	1X2	P	179'n	Nov 9	RJ	P
31	6 / 17	Nov 2	DE	#20	1X4	P	95'n	Nov 9	RJ	P
32	6 / 17	Nov 2	DE	#20	1X2	P	59'n	Nov 9	RJ	P
33	6 / 17	Nov 2	DE	#20	1X9	P	@ S.AT	Nov 9	RJ	P
34	7 / 8	Nov 2	DE	#20	1X2	P	@ S.AT	Nov 9	RJ	P
35	7 / 8	Nov 2	DE	#20	1X2	P	200'n | 38's of R36	Nov 9	RJ	P
36	7 / 8	Nov 2	TC	#19	1X2	P	238'n | 38'n of R35	Nov 9	RJ	P
37	7 / 8	Nov 2	TC	#19	1X34	cap	285'n - 320'n	Nov 9	RJ	P
38	7 / 8	Nov 2	DE	#20	2X2	P	355'n	Nov 9	RJ	P
39	7 / 8	-	-	-	-	DS-7A	400'n | 13's of R40 cap			
40	7 / 8	-	-	-	-	DS 7	414'n | 14'n of R39			
41	7 / 8	-	-	-	-	DS-7B	430'n | 12'n of R40			
42	8 / 9	Nov 2	TC	#19	2X5	DS-8	314'n	Nov 9	RJ	P

Repair Type Location P=Patch DS= Destructive Test Location TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: #1000-332

Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Tester Int.	Result P=Pass F=Fail
43	8 / 9	Nov 2	DE	#20	2x5	P	1'n | @ S-AT	Nov 10	RJ	P
44	9 / 10	Nov 2	TC	#19	2x5	DS-9	408'n	Nov 10	RJ	P
45	10 / 11	Nov 2	TC	#19	2x3	P	428'n	Nov 10	RJ	P
46	10 / 11	Nov 2	SS	#10	2x5	DS-11	12'n	Nov 12	RJ	P
47	11 / 12	Nov 2	SS	#10	1x2	P	133'n | 64's of R48	Nov 12	RJ	P
48	11 / 12	Nov 2	SS	#10	2x5	DS-10	198'n | 64'n of R47	Nov. 10	RJ	P
49	12 / 13	Nov 12	SS	#10	2x7	DS-12	21'n	Nov 10	RJ	P
50	14 /	Nov 2	SS	#10	2x3	Boot	168'n | 11'E	Nov. 12	RJ	P
51	14 /	Nov 2	SS	#10	1x10	P	168'n	Nov. 12	RJ	P
52	14 /	Nov. 2	SS	#10	2x6	P	169'n | 6'E	Nov. 10	RJ	P
53	13 / 14	Nov 2	SS	#10	1x1	P	184'n | 14'n of R51	Nov 10	RJ	P
54	13 / 14	Nov 2	SS	#10	2x5	DS-13	200'n | 15'n of R53	Nov 10	RJ	P
55	13 / 14	Nov 7	TC	#20	5x6	Boot	357'n	Nov 10	RJ	P
56	13 / 14	Nov 7	TC	#20	1x1	P	366'n	Nov 10	RJ	P
57	14/49/50	Nov 7	TC	#20	2x9	cap	18' cap | 6's of R139	Nov 10	RJ	P
58	14 / 50	Nov 7	TC	#20	3x9	DS-20		Nov 10	RJ	P
59	14/47/49	Nov 2	SS	#10	2x3	P	TJ	Nov. 10	RJ	P
60	14/46/47	Nov 2	SS	#10	2x5	P	TJ	Nov 9	RJ	P
61	14/42, 45/46	Nov 2	SS	#10	2x4	P	TJ	Nov 9	RJ	P
62	14/41/42	Nov 2	SS	#10	2x3	P	TJ	Nov. 9	RJ	P
63	14/40/41	Nov 2	SS	#10	2x5	P	TJ	Nov 9	RJ	P
								Nov. 9	RJ	

Repair Type P=Patch DS= Destructive Test Location

Location TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: #1030-332

Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Tester Int.	Result P=Pass F=Fail
64	14/39/40	Nov 2	SS	#10	2X3	P	TJ			
65	14/38/39	Nov 2	SS	#10	2X3	P	TJ	Nov 9	RJ	P
66	14/36/38	Nov 2	SS	#10	1X7	P	TJ	Nov 9	RJ	P
67	14/35/36	Nov 2	SS	#10	2X3	P	TJ	Nov 9	RJ	P
68	14/34/35	Nov 2	SS	#10	2X3	P	TJ	Nov 9	RJ	P
69	14/32/34	Nov 2	SS	#10	1X2	P	TJ	Nov 9	RJ	P
70	14/30/32	Nov 7	SS	#10	1X2	P	TJ	Nov 9	RJ	P
71	14/29/30	Nov 2	SS	#10	1X2	P	TJ	Nov 9	RJ	P
72	14/15/29	Nov 2	DE	#20	1X3	P	TJ	Nov 9	RJ	P
73	14/15	Nov 2	DE	#20	1X5	P	@ S.AT	Nov 9	RJ	P
74	15/16/29	Nov 2	DE	#20	2X3	P	TJ	Nov 9	RJ	P
75	16/17/29	Nov 2	DE	#20	2X5	P	TJ	Nov 9	RJ	P
76	16/17	Nov 7	SS	#10	1X1	P	@ S.AT	Nov 9	RJ	P
77	17/18	Nov 7	SS	#10	1X1	P	@ S.AT	Nov 9	RJ	P
78	18/19	Nov 7	SS	#10	1X1	P	5'n	Nov 9	RJ	P
79	19/20	Nov 7	SS	#10	1X1	P	@ S.AT	Nov 9	RJ	P
80	21/22	Nov 7	SS	#10	1X1	P	5'n	Nov 9	RJ	P
81	17/18, 19/29	Nov 7	SS	#10	2X34	cap	11'E of R75	Nov 9	RJ	P
82	19/29	Nov 2	DE	#20	2X4	P	5'E of R81	Nov 9	RJ	P
83	19/20/29	Nov 2	DE	#20	2X2	P	TJ	Nov 9	RJ	P
84	20/21/29	Nov 7	SS	#10	2X7	cap	TJ/ 15'E of R83	Nov 9	RJ	P

Repair Type P=Patch DS= Destructive Test Location

Location TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Page: 3

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casamiro

Project Number: # 1000 - 332

Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Repair Time	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Test Time	Tester Int.	Result P=Pass F=Fail
85	P 21-22-29	Nov 7	10:05	SS	#10	2X13	Cap	TJ / 21'E of R84	Nov 9		RJ	P
86	22-23-28-29	Nov 7	10:15	SS	#10	4X4	P	TJ	Nov 9		RJ	P
87	23/28	Nov 7	10:30	SS	#10	2X5	DS-16	9'SE of R86	Nov 9		RJ	P
88	23-24-27-28	Nov 7	10:38	SS	#10	2X11	P	8'SE of R87	Nov 9		RJ	P
89	24-26-27	Nov 7	10:45	SS	#10	2X3	P	TJ	Nov 9		RJ	P
90	24-25-26	Nov 7	11:12	SS	#10	2X6	P	6'SE of R89	Nov 9		RJ	P
91	24-25	Nov 7	11:10	SS	#10	2X14	cap	11' NE	Nov 9		RJ	P
92	25-26	Nov 7	11:39	SS	#10	2X2	P	15'SE of R90 / 6 SE AT	Nov 9		RJ	P
93	26-27	Nov 7	11:32	SS	#10	2X16	cap	7'SE / 20'SE of R89	Nov 9		RJ	P
94	29-31	Nov 7	2:01	SS	#10	1X7	P		Nov 9		RJ	P
95	29-31	Nov 7	2:05	SS	#10	2X9	DS 15	R-94-99	Nov 9		RJ	P
96	29-31	Nov 7	2:01	SS	#10	1X6	P	47' cap	Nov 9		RJ	P
97	29-31	Nov. 7	2:01	SS	#10	2X5	DS-15A	3'@ East. AT	Nov 9		RJ	P
98	29-31	Nov 7	2:01	SS	#10	1X11	DS 15B		Nov 9		RJ	P
99	29-31	Nov 7	2:01	SS	#10	2X10	cap		Nov 9		RJ	P
100	29-31	Nov 7	10:25	SS	#10	2X6	P	18'E of R101 / 55' W of R99	Nov 9		RJ	P
101	29-31	Nov 7	9:42	SS	#10	2X6	P	18' W of R 100	Nov 9		RJ	P
102	29-30-31	Nov. 7	8:53	SS	#10	4X5	P	TJ	Nov 9		RJ	P
103	30-31-32	Nov 7	9:05	SS	#10	2X7	P	TJ	Nov 9		RJ	P
104	29-30	Nov. 7	9:11	SS	#10	2X3	P	14' W of R102	Nov 9		RJ	P
105	32-33-34	Nov 2	3:30	SS	#10	2X4	P	TJ	Nov 9		RJ	P

Repair Type P=Patch DS= Destructive Test Location

Location TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Page: 6

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: # 1000-332

Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Repair Time	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Test Time	Tester Int.	Result P=Pass F=Fail
106	33-34-35	Nov 2	3:20	SS	#10	2x3	P	TJ				
107	33-35	Nov. 7	11:15	TC	#20	2x4	P	16' W of R108 / 19' E AT	Nov 9		RJ	P
108	33-35	Nov 7	11:18	TC	#20	1x1	P	1' E AT / 16' E of R107	Nov 9		RJ	P
109	35-36	Nov. 7	11:10	TC	#20	2x4	P	@ E. AT	Nov 9		RJ	P
110	35-36	Nov 7	11:00	TC	#20	2x6	P	8' W of R109	Nov 9		RJ	P
111	35-36	Nov 7	10:42	TC	#20	1x2	P	62' W of R110	Nov 9		RJ	P
112	36-38	Nov 2	3:15	SS	#10	2x3	P	6' W of R113	Nov 9		RJ	P
113	36-37-38	Nov. 2	3:11	SS	#10	2x3	P	TJ	Nov 9		RJ	P
114	37-38	Nov 2	3:06	SS	#10	2x5	DS-22	9' N of R113 / 7' S of R115	Nov 9		RJ	P
115	37-38-39	Nov 2	3:10	SS	#10	2x2	P	TJ	Nov 9		RJ	P
116	36-37	Nov 7	10:30	TC	#20	2x9	P	24' W of R117	Nov 9		RJ	P
117	36-37	Nov 7	10:40	TC	#20	2x5	DS-18	28' W of R118	Nov 9		RJ	P
118	36-37	Nov 7	10:45	TC	#20	1x2	P	54' W of R119 / 61' W	Nov 9		RJ	P
119	36-37	Nov 7	10:55	TC	#20	2x9	P	@ E. AT	Nov 9		RJ	P
120	37-39	Nov 7	10:50	TC	#20	2x4	P	@ E. AT	Nov 9		RJ	P
121	40-41	Nov 7	10:06	TC	#20	2x8	P	67' E of R63 / 125' W	Nov 9		RJ	P
122	41-43	Nov 7	1:25	TC	#20	1x1	P	@ E. AT	Nov. 12		RJ	P
123	41-43	Nov 7	9:12	TC	#20	2x6	DS-19	26' W / 26' W of R122	Nov 16		RJ	P
124	41-42-43	Nov 7	8:10	TC	#20	2x3	P	TJ	Nov 9		RJ	P
125	41-42	Nov 7	8:06	TC	#20	1x2	P	17' W of R124 / 14' E of R126	Nov 9		RJ	P
126	41-42	Nov 7	8:01	TC	#20	2x4	P	14' W of R125	Nov 9		RJ	P

Repair Type: P=Patch DS= Destructive Test Location

Location: TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Page: 7

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: # 1000-332

Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Repair Time	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Test Time	Tester Int.	Result P=Pass F=Fail
127	P41-42	Nov 7	7:55	TC	#20	1X1	P	beside R-62	Nov 9		RJ	P
128	P42-43-45	Nov 7	8:35	TC	#20	3X4	P	TJ	Nov 9		RJ	P
129	P43-45	Nov 7	8:39	TC	#20	2X5	DS-23B	1'E of R128 / 113'W	Nov 9		RJ	P
130	P43-45	Nov 7	8:51	TC	#20	2X5	DS-23	102'W cap-26'	Nov 9		RJ	P
131	P43-45	Nov 7	8:53	TC	#20	2X10	DS-23A	92'W 92'W-118'W	Nov 9		RJ	P
132	P43-45	Nov 7	8:51	TC	#20	3X5	P	108'W	Nov 9		RJ	P
133	P43-44-45	Nov 7	9:18	TC	#20	2X3	P	TJ	Nov 9		RJ	P
134	P43-44	Nov 7	9:21	TC	#20	2X6	P	19'E of R133 / 63'W	Nov 9		RJ	P
135	P43-44	Nov 7	9:35	TC	#20	1X7	P	@ E AT	Nov 9		RJ	P
136	P46-47	Nov 7	9:43	TC	#20	2X10	P	@ E. AT	Nov 9		RJ	P
137	P47-48-49	Nov 7	9:45	TC	#20	2X24	P	TJ and cap	Nov 9		RJ	P
138	P48-49-50	Nov 7	2:30	TC	#20	2X3	P	TJ	Nov 9		RJ	P
139	P14-50-122	Nov 7	2:10	TC	#20	3X3	P	TJ	Nov 9		RJ	P
140	P14-122	Nov 7	2:20	TC	#20	2X5	DS-49	413'N / 7'N of R139	Nov 9		RJ	P
141	P14-122-123	Nov. 7	2:23	TC	#20	2X3	P	TJ	Nov 9		RJ	P
142	P14-123-124	Nov. 7	2:26	TC	#20	1X1	P	TJ	Nov 9		RJ	P
143	P14-124-125	Nov 7	2:40	TC	#20	2X3	P	TJ	Nov 9		RJ	P
144	P124-125-126	Nov 7	2:48	TC	#20	1X2	P	TJ	Nov 9		RJ	P
145	P50-122	Nov 7	1:30	TC	#20	1X1	P	5'W / @ E AT	Nov 9		RJ	P
146	P126-131-132	Nov 7	9:40	TC	#20	2X4	P	TJ	Nov 9		RJ	P
147	P130-131-132	Nov 7	9:38	TC	#20	2X6	P	TJ	Nov 9		RJ	P

Repair Type P=Patch DS= Destructive Test Location

Location TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Page: 8

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimier

Project Number: #1000-332

Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Repair Time	Operator Int.	Machine No.	Repair Size (If)	Repair Type	Location	Test Date	Test Time	Tester Int.	Result P=Pass F=Fail
148	125-126-130 131	Nov 10	9:20	TC	#20	2X6	P	TJ	11/10		RJ	P
149	14-125-130	Nov 10	9:10	TC	#20	2X3	P	TJ	11/10		RJ	P
150	14-129-130	Nov 10	9:55	TC	#20	1X7	P	TJ	Nov. 10		RJ	P
151	129-130	Nov 10	9:50	TC	#20	1X2	P	48'W / 27'E of R150	Nov. 10		RJ	P
152	14-111	Nov. 10	10:05	TC	#20	3X8	P		Nov 10		RJ	P
153	14-111	Nov 7	4:05	TC	#20	2X5	DS-48	cap cross seam '24	Nov 10		RJ	P
154	13-14-111	Nov. 10	10:05	TC	#20	2X12	DS-48B		Nov 10		RJ	P
155	111-128-129	Nov. 10	10:32	TC	#20	2X3	P	TJ	Nov 10		RJ	P
156	111-127-128	Nov. 10	10:30	TC	#20	2X11	cap	TJ	Nov 10		RJ	P
157	111-121-127	Nov. 10	10:34	TC	#20	3X4	P	TJ	Nov 10		RJ	P
158	13-111	Nov 10	10:40	TC	#20	2X12	DS-48A	601'N-613'N cap	Nov 10		RJ	P
159	13-111-120-121	Nov 7	4:25	TC	#20	2X3	P	TJ	Nov. 10		RJ	P
160	13-118-120	Nov 7	4:27	TC	#20	1X1	P	TJ	Nov 10		RJ	P
161	12-13	Nov 9	7:55	RT	#20	2X4	P	630'N / 9'W of R162	Nov 10		RJ	P
162	13-116-118	Nov 9	7:45	RT	#20	2X3	P	TJ	Nov 10		RJ	P
163	12-13-116	Nov 9	7:50	RT	#20	2X2	P	TJ	Nov 10		RJ	P
164	12-115-116	Nov 9	9:00	RT	#20	4X9	P	TJ	Nov 10		RJ	P
165	115-116-118	Nov 9	9:05	RT	#20	1X1	P	TJ	Nov 10		RJ	P
166	115-117-118	Nov 9	8:15	RT	#20	1X1	P	TJ	Nov 10		RJ	P
167	118-120	Nov 9	8:05	RT	#20	2X4	DS-53	4'W of R168 / 25'E of R160	Nov 10		RJ	P
168	117-118-119-120	Nov 9	8:10	RT	#20	2X6	P	TJ	Nov 10		RJ	P

Repair Type Location   P=Patch   DS= Destructive Test Location   TJ=T Joint   AT=Anchor Trench   EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Page: 9

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casamiro

Project Number: #1000 - 332

Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Repair Time	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Test Time	Tester Int.	Result P=Pass F=Fail
169	119-120	nov 9	8:45	RT	#20	2X4	P	14'E of R168 / 3'W	nov 10		RJ	P
170	117-119	nov 9	8:48	RT	#20	1X1	P	@ E AT	nov 10		RJ	P
171	115-117	nov 9	8:50	RT	#20	1X2	P	@ E. AT	nov 10		RJ	P
172	114-115	nov 9	8:55	RT	#20	1X1	P	@ E AT	nov 10		RJ	P
173	112-113	nov 9	9:15	RT	#20	2X5	P	@ N.E AT	nov 10		RJ	P
174	112-113-114	nov 9	9:10	RT	#20	1X1	P	TJ	nov 10		RJ	P
175	12-112-114	nov 9	9:05	RT	#20	1X2	P	TJ	nov 10		RJ	P
176	11-12-110-112	nov.9	9:20	RT	# 20	2X11	P/cap	TJ	nov 10		RJ	P
177	110-112	nov 9	9:23	RT	#20	1X1	P	12'W of R178	nov 10		RJ	P
178	110-112	nov 9	9:25	RT	# 20	2X3	P	@ N.E AT	nov 10		RJ	P
179	109-110	nov 9	9:30	RT	#20	1X2	P	@ N.E AT	nov 10		RJ	P
180	10-11-109-110	nov 10	1:05	TC	#20	2X4	P	TJ	nov 10		RJ	P
181	9-10-109	nov 10	1:16	TC	#20	1X2	P	TJ	nov 10		RJ	P
182	9-108-109	nov 10	1:13	TC	#20	1X2	P	TJ	nov 10		RJ	P
183	9-108	nov 10	1:23	TC	#20	1X7	DS-51A		nov 10		RJ	P
184	9-108	nov 10	1:27	TC	#20	2X4	DS-51	cap cross seam 20'	nov 10		RJ	P
185	9-108	nov 10	1:30	TC	#20	1X8	DS-51B		nov 10		RJ	P
186	108-109	nov.9	9:25	RT	#20	2X5	DS-46	19'W / 22'E of R182	nov 10		RJ	P
187	107-108	nov.7	4:35	SS	#10	1X3	P	@ N E AT	nov 10		RJ	P
188	8-9-107-108	nov 7	4:30	SS	#10	3X8	P	TJ	nov 10		RJ	P
189	7-8-106-107	nov 7	4:23	SS	#10	8X4	P	TJ	nov 10		RJ	P

Repair Type: P=Patch DS= Destructive Test Location

Location: TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: #1000-332

Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Repair Time	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Test Time	Tester Int.	Result P=Pass F=Fail
190	105-106	Nov 7	4:24	SS	#10	1X2	P	@ N. AT	Nov 10		RJ	P
191	7-105-106	Nov 7	4:21	SS	#10	1X2	P	TJ	Nov 10		RJ	P
192	6-7-105	Nov 7	4:20	SS	#10	2X5	P	TJ	Nov 10		RJ	P
193	5-6-105	Nov 7	4:17	SS	#10	2X2	P	TJ	Nov 10		RJ	P
194	5-6	Nov. 7	4:16	SS	#10	2X5	P	671'N / 5'W of R193	Nov 10		RJ	P
195	5-6	Nov 7	4:12	SS	#10	1X2	P	644'N / 27'W of R194	Nov 10		RJ	P
196	14-13-111	Nov 7	4:00	TC	#20	1X2	P	TJ	Nov 10		RJ	P
197	13-14	Nov 7	3:50	TC	#20	2X11	Cap	500'N / 10'N of R198	Nov 10		RJ	P
198	13-14	Nov 7	3:45	TC	#20	1X2	P	487'N / 10'S of R197	Nov 10		RJ	P
199	13-14	Nov 7	2:53	TC	#20	2X3	P	423'N	11/10		RJ	P
200	12-13	Nov 7	3:00	TC	#20	2X3	P	425'N	11/10		RJ	P
201	11-12	Nov 7	3:05	TC	#20	2X2	P	429'N	11/10		RJ	P
202	11-12	Nov 12	2:10	SS	#10	1X1	P	344'N	Nov 12		RJ	P
203	10-11	Nov 7	3:10	TC	#20	2X2	P	429'N / beside R45	11/10		RJ	P
204	9-10	Nov 7	3:18	TC	#20	3X4	P	432'N	11/10		RJ	P
205	8-9	Nov 9	10:00	RT	#20	2X3	P	603'N / 63'N of R206	11-10		RJ	P
206	8-9	Nov 9	10:05	RT	#20	2X5	DS-45	538'N	11-10		RJ	P
207	8-9	Nov 7	3:20	TC	#20	2X3	P	433'N	11-10		RJ	P
208	6-7	Nov 7	3:45	SS	#10	3X5	Boot	498'N	11-10		RJ	P
209	6-7	Nov 7	2:32	SS	#10	2X5	P	436'N	11-10		RJ	P
210	5-6	Nov 7	2:58	SS	#10	1X1	P	497'N / 10'S of R211	11-10		RJ	P

Repair Type P=Patch DS= Destructive Test Location

Location TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Page: 11

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: # 1000-332

Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Repair Time	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Test Time	Tester Int.	Result P=Pass F=Fail
211	5-6	Nov. 7	2:59	SS	#10	1X1	P	507'N | 10'N of R 210	Nov 10		RJ	P
212	5-6	Nov 7	3:00	SS	#10	1X2	P	519'N | 12'N of R 211	Nov 10		RJ	P
213	5-6	Nov 7	3:12	SS	#10	2X5	DS-47	533'N | 14'N of R212	Nov 10		RJ	P
214	5-6	Nov 7	4:09	SS	#10	1X2	P	575'N | 30'S of R215	Nov 10		RJ	P
215	5-6	Nov 7	4:10	SS	#10	1X2	P	606'N | 30'N of R214	Nov 10		RJ	P
216	4-5	-	cap -					444'N cap				
217	4-5	Nov 9	10:10	RT	#20	2X5	DS50	588'N	Nov 10		RJ	P
218	3-4	Nov 11	11:35	SS	#10	2X5	DS-44	490'N	Nov 10		RJ	P
219	1-51	Nov 9	10:20	RT	#20	1X2	P	595'N | 20'N of R220	Nov 10		RJ	P
220	1-51	Nov 9	10:25	RT	#20	1X2	P	576'N	Nov 10		RJ	P
221	1-51	Nov 9	10:30	RT	#20	1X1	P	567'N	Nov 10		RJ	P
222	1-51	Nov 9	10:35	RT	#20	1X2	P	552'N	Nov 10		RJ	P
223	1-51	Nov 9	10:40	RT	#20	1X2	P	531'N	Nov 10		RJ	P
224	1-51	Nov 9	10:45	RT	#20	1X1	P	515'N	Nov 10		RJ	P
225	1-51	Nov. 11	11:28	SS	#10	2X3	P	449'N	Nov 10		RJ	P
226	1-51	Nov. 9	4:15	SS	#10	2X12	cap	391'	Nov. 11		RJ	P
227	1-51	Nov 11	11:00	SS	#10	2X5	DS-24	195'N	Nov 10		RJ	P
228	1-51	Nov 11	9:25	SS	#10	1X3	P	24'N	Nov 11		RJ	P
229	1-51	Nov 11	9:32	SS	#10	2X2	P	13'N	Nov 11		RJ	P
230	1-51	Nov 11	9:10	SS	#10	1X2	P	@ S. AT	Nov 11		RJ	P
231	51-52	Nov 11	10:48	SS	#10	2X2	P	98'N	Nov 11		RJ	P

Repair Type Location P=Patch DS= Destructive Test Location TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: # 1000-332

Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Repair Time	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Test Time	Tester Int.	Result P=Pass F=Fail
232	P 51-52	nov. 9	4:20	SS	#10	2X5	DS-26	404'N	nov 10		RJ	P
233	51-52	nov 9	10:50	RT	#20	2X5	P	514'N	nov 10		RJ	P
234	51-52	nov. 9	10:55	RT	#20	2X2	P	523'N | 10'N of R233	nov 10		RJ	P
235	52-53	nov 9	11:05	RT	#20	2X5	P	@ N. AT	nov 10		RJ	P
236	52-53	nov 9	11:00	RT	#20	2X5	DS-43	568'N	nov 10		RJ	P
237	52-53	nov 9	11:30	RT	#20	3X5	P	505'N	nov 10		RJ	P
238	52-53	nov 9	11:35	RT	#20	2X5	DS-25	485'N	nov 10		RJ	P
239	52-53	nov 9	11:40	RT	#20	5X6	Boot	378'N	nov 10		RJ	P
240	52-53	nov 9	3:16	SS	#10	2X3	P	333'N	nov 10		RJ	P
241	52-53	nov 11	10:50	SS	#10	1X2	P	88'N	nov 11		RJ	P
242	52-53	nov. 11	10:55	SS	#10	2X6	P	46'N	nov 11		RJ	P
243	53-54	nov 11	9:07	SS	#10	1X1	P	3'N	nov 11		RJ	P
244	53-54	nov 11	8:19	SS	#10	2X5	DS-21	100'N	nov 11		RJ	P
245	53-54	nov 9	3:15	SS	#10	2X4	P	311'N	nov 11		RJ	P
246	54-55	nov 9	3:10	SS	#10	2X5	DS-27	244'N	nov 11		RJ	P
247	55-56	nov 11	8:50	SS	#10	1X1	P	9'N	nov. 11		RJ	P
248	55-56	nov 11	8:25	SS	#10	2X5	DS-28	120'N	nov 11		RJ	P
249	55-56	nov. 9	3:04	SS	#10	3X3	P	264'N	nov 10		RJ	P
250	55-56	nov 9	3:20	RT	#20	2X13	P	390'N-402'N	nov 11		RJ	P
251	55-56	nov 9	3:15	RT	#20	2X6	DS-29	421'N	nov 11		RJ	P
252	56-57	nov 11	8:35	SS	#10	2X5	DS-39	55'N	nov 11		RJ	P

Repair Type P=Patch DS= Destructive Test Location

Location TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: # 1000 -332

Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Repair Time	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Test Time	Tester Int.	Result P=Pass F=Fail
253	57-62	Nov 11	8:34	SS	#10	1X1	P	@ S AT	Nov 11		RJ	P
254	57-58-62	Nov 10	11:17	SS	#10	2X3	P	TJ	Nov 11		RJ	P
255	57-58	Nov 10	2:49	SS	#10	2X3	P	241'N | 60'N of R254	Nov 11		RJ	P
256	57-58	Nov 9	2:35	SS	#10	2X3	P	58'N of R255	Nov 11		RJ	P
257	57-58	Nov 9	2:30	SS	#10	1X2	P	16'n of R256	Nov 11		RJ	P
258	58-59	Nov 10	8:32	SS	#10	1X1	P	21'n of R259 | 391'n	Nov 11		RJ	P
259	58-59	Nov 9	2:23	SS	#10	1X2	P	8'N of R260 | 370'n	Nov 11		RJ	P
260	58-59	Nov 9	2:24	SS	#10	1X2	P	33'N of R261 | 363'n	Nov 11		RJ	P
261	58-59	Nov 9	2:25	SS	#10	1X2	P	7'N of R262 | 327'n	Nov 11		RJ	P
262	58-59	Nov 9	2:28	SS	#10	2X5	DS-32	37'N of R263 | 320'n	Nov 11		RJ	P
263	58-59	Nov 9	2:37	SS	#10	2X3	P	7'N of R264 | 262'n	Nov 11		RJ	P
264	58-59	Nov 9	2:45	SS	#10	1X1	P	47'n of R265 | 255'n	Nov 11		RJ	P
265	58-59	Nov 10	11:10	SS	#10	2X3	P	33'n of R266 | 210'n	Nov 11		RJ	P
266	58-59-62	Nov 10	11:15	SS	#10	5X6	boot	TJ, 182'n | 8'n of R267	Nov 11		RJ	P
267	59-62-63	Nov 10	11:21	SS	#10	5X5	P	TJ	Nov 11		RJ	P
268	62-63	Nov 10	5:00	SS	#10	1X1	P	@ S AT	Nov 11		RJ	P
269	63-64	Nov 10	4:44	SS	#10	1X1	P	@ S AT	Nov 11		RJ	P
270	59-60-63-64	Nov 10	11:30	SS	#10	4X5	P	TJ	Nov 11		RJ	P
271	59-60	Nov 10	11:32	SS	#10	1X1	P	25'N of R270	Nov 11		RJ	P
272	59-60	Nov 9	2:40	SS	#10	1X2	P	94'N of R271	Nov 11		RJ	P
273	60-61	Nov 10	11:01	SS	#10	2X5	DS-31	259'N | 87'N of R274	Nov 11		RJ	P

Repair Type Location: P=Patch DS= Destructive Test Location TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Page: 14

Project Name: Ameren, Ash Pond A
Project Number: # 1000-332
QA/QC Name: Michelle Casimiro
Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Repair Time	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Test Time	Tester Int.	Result P=Pass F=Fail
274	60-61-64	nov 10	1:30	SS	#10	1x3	P	TJ	nov 11		RJ	P
275	65A-61-64-66	nov 10	1:45	SS	#10	2x24	cap	cross seam / TJ	nov. 13		RJ	P
276	64-65-65A	nov 10	1:50	SS	#10	1x2	P	TJ	nov 11		RJ	P
277	64-65	nov 10	4:35	SS	#10	1x1	P	@ S AT	nov 11		RJ	P
278	65-66	nov 10	4:30	SS	#10	1x1	P	@ S AT	nov 11		RJ	P
279	65-66	nov 10	3:39	SS	#10	2x6	DS-33	95'N	nov 11		RJ	P
280	65-66	nov 10	3:35	SS	#10	2x4.	P	111'N / 11'N of R279	nov 11		RJ	P
281	65-65A-66	nov 10	2:15	SS	#10	2x2	P	TJ	nov 11		RJ	P
282	66-67	nov 10	2:30	SS	#10	2x25	cap	175'N - 200'N / 47'n of R283	nov 11		RJ	P
283	66-67	nov 10	3:34	SS	#10	2x3	P	126'N / 14'N of R284	nov 11		RJ	P
284	66-67	nov. 10	3:40	SS	#10	2x5	DS-35	109'N	nov 11		RJ	P
285	66-67	nov 10	4:25	SS	#10	2x6	P	@ S. AT	nov 11		RJ	P
286	67-68	nov 10	4:22	SS	#10	1x1	P	@ Southwest A.T	nov 11		RJ	P
287	67-68-69	nov 10	4:20	SS	#10	2x3	P	TJ	nov 11		RJ	P
288	67-69-70	nov 10	4:02	SS	#10	2x3	P	TJ	nov 11		RJ	P
289	67-70-71	nov 10	4:00	SS	#10	2x2	P	TJ	nov 11		RJ	P
290	67-71-72	nov 10	3:55	SS	#10	1x2	P	TJ	nov 11		RJ	P
291	67-72-73	nov 10	3:54	SS	#10	1x2	P	TJ	nov 11		RJ	P
292	67-73-74	nov 10	3:51	SS	#10	1x1	P	TJ	nov 11		RJ	P
293	67-74-75	nov 10	3:19	SS	#10	2x3	P	TJ	nov 11		RJ	P
294	74-75	nov 10	3:16	SS	#10	1x2	P	38'N of R293 / 34'E	nov 11		RJ	P

Repair Type P=Patch DS= Destructive Test Location
Location TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Project Name: Ameren, Ash Pond A
QA/QC Name: Michelle Casimiro
Project Number: #1000-332
Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Repair Time	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Test Time	Tester Int.	Result P=Pass F=Fail
295	74-75	Nov. 10	3:14	SS	#10	1X1	P	@ W. AT	Nov 12		RJ	P
296	75-76	Nov 10	3:10	SS	#10	2X5	DS-40	39'E / 31'W of R297	Nov 12		RJ	P
297	67-75-76	Nov 10	3:00	SS	#10	1X1	P	TJ	Nov 11		RJ	P
298	67-75	Nov 10	3:03	SS	#10	2X5	DS-41	8'N of R293	Nov 11		RJ	P
299	67-76-77	Nov. 10	2:39	SS	#10	1X1	P	TJ	Nov 11		RJ	P
300	67-77-79	Nov 10	2:38	SS	#10	1X2	P	TJ	Nov 11		RJ	P
301	77-78-79	Nov 10	2:42	SS	#10	2X6	P	TJ	Nov 12		RJ	P
302	78-80	Nov. 10	10:55	SS	#10	2X5	DS-36	19'E / 32'W of R303	Nov 11		RJ	P
303	78-79-80	Nov. 10	2:43	SS	#10	1X1	P	TJ	Nov 11		RJ	P
304	67-79-80	Nov 10	2:37	SS	#10	1X2	P	TJ	Nov 11		RJ	P
305	67-80-81	Nov 10	2:36	SS	#10	1X1	P	TJ	Nov 11		RJ	P
306	80-81	Nov 10	10:50	SS	#10	1X3	P	@ W. AT	Nov 11		RJ	P
307	81-82	Nov 10	10:49	SS	#10	2X5	DS-34	10'E / 12'W of R308	Nov 11		RJ	P
308	81-82-83	Nov 10	10:48	SS	#10	2X2	P	TJ	Nov 11		RJ	P
309	67-81-83	Nov 10	10:35	SS	#10	2X3	P	TJ	Nov 11		RJ	P
310	67-83-84	Nov 10	10:52	SS	#10	1X1	P	TJ	Nov 11		RJ	P
311	67-84-85	Nov 10	10:31	SS	#10	2X9	P	TJ	Nov 11		RJ	P
312	84-85	Nov 10	9:55	SS	#10	1X1	P	@ W. AT	Nov 12		RJ	P
313	85-86	Nov 10	9:51	SS	#10	1X2	P	@ W. AT	Nov 12		RJ	P
314	66-67-85	Nov. 10	10:38	SS	#10	1X1	P	TJ	Nov 11		RJ	P
315	66-85-86	Nov. 10	10:15	SS	#10	3X4	P	TJ	Nov 11		RJ	P

Repair Type P=Patch DS= Destructive Test Location
Location TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Project Name: Ameren. Ash Pond A

Project Number: # 1557 - 332

QA/QC Name: Michelle Casimiro

Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Repair Time	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Test Time	Tester Int.	Result P=Pass F=Fail
316	61-66-86-87	Nov. 10	10:08	SS	#10	1X4	P	TJ	Nov 11		RJ	P
317	86-87	Nov. 10	9:44	SS	#10	1X2	P	7'E of R318 / 21'E	Nov 11		RJ	P
318	86-87	Nov. 10	9:45	SS	#10	1X2	P	9'E of R319 / 12'E	Nov 11		RJ	P
319	86-87	Nov 10	9:47	SS	#10	1X2	P	2'E / 9'w of R318	Nov 11		RJ	P
320	61-87	Nov. 10	10:06	SS	#10	1X2	P	9'N of R316	Nov 11		RJ	P
321	61-87-89	Nov. 10	4:30	SS	#10	1X4	P	TJ	Nov 11		RJ	P
322	87-88-89	Nov. 10	9:15	SS	#10	3X8	P	TJ	Nov 11		RJ	P
323	87-88	Nov. 10	9:25	SS	#10	2X5	DS-42	16'E / 6'NW of R322	Nov 11		RJ	P
324	87-88	Nov 10	9:26	SS	#10	1X1	P	1'NW / 14'W of R323	Nov 11		RJ	P
325	88-89	Nov 10	9:35	SS	#10	1X1	P	@ NW AT.	Nov 11		RJ	P
326	89-90	Nov 10	11:56	SS	#10	2X4	P	@ NW AT.	Nov 11		RJ	P
327	89-90	Nov 10	8:48	SS	#10	1X2	P	11'NW of R328 / 50'S	Nov 11		RJ	P
328	60-61-89-90	Nov 10	4:32	SS	#10	1X4	P	TJ	Nov 11		RJ	P
329	60-90-92	Nov 10	4:34	SS	#10	1X1	P	TJ	Nov 11		RJ	P
330	59-60-92	Nov 10	4:35	SS	#10	1X1	P	TJ	Nov 11		RJ	P
331	90-91-92	Nov 10	4:37	SS	#10	1X1	P	TJ	Nov 11		RJ	P
332	90-91	Nov 10	8:55	SS	#10	2X3	P	12'S / 40'N of R331	Nov 11		RJ	P
333	91-93	Nov 11	10:00	SS	#10	2X4	P	@ N.AT	Nov. 11		RJ	P
334	91-93	Nov 10	8:20	SS	#10	1X1	P	4'N of R335	Nov 11		RJ	P
335	91-92-93	Nov. 10	8:18	SS	#10	1X1	P	TJ	Nov 11		RJ	P
336	59-92-93	Nov 10	4:45	SS	#10	2X9	P	TJ	Nov 11		RJ	P

Repair Type P=Patch DS= Destructive Test Location

Location TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Page: 17

Project Name: Ameren, Ash Pond A
QA/QC Name: Michelle Casmiro

Project Number: # 1000 - 332
Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Repair Time	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Test Time	Tester Int.	Result P=Pass F=Fail
337	59-93	Nov 10	4:47	SS	#10	2x4	P	8's of R338 / beside R336	Nov 11		RJ	P
338	58-59-93	Nov. 10	4:51	SS	#10	2x3	P	TJ	Nov 11		RJ	P
339	58-93-94	Nov 10	3:28	SS	#10	1x1	P	TJ	Nov 11		RJ	P
340	93-94	Nov. 10	3:30	SS	#10	2x4	P	33's / 31'N of R339	Nov 11		RJ	P
341	95-96	Nov. 10	3:00	SS	#10	1x1	P	4's	Nov 11		RJ	P
342	57-58-94-95	Nov 9	3:25	RT	#20	2x5	P	TJ	Nov 11		RJ	P
343	56-57-95-96	Nov 9	3:10	RT	#20	2x7	P	TJ	Nov 11		RJ	P
344	56-96-97	Nov. 9	2:30	RT	#20	2x4	P	TJ	Nov 11		RJ	P
345	55-56-97	Nov 9	2:26	RT	#20	2x2	P	TJ	Nov 11		RJ	P
346	55-97-99	Nov 9	2:23	RT	#20	2x2	P	TJ	Nov 11		RJ	P
347	97-98-99	Nov 9	2:40	RT	#20	1x1	P	TJ	Nov 11		RJ	P
348	97-98	Nov 9	2:45	RT	#20	1x1	P	9'N of R347	Nov 11		RJ	P
349	97-98	Nov 9	2:50	RT	#20	1x3	P	@ N. AT	Nov 11		RJ	P
350	98-100	Nov 9	2:10	RT	#20	1x3	P	@ N. AT	Nov 11		RJ	P
351	98-99-100	Nov 9	2:05	RT	#20	1x1	P	TJ	Nov 11		RJ	P
352	99-100	Nov 9	2:08	RT	#20	1x1	P	11'N of R353	Nov 11		RJ	P
353	99-100-101	Nov 9	2:13	RT	#20	2x10	P-Cap	TJ / beside R354	Nov 11		RJ	P
354	54-55-99-101	Nov 9	2:20	RT	#20	3x7	P	TJ	Nov 11		RJ	P
355	54-101	Nov 9	1:40	RT	#20	2x5	DS-38	9'E of R354 / 8'W of R356	Nov 11		RJ	P
356	53-54-101-102	Nov. 9	11:40	RT	#20	3x4	P	TJ	Nov 11		RJ	P
357	100-101-102	Nov 9	1:35	RT	#20	2x2	P	TJ	Nov 11		RJ	P

Repair Type P=Patch DS= Destructive Test Location
Location TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: # 1000-332

Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Repair Time	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Test Time	Tester Int.	Result P=Pass F=Fail
358	100-102	Nov 9	1:45	RT	#20	2X5	DS-37	16'N of R357	Nov 10		RJ	P
359	100-102	Nov 9	1:55	RT	#20	1X1	P	2'N of R358	Nov 10		RJ	P
360	100-102	Nov. 9	2:00	RT	#20	1X2	P	1'N of R359	Nov. 10		RJ	P
361	102-103-104	Nov. 11	10:30	SS	#10	4X27	Extension Patch	@ N AT	Nov 10		RJ	P
362	53-104	Nov 9	11:20	RT	#20	1X5	P	@ N.AT	Nov. 10		RJ	P
363	53-103-104	Nov 9	11:10	RT	#20	2X2	P	TJ	Nov. 10		RJ	P
364	53-102-103	Nov 9	11:25	RT	#20	2X2	P	TJ	Nov 10		RJ	P
365	3-4-135	Nov. 12	8:10	SS	#10	4X4	P	445'N	Nov. 12		RJ	P
366	2-3-133	Nov 11	1:45	SS	#10	4X4	P	443'N	Nov. 11		RJ	P
367	P3-133	Nov. 12	9:15	SS	#10	3X5	DS-58	314'N	Nov. 12		RJ	P
368	P2-133	Nov 12	9:10	SS	#10	3X5	DS-59	321'N	Nov 12		RJ	P
369	P31-136	Nov 11	3:20	TC	#20	1X1	P	105'W / 2'N of R370	Nov 12		RJ	P
370	P29-136	Nov 11	3:25	TC	#20	1X1	P	105'W / 2'S of R369	Nov 12		RJ	P
371	P31-136	Nov 11	3:30	TC	#20	2X5	P	46'W	Nov 12		RJ	P
372	29-136	Nov 11	3:34	TC	#20	1X1	P	49'W	Nov 12		RJ	P
373	31-136	Nov 11	4:25	TC	#20	2X5	DS-60	69'W	Nov 11		RJ	P
374	22-137	Nov 11	3:40	TC	#20	1X2	P	80'N / 1'W of R375	Nov 11		RJ	P
375	23-28-137	Nov 11	3:45	TC	#20	2X3	P	TJ	Nov 12		RJ	P
376	22-137	Nov 11	3:50	TC	#20	1X2	P	61'N	Nov 12		RJ	P
377	22-137	Nov 11	3:55	TC	#20	1X2	P	55'N	Nov 12		RJ	P
378	22-137	Nov 11	4:06	TC	#20	1X3	P	29'N	Nov 12		RJ	P

Repair Type P=Patch DS= Destructive Test Location

Location TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Project Name: Ameren, Ash Pond A
QA/QC Name: Michelle Casimiro

Project Number: #1000-332
Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Repair Time	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Test Time	Tester Int.	Result P=Pass F=Fail
379	23-137	Nov 11	4:05	TC	#20	1X2	P	11'n	Nov 11		RJ	P
380	22-137	Nov 11	4:10	TC	#20	1X3	P	@ N.E AT	Nov 11		RJ	P
381	23-137	Nov 11	4:13	TC	#20	1X1	P	@ N. AT	Nov 11		RJ	P
382	30-31-32	Nov 11	9:04	TC	#20	3X97	Cap	157'w-253'w	Nov 11		RJ	P
383	21-22	Nov 12	9:56	TC	#20	3X24	D14 B1	Cap 0-24'n	Nov. 12		RJ	P
384	2-3-134	Nov 12	11:40	SS	#10	3X4	P	31'n	Nov 12		RJ	P
385	3-134	Nov 12	11:45	SS	#10	2X6	P	25'n-30'n	Nov 12		RJ	P
386	2-134	Nov. 12	10:46	SS	#10	1X1	P	22'n	Nov 12		RJ	P
387	2-134	Nov 12	10:55	SS	#10	1X1	P	3'n	Nov 12		RJ	P
388	3-134	Nov 12	10:51	SS	#10	1X2	P	2'n	Nov 12		RJ	P
389	3-138	Nov 12	11:05	SS	#10	1X1	P	4'n	Nov 12		RJ	P
390	4-138	Nov 12	11:05	SS	#10	1X1	P	2'n	Nov 12		RJ	P
391	4-138	Nov 12	10:35	SS	#10	2X3	P	56'n	Nov 12		RJ	P
392	4-138	Nov 12	10:29	SS	#10	1X2	P	88'n	Nov 12		RJ	P
393	4-138	Nov 12	10:28	SS	#10	1X2	P	96'n	Nov. 12		RJ	P
394	4-138	Nov 12	10:21	SS	#10	2X5	DS-61	131'n	Nov 12		RJ	P
395	4-138	Nov 12	10:15	SS	#10	1X1	P	167'n	Nov 12		RJ	P
396	3-138	Nov 12	10:17	SS	#10	1X1	P	167'n	Nov 12		RJ	P
397	3-4-135	Nov 12	8:30	SS	#10	3X5	P	352'n	Nov 12		RJ	P
398	4-141	Nov 12	8:15	SS	#10	1X1	P	446'n	Nov 12		RJ	P
399	5-141	Nov 12	8:17	SS	#10	1X1	P	445'n	Nov 12		RJ	P

Repair Type P=Patch DS= Destructive Test Location
Location TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Project Name: Ameren, Ash Pond A   Project Number: #1000-332

QA/QC Name: Michelle Casimiro   Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Repair Time	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Test Time	Tester Int.	Result P=Pass F=Fail
400	4-5-141	Nov. 12	8:37	SS	#10	4X4	P	340'n	Nov 12		RJ	P
401	4-5	Nov 12	8:45	SS	#10	1X2	P	319'n	Nov 12		RJ	P
402	4-5	Nov 12	9:26	SS	#10	1X2	P	294'n	Nov 12		RJ	P
403	4-5	Nov 12	9:22	SS	#10	1X1	P	275'n	Nov 12		RJ	P
404	8-140	Nov. 12	1:45	SS	#10	2X5	DS-63	207'n	Nov 12		RJ	P
405	7-140	Nov. 12	1:40	SS	#10	2X5	DS-64	162'n	Nov 12		RJ	P
406	7-140	Nov 12	11:33	SS	#10	1X1	P	6'n	Nov 12		RJ	P
407	8-140	Nov 12	11:35	SS	#10	1X2	P	3'n	Nov 12		RJ	P
408	81-136	Nov 12	10:30	TC	#20	2X44	cap	43'w-92'w under cap P-136	Nov. 12		RJ	P
409	7-139	Nov. 12	1:59	SS	#10	2X5	DS-62	367'n	Nov 12		RJ	P
410	7-139	Nov. 12	10:00	SS	#10	1X1	P	320'N	Nov 12		RJ	P
411	8-139	Nov 12	10:02	SS	#10	1X1	P	319'N	Nov 12		RJ	P
412	P3-cap	Nov 11	2:40	SS	#10	2X5	DX-30	312'n	Nov 12		RJ	P
413	7-140	Nov 12	1:40	SS	#10	1X1	P	286'n	Nov 12		RJ	P
414	8-140	Nov 12	1:43	SS	#10	1X2	P	287'n	Nov 12		RJ	P
415	5-6	Nov 12	2:20	SS	#10	3X5	DS-3A	9'N	Nov 12		RJ	P
416	5-6	Nov 12	11:15	SS	#10	1X1	P	5'N	Nov. 12		RJ	P
417	52-53	Nov 11	9:07	SS	#10	1X1	P	1'N	Nov. 11		RJ	P
418	7-139	Nov 12	9:38	SS	#10	1X1	P	437'N	Nov 12		RJ	P
419	8-139	Nov 12	9:37	SS	#10	1X1	P	437'N	Nov 12		RJ	P
420	119-120	Nov 10	11:20	TC	#20	2X15	DS48B	Cap 5-21'NE / 7'N of R167	Nov 10		RJ	P

Repair Type   P=Patch   DS= Destructive Test Location

Location   TJ=T Joint   AT=Anchor Trench   EXT=Extrusion Weld

National Lining Systems, Inc.

Repair / Vacuum Test Log

Project Name: Ameren, Ash Pond A

QA/QC Name: Michelle Casimiro

Project Number: # 1000-332

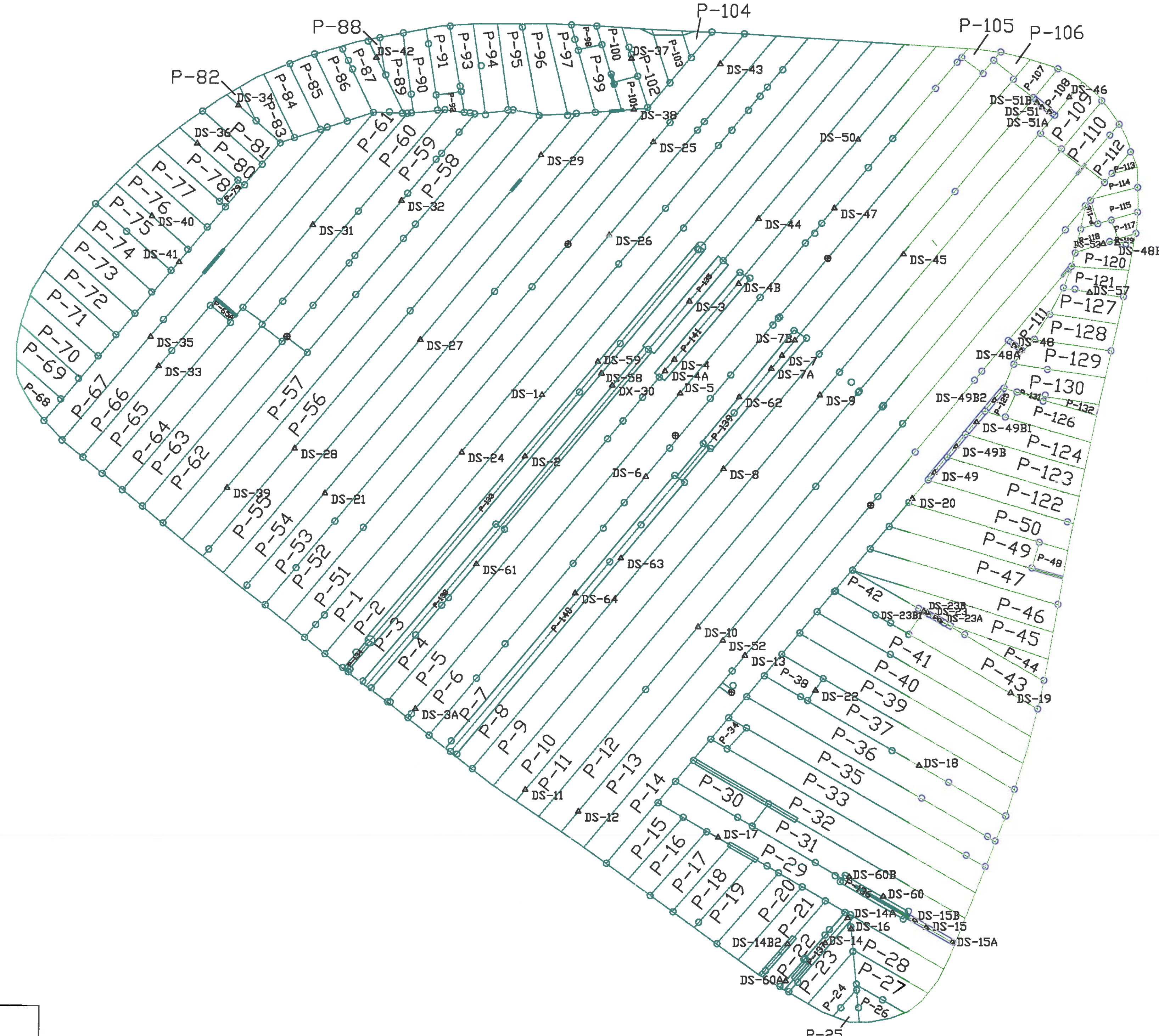
Material Type: 40 mil

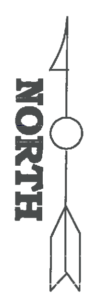
Secondary [ ] Primary [ ]

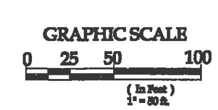
Repair No.	Seam / Panel No.	Repair Date	Repair Time	Operator Int.	Machine No.	Repair Size (ft)	Repair Type	Location	Test Date	Test Time	Tester Int.	Result P=Pass F=Fail
421	121-127	nov 10	10:35	TC	#20	1x2	P	9' NE of R422	nov. 10		RJ	P
422	121-127	nov 10	10:38	TC	#20	2x2	P	@ N.E AT	nov. 10		RJ	P
423	121-127	nov 10	11:15	TC	#20	2x5	DS-57	22'N of R157	nov. 10		RJ	P
424	128-129	nov 10	11:20	TC	#20	2x4	P	@ N.E AT	nov 12		RJ	P
425	31-136	nov 12	3:20	SS	#10	2x11	DS-60B	cap 44'W-55'W	nov 12		RJ	P
426	22-137	nov 12	3:28	SS	#10	2x17	CAP	cap 11'N-28'N	nov 12		RJ	P
427	22-137	nov 12	3:40	TC	#20	2x5	DS-60A	5'N / 3'N of R380	nov. 12		RJ	P
428	42-45	nov 10	3:05	TC	#20	2x8	D23B1	cap 1'W of R128	nov. 12		RJ	P
429	42-45	nov 10	3:06	TC	#20	1x2	P	beside R 428	nov 10		RJ	P
430	P10	nov 7	3:15	TC	#20	1x1	P	430'N / 8'W of R203	nov 10		RJ	P
431	14-124	nov 10	2:00	TC	#20	3x24	Cap	cross seam	nov 10		RJ	P
432	14-123	nov 10	1:57	TC	#20	2x20	DS 49B	cross seam	nov 10		RJ	P
433	14-122	nov 10	2:30	TC	#20	2x12	cap	cross seam	nov 10		RJ	P
434	14-122	nov 10	2:31	TC	#20	2x7	cap	cross seam	nov 10		RJ	P
435	14-125	nov. 13	8:30	SS	#10	2x21	DS-49B2	cap cross seam	nov 13		RJ	P
436	14-124	nov 12	9:50	TC	#20	3x23	DS-49B1	cap cross seam	nov. 12		RJ	P
437	21-22	nov 13	8:38	SS	#10	2x18	DS-14B2	cap 23-41'N	nov. 13		RJ	P
438	22-23	nov 7	11:15	SS	#10	2x5	DS-14	50'N	nov 12		RJ	P
439	17-29	nov 7	11:17	SS	#10	2x5	DS-17	10'E of R75	nov 12		RJ	P
440	12-13	nov 12	2:08	SS	#10	2x5	DS-52	200'N	nov 12		RJ	P
441	61-64-65A	nov 10	1:55	SS	#10	2x12	cap	TJ	nov 12		RJ	P

Repair Type P=Patch DS= Destructive Test Location

Location TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld







LEGEND

Panel Number	P-1...P-132
40 mil Textured HDPE Liner	
Fusion Seam	
Destructive Test DS-1...DS-64	△
Cap Strip	▭
Patch	○
Boot	⊕

National Lining Systems, Inc.
16970-3 San Carlos Blvd., Suite 191
Ft Myers, FL 33908

Phone: (863)248-0850
Fax: (863)248-0851

PROJECT: Crawford County, Illinois

Hutsonville Power Station - Ameren - Ash Pond "A"

ASBUILT DRAWING

Size	FSCM No.	Drawing No.	Rev.
		N/A	

DRAWN BY: MBT	Scale: 1" = 50'	DATE: April 27, 2016	Sheet: 1 of 1

National Lining Systems, Inc.

Page: ______

Panel Placement Log

Project Name: Ameren - Ash Pond D

Project Number: #1000-332

QA/QC Name: Michelle Casimiro

Material Type: 40 mil

Secondary [ ] Primary [ ]

Panel No.	Roll No.	Date	Length	Width	Square Feet	Comments
P1	#3949	nov. 5	45	22	990	
P2	3949	nov. 5	41	22	902	
P3	3949	nov. 5	37	22	814	
P4	3949	nov. 5	36	22	792	
P5	3949	nov. 5	14	5	35	Δ
P6	3949	nov 5	35	22	770	
P7	3949	nov. 5	48.5	22	1,067	45/52
P8	3949	nov. 5	54	22	1,188	52/56
P9	3949	nov. 5	57	22	1,254	56/58
P10	3949	nov. 5	58.5	22	1,287	58/59
P11	3949	nov 5	59	22	1,298	
P12	#3951	nov. 5	58.5	22	1,287	58/59
P13	3951	nov. 5	56.5	22	1,243	58/55
P14	3951	nov 5	54.5	22	1,199	55/54
P15	3951	nov. 5	54	22	1,188	15,314

National Lining Systems, Inc.

Seaming Log

Project Name: Ameren. Ash Pond D **Project Number:** # 1000-332

QA/QC Name: Michelle Casimiro. **Material Type:** 40 mil

Seam No.	Length (lf)	Date	Time	Operator Int.	Machine No.	Set Temp. Fahrenheit	Speed / Preheat	Comments
P1- P2	45	nov. 5	8:45	DE	W# 20	450	9	
P2. P3	41	nov. 5	9:00	DE	W# 20	450	9	
P3. P4	37	nov 5	8:57	JL	W# 12	450	9	
P4- P6	23	nov 5	9:28	JL	W# 12	450	9	
P4- P5	13	nov. 5	9:32	JL	W# 12	450	7	
P5- P6	14	nov. 5	9:06	JL	W# 12	450	7	
P6- P7	45	nov. 5	9:13	DE	W# 20	450	9	
P7- P8	52	nov. 5	9:24	DE	W# 20	450	9	
P8- P9	56	nov. 5	9:38	DE	W# 20	450	9	
P9- P10	58	nov. 5	9:39	JL	W# 12	450	9	
P10- P11	59	nov. 5	9:55	DE	W# 20	450	9	
P11- P12	59	nov. 5	9:57	JL	W# 12	450	9	
P12- P13	58	nov. 5	10:13	DE	W# 20	450	9	
P13- P14	55	nov. 5	10:08	JL	W# 12	450	9	
P14- P15	54	nov. 5	10:18	JL	W# 12	450	9	

ash Pond "D"

National Lining Systems, Inc.

Non-Destructive Test Log

Project Name: Ameren, Ash Pond D

Project Number: #1000-332

QA/QC Name: Michelle Casimiro

Material Type: 40'mil Textured HDPE Liner

Seam No.	Test Date	Tester Int.	Test Type A=Air V=Vacuum	Start Time	End Time	PSI Start	PSI End	Test P= Pass F=Fail	Test Length / Location
P1-P2	nov 7	LP	A	3:32	3:37	28	28	P	
P2-P3	nov. 7	LP	A	3:25	3:30	29	29	P	
P3-P4	nov 7	LP	A	3:25	3:30	32	31	P	
P4-P6	nov 7	LP	A	3:12	3:17	32	32	P	
P4-P5	nov 7	LP	A	3:25	3:26	28	27	P	
P5-P6	nov 7	LP	A	3:25	3:30	28	28	P	
P6-P7	nov 7	LP	A	1:18	1:23	29	29	P	
P7-P8	nov. 7	LP	A	3:12	3:17	30	28	P	
P8-P9	nov. 7	LP	A	3:12	3:17	31	30	P	
P9-P10	nov 7	LP	A	3:00	3:05	31	30	P	
P10-P11	nov 7	LP	A	3:00	3:05	28	28	P	
P11-P12	nov 7	LP	A	3:00	3:05	30	29	P	
P12-13	nov 7	LP	A	3:00	3:05	29	29	P	
P13-14	nov 7	LP	A	2:40	2:45	29	28	P	
P14-15	nov 7	LP	A	2:40	2:45	29	29	P	

National Lining Systems, Inc.

Repair / Vacuum Test Log

Page: ______ of ______

ash Pond "D"

Project Name: ameren, ash Pond D

Project Number: # 1000-332

QA/QC Name: Michelle Casimiro

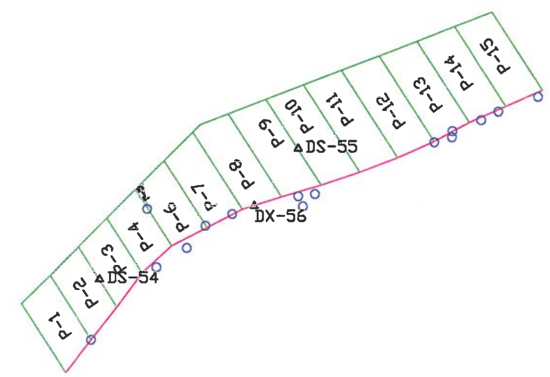
Material Type: 40 mil

Secondary [ ] Primary [ ]

Repair No.	Seam / Panel No.	Repair Date	Operator Int.	Machine No.	Repair Size (lf)	Repair Type	Location	Test Date	Tester Int.	Result P=Pass F=Fail
1	1 / 2	nov 9	SS	#10	3X5	P	TJ ✓	11/9	RJ	P
2	2 / 3	nov 9	SS	#10	2X5	DS-54	19'N ✓	11/9	RJ	P
3	existing / liner	nov 9	SS	#10	3X4	P	3'S of P4 ✓	11/9	RJ	P
4	4/5 / 6	nov 9	SS	#10	2X2	P	TJ ✓	11/9	RJ	P
5	6 / 7	nov 9	SS	#10	1X1	P	3'N ✓	11/9	RJ	P
6	existing / liner	nov 9	SS	#10	1X3	P	5'S of P6 / 20'E of R3 ✓	11/9	RJ	P
7	7 to existing liner	nov 9	SS	#10	4X10	P	19'E of R6 ✓	11/9	RJ	P
8	8 / EXIST	nov 9	SS	#10	2X5	DS-56	(DX) 12'E of R7	11/9	RJ	P
9	Existing liner	nov 9	SS	#10	3X7	P	1'S of R10 ✓	11/9	RJ	P
10	Existing liner	nov 9	SS	#10	1X1	P	1'N of P9 ✓	11/9	RJ	P
11	Existing / liner	nov 9	SS	#10	1X1	P	6'E of R10 ✓	11/9	RJ	P
12	9 / 10	nov 9	SS	#10	2X5	DS-55	25'N ✓	11/9	RJ	P
13	12 / 13	nov 9	SS	#10	2X2	P	1'N ✓	11/9	RJ	P
14	existing / liner	nov 9	SS	#10	1X2	P	3'S of P13 ✓	11/9	RJ	P
15	existing / liner	nov 9	SS	#10	1X1	P	2'n of R14 ✓	11/9	RJ	P
16	existing / liner	nov 9	SS	#10	2X3	P	10'W of R17 / 20'E of R15 ✓	11/9	RJ	P
17	existing / liner	nov 9	SS	#10	2X2	P	10'E of R16 ✓	11/9	RJ	P
18	existing / liner	nov 9	SS	#10	2X7	P	3'S of P15 ✓	11/9	RJ	P
19	P1 / P15	Nov 9	SS	#10	322'	Ext	So. Edge P-1 thru P-15 @ tie-in	11/9	RJ	P
	/									
	/									

Repair Type P=Patch DS= Destructive Test Location

Location TJ=T Joint AT=Anchor Trench EXT=Extrusion Weld



LEGEND

Panel Number	P-1...P-15
40 mil Textured HDPE Liner	
Fusion Seam	
Destructive Tests DS-54, DS-55, DX-56	△
Extrusion Weld	
Patch	○

GRAPHIC SCALE

0 25 50 100

(In Feet)
1" = 50 ft.

National Lining Systems, Inc. 16970-3 San Carlos Blvd., Suite 191 Ft Myers, FL 33908	**PROJECT: Crawford County, Illinois** Hutsonville Power Station - Ameren - Slope From Ash Pond "D" ASBUILT DRAWING			
Phone: (863)248-0850 Fax: (863)248-0851	Size	FSCM No.	Drawing No. N/A	Rev.
DRAWN BY: MBT	Scale: 1" = 50'	DATE: December 31, 2015	Sheet: 1 of 1	

APPENDIX E

INSTALLER CERTIFICATION

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: National Lining Systems **DATE :** 11/5/2015

GEOSYNTHETIC MATERIAL: 40 mil HDPE

AREA ACCEPTED:

Ash Pond D slope at the Bottom Ash Pond
(Panels 1D – 15D)

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: [signature]

Printed Name of Installer's Authorized Representative: Khamkhoun Thayravanh

Title of Installer's Authorized Representative: PM

Date: 11-5-15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): [signature]

Printed Name of CQA Officer-in-Absentia: Jessie Hahn

Date: 11/5/2015

Signature of CQA Officer: ______

Printed Name of CQA Officer: ______

Date: ______

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: W B Koester

DATE : 11/20/2015

GEOSYNTHETIC MATERIAL: Protective Cover

AREA ACCEPTED:

Ash Pond D slope

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: Chris Atkinson

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 11/20/15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): Jessie Hahn

Printed Name of CQA Officer-in-Absentia: Jessie Hahn

Date: 11/20/15

Signature of CQA Officer: ______

Printed Name of CQA Officer: ______

Date: ______

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: National Lining Systems **DATE :** 10/30/15

GEOSYNTHETIC MATERIAL: 40 mil HDPE

AREA ACCEPTED:

Panel 1 through 14

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: [signature]

Printed Name of Installer's Authorized Representative: Kham Khoun Thayravanh

Title of Installer's Authorized Representative: NLS - Construction Mgr.

Date: 10-30-15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): Stephen Graham

Printed Name of CQA Officer-in-Absentia: STEPHEN GRAHAM

Date: 10/30/15

Signature of CQA Officer: ______________________

Printed Name of CQA Officer: ______________________

Date: ______________________

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: National Lining Systems **DATE :** 10/31/15

GEOSYNTHETIC MATERIAL: 40 mil HDPE

AREA ACCEPTED:

SouthEast Corner
(Panels 15 - 34)

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: [signature]

Printed Name of Installer's Authorized Representative: KhamKhoun Thayravanh

Title of Installer's Authorized Representative: CM.

Date: 10.31.15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): Stephen Graham

Printed Name of CQA Officer-in-Absentia: STEPHEN GRAHAM

Date: 10/30/15

Signature of CQA Officer: ______

Printed Name of CQA Officer: ______

Date: ______

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: National Lining Systems **DATE :** 11/01/2015

GEOSYNTHETIC MATERIAL: 40 mil HDPE

AREA ACCEPTED:

~~East~~ Panels 35 - 56

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: [signature]

Printed Name of Installer's Authorized Representative: Khamkhoun Thayravanh

Title of Installer's Authorized Representative: CM.

Date: 11-1-15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): [signature]

Printed Name of CQA Officer-in-Absentia: Jessie Hahn

Date: 11/01/2015

Signature of CQA Officer: ________

Printed Name of CQA Officer: ________

Date: ________

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: National Lining Systems **DATE :** 11/3/2015

GEOSYNTHETIC MATERIAL: 40 mil HDPE

AREA ACCEPTED:

Southwest corner of Ash Pond A
Panels 57-104

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: [signature]

Printed Name of Installer's Authorized Representative: Khamkhoun Thayravanh

Title of Installer's Authorized Representative: Construction Mg

Date: 11-3-15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): Jessie Hahn

Printed Name of CQA Officer-in-Absentia: Jessie Hahn

Date: 11/03/2015

Signature of CQA Officer: ______

Printed Name of CQA Officer: ______

Date: ______

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: National Lining Systems **DATE :** 11/04/2015

GEOSYNTHETIC MATERIAL: 40 mil HDPE

AREA ACCEPTED:

Panels 105 - 126 and The north end of Panels 1 - 14 ~~and~~ 24

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: [signature]

Printed Name of Installer's Authorized Representative: Khamkhoun Thayravanh

Title of Installer's Authorized Representative: CM

Date: 11.04.2015

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): Jessie Hahn

Printed Name of CQA Officer-in-Absentia: Jessie Hahn

Date: 11/04/2015

Signature of CQA Officer: ______

Printed Name of CQA Officer: ______

Date: ______

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: National Lining Systems **DATE :** 11/9/15

GEOSYNTHETIC MATERIAL: 40 mil textured HDPE

AREA ACCEPTED:

Panels 127-132

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: [signature]

Printed Name of Installer's Authorized Representative: Kham Khuon Thayravanh

Title of Installer's Authorized Representative: QA

Date: 11-9-15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): Jessie Hahn

Printed Name of CQA Officer-in-Absentia: Jessie Hahn

Date: 11/9/15

Signature of CQA Officer: ____________________

Printed Name of CQA Officer: ____________________

Date: ____________________

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: W B Koester **DATE:** 11/23/2015

GEOSYNTHETIC MATERIAL: Protective Cover

AREA ACCEPTED:

Road (3' thick minimum) from crown of East side of Ash Pond A extending toward the crown of Ash Pond A, reaching about half-way.

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: Chris Atkinson

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 11/23/15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): Jessie Hahn

Printed Name of CQA Officer-in-Absentia: Jessie Hahn

Date: 11/23/2015

Signature of CQA Officer: ______

Printed Name of CQA Officer: ______

Date: ______

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: W B Koester **DATE :** 11/24/2015

GEOSYNTHETIC MATERIAL: Protective Cover

AREA ACCEPTED:

Completed horseshoe-shaped haul road on liner and covered ~~and~~ area enclosed by road. (Road is between ramps on East Levee of Ash Pond A.)

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: [signature]

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 11/24/15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): [signature]

Printed Name of CQA Officer-in-Absentia: Jessie Hahn

Date: 11/24/15

Signature of CQA Officer: ______

Printed Name of CQA Officer: ______

Date: ______

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: WB Koester **DATE:** 11/25/15

GEOSYNTHETIC MATERIAL: Protective Cover

AREA ACCEPTED:
Extension of arc-shaped road to crest of Ash Pond A.

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: Chris Atkinson

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 11/25/15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): Jessie Hahn

Printed Name of CQA Officer-in-Absentia: Jessie Hahn

Date: 11/25/2015

Signature of CQA Officer: ______________________

Printed Name of CQA Officer: ______________________

Date: ______________________

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: WB Koester **DATE :** 11/30/15

GEOSYNTHETIC MATERIAL: Top Soil

AREA ACCEPTED: Dewatered haul road, removed top soil from borrow field.

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: Chris Atkinson

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 11/30/15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): Seth Lamble

Printed Name of CQA Officer-in-Absentia: Seth Lamble

Date: 11/30/2015

Signature of CQA Officer: ______________________

Printed Name of CQA Officer: ______________________

Date: ______________________

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: WB Koester **DATE:** 12/01/15

GEOSYNTHETIC MATERIAL: Protective Soil Cover

AREA ACCEPTED: Hauled shale to support & repair Haul road, On Ash Landfill A and borrow field Haul Road -Hauled & placed Protective soil cover on Ash Landfill A on the north west slope.

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: Ch Atk

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 12/01/15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): Seth Lamble

Printed Name of CQA Officer-in-Absentia: Seth Lamble

Date: 12/01/15

Signature of CQA Officer: ______

Printed Name of CQA Officer: ______

Date: ______

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: WB Koester **DATE:** 12-2-2015

GEOSYNTHETIC MATERIAL: Protective Cover

AREA ACCEPTED: Protective Soil cover placed on Ash Landfill A, minimum 3', on North west & north east slopes.
Shale was placed on haul road ramp to provide stable ramp.

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: [signature]

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 12/2/15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): [signature]

Printed Name of CQA Officer-in-Absentia: Seth Lambe

Date: 12-2-2015

Signature of CQA Officer: ______

Printed Name of CQA Officer: ______

Date: ______

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: W.B. Koester **DATE:** 12-3-15

GEOSYNTHETIC MATERIAL: Protective Cover

AREA ACCEPTED: Protective cover (3' thick minimum) from crown of west side of Ash Pond A extending along the west slope of Ash Pond A, reaching about halfway.

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: Chris Atkinson

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 12/3/15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): Seth Lamble

Printed Name of CQA Officer-in-Absentia: Seth Lamble

Date: 12-3-15

Signature of CQA Officer: ______

Printed Name of CQA Officer: ______

Date: ______

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: W.B. Koester **DATE:** 12-4-15

GEOSYNTHETIC MATERIAL: Protective Cove

AREA ACCEPTED: Protective cover (3' thick minimum) from crown of landfill, extending along the east slope and west slope of Ash Pond A, reaching about halfway.

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: [signature]

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 12/4/15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): [signature]

Printed Name of CQA Officer-in-Absentia: Seth Lamble

Date: 12-4-2015

Signature of CQA Officer: ______________________

Printed Name of CQA Officer: ______________________

Date: ______________________

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: WB Koester **DATE:** 12-5-15

GEOSYNTHETIC MATERIAL: Protective Cover

AREA ACCEPTED: Protective cover (3' thick minimum) from crown of landfill, extending along the west slope & crown of Ash Pond A, reaching about halfway. Folded levee material at northwest corner of Ash Pond A landfill with protective cove.

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: [signature]

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 12-5-15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): Seth Lamble

Printed Name of CQA Officer-in-Absentia: Seth Lamble

Date: 12-5-15

Signature of CQA Officer: ______

Printed Name of CQA Officer: ______

Date: ______

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: WB Koester **DATE:** 12-6-15

GEOSYNTHETIC MATERIAL: Protective Cover

AREA ACCEPTED: Protective cover (3' thick minimum) from crown of landfill, extending along the west slope and south slop of Ash Pond A, reaching about halfway
Folded levee material of ~~northwest corner of~~ onsite south boundary of Ash Pond A landfill, with Protective cover.

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: [signature]

Printed Name of Installer's Authorized Representative: Chris Arkinson

Title of Installer's Authorized Representative: Foreman

Date: 12-6-15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): [signature]

Printed Name of CQA Officer-in-Absentia: Seth Lamble

Date: 12-6-15

Signature of CQA Officer: ______

Printed Name of CQA Officer: ______

Date: ______

INSTALLER CERTIFICATE OF ACCEPTANCE

(Form CQAP-4.1)

INSTALLER: WB Koester **DATE:** 12/07/15

GEOSYNTHETIC MATERIAL: Protective Cover

AREA ACCEPTED: Protective cover of 3' in depth was placed and extended on the top (crown) and moved to the southwest, North and along the west slope of ash pond A to the extend of a little over half way.
Folded levee material of southeast & east boundary of Ash Pond A, with the Protective cover in place. 2848 yds

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: [signature]

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 12/7/15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): [signature]

Printed Name of CQA Officer-in-Absentia: Cassandra Baresel

Date: 12/7/15

Signature of CQA Officer: ______

Printed Name of CQA Officer: ______

Date: ______

INSTALLER CERTIFICATE OF ACCEPTANCE

(Form CQAP-4.1)

INSTALLER: WB Koester **DATE:** 12/08/15

GEOSYNTHETIC MATERIAL: Protective Cover

AREA ACCEPTED:

Placed Protective Cover in Ash Pond A Landfill from the excavated material of the borrow field. The protective cover was placed to The north moving around to the West, a little over center of Ash Pond A. Folded levee material of the Northeast and south boundaries of Ash pond A landfill. 2816 yds

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: [signature]

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 12/8/15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): [signature]

Printed Name of CQA Officer-in-Absentia: Cassandra Baresel

Date: 12/9/15

Signature of CQA Officer: ______

Printed Name of CQA Officer: ______

Date: ______

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: WB Koester **DATE:** 12/09/15

GEOSYNTHETIC MATERIAL: Protective Cover

AREA ACCEPTED:
Placed Protective Cover in Ash Pond A landfill from the borrow field excovation. The protective cover was plased on the West and northwest areas of ~~the~~ Ash Pond A just over the half way mark. Folded levee materral on the North boundries of Ash Pond A landfill, along with the south East. 2688 Yds

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: [signature]

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 12/9/15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): [signature]

Printed Name of CQA Officer-in-Absentia: Cassandra Baresel

Date: 12/9/15

Signature of CQA Officer: ______

Printed Name of CQA Officer: ______

Date: ______

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: WB Koester **DATE:** 12/10/15

GEOSYNTHETIC MATERIAL: Protective Cover

AREA ACCEPTED: Placed Protective Cover in Ash Pond A landfill. ~~Fill~~ Cover Material from borrow field. The Protective cover was place on The West & Northwest of the Ash Pond A Landfill.

2832 yds

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: [signature]

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 12/10/15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): [signature]

Printed Name of CQA Officer-in-Absentia: Cassandra Baresel

Date: 12/10/15

Signature of CQA Officer: ________

Printed Name of CQA Officer: ________

Date: ________

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: WB Koester **DATE:** 12/11/15

GEOSYNTHETIC MATERIAL: Protective Cover

AREA ACCEPTED: Placed Protective cover on the West and Northwest of Ash Pond A Landfill. Material used was from the borrow field.

2732 YDS

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: [signature]

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 12/11/15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): [signature]

Printed Name of CQA Officer-in-Absentia: Cassandra Baresel

Date: 12/12/15

Signature of CQA Officer: __________

Printed Name of CQA Officer: __________

Date: __________

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: WB Koester **DATE :** 12/12/15

GEOSYNTHETIC MATERIAL: ____________________

AREA ACCEPTED: Protective cover was placed on the North and around to the south west of Ash Pond A landfill.

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: [signature]

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 12/12/15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): [signature]

Printed Name of CQA Officer-in-Absentia: Cassandra Baresel

Date: 12/12/15

Signature of CQA Officer: ____________________

Printed Name of CQA Officer: ____________________

Date: ____________________

INSTALLER CERTIFICATE OF ACCEPTANCE

(Form CQAP-4.1)

INSTALLER: W B Koester **DATE:** 12/13/15

GEOSYNTHETIC MATERIAL: Protective Cover

AREA ACCEPTED: Placed protective cover on the northwest ~~corne~~ boundrie and around ~~to~~ the west. of Ash Pond A landfill

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: Chris Atkinson

Printed Name of Installer's Authorized Representative: Chris Atkinsow

Title of Installer's Authorized Representative: Foremaw

Date: 12/13/15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): [signature]

Printed Name of CQA Officer-in-Absentia: Cassandra Baresel

Date: 12/13/15

Signature of CQA Officer: ______

Printed Name of CQA Officer: ______

Date: ______

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: WB Koester **DATE:** 12/15/15

GEOSYNTHETIC MATERIAL: Protective Cover

AREA ACCEPTED: Placed protective cover to the ~~tha~~ West and along the Northwest Levee.

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: ______

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 12/15/15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): ______

Printed Name of CQA Officer-in-Absentia: Cassandra Baresel

Date: 12/15/15

Signature of CQA Officer: ______

Printed Name of CQA Officer: ______

Date: ______

INSTALLER CERTIFICATE OF ACCEPTANCE
(Form CQAP-4.1)

INSTALLER: WB Koester **DATE:** 12/16/15

GEOSYNTHETIC MATERIAL: Protective Cover

AREA ACCEPTED: Placed protective cover West to the levee & Southwest to the levee of Ash Pond A.

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: Chris Atkinson

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 12/16/15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): CB

Printed Name of CQA Officer-in-Absentia: Cassandra Baresel

Date: 12/16/15

Signature of CQA Officer: ______________________

Printed Name of CQA Officer: ______________________

Date: ______________________

INSTALLER CERTIFICATE OF ACCEPTANCE

(Form CQAP-4.1)

INSTALLER: WB Koester **DATE:** 12-17-15

GEOSYNTHETIC MATERIAL: Protective Cover

AREA ACCEPTED: Placed protective cover west to the levee and South west to the levee, of Ash Pond A
Scraped & graded placed protective cover of Ash Pond A.

INSTALLER: The undersigned authorized representative of the Installer certifies that he has visually inspected the substrate for the above referenced area and has found the surface to be acceptable for installation of the above referenced geosynthetic material on the date so noted.

The Installer shall be responsible for the integrity and suitability of the finished geosynthetic material from this date to completion of the installation.

CERTIFICATION OF ACCEPTANCE:

Signature of Installer's Authorized Representative: Chris Atkinson

Printed Name of Installer's Authorized Representative: Chris Atkinson

Title of Installer's Authorized Representative: Foreman

Date: 12-17-15

CERTIFICATE OF ACCEPTANCE RECEIVED BY CQA OFFICER:

Signature of CQA Officer-in-Absentia (if applicable): Seth Lamble

Printed Name of CQA Officer-in-Absentia: Seth Lamble

Date: 12-17-15

Signature of CQA Officer: ______

Printed Name of CQA Officer: ______

Date: ______

APPENDIX F

CALIBRATIONS

R. M. Wester and Associates, Inc.

UNITS: PCF

GAGE MODEL: C-MC3 SER: 30059559

CALIB DATE: 03/18/15
CALIB BAY: 1

SOURCE TYPE: GAMMA NEUTRON
SERIAL: C59559 A59559

STD COUNT: DENSITY: 23996
MOISTURE: 9500

** DENSITY CALIBRATION DATA **

DEPTH	MAGNESIUM 110.9	MAGN/ALUM 137.5	ALUMINUM 169.3	LIMESTONE 139.5	GRANITE 163.9
---------	---------	---------	---------	---------	---------
BS	17590	13156	9721	11500	9822
AC	34866	26390	19101	23670	19129
2	76432	55564	37135	50047	36888
4	67692	46511	28804	40268	28521
6	49332	31369	17725	26627	17818
8	31305	18347	9861	15454	9617
10	18817	10399	5600	8475	5557
12	11073	6226	3611	5100	3674

** DENSITY PERFORMANCE at 2000 kg/m^3 [125 pcf] **

DEPTH	A	B	C	CR	PREC	CE	RMSE
---------	---------	-----------	--------	------	-------	-------	-------
BS	3.42096	59.63820	0.17841	1.65	0.35	3.47	3.55
AC	5.32480	77.83057	0.12569	1.47	0.26	2.02	2.08
2	12.61018	84.89296	-0.32048	1.42	0.15	0.96	1.01
4	13.96427	71.82388	-0.27715	1.52	0.14	1.47	1.49
6	14.51101	57.13665	-0.11316	1.69	0.14	1.59	1.61
8	15.56107	43.09917	0.04512	2.01	0.15	0.76	0.82
10	15.50197	35.00970	0.07913	2.36	0.18	1.53	1.58
12	10.69081	32.67261	0.07496	2.51	0.25	2.35	2.40

** MOISTURE CALIBRATION DATA **

LOW W 0.0	HIGH W 33.0
------	------
488.0	5975.0

** MOISTURE PERFORMANCE at 160 kg/m^3 [10pcf] **

A(F)	B(E)	CR	PREC	RMSE
-------	-------	----	----	----
57.06920	2.93156	2.91	0.14	0.31

R. M. Wester and Associates, Inc.

UNITS: SI

GAGE MODEL: C-MC3 SER: 30059559

CALIB DATE: 03/18/15
CALIB BAY: 1

SOURCE TYPE:	GAMMA	NEUTRON	STD COUNT:	DENSITY:	23996
SERIAL:	C59559	A59559		MOISTURE:	9500

** DENSITY CALIBRATION DATA **

DEPTH	MAGNESIUM 1777	MAGN/ALUM 2203	ALUMINUM 2712	LIMESTONE 2235	GRANITE 2625
BS	17590	13156	9721	11500	9822
AC	34866	26390	19101	23670	19129
50	76432	55564	37135	50047	36888
100	67692	46511	28804	40268	28521
150	49332	31369	17725	26627	17818
200	31305	18347	9861	15454	9617
250	18817	10399	5600	8475	5557
300	11073	6226	3611	5100	3674

** DENSITY PERFORMANCE at 2000 kg/m^3 [125 pcf] **

DEPTH	A	B	C	CR	PREC	CE	RMSE
BS	3.42096	0.95528	0.17841	1.65	5.65	55.66	56.80
AC	5.32480	1.24669	0.12569	1.47	4.10	32.32	33.35
50	12.61018	1.35982	-0.32048	1.42	2.42	15.38	16.13
100	13.96427	1.15047	-0.27715	1.52	2.22	23.53	23.94
150	14.51101	0.91521	-0.11316	1.69	2.22	25.46	25.85
200	15.56107	0.69036	0.04512	2.01	2.45	12.10	13.06
250	15.50197	0.56079	0.07913	2.36	2.95	24.56	25.26
300	10.69081	0.52335	0.07496	2.51	3.99	37.67	38.50

** MOISTURE CALIBRATION DATA **

LOW W 0.0	HIGH W 528.0
488.0	5975.0

** MOISTURE PERFORMANCE at 160 kg/m^3 [10pcf] **

A(F)	B(E)	CR	PREC	RMSE
57.07	46.959	2.91	2.2	5.0

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St. Peters, MO 63376
(636) 928-9628
www.rmwester.com

RADIOACTIVE SEALED SOURCE LEAK TEST REPORT

Test Date: March 20, 2015 Analytical Date: March 20, 2015

Source Identification:

Manufacturer:	CPN	Model No.:	MC3
Mach S/N:	M30059559		
Radionuclide:	Cs-137	Activity:	10.0 mCi
		Source S/N:	C9559
Radionuclide:	Am-241/Be	Activity:	50.0 mCi
		Source S/N:	A9559

Sample Submitted By: Kenneth Bachmann, Health Physicist
Facility: Geotechnology, Inc.
Address: 11 French Village Industrial Park
Fairview Heights, IL 62208

The identified sealed source listed above has been tested for leakage of radioactive materials as required by the United States Nuclear Regulatory Commission. The analysis of the wipe material used in testing the sealed source reveals the presence of $\leq 7.75 \times 10^{-5}$ µCi of loose contamination for Cs-137 and $\leq 3.13 \times 10^{-5}$ µCi of loose contamination for Am-241.

(X) This source is acceptable for continued use.

(   ) This source has been found to have a level of loose contamination greater than 0.005 µCi of removable radioactive materials, and should be removed from service immediately.

(N/A) Operational and performance check of shutter mechanism satisfactory.

Nest Leak Test Date: September 20, 2015
Analysis By: Kenneth Bachmann
Reviewed By: K. Mc

Toni's Equipment

Demtech Services, Inc.

Placerville, California, USA

CALIBRATION CERTIFICATE

Tensiometer Model: Pro-Tester T-0100

Device Calibrated:	S-Type load cell
Range:	0 - 750 lbs. Tension
Model No:	M2405-750#
Serial No:	**241288**
A/D Module Model No:	T-029
A/D Module Serial No:	4509241288
Channel No:	N/A
Indicator reading with no load:	0

Calibration Apparatus:

Pro-Cal unit, model TC-0100/A

Dead Weight:		Reference Cell:	
W1	2	R1	2
W2	152	R2	152
W3	302	R3	302

Offset: **1.808537** Scale: **5.042961**

Applied Force lbs:	Cell Response:	Deviation Error:
2	2	0.00
52	52	0.00
102	102	0.00
152	152	0.00
202	202	0.00
252	252	0.00
302	302	0.00

Total Deviation Error (% 0.00%

Temperature at time of calibration: 73 degrees F

Exitation Voltage: 5 V DC

This calibration conforms to the standards set by ASTM E4 and is traceable to NIST standards

Note: A/D Module and load cell above have been systems calibrated and are considered a matched pair. In general, calibrated A/D Modules and load cells are not interchangeable.

JW

Date: 04/27/15

Demtech Services, Inc.

Placerville, California, USA

CALIBRATION CERTIFICATE

Tensiometer Model: Pro-Tester T-0100

Device Calibrated: S-Type load cell

Range: 0 - 750 lbs. Tension

Model No: M2405-750#

Serial No: 667871

Calibration Apparatus:

Pro-Cal unit, model TC-0100/A

A/D Module Model No: T-029

A/D Module Serial No: 2711667871

Channel No: N/A

Dead Weight:		Reference Cell:	
W1	2	R1	2
W2	152	R2	152
W3	302	R3	302

Indicator reading with no load: 0

Offset: 2.703394 Scale: 3.183917

Applied Force lbs.	Cell Response:	Deviation Error:
2	2	0.00
52	52	0.00
102	102	0.00
152	152	0.00
202	202	0.00
252	252	0.00
302	302	0.00

Total Deviation Error (%): 0.00%

Temperature at time of calibration: 73 degrees F

Exitation Voltage: 5 V DC

This calibration conforms to the standards set by ASTM E4 and is traceable to NIST standards.

Note: A/D Module and load cell above have been systems calibrated and are considered a matched pair. In general, calibrated A/D Modules and load cells are not interchangeable.

JW

Date: 04/27/15

Demtech Services, Inc.

Placerville, California, USA

CALIBRATION CERTIFICATE

Tensiometer Model: Pro-Tester T-0100

Device Calibrated: S-Type load cell

Range: 0 - 750 lbs. Tension

Model No: M2405-750#

Serial No: 667871

Calibration Apparatus:

Pro-Cal unit, model TC-0100/A

A/D Module Model No: T-029

A/D Module Serial No: 2711667871

Channel No: N/A

Dead Weight:		Reference Cell:	
W1	2	R1	2
W2	152	R2	152
W3	302	R3	302

Indicator reading with no load: 0

Offset: 2.703394 Scale: 3.183917

Applied Force lbs:	Cell Response:	Deviation Error:
2	2	0.00
52	52	0.00
102	102	0.00
152	152	0.00
202	202	0.00
252	252	0.00
302	302	0.00

Total Deviation Error (%): 0.00%

Temperature at time of calibration: 73 degrees F

Exitation Voltage: 5 V DC

This calibration conforms to the standards set by ASTM E4 and is traceable to NIST standards.

Note: A/D Module and load cell above have been systems calibrated and are considered a matched pair. In general, calibrated A/D Modules and load cells are not interchangeable.

JW

Date: 04/27/15

Certificate of Calibration

Device Calibrated: Instron 5kN Load Cell - Compression		Bldg A, Conf Lab, Rm 137
TRI ID: 57419	Serial No: 57419	Model No: Instron 5kN
Range, lbs: 1,124	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 10K Calibration Load Cell		
Serial No: 398111	Calibration Due: 3-16-2016	Uncertainty: 2.92 lbs

COMPRESSION - AS FOUND - RUN 1

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
51.0	51.3	0.3	0.5	Y
102.5	102.9	0.4	0.4	Y
200.5	201.1	0.6	0.3	Y
409.0	410.6	1.6	0.4	Y
601.0	603.1	2.1	0.3	Y
822.0	825.0	3.0	0.4	Y
1000.0	1004	4.0	0.4	Y

Temp: 20.0°C, Rel. Humidity: 51%, Thermo/Hygro S/N: 130561731, Cal. Due: 9-24-2015

Notes: Calibrated on Cal Load Frame

Calibration Performed by: Willard White	Cal. Procedure: 30SOP-CAL-100
Calibration Date: 4-7-2015	Calibration Due Date: 4-7-2016
Signature of Calibrator: W. White	
Calibration Reviewed by: Richard A. Lacey	Review Date: 4-23-2015

Certificate No: C15-308

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Certificate of Calibration

Device Calibrated: Instron 5kN Load Cell - Compression		Bldg A, Conf Lab, Rm 137
TRI ID: 57419	Serial No: 57419	Model No: Instron 5kN
Range, lbs: 1,124	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 10K Calibration Load Cell		
Serial No: 398111	Calibration Due: 3-16-2016	Uncertainty: 2.92 lbs

COMPRESSION - AS FOUND - RUN 2

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
55.0	55.2	0.1	0.3	Y
103.0	103.3	0.3	0.3	Y
202.0	202.3	0.3	0.1	Y
402.0	402.8	0.8	0.2	Y
608.0	609.7	1.7	0.3	Y
815.0	817.5	2.5	0.3	Y
1022.0	1025	3.0	0.3	Y

Temp: 20.0°C, Rel. Humidity: 51%, Thermo/Hygro S/N: 130561731, Cal. Due: 9-24-2015

Notes: Calibrated on Cal Load Frame

Calibration Performed by: Willard White	Cal. Procedure: 30SOP-CAL-100
Calibration Date: 4-7-2015	Calibration Due Date: 4-7-2016
Signature of Calibrator: W. White	
Calibration Reviewed by: Richard A. [illegible]	Review Date: 4-23-2015

Certificate No: C15-308

Certificate of Calibration

Device Calibrated: Metrox 1K Load Cell - Station 1		Bldg A, Conf Lab, Rm 137
TRI ID: M750660	Serial No: M750660	Model No: 1000
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.169 lbs - Tension

TENSION - AS FOUND - RUN 1

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
56.00	55.73	-0.27	-0.48	Y
101.30	100.81	-0.49	-0.48	Y
253.00	252.29	-0.71	-0.28	Y
524.00	523.32	-0.68	-0.13	Y
760.00	758.89	-1.11	-0.15	Y
1018.00	1016.24	-1.76	-0.17	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes:

Calibration Performed by: Willard White	Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-4-2015	Calibration Due Date: 6-4-2016
Signature of Calibrator: W. White	
Calibration Reviewed by: Richard A. [illegible]	Review Date: 6-24-2015

Certificate No: C15-476

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Certificate of Calibration

Device Calibrated: Metrox 1K Load Cell - Station 1		Bldg A, Conf Lab, Rm 137
TRI ID: M750660	Serial No: M750660	Model No: 1000
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.169 lbs - Tension

TENSION - AS FOUND - RUN 2

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
50.00	50.15	0.15	0.30	Y
104.50	104.36	-0.14	-0.13	Y
253.00	252.79	-0.21	-0.08	Y
510.50	509.64	-0.86	-0.17	Y
761.00	765.47	4.47	0.59	Y
1007.00	1011.17	4.17	0.41	Y

Temp: 20.3°C   Rel. Humidity: 47%   Thermo/Hygro S/N: 130561731   Cal. Due: 9-24-2015

Notes:

Calibration Performed by: Willard White	Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-4-2015	Calibration Due Date: 6-4-2016
Signature of Calibrator: W. White	
Calibration Reviewed by: Richard A. Frey	Review Date: 6-24-2015

Certificate No: C15-476

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Certificate of Calibration

Device Calibrated: No Name (GeoTac?) 1K Load Cell - Station 2		Bldg A, Conf Lab, Rm 137
TRI ID: 278882	Serial No: 278882	Model No: 1000
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.169 lbs - Tension

TENSION - AS FOUND - RUN 1

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
54.00	53.96	-0.04	-0.07	Y
101.30	101.36	0.06	0.06	Y
251.00	250.62	-0.38	-0.15	Y
500.00	499.21	-0.79	-0.16	Y
748.00	746.80	-1.20	-0.16	Y
1005.00	1003.47	-1.53	-0.15	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes:

Calibration Performed by: Willard White	Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-4-2015	Calibration Due Date: 6-4-2016
Signature of Calibrator: W. White	
Calibration Reviewed by: Richard A. Jiang	Review Date: 6-24-2015

Certificate No: C15-475

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Certificate of Calibration

Device Calibrated: No Name (GeoTac?) 1K Load Cell - Station 2		Bldg A, Conf Lab, Rm 137
TRI ID: 278882	Serial No: 278882	Model No: 1000
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.169 lbs - Tension

TENSION - AS FOUND - RUN 2

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
53.50	53.45	-0.05	-0.09	Y
102.60	102.87	0.27	0.26	Y
254.00	254.65	0.65	0.26	Y
501.00	500.73	-0.27	-0.05	Y
761.00	759.91	-1.09	-0.14	Y
1002.00	1000.44	-1.56	-0.16	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes:

Calibration Performed by: Willard White	Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-4-2015	Calibration Due Date: 6-4-2016
Signature of Calibrator: W. White	
Calibration Reviewed by: Richard A. [illegible]	Review Date: 6-24-2015

Certificate No: C15-475

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Certificate of Calibration

Device Calibrated: Trancell Tech 1K Load Cell - Station 3		Bldg A, Conf Lab, Rm 137
TRI ID: 226110006267	Serial No: 226110006267	Model No: BSS-1K
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.169 lbs - Tension

TENSION - AS FOUND - RUN 1

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
49.50	49.35	-0.15	-0.30	Y
109.70	109.17	-0.53	-0.48	Y
250.70	250.24	-0.46	-0.18	Y
502.00	500.48	-1.52	-0.30	Y
762.00	759.70	-2.30	-0.30	Y
1005.00	1002.46	-2.54	-0.25	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes:

Calibration Performed by: Willard White		Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-4-2015	Calibration Due Date: 6-4-2016	
Signature of Calibrator: W. White		
Calibration Reviewed by: Richard A. [illegible]		Review Date:

Certificate No: C15-477

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Certificate of Calibration

Device Calibrated: Trancell Tech 1K Load Cell - Station 3		Bldg A, Conf Lab, Rm 137
TRI ID: 226110006267	Serial No: 226110006267	Model No: BSS-1K
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.169 lbs - Tension

TENSION - AS FOUND - RUN 2

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
50.50	50.35	-0.15	-0.30	Y
102.70	102.69	-0.01	-0.01	Y
253.00	253.23	0.23	0.09	Y
503.00	502.48	-0.52	-0.10	Y
756.00	755.71	-0.29	-0.04	Y
1003.00	1002.46	-0.54	-0.05	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes:

Calibration Performed by: Willard White		Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-4-2015	Calibration Due Date: 6-4-2016	
Signature of Calibrator: W. White		
Calibration Reviewed by: Richard A. Lacey		Review Date:

Certificate No: C15-477

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Certificate of Calibration

Device Calibrated: Metrox 1K Load Cell - Station 4		Bldg A, Conf Lab, Rm 137
TRI ID: M750717	Serial No: M750717	Model No: 1000
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.169 lbs - Tension

TENSION - AS FOUND - RUN 1

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
54.20	54.07	-0.13	-0.24	Y
100.90	100.55	-0.35	-0.35	Y
253.00	253.16	0.16	0.06	Y
499.50	499.74	0.24	0.05	Y
747.84	748.30	0.46	0.06	Y
1008.10	1008.51	0.41	0.04	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes:

Calibration Performed by: Willard White		Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-4-2015	Calibration Due Date: 6-4-2016	
Signature of Calibrator:	W. White	
Calibration Reviewed by:	Richard A. Jones	Review Date: 6-24-2015

Certificate No: C15-478

Certificate of Calibration

Device Calibrated: Metrox 1K Load Cell - Station 4		Bldg A, Conf Lab, Rm 137
TRI ID: M750717	Serial No: M750717	Model No: 1000
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.169 lbs - Tension

TENSION - AS FOUND - RUN 2

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
55.80	55.85	0.05	0.09	Y
104.60	104.60	0.00	0.00	Y
250.00	249.62	-0.38	-0.15	Y
500.00	501.76	1.76	0.35	Y
756.00	755.92	-0.08	-0.01	Y
1011.40	1011.60	0.20	0.02	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes:

Calibration Performed by: Willard White	Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-4-2015	Calibration Due Date: 6-4-2016
Signature of Calibrator: W. White	
Calibration Reviewed by: Richard A. Fong	Review Date: 6-24-2015

Certificate No: C15-478

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Certificate of Calibration

Device Calibrated: Metrox 1K Load Cell - Station 5		Bldg A, Conf Lab, Rm 137
TRI ID: M750662	Serial No: M750662	Model No: 1000
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.169 lbs - Tension

TENSION - AS FOUND - RUN 1

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
52.20	52.23	0.03	0.06	Y
100.90	100.91	0.01	0.01	Y
253.70	254.07	0.37	0.15	Y
502.00	502.34	0.34	0.07	Y
753.70	754.07	0.37	0.05	Y
1009.00	1008.65	-0.35	-0.03	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes:

Calibration Performed by: Willard White	Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-4-2015	Calibration Due Date: 6-4-2016
Signature of Calibrator: W. White	
Calibration Reviewed by: Richard A. [illegible]	Review Date: 6-24-2015

Certificate No: C15-479

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Certificate of Calibration

Device Calibrated: Metrox 1K Load Cell - Station 5		Bldg A, Conf Lab, Rm 137
TRI ID: M750662	Serial No: M750662	Model No: 1000
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.169 lbs - Tension

TENSION - AS FOUND - RUN 2

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
56.00	55.78	-0.22	-0.39	Y
105.00	104.97	-0.03	-0.03	Y
254.00	254.06	0.06	0.02	Y
504.00	505.58	1.58	0.31	Y
758.00	759.64	1.64	0.22	Y
1025.00	1026.38	1.38	0.13	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes:

Calibration Performed by: Willard White		Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-4-2015	Calibration Due Date: 6-4-2016	
Signature of Calibrator: W. White		
Calibration Reviewed by: Richard A. Terry		Review Date: 6-24-2015

Certificate No: C15-479

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Certificate of Calibration

Device Calibrated: Transducer Techniques - Wall Station 1		Bldg A, Conf Lab, Rm 137
TRI ID: 303331	Serial No: 303331	Model No: SB0-1K
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.1690 lbs - T

TENSION - AS FOUND

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
52.30	52.00	-0.30	-0.57	Y
101.00	100.60	-0.40	-0.40	Y
250.90	249.10	-1.80	-0.72	Y
503.00	499.00	-4.00	-0.80	Y
771.00	763.70	-7.30	-0.95	Y
1005.50	995.00	-10.50	-1.04	N

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes:

Calibration Performed by: Willard White	Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-8-2015	Calibration Due Date: UNACCEPTABLE
Signature of Calibrator: W. White	
Calibration Reviewed by: Richard A. Young	Review Date: 6-24-2015

Certificate No: C15-489

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Certificate of Calibration

Device Calibrated: Transducer Techniques - Wall Station 1		Bldg A, Conf Lab, Rm 137
TRI ID: 303331	Serial No: 303331	Model No: SB0-1K
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.1690 lbs - T

TENSION - AFTER ADJUSTMENT - RUN 1

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
50.60	50.80	0.20	0.40	Y
107.00	107.40	0.40	0.37	Y
250.60	251.20	0.60	0.24	Y
509.80	509.20	-0.60	-0.12	Y
759.20	755.20	-4.00	-0.53	Y
1007.20	1003.50	-3.70	-0.37	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes: New Cal Factor = 0.031947

Calibration Performed by: Willard White		Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-10-2015	Calibration Due Date: 6-10-2016	
Signature of Calibrator: W. White		
Calibration Reviewed by: Richard A. [illegible]		Review Date: 6-24-2015

Certificate No: C15-489

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Certificate of Calibration

Device Calibrated: Transducer Techniques - Wall Station 1		Bldg A, Conf Lab, Rm 137
TRI ID: 303331	Serial No: 303331	Model No: SB0-1K
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.1690 lbs - T

TENSION - AFTER ADJUSTMENT - RUN 2

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
55.70	55.60	-0.10	-0.18	Y
100.80	101.10	0.30	0.30	Y
257.20	257.20	0.00	0.00	Y
512.00	513.30	1.30	0.25	Y
755.60	755.90	0.30	0.04	Y
1012.00	1010.80	-1.20	-0.12	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes: New Cal Factor = 0.031947

Calibration Performed by: Willard White	Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-10-2015	Calibration Due Date: 6-10-2016
Signature of Calibrator: W. White	
Calibration Reviewed by: Richard S. Fung	Review Date: 6-24-2015

Certificate No: C15-489

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Certificate of Calibration

Device Calibrated: Transducer Techniques - Wall Station 2		Bldg A, Conf Lab, Rm 137
TRI ID: 303327	Serial No: 303327	Model No: SB0-1K
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.1690 - T

TENSION - AS FOUND - RUN 1

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
54.00	54.00	0.00	0.00	Y
102.00	102.00	0.00	0.00	Y
245.00	245.00	0.00	0.00	Y
503.40	503.40	0.00	0.00	Y
758.00	757.50	-0.50	-0.07	Y
1025.00	1024.20	-0.80	-0.08	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes: Cal Factor = 0.032541

Calibration Performed by: Willard White	Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-10-2015	Calibration Due Date: 6-10-2016
Signature of Calibrator: W. White	
Calibration Reviewed by: Richard S. Jay	Review Date: 6-24-2015

Certificate No: C15-487

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Device Calibrated: Transducer Techniques - Wall Station 2		Bldg A, Conf Lab, Rm 137
TRI ID: 303327	Serial No: 303327	Model No: SB0-1K
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.1690 - T

TENSION - AS FOUND - RUN 2

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
52.00	52.00	0.00	0.00	Y
98.40	98.50	0.10	0.10	Y
253.20	253.30	0.10	0.04	Y
501.00	501.10	0.10	0.02	Y
753.00	752.50	-0.50	-0.07	Y
1005.00	1004.30	-0.70	-0.07	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes: Cal Factor = 0.032541

Calibration Performed by: Willard White	Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-10-2015	Calibration Due Date: 6-10-2016
Signature of Calibrator: W. White	
Calibration Reviewed by: Richard A. Fay	Review Date: 6-24-2015

Certificate No: C15-487

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Certificate of Calibration

Device Calibrated: Transducer Techniques - Wall Station 3		Bldg A, Conf Lab, Rm 137
TRI ID: 312656	Serial No: 312656	Model No: SB0-1K
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.1690 lbs - T

TENSION - AS FOUND - RUN 1

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
54.30	54.40	0.10	0.18	Y
102.00	102.00	0.00	0.00	Y
251.00	251.70	0.70	0.28	Y
505.00	506.00	1.00	0.20	Y
750.00	752.10	2.10	0.28	Y
1016.00	1017.20	1.20	0.12	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes: Cal Factor = 0.032925

Calibration Performed by: Willard White		Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-8-2015	Calibration Due Date: 6-8-2016	
Signature of Calibrator: W. White		
Calibration Reviewed by: Richard A. Fang		Review Date: 6-24-2015

Certificate No: C15-490

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Certificate of Calibration

Device Calibrated: Transducer Techniques - Wall Station 3		Bldg A, Conf Lab, Rm 137
TRI ID: 312656	Serial No: 312656	Model No: SB0-1K
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.1690 lbs - T

TENSION - AS FOUND - RUN 2

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
49.90	50.00	0.10	0.20	Y
103.30	103.70	0.40	0.39	Y
252.00	252.80	0.80	0.32	Y
502.00	503.10	1.10	0.22	Y
755.00	756.40	1.40	0.19	Y
1005.00	1006.50	1.50	0.15	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes: Cal Factor = 0.032925

Calibration Performed by: Willard White		Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-8-2015	Calibration Due Date: 6-8-2016	
Signature of Calibrator:	W. White	
Calibration Reviewed by:	Richard A. Jong	Review Date: 6-24-2015

Certificate No: C15-490

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Certificate of Calibration

Device Calibrated: Transducer Techniques - Wall Station 4		Bldg A, Conf Lab, Rm 137
TRI ID: 303329	Serial No: 303329	Model No: SB0-1K
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.1690 lbs - T

TENSION - AS FOUND - RUN 1

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
52.00	51.70	-0.30	-0.58	Y
103.00	103.10	0.10	0.10	Y
251.00	249.80	-1.20	-0.48	Y
506.00	503.30	-2.70	-0.53	Y
760.00	754.70	-5.30	-0.70	Y
1012.00	1004.50	-7.50	-0.74	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes: Cal Factor = 0.031979

Calibration Performed by: Willard White	Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-10-2015	Calibration Due Date: 6-10-2016
Signature of Calibrator: W. White	
Calibration Reviewed by: Richard A. Gray	Review Date: 6-24-2015

Certificate No: C15-488

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Certificate of Calibration

Device Calibrated: Transducer Techniques - Wall Station 4		Bldg A, Conf Lab, Rm 137
TRI ID: 303329	Serial No: 303329	Model No: SB0-1K
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.1690 lbs - T

TENSION - AS FOUND - RUN 2

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
52.10	52.70	0.60	1.15	OK/RSL
112.60	113.00	0.40	0.36	Y
256.00	256.10	0.10	0.04	Y
514.00	512.30	-1.70	-0.33	Y
756.50	752.80	-3.70	-0.49	Y
1015.00	1008.70	-6.30	-0.62	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes: Cal Factor = 0.031979

Calibration Performed by: Willard White		Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-10-2015	Calibration Due Date: 6-10-2016	
Signature of Calibrator:	W. White	
Calibration Reviewed by:	Richard A. Young	Review Date: 6-24-2015

Certificate No: C15-488

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Certificate of Calibration

Device Calibrated: Transducer Techniques - Wall Station 5		Bldg A, Conf Lab, Rm 137
TRI ID: 312657	Serial No: 312657	Model No: SB0-1K
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.1690 lbs - T

TENSION - AS FOUND - RUN 1

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
48.70	48.60	-0.10	-0.21	Y
124.00	123.30	-0.70	-0.56	Y
256.60	254.20	-2.40	-0.94	Y
523.00	517.30	-5.70	-1.09	N
782.00	774.30	-7.70	-0.98	Y
1022.00	1007.40	-14.60	-1.43	N

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes: As Found Cal Factor = 0.032050

Calibration Performed by: Willard White		Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-10-2015	Calibration Due Date: UNACCEPTABLE	
Signature of Calibrator: W. White		
Calibration Reviewed by: Richard A. [illegible]		Review Date: 6-24-2015

Certificate No: C15-491

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Certificate of Calibration

Device Calibrated: Transducer Techniques - Wall Station 5		Bldg A, Conf Lab, Rm 137
TRI ID: 312657	Serial No: 312657	Model No: SB0-1K
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.1690 lbs - T

TENSION - AFTER ADJUSTMENT - RUN 1

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
58.90	58.60	-0.30	-0.51	Y
100.40	100.30	-0.10	-0.10	Y
256.50	256.50	0.00	0.00	Y
510.00	509.50	-0.50	-0.10	Y
774.50	774.30	-0.20	-0.03	Y
1025.00	1023.80	-1.20	-0.12	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes: New Cal Factor = 0.031649

Calibration Performed by: Willard White		Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-10-2015	Calibration Due Date: 6-10-2016	
Signature of Calibrator:	W. White	
Calibration Reviewed by:	Richard A. Jay	Review Date: 6-24-2015

Certificate No: C15-491

Certificate of Calibration

Device Calibrated: Transducer Techniques - Wall Station 5		Bldg A, Conf Lab, Rm 137
TRI ID: 312657	Serial No: 312657	Model No: SB0-1K
Range, lbs: 1,000	Readability, lbs: 0.01	Max. Allowable Error: ±1%

Calibration Equipment Used: Futek 1K Calibration Load Cell		
Serial No: 555581	Calibration Due: 3-16-2016	Uncertainty: 0.1690 lbs - T

TENSION - AFTER ADJUSTMENT - RUN 2

Reference Load (lbs)	Device Value (lbs)	Error (lbs)	Error (%)	Acceptable Y/N
53.90	53.90	0.00	0.00	Y
110.00	110.00	0.00	0.00	Y
256.00	257.00	1.00	0.39	Y
508.20	508.70	0.50	0.10	Y
749.40	750.00	0.60	0.08	Y
1008.00	1008.90	0.90	0.09	Y

Temp: 20.3°C Rel. Humidity: 47% Thermo/Hygro S/N: 130561731 Cal. Due: 9-24-2015

Notes: New Cal Factor = 0.031649

Calibration Performed by: Willard White	Cal. Procedure: 30SOP-CAL-101
Calibration Date: 6-10-2015	Calibration Due Date: 6-10-2016
Signature of Calibrator: W. White	
Calibration Reviewed by: Richard A. Fouy	Review Date: 6-24-2015

Certificate No: C15-491

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Certificate of Calibration

Device Calibrated: Corner 5-Station UTM		Bldg A, Conf Lab, Rm 137
TRI ID: TRI-004	Serial No: N/A	Model No: Instron 5565
Range, in: 0-70	Readability, in: 0.001	Max. Allowable Error: ±1%

Calibration Equipment Used: Fowler 42-in Reference Calipers		
Serial No: 000239	Calibration Due: 6-20-2015	Uncertainty: 0.0025 in

CROSSHEAD EXTENSION

Reference Extension (in)	Device Value (in)	Error (in)	Error (%)	Acceptable Y/N
1.0040	1.008	0.004	0.4	Y
2.0000	2.004	0.004	0.2	Y
3.9975	4.002	0.004	0.1	Y
10.0000	10.010	0.010	0.1	Y
19.9910	20.000	0.009	0.0	Y
29.8610	29.850	-0.011	0.0	Y
13.6285	13.630	0.002	0.0	Y
20.0555	20.070	0.015	0.1	Y

Temp: 21.8°C, Rel. Humidity: 42%, Thermo/Hygro S/N: 101460584, Cal. Due: 3-8-2015

Notes: Reset gauge length on Instron after adjusting calipers at 30 inches

Calibration Performed by: Willard White	Cal. Procedure: 30SOP-CAL-106
Calibration Date: 2-9-2015	Calibration Due Date: 2-9-2016
Signature of Calibrator: W. White	
Calibration Reviewed by: Richard [illegible]	Review Date: 2-17-2015

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Certificate No: C15-092

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Certificate of Calibration

Device Calibrated: Corner 5-Station UTM		Bldg A, Conf Lab, Rm 137
TRI ID: TRI-004	Serial No: N/A	Model No: Instron 5565
Range, in: 0-70	Readability, in: 0.001	Max. Allowable Error: ±1%

Calibration Equipment Used: Accusplit 625XCL Stopwatch		
Serial No: N/A	Calibration Due: 11-5-2015	Uncertainty: 0.05 sec

CROSSHEAD EXTENSION RATE (SPEED)

UTM Speed Setting (in/min) : 2.00000

Extension Instron Value (in)	Elapsed Stopwatch Time (s)	Actual Speed (in/min)	Error (%)	Acceptable Y/N
1.000	0.00			
3.000	59.75	2.01	0.4	Y
5.000	119.72	2.00	0.2	Y
7.000	179.84	2.00	0.1	Y

UTM Speed Setting (in/min) : 12.00

Extension Value (in)	Elapsed Time (s)	Actual Speed (in/min)	Error (%)	Acceptable Y/N
1.000	0.00			
7.000	30.07	11.97	-0.2	Y
13.000	60.16	11.97	-0.3	Y
19.000	90.18	11.98	-0.2	Y

Temp: 21.8°C, Rel. Humidity: 42%, Thermo/Hygro S/N: 101460584, Cal. Due: 3-8-2015

Notes:

Calibration Performed by: Willard White		Cal. Procedure: 30SOP-CAL-106
Calibration Date: 2-9-2015	Calibration Due Date: 2-9-2016	
Signature of Calibrator:	W. White	
Calibration Reviewed by:		Review Date: 2-17-2015

Certificate No: C15-092

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Certificate of Calibration

Device Calibrated: Isle 5-Station UTM		Bldg A, Conf Lab, Rm 137
TRI ID: TRI-719	Serial No: N/A	Model No: N/A
Range, in: 0-24	Readability, in: .001	Max. Allowable Error: ±1%

Calibration Equipment Used: Fowler 42-in Reference Calipers		
Serial No: 000239	Calibration Due: 6-20-15	Uncertainty: 0.0025 in

CROSSHEAD EXTENSION

Reference Extension (in)	Device Value (in)	Error (in)	Error (%)	Acceptable Y/N
0.4830	0.4830	0.000	0.00	Y
0.9955	1.0000	0.004	0.45	Y
2.0030	2.0100	0.007	0.35	Y
5.0165	5.0270	0.010	0.21	Y
10.0220	10.0370	0.015	0.15	Y

Temp: 20.9°C, Rel. Humidity: 45%, Thermo/Hygro S/N: 101460584, Cal. Due: 3-18-2015

Notes: Used "D638@2" for 2-in/min; "Grab Tens" for 12in/min.

Calibration Performed by: Willard White	Cal. Procedure: 30SOP-CAL-106
Calibration Date: 2-4-2015	Calibration Due Date: 2-4-2016
Signature of Calibrator: W. White	
Calibration Reviewed by: Richard ...	Review Date: 2-17-2015

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Certificate No: C15-074

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Certificate of Calibration

Device Calibrated: Isle 5-Station UTM		Bldg A, Conf Lab, Rm 137
TRI ID: TRI-719	Serial No: N/A	Model No: N/A
Range, in: 0-24	Readability, in: .001	Max. Allowable Error: ±1%

Calibration Equipment Used: Accusplit 625XCL Stopwatch		
Serial No: N/A	Calibration Due: 11-5-2015	Uncertainty: 0.005 sec

CROSSHEAD EXTENSION RATE (SPEED)

UTM Speed Setting (in/min) : 2.00000

Extension Value (in)	Elapsed Time (s)	Actual Speed (in/min)	Error (%)	Acceptable Y/N
1.000	0.00			
3.000	60.32	1.99	-0.5	Y
5.000	120.26	2.00	-0.2	Y
13.000	360.08	2.00	0.0	Y

UTM Speed Setting (in/min) : 12.00

Extension Value (in)	Elapsed Time (s)	Actual Speed (in/min)	Error (%)	Acceptable Y/N
1.000	0.00			
7.000	30.01	12.00	0.0	Y
13.000	60.02	12.00	0.0	Y
19.000	90.03	12.00	0.0	Y

Temp: 20.9°C, Rel. Humidity: 45%, Thermo/Hygro S/N: 101460584, Cal. Due: 3-18-2015

Notes: Used "D638@2" for 2-in/min; "Grab Tens" for 12in/min.

Calibration Performed by: Willard White		Cal. Procedure: 30SOP-CAL-106
Calibration Date: 2-4-2015	Calibration Due Date: 2-4-2016	
Signature of Calibrator:	W. White	
Calibration Reviewed by:	Richard Lacey	Review Date: 2-17-2015

Certificate No.: C15-074

Certificate of Calibration

Device Calibrated: Mitutoyo Digital Indicator on GT-009 Base		Bldg A, Conf Lab, Rm 137
TRI ID: 17495	Serial No: 17495	Model No: ID-C112E
Range, in: 0-0.5	Readability, in: 0.000005	Max. Allowable Error: ±0.0004-in

DIGITAL INDICATOR

Calibration Equipment Used: Mitutoyo Gage Block Set		
Serial No: TRI-660/790547	Calibration Due: 6-19-2017	Uncertainty: 2.5 *u*

Reference Length (in)	Device Value (in)	Error (in)	Error (%)	Acceptable Y/N
0.05000	0.05015	0.00015	0.3	Y
0.10000	0.10015	0.00015	0.1	Y
0.15000	0.15030	0.00030	0.2	Y
0.20000	0.20035	0.00035	0.2	Y
0.25000	0.25025	0.0002	0.1	Y
0.30000	0.30035	0.00035	0.1	Y
0.35000	0.35055	0.00055	0.2	Y
0.40000	0.40040	0.00040	0.1	Y
0.45000	0.45050	0.00050	0.1	Y

Temp: 21.4°C, Rel. Humidity: 45%, Thermo/Hygro S/N: 122437978, Cal. Due: 8-12-2015

Notes: Calibrated on BT-009 Base with D5994 Setup

Calibration Performed by: Willard White		Cal. Procedure:30SOP-CAL-101
Calibration Date: 2-25-2015	Calibration Due Date: 2-25-2016	
Signature of Calibrator:	W. White	
Calibration Reviewed by:	Richard A. Jorey	Date Reviewed: 2-27-2015

Certificate No: C15-128

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