



**ENVIRONMENTAL CONSULTANTS**

23713 W. PAUL ROAD, SUITE D  
 PEWAUKEE, WI 53072  
 (P) 262.523.9000  
 (F) 262.523.9001

Mr. Mark Kelly  
 Midwest Generation, LLC  
 Powerton Station  
 13082 East Manito Road  
 Pekin, IL 61554

June 27, 2011  
 (1965)

RE: Construction Documentation Transmittal  
 Metal Cleaning Basin and Bypass Basin Liner Replacement

Dear Mr. Kelly:

Natural Resource Technology, Inc., (NRT) has prepared this correspondence to transmit construction record documents for the liner replacement of the Metal Cleaning Basin and the Bypass Basin at the Powerton Station. The following information is enclosed:

- Select submittals from Contractor:

Attachment	Table 2 Submittal Item <sup>a</sup>		Submittal Description
	Bypass Basin	Metal Cleaning Basin	
A1	6&12	6&11	Warning Layer and Cushion Layer Gradation Reports
A2	14	12	Geomembrane Resin Test Results
A3	NA	19	Reinforcement Steel Shop Drawings
A4	NA	20	Concrete Accessories and Admixtures Manufacturer's Certificate and Literature
A5	NA	21&22	Concrete Quality Control Tests
A6	20-22	23-25	Geosynthetic Product Information
A7	24	27	Geomembrane Installer's Daily Logs and QC Documentation
A8	25	28	Geomembrane Installer's Subgrade Acceptance
A9	26	29	Geomembrane Installation Certificate
A10	26	29	Geomembrane Installation Warranties
A11	26	29	Geomembrane As-Built Panel Layout
A12	31	34	Leak Location Survey Report

- Drawings updated to reflect Contractor's documentation survey of the liner subgrade and warning layer topography (Attachment B); and
- NRT Construction Quality Assurance (CQA) Daily Field Reports (Attachment C).

<sup>a</sup> Refer to Table 2 from the respective Technical Specifications for the metals cleaning basin and bypass basin.

WWW.NATURALRT.COM



MWG13-15\_49099

Mr. Mark Kelly  
June 27, 2011  
Page 2



Please contact NRT if you have any questions or comments regarding this transmittal. It has been a pleasure working with Midwest Generation on this project, and we look forward to working with you again in the future.

Sincerely,

NATURAL RESOURCE TECHNOLOGY, INC.

A handwritten signature in black ink, appearing to read "Heather M. Simon".

Heather M. Simon, PE  
Project Manager

Encls.: Attachment A: Contractor Submittals  
Attachment B: Documentation Survey  
Attachment C: NRT CQA Daily Field Reports

[1965 Construction Documentation 110627.doc]



**ATTACHMENT A**  
**CONTRACTOR SUBMITTALS**

**Table 2 - List of Submittals  
Metal Cleaning Basin Liner Replacement Specifications  
Midwest Generation – Powerton Power Station**

	Submittal	From	To	Time Frame	Reviewer	Technical Specification	
						Section	Part
1	Subcontractor List	Contractor	Owner and/or Engineer	With bid documents	Owner		
2	Baseline Construction Schedule	Contractor	Owner and/or Engineer	With bid documents and update within 10 calendar days of the date of the Contract award	Owner and/or Engineer		
3	Name and Location of Recycling / Disposal Facility	Contractor	Owner and/or Engineer	With bid documents	Owner and/or Engineer	02300	1.06B
4	Leak Location Contractor's Work Plan	Contractor	Owner and/or Engineer	With bid documents	Owner and/or Engineer	02600	1.05B
5	Supplier and Location of Cushion Material Source	Contractor	Owner and/or Engineer	With bid documents	Owner and/or Engineer	02300	1.06C
6	Cushion Material Grain Size Distribution Test Results	Contractor	Owner and/or Engineer	With bid documents	Owner and/or Engineer	02300	1.06E
7	Construction Start Date	Contractor	Owner and/or Engineer	5 Working days prior to construction start	Owner and/or Engineer	02300	1.06D
8	IEPA Water Pollution Control Construction Permit	Owner through Engineer	Contractor	Prior to project start	Contractor		
9	Site Superintendent/Foreman's Name & Phone Number	Contractor	Owner and/or Engineer	Prior to project start	Owner and/or Engineer		
10	Location of Off-site Fill Material Sources	Contractor	Owner and/or Engineer	Prior to project start	Owner and/or Engineer	02300	1.06C
11	Off-site Fill Material Certificates/Test Results	Contractor	Owner and/or Engineer	Prior to project start	Owner and/or Engineer	02300	1.06E
12	Resin Supplier, Address, Brand Name, Product Number and Test Results	Contractor	Owner and/or Engineer	Prior to project start	Owner and/or Engineer	02600	1.05A
13	Source and nature of additives	Contractor	Owner and/or Engineer	Prior to project start	Owner and/or Engineer	02600	1.05A

**Table 2 - List of Submittals  
Metal Cleaning Basin Liner Replacement Specifications  
Midwest Generation – Powerton Power Station**

	Submittal	From	To	Time Frame	Reviewer	Technical Specification	
						Section	Part
14	Geomembrane Installer's Information, Layout Diagram, Schedule, Scaming Equipment	Contractor	Owner and/or Engineer	Prior to project start	Owner and/or Engineer	02600	1.05A
15	Accident Reports, Work Stoppage/Dispute Records, Contractor Invoices, Schedule of Values, Test Report Records, and Equipment Check Records	Contractor	Owner and/or Engineer	As Necessary	Owner and/or Engineer		
16	Proposed Concrete Mix	Contractor	Owner and/or Engineer	At least 35 days prior to placing of concrete	Owner and/or Engineer	03300	1.04E
17	Cushion Material Representative Sample	Contractor	Owner and/or Engineer	Two weeks prior to delivery	Owner and/or Engineer	02300	2.03
18	Warning Layer Representative Sample	Contractor	Owner and/or Engineer	Two weeks prior to delivery	Owner and/or Engineer	02300	2.04
19	Reinforcement Steel Shop Drawings	Contractor	Owner and/or Engineer	Two weeks prior to delivery	Owner and/or Engineer	03300	1.04A
20	Concrete Accessories and Admixtures Manufacturer's Certificate and Literature	Contractor	Owner and/or Engineer	Two weeks prior to delivery	Owner and/or Engineer	03300	1.04B
21	Concrete Delivery Tickets	Contractor	Owner and/or Engineer	Each day of delivery	Owner and/or Engineer	03300	1.04C
22	Concrete Quality Control Tests	Contractor	Owner and/or Engineer	As Necessary	Owner and/or Engineer	03300	1.04D
23	Geomembrane Manufacturer's Certification-PGI Standards	Contractor	Owner and/or Engineer	5 working days prior to delivery to site	Owner and/or Engineer	02600	1.05A
24	Geotextile - Product Information	Contractor	Owner and/or Engineer	5 working days prior to delivery to site	Owner and/or Engineer	02600	1.05A

**Table 2 - List of Submittals  
Metal Cleaning Basin Liner Replacement Specifications  
Midwest Generation – Powerton Power Station**

	Submittal	From	To	Time Frame	Reviewer	Technical Specification	
						Section	Part
25	Geomembrane Manufacturer's Certification - Product Information	Contractor	Owner and/or Engineer	5 working days prior to delivery to site	Owner and/or Engineer	02600	1.05A
26	Certification of Geomembrane Manufacturer's Quality Control Plan	Contractor	Owner and/or Engineer	5 working days prior to delivery to site	Owner and/or Engineer	02600	1.05A
27	Geomembrane Installer's Daily Logs and Quality Control Documentation	Contractor	Owner and/or Engineer	During geomembrane installation	Owner and/or Engineer	02600	1.05C
28	Geomembrane Installer's Subgrade Acceptance	Contractor	Owner and/or Engineer	Each day prior to geomembrane installation	Owner and/or Engineer	02600	1.05C 3.02A
29	Geomembrane Installation Certificate, As-Builts, and Warranties	Contractor	Owner and/or Engineer	Within 10 working days of geomembrane installation completion	Owner and/or Engineer	02600	1.05D
30	Written Certification for Project	Contractor	Owner and/or Engineer	Upon completion of work	Owner and/or Engineer	01700	1.03B & C
31	Conditional and/or Final Geomembrane Installation Acceptance	Owner and/or Engineer	Contractor	Upon completion of geomembrane installation and submittals	Contractor	2600	1.05F
32	Record Documents	Contractor	Owner and/or Engineer	Prior to submittal of final invoice	Owner and/or Engineer	01700	1.04
33	Survey Data	Contractor	Owner and/or Engineer	Within 4 days following completion of survey	Owner and/or Engineer	01050	1.05
34	Final Leak Location Survey Report	Contractor	Owner and/or Engineer	Within 14 days following completion of leak location survey	Owner and/or Engineer	02600	1.05G

**Table 2 - List of Submittals  
Bypass Basin Liner Replacement Specifications  
Midwest Generation - Powerton Power Station**

	Submittal	From	To	Time Frame	Reviewer	Technical Specification	
						Section	Part
1	Subcontractor List	Contractor	Owner and/or Engineer	With bid documents	Owner		
2	Baseline Construction Schedule	Contractor	Owner and/or Engineer	With bid documents and update within 10 calendar days of the date of the Contract award	Owner and/or Engineer		
3	Name and Location of Recycling / Disposal Facility	Contractor	Owner and/or Engineer	With bid documents	Owner and/or Engineer	02300	1.06B
4	Leak Location Contractor's Work Plan	Contractor	Owner and/or Engineer	With bid documents	Owner and/or Engineer	02600	1.05B
5	Supplier and Location of Cushion Material Source	Contractor	Owner and/or Engineer	With bid documents	Owner and/or Engineer	02300	1.06C
6	Cushion Material Grain Size Distribution Test Results	Contractor	Owner and/or Engineer	With bid documents	Owner and/or Engineer	02300	1.06E
7	Construction Start Date	Contractor	Owner and/or Engineer	5 Working days prior to construction start	Owner and/or Engineer	02300	1.06D
8	IEPA Water Pollution Control Construction Permit	Owner through Engineer	Contractor	Prior to project start	Contractor		
9	General Permit for Storm Water Discharges from Construction Site Activities	Owner through Engineer	Contractor	Prior to project start	Contractor		
10	Site Superintendent/Foreman's Name & Phone Number	Contractor	Owner and/or Engineer	Prior to project start	Owner and/or Engineer		
11	Location of Off-site Fill Material Sources	Contractor	Owner and/or Engineer	Prior to project start	Owner and/or Engineer	02300	1.06C
12	Off-site Fill Material Certificates/Test Results	Contractor	Owner and/or Engineer	Prior to project start	Owner and/or Engineer	02300	1.06E
13	Laboratory Test Results - Excavated Bank Soils	Contractor	Owner and/or Engineer	14 days prior to start of bank reconstruction	Owner and/or Engineer	02300	1.06F

**Table 2 - List of Submittals  
Bypass Basin Liner Replacement Specifications  
Midwest Generation – Powerton Power Station**

	Submittal	From	To	Time Frame	Reviewer	Technical Specification	
						Section	Part
14	Resin Supplier, Address, Brand Name, Product Number, and Test Results	Contractor	Owner and/or Engineer	Prior to project start	Owner and/or Engineer	02600	1.05A1
15	Geomembrane Installer's Personnel and Information	Contractor	Owner and/or Engineer	Prior to project start	Owner and/or Engineer	02600	1.05A5 & A6
16	Geomembrane Panel Layout Drawing	Contractor	Owner and/or Engineer	Prior to project start	Owner and/or Engineer	02600	1.05A7
17	Cushion Material Representative Sample	Contractor	Owner and/or Engineer	Two weeks prior to delivery	Owner and/or Engineer	02300	2.03
18	Warning Layer Representative Sample	Contractor	Owner and/or Engineer	Two weeks prior to delivery	Owner and/or Engineer	02300	2.04
19	Field Test Results	Contractor and/or Field Technician	Engineer	Within 24 hours of test completion	Engineer	02300	1.06G
20	Geomembrane Manufacturer's Certification-PGI Standards	Contractor	Owner and/or Engineer	5 working days prior to delivery to site	Owner and/or Engineer	02600	1.05A2
21	Geotextile Manufacturer's Certification	Contractor	Owner and/or Engineer	5 working days prior to delivery to site	Owner and/or Engineer	02600	1.05A4
22	Geomembrane Manufacturer's Certification - Production Information includes QC Plan	Contractor	Owner and/or Engineer	5 working days prior to delivery to site	Owner and/or Engineer	02600	1.05A3
23	Seed mix and application rate	Contractor	Owner and/or Engineer	5 days prior to delivery to site	Owner and/or Engineer	02930	1.03
24	Geomembrane Installer's Daily Logs and Quality Control Documentation	Contractor	Owner and/or Engineer	During geomembrane installation	Owner and/or Engineer	02600	1.05C1
25	Geomembrane Installer's Subgrade Acceptance	Contractor	Owner and/or Engineer	Each day prior to geomembrane installation	Owner and/or Engineer	02600	1.05C2 3.02A



**Table 2 - List of Submittals  
Bypass Basin Liner Replacement Specifications  
Midwest Generation – Powerton Power Station**

	Submittal	From	To	Time Frame	Reviewer	Technical Specification	
						Section	Part
26	Geomembrane Installation Certificate, As-Builts, and Warranties	Contractor	Owner and/or Engineer	Within 10 working days of geomembrane installation completion	Owner and/or Engineer	02600	1.05D
27	Written Certification for Project	Contractor	Owner and/or Engineer	Upon completion of work	Owner and/or Engineer	01700	1.03B & C
28	Conditional and/or Final Geomembrane Installation Acceptance	Owner and/or Engineer	Contractor	Upon completion of geomembrane installation and submittals	Contractor	2600	1.05F
29	Record Documents	Contractor	Owner and/or Engineer	Prior to submittal of final invoice	Owner and/or Engineer	01700	1.04
30	Survey Data	Contractor	Owner and/or Engineer	Within 4 days following completion of survey	Owner and/or Engineer	01050	1.05
31	Final Leak Location Survey Report	Contractor	Owner and/or Engineer	Within 14 days following completion of leak location survey	Owner and/or Engineer	02600	1.05G

**ATTACHMENT A1**

**WARNING LAYER AND CUSHION LAYER GRADATION  
REPORTS**

AGGREGATE GRADATION REPORT

FA-6 - Cusston Layer 4

Inspector No.: 6400000000  
 Insp Name: Sara Kacir  
 Mst Plant No.: 94  
 Contract No.:  
 Lab Name: Scharf  
 Lab: PP  
 Date Sampled: 10/14/2010  
 Job Number:  
 Source Name: Carrl Scharf Materials  
 Source Location: Pekin, IL  
 Sequence No.: 4

Source Number	Material Code	Type Insp.	Original Test ID	Spec. Standard	Article	Sampled From	Wash Dry	W
51790-39	016FA06 Gradation #1	PRO				SP		
CA								
Percent Passing								

Wash 200	Test Results	Remarks
8.7	APPR	

Sieve (English)	12" Overload	Individual Weight Retained	Cumul. Weight Retained	Cumul. Percent Retained	Percent Passing	Spec. Range % Pass	In/Out	Overload
3	12800							
2.5	10800							
2	8400							
1.75	7500							
1.5	6300							
1	4200	0.0	0.0	0.0	100.0	100		
3/4	3200							
5/8	2700							
1/2	2100	0.0	0.0	0.0	100.0			
3/8	1800	1.0	1.0	0.1	99.9			
1/4	1100							
#4	800	49.0	50.0	6.9	93.1	50-100		
#8	470	159.5	209.5	29.1	70.9			
#16	470	168.8	378.3	52.5	47.5			
#30	470	128.4	504.7	70.1	29.9			
#40	470							
#50	470	95.4	600.1	83.4	16.6			
#100	470	33.1	633.2	88.0	12.0	0-40		
#200	470	16.2	649.4	80.2	9.8	0-12		
Pan		7.3	656.7					
Total Dry Weight:		719.9						
Total Washed Weight:		657.3						
Diff (#200):		62.6						

Master Band Target:	#N/A

Validity Check OK  
 FOR DTY03504  
 M504QC  
 (This is a Field Laboratory Report for MISTIC Input)

Authorized By: Sara Kacir  
 Tested By: Sara Kacir  
 Agency/Company: Carrl Scharf Materials  
 Copies to: Materials Inspector, District Materials, Producer

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

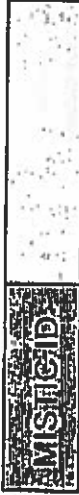
Orig. Wet Weight: grams Moisture %:

Plasticity Index Ratio (#200/#40):  
 Plasticity Index Test Results:

% Washed - #200: 8.7

Mix Plant Only  
 Lot:  
 Bin:

# ILLINOIS DEPARTMENT OF TRANSPORTATION AGGREGATE GRADATION REPORT



Inspector No.: 830000009      Insp. Name: JOSH RICH      Date Sampled: 4/23/2010      Sequence No.:  
 Mix Plant No.: 93      Mfr Plant:      Contract No.:      Job Number:  
 Resp. Loc.: PP      Lab Name: Prairie      Material Code: 042C3096 Gradation #1: PRO      Source Name: Prairie Material  
 Source Location: Ocoya, IL

Subgrade Number	Material Code	PRO	100	75	50	30	15	7.5	4.75	2.5	1.18	0.60	0.30	0.15	0.075	W
51852-09	042C3096 Gradation #1	PRO	100	75	50	30	15	7.5	4.75	2.5	1.18	0.60	0.30	0.15	0.075	W
100	75	50	30	15	7.5	4.75	2.5	1.18	0.60	0.30	0.15	0.075	10.1			

Wash 200: 8.5      Test Results:      Remarks: overloads, if any, were split and hand-shaken... JER  
 APPR

Size (inches)	Retained Weight (lbs)	Sample Weight (lbs)	Percent Retained	Percent Passing	Standard	SP	W
12800	0.0	0.0	0.0	100.0	100	47	22
10800	0.0	0.0	0.0	100.0	80-100	47	22
8400	0.0	0.0	0.0	100.0	80-100	47	22
7500	0.0	0.0	0.0	100.0	80-100	47	22
6300	0.0	0.0	0.0	100.0	80-100	47	22
4200	0.0	0.0	0.0	100.0	80-100	47	22
3200	151.0	151.0	3.2	96.8	75	54	31
2400	465.0	605.0	13.0	87.0	50	54	31
2100	892.0	1165.0	24.9	75.1	30	54	31
1600	811.0	1676.0	42.3	57.7	15	54	31
1100	181.0	2167.0	46.2	53.8	7.5	54	31
800	391.0	2498.0	53.3	46.7	4.75	54	31
470	755.0	3243.0	68.4	31.6	2.5	54	31
470	411.0	3654.0	76.2	23.8	1.18	54	31
470	300.0	3954.0	84.6	15.4	0.60	54	31
470	244.0	4198.0	89.9	10.1	0.30	54	31
470	72.0	4270.0	90.1	4.1	0.15	54	31
470	4671.0	4671.0	100.0	0.0	0.075	54	31
4272.0	4272.0	4272.0	100.0	0.0	0.0375	54	31
389.0	389.0	389.0	100.0	0.0	0.01875	54	31

Original (g) 100      75      50      30      15      7.5      4.75      2.5      1.18      0.60      0.30      0.15      0.075      10.1

Standard      SP      W

Original (g) 100      75      50      30      15      7.5      4.75      2.5      1.18      0.60      0.30      0.15      0.075      10.1

Wash 200: 8.5      Test Results:      Remarks: overloads, if any, were split and hand-shaken... JER

APPR

Orig. Wet Weight: grams      Moisture %:

Flexibility Index Ratio (#200/#40): 0.88  
 Flexibility Index Test Results:

% Washed - #200: 8.5

Moisture Only Test Results:  
 Lot:  
 Bin:

Authorized By: Josh Rich

Tested By: Josh Rich

Agency/Company: Prairie Group

Copies to: Materials Inspector  
 District Materials Producer

Signature: Josh Rich      Date: 23-Apr

Validity Check OK  
 ACR DT03504  
 M1504QC  
 (This is a Field/Laboratory Report for MISTC Input)



STATE OF CALIFORNIA  
DEPARTMENT OF WATER RESOURCES  
DIVISION OF WATER RESOURCES

**ATTACHMENT A2**  
**GEOMEMBRANE RESIN TEST RESULTS**

*(The following table content is extremely faint and largely illegible due to low contrast and scan quality. It appears to be a data table with multiple columns and rows.)*



## Appendix A: Minimum Testing Frequencies and Properties for GSE Raw Materials

TABLE 1. MINIMUM TESTING FREQUENCIES

Property	Test Method <sup>(1)</sup>	Natural Resin
Density	ASTM D 1505	once per rail car compartment
Melt Flow Index	ASTM D 1238 (190/2.16)	once per rail car compartment
OIT	ASTM D 3895 (1 ATM at 200° C)	once per resin lot <sup>(2)</sup>
Carbon Black Content	ASTM D 1603, modified	N/A
Carbon Black Dispersion	ASTM D 5996	NA

**NOTES:**

<sup>1</sup>GSE utilizes test equipment and procedures that enable effective and economical confirmation that the product will conform to specifications based on the noted procedures. Some test procedures have been modified for application to geosynthetics. All procedures and values are subject to change without prior notification.

<sup>2</sup>OIT for LLDPE/VFPE resin is performed on a representative finished product for each lot of resin rather than on the natural (without carbon black) resin.

TABLE 2. MINIMUM PROPERTIES FOR GSE RAW MATERIALS

Property	Test Method <sup>(1)</sup>	HDPE	LLDPE/VFPE
Density [g/cm <sup>3</sup> ]	ASTM D 1505	0.932	0.915
Melt Flow Index [g/10 min]	ASTM D 1238 (190/2.16)	≤ 1.0	≤ 1.0
OIT [minutes]	ASTM D 3895 (1 ATM at 200° C)	100	100 <sup>(2)</sup>

**NOTES:**

<sup>1</sup>GSE utilizes test equipment and procedures that enable effective and economical confirmation that the product will conform to specifications based on the noted procedures. Some test procedures have been modified for application to geosynthetics. All procedures and values are subject to change without prior notification.

<sup>2</sup>OIT for LLDPE/VFPE resin is performed on a representative finished product for each lot of resin rather than on the natural (without carbon black) resin.



CoA Date: 10/27/2009

## Certificate of Analysis

Shipped To: CHEVRON PHILLIPS CHEM. CO LP: GSE  
19103 GUNDLE ROAD  
WESTFIELD TX 77090  
USA

CPC Delivery #: 87945749  
PO #: 46822  
Weight: 188300 LB  
Ship Date: 10/27/2009  
Package: BULK  
Mode: Hopper Car  
Car #: GOCX058228  
Seal No: 270565

Recipient: UP TRACK 14732 Phouangsavanh  
Fax:

Product:  
MARLEX POLYETHYLENE K306 BULK

Lot Number: 8290673

Property	Test Method	Value	Unit
Melt Index	ASTM D1238	0.1	g/10mi
HLMI Flow Rate	ASTM D1238	12.1	g/10mi
Density	D1505 or D4883	0.937	g/cm3
Production Date		09/01/2009	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP.  
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  
Quality Systems Coordinator

For CoA questions contact Customer Service Representative at 800-231-1212



CoA Date: 10/27/2009

## Certificate of Analysis

Shipped To: CHEVRON PHILLIPS CHEM. CO LP: GSE  
19103 GUNDLE ROAD  
WESTFIELD TX 77090  
USA

CPC Delivery #: 87945750  
PO #: 46822  
Weight: 190000 LB  
Ship Date: 10/27/2009  
Package: BULK  
Mode: Hopper Car  
Car #: PSPX002022  
Seal No: 270697

Recipient: UP TRACK 14732 Phouangsavanh  
Fax:

Product:  
MARLEX POLYETHYLENE K306 BULK

Lot Number: 8290674

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		09/01/2009	

The data set forth herein have been carefully compiled by Chevron Phillips Chemical Company LP. 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  
Quality Systems Coordinator

For CoA questions contact Customer Service Representative at 800-231-1212



**ATTACHMENT A3**

**REINFORCEMENT STEEL SHOP DRAWINGS**



866 N. Main Street / PO Box 181  
 Morton, IL 61560-0161  
 (309) 266-7114  
 FAX (309) 263-1050

LETTER OF TRANSMITTAL

Date: 10/21/10

TO: Midwest Generation LLC, Powerton Station  
 13082 E Manito Rd  
 Pekin, IL 61554-8527

RE: Install Metal Claning Basin Liner  
 PO No. 4500067825  
 OBCI Proj. #10-211

ATTN: Mark Kelly 309.477.5240 fax 312.788.5215

WE ARE SENDING YOU:

- plans  
 specifications  
 shop drawings  
 addendum  
 submittal  
 other \_\_\_\_\_  
 via regular mail  
 via overnight

Copies	Date	No.	Description
1			Weir Extension Rebar

THESE ARE TRANSMITTED as checked below:

- for approval  
 for your use  
 as requested  
 for review and comment  
 for pricing  
 approval as submitted  
 approved as noted  
 returned as noted  
 resubmit with corrections  
 other \_\_\_\_\_

REMARKS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

CC: \_\_\_\_\_  
 \_\_\_\_\_

\_\_\_\_\_  
 Craig Holthaus  
 MWG13-15\_49116

**Install Metal Claning Basin Liner**  
**PO No. 4500067825**  
**OBCI Proj. #10-211**

<b>Material</b>	<b>Weir Extension Rebar</b>
<b>Spec. Section</b>	03300
<b>Submittal No.</b>	3
<b>Prev. Submittal No.</b>	
<b>Manufacturer</b>	<b>Mathis Kelly</b>
<b>Supplier</b>	<b>Mathis Kelly</b>

***REVIEWED***

***By Craig Holthaus at 9:19 am, Oct 21, 2010***

REINFORCING STEEL FORMS  
WEIN EXTENSION

REINFORCING  
BAR FABRICATORS  
SINCE 1972

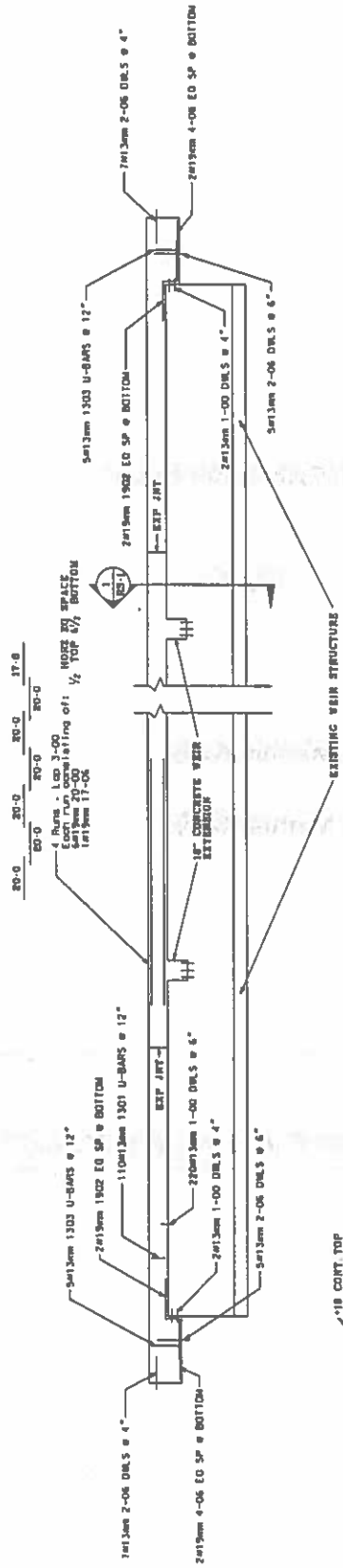
MATHIS - KELLEY  
CONSTRUCTION SUPPLY COMPANY  
O. BOX 9130  
MONTON, IL 61560  
TELEPHONE: (202) 266-8733

PROJECT: WEST GERRITSON  
CONTRACTOR: OTTO BAUM

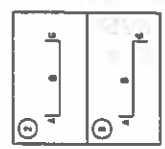
SCALE: 1/4" = 1'-0"  
DATE: 10-10-18  
DRAWN: J. J. J.  
CHECKED: J. J. J.  
APPROVED: J. J. J.

REVISIONS:  
NO. DATE BY

18-1



BAR SIZE	EP MARK	BND V TYP	BENDING DIMENSIONS																	
			A	B	C	D	E	F/R	G	H	J	K	O							
#19mm	1902	B	3-00	1-00																
#13mm	1301	2	0-112	0-04																
#13mm	1303	2	1-112	0-04																



CONCRETE REINFORCEMENT TABLE

BAR	TYPE	SIZE	SPACING	LENGTH	WEIGHT
#13mm	U-BAR	1303	12"	17'-0"	1.1
#13mm	EO SP	1902		20'-0"	1.1
#13mm	U-BAR	1301	12"	17'-0"	1.1
#13mm	EO SP	1902		20'-0"	1.1
#13mm	DMS	2-06		20'-0"	1.1
#13mm	DMS	1-00		20'-0"	1.1
#13mm	DMS	2-06		20'-0"	1.1
#13mm	DMS	1-00		20'-0"	1.1
#13mm	DMS	2-06		20'-0"	1.1
#13mm	DMS	1-00		20'-0"	1.1
#13mm	DMS	2-06		20'-0"	1.1
#13mm	DMS	1-00		20'-0"	1.1

MWG13-15\_4B118

LATENT VALUE

APPROVAL

DATE

APPROVAL

APPROVAL

APPROVAL

## **ATTACHMENT A4**

### **CONCRETE ACCESSORIES AND ADMIXTURE MANUFACTURER'S CERTIFICATE AND LITERATURE**

Item No.	Description	Quantity	Unit	Remarks
1	Concrete Accessories			
2	Concrete Admixtures			
3	Concrete Additives			
4	Concrete Sealers			
5	Concrete Curing Compounds			
6	Concrete Repair Mortars			
7	Concrete Pigments			
8	Concrete Accelerators			
9	Concrete Retarders			
10	Concrete Adhesives			
11	Concrete Grouts			
12	Concrete Sealants			
13	Concrete Consolidators			
14	Concrete Surface Treatments			
15	Concrete Stains			
16	Concrete Cleaners			
17	Concrete Etchers			
18	Concrete Sealers			
19	Concrete Curing Compounds			
20	Concrete Repair Mortars			
21	Concrete Pigments			
22	Concrete Accelerators			
23	Concrete Retarders			
24	Concrete Adhesives			
25	Concrete Grouts			
26	Concrete Sealants			
27	Concrete Consolidators			
28	Concrete Surface Treatments			
29	Concrete Stains			
30	Concrete Cleaners			
31	Concrete Etchers			



LETTER OF TRANSMITTAL

866 N. Main Street / PO Box 161  
Morton, IL 61560-0161  
(309) 266-7114  
FAX (309) 263-1050

Date: 10/15/10

TO: Midwest Generation LLC, Powerton Station  
13082.E Manito Rd  
Pekin, IL 61554-8527

RE: Install Metal Claning Basin Liner  
PO No. 4500067825  
OBCI Proj. #10-211

ATTN: Mark Kelly 309.477.5240 fax 312.788.5215

WE ARE SENDING YOU:

- plans
- specifications
- shop drawings
- addendum
- submittal
- other \_\_\_\_\_
- via regular mail
- via overnight

Copies	Date	No.	Description
1			3,000 PSI Concrete Mix Design (Inlet Aprons)
1			4,000 PSI Concrete Mix Design (Weir Extensions)

THESE ARE TRANSMITTED as checked below:

- for approval
- for your use
- as requested
- for review and comment
- for pricing
- approval as submitted
- approved as noted
- returned as noted
- resubmit with corrections
- other \_\_\_\_\_

REMARKS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

CC: \_\_\_\_\_  
\_\_\_\_\_

Craig Holthaus

**Install Metal Claning Basin Liner**  
**PO No. 4500067825**  
**OBCI Proj. #10-211**

Material	<b>3,000 PSI Mix Design</b>
Spec. Section	<b>03300</b>
Submittal No.	<b>1</b>
Prev. Submittal No.	
Manufacturer	<b>Roanoke Concrete Products</b>
Supplier	<b>Roanoke Concrete Products</b>

**REVIEWED**

**By Craig Holthaus at 1:27 pm, Oct 15, 2010**

**Roanoke Concrete Products - Mix Design**  
 (For 3/8", 1/2", 3/4", 1", and 1 1/2" maximum size aggregate, 1" to 7" slumps)

**RCW3020 - 3000 PSI White Rock**

Input: **Mix Performance Requirements**

Strength Req., fc	3000 PSI	
Min.Cementitious Content	423 lbs. per cy	
Max. W/C Ratio	0.45 Will calculate cementitious based on W/C ratio if W/C > 0	
Theoretical Initial Water Content (Calculated from ACI Table)	295 lbs. per cy	35.4 Gals./cy
User Inputed Water Content (Overrides water from ACI table if >0)	190 lbs. per cy (Final SSD Water Content if > 0)	22.8 Gals./cy
Total Cementitious Content	423 lbs. per cy	
Desired Yield	27.10 cu. ft.	
Slump (whole numbers only)	4.00 in.	
Target Air Content	5.00 %	

Input:

Fine Aggregate		Coarse Aggregate		Aggregate #3	
Peoria Concrete Sand		Mining International CM11		Peoria Concrete Gravel	
FM	2.80	Nom Max. Size	1 in.	Nom Max. Size	3/8 in.
Sp. Gravity (SSD)	2.67	Sp. Gravity(SSD)	2.65	Sp. Gravity(SSD)	2.61
		Unit Wt. * (Dry Rodded)	100.0 pcf Req'd to use ACI table	SSD WL	0 #/cy
		Absorption *	0.75 %	Req'd unless user inputs coarse wt.	
* Coarse agg. dry rodded unit wt. and absorption is required if coarse aggregate wt. is to be calculated from the ACI aggregate table.		Workability Adjustment	0.0 %	Coarse aggregate content from ACI aggregate table reduced	
		User Inputed SSD Coarse Agg	1790 #/cy	If > 0, over-rides coarse agg. content from ACI aggregate table	

Input: **Cementitious**

Material	Source / Description	Sp. Gravity	Replacement	
Cement	Illinois Cement Type I Portland	3.15	%	lb.
Cementitious #1	Headwaters Class C Fly Ash	2.68	15.0	63
Cementitious #2		2.88		0
			Total Replacement	15.0 63
Water Reduction due to pozzolan	0.0 gals./cy	Total Cementitious = 423 lb. (360+63)		
(Water reduced only if initial water content from ACI table is used, no effect if user inputs SSD water content)				

Input: **Admixtures**

Material	Source / Description	Dosage
Water Reducer	Mira 110 Water Reducer	3.00 oz./cwt.
Superplasticizer	Daracem 19 Superplasticizer	As Required for slump oz./cwt.
Admix #3		0.00 oz./cwt.
Admix #4		0.00 oz./cwt.
Air-Entraining Agent	Daravalr 1400 Air entrainment	0.71 oz./cwt.
(Zero or leave blank Air dose oz /cwt to list "As Required" on SSD mix design)		3.00 oz./cu. yd.
Water Reduction due to Admixtures		0.00 %
(Water reduced only if initial water content from ACI table is used)		



**RCW3020 - 3000 PSI White Rock**

SSD Weights per Cubic Yard				
Materials	Sp. Gravity	Weight	Abs. Vol. Ft. <sup>3</sup>	% of Total Cementitious
Illinois Cement Type I Portland	3.15	360 lbs.	1.83	15.0
Headwaters Class C Fly Ash	2.68	63 lbs.	0.38	
Cementitious #2	2.88	0 lbs.	0.00	0.0
Mining International CM11	2.65	1790 lbs.	10.82	-
Peoria Concrete Gravel	2.81	0 lbs.	0.00	-
Peoria Concrete Sand	2.67	1611 lbs.	9.67	-
Total Water	1.00	190 lbs.	3.04	-
Daravair 1400 Air entrainment	-	3.0 oz.	1.36	-
Mira 110 Water Reducer	-	12.7 oz.	-	-
Daracem 19 Superplasticizer	-	#VALUE! oz.	-	-
Admix #3	-	-	-	-
Admix #4	-	-	-	-
			27.10	

Design Strength	3000 PSI
Total Cementitious	423 lb.
Water/Cementitious Ratio	0.449
Target Slump	4.00 in.
Target Air Content	5.00 %
% Fine Aggregate to Total Aggregate, by volume	47.17 %
Theoretical Unit Weight	148.10 pcf
Yield	27.10 cu. ft.

Actual Batch Weights Per Cubic Yard	
Surface Moisture Content of Coarse Agg.	1.0 %
Surface Moisture Content of Intermediate Agg.	1.0 %
Surface Moisture Content of Fine Agg.	3.5 %
Illinois Cement Type I Portland	360 lbs.
Headwaters Class C Fly Ash	63 lbs.
Cementitious #2	0
Mining International CM11	1808 lbs.
Peoria Concrete Gravel	0 lbs.
Peoria Concrete Sand	1667 lbs.
Total Water	13.9 Gals.
Daravair 1400 Air entrainment	3.0 oz.
Mira 110 Water Reducer	12.7 oz.
Daracem 19 Superplasticizer	#VALUE! oz.
Admix #3	-
Admix #4	-

**Note:** This is a theoretical mix design based on data generated by ACI for average material properties. Actual material properties may vary, and it is therefore essential that the performance criteria of this mix design be checked by trial mixes.

Water, lbs. per cy for indicated max. sizes of agg.					
Slump, in.	3/8	1/2	3/4	1	1 1/2
<b>Non Air-Entrained Concrete</b>					
1	345	330	310	295	270
2	350	335	315	300	275
3	367	350	323	312	287
4	385	365	340	325	300
5	393	371	347	330	305
6	401	378	354	335	310
7	410	385	360	340	315
<b>Air-Entrained Concrete</b>					
1	300	290	275	265	245
2	305	295	280	270	250
3	322	310	292	282	262
4	340	325	305	295	275
5	348	332	312	300	280
6	355	339	319	305	285
7	365	345	325	310	290

Max. Size	Ratio	Entrapped/Entrained Air
3/8	0	0.0
1/2	0	0.0
3/4	0	0.0
1	0.67	5.0
1 1/2	0	0.0
	0.670	5.0 %

3/8	1/2	3/4	1	1 1/2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	295	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

**Total Water Content:** 295 lbs. per cy

**Default Water Content** 190 lbs. per cy

**Install Metal Claning Basin Liner**  
**PO No. 4500067825**  
**OBCI Proj. #10-211**

<b>Material</b>	<b>4,000 PSI Mix Design</b>
<b>Spec. Section</b>	<b>03300</b>
<b>Submittal No.</b>	<b>2</b>
<b>Prev. Submittal No.</b>	
<b>Manufacturer</b>	<b>Roanoke Concrete Products</b>
<b>Supplier</b>	<b>Roanoke Concrete Products</b>

**REVIEWED**

**By Craig Holthaus at 1:27 pm, Oct 15, 2010**

**Roanoke Concrete Products - Mix Design**

(For 3/8", 1/2", 3/4", 1", and 1 1/2" maximum size aggregate, 1" to 7" slumps)

**RCW4020 - 4000 psi CONC WHITE ROCK**

Input:

Mix Performance Requirements		
Strength Req., f <sub>c</sub>	4000 PSI	
Min. Cementitious Content	517 lbs. per cy	
Max. W/C Ratio	0.45 Will calculate cementitious based on W/C ratio if W/C > 0	
Theoretical Initial Water Content (Calculated from ACI Table)	295 lbs. per cy	35.4 Gals./cy
User Inputed Water Content (Overrides water from ACI table if >0)	232 lbs. per cy (Final SSD Water Content if > 0)	27.9 Gals./cy
Total Cementitious Content	517 lbs. per cy	
Desired Yield	27.00 cu. ft.	
Slump (whole numbers only)	4.00 in.	
Target Air Content	5.00 %	

Input:

Fine Aggregate		Coarse Aggregate		Aggregate #3	
Peoria Concrete Sand .27asr		Mining International CM11			
FM	2.80	Nom Max. Size	1 in.	Nom Max. Size	0 in.
Sp. Gravity (SSD)	2.64	Sp. Gravity(SSD)	2.66	Sp. Gravity(SSD)	2.66
		Unit Wt. * (Dry Rodded)	100.0 pcf Req'd to use ACI table	SSD Wt.	0 #/cy
		Absorption *	0.75 %	Req'd unless user inputs coarse wt.	
* Coarse agg. dry rodded unit wt. and absorption is required if coarse aggregate wt. is to be calculated from the ACI aggregate table.		Workability Adjustment	0.0 %	Coarse aggregate content from ACI aggregate table reduced	
		User Inputed SSD Coarse Agg	1750 #/cy	If > 0, over-rides coarse agg. content from ACI aggregate table	

Input:

Cementitious				
Material	Source / Description	Sp. Gravity	Replacement	
Cement	Illinois Cement Type I Portland	3.15	%	lb.
Cementitious #1	Class C Fly Ash	2.88	15.0	78
Cementitious #2				0
			Total Replacement	15.0 78
Water Reduction due to pozzolan	0.0 gals./cy	Total Cementitious = 517 lb. (439+78)		
(Water reduced only if initial water content from ACI table is used, no effect if user inputs SSD water content)				

Input:

Admixtures		
Material	Source / Description	Dosage
Water Reducer	Mira 110 Water Reducer	3.50 oz./cwt.
Superplasticizer	Daracem 19 Superplasticizer	As Required oz./cwt.
Admix #3		0.00 oz./cwt.
Admix #4		0.00 oz./cwt.
Air-Entraining Agent	Daravair 1400 Air entrainment	0.78 oz./cwt.
(Zero or leave blank Air dose oz /cwt to list "As Required" on SSD mix design)		4.03 oz./cu. yd.
Water Reduction due to Admixtures (Water reduced only if initial water content from ACI table is used)		0.00 %

**RCW4020 - 4000 psi CONC WHITE ROCK**

<b>SSD Weights per Cubic Yard</b>				
<b>Materials</b>	<b>Sp. Gravity</b>	<b>Weight</b>	<b>Abs. Vol. Ft.<sup>3</sup></b>	<b>% of Total Cementitious</b>
Illinois Cement Type I Portland	3.15	439 lbs.	2.23	15.0
Class C Fly Ash	2.68	78 lbs.	0.47	
Cementitious #2	0.00	0 lbs.	0.00	0.0
Mining International CM11	2.85	1750 lbs.	10.58	-
Aggregate #3	2.85	0 lbs.	0.00	-
Peoria Concrete Sand .27asr	2.64	1425 lbs.	8.85	-
Total Water	1.00	232 lbs.	3.72	-
Daravair 1400 Air entrainment	-	4.0 oz.	1.35	-
Mira 110 Water Reducer	-	18.1 oz.	-	-
Daracem 19 Superplasticizer	-	#VALUE! oz.	-	-
Admix #3	-	-	-	-
Admix #4	-	-	-	-
			27.00	

<b>Design Strength</b>	<b>4000 PSI</b>
<b>Total Cementitious</b>	<b>517 lb.</b>
<b>Water/Cementitious Ratio</b>	<b>0.449</b>
<b>Target Slump</b>	<b>4.00 in.</b>
<b>Target Air Content</b>	<b>5.00 %</b>
<b>% Fine Aggregate to Total Aggregate, by volume</b>	<b>44.97 %</b>
<b>Theoretical Unit Weight</b>	<b>145.33 pcf</b>
<b>Yield</b>	<b>27.00 cu. ft.</b>

<b>Actual Batch Weights Per Cubic Yard</b>	
<b>Surface Moisture Content of Coarse Agg.</b>	1.0 %
<b>Surface Moisture Content of Intermediate Agg.</b>	1.0 %
<b>Surface Moisture Content of Fine Agg.</b>	3.5 %
Illinois Cement Type I Portland	439 lbs.
Class C Fly Ash	78 lbs.
Cementitious #2	0
Mining International CM11	1768 lbs.
Aggregate #3	0 lbs.
Peoria Concrete Sand .27asr	1475 lbs.
Total Water	19.8 Gals.
Daravair 1400 Air entrainment	4.0 oz.
Mira 110 Water Reducer	18.1 oz.
Daracem 19 Superplasticizer	#VALUE! oz.
Admix #3	-
Admix #4	-

**Note:** This is a theoretical mix design based on data generated by ACI for average material properties. Actual material properties may vary, and it is therefore essential that the performance criteria of this mix design be checked by trial mixes.

Water, lbs. per cy for indicated max. sizes of agg.					
Slump, in.	3/8	1/2	3/4	1	1 1/2
<b>Non Air-Entrained Concrete</b>					
1	345	330	310	295	270
2	350	335	315	300	275
3	367	360	323	312	287
4	385	365	340	325	300
5	393	371	347	330	306
6	401	378	354	335	310
7	410	385	380	340	315
<b>Air-Entrained Concrete</b>					
1	300	290	275	265	245
2	305	295	280	270	250
3	322	310	292	282	262
4	340	325	305	295	275
5	348	332	312	300	280
6	356	339	319	305	285
7	365	345	325	310	290

Max. Size	Ratio	Entrapped/Entrained Air
3/8	0	0.0
1/2	0	0.0
3/4	0	0.0
1	0.67	5.0
1 1/2	0	0.0
	0.670	5.0 %

3/8	1/2	3/4	1	1 1/2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	295	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

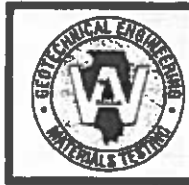
**Total Water Content:** 295 lbs. per cy

**Default Water Content** 232 lbs. per cy



TELEPHONE  
309-673-2131

TESTS \* INVESTIGATIONS  
ANALYSIS \* DESIGN \* EVALUATIONS  
CONSULTATION \* REPORTS \* INSPECTIONS  
ARBITRATION \* EXPERT WITNESS TESTIMONY  
.....  
SOILS \* PORTLAND CEMENT CONCRETE  
BITUMINOUS CONCRETE \* STEEL  
ASPHALT \* AGGREGATES \* SHALES  
POZZOLANIC MATERIALS \* LIME



**WHITNEY & ASSOCIATES**  
INCORPORATED

2406 West Nebraska Avenue  
PEORIA, ILLINOIS 61604

TELEFAX  
309-673-3050

GEOTECHNICAL ENGINEERING  
CONSTRUCTION QUALITY CONTROL  
SUBSURFACE EXPLORATIONS  
ENVIRONMENTAL INVESTIGATIONS  
.....  
MONITORING WELL INSTALLATIONS  
SUIT-UP ROOF INVESTIGATIONS  
WELDER CERTIFICATIONS  
INSURANCE INVESTIGATIONS

CLIENT:  
Mr. Craig Holthaus  
Otto Baum Company, Inc.  
P O Box 161  
Morton, Illinois 61550

W. & A. FILE NO 5486001  
DATE 11/05/10  
SHEET 1 OF 1

PROJECT:  
Midwest Generation Powerton Station  
Metal Cleaning Basin Liner Replacement  
Pekin, Illinois

**REPORT OF OBSERVATIONS AND TESTS OF CONCRETE**

CONCRETE BATCH PLANT Roanoke Concrete CONCRETE OBSERVER Armstrong

DATE	CONCRETE SUPPLIER TICKET NUMBER	TIME TRUCK DISPATCHED	TIME TRUCK UNLOADED	YARDS OF CONCRETE	SLUMP IN	AIR CONTENT - %	CONCRETE TEMP. ° F	AIR TEMP. ° F	MIX DESIGN NO.	CONCRETE TYPE
11/05/10	2007042	9:03	9:53	9.00	3.75	5.6	68	33	3000#	Stone
11/05/10	2007043	9:24	10:27	9.00	3.00	--	69	34	3000#	Stone
11/05/10	2007044 *	9:36	11:16	9.00	2.50	--	67	37	3000#	Stone
11/05/10	2007045	10:38	11:38	9.00	3.00	--	68	38	3000#	Stone
11/05/10	2007047	11:25	12:14	9.00	--	5.2	67	40	3000#	Stone
11/05/10	2007048	11:50	12:42	9.00	3.50	--	62	41	3000#	Stone
11/05/10	2007049 *	12:54	1:14	4.50	4.00	--	71	42	3000#	Stone
11/05/10	2007050 *	12:59	2:09	9.00	5.00	--	70	43	4000#	Stone

DATE	MIX DESIGN NO.	LOCATIONS OF POURS
11/05/10	3000#	Ticket No. 2007044 - Pavement for spillway aprons on the south side of the metal cleaning basin - north end of the center apron
11/05/10	3000#	Ticket No. 2007049 - Pavement for spillway aprons on the south side of the metal cleaning basin - center of the west apron
11/05/10	4000#	Ticket No. 2007050 - Weir at the north end of the metal cleaning basin - west end of the pour

\* CONCRETE CYLINDERS WERE MOLDED FROM THIS TRUCK LOAD

REMARKS:

The locations of the concrete pours are also shown on the attached plan sheet. All tests were performed and cylinders were molded at the hopper end of the pump truck

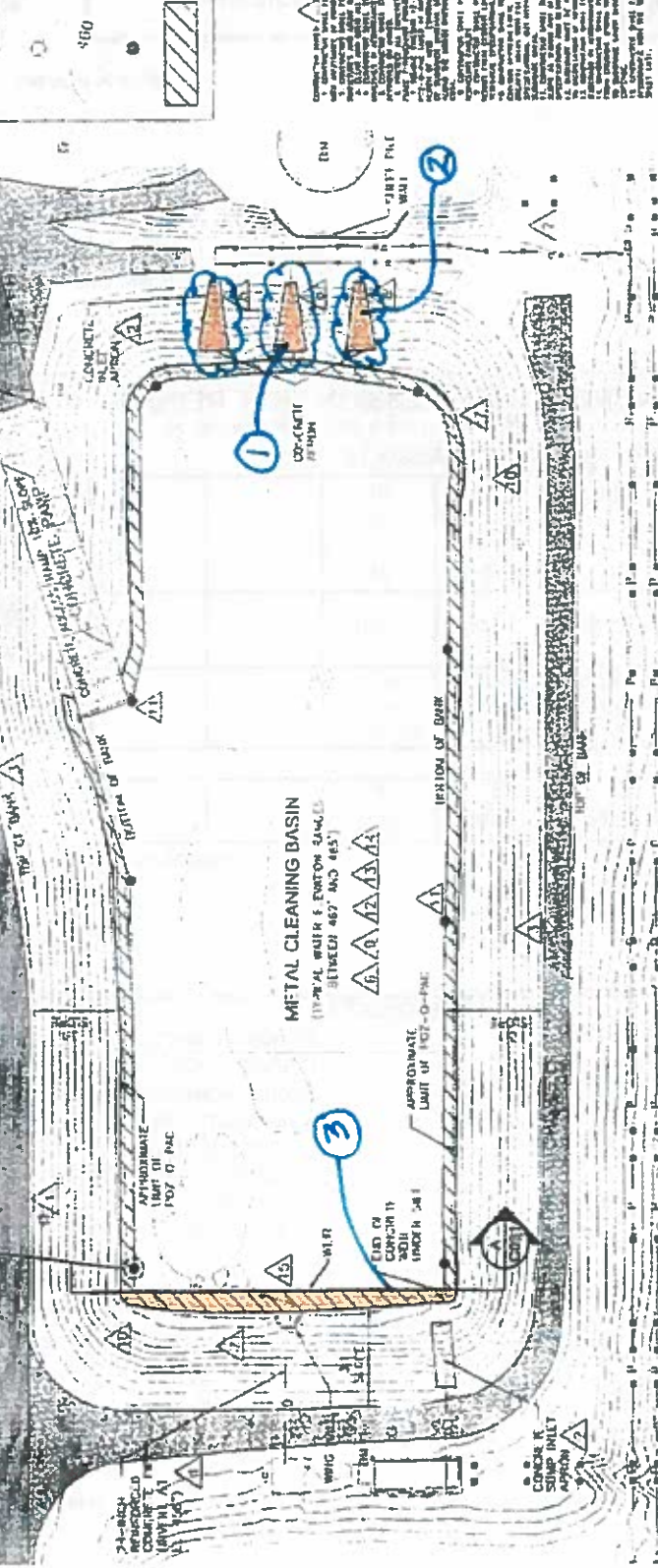
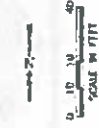
DISTRIBUTION :



**LEGEND**

- UNDESIGNATED POSITION LINE
- APPROXIMATE PNL
- POST POLE
- EXISTING GROUND SURFACE CONTOUR
- MARKER POST LOCATION
- PNL - O - PNC REDRAW AREA

CONSTRUCTION NOTES:  
 1. THE PNL IS TO BE CONSTRUCTED AS SHOWN ON THE DRAWING.  
 2. THE PNL IS TO BE CONSTRUCTED AS SHOWN ON THE DRAWING.  
 3. THE PNL IS TO BE CONSTRUCTED AS SHOWN ON THE DRAWING.  
 4. THE PNL IS TO BE CONSTRUCTED AS SHOWN ON THE DRAWING.  
 5. THE PNL IS TO BE CONSTRUCTED AS SHOWN ON THE DRAWING.



11-5-10

CONCRETE FOR THE WEIR  
 CONCRETE FOR THE SLOPED APRONS

APPROXIMATE LIMIT OF PNC  
 APPROXIMATE LIMIT OF PNC  
 APPROXIMATE LIMIT OF PNC

**LINEAR SUBGRADE PREPARATION**  
**METAL CLEANING BASIN LINER REPLACEMENT**  
**MIDWEST GENERATION**  
**POWERTRAIN POWER STATION**  
**PICKIN, ILLINOIS**

PROJECT NO.	WMA 10
DATE OF PLAN	11/10/10
SCALE	1/8" = 1'-0"
PROJECT LOCATION	WMA 10
DATE OF FIELD SURVEY	11/10/10
DATE OF DESIGN	11/10/10
DATE OF PRINT	11/10/10

NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMIT	11/10/10
2	ISSUED FOR CONSTRUCTION	11/10/10
3	ISSUED FOR RECORD	11/10/10
4	ISSUED FOR AS-BUILT	11/10/10

CONCRETE FOR THE WEIR  
 CONCRETE FOR THE SLOPED APRONS

APPROXIMATE LIMIT OF PNC  
 APPROXIMATE LIMIT OF PNC  
 APPROXIMATE LIMIT OF PNC

CONCRETE FOR THE WEIR  
 CONCRETE FOR THE SLOPED APRONS

TELEPHONE  
309-673-2131

TESTS • INVESTIGATIONS  
ANALYSIS • DESIGN • EVALUATIONS  
CONSULTATION • REPORTS • INSPECTIONS  
ARBITRATION • EXPERT WITNESS TESTIMONY

SOILS • PORTLAND CEMENT CONCRETE  
BITUMINOUS CONCRETE • STEEL  
ASPHALT • AGGREGATES • EMULSIONS  
POZZOLANIC MATERIALS • LIME



**WHITNEY & ASSOCIATES**  
INCORPORATED

2406 West Nebraska Avenue  
PEORIA, ILLINOIS 61604

TELEFAX  
309-673-3050

GEO TECHNICAL ENGINEERING  
CONSTRUCTION QUALITY CONTROL  
SUBSURFACE EXPLORATIONS  
ENVIRONMENTAL INVESTIGATIONS

MONITORING WELL INSTALLATIONS  
BUILT-UP ROOF INVESTIGATIONS  
WELDER CERTIFICATIONS  
INSURANCE INVESTIGATIONS

CLIENT:  
Mr. Craig Holthaus  
Otto Baum Company, Inc.  
P. O. Box 161  
Morton, Illinois 61550

W. & A. FILE NO 5486002

DATES 11/12/10  
12/03/10

PROJECT:  
Midwest Generation Powerton Station  
Metal Cleaning Basin Liner Replacement  
Pekin, Illinois

**CONCRETE COMPRESSION TEST REPORT**

(6 x 12 INCH) NOMINAL CYLINDER SIZE: AREA=28.27 SQ. IN.

**COMPRESSIVE STRENGTH TEST RESULTS**

CYLINDER NO.	1A	1B	1C	1D		
AGE-DAYS	7	7	28	28		
FIELD CURE-DAYS	3	3	3	3		
STANDARD CURE-DAYS	4	4	25	25		
<b>UNIT LOAD PSI</b>	3970	3770	4460	4630		
DATE MOLDED	11/05/10	11/05/10	11/05/10	11/05/10		
DATE RECEIVED	11/08/10	11/08/10	11/08/10	11/08/10		
DATE TESTED	11/12/10	11/12/10	12/03/10	12/03/10		
SPECIFICATIONS						
AGE-DAYS	28	28	28	28		
STRENGTH-PSI	3000	3000	3000	3000		

- CYLINDERS MOLDED BY WHITNEY & ASSOCIATES REPRESENTATIVE.
- CYLINDERS MOLDED BY ARCHITECT'S OR CONTRACTOR'S REPRESENTATIVE.
- CYLINDERS PICKED UP BY WHITNEY & ASSOCIATES REPRESENTATIVE.
- CYLINDERS DELIVERED TO WHITNEY & ASSOCIATES
- TEST RESULTS COMPLY WITH APPLICABLE SPECIFICATIONS.
- TEST RESULTS DO NOT COMPLY WITH APPLICABLE SPECIFICATIONS.

POUR LOCATION:  
Pavement for spillway aprons on the south side of the metal cleaning basin - north end of the center apron

COMMENTS:

**FIELD DATA**

CYLINDER NO. 1  
MIX DESIGN NO. 3000#  
SLUMP. IN. 2.50  
AIR CONTENT % -  
AIR TEMP. -°F. 37  
CONCRETE TEMP. -°F. 67  
FIELD DATA SUBMITTED BY: Whitney & Associates  
MIX DATA SUBMITTED BY: -  
TIME : 11:00 a.m.  
POUR SIZE : 58.50 cu. yds.

CONCRETE BATCH PLANT Roanoke Concrete  
DELIVERY TICKET NO. 2007044  
MIX PROPORTIONS (SSD):  
CEMENT (TYPE) lbs.  
FINE AGGREGATE lbs.  
COARSE AGGREGATE lbs.  
WATER gals.  
ADDITIVES

DISTRIBUTION:

Respectfully submitted,  
**WHITNEY & ASSOCIATES**

WHITNEY & ASSOCIATES  
PEORIA, ILLINOIS  
MWG13-15\_49132

TELEPHONE  
309-673-2131

TESTS \* INVESTIGATIONS  
ANALYSIS \* DESIGN \* EVALUATIONS  
CONSULTATION \* REPORTS \* INSPECTIONS  
ARBITRATION \* EXPERT WITNESS TESTIMONY  
\* \* \* \* \*  
SOILS \* PORTLAND CEMENT CONCRETE  
BITUMINOUS CONCRETE \* STEEL  
ASPHALT \* AGGREGATES \* EMULSIONS  
POZZOLANIC MATERIALS \* LIME



**WHITNEY & ASSOCIATES**  
INCORPORATED

2406 West Nebraska Avenue  
PEORIA, ILLINOIS 61604

TELEFAX  
309-673-3050

GEO TECHNICAL ENGINEERING  
CONSTRUCTION QUALITY CONTROL  
SUBSURFACE EXPLORATIONS  
ENVIRONMENTAL INVESTIGATIONS  
\* \* \* \* \*  
MONITORING WELL INSTALLATIONS  
BUILT-UP ROOF INVESTIGATIONS  
WELDER CERTIFICATIONS  
INSURANCE INVESTIGATIONS

CLIENT:  
Mr. Craig Holthaus  
Otto Baum Company, Inc.  
P. O. Box 161  
Morton, Illinois 61550

W. & A. FILE NO 5486003

DATES 11/12/10  
12/03/10

PROJECT:  
Midwest Generation Powerton Station  
Metal Cleaning Basin Liner Replacement  
Pekin, Illinois

**CONCRETE COMPRESSION TEST REPORT**

(6 X 12 INCH) NOMINAL CYLINDER SIZE: AREA=28.27 SQ. IN.

**COMPRESSIVE STRENGTH TEST RESULTS**

CYLINDER NO.	2A	2B	2C	2D		
AGE-DAYS	7	7	28	28		
FIELD CURE-DAYS	3	3	3	3		
STANDARD CURE-DAYS	4	4	25	25		
<b>UNIT LOAD PSI</b>	4250	3960	4920	4810		
DATE MOLDED	11/05/10	11/05/10	11/05/10	11/05/10		
DATE RECEIVED	11/08/10	11/08/10	11/08/10	11/08/10		
DATE TESTED	11/12/10	11/12/10	12/03/10	12/03/10		
SPECIFICATIONS						
AGE-DAYS	28	28	28	28		
STRENGTH-PSI	3000	3000	3000	3000		

- CYLINDERS MOLDED BY WHITNEY & ASSOCIATES REPRESENTATIVE.
- CYLINDERS MOLDED BY ARCHITECTS OR CONTRACTOR'S REPRESENTATIVE.
- CYLINDERS PICKED UP BY WHITNEY & ASSOCIATES REPRESENTATIVE.
- CYLINDERS DELIVERED TO WHITNEY & ASSOCIATES
- TEST RESULTS COMPLY WITH APPLICABLE SPECIFICATIONS.
- TEST RESULTS DO NOT COMPLY WITH APPLICABLE SPECIFICATIONS.

POUR LOCATION:  
Pavement for spillway aprons on the south side of the metal cleaning basin - center of the west apron

COMMENTS:

**FIELD DATA**

CYLINDER NO. 2  
MIX DESIGN NO. 3000#  
SLUMP, IN. 4.00  
AIR CONTENT % -  
AIR TEMP. -°F. 42  
CONCRETE TEMP. -°F. 71  
FIELD DATA SUBMITTED BY: Whitney & Associates  
MIX DATA SUBMITTED BY: -  
TIME: 1:15 p.m.  
POUR SIZE: 58.50 cu. yds.

CONCRETE BATCH PLANT Roanoke Concrete  
DELIVERY TICKET NO. 2007049  
MIX PROPORTIONS (SSD):  
CEMENT (TYPE) lbs.  
FINE AGGREGATE lbs.  
COARSE AGGREGATE lbs.  
WATER gals.  
ADDITIVES

DISTRIBUTION:

Respectfully submitted,  
WHITNEY & ASSOCIATES

WHITNEY & ASSOCIATES  
PEORIA, ILLINOIS  
MWG13-15\_49133

TELEPHONE  
309-673-2131

TESTS \* INVESTIGATIONS  
ANALYSIS \* DESIGN \* EVALUATIONS  
CONSULTATION \* REPORTS \* INSPECTIONS  
ARBITRATION \* EXPERT WITNESS TESTIMONY

SOILS \* PORTLAND CEMENT CONCRETE  
BITUMINOUS CONCRETE \* STEEL  
ASPHALT \* AGGREGATES \* EMULSIONS  
POZZOLANIC MATERIALS \* LIME



**WHITNEY & ASSOCIATES**  
INCORPORATED

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PEORIA, ILLINOIS 61604

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309-673-3050

GEO TECHNICAL ENGINEERING  
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ENVIRONMENTAL INVESTIGATIONS  
MONITORING WELL INSTALLATIONS  
BUILT-UP ROOF INVESTIGATIONS  
WELDER CERTIFICATIONS  
INSURANCE INVESTIGATIONS

CLIENT:  
Mr. Craig Holthaus  
Otto Baum Company, Inc.  
P. O. Box 161  
Morton, Illinois 61550

W. & A. FILE NO 5486004

DATES 11/12/10  
12/03/10

PROJECT:  
Midwest Generation Powerton Station  
Metal Cleaning Basin Liner Replacement  
Peoria, Illinois

**CONCRETE COMPRESSION TEST REPORT**

(6 X 12 INCH) NOMINAL CYLINDER SIZE. AREA=28.27 SQ. IN.

**COMPRESSIVE STRENGTH TEST RESULTS**

CYLINDER NO.	3A	3B	3C	3D		
AGE-DAYS	7	7	28	28		
FIELD CURE-DAYS	3	3	3	3		
STANDARD CURE-DAYS	4	4	25	25		
UNIT LOAD PSI	3850	4030	4720	4620		
DATE MOLDED	11/05/10	11/05/10	11/05/10	11/05/10		
DATE RECEIVED	11/08/10	11/08/10	11/08/10	11/08/10		
DATE TESTED	11/12/10	11/12/10	12/03/10	12/03/10		
SPECIFICATIONS						
AGE-DAYS	28	28	28	28		
STRENGTH-PSI	4000	4000	4000	4000		

- CYLINDERS MOLDED BY WHITNEY & ASSOCIATES REPRESENTATIVE.
- CYLINDERS MOLDED BY ARCHITECT'S OR CONTRACTOR'S REPRESENTATIVE.
- CYLINDERS PICKED UP BY WHITNEY & ASSOCIATES REPRESENTATIVE.
- CYLINDERS DELIVERED TO WHITNEY & ASSOCIATES
- TEST RESULTS COMPLY WITH APPLICABLE SPECIFICATIONS.
- TEST RESULTS DO NOT COMPLY WITH APPLICABLE SPECIFICATIONS.

POUR LOCATION:  
Weir at the north end of the metal  
cleaning basin - west end of the pour

COMMENTS:

**FIELD DATA**

CYLINDER NO. 3  
MIX DESIGN NO. 4000#  
SLUMP. IN. 5.00  
AIR CONTENT % -  
AIR TEMP. -oF. 45  
CONCRETE TEMP. -oF. 70  
FIELD DATA SUBMITTED BY: Whitney & Associates  
MIX DATA SUBMITTED BY: -  
TIME: 1:45 p.m.  
POUR SIZE: 9.00 cu. yds.

CONCRETE BATCH PLANT Roanoke Concrete  
DELIVERY TICKET NO. 2007050  
MIX PROPORTIONS (SSD):  
CEMENT (TYPE) lbs.  
FINE AGGREGATE lbs.  
COARSE AGGREGATE lbs.  
WATER gals.  
ADDITIVES

DISTRIBUTION:

Respectfully submitted,  
WHITNEY & ASSOCIATES

WHITNEY & ASSOCIATES  
PEORIA, ILLINOIS  
MWG13-15\_49134

**ATTACHMENT A6**

**GEOSYNTHETIC PRODUCT INFORMATION**



The Pioneer Of Geosynthetics  
A I N E R I T I S

Product Data Sheet

## GSE Nonwoven Geotextile

GSE Nonwoven Geotextile is a family of staple fiber needlepunched geotextiles. The geotextile is manufactured using an advanced manufacturing and quality system, to produce the most uniform and consistent nonwoven needlepunched geotextile currently available in the industry. GSE combines a fiber selection and approval system with in-line quality control and a state-of-the-art laboratory to ensure that every roll shipped meets customer specifications and for various applications.

### Product Specifications

These product specifications meet or exceed GRI GT12, GRI GT13 and AASHTO M288.

TESTED PROPERTY	TEST METHOD	FREQUENCY	MINIMUM AVERAGE VALUE					
			NW4	NW6	NW8	NW10	NW12	NW16
AASHTO M288 Class			3	2	1	>1	>>1	>>>1
Mass per Unit Area, oz/yd <sup>2</sup> (g/m <sup>2</sup> )	ASTM D 5261	90,000 ft <sup>2</sup>	4 (135)	6 (200)	8 (270)	10 (335)	12 (405)	16 (540)
Grab Tensile Strength, lb (N)	ASTM D 4632	90,000 ft <sup>2</sup>	120 (530)	160 (710)	220 (975)	260 (1,155)	320 (1,420)	390 (1,735)
Grab Elongation, %	ASTM D 4632	90,000 ft <sup>2</sup>	50	50	50	50	50	50
Puncture Strength, lb (N)	ASTM D 4833	90,000 ft <sup>2</sup>	60 (265)	90 (395)	120 (525)	165 (725)	190 (835)	240 (1,055)
Trapezoidal Tear Strength, lb (N)	ASTM D 4533	90,000 ft <sup>2</sup>	50 (220)	65 (290)	90 (395)	100 (445)	125 (555)	150 (665)
Apparent Opening Size, Sieve No. (mm)	ASTM D 4751	540,000 ft <sup>2</sup>	70 (0.212)	70 (0.212)	80 (0.180)	100 (0.150)	100 (0.150)	100 (0.150)
Permittivity, sec <sup>-1</sup>	ASTM D 4491	540,000 ft <sup>2</sup>	1.80	1.50	1.30	1.00	0.80	0.60
Water Flow Rate, gpm/ft <sup>2</sup> (l/min/m <sup>2</sup> )	ASTM D 4491	540,000 ft <sup>2</sup>	135 (5,495)	110 (4,480)	95 (3,865)	75 (3,050)	60 (2,440)	45 (1,830)
UV Resistance (% retained after 500 hours)	ASTM D 4355	per formulation	70	70	70	70	70	70
<b>NOMINAL ROLL DIMENSIONS</b>								
Roll Length <sup>m</sup> , ft (m)			850 (259)	850 (259)	600 (182)	500 (152)	400 (122)	300 (91)
Roll Width <sup>m</sup> , ft (m)			15 (4.5)	15 (4.5)	15 (4.5)	15 (4.5)	15 (4.5)	15 (4.5)
Roll Area, ft <sup>2</sup> (m <sup>2</sup> )			12,750 (1,185)	12,750 (1,185)	9,000 (836)	7,500 (698)	6,000 (557)	4,500 (418)

#### NOTES:

- The property values listed are in weaker principal direction. All values listed are Minimum Average Values except apparent opening size in mm and UV resistance. Apparent opening size (mm) is a Maximum Value. UV is a typical value.
- <sup>m</sup>Roll lengths and widths have a tolerance of ±1%.

NORTH AMERICA 800.438.2008 281.443.8584 • EUROPE & AFRICA 49.40.767420 • ASIA PACIFIC 60.2.837.0691 • SOUTH AMERICA 56.2.895.4200 • MIDDLE EAST 20.25.026.6688

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# GSE Roll Allocation

**Order** 60728  
**Customer** Clean Air and Water  
**Site** NWG- Powerton Station

<b>Roll#</b>	<b>Product Code</b>	<b>Description</b>	<b>Mfg. Date</b>	<b>Length</b>
130342464	GEO-120E-EBC-E	NW12	6/5/2009	400
130342467	GEO-120E-EBC-E	NW12	6/5/2009	400
130342469	GEO-120E-EBC-E	NW12	6/5/2009	400
130342471	GEO-120E-EBC-E	NW12	6/5/2009	400
130342473	GEO-120E-EBC-E	NW12	6/5/2009	400
130342474	GEO-120E-EBC-E	NW12	6/5/2009	400
130342475	GEO-120E-EBC-E	NW12	6/5/2009	400
130342476	GEO-120E-EBC-E	NW12	6/5/2009	400
130342477	GEO-120E-EBC-E	NW12	6/5/2009	400
130342478	GEO-120E-EBC-E	NW12	6/5/2009	400
130342480	GEO-120E-EBC-E	NW12	6/5/2009	400
130342481	GEO-120E-EBC-E	NW12	6/5/2009	400
130342484	GEO-120E-EBC-E	NW12	6/5/2009	400
130342485	GEO-120E-EBC-E	NW12	6/5/2009	400

# GSE Roll Allocation

**Order** 60728  
**Customer** Clean Air and Water  
**Site** NWG- Powerton Station

<b>Roll#</b>	<b>Product Code</b>	<b>Description</b>	<b>Mfg. Date</b>	<b>Length</b>
130355977	GEO-160E-EBC-E	NW16	12/4/2009	300
130355978	GEO-160E-EBC-E	NW16	12/4/2009	300
130355979	GEO-160E-EBC-E	NW16	12/4/2009	300
130355980	GEO-160E-EBC-E	NW16	12/4/2009	300
130355981	GEO-160E-EBC-E	NW16	12/4/2009	300
130355982	GEO-160E-EBC-E	NW16	12/4/2009	300
130355983	GEO-160E-EBC-E	NW16	12/4/2009	300
130355984	GEO-160E-EBC-E	NW16	12/4/2009	300
130355985	GEO-160E-EBC-E	NW16	12/4/2009	300
130355986	GEO-160E-EBC-E	NW16	12/4/2009	300
130355987	GEO-160E-EBC-E	NW16	12/4/2009	300
130355988	GEO-160E-EBC-E	NW16	12/4/2009	300
130355989	GEO-160E-EBC-E	NW16	12/4/2009	300
130355990	GEO-160E-EBC-E	NW16	12/4/2009	300
130355991	GEO-160E-EBC-E	NW16	12/4/2009	300
130355992	GEO-160E-EBC-E	NW16	12/4/2009	300
130355993	GEO-160E-EBC-E	NW16	12/4/2009	300
130355994	GEO-160E-EBC-E	NW16	12/4/2009	300
130355995	GEO-160E-EBC-E	NW16	12/4/2009	300
130355996	GEO-160E-EBC-E	NW16	12/4/2009	300
130355997	GEO-160E-EBC-E	NW16	12/4/2009	300
130355998	GEO-160E-EBC-E	NW16	12/4/2009	300
130355999	GEO-160E-EBC-E	NW16	12/4/2009	300
130356000	GEO-160E-EBC-E	NW16	12/4/2009	300
130356001	GEO-160E-EBC-E	NW16	12/4/2009	300
130356002	GEO-160E-EBC-E	NW16	12/4/2009	300
130356003	GEO-160E-EBC-E	NW16	12/4/2009	300
130356004	GEO-160E-EBC-E	NW16	12/4/2009	300
130356005	GEO-160E-EBC-E	NW16	12/4/2009	300
130356006	GEO-160E-EBC-E	NW16	12/4/2009	300
130356007	GEO-160E-EBC-E	NW16	12/4/2009	300
130356008	GEO-160E-EBC-E	NW16	12/4/2009	300
130356009	GEO-160E-EBC-E	NW16	12/4/2009	300
130356010	GEO-160E-EBC-E	NW16	12/4/2009	300

GSE 8 2.4-020 Rev -- 02/03

Wednesday, December 16, 2009

Page 1 of 2



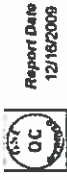
**Order** 60728  
**Customer** Clean Air and Water  
**Site** NWG- Powerton Station

<b>Roll#</b>	<b>Product Code</b>	<b>Description</b>	<b>Mfg. Date</b>	<b>Length</b>
130356011	GEO-160E-EBC-E-	NW16	12/4/2009	300
130356012	GEO-160E-EBC-E-	NW16	12/4/2009	300



Minize Technologies, Inc.

# Roll Test Data Report



Report Date  
12/18/2008

\*Modified

Product Name  
GEO-160E-EBC-E-00

Project Location  
Pekin, IL

Customer Name  
Clean Air and Water

Project Number

Sales Order No.

60728

Roll No.	ASTM D 4461				ASTM D 4781				ASTM D 4622				ASTM D 4622				ASTM D 4622				ASTM D 4622			
	Average Sample	Flow Rate (gal/min@KZ)	Permeability (Sec-1)	Opening Size (mm)	Resistance (psi)	Strength CD (psi)	Trap Tear Strength MD (psi)	Trap Tear Strength CD (psi)	Puncture (psi)	Grab Elongation (%)	Grab Elongation (in)	CD (psi)	MD (psi)	Grab Strength (%)	Grab Strength (lb)	CD (psi)	MD (psi)	Grab Strength (%)	Grab Strength (lb)	CD (psi)	MD (psi)	Grab Strength (%)	Grab Strength (lb)	Unit Area (sq.yd)
130355977	71	1.00	0.150	287	431	287	111	138	769	471	16.9													
130355978	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355979	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355980	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355981	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355982	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355983	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355984	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355985	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355986	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355987	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355988	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355989	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355990	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355991	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355992	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355993	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355994	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355995	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355996	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355997	73	1.00	0.150	262	292	199	98	127	769	470	16.4													
130355998	73	1.00	0.150	269	491	264	101	126	643	462	16.5													
130355999	73	1.00	0.150	269	491	264	101	126	643	462	16.5													
130356000	73	1.00	0.150	269	491	264	101	126	643	462	16.5													
130356001	73	1.00	0.150	269	491	264	101	126	643	462	16.5													
130356002	73	1.00	0.150	269	491	264	101	126	643	462	16.5													
130356003	73	1.00	0.150	269	491	264	101	126	643	462	16.5													
130356004	73	1.00	0.150	269	491	264	101	126	643	462	16.5													
130356005	73	1.00	0.150	269	491	264	101	126	643	462	16.5													
130356006	73	1.00	0.150	269	491	264	101	126	643	462	16.5													
130356007	73	1.00	0.150	269	491	264	101	126	643	462	16.5													
130356008	73	1.00	0.150	269	491	264	101	126	643	462	16.5													

Roll Test Data Report

Sales Order No. 60726  
 Project Number  
 Customer Name: Clean Air and Water  
 Project Location: Pekin, IL  
 Product Name: GEO-190E-EBC-E-00  
 Report Date: 12/18/2009  
 Modified



Roll No.	ASTM D 4911			ASTM D 4791			ASTM D 4823			ASTM D 4833			ASTM D 5291			
	Average Sample	Flow Rate (gallons/42)	Permeability (Sec-1)	Apparatus Opening Size (mm)	Puncture Resistance (psi)	Triap Tear Strength CD (psi)	Triap Tear Strength MD (psi)	Grab Elongation CD (in)	Grab Elongation MD (in)	Grab Elongation CD (in)	Grab Elongation MD (in)	Grab Strength CD (psi)	Grab Strength MD (psi)	Grab Strength CD (psi)	Grab Strength MD (psi)	Mass per Unit Area (oz./yd <sup>2</sup> )
130356008	73	1.00	0.150	269	491	264	101	126	643	462	16.5	16.5	16.5	16.5	16.5	16.5
130356010	73	1.00	0.150	269	491	264	101	126	643	462	16.5	16.5	16.5	16.5	16.5	16.5
130356011	73	1.00	0.150	269	491	264	101	126	643	462	16.5	16.5	16.5	16.5	16.5	16.5
130356012	73	1.00	0.150	269	491	264	101	126	643	462	16.5	16.5	16.5	16.5	16.5	16.5

*Walter J. Penott*

Laboratory Manager:

GSE-8.2.4-029 Rev - 03/05

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Kingstree Lab - US



Lining Technology, Inc

# Roll Test Data Report



Report Date  
12/15/2009

Product Name  
HDT-060AE-WBB-B-00

Project Location  
Pekin, IL

Customer Name  
Clean Air and Water  
Systems, LLC

Project Number

Sales Order No.

60728

Roll No.	ASTM D 394				ASTM D 443				ASTM D 443				ASTM D 443				ASTM D 534			
	Average Thickness (mil)	TD Strength @ Field (psi)	TD Strength @ Field (psi)	TD Strength @ Field (psi)	TD Elongation @ Break (%)	TD Elongation @ Break (%)	TD Elongation @ Break (%)	TD Elongation @ Break (%)	TD Tear Resistance (psi)	TD Tear Resistance (psi)	TD Tear Resistance (psi)	TD Tear Resistance (psi)	TD Tear Resistance (psi)	TD Tear Resistance (psi)	TD Tear Resistance (psi)	TD Tear Resistance (psi)	TD Tear Resistance (psi)	TD Tear Resistance (psi)	TD Tear Resistance (psi)	
103176435	61	59	156	202	233	16	18	575	610	54	56	148	0.945	2.26	10	23	21	21	21	
103176439	61	59	157	205	212	15	18	584	609	55	57	149	0.945	2.26	10	23	21	21	21	
103176440	61	59	157	205	212	15	18	584	609	55	57	149	0.945	2.26	10	23	21	21	21	
103176442	61	58	132	203	226	18	19	648	675	49	52	138	0.945	2.66	10	23	20	20	20	
103176443	61	57	132	203	226	18	19	648	675	49	52	138	0.945	2.66	10	23	21	21	21	
103176444	61	57	132	203	226	18	19	648	675	49	52	138	0.945	2.66	10	23	21	21	21	
103176445	61	56	132	203	226	18	19	648	675	49	52	138	0.945	2.66	10	22	21	21	21	
103176446	61	56	150	223	218	18	19	605	555	54	57	145	0.945	2.79	10	22	21	21	21	
103176448	61	56	150	223	218	18	19	605	555	54	57	145	0.945	2.79	10	21	21	21	21	
103176449	61	56	150	223	218	18	19	605	555	54	57	145	0.945	2.79	10	22	23	23	23	
103176450	61	56	151	208	226	18	20	567	581	52	55	149	0.945	2.70	10	22	23	23	23	
103176451	61	59	151	208	226	18	20	567	581	52	55	149	0.945	2.70	10	21	21	21	21	
103176452	61	58	151	208	226	18	20	567	581	52	55	149	0.945	2.70	10	21	21	21	21	
103176453	61	59	151	208	226	18	20	567	581	52	55	149	0.945	2.70	10	20	20	20	20	
103176454	61	59	144	202	237	16	18	579	630	52	54	146	0.945	2.31	10	20	20	20	20	
103176455	61	58	144	202	237	16	18	579	630	52	54	146	0.945	2.31	10	21	21	21	21	
103176456	61	58	144	202	237	16	18	579	630	52	54	146	0.945	2.31	10	21	21	21	21	

Laboratory Manager: *Spice Allen*

GSE-8.2.4-029 Rev - 03/05

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19103 Gundie Road - Houston, Texas 77073

MWG13-15\_49142



Lining Technology, Inc

# Roll Test Data Report

Sales Order No.

60728

Project Number

Clean Air and Water Systems, LLC

Customer Name

Pekin, IL

Project Location

Product Name

HDT-080AE-WBB-B-00

Report Date

12/16/2009



Roll No.	ASTM D 594				ASTM D 443				ASTM D 1185				ASTM D 4101/1403				ASTM D 1594				GSI 0311			
	Average Thickness (mil)	Minimum Thickness (mil)	TD Strength @ Field (psi)	TD Strength @ Break (psi)	TD Elongation @ Field (%)	TD Elongation @ Break (%)	TD Strength @ Field (psi)	TD Strength @ Break (psi)	TD Elongation @ Field (%)	TD Elongation @ Break (%)	TD Strength @ Field (psi)	TD Strength @ Break (psi)	TD Elongation @ Field (%)	TD Elongation @ Break (%)	Carbon Black Content (%)	Carbon Black Dispersion	Adhesive Layer on Carl-Cast	Adhesive Layer Height (mil)	Adhesive Layer Width (mil)	Adhesive Layer Thickness (mil)	Adhesive Layer Density (g/cc)	Adhesive Layer Modulus (psi)	Adhesive Layer Elongation @ Field (%)	Adhesive Layer Elongation @ Break (%)
103176435	61	59	156	202	233	16	18	18	575	610	54	56	148	0.945	2.26	10	23	21						
103176439	61	59	157	205	212	15	18	18	584	609	55	57	149	0.945	2.26	10	23	21						
103176440	61	59	157	205	212	15	18	18	584	609	55	57	149	0.945	2.26	10	23	21						
103176442	61	58	132	203	226	18	19	19	648	675	49	52	138	0.945	2.66	10	23	20						
103176443	61	57	132	203	226	18	19	19	648	675	49	52	138	0.945	2.66	10	23	21						
103176444	61	57	132	203	226	18	19	19	648	675	49	52	138	0.945	2.66	10	23	21						
103176445	61	56	132	203	226	18	19	19	648	675	49	52	138	0.945	2.66	10	22	21						
103176446	61	56	150	223	218	18	19	19	605	555	54	57	145	0.945	2.79	10	22	21						
103176448	61	56	150	223	218	18	19	19	605	555	54	57	145	0.945	2.79	10	21	22						
103176449	61	56	150	223	218	18	19	19	605	555	54	57	145	0.945	2.79	10	22	23						
103176450	61	56	151	208	226	18	20	20	567	581	52	55	149	0.945	2.70	10	22	23						
103176451	61	59	151	208	226	18	20	20	567	581	52	55	149	0.945	2.70	10	21	21						
103176452	61	58	151	208	226	18	20	20	567	581	52	55	149	0.945	2.70	10	21	21						
103176453	61	59	151	208	226	18	20	20	567	581	52	55	149	0.945	2.70	10	20	20						
103176454	61	59	144	202	237	16	18	18	579	630	52	54	146	0.945	2.31	10	20	20						
103176455	61	58	144	202	237	16	18	18	579	630	52	54	146	0.945	2.31	10	21	22						
103176456	61	58	144	202	237	16	18	18	579	630	52	54	146	0.945	2.31	10	21	22						
103176458	61	57	144	181	208	17	18	18	584	592	54	54	144	0.945	2.63	10	20	20						
103176459	62	58	144	181	208	17	18	18	584	592	54	54	144	0.945	2.63	10	20	20						
103176460	63	59	144	181	208	17	18	18	584	592	54	54	144	0.945	2.63	10	20	20						
103176461	62	60	144	181	208	17	18	18	584	592	54	54	144	0.945	2.63	10	20	20						
103176462	62	59	145	154	216	17	18	18	601	608	55	56	146	0.945	2.62	10	20	20						
103176463	62	60	145	154	216	17	18	18	601	608	55	56	146	0.945	2.62	10	21	21						

Laboratory Manager: *Spencer Allen*

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MWG13-15\_49143



The Pioneer Of Geosynthetics  
S I N C E 1 9 7 3

## GSE White Textured Geomembrane

GSE White Textured is a co-extruded textured high density polyethylene (HDPE) geomembrane available on one or both sides. It is manufactured with the highest quality resin specifically formulated for flexible geomembranes. GSE White Textured has a U.V. stabilized upper white surface that reflects light, improves damage detection, reduces wrinkles and subgrade desiccation. This product provides increased frictional resistance, excellent chemical resistance, and endurance properties. It is used in applications that require enhanced quality assurance measures over standard geomembranes.

### Product Specifications

These product specifications meet or exceed GRI GM13.

TESTED PROPERTY	TEST METHOD	FREQUENCY	MINIMUM AVERAGE VALUE				
			30 mil	40 mil	60 mil	80 mil	100 mil
Thickness, (minimum average) mil (mm) Lowest individual reading (-10%)	ASTM D 5994	every roll	30 (0.75) 27 (0.69)	40 (1.00) 36 (0.91)	60 (1.50) 54 (1.40)	80 (2.00) 72 (1.80)	100 (2.50) 90 (2.30)
Density, g/cm <sup>3</sup>	ASTM D 1505	200,000 lb	0.94	0.94	0.94	0.94	0.94
Tensile Properties (each direction)	ASTM D 6693, Type IV Dumbbell, 2 ipm	20,000 lb					
Strength at Break, lb/in-width (N/mm)			66 (11)	75 (13)	115 (20)	155 (27)	230 (40)
Strength at Yield, lb/in-width (N/mm)			68 (11)	90 (15)	132 (23)	177 (31)	225 (39)
Elongation at Break, %	G.L. 2.0 in (51 mm)		100	100	100	100	100
Elongation at Yield, %	G.L. 1.3 in (33 mm)		12	12	12	12	12
Tear Resistance, lb (N)	ASTM D 1004	45,000 lb	24 (106)	32 (142)	45 (200)	60 (266)	75 (333)
Puncture Resistance, lb (N)	ASTM D 4833	45,000 lb	65 (289)	95 (422)	130 (578)	160 (711)	190 (845)
Carbon Black Content <sup>(a)</sup> , % (Range)	ASTM D 1603*/4218	20,000 lb	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lb	Note <sup>(b)</sup>	Note <sup>(b)</sup>	Note <sup>(b)</sup>	Note <sup>(b)</sup>	Note <sup>(b)</sup>
Asperity Height, mil (mm)	ASTM D 7466	second roll	16 (0.40)	18 (0.45)	18 (0.45)	18 (0.45)	18 (0.45)
Notched Constant Tensile Load <sup>(c)</sup> , hr	ASTM D 5397, Appendix	200,000 lb	1,000	1,000	1,000	1,000	1,000
Oxidative Induction Time, min	ASTM D 3895, 200° C; O <sub>2</sub> 1 atm	200,000 lb	>140	>140	>140	>140	>140
<b>TYPICAL ROLL DIMENSIONS</b>							
Roll Length <sup>(d)</sup> , ft (m)	Double-Sided Textured	830 (253)	700 (213)	520 (158)	400 (122)	330 (101)	
	Single-Sided Textured	840 (256)	650 (198)	420 (128)	320 (98)	250 (76)	
Roll Width <sup>(d)</sup> , ft (m)		22.5 (6.9)	22.5 (6.9)	22.5 (6.9)	22.5 (6.9)	22.5 (6.9)	
Roll Area, ft <sup>2</sup> (m <sup>2</sup> )	Double-Sided Textured	18,675 (1,735)	15,750 (1,463)	11,700 (1,087)	9,000 (836)	7,425 (690)	
	Single-Sided Textured	18,900 (1,755)	14,625 (1,359)	9,450 (878)	7,200 (669)	5,625 (523)	

#### NOTES:

- <sup>(a)</sup> GSE White may have an overall ash content greater than 3.0% due to the white layer. These values apply to the black layer only.
- <sup>(b)</sup> Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
- <sup>(c)</sup> NCTL for GSE White Textured is conducted on representative smooth membrane samples.
- <sup>(d)</sup> Roll lengths and widths have a tolerance of ± 1%.
- GSE White Textured Double-Sided is available in rolls weighing approximately 4,000 lb (1,800 kg) and Single-Sided weighing approximately 3,000 lb (1,360 kg).
- All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LT8 of <-77° C when tested according to ASTM D 746.
- \* Modified.

D:\gse\11111111

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# GSE Roll Allocation

**Order** 60728  
**Customer** Clean Air and Water Systems, LLC  
**Site** MWG-Powerton Station Metal Cleaning

<b>Roll#</b>	<b>Resin Lot</b>	<b>Product Code</b>	<b>Description</b>	<b>Mfg. Date</b>	<b>Length</b>
103176435	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/13/2009	520
103176439	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/13/2009	520
103176440	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176442	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176443	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176444	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176445	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176446	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176448	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176449	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176450	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176451	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176452	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176453	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176454	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176455	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176456	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/15/2009	520
103176458	8290674	HDT-060AE-WBB-B-00	HDT060A010	12/15/2009	520
103176459	8290674	HDT-060AE-WBB-B-00	HDT060A010	12/15/2009	520
103176460	8290674	HDT-060AE-WBB-B-00	HDT060A010	12/15/2009	520
103176461	8290674	HDT-060AE-WBB-B-00	HDT060A010	12/15/2009	520
103176462	8290674	HDT-060AE-WBB-B-00	HDT060A010	12/15/2009	520
103176463	8290674	HDT-060AE-WBB-B-00	HDT060A010	12/15/2009	520

# GSE Roll Allocation

**Order** 60728  
**Customer** Clean Air and Water Systems, LLC  
**Site** MWG-Powerton Station Metal Cleaning

<b>Roll#</b>	<b>Resin Lot</b>	<b>Product Code</b>	<b>Description</b>	<b>Mfg. Date</b>	<b>Length</b>
103176435	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/13/2009	520
103176439	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/13/2009	520
103176440	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176442	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176443	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176444	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176445	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176446	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176448	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176449	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176450	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176451	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176452	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176453	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176454	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176455	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/14/2009	520
103176456	8290673	HDT-060AE-WBB-B-00	HDT060A010	12/15/2009	520





Report Date  
1/17/2011

## Quality Assurance Laboratory Test Results

**Job Name:** MWG - Powerton Station Metal Cleaning Basin  
**Sales Order:** 60728  
**Required Testing:** ASTM D 5397 - Standard Test Method for Evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Constant Tensile Load Test  
**Custom Frequency:** 1/Resin Lot  
**Custom Criteria:** 1000 hours

<u>Product Code</u>	<u>Resin Lot Number</u>	<u>Test Results</u>
HDT-060AE-WBB-B-00	8290673	PASS

Approved By: Debra Gortemiller  
Date Approved: December 15, 2009

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MWG13-15\_48147



Report Date  
1/17/2011

## Quality Assurance Laboratory Test Results

**Job Name:** MWG - Powerton Station Metal Cleaning Basin  
**Sales Order:** 60728  
**Required Testing:** ASTM D 3895 – Standard Test Method for Oxidative Induction Time of Polyolefins by Differential Scanning Calorimetry  
**Custom Frequency:** 1/200,000 lbs.  
**Custom Criteria:** 140 Minutes

<u>Product Code</u>	<u>Resin Lot Number</u>	<u>Test Results</u>
HDT-060AE-WBB-B-00	8290673	PASS

Approved By: Debra Gortemiller  
Date Approved: December 15, 2009

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MWG13-15\_49148



## Quality Assurance Laboratory Test Results

**Job Name:** MWG - Powerton Station Metal Cleaning Basin  
**SO Number:** 60728

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:

Product Type	Formulation	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			
		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:** December 15, 2009

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1245 Eastland Avenue  
Kingstree, SC 29556  
Phone 843-382-4603  
Fax 843-382-4604

Date: December 16, 2009

Project: #60728 MWG – Powerton Station

Ref: Ultraviolet (UV) Resistance and Test Frequency of GSE Geotextiles

To Whom It May Concern:

The resistance of nonwoven needle punched geotextiles to ultraviolet light depends primarily on antioxidant and carbon black package mixed with resin to prepare a formulation for fiber extrusion. As long as this formulation remains the same the UV resistance of a geotextiles does not change. Therefore, GSE performs UV testing only once per resin formulation. The testing is performed according to ASTM Test Method D 4355 and results are included on GSE geotextile specification sheet. Currently, all GSE geotextiles meet or exceed a value of 70% strength retained after 500 hours of UV exposure. GSE will meet or exceed this value for the referenced project.

Although GSE geotextiles are manufactured using one of the best available antioxidant packages, we recommend covering the geotextiles within 15 days of exposure to direct Sunlight. This period does not include time during which geotextiles rolls remain on site covered in black shrink-wrap. Our recommendation is based on UV performance data published in technical literature indicating geotextile strength can decrease sharply after prolonged exposure to Sunlight.

Actual data from an independent laboratory can be supplied upon request.

Vicky T. Parrott

Vicky T. Parrott  
Laboratory Manager - Kingstree



**ATTACHMENT A7**

**GEOMEMBRANE INSTALLER'S DAILY LOGS AND QC  
DOCUMENTATION**



## Appendix D

Table 1. HDPE Seam Strength Properties

Material (Mil)	Shear Strength (PPI)	Fusion Peel (PPI)	Extrusion Peel (PPI)
40	81	65	52
60	121	98	78
80	162	130	104
100	203	162	130

Table 2. LLDPE Seam Strength Properties

Material (Mil)	Shear Strength (PPI)	Fusion Peel (PPI)	Extrusion Peel (PPI)
40	60	50	48
60	90	75	72
80	120	100	96
100	150	125	120

CAAW Systems Field QC Information

Project Name: Powerton - Metal Cleaning Pond  
Project Number: 201044  
Location: Pekin, IL  
QC Monitor: Seng  
Mat 60 mil HDTW

The table is a large grid with approximately 10 columns and 15 rows. It is mostly blank, with some very faint, illegible markings scattered across the cells. The grid is intended for recording field QC data.

CAAW Systems

Trial Weld Testing Summary

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Sample TW#	Date	Ambient Temp	Time (AM/PM)	Machine Number	Seamer Initials	Extrusion Temp	Fusion Temp/Speed	Peel (ppi)		Shear (ppi)	Results (P/F)	Comments
								Inside	Outside			
1	11/9/10	59	12:50	1	KS	Barrel	Wedge	140	136	151	P	
							850	114	124	149		
						Preheat	Speed	127	133			
							300					
2	11/9/10	59	12:50	427	KK	Barrel	Wedge	129	122	145	P	
							850	123	116	148		
						Preheat	Speed	129	133			
							500					
3	11/9/10	59	12:50	428	HN	Barrel	Wedge	136	135	132	P	
							850	129	131	147		
						Preheat	Speed	135	117			
							500					
1	11/10/10	58	7:30	43	VK	Barrel	Wedge	100		180	P	
						525		114		182		
						Preheat	Speed	116				
						485						
2	11/10/10	58	9:00	13	VP	Barrel	Wedge	96		180	P	
						550		125		178		
						Preheat	Speed	98				
						500						



CAAW Systems

**Trial Weld Testing Summary**

Project Name: Powerlon - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Sample TW#	Date	Ambient Temp	Time (AM/PM)	Machine Number	Seamer Initials	Extrusion Temp	Fusion Temp/Speed	Peel (ppi)		Shear (ppi)	Results (P/F)	Comments
								Inside	Outside			
3	11/10/10	58	11:00	1	KS	Barrel	Wedge	136	132	168	P	
							850	135	130	177		
						Preheat	Speed	127	124			
4	11/10/10	58	13:10	43	VK	Barrel	Wedge	124		179	P	
						525		118		188		
						Preheat	Speed	120				
5	11/10/10	58	13:10	13	VP	Barrel	Wedge	104		180	P	
						550		112		177		
						Preheat	Speed	115				
6	11/10/10	58	13:05	1	KS	Barrel	Wedge	121	128	180	P	
							850	133	127	177		
						Preheat	Speed	129	130			
7	11/10/10	58	13:15	427	KK	Barrel	Wedge	114	122	169	P	
							850	118	129	174		
						Preheat	Speed	112	118			

CAAW Systems

**Trial Weld Testing Summary**

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Sample TW#	Date	Ambient Temp	Time (AM/PM)	Machine Number	Seamer Initials	Extrusion Temp	Fusion Temp/Speed	Peel (ppi)		Shear (ppi)	Results (P/F)	Comments
								Inside	Outside			
1	11/11/10	62	7:15	13	VP	Barrel	Wedge	110		187	P	
						550		132		183		
						Preheat	Speed	110				
						500						
2	11/11/10	62	7:30	43	VK	Barrel	Wedge	131		178	P	
						525		106		184		
						Preheat	Speed	137				
						485						
3	11/11/10	62	9:30	427	KK	Barrel	Wedge	139	148	180	P	
							850	147	163	184		
						Preheat	Speed	153	151			
							500					
4	11/11/10	62	9:30	1	KS	Barrel	Wedge	135	143	168	P	
							850	148	136	169		
						Preheat	Speed	143	136			
							300					
5	11/11/10	62	13:15	427	KK	Barrel	Wedge	132	141	171	P	
							850	133	140	168		
						Preheat	Speed	133	129			
							500					

CAAW Systems

**Trial Weld Testing Summary**

Project Name: Powerlon - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Sample TW#	Date	Ambient Temp	Time (AM/PM)	Machine Number	Seamer Initials	Extrusion Temp	Fusion Temp/Speed	Peel (ppi)		Shear (ppi)	Results (P/F)	Comments
								Inside	Outside			
6	11/11/10	62	13:00	1	KS	Barrel	Wedge	133	121	178	P	
						Preheat	Speed	138	126	177		
							300	130	124			
1	11/12/10	59	7:30	43	VK	Barrel	Wedge	102		152	P	
						525		120		162		
						Preheat	Speed	97				
2	11/12/10	59	7:30	239	KS	Barrel	Wedge	114		152	P	
						550		117		149		
						Preheat	Speed	116				
3	11/12/10	59	7:20	13	VP	Barrel	Wedge	116		158	P	
						550		125		145		
						Preheat	Speed	128				
4	11/12/10	59	7:30	427	KK	Barrel	Wedge	118	120	181	P	
						Preheat	Speed	121	127	177		
							500	119	126			

CAAW Systems

**Trial Weld Testing Summary**

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Sample TW#	Date	Ambient Temp	Time (AM/PM)	Machine Number	Seamer Initials	Extrusion Temp	Fusion Temp/Speed	Peel (ppi)		Shear (ppi)	Results (P/F)	Comments
								Inside	Outside			
5	11/12/10	59	13:10	43	VK	Barrel	Wedge	100		161	P	
						525		104		177		
						Preheat	Speed	110				
						485						
6	11/12/10	59	13:10	13	VP	Barrel	Wedge	118		177	P	
						550		122		180		
						Preheat	Speed	116				
						500						
7	11/12/10	59	13:15	239	KS	Barrel	Wedge	110		162	P	
						550		108		157		
						Preheat	Speed	114				
						500						
1	11/15/10	53	7:30	43	VK	Barrel	Wedge	109		169	P	
						525		118		180		
						Preheat	Speed	110		189		
						485						
2	11/15/10	53	7:30	13	VP	Barrel	Wedge	118		179	P	
						550		120		181		
						Preheat	Speed	114		188		
						500						

CAAW Systems

**Trial Weld Testing Summary**

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Sample TW#	Date	Ambient Temp	Time (AM/PM)	Machine Number	Seamer Initials	Extrusion Temp	Fusion Temp/Speed	Peel (ppi)		Shear (ppi)	Results (P/F)	Comments
								Inside	Outside			
3	11/15/10	53	13:10	43	VK	Barrel	Wedge	128		199	P	
						525		122		191		
						Preheat	Speed	133		194		
						485						
4	11/15/10	53	13:10	13	VP	Barrel	Wedge	119		189	P	
						550		116		180		
						Preheat	Speed	124		184		
						500						
						Barrel	Wedge					
						Preheat	Speed					
						Barrel	Wedge					
						Preheat	Speed					

CAAW Systems

**Panel Placement Summary**

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Panel Number	Date	Time (am/pm)	Roll Number	Type S or T	Final Width (Feet)	Final Length (Feet)	Final Area (Sq. Ft.)	Comments
P1	11/9/10		6549	T	22	120	2,640	
P2	11/9/10		6549	T	22	120	2,640	
P3	11/9/10		6549	T	22	120	2,640	
P4	11/9/10		6549	T	22	120	2,640	
P5	11/9/10		6460	T	22	120	2,640	
P6	11/9/10		6460	T	22	120	2,640	
P7	11/9/10		6460	T	22	120	2,640	
P8	11/9/10		6460	T	22	120	2,640	
P9	11/9/10		6462	T	22	120	2,640	
P10	11/9/10		6462	T	22	120	2,640	
P11	11/9/10		6462	T	22	120	2,640	
P12	11/9/10		6462	T	22	120	2,640	
P13	11/9/10		6461	T	22	120	2,640	
P14	11/9/10		6461	T	17	48	696	
P15	11/9/10		6461	T	22	25	276	
P16	11/9/10		6461	T	22	35	650	
P17	11/9/10		6461	T	22	46	918	
P18	11/9/10		6461	T	25	46	787	
P19	11/9/10		6461	T	22	48	748	
P20	11/9/10		6461	T	22	52	1,080	

CAAW Systems

Panel Placement Summary

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Panel Number	Date	Time (am/pm)	Roll Number	Type S or T	Final Width (Feet)	Final Length (Feet)	Final Area (Sq. Ft.)	Comments
P21	11/9/10		6461	T	22	46	748	
P22	11/9/10		6461	T	18	22	160	
P23	11/9/10		6463	T	11	18	100	
P24	11/9/10		6463	T	22	46	781	
P25	11/9/10		6463	T	22	76	1,595	
P26	11/9/10		6463	T	22	69	1,441	
P27	11/9/10		6463	T	22	62	1,287	
P28	11/10/10		6451	T	22	154	3,234	
P29	11/10/10		6451	T	22	140	3,080	
P30	11/10/10		6458	T	22	39	858	
P31	11/10/10		6463	T	18	16	232	
P32	11/10/10		6463	T	11	10	55	
P33	11/10/10		6463	T	22	46	746	
P34	11/10/10		6463	T	22	48	1,056	
P35	11/10/10		6463	T	22	48	1,056	
P36	11/10/10		6463	T	22	48	1,056	
P37	11/10/10		6451	T	22	48	1,056	
P38	11/10/10		6451	T	22	48	1,056	
P39	11/10/10		6451	T	22	48	857	
P40	11/10/10		6451	T	24	22	528	

**CAAW Systems**

**Panel Placement Summary**

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Panel Number	Date	Time (am/pm)	Roll Number	Type S or T	Final Width (Feet)	Final Length (Feet)	Final Area (Sq. Ft.)	Comments
P41	11/10/10		6451	T	22	44	741	
P42	11/10/10		6458	T	22	69	1,518	
P43	11/11/10		6458	T	22	67	1,330	
P44	11/11/10		6458	T	22	67	1,474	
P45	11/11/10		6458	T	22	67	1,474	
P46	11/11/10		6458	T	22	67	1,474	
P47	11/11/10		6458	T	22	67	1,474	
P48	11/11/10		6458	T	22	67	1,474	
P49	11/11/10		6458	T	22	71	1,562	
P50	11/11/10		6452	T	22	74	1,628	
P51	11/11/10		6452	T	22	74	1,628	
P52	11/11/10		6452	T	22	220	4,840	
P53	11/11/10		6452	T	22	36	715	
P54	11/11/10		6449	T	22	26	492	
P55	11/11/10		6449	T	22	33	649	
P56	11/11/10		6449	T	22	29	561	
P57	11/11/10		6449	T	22	22	407	
P58	11/11/10		6449	T	22	15	253	
P59	11/11/10		6449	T	20	8	88	
P60	11/12/10		6449	T	8	110	880	





CAAW Systems

Panel Seaming Summary

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Seam Number	Date Seamed	Final Seam Length (feet)	Welder Initials	Weld Type Ext / Wedge	Machine Number	Machine Temp/ Speed/ Preheat	Time		Ambient Temp (°F)	End of Seam Destructive Test (P/F)	Comments
							Start	Stop			
P1-P2	11/9/10	120	KS	W	1	850/300	13:02		59		
P2-P3	11/9/10	120	KK	W	427	850/500	13:10		59		
P3-P4	11/9/10	120	HN	W	428	850/500	13:18		59		
P4-P5	11/9/10	120	KS	W	1	850/300	13:26		59		
P5-P6	11/9/10	120	KK	W	427	850/500	13:40		59		
P6-P7	11/9/10	120	HN	W	428	850/500	13:49		59		
P7-P8	11/9/10	120	KS	W	1	850/300	13:59		59		
P8-P9	11/9/10	120	KK	W	427	850/500	14:15		59		
P9-P10	11/9/10	120	HN	W	428	850/500	14:21		59		
P10-P11	11/9/10	120	KS	W	1	850/300	14:16		59		
P11-P12	11/9/10	120	KK	W	427	850/500	14:40		59		
P12-P13	11/9/10	120	KS	W	1	850/300	15:24		59		
P13-P14	11/9/10	46	HN	W	428	850/500	15:44		59		
P17-P13	11/9/10	22	KK	W	427	850/500	15:40		59		
P14-P15	11/9/10	19	KK	W	427	850/500	15:40		59		
P14-P16	11/9/10	23	KK	W	427	850/500	15:40		59		
P17-P14	11/9/10	11	KK	W	427	850/500	15:40		59		
P15-P16	11/9/10	22	KK	W	427	850/500	15:30		59		
P16-P17	11/9/10	35	HN	W	428	850/500	15:26		59		

Panel Seaming

CAAW Systems

Panel Seaming Summary

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Seam Number	Date Seamed	Final Seam Length (feet)	Welder Initials	Weld Type Ext / Wedge	Machine Number	Machine Temp/Speed/Preheat	Time		Ambient Temp (°F)	End of Seam Destructive Test (P/F)	Comments
							Start	Stop			
P17-POLYL	11/10/10	78	VK	E	43	525/485	8:40		58		
P18-P17	11/10/10	12	VK	E	43	525/485	8:40		58		
P18-POLYL	11/10/10	74	VK	E	43	525/485	9:40		58		
P18-P19	11/10/10	16	VP	E	13	550/525	9:00		58		
P19-POLYL	11/10/10	51	VP	E	13	550/525	9:00		58		
P19-P20	11/10/10	52	KS	W	1	8507300	10:40		58		
P20-P21	11/10/10	48	KS	W	1	8507300	11:05		58		
P20-P24	11/10/10	6	KS	W	1	8507300	11:05		58		
P21-P22	11/10/10	22	KS	W	1	8507300	11:15		58		
P22-P23	11/10/10	18	KS	W	1	8507300	11:30		58		
P23-P24	11/10/10	19	KS	W	1	8507300	11:24		58		
P24-P25	11/10/10	46	KS	W	1	8507300	11:40		58		
P20-P25	11/10/10	22	KS	W	1	8507300	11:40		58		
P21-P24	11/10/10	24	KS	W	1	8507300	11:30		58		
P25-P26	11/10/10	65	KS	W	1	8507300	11:55		58		
P26-P27	11/10/10	60	KS	W	1	8507300	13:10		58		
P13-P25	11/10/10	22	KS	W	1	8507300	13:23		58		
P12-P26	11/10/10	22	KS	W	1	8507300	13:26		58		
P11-P27	11/10/10	22	KS	W	1	8507300	13:29		58		

Panel Seaming

CAAW Systems

Panel Seaming Summary

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Seam Number	Date Seamed	Final Seam Length (feet)	Welder Initials	Weld Type Ext / Wedge	Machine Number	Machine Temp/ Speed/ Preheat	Time		Ambient Temp (°F)	End of Seam Destructive Test (P/F)	Comments
							Start	Stop			
P1-P28	11/10/10	120	KS	W	1	850/300	15:20		58		
P28-P29	10/10/10	141	KK	W	427	850/500	15:30		58		
P29-P30	11/11/10	38	KS	W	1	850/300	9:40		58		
P30-P31	11/11/10	18	KK	W	427	850/500	9:50		58		
P31-P32	11/10/10	10	KS	W	1	850/300	13:50		58		
P30-P33	11/11/10	21	KK	W	427	850/500	9:50		58		
P31-P33	11/10/10	16	KS	W	1	850/300	13:35		58		
P32-P33	11/10/10	11	KS	W	1	850/300	13:36		58		
P34-P35	11/10/10	48	KK	W	427	850/500	13:50		58		
P35-P36	11/10/10	48	KS	W	1	850/300	14:10		58		
P36-P37	11/10/10	48	KK	W	427	850/500	14:35		58		
P37-P38	11/10/10	48	KS	W	1	850/300	14:40		58		
P38-P39	11/10/10	48	KK	W	427	850/500	14:50		58		
P39-P40	11/10/10	24	KS	W	1	850/300	15:14		58		
P40-P41	11/10/10	21	KS	W	1	850/300	15:00		58		
P41-P42	11/11/10	34	KS	W	1	850/300	9:55		58		
P39-P41	11/10/10	24	KS	W	1	850/300	15:10		58		
P42-P43	11/11/10	64	KK	W	427	850/500	10:10		62		
P42-P29	11/11/10	22	KS	W	1	850/300	10:11		62		

Panel Seaming

CAAW Systems

Panel Seaming Summary

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Seam Number	Date Seamed	Final Seam Length (feet)	Welder Initials	Weld Type Ext / Wedge	Machine Number	Machine Temp/Speed/Preheat	Time		Ambient Temp (°F)	End of Seam Destructive Test (P/F)	Comments
							Start	Stop			
P43-P28	11/11/10	23	KS	W	1	850/300	10:04		62		
P43-P44	11/11/10	55	KK	W	427	850/500	10:15		62		
P44-P28	11/11/10	12	KK	W	427	850/500	10:15		62		
P44-P45	11/11/10	67	KS	W	1	850/300	10:15		62		
P45-P46	11/11/10	67	KS	W	1	850/300	10:25		62		
P46-P47	11/11/10	67	KK	W	427	850/500	10:30		62		
P47-P48	11/11/10	67	KS	W	1	850/300	10:36		62		
P48-P49	11/11/10	71	KK	W	427	850/500	10:45		62		
P49-P50	11/11/10	72	KS	W	1	850/300	10:49		62		
P50-P51	11/11/10	74	KS	W	1	850/300	11:05		62		
P51-P53	11/11/10	36	KK	W	427	850/500	13:20		62		
P53-P56	11/11/10	31	KK	W	427	850/500	13:35		62		
P56-P57	11/11/10	24	KK	W	427	850/500	13:45		62		
P57-P58	11/11/10	18	KK	W	427	850/500	13:50		62		
P58-P59	11/11/10	11	KK	W	427	850/500	13:55		62		
P54-P55	11/11/10	26	KS	W	1	850/300	11:05		62		
P55-P27	11/11/10	33	KS	W	1	850/300	11:10		62		
P28-P52	11/11/10	22	KK	W	427	850/500	11:30		62		
P44-P52	11/11/10	22	KK	W	427	850/500	11:34		62		

Panel Seaming

CAAW Systems

Panel Seaming Summary

Project Name: Powerton - Metal Cleaning Pond

Project Number: 201044

QC Monitor: Seng

Material: 60 mil HDTW

Seam Number	Date Seamed	Final Seam Length (feet)	Welder Initials	Weld Type Ext / Wedge	Machine Number	Machine Temp/ Speed/ Preheat	Time		Ambient Temp (°F)	End of Seam Destructive Test (P/F)	Comments
							Start	Stop			
P45-P52	11/11/10	22	KK	W	427	850/500	11:38		62		
P46-P52	11/11/10	22	KK	W	427	850/500	11:41		62		
P47-P52	11/11/10	22	KK	W	427	850/500	11:44		62		
P48-P52	11/11/10	22	KK	W	427	850/500	11:47		62		
P49-P52	11/11/10	22	KK	W	427	850/500	11:50		62		
P50-P52	11/11/10	22	KK	W	427	850/500	11:53		62		
P51-P52	11/11/10	22	KK	W	427	850/500	11:56		62		
P54-P52	11/11/10	22	KS	W	1	850/300	13:35		62		
P55-P52	11/11/10	22	KS	W	1	850/300	13:36		62		
P52-P27	11/11/10	22	KS	W	1	850/300	13:48		62		
P1-P52	11/11/10	22	KS	W	1	850/300	13:55		62		
P2-P52	11/11/10	22	KS	W	1	850/300	13:58		62		
P3-P52	11/11/10	22	KS	W	1	850/300	14:01		62		
P4-P52	11/11/10	22	KS	W	1	850/300	14:04		62		
P5-P52	11/11/10	22	KS	W	1	850/300	14:07		62		
P6-P52	11/11/10	22	KS	W	1	850/300	14:10		62		
P7-P52	11/11/10	22	KS	W	1	850/300	14:13		62		
P8-P52	11/11/10	22	KS	W	1	850/300	14:16		62		
P9-P52	11/11/10	22	KS	W	1	850/300	14:19		62		

Panel Seaming

CAAW Systems

Panel Seaming Summary

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Seam Number	Date Seamed	Final Seam Length (feet)	Welder Initials	Weld Type Ext / Wedge	Machine Number	Machine Temp/Speed/Preheat	Time		Ambient Temp (°F)	End of Seam Destructive Test (P/F)	Comments
							Start	Stop			
P10-P52	11/11/10	22	KS	W	1	850/300	14:22		62		
P60-P29	11/12/10	97	KK	W	427	850/500	9:10		62		
P60-42	11/12/10	24	KK	W	427	850/500	9:10		62		
P61-P34	11/12/10	22	KK	W	427	850/500	10:20		62		
P61-P35	11/12/10	22	KK	W	427	850/500	10:20		62		
P61-P36	11/12/10	22	KK	W	427	850/500	10:20		62		
P61-P37	11/12/10	22	KK	W	427	850/500	10:20		62		
P61-P38	11/12/10	22	KK	W	427	850/500	10:20		62		
P61-P39	11/12/10	9	KK	W	427	850/500	10:20		62		

CAAW Systems

**Non-Destructive Test Summary**

Project Name: Powerton - Metal Cleaning Pond

Project Number: 201044

QC Monitor: Seng

Material: 60 mil HDTW

Seam Number	Date Tested	Location / Seam Length Tested	Air						Vacuum	Comments
			Air Pressure			Air Test Results (P/F)	Vac. Test Results (P/F)			
			Start		End					
			PSI	Time						
P1-P2	11/10/10	120	30	8:10	30	8:15	P			
P2-P3	11/10/10	120	30	8:08	30	8:13	P			
P3-P4	11/10/10	120	30	8:07	30	8:12	P			
P4-P5	11/10/10	120	30	7:59	30	8:04	P			
P5-P6	11/10/10	120	30	7:58	30	8:03	P			
P6-P7	11/10/10	120	30	7:57	30	8:02	P			
P7-P8	11/10/10	120	30	7:56	30	8:01	P			
P8-P9	11/10/10	120	30	7:55	30	8:00	P			
P9-P10	11/10/10	120	30	8:30	30	8:35	P			
P10-P11	11/10/10	120	30	8:25	30	8:30	P			
P11-P12	11/10/10	120	30	8:26	30	8:31	P			
P12-P13	11/10/10	120	30	8:29	30	8:34	P			
P13-P14	11/10/10	46	30	9:03	29	9:08	P			
P17-P13	11/10/10	22	30	9:11	30	9:16	P			
P14-P15	11/10/10	19	30	9:19	28	9:24	P			
P14-P16	11/10/10	23	30	8:57	30	9:02	P			
P17-P14	11/10/10	11	30	9:12	30	9:17	P			
P15-P16	11/10/10	22	30	9:20	30	9:25	P			
P16-P17	11/10/10	35	30	8:58	30	9:03	P			
P19-P20	11/11/10	52	30	14:02	30	14:07	P			
P20-P21	11/11/10	48	30	14:03	30	14:08	P			

Non-Destructive



CAAW Systems

**Non-Destructive Test Summary**

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Seam Number	Date Tested	Location / Seam Length Tested	Air						Air Test Results (P/F)	Vacuum Test Results (P/F)	Comments
			Air Pressure		End		Time				
			Start		PSI	PSI					
			Time	Time							
P20-P24	11/11/10	6	30	14:05	30	14:10	30	14:10	P		
P21-P22	11/11/10	22	30	14:06	30	14:11	30	14:11	P		
P22-P23	11/11/10	18	30	14:15	30	14:20	30	14:20	P		
P23-P24	11/11/10	19	30	14:16	30	14:21	30	14:21	P		
P24-P25	11/11/10	46	30	14:17	30	14:22	30	14:22	P		
P20-P25	11/11/10	22	30	14:18	30	14:23	30	14:23	P		
P21-P24	11/11/10	24	30	14:25	30	14:30	30	14:30	P		
P25-P26	11/11/10	65	30	14:26	30	14:31	30	14:31	P		
P28-P27	11/11/10	60	30	14:27	30	14:32	30	14:32	P		
P13-P25	11/11/10	22	30	14:28	30	14:33	30	14:33	P		
P12-P26	11/11/10	22	30	14:34	30	14:39	30	14:39	P		
P11-P27	11/11/10	22	30	14:35	30	14:40	30	14:40	P		
P1-P28	11/11/10	120	30	14:36	30	14:41	30	14:41	P		
P28-P29	11/12/10	141	30	14:38	30	14:43	30	14:43	P		
P30-P31	11/12/10	18	30	10:19	29	10:24	29	10:24	P		
P31-P32	11/12/10	10	30	8:48	30	8:53	30	8:53	P		
P30-P33	11/12/10	21	30	10:18	30	10:23	30	10:23	P		
P31-P33	11/12/10	16	30	8:46	30	8:51	30	8:51	P		
P32-P33	11/12/10	11	30	8:49	30	8:54	30	8:54	P		
P34-P35	11/12/10	48	30	8:55	30	9:00	30	9:00	P		
P35-P36	11/12/10	48	30	8:56	30	9:01	30	9:01	P		

Non-Destructive

CAAW Systems

**Non-Destructive Test Summary**

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Seam Number	Date Tested	Location / Seam Length Tested	Air						Air Test Results (P/F)	Vacuum Test Results (P/F)	Comments
			Start		End		PSI	Time			
			PSI	Time	PSI	Time					
			PSI	Time	PSI	Time					
P36-P37	11/12/10	48	30	8:59	30	9:04	P				
P37-P38	11/12/10	48	30	9:00	30	9:05	P				
P38-P39	11/12/10	48	30	9:05	30	9:10	P				
P39-P40	11/12/10	24	30	9:09	29	9:14	P				
P40-P41	11/12/10	21	30	9:08	30	9:13	P				
P41-P42	11/12/10	34	30	10:58	30	11:03	P				
P39-P41	11/12/10	24	30	9:06	30	9:11	P				
P42-P43	11/12/10	64	30	10:57	29	11:02	P				
P42-P29	11/12/10	22	30	10:47	30	10:52	P				
P43-P28	11/12/10	23	30	10:49	30	10:54	P				
P43-P44	11/12/10	55	30	11:00	30	11:05	P				
P44-P28	11/12/10	12	30	11:06	30	11:11	P				
P44-P45	11/12/10	67	30	11:25	30	11:30	P				
P45-P46	11/12/10	67	30	11:26	30	11:31	P				
P46-P47	11/12/10	67	30	11:27	30	11:32	P				
P47-P48	11/12/10	67	30	11:50	30	11:55	P				
P48-P49	11/12/10	71	30	11:51	30	11:56	P				
P49-P50	11/12/10	72	30	11:53	30	11:58	P				
P50-P51	11/12/10	74	30	13:09	29	13:14	P				
P51-P53	11/12/10	36	30	8:36	30	8:41	P				
P53-P56	11/12/10	31	30	8:51	30	8:56	P				

Non-Destructive

CAAW Systems

**Non-Destructive Test Summary**

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Seam Number	Date Tested	Location / Seam Length Tested	Air						Vacuum		Comments
			Air Pressure			Air Test Results (P/F)			Vac. Test Results (P/F)		
			Start		End	PSI	Time	PSI		Time	
			PSI	Time					PSI		
P56-P57	11/12/10	24	30	8:52	30	8:57	30	8:57	P		
P57-P58	11/12/10	18	30	8:53	30	8:58	30	8:58	P		
P58-P59	11/12/10	11	30	8:54	30	8:59	30	8:59	P		
P54-P55	11/12/10	26	30	7:49	30	7:54	30	7:54	P		
P55-P27	11/12/10	33	30	7:47	30	7:52	30	7:52	P		
P28-P52	11/12/10	22	30	8:21	30	8:26	30	8:26	P		
P44-P52	11/12/10	22	30	8:22	30	8:27	30	8:27	P		
P45-P52	11/12/10	22	30	8:23	30	8:28	30	8:28	P		
P46-P52	11/12/10	22	30	8:24	30	8:29	30	8:29	P		
P47-P52	11/12/10	22	30	8:33	30	8:38	30	8:38	P		
P48-P52	11/12/10	22	30	8:34	30	8:39	30	8:39	P		
P49-P52	11/12/10	22	30	8:35	30	8:40	30	8:40	P		
P50-P52	11/12/10	22	30	7:59	30	8:04	30	8:04	P		
P51-P52	11/12/10	22	30	7:58	30	8:03	30	8:03	P		
P54-P52	11/12/10	22	30	7:57	30	8:02	30	8:02	P		
P55-P52	11/12/10	22	30	7:46	30	7:51	30	7:51	P		
P52-P27	11/12/10	22	30	7:45	30	7:50	30	7:50	P		
P1-P52	11/12/10	22	30	7:15	30	7:20	30	7:20	P		
P2-P52	11/12/10	22	30	7:16	30	7:21	30	7:21	P		
P3-P52	11/12/10	22	30	7:17	30	7:22	30	7:22	P		
P4-P52	11/12/10	22	30	7:18	30	7:23	30	7:23	P		

Non-Destructive

**CAAW Systems**

**Non-Destructive Test Summary**

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Seam Number	Date Tested	Location / Seam Length Tested	Air						Vacuum		Comments
			Air Pressure			Air Test Results (P/F)	Vac. Test Results (P/F)	End Time	Start PSI	Time	
			PSI	Time	PSI						
P5-P52	11/12/10	22	30	7:19	30	7:24	P				
P6-P52	11/12/10	22	30	7:26	30	7:31	P				
P7-P52	11/12/10	22	30	7:27	30	7:32	P				
P8-P52	11/12/10	22	30	7:28	30	7:33	P				
P9-P52	11/12/10	22	30	7:29	30	7:34	P				
P10-P52	11/12/10	22	30	7:30	30	7:35	P				
P60-42	11/12/10	20	30	7:33	30	7:38	P				
P61-P34	11/12/10	22	30	7:34	30	7:39	P				
P61-P35	11/12/10	22	30	7:36	30	7:41	P				
P61-P36	11/12/10	22	30	7:37	30	7:42	P				
P61-P37	11/12/10	22	30	7:40	30	7:45	P				
P61-P38	11/12/10	22	30	7:41	30	7:46	P				
P61-P39	11/12/10	9	30	7:43	30	7:48	P				
P60-P29	11/12/10	7	30	13:40	29	13:45	P				
P60-P29	11/12/10	12	30	13:41	30	13:46	P				
P60-P29	11/12/10	15	30	13:42	29	13:47	P				
P60-P29	11/12/10	6	30	13:43	30	13:48	P				
P60-P29	11/12/10	11	30	13:50	30	13:55	P				
P60-P29	11/12/10	28	30	13:51	30	13:56	P				
P60-P29	11/12/10	23	30	13:52	30	13:57	P				
P60-P42	11/12/10	4	30	13:53	29	13:58	P				

Non-Destructive

CAAW Systems

Seam Destructive Test Summary - Field

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Sample DT#	Seam Number	Date	Mach #/ Welder ID	Description of Sample Location	Peel (ppi)		Shear (ppi)	Results (P/F)	Comments
					Inside	Outside			
DS1	P5-P6	11/9/10	KK/427	WEOS - 85	144	129	189	P	
					126	135	191		
					130	133	187		
DS2	P10-P9	11/10/10	KK/427	EEOS - 22	125	119	197	P	
					133	122	186		
					125	129	190		
DS3	P27-P26	11/10/10	KS/1	WEOS - 13	124	136	182	P	
					118	128	169		
					129	122	188		
DS4	P44-P45	11/11/10	KS/1	WEOS - 10	128	136	178	P	
					122	118	189		
					123	131	180		
DS5	P9-P52	11/11/10	KS/1	SEOS - 5	134	128	182	P	
					125	134	182		
					136	127	188		

CAAW Systems

Repair Summary

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Repair Number	Repair Date	Operator/ Mach #	Seam # OR Panel #	Repair Location	Description (patch, bead, ext weld, cap, DT, boot)	Size of Repair	Date Vacuum Tested	Vac. Test Results
1	11/10/10	VK/43	P14	NEOP - 2 X EEOP - 6	BOOT	4X4	11/12/10	P
2	11/10/10	VK/43	P14-P13	INT OF 13-14-17	PATCH	2X2	11/12/10	P
3	11/10/10	VK/43	P16-P17	INT OF 16-17-14	PATCH	2X2	11/12/10	P
4	11/10/10	VK/43	P15-P16	INT OF 15-16-14	PATCH	2X2	11/12/10	P
5	11/10/10	VK/43	P17-P18	SEOS - 0	PATCH	7X4	11/12/10	P
6	11/10/10	VK/43	P18-P17	NEOS - 0	PATCH	5X10	11/12/10	P
7	11/10/10	VK/43	P18-P19	SEOS - 0	PATCH	6X4	11/12/10	P
8	11/10/10	VP/13	P19-P13	EEOS - 0	PATCH	37X3	11/12/10	P
9	11/10/10	VP/13	P22-P21	INT OF 21-22-23-24	PATCH	2X2	11/12/10	P
10	11/10/10	VP/13	P20-P21	INT OF 21-20-24	PATCH	2X2	11/12/10	P
11	11/10/10	VP/13	P24-P25	INT OF 24-25-20	PATCH	2X2	11/12/10	P
12	11/10/10	VP/13	P25-P26	INT OF 25-26-13-12	PATCH	2X2	11/12/10	P
13	11/10/10	VP/13	P26-P27	INT OF 26-27-11-12	PATCH	2X2	11/12/10	P
14	11/11/10	VK/43	P9	WEOP - 41 X NEOP - 3	BOOT	4X4	11/12/10	P
15	11/11/10	VK/43	P5	WEOP - 41 X SEOP - 3	BOOT	4X4	11/12/10	P
16	11/11/10	VK/43	P33-P34	NEOS - 0	BOOT	4X7	11/12/10	P
17	11/11/10	VK/43	P34-P35	INT OF 34-35-61	PATCH	1X1	11/12/10	P
18	11/11/10	VK/43	P35-P36	INT OF 35-36-61	PATCH	1X1	11/12/10	P
19	11/12/10	KS/239	P51-P54	WEOS - 0	PATCH	2X20	11/15/10	P
20	11/12/10	KS/239	P9-P52	SEOS - 5 DS5	DT	2X4	11/15/10	P
21	11/12/10	KS/238	P26-P27	WEOS - 13 DS3	DT	2X4	11/15/10	P
22	11/12/10	KS/239	P51-P50	INT OF 51-50-52	PATCH	2X2	11/15/10	P

CAAW Systems

Repair Summary

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 ml HDTW

Repair Number	Repair Date	Operator/ Mach #	Seam # OR Panel #	Repair Location	Description (patch, bead, ext weld, cap, DT, boot)	Size of Repair	Date Vacuum Tested	Vac. Test Results
23	11/12/10	VP/13	P33-P32	INT OF 33-32-31	PATCH	2X2	11/15/10	P
24	11/12/10	VP/13	P31-P30	INT OF 30-31-33	PATCH	2X2	11/15/10	P
25	11/12/10	VP/13	P30-P31	WEOS - 4	PATCH	2X2	11/15/10	P
26	11/12/10	VP/13	P29	WEOP - 41 X SEOP - 3	BOOT	4X4	11/15/10	P
27	11/12/10	VP/13	P29-P30	INT OF 29-30-60	PATCH	2X2	11/15/10	P
28	11/12/10	VP/13	P60-P29	WEOS - 7	PATCH	2X2	11/15/10	P
29	11/12/10	VP/13	P60-P29	WEOS - 19	PATCH	2X2	11/15/10	P
30	11/12/10	VP/13	P60-P29	WEOS - 39	PATCH	2X2	11/15/10	P
31	11/12/10	VP/13	P60-P29	WEOS - 45	PATCH	2X2	11/15/10	P
32	11/12/10	VP/13	P33-P34	SEOS - 0	PATCH	4X15	11/15/10	P
33	11/12/10	VK/43	P30-P33	INT OF R32-30-33	PATCH	2X2	11/15/10	P
34	11/12/10	VK/43	P61-P34	INT OF 60-34-R32	PATCH	2X2	11/15/10	P
35	11/12/10	VK/43	P36-P37	INT OF 36-37-61	PATCH	2X2	11/15/10	P
36	11/12/10	VK/43	P37-P60	WEOS - 5	PATCH	2X2	11/15/10	P
37	11/12/10	VK/43	P37-P38	INT OF 37-38-61	PATCH	2X2	11/15/10	P
38	11/12/10	VK/43	P38-P61	WEOS - 9	PATCH	2X2	11/15/10	P
39	11/12/10	VK/43	P38-P39	INT OF 38-39-61	PATCH	2X2	11/15/10	P
40	11/12/10	VK/43	P38-P61	WEOS - 4	PATCH	2X2	11/15/10	P
41	11/15/10	VK/43	P38-P40	INT OF 39-40-41	PATCH	2X2	11/15/10	P
42	11/15/10	VK/43	P39-P41	INT OF 39-41-61	PATCH	2X2	11/15/10	P
43	11/15/10	VP/13	P1-P2	INT OF 1-2-52	PATCH	2X2	11/15/10	P
44	11/15/10	VP/13	P2-P3	INT OF 2-3-52	PATCH	2X2	11/15/10	P

Repair

CAAW Systems

Repair Summary

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Repair Number	Repair Date	Operator/ Mach #	Seam # OR Panel #	Repair Location	Description (patch, bead, ext weld, cap, DT, boot)	Size of Repair	Date Vacuum Tested	Vac. Test Results
45	11/15/10	VP/13	P3-P4	INT OF 3-4-52	PATCH	2X2	11/15/10	P
46	11/15/10	VP/13	P4-P5	INT OF 4-5-52	PATCH	2X2	11/15/10	P
47	11/15/10	VP/13	P5-P6	INT OF 5-6-52	PATCH	2X2	11/15/10	P
48	11/15/10	VP/13	P6-P7	INT OF 6-7-52	PATCH	2X2	11/15/10	P
49	11/15/10	VP/13	P7-P8	INT OF 7-8-52	PATCH	2X2	11/15/10	P
50	11/15/10	VP/13	P8-P9	INT OF 8-9-52	PATCH	2X2	11/15/10	P
51	11/15/10	VP/13	P9-P10	INT OF 9-10-52	PATCH	2X2	11/15/10	P
52	11/15/10	VP/13	P10-P11	INT OF 10-11-52-27	PATCH	2X2	11/15/10	P
53	11/15/10	VP/13	P5-P6	WEOS - 85 DS1	DT	2X4	11/15/10	P
54	11/15/10	VP/13	P9-P10	EEOS - 22 DS2	DT	2X4	11/15/10	P
55	11/15/10	VK/43	P35	NEOP - 11	PATCH	11X2	11/15/10	P
56	11/15/10	VK/43	P42	EEOP - 44 X SEOP - 3	BOOT	4X4	11/15/10	P
57	11/15/10	VK/43	P43	NEOP - 8 X EEOP - 6	BOOT	5X6	11/15/10	P
58	11/15/10	VK/43	P60-P29	INT OF 29-60-42	PATCH	2X2	11/15/10	P
59	11/15/10	VK/43	P60-P29	EEOS - 23	PATCH	2X2	11/15/10	P
60	11/15/10	VK/43	P60-P42	WEOS - 4	PATCH	2X2	11/15/10	P
61	11/15/10	VK/43	P60-P42	WEOS - 24	PATCH	2X2	11/15/10	P
62	11/15/10	VK/43	P42-P43	INT OF 42-43-29-28	PATCH	2X2	11/15/10	P
63	11/15/10	VK/43	P43-P44	INT OF 43-44-28	PATCH	2X2	11/15/10	P
64	11/15/10	VK/43	P44-P28	INT OF 44-28-52	PATCH	2X2	11/15/10	P
65	11/15/10	VK/43	P44-P45	INT OF 44-45-52	PATCH	2X2	11/15/10	P
66	11/15/10	VK/43	P44-P45	WEOS - 10 DS4	DT	2X4	11/15/10	P



**CAAW Systems****Repair Summary**

Project Name: Powerton - Metal Cleaning Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Repair Number	Repair Date	Operator/ Mach #	Seam # OR Panel #	Repair Location	Description (patch, bead, ext weld, cap, DT, boot)	Size of Repair	Date Vacuum Tested	Vac. Test Results
67	11/15/10	VK/43	P45-P46	INT OF 45-46-52	PATCH	2X2	11/15/10	P
68	11/15/10	VK/43	P46-P47	INT OF 46-47-52	PATCH	2X2	11/15/10	P
69	11/15/10	VK/43	P47-P48	INT OF 47-48-52	PATCH	2X2	11/15/10	P
70	11/15/10	VK/43	P48-P49	INT OF 48-49-52	PATCH	2X2	11/15/10	P
71	11/15/10	VK/43	P49	EEOP - 41 X SEOP - 3	BOOT	4X4	11/15/10	P
72	11/15/10	VK/43	P49-P50	INT OF 49-50-52	PATCH	2X2	11/15/10	P
73	11/15/10	VK/43	P51-P53	EEOS - 3	PATCH	1X1	11/15/10	P
74	11/15/10	VK/43	P53-P56	WEOS - 0	PATCH	1X1	11/15/10	P
75	11/15/10	VK/43	P56-P57	WEOS - 0	PATCH	1X1	11/15/10	P
76	11/15/10	VK/43	P54-P51	WEOS - 18	BOOT	4X4	11/15/10	P
77	11/15/10	VK/43	P27-P26	EEOS - 0	PATCH	2X2	11/15/10	P
78	11/15/10	VK/43	P26-P25	EEOS - 0	PATCH	1X1	11/15/10	P
79	11/15/10	VP/13	P1-P2	WEOS - 4	PATCH	1X1	11/15/10	P
80	11/15/10	VP/13	P2-P3	WEOS - 4	PATCH	2X2	11/15/10	P
81	11/15/10	VP/13	P5-P6	WEOS - 5	PATCH	1X1	11/15/10	P

**CAAW Systems Field QC Information**

**Project Name:** Powerton - Bypass Pond  
**Project Number:** 201044  
**Location:** Pekin, IL  
**QC Monitor:** Seng  
**Mat** 60 mil HDTW

CAAW Systems

**Trial Weld Testing Summary**

Project Name: Powerton - Bypass Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Sample TW#	Date	Ambient Temp	Time (AM/PM)	Machine Number	Seamer Initials	Extrusion Temp	Fusion Temp/Speed	Peel (ppi)		Shear (ppi)	Results (P/F)	Comments
								Inside	Outside			
1	11/17/10	52	8:45	428	HN	Barrel	Wedge	124	131	178	P	
							850	119	129	185		
						Preheat	Speed	122	126	192		
							500					
2	11/17/10	52	8:48	1	KS	Barrel	Wedge	133	125	178	P	
							850	121	132	188		
						Preheat	Speed	129	139	185		
							300					
3	11/17/10	52	8:42	427	KK	Barrel	Wedge	121	138	192	P	
							850	123	132	186		
						Preheat	Speed	119	111	194		
							500					
4	11/17/10	52	13:15	428	HN	Barrel	Wedge	120	128	177	P	
							850	115	136	182		
						Preheat	Speed	129	121	175		
							500					
5	11/17/10	52	13:08	427	KK	Barrel	Wedge	118	128	189	P	
							850	126	130	184		
						Preheat	Speed	122	128	181		
							500					

CAAW Systems

**Trial Weld Testing Summary**

Project Name: Powerton - Bypass Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Sample TW#	Date	Ambient Temp	Time (AM/PM)	Machine Number	Seamer Initials	Extrusion Temp	Fusion Temp/Speed	Peel (ppi)		Shear (ppi)	Results (P/F)	Comments
								Inside	Outside			
6	11/17/10	52	13:11	1	KS	Barrel	Wedge	125	125	186	P	
							850	129	138	186		
						Preheat	Speed	133	124	190		
							300					
1	11/18/10	48	7:30	13	VP	Barrel	Wedge	115		168	P	
								98		177		
						Preheat	Speed	105		168		
2	11/18/10	48	7:35	43	VK	Barrel	Wedge	127		158	P	
								115		167		
						Preheat	Speed	115		166		
3	11/18/10	48	13:15	43	VK	Barrel	Wedge	118		172	P	
								108		178		
						Preheat	Speed	120		174		
4	11/18/10	48	13:21	13	VP	Barrel	Wedge	116		175	P	
								105		171		
						Preheat	Speed	102		174		

CAAW Systems

**Trial Weld Testing Summary**

Project Name: Powerton - Bypass Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Sample TW#	Date	Ambient Temp	Time (AM/PM)	Machine Number	Seamer Initials	Extrusion Temp	Fusion Temp/Speed	Peel (ppi)		Shear (ppi)	Results (P/F)	Comments
								Inside	Outside			
5	11/18/10	48	13:10	428	HN	Barrel	Wedge	124		168	P	
						Preheat	850	122		170		
							Speed	130		170		
						500						
						Barrel	Wedge					
						Preheat	Speed					
						Barrel	Wedge					
						Preheat	Speed					
						Barrel	Wedge					
						Preheat	Speed					

CAAW Systems

Panel Placement Summary

Project Name: Powerton - Bypass Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Panel Number	Date	Time (am/pm)	Roll Number	Type S or T	Final Width (Feet)	Final Length (Feet)	Final Area (Sq. Ft.)	Comments
P1	11/17/10		6449	T	22	51	1,122	
P2	11/17/10		6449	T	22	51	1,122	
P3	11/17/10		6449	T	22	51	1,122	
P4	11/17/10		6449	T	22	51	1,122	
P5	11/17/10		6449	T	22	51	1,122	
P6	11/17/10		6449	T	22	51	1,122	
P7	11/17/10		6449	T	22	51	1,122	
P8	11/17/10		6446	T	22	48	537	
P9	11/17/10		6446	T	15	30	177	
P10	11/17/10		6446	T	22	43	773	
P11	11/17/10		6446	T	6	12	32	
P12	11/17/10		6446	T	22	199	4,378	
P13	11/17/10		6446	T	22	221	4,862	
P14	11/17/10		6445	T	22	46	865	
P15	11/17/10		6445	T	22	32	521	
P16	11/17/10		6445	T	22	61	1,342	
P17	11/17/10		6445	T	16	17	122	
P18	11/17/10		6445	T	22	44	968	
P19	11/17/10		6445	T	18	44	394	
P20	11/17/10		6445	T	10	24	240	

**CAAW Systems**

**Panel Placement Summary**

Project Name: Powerton - Bypass Pond

Project Number: 201044

QC Monitor: Seng

Material: 60 mil HDTW

Panel Number	Date	Time (am/pm)	Roll Number	Type S or T	Final Width (Feet)	Final Length (Feet)	Final Area (Sq. Ft.)	Comments
P21	11/17/10		6445	T	22	35	649	
P22	11/17/10		6445	T	22	47	1,034	
P23	11/17/10		6445	T	22	51	1,122	
P24	11/17/10		6445	T	22	31	688	
P25	11/17/10		6445	T	4	14	56	
P26	11/17/10		6445	T	22	79	1,738	
P27	11/17/10		6448	T	22	130	2,860	
P28	11/17/10		6448	T	22	48	1,056	
P29	11/17/10		6448	T	22	53	1,166	
P30	11/17/10		6448	T	22	56	1,232	
P31	11/17/10		6448	T	22	57	1,254	
P32	11/17/10		6448	T	22	60	1,320	
P33	11/17/10		6448	T	22	60	1,320	
P34	11/17/10		6448	T	22	27	594	
P35	11/17/10		6450	T	22	33	726	
P36	11/17/10		6450	T	22	57	1,254	
P37	11/17/10		6450	T	22	23	506	
P38	11/17/10		6445	T	22	23	393	
P39	11/17/10		6445	T	9	11	99	

CAAW Systems

Panel Seaming Summary

Project Name: Powerton - Bypass Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Seam Number	Date Seamed	Final Seam Length (feet)	Welder Initials	Weid Type Ext / Wedge	Machine Number	Machine Temp/ Speed/ Preheat	Time		Ambient Temp (°F)	End of Seam Destructive Test (P/F)	Comments
							Start	Stop			
P1-P2	11/17/10	51	KS	W	1	850/300	9:30				
P2-P3	11/17/10	51	HN	W	428	850/500	9:32				
P3-P4	11/17/10	51	KK	W	427	850/500	9:35				
P4-P5	11/17/10	51	KS	W	1	850/300	9:45				
P5-P6	11/17/10	50	KK	W	427	850/500	9:45				
P6-P7	11/17/10	49	HN	W	428	850/500	9:43				
P7-P8	11/17/10	48	KK	W	427	850/500	10:10				
P8-P9	11/17/10	30	HN	W	428	850/500	10:10				
P9-P10	11/17/10	17	HN	W	428	850/500	10:35				
P10-P11	11/17/10	12	HN	W	428	850/500	10:35				
P10-P12	11/17/10	43	KS	W	1	850/300	11:06				
P9-P11	11/17/10	11	HN	W	428	850/500	10:35				
P10-P8	11/17/10	13	HN	W	428	850/500	10:35				
P12-P13	11/17/10	199	HN	W	428	850/500	10:38				
P12-P1	11/17/10	22	KS	W	1	850/300	10:45				
P12-P2	11/17/10	P	KS	W	1	850/300	10:48				
P12-P3	11/17/10	22	KS	W	1	850/300	10:51				
P12-P4	11/17/10	22	KS	W	1	850/300	10:54				
P12-P5	11/17/10	22	KS	W	1	850/300	10:57				

Panel Seaming



CAAW Systems

Panel Seaming Summary

Project Name: Powerton - Bypass Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Seam Number	Date Seamed	Final Seam Length (feet)	Welder Initials	Weld Type Ext / Wedge	Machine Number	Machine Temp/ Speed/ Preheat	Time		Ambient Temp (°F)	End of Seam Destructive Test (P/F)	Comments
							Start	Stop			
P12-P6	11/17/10	22	KS	W	1	850/300	11:00				
P12-P7	11/17/10	22	KS	W	1	850/300	11:03				
P16-P13	11/17/10	61	KS	W	1	850/300	11:19				
P16-P27	11/17/10	22	KK	W	427	850/500	14:25				
P27-P13	11/17/10	130	KK	W	427	850/500	14:29				
P13-P26	11/17/10	29	KK	W	427	850/500	14:29				
P26-P27	11/17/10	22	KS	W	1	850/300	14:05				
P28-P29	11/17/10	48	HN	W	428	850/500	14:34				
P29-P30	11/17/10	53	HN	W	428	850/500	14:26				
P30-P31	11/17/10	56	HN	W	428	850/500	15:00				
P31-P32	11/17/10	57	KK	W	427	850/500	15:00				
P32-P33	11/17/10	60	KK	W	427	850/500	15:10				
P34-P33	11/17/10	27	HN	W	428	850/500	15:16				
P33-P35	11/17/10	33	HN	W	428	850/500	15:16				
P34-P35	11/17/10	22	HN	W	428	850/500	15:13				
P36-P34	11/17/10	24	HN	W	428	850/500	15:33				
P35-P36	11/17/10	33	HN	W	428	850/500	15:33				
P25-P16	11/17/10	14	KK	W	427	850/500	16:02				
P28-P27	11/17/10	19	KK	W	427	850/500	15:30				

Panel Seaming

CAAW Systems

Panel Seaming Summary

Project Name: Powerton - Bypass Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Seam Number	Date Seamed	Final Seam Length (feet)	Welder Initials	Weid Type Ext / Wedge	Machine Number	Machine Temp/ Speed/ Preheat	Time		Ambient Temp (°F)	End of Seam Destructive Test (P/F)	Comments
							Start	Stop			
P29-P27	11/17/10	22	KK	W	427	850/500	15:33				
P30-P27	11/17/10	22	KK	W	427	850/500	15:36				
P31-P27	11/17/10	22	KK	W	427	850/500	15:39				
P32-P27	11/17/10	22	KK	W	427	850/500	15:42				
P33-P27	11/17/10	22	KK	W	427	850/500	15:45				
P35-P26	11/17/10	19	KK	W	427	850/500	15:48				
P36-P26	11/17/10	22	KK	W	427	850/500	15:51				
P37-P26	11/17/10	27	KK	W	427	850/500	15:56				
P16-P15	11/17/10	32	HN	W	428	850/500	11:21				
P15-P17	11/17/10	17	KS	W	1	850/300	11:35				
P15-P14	11/17/10	22	HN	W	428	850/500	11:38				
P14-P17	11/17/10	16	HN	W	428	850/500	11:38				
P26-P23	11/17/10	51	KK	W	427	850/500					
P23-P22	11/17/10	51	KK	W	427	850/500	13:35				
P22-P21	11/17/10	35	HN	W	428	850/500	13:47				
P22-P18	11/17/10	12	HN	W	428	850/500	13:47				
P21-P20	11/17/10	24	HN	W	428	850/500	13:32				
P20-P19	11/17/10	20	KS	W	1	850/300	13:39				
P18-P19	11/17/10	44	KS	W	1	850/300	13:25				

Panel Seaming



CAAW Systems

Non-Destructive Test Summary

Project Name: Powerton - Bypass Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Seam Number	Date Tested	Location / Seam Length Tested	Air						Vacuum		Comments	
			Air Pressure			Air Test Results (P/F)	Vac. Test Results (P/F)	Start		End		
			PSI	Time	PSI			Time	PSI	Time		
												PSI
P1-P2	11/17/10	51	30	10:00	30	10:05	P					
P2-P3	11/17/10	51	30	10:01	30	10:06	P					
P3-P4	11/17/10	51	30	10:02	30	10:07	P					
P4-P5	11/17/10	51	30	10:07	30	10:12	P					
P5-P6	11/17/10	50	30	10:10	30	10:15	P					
P6-P7	11/17/10	49	30	10:11	30	10:16	P					
P7-P8	11/17/10	48	30	11:00	30	11:05	P					
P8-P9	11/17/10	30	30	11:02	30	11:07	P					
P9-P10	11/17/10	17	30	11:01	30	11:06	P					
P10-P11	11/17/10	12	30	11:03	30	11:08	P					
P10-P12	11/17/10	43	30	11:43	30	11:48	P					
P9-P11	11/17/10	11	30	11:04	30	11:09	P					
P10-P8	11/17/10	13	30	11:01	30	11:06	P					
P12-P13	11/17/10	199	30	11:30	30	11:35	P					
P12-P1	11/17/10	22	30	11:31	30	11:36	P					
P12-P2	11/17/10	P	30	11:32	29	11:37	P					
P12-P3	11/17/10	22	30	11:33	30	11:38	P					
P12-P4	11/17/10	22	30	11:34	30	11:39	P					
P12-P5	11/17/10	22	30	11:40	29	11:45	P					
P12-P6	11/17/10	22	30	11:41	30	11:46	P					
P12-P7	11/17/10	22	30	11:42	30	11:47	P					

Non-Destructive

CAAW Systems

**Non-Destructive Test Summary**

Project Name: Powerton - Bypass Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Seam Number	Date Tested	Location / Seam Length Tested	Air						Air Test Results (P/F)	Vacuum Test Results (P/F)	Comments
			Start		End		PSI	Time			
			Time	PSI	Time	PSI					
			Time	PSI	Time	PSI					
P16-P13	11/18/10	61	30	9:29	30	9:34	30	9:34	P		
P16-P27	11/18/10	22	30	9:29	29	9:34	29	9:34	P		
P27-P13	11/18/10	130	30	9:27	30	9:32	30	9:32	P		
P13-P26	11/18/10	29	30	9:28	30	9:33	30	9:33	P		
P26-P27	11/18/10	22	30	9:28	30	9:33	30	9:33	P		
P28-P29	11/18/10	48	30	9:42	28	9:47	28	9:47	P		
P29-P30	11/18/10	53	30	9:46	30	9:51	30	9:51	P		
P30-P31	11/18/10	56	30	9:50	30	9:55	30	9:55	P		
P31-P32	11/18/10	57	30	9:51	30	9:56	30	9:56	P		
P32-P33	11/18/10	60	30	10:09	30	10:14	30	10:14	P		
P34-P33	11/18/10	27	30	10:11	29	10:16	29	10:16	P		
P33-P35	11/18/10	33	30	10:10	30	10:15	30	10:15	P		
P34-P35	11/18/10	22	30	10:12	30	10:17	30	10:17	P		
P36-P34	11/18/10	24	30	10:16	29	10:23	29	10:23	P		
P35-P36	11/18/10	33	30	10:17	30	10:22	30	10:22	P		
P25-P16	11/18/10	14	30	13:12	30	13:17	30	13:17	P		
P28-P27	11/18/10	19	30	9:40	29	9:45	29	9:45	P		
P29-P27	11/18/10	22	30	9:42	29	9:47	29	9:47	P		
P30-P27	11/18/10	22	30	9:47	30	9:52	30	9:52	P		
P31-P27	11/18/10	22	30	9:51	28	9:56	28	9:56	P		
P32-P27	11/18/10	22	30	9:54	30	9:59	30	9:59	P		

Non-Destructive

CAAW Systems

**Non-Destructive Test Summary**

Project Name: Powerton - Bypass Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Seam Number	Date Tested	Location / Seam Length Tested	Air						Air Test Results (P/F)	Vacuum Test Results (P/F)	Comments
			Start			End					
			PSI		Time	PSI		Time			
			PSI	Time	PSI	Time					
P33-P27	11/18/10	22	30	10:09	30	10:14	30	10:27	P		
P35-P26	11/18/10	19	30	10:22	30	10:28	30	10:29	P		
P36-P26	11/18/10	22	30	10:23	30	9:38	30	9:39	P		
P37-P26	11/18/10	27	30	10:24	30	9:35	30	9:40	P		
P16-P15	11/18/10	32	30	9:33	29	9:36	30	9:41	P		
P15-P17	11/18/10	17	30	9:34	30	9:28	30	9:33	P		
P15-P14	11/18/10	22	30	9:35	30	9:08	29	9:13	P		
P14-P17	11/18/10	16	30	9:36	30	14:26	30	14:31	P		
P26-P23	11/18/10	51	30	9:28	30	14:27	30	14:32	P		
P23-P22	11/18/10	51	30	9:08	29	14:28	29	14:33	P		
P22-P21	11/17/10	35	30	14:26	30	14:29	30	14:34	P		
P22-P18	11/17/10	12	30	14:27	30	14:35	30	14:39	P		
P21-P20	11/17/10	24	30	14:28	29	14:22	30	14:27	P		
P20-P19	11/17/10	20	30	14:29	30	14:36	30	14:31	P		
P18-P19	11/17/10	44	30	14:35	30	9:07	30	9:12	P		
P21-P19	11/17/10	23	30	14:22	30	9:27	30	9:32	P		
P18-P24	11/17/10	13	30	14:36	30	9:13	29	9:18	P		
P22-P24	11/18/10	22	30	9:07	30	9:15	30	9:20	P		
P23-P13	11/18/10	22	30	9:27	30						
P24-P13	11/18/10	22	30	9:13	29						
P24-P12	11/18/10	22	30	9:15	30						

Non-Destructive

CAAW Systems

**Non-Destructive Test Summary**

Project Name: Powerton - Bypass Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Seam Number	Date Tested	Location / Seam Length Tested	Air						Air Test Results (P/F)	Vacuum	Comments
			Start			End					
			Time		PSI	Time		PSI			
			PSI	Time	PSI	Time	PSI				
P24-P1	11/18/10	9	30	9:16	30	30	9:21	P			
P37-P38	11/18/10	23	30	13:38	30	30	13:43	P			
P38-P39	11/18/10	11	30	13:40	30	30	13:45	P			
P38-P36	11/18/10	22	30	13:39	29	30	13:44	P			
P39-P36	11/18/10	9	30	13:44	30	30	13:49	P			

**CAAW Systems**

**Seam Destructive Test Summary - Field**

Project Name: Powerton - Bypass Pond  
 Project Number: 201044

QC Monitor: Seng  
 Material: 60 mil HDTW

Sample DT#	Seam Number	Date	Mach #/ Welder ID	Description of Sample Location	Peel (ppi)		Shear (ppi)	Results (P/F)	Comments
					Inside	Outside			
DS1	P12-P7	11/17/10	KS/1	WEOS - 11	124	135	185	P	
					129	133	188		
					127	138	182		
DS2	P35-P26	11/17/10	KK/427	WEOS 11	164	139	188	P	
					135	142	189		
					138	144	193		



CAAW Systems

Repair Summary

Project Name: Powerton - Bypass Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Repair Number	Repair Date	Operator/ Mach #	Seam # OR Panel #	Repair Location	Description (patch, bead, ext weld, cap, DT, boot)	Size of Repair	Date Vacuum Tested	Vac. Test Results
1	11/18/10	VK/43	P1-P2	INT OF 1-2-12	PATCH	2X2	11/19/10	P
2	11/18/10	VK/43	P2-P3	INT OF 2-3-12	PATCH	2X2	11/19/10	P
3	11/18/10	VK/43	P3-P4	INT OF 3-4-12	PATCH	2X2	11/19/10	P
4	11/18/10	VK/43	P4-P5	INT OF 4-5-12	PATCH	2X2	11/19/10	P
5	11/18/10	VK/43	P5-P6	INT OF 5-6-12	PATCH	2X2	11/19/10	P
6	11/18/10	VK/43	P6-P7	INT OF 6-7-12	PATCH	2X2	11/19/10	P
7	11/18/10	VK/43	P7-P12	SEOS - 11 DS1	DT	2X3	11/19/10	P
8	11/18/10	VK/43	P10-P12	INT OF 7-10-12	PATCH	2X3	11/19/10	P
9	11/18/10	VK/43	P8-P9	INT OF 8-9-10	PATCH	2X2	11/19/10	P
10	11/18/10	VK/43	P9-P11	INT OF 9-10-11	PATCH	2X2	11/19/10	P
11	11/18/10	VK/43	P10	NEOP - 3 X EEOP - 4	BOOT	4X4	11/19/10	P
12	11/18/10	VK/43	P5	NEOP - 5 X EEOP - 10	BOOT	4X4	11/19/10	P
13	11/18/10	VK/43	P16-P15	INT OF 15-16-14	PATCH	2X2	11/19/10	P
14	11/18/10	VK/43	P15-P17	INT OF 14-15-17	PATCH	2X2	11/19/10	P
15	11/18/10	VK/43	P28-P14	EEOS - 0	PATCH	3X9	11/19/10	P
16	11/18/10	VK/43	P16	SEOP - 37 X EEOP - 3	BOOT	4X4	11/19/10	P
17	11/18/10	VK/43	P25-P16	INT OF 16-25-28-27	PATCH	2X2	11/19/10	P
18	11/18/10	VK/43	P16-P13	INT OF 13-16-27	PATCH	2X2	11/19/10	P
19	11/18/10	VK/43	P28-P29	INT OF 27-28-29	PATCH	2X2	11/19/10	P
20	11/18/10	VK/43	P29	WEOP - 11 X SEOP - 1	BOOT	4X4	11/19/10	P
21	11/18/10	VK/43	P28-P29	WEOS - 19	PATCH	2X2	11/19/10	P
22	11/18/10	VK/43	P28-P29	EEOS - 3	PATCH	2X2	11/19/10	P

Repair

CAAW Systems

Repair Summary

Project Name: Powerton - Bypass Pond

QC Monitor: Seng

Project Number: 201044

Material: 60 mil HDTW

Repair Number	Repair Date	Operator/ Mach #	Seam # OR Panel #	Repair Location	Description (patch, bead, ext weld, cap, DT, boot)	Size of Repair	Date Vacuum Tested	Vac. Test Results
23	11/18/10	VP/13	P29-P30	INT OF 29-30-27	PATCH	2X2	11/19/10	P
24	11/18/10	VP/13	P30	SEOP - 6 X WEOP - 2	BOOT	4X4	11/19/10	P
25	11/18/10	VP/13	P30-P31	INT OF 27-30-31	PATCH	2X2	11/19/10	P
26	11/18/10	VP/13	P31-P32	INT OF 27-31-32	PATCH	2X2	11/19/10	P
27	11/18/10	VP/13	P31	NEOP - 4 X WEOP - 11	BOOT	4X4	11/19/10	P
28	11/18/10	VP/13	P32-P33	INT OF 27-32-33	PATCH	2X2	11/19/10	P
29	11/18/10	VP/13	P33-P34	INT OF 33-34-35	PATCH	2X2	11/19/10	P
30	11/18/10	VP/13	P33-P35	INT OF 27-26-33-35	PATCH	4X2	11/19/10	P
31	11/18/10	VP/13	P35-P36	INT OF 26-35-36	PATCH	2X2	11/19/10	P
32	11/18/10	VP/13	P35-P36	INT OF 34-35-36	PATCH	2X2	11/19/10	P
33	11/18/10	VP/13	P36	WEOP - 4 X SEOP - 11	BOOT	4X4	11/19/10	P
34	11/18/10	VP/13	P36-P37	INT OF 26-36-37	PATCH	2X2	11/19/10	P
35	11/18/10	VP/13	P26-P37	SEOS - 27	BOOT	5X5	11/19/10	P
36	11/18/10	VP/13	P26-P35	SEOS - 11 DS2	DT	2X3	11/19/10	P
37	11/18/10	VP/13	P37-P38	INT OF 37-38-36	PATCH	2X2	11/19/10	P
38	11/18/10	VP/13	P38-P39	INT OF 38-39-36	PATCH	2X2	11/19/10	P
39	11/18/10	VP/13	P13-P26	INT OF 13-26-27	PATCH	2X2	11/19/10	P
40	11/18/10	VP/13	P23-P26	INT OF 26-23-13	PATCH	2X2	11/19/10	P
41	11/18/10	VP/13	P23-P22	INT OF 22-23-13-24	PATCH	2X2	11/19/10	P
42	11/18/10	VP/13	P13-P12	INT OF 12-13-24	PATCH	2X2	11/19/10	P
43	11/18/10	VP/13	P1-P12	INT OF 1-12-24	PATCH	2X2	11/19/10	P
44	11/18/10	VP/13	P18-P22	INT OF 18-22-24	PATCH	2X2	11/19/10	P



**ATTACHMENT A8**  
**GEOMEMBRANE INSTALLER'S SUBGRADE ACCEPTANCE**

**CERTIFICATE OF ACCEPTANCE OF SUBGRADE  
SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION**

PROJECT NAME: Powerton Generating Station

LOCATION: Pekin, IL

JOB NUMBER: 201044

CLIENT: Otto Baum Company, Inc.

AREA ACCEPTED: Entire area of the Metals Cleaning Pond

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**INSTALLER:** The undersigned authorized representative of CAAW Systems certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the geosynthetic materials.

CAAW Systems shall be responsible for the integrity of finished geosynthetic material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. CAAW Systems has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

**CERTIFICATE APPROVED BY:**

Installers Acceptance

Company: Clean Air And Water Systems, LLC

By: Thong Ingels

Title: Superintendent

Date: 11/16/10

Inspectors Acceptance

Company: Otto Baum

By: Dave Stewart

Title: Foreman

Date: 11/16/10

**CERTIFICATE OF ACCEPTANCE OF SUBGRADE  
SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION**

PROJECT NAME: Powerton Generating Station

LOCATION: Pekin, IL

JOB NUMBER: 201044

CLIENT: Otto Baum Company, Inc.

AREA ACCEPTED: Entire area of the Bypass Pond

COMMENTS:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

INSTALLER: The undersigned authorized representative of CAAW Systems certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the geosynthetic materials.

CAAW Systems shall be responsible for the integrity of finished geosynthetic material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. CAAW Systems has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

CERTIFICATE APPROVED BY:

Installers Acceptance

Company: Clean Air And Water Systems, LLC

By: Thong Ingels

Title: Superintendent

Date: 11/19/10

Inspectors Acceptance

Company: Otto Baum

By: Dave Stewart

Title: Foreman

Date: 11/19/10



**ATTACHMENT A9**

**GEOMEMBRANE INSTALLATION CERTIFICATE**

Faint, illegible text, possibly a header or form title.

Faint, illegible text, possibly a date or location.

Faint, illegible text, possibly a signature or name.

Faint, illegible text, possibly a description or details.

Faint, illegible text, possibly a date.

Faint, illegible text, possibly a signature.

Faint, illegible text, possibly a date.

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January 11, 2011

Midwest Generation, LLC  
Powerton Generating Station  
13082 East Manito Road  
Pekin, IL 61554-8587

RE: Geosynthetic material installation certification

To Whom It May Concern

The HDPE geomembrane and geotextiles installed in the Metals Cleaning Basin and Bypass Pond were installed in accordance with the project specifications and manufactures recommendations.

Sincerely,

Matt Albert  
Project Estimator  
CAAW Systems, LLC.

**Corporate Office**  
123 Elm Street  
P.O. Box 337  
Dousman, WI. 53118-0337  
(262) 965-4366 Fax (262) 965-4369

[www.caawssystem.com](http://www.caawssystem.com)

**Regional Office**  
2727 W. 2<sup>nd</sup> St., Ste 235  
Hastings, NE 68901  
(402) 463-0857 Fax (402) 463-0858

MWG13-15\_49202



INSTALLATION WARRANTY

THIS WARRANTY IS A CONDITION OF THE CONTRACT

The Contractor warrants that the Geomembrane Installation shall conform to the requirements of the contract documents and applicable codes and standards. The Contractor shall be responsible for the proper installation, maintenance, and repair of the Geomembrane System.

### ATTACHMENT A10

## GEOMEMBRANE INSTALLATION WARRANTIES

The Contractor warrants that the Geomembrane Installation shall conform to the requirements of the contract documents and applicable codes and standards. The Contractor shall be responsible for the proper installation, maintenance, and repair of the Geomembrane System.

The Contractor warrants that the Geomembrane Installation shall conform to the requirements of the contract documents and applicable codes and standards. The Contractor shall be responsible for the proper installation, maintenance, and repair of the Geomembrane System.

The Contractor warrants that the Geomembrane Installation shall conform to the requirements of the contract documents and applicable codes and standards. The Contractor shall be responsible for the proper installation, maintenance, and repair of the Geomembrane System.

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The Contractor warrants that the Geomembrane Installation shall conform to the requirements of the contract documents and applicable codes and standards. The Contractor shall be responsible for the proper installation, maintenance, and repair of the Geomembrane System.



## INSTALLATION WARRANTY- GEOMEMBRANE LINERS

PROJECT NAME: Powerton Generating Station

Subject to the terms and conditions set forth below, Clean Air And Water Systems, LLC warrants to Purchaser, Midwest Generation, LLC, that the 60 mil HDPE White Textured Geomembrane installed in the Metals Cleaning Basin and Bypass Pond, was installed by Clean Air And Water Systems, LLC, in accordance with the specifications in a good and workmanlike manner and that the installation of the liner is free from defects in workmanship for a period of two (2) years from the date upon which the material was installed.

This warranty covers only defects in workmanship occurring during the installation of the liner. This warranty does not cover any damage to, or defects in the liner found to have been a result of misuse, abuse or conditions existing after it was installed, including, but not limited to, rough handling; malicious mischief; vandalism; sabotage; fire; acts of God; acts of the public enemy; acts of war, public rebellion, severe weather conditions of all types; damage due to ice; excessive stress from any source; floating debris; damage due to machinery; foreign objects or animals. Nor does this warranty cover any defects which are found to have been a result of improper or defective design or engineering unless the design or engineering was performed by Clean Air And Water Systems, LLC. In the event circumstances are found to exist which purchaser believes may give rise to a claim under this warranty, the following procedure shall be followed:

- a) Purchaser shall give Clean Air And Water Systems, LLC written notice of the facts and circumstances of said claim within ten (10) days of becoming aware of said facts and circumstances. Said notice shall be by registered or certified mail, return receipt requested, postage prepaid, addressed to Member, Clean Air And Water Systems, LLC, 123 Elm Street, PO Box 337, Dousman, Wisconsin 53118. The words "WARRANTY CLAIM" shall be clearly marked on the face of envelope in the lower right hand corner. Said notice shall contain, at a minimum, the name and address of the owner, the name and address of the installation, the name and address of the installer, the date upon which the material was purchased and the facts known to Purchaser upon which the claim is based. Failure to strictly comply with all the requirements of this paragraph shall void this warranty.
- b) Within twenty days after receipt of the notice described in paragraph a., above, Clean Air And Water Systems, LLC shall notify Purchaser either that it will send a representative to inspect the allegedly defective liner or that it does not wish to do so. Purchaser shall pay the expenses incurred by Clean Air And Water Systems, LLC in making the inspection, including current per diem rates for personnel involved in making the inspection, in the event Clean Air And Water Systems, LLC determines that the claim is not covered by this warranty.
- c) Purchaser SHALL NOT REPAIR, REPLACE, REMOVE, ALTER OR DISTURB ANY LINER, NOR SHALL Purchaser ALLOW ANYONE ELSE TO REPAIR, REPLACE, REMOVE, ALTER, OR DISTURB ANY LINER PRIOR TO SUCH INSPECTION OR RECEIPT OF CLEAN AIR AND WATER SYSTEMS, LLC.'S NOTICE THAT IT ELECTS NOT TO INSPECT. A FAILURE TO STRICTLY COMPLY WITH THIS PARAGRAPH SHALL VOID THIS WARRANTY OR MAY LEAD TO A DETERMINATION THAT THE ALLEGED DEFECTS ARE NOT WITHIN THE SCOPE OF THIS WARRANTY.
- d) If Clean Air And Water Systems, LLC determines that the alleged defects are covered by this warranty, Clean Air And Water Systems, LLC shall, in its sole discretion, either repair the defective liner or provide Purchaser with replacement liner. THE REMEDIES PROVIDED HEREIN ARE THE EXCLUSIVE REMEDIES AVAILABLE UNDER THIS WARRANTY. Any determination as to whether a particular defect is covered by this warranty will be made by Clean Air And Water Systems, LLC in its sole and complete discretion.



- e) Purchaser agrees that it shall provide Clean Air And Water Systems, LLC with clean, dry and unobstructed access to the liner in order for Clean Air And Water Systems, LLC to perform the inspections and warranty work which may be required pursuant to this warranty.

THE REMEDIES PROVIDED TO Purchaser HEREIN ARE THE EXCLUSIVE REMEDIES AVAILABLE UNDER THIS WARRANTY AND ARE INTENDED FOR THE SOLE BENEFIT OF Purchaser. NEITHER THIS WARRANTY NOR ANY RIGHTS HEREUNDER SHALL BE ASSIGNABLE. CLEAN AIR AND WATER SYSTEMS, LLC SHALL HAVE NO LIABILITY UNDER THIS WARRANTY TO THIRD PARTIES OR STRANGERS TO THIS AGREEMENT. THE WARRANTY SET FORTH ABOVE IS THE ONLY WARRANTY APPLICABLE TO THE LINER AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL CLEAN AIR AND WATER SYSTEMS, LLC BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES FOR, RESULTING FROM, OR IN CONNECTION WITH, ANY LOSS RESULTING FROM THE USE OF THE LINER. IN THE EVENT THE EXCLUSIVE REMEDY PROVIDED HEREIN FAILS IN ITS ESSENTIAL PURPOSE, AND IN THAT EVENT ONLY, Purchaser SHALL BE ENTITLED TO RETURN OF THE PURCHASE PRICE FOR SO MUCH OF THE MATERIAL AS CLEAN AIR AND WATER SYSTEMS, LLC DETERMINES IN ITS SOLE DISCRETION, TO HAVE VIOLATED THE WARRANTY PROVIDED HEREIN. EXCEPT FOR THE WARRANTY SET FORTH ABOVE, NO REPRESENTATION OR WARRANTY MADE BY ANY SALES OR OTHER REPRESENTATIVE CLEAN AIR AND WATER SYSTEMS, LLC, OR ANY OTHER PERSON, CONCERNING THE LINER SHALL BE BINDING UPON CLEAN AIR AND WATER SYSTEMS, LLC.

Any waiver of the terms and conditions of this warranty shall be in writing signed by CLEAN AIR AND WATER SYSTEMS, LLC the failure to insist upon strict compliance with any of the terms and conditions contained herein shall not act as a waiver of strict compliance with all of the remaining terms and conditions or this warranty and shall not operate as a waiver as to any of the terms and conditions of this warranty as to future claims under this warranty.

CLEAN AIR AND WATER SYSTEMS, LLC

*Brian M. Keown*

BY: \_\_\_\_\_  
 Brian K. McKeown/ Member

I have read and agree to be bound by the terms and conditions of the foregoing warranty.

By: \_\_\_\_\_

Title: \_\_\_\_\_

Company: \_\_\_\_\_

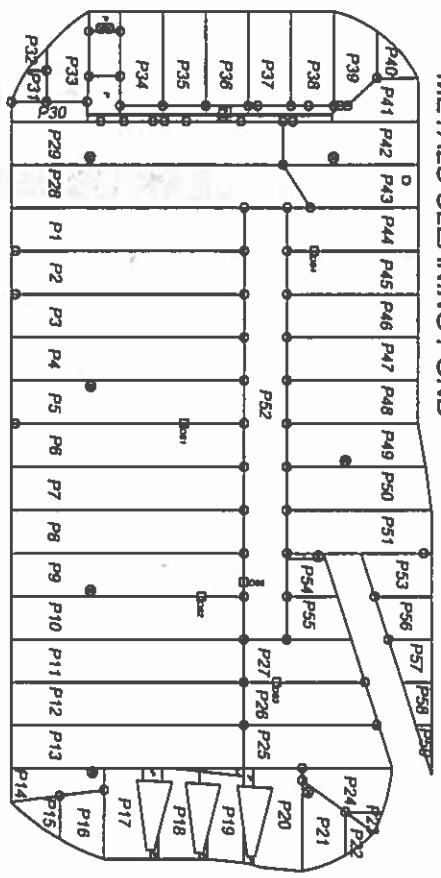
Date: \_\_\_\_\_

**ATTACHMENT A11**

**GEOMEMBRANE AS-BUILT PANEL LAYOUT**

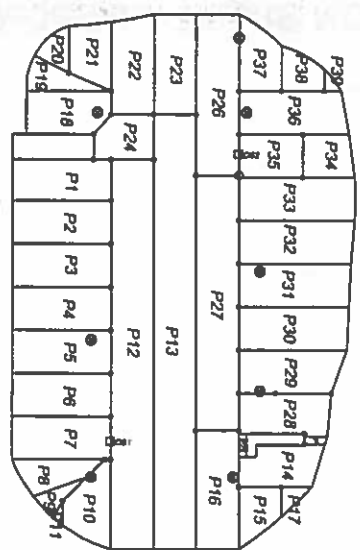


### METALS CLEANING POND



**LEGEND**


- PATCH
- ◻ DESTRUCTIVE TEST
- P SMALL PANEL/PATCH WITH NO #
- P# PANEL NUMBER
- PIPE BOOT
- PANEL EDGE / FIELD SEAM



### BY PASS POND



DRAWN BY	
M.A.	
SCALE	
1"=60'	
JOB #	
201044	
DATE	
12-17-10	
#	
REVISIONS	


  
 WWW.CAAVSYSTEMS.COM  
 CLEAN AIR AND WATER SYSTEMS, LLC  
 123 ELM STREET PO BOX 337  
 DOUGSMAN, WI 53118  
 262-965-4368  
 FAX: 262-965-4369

PROJECT NAME:	POWERTON GENERATING STATION
DRAWING NAME:	AS BUILT PANEL LAYOUT FOR BYPASS AND METAL CLEANING PONDS
LOCATION:	PEKIN IL
DRAWING NUMBER:	AB-1
FILENAME:	POWERTON

**ATTACHMENT A12**  
**LEAK LOCATION SURVEY REPORT**

# LEAK LOCATION SERVICES, INC.

16124 UNIVERSITY OAK • SAN ANTONIO, TEXAS 78249 • (210) 408-1241 / FAX (210) 408-1242

December 7, 2010

Mr. Craig Holthaus  
Otto Baum Company, Inc.  
866 N. Main Street  
Morton, IL 61550

Email: [craigholthaus@ottobaum.com](mailto:craigholthaus@ottobaum.com)

Subject: Report for "Geomembrane Leak Location Survey of Bypass Basin and Metal Basin at the Midwest Generation Powerton Plant in Pekin, Illinois";  
LLSI Project 1337A

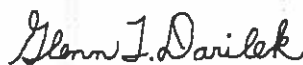
Dear Mr. Holthaus:

On December 2 and 3, of 2010, John Ortiz, of Leak Location Services, Inc. (LLSI) conducted a geomembrane leak location survey of the Bypass Basin at the Midwest Generation Powerton Plant in Pekin, Illinois. The Metal Basin could not be surveyed because the cover material was frozen. Only the floor area of the Bypass Basin was surveyed on this mobilization. The surveyed area was approximately 0.5 acres and is lined, from the top down, with a 6-inch warning layer of gravel, 12-inch cushion layer of sand, 12-oz non-woven geotextile, a single 60-mil geomembrane and a 16-oz non-woven geotextile. This report documents the results of the survey. Appendix A contains the details of the survey and Appendix B contains photographs of the leak.

One leak was found during the survey. A 1 foot by 1 foot rip, was located approximately 45 feet from the south toe line and approximately 10 feet from the east toe line. The leak was exposed and documented for repair. Figure 1 shows the surveyed area and approximate location of the leak. The leak location survey was performed in accordance with the ASTM Standard 7007. The Metal Basin will be surveyed at a later date.

If there are any questions regarding the leak location survey or this report, please contact us at (210) 408-1241. We appreciate this opportunity to have been of service on this important project.

Approved by:



Glenn T. Darilek  
Principal Engineer

Very truly yours,



John Ortiz  
Project Manager



Since 1992

[www.llsi.com](http://www.llsi.com) [results@llsi.com](mailto:results@llsi.com)

MWG13-15\_49209

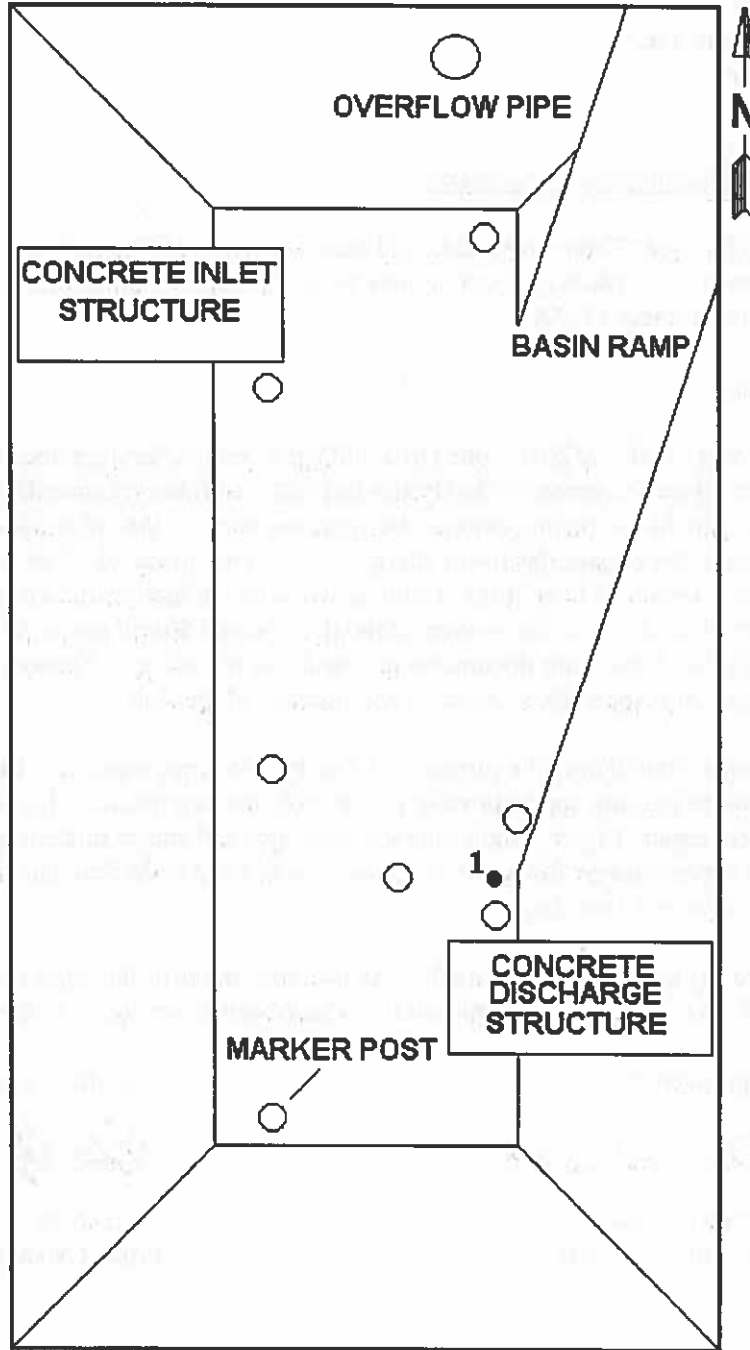


FIGURE 1. APPROXIMATE LOCATIONS OF LEAKS FOUND IN BYPASS BASIN



APPENDIX A

**SURVEY DETAILS**

## APPENDIX A

### SURVEY DETAILS

#### I. DESCRIPTION OF THE SURVEY SITE

The Bypass Basin contained two concrete inlet structures and eight marker post. A strip of the earth materials at the top of the ramp was removed to provide electrical isolation for the survey. Only the floor area and ramp were surveyed.

Facility Name - Midwest Generation Powerton Power Station  
Location - Pekin, Illinois  
Survey Area - Approximately 0.5 acres  
Depth - Approximately 20 feet  
Slopes - 3:1

#### II. SURVEY PARAMETERS

Date(s) - December 2 and 3, 2010  
Climate - Cold with some snow flurries  
Geomembrane - 60-mil HDPE geomembrane  
Layering - From the top down, a 6-inch warning layer of gravel, 12-inch cushion layer of sand, 12-oz non-woven geotextile, a single 60-mil geomembrane and a 16-oz non-woven geotextile.  
Specific Conditions of Survey - Near freezing conditions  
Leak Detection Sensitivity Setting - 6 mm leak detection at an average distance of 7.5 feet  
Operator - John Ortiz

#### III. LEAK LOCATION METHOD

##### A. Principles of the Electrical Leak Location Method

The electrical leak location method is to impress a high DC voltage across the geomembrane and measure the resulting potential gradients on or in the conducting material on the geomembrane. Leaks are indicated by a characteristic pattern in the potential measurements caused by electrical current flowing through the leaks.

##### B. Surveys with Earth Materials on the Geomembrane

A high voltage isolated DC power supply is used to impress a voltage across the geomembrane using one electrode placed in the earth material on top of geomembrane and a second electrode placed in the electrically conducting material located under the geomembrane. The leak

survey is conducted by making potential gradient measurements on the moist earth material using a dipole probe using non-polarizing electrodes. These measurements were made along parallel survey lines. A portable digital data logger is used to collect the data. The data is then downloaded into a portable computer for display, plotting, and analysis. When a leak signal is detected, manual measurements are made to accurately locate the leak position between the survey lines. The locations of the leaks are marked for excavation.

C. Equipment

The leak location power supply provides an excitation signal of approximately 340 volts DC. The data acquisition system has an input resistance greater than 50 megohms and measures signals as low as 1 millivolt with an accuracy of about 1 millivolt.

D. Results of Artificial Leak Tests and Calibration Tests

Type of Test Leak - Artificial per D7007

Diameter - 6.4 mm

Depth - 18 inches under earth materials, on top of 12-oz non-woven geotextile

Date	Time	Operator	Recorder	Distance from Leak	Signal/Noise
12/2/10	10:35	J. Ortiz	7	-7.5 feet 10 feet	3.27 23.3
12/2/10	14:30	J. Ortiz	7	-10 feet 10 feet	15.62 9.16

APPENDIX B

**PHOTOGRAPHS OF THE LEAK**

Photo #	Date	Location	Description	Notes
1	12/7/10	Room 101	Leak at ceiling	Water damage
2	12/7/10	Room 102	Leak at wall	Water damage
3	12/7/10	Room 103	Leak at floor	Water damage
4	12/7/10	Room 104	Leak at ceiling	Water damage
5	12/7/10	Room 105	Leak at wall	Water damage
6	12/7/10	Room 106	Leak at floor	Water damage
7	12/7/10	Room 107	Leak at ceiling	Water damage
8	12/7/10	Room 108	Leak at wall	Water damage
9	12/7/10	Room 109	Leak at floor	Water damage
10	12/7/10	Room 110	Leak at ceiling	Water damage



# LEAK LOCATION SERVICES, INC.

16124 UNIVERSITY OAK • SAN ANTONIO, TEXAS 78249 • (210) 408-1241 / FAX (210) 408-1242

March 21, 2011

Mr. Craig Holthaus  
Otto Baum Company, Inc.  
866 N. Main Street  
Morton, IL 61550

Email: [craigholthaus@ottobaum.com](mailto:craigholthaus@ottobaum.com)

Subject: Report for "Geomembrane Leak Location Survey of the Metal Cleaning Basin at the Midwest Generation Powerton Plant in Pekin, Illinois"; LLSI Project 1337A

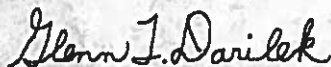
Dear Mr. Holthaus:

On March 17, of 2011, John Ortiz, of Leak Location Services, Inc. (LLSI) conducted a geomembrane leak location survey on the floor area of the Metal Cleaning Basin at the Midwest Generation Powerton Plant in Pekin, Illinois. The Metal Basin has a single 60-mil geomembrane over a 16-oz non-woven geotextile. The geomembrane was covered with a 12-oz non-woven geotextile, 12-inch cushion layer and 6-inch warning layer. The Pond had an approximate survey area of 42,000 square feet. This report documents the results of the survey. The appendix contains the details of the survey.

One leak was found during the survey. A 3-inch diameter puncture was located approximately 265 feet from the south toe line and approximately 25 feet from the east toe line. The leak was exposed and documented for repair. However, due to standing water, the leak could not be electrically isolated. Additional measurements could not be taken to determine if any additional leaks existed in the near vicinity. Figure 1 shows the surveyed area and approximate location of the leak. The leak location survey was performed in accordance with the ASTM Standard D7007.

If there are any questions regarding the leak location survey or this report, please contact us at (210) 408-1241. We appreciate this opportunity to have been of service on this important project.

Approved by:



Glenn T. Darilek  
Principal Engineer

Very truly yours,



John Ortiz  
Project Manager



Since 1992

[www.llsi.com](http://www.llsi.com) [results@llsi.com](mailto:results@llsi.com)

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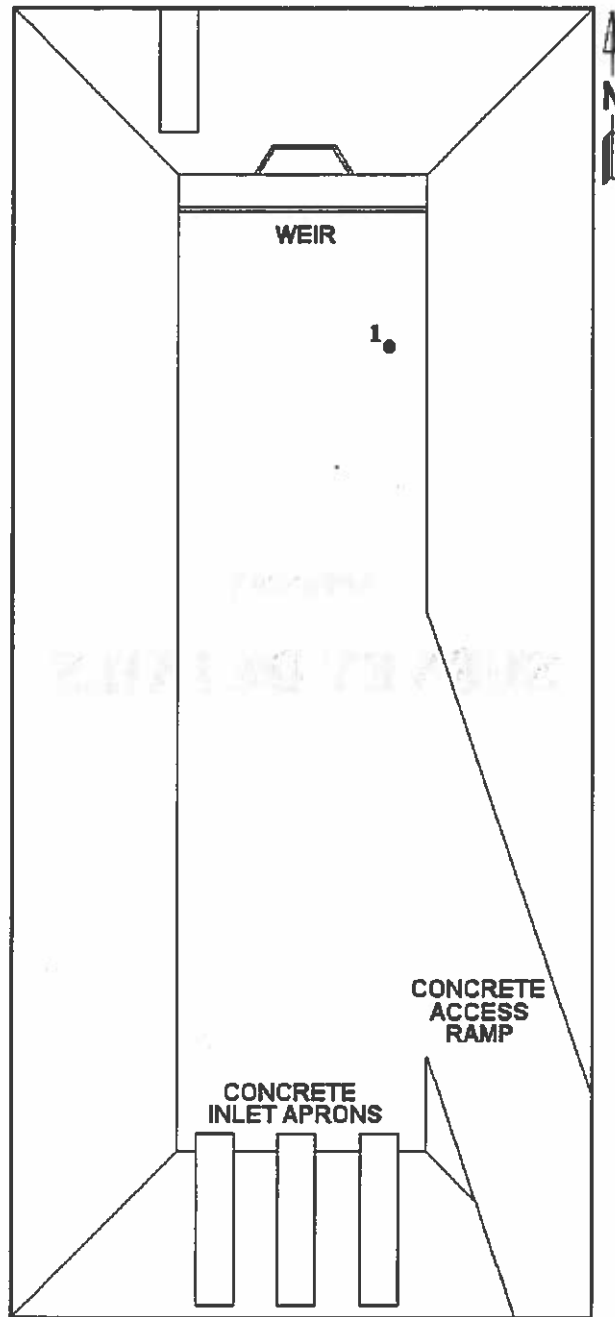


FIGURE 1. APPROXIMATE LOCATIONS OF LEAKS FOUND  
IN METAL CLEANING BASIN

**APPENDIX**  
**SURVEY DETAILS**



## APPENDIX

### SURVEY DETAILS

#### I. DESCRIPTION OF THE SURVEY SITE

The Metal Cleaning Basin contains a concrete access ramp, four concrete inlet aprons and a weir. The concrete access ramp and three of the concrete inlet aprons could not be isolated because of standing water. Only the floor area was surveyed.

Facility Name - Midwest Generation Powerton Power Station  
Location - Pekin, Illinois  
Survey Area - Approximately 42,000 square feet  
Depth - Approximately 20 feet  
Slopes - 3:1

#### II. SURVEY PARAMETERS

Date(s) - March 17, 2011  
Climate - Cool  
Geomembrane - 60-mil HDPE geomembrane  
Layering - From the top down, a 6-inch warning layer of gravel, 12-inch cushion layer of sand, 12-oz non-woven geotextile, a single 60-mil geomembrane and a 16-oz non-woven geotextile  
Specific Conditions of Survey - Standing water, approximately 3-inches above the geomembrane at leak 1  
Leak Detection Sensitivity Setting - 6 mm leak detection at an average distance of 10 feet  
Operator - John Ortiz

#### III. LEAK LOCATION METHOD

##### A. Principles of the Electrical Leak Location Method

The electrical leak location method is to impress a high DC voltage across the geomembrane and measure the resulting potential gradients on or in the conducting material on the geomembrane. Leaks are indicated by a characteristic pattern in the potential measurements caused by electrical current flowing through the leaks.

##### B. Surveys with Earth Materials on the Geomembrane

A high voltage isolated DC power supply is used to impress a voltage across the geomembrane using one electrode placed in the earth material on top of geomembrane and a

second electrode placed in the electrically conducting material located under the geomembrane. The leak survey is conducted by making potential gradient measurements on the moist earth material using a dipole probe using non-polarizing electrodes. These measurements were made along parallel survey lines. A portable digital data logger is used to collect the data. The data is then downloaded into a portable computer for display, plotting, and analysis. When a leak signal is detected, manual measurements are made to accurately locate the leak position between the survey lines. The locations of the leaks are marked for excavation.

C. Equipment

The leak location power supply provides an excitation signal of approximately 340 volts DC. The data acquisition system has an input resistance greater than 50 megohms and measures signals as low as 1 millivolt with an accuracy of about 1 millivolt.

D. Results of Artificial Leak Tests and Calibration Tests

Type of Test Leak - Artificial per D7007

Diameter - 6.4 mm

Depth - 18 inches under earth materials, on top of 12-oz non-woven geotextile

Date	Time	Operator	Recorder	Distance from Leak	Noise (N)	Signal + Noise (S + N)	(S + N) / N
3/17/11	11:20	J. Ortiz	6	-10 feet	48	1140	24
				10 feet		1112	23
3/17/11	14:00	J. Ortiz	6	-5 feet	48	1632	34
				5 feet		2216	46

**ATTACHMENT B**  
**DOCUMENTATION SURVEY**



ΕΠΙΧΕΙΡΗΣΙΑΚΟ ΠΡΟΓΡΑΜΜΑ  
ΕΚΠΑΙΔΕΥΣΗ ΚΑΙ ΔΙΑ ΒΙΩΣΙΜΗΣ ΑΝΑΓΚΗΣ

