

Report 2 – Evaluation of Location Restrictions

Public Service Company of Oklahoma
Northeastern Station 3&4
Non-Hazardous Industrial Waste (NHIW) Landfill
Permit No. FA3566010

January 2018
Project No. 35157123



**PUBLIC SERVICE
COMPANY OF
OKLAHOMA**SM

A unit of American Electric Power

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Environmental



Facilities



Geotechnical



Materials

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1.0 Objective

The purpose of this Location Restriction Evaluation Report (LRER) is to evaluate compliance with location restrictions (LRs) with the EPA Coal Combustion Residuals (CCR) regulations (40 CFR 257) and with ODEQ's (Oklahoma Department of Environmental quality) CCR rule OAC 252.517 at the Public Service Company of Oklahoma – Northeastern Stations 3 & 4 Ash Landfill (Permit No. FA3566010). The Public Service of Oklahoma is a unit of American Electric Power (AEP).

2.0 Background Information

2.1 Facility Location Description

The Northeastern Power Station facility is located at the junction of U.S. Highway 169 and Oklahoma Highway 88 approximately 1 mile south of Oologah, Rogers County, Oklahoma. The facility property consists of approximately 1230 acres located in Sections 3 and 4, Township 22 North, Range 15 East, and Sections 33 and 34, Township 23 North, Range 15 East (I.M.) in Rogers County, Oklahoma. Four (4) electric generating Units are present at the facility. Units 1&2 are gas fired while Units 3&4 are coal fired units. Unit 4 ceased operation in April of 2016. A site location map and plant and ccr unit location map showing the general location of the landfill is presented in **FIGURES 1 & 2**.

2.2 Description of CCR Unit

2.2.1 Embankment Configuration

Based on the 1970 USGS topographic map (**FIGURE 1**) it appears the landfill was constructed in an area where gravel pit mining or limestone quarrying operations took place. Portions of the upper limestone rock appear to have been removed, primarily within the western portion of the landfill. A dike structure defining the south edge of the disposal facility was built as a part of initial plant construction. This dike would be built to an elevation of 610 feet MSL having a crest width of 10 to 12 feet and 3:1 side slopes (**Volume 1 Major Mod 2011 Terracon Project No. 35107130**)¹. The dike acted as a barrier between the disposal area and the Verdigris River. An additional construction event raised the dike to the current crest elevations of greater than 630 feet MSL, with a crest width of about 25 feet. Side-slopes of the dike, running down to the river basin, are on the order of 30 degrees from horizontal and consist of red-brown clay with limestone gravel mixed with varying amounts of ash material and larger rock. Limestone with some thin shale beds, followed by shale, underlies the constructed dike. The facility previously installed a slurry wall and grout curtain on the southeast side of the landfill within the constructed dike (**FIGURE 3**). The landfill embankments are constructed with 3:1 interior slopes. The outside embankment slopes vary from approximately 2.5:1 to 4:1 (**AEP, "Ash Landfill Modification – Construction Drawings", Northeastern Plant, Dated September 2014**)².

2.2.2 Area/Volume

The current Northeastern Ash Landfill site consists of approximately 44 acres located in the southeastern portion of the property and adjacent to the Verdigris River. The total landfill capacity for disposal is 2.463 MCY.

2.2.3 Construction and Operational History

The Ash Landfill is an existing landfill that was permitted by the Oklahoma State Department of Health in March 1978. The landfill permit has subsequently been modified and re-issued through the Oklahoma Department of Environmental Quality. The landfill currently operates in accordance with Permit No. FA3566010. The landfill is located in an area that historically has been quarried. The facility has utilized this quarried depression to dispose of CCR. Currently CCR from Unit 3 is disposed of in the landfill as Unit 4 has been shut down. In 2012-2013, a landfill improvement project was completed which resulted in the construction of a 3 ft wide by 25 ft deep 2200-foot-long slurry wall followed by a 1400-foot-long grout curtain. The construction of the slurry wall involved excavating out 25 feet of overburden and keying into 0.5-1 foot of the limestone unit. The grout curtain involved the injection of bentonite to elevations of 590-595 ft amsl. As a result, this project created an imperious bentonite slurry wall/grout curtain from ground surface to depth of 590- 600 ft amsl along the southern edge of the landfill. (**Hydrogeologic Summary Report, Terracon, March 2017**)³ This barrier system effectively prevents groundwater to flow out of the landfill. Additionally, a geosynthetic intermediate liner and a leachate collection system have been installed above existing waste in the landfill. The elevation of the liner system slopes downward from west to east (towards the leachate collection pond) from approximately 645 ft to 615 ft in elevation.

2.2.4 Surface Water Control

OAC 252:517-13-2 establishes standards and requirements for the management of stormwater associated CCR landfills which address the management and control of run-on and run-off stormwater derived from a 24-hour, 25-year storm event.

The Landfill perimeter ditches are generally sloped to drain to the northeast portion of the Landfill to Basin C. These perimeter ditches convey the stormwater to Basin C prior to impacting the waste disposal area. Contact stormwater is managed as part of the facility OPDES program. As designed, the run-on and run-off control systems are capable of managing and controlling a 24-hour, 25-year storm event. Stormwater discharges associated with the landfill will be managed as part of the facility OPDES program (**Volume 3 Major Mod 2011 Terracon Project No. 35107130**)⁴.

2.3 Previous Investigations

Geotechnical

§ 2004 – Terracon Project No. 040445147

Groundwater and Other Environmental

§ 2008 – Terracon Project No. 35077150

§ 2009 – Terracon Project No. 35107130

2.4 Hydrogeologic Setting

Groundwater encountered in bedrock in this region occurs in secondary openings, such as joints, fractures, and solution cavities. Groundwater occurs in most of the geologic units in the region; however, many of the units do not yield significant amounts of water.

Groundwater yields from the Oologah Formation, Labette Formation, and Fort Scott Limestone are small. The average yield of wells in the Pennsylvanian and Mississippian Age rocks is estimated to be 0.5 gallons per minute (Marcher, 1971). A review of the Oklahoma Geological Survey Hydrologic Atlas map titled *Maps Showing Principal Groundwater Resources and Recharge Areas in Oklahoma (Sheet 2 - Bedrock Aquifers and Recharge Areas, 1988)* indicates that the site is not located within a principal bedrock aquifer or recharge area.

The largest yields are found in unconsolidated material along streams and rivers. Alluvium along the lower portion of the Verdigris River can be utilized as a source of water and yields of up to 30 gallons per minute have been reported (Marcher, 1971), (**Well Install Report 2011, Terracon**)⁵.

2.4.1 Climate

Oologah receives an average of 42 inches of rainfall annually. The average temperature annually ranges from 35°F to 85°F (<http://www.city-data.com/city/Oologah-Oklahoma.html>)⁶.

2.4.2 Regional and Local Geologic Setting

Soils

According to the USDA Soil Survey of Rogers County, Oklahoma (July, 2007), the two predominant soils in the vicinity of the pond are the Hector-Endshaw complex (Rs) and Claremore silt loam (CmB). The Shidler stony silty clay loam (So) and Verdigris silty clay loam (Vf) are also present near the pond but to a lesser extent. A majority of the soils in the vicinity of the pond have been altered or removed during site development.

The Claremore consists of a reddish brown silty clay loam approximately 19 to 24 inches thick and is underlain by bedrock. The Claremore is well drained with a low to moderately low water capacity.

The Hector-Endshaw consists of a gravelly fine sandy loam approximately 15 to 25 inches thick and is underlain by bedrock. The Hector-Endshaw is well drained with a very low to moderately high water capacity.

The landfill is located in an area underlain by the Pennsylvanian Age Oologah Formation, which is the major geologic formation outcropping in this area. Although some Quaternary Age Alluvial deposits (consisting of sand, gravel and clay) are located along the Verdigris River, alluvial deposits were not identified within the boundary of the pond or on PSO property within the reviewed reports.

Geology

The Oologah Formation dips gently to the northwest at 30 to 50 feet per mile (Oakes, 1952) and rests conformably on the Labette Shale. The Oologah Formation consists of marine limestones and shales and is divided into three distinct members: (1) Altamont Limestone (upper), (2) Bandera Shale (middle), and (3) Pawnee Limestone (lower).

The Altamont Limestone is comprised of a carbonate marine limestone deposited on a broad offshore platform. The Altamont consists of light gray to dark gray limestone, moderately fossiliferous, and massive to thin-bedded. The Altamont Limestone is not present at this site.

The Bandera Shale was deposited during a major fluctuation in sea level which caused an influx of mud to be deposited on the normally non-turbid offshore platform. The middle shaly zone is typically only a few feet thick in the latitude of this region, but is thicker southward reaching a maximum thickness of 15 to 20 feet. The Bandera consists of gray to black shale, all more or less calcareous in fresh exposures. The Bandera is an aquitard that can produce temporary perched water table conditions within the overlying Altamont under certain conditions. The Bandera Shale is not present at this site.

The Pawnee Limestone is similar to the Altamont in composition and depositional environment. The formation consists of light gray to dark gray limestone, moderately fossiliferous and somewhat cherty with some thin beds of shale. According to the original landfill permit (Oklahoma State Department of Health - August 3, 1978), the Oologah Formation within the disposal area is represented by the lower Pawnee Limestone member. The Oologah Limestone rests conformably on the Labette shale.

The Labette Shale was deposited as muds on an offshore bank. The formation consists of clay shale and silty to sandy shale with some thin beds of sandstone and limestone. In this region, the Labette is 180 to 250 feet thick (Oakes, 1952) and rests conformably upon the Pennsylvanian Age Fort Scott Limestone. (**Volume 2 Major Mod 2011 Terracon Project No. 35107130**)⁷

2.4.3 Surface Water/Groundwater Interactions

The Verdigris River is adjacent to the southeast property boundary of the landfill and maintains an approximate river elevation of 542 ft amsl. River flow is controlled by the Oologah Dam (Corps of Engineers – U.S. Army) located approximately 1 mile north and east of the site. Based on the groundwater potentiometric data collected in the shale aquifer unit, the average groundwater elevation is 585 ft amsl.

Currently not enough data has been collected to determine if there is surface to groundwater communication.

2.4.4 Water Users

According to the Oklahoma Water Resources Board map, there are no known groundwater wells within a 1 mile of the site. There is a well located approximately 2 miles from the site which has been plugged (**FIGURE 6**).

3.0 Required Isolation from Uppermost Aquifer

Not all of the new state and federal CCR rules apply to existing landfills.

3.1 Aquifer Description and Piezometric Analysis

This section is not applicable since state and federal CCR rules do not apply to existing landfills.

3.2 Compliance

This section is not applicable since state and federal CCR rules do not apply to existing landfills.

4.0 Wetlands Impact

4.1 Review of Local Wetlands

This section is not applicable since state and federal CCR rules do not apply to existing landfills.

4.2 Compliance

This section is not applicable since state and federal CCR rules do not apply to existing landfills.

5.0 Fault Area

5.1 Description of Regional Geologic Structural Features and Tectonic History

This section is not applicable since state and federal CCR rules do not apply to existing landfills.

5.2 Compliance

This section is not applicable since state and federal CCR rules do not apply to existing landfills.

6.0 Seismic Impact Zone

6.1 Seismic Impact Zone – Definition and Regional Information

This section is not applicable since state and federal CCR rules do not apply to existing landfills.

6.2 Compliance

This section is not applicable since state and federal CCR rules do not apply to existing landfills.

7.0 Unstable Areas

7.1 Unstable Areas – Definition and Review of Local Conditions

Unstable area means a location that is susceptible to natural or human induced events or forces capable of impairing the integrity, including structural components of some or all of the CCR unit that are responsible for preventing releases from such unit. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and karst terrains as defined by 40 CFR §257.64 & 252:517-5-5.

Applicability – Owners or operators of existing or new CCR landfills or any lateral expansion of a CCR unit must not be located in an unstable area. The owner or operator must consider the following factors, at a minimum, when determining whether an area is unstable: (1) On-site or local soil conditions that may result in significant differential settling; (2) On-site or local geologic

or geomorphologic features; and (3) On-site or local human-made features or events (both surface and subsurface). The following sections analyze each of these factors as they relate to the landfill

7.1.1 – On-Site and Local Soil Conditions

The site geology, soil conditions and geomorphological features at the Northeastern Stations 3&4 do not meet the criteria for unstable conditions. Unstable conditions are usually associated with geological conditions such as Karst features. Characteristic physiographic features associated with Karst terrain such as sinkholes, sinking streams, caves, large springs, and blind valleys are not present on the site. **Section 2.4.2** of this document describes the local and regional soil properties. **FIGURE 7** is a soil map of the CCR unit.

7.1.2 – On-Site or Local Geologic or Geomorphologic Features

A wide range of hydrogeologic and geotechnical studies were conducted in support of the existing landfill at the Facility. Based on the site specific studies, as well as published local and regional geologic and geomorphic information, there are no known on-site or adjacent geologic or geomorphic features which could adversely affect the stability of the landfill. Information regarding the hydrogeologic, geologic and geotechnical conditions in the vicinity of the site are described in detail in **Section 2.2.3** of this document.

7.1.3 – On-Site or Local Human-Made Features or Events Affecting Stability

Based on the site specific observations, as well as published local and regional information, there are no known on-site or local human-made features or events which could adversely affect the stability of the landfill.

7.2 Compliance

Looking at previous investigations, including slope stability analysis and geotechnical reports, the site is not located in an unstable area. The site is in compliance with 40 CFR 257 §257.64 & 252:517-5-5.

8.0 Summary and PE Certification


8.1 Summary

The landfill is located in a previous gravel mining and possible limestone quarrying pit. The facility has installed a slurry wall/grout curtain on the southeast side of the landfill. The facility is currently performing improvements to the landfill by installing a geosynthetic liner and collection system above the current landfill. The site is not located in an unstable area. The site is in compliance with 40 CFR §257.64 & 252:517-5.

8.2 Limitations

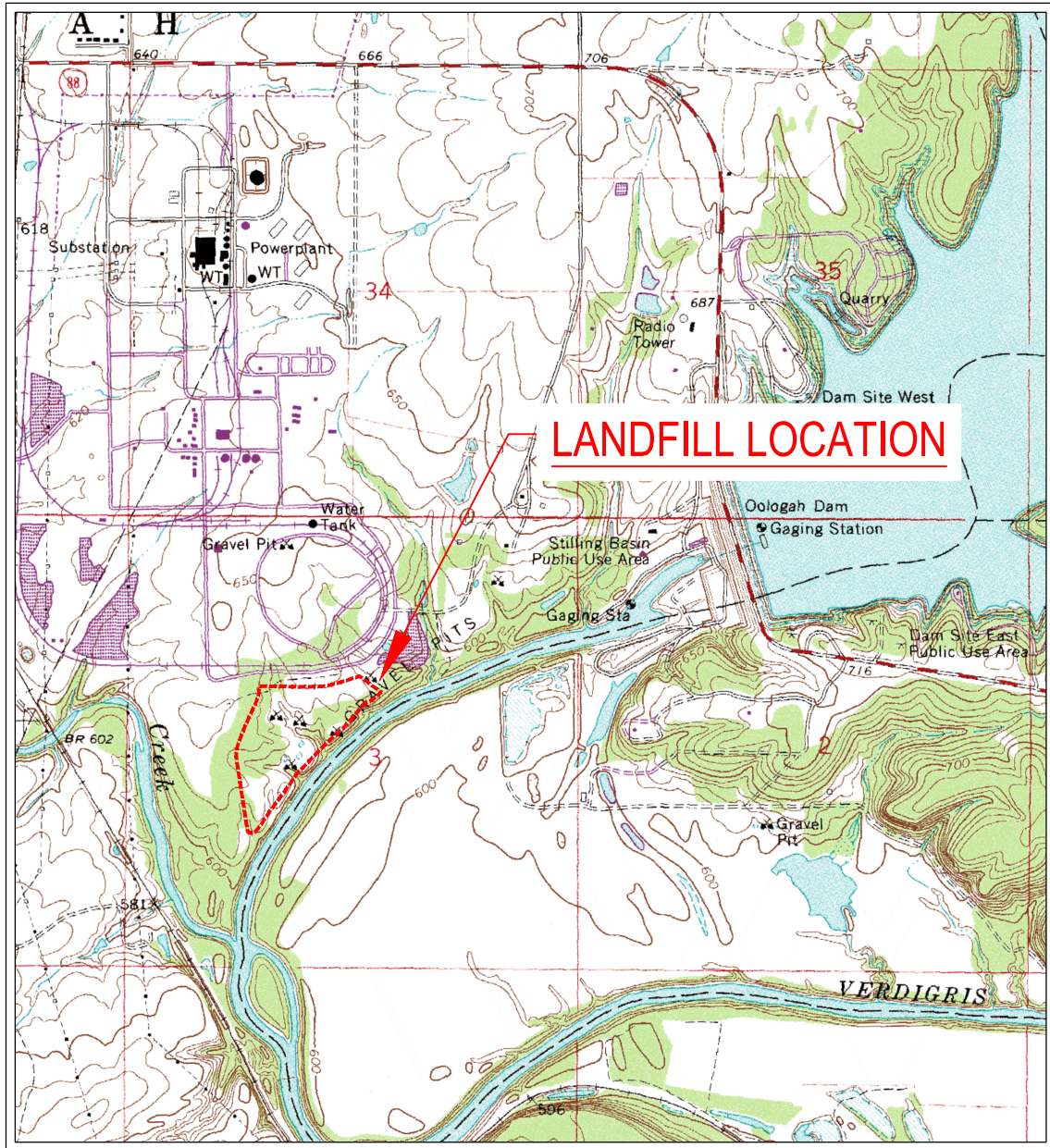
The findings and conclusions resulting from this investigation are based upon information derived from the on-site activities and other services performed under the scope of work as described in this report; such information is subject to change over time if additional information is obtained. Please note that Terracon does not warrant the work of laboratories, regulatory agencies or other third parties supplying information used in the preparation of the report.

8.3 PE Certification

Name: <i>F. Owen Carpenter</i>	Date: <i>1-31-2018</i>	 <i>Exp. 10-31-19</i> Stamp
Company: <i>Terracon</i>	Expiration Date: <i>31-OCT-2019</i>	

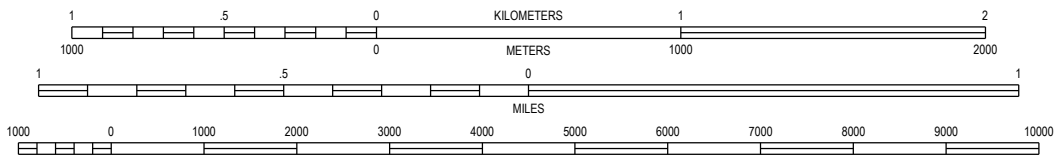
Bibliography

- 1 Volume 1 Major Mod 2011 Terracon Project No. 35107130.
- 2 AEP, “Ash Landfill Modification – Construction Drawings”, Northeastern Plant, Dated September 2014.
- 3 Hydrogeologic Summary Report, Terracon, March 2017.
- 4 Volume 3 Major Mod 2011 Terracon Project No. 35107130.
- 5 Well Installation Report, Terracon, May 2011.
- 6 <http://www.city-data.com/city/Oologah-Oklahoma.html>.
- 7 Volume 2 Major Mod 2011 Terracon Project No. 35107130.



LANDFILL LOCATION

SCALE 1:24 000



CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

OOLOGAH, OKLAHOMA
QUADRANGLE
1970 (PHOTO REVISED 1980)
7.5 MINUTE SERIES (TOPOGRAPHIC)

Project Mng:	DCM
Drawn By:	TLB
Checked By:	TLB
Approved By:	DCM

Project No.	216-003-35157123
Scale:	AS SHOWN
File No.	008
Date:	01/31/2018

Terracon
Consulting Engineers and Scientists

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7.5 MINUTE SERIES (TOPOGRAPHIC) EVALUATION OF LOCATION RESTRICTIONS AMERICAN ELECTRIC POWER NORTHEASTERN STATIONS 3 & 4	FIG. No. 1
OOLOGAH	OKLAHOMA



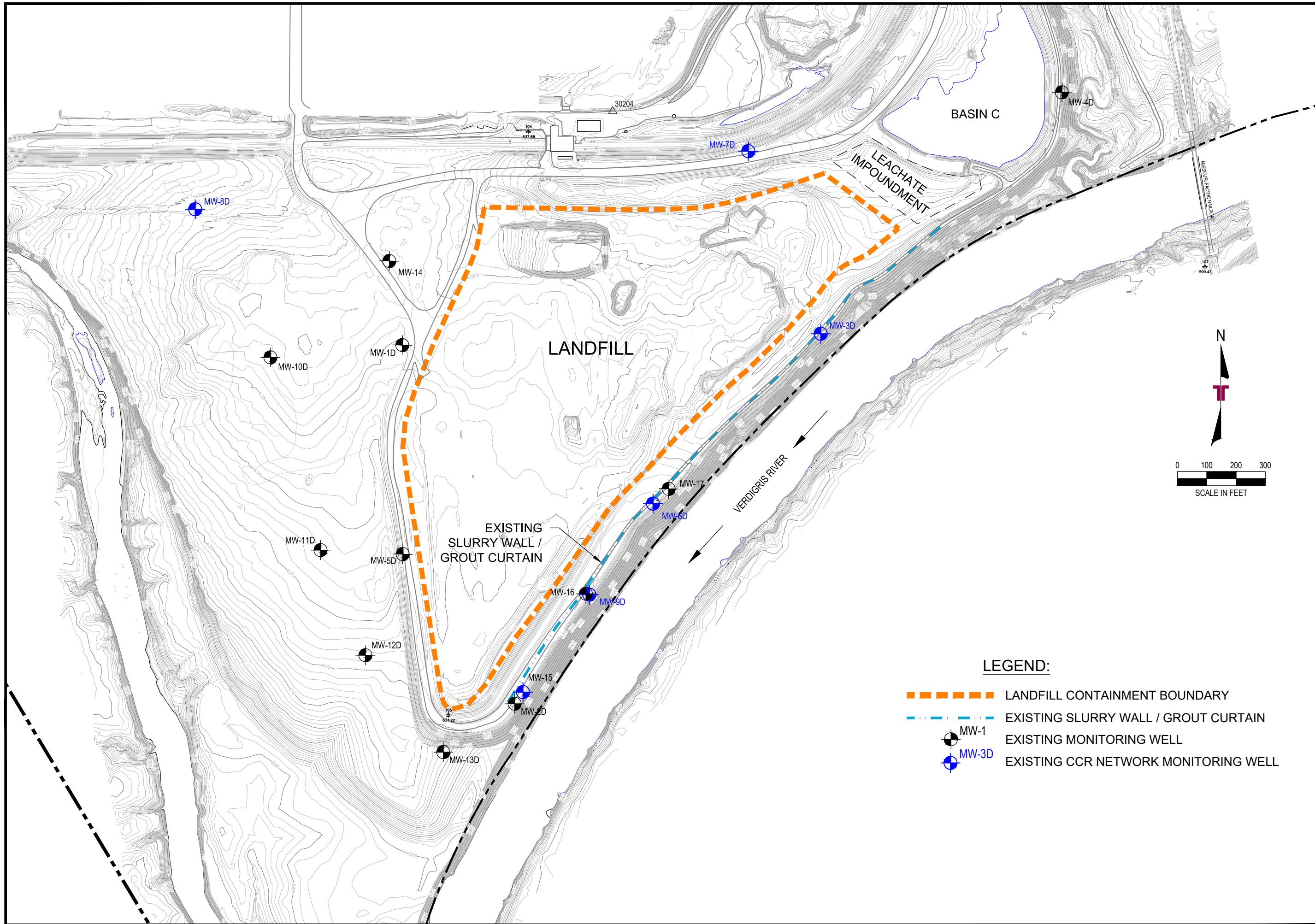
FIGURE 2

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DRAWN BY:	TLB
APPROV. BY:	DCM
SCALE:	SEE BARSCALE
DATE:	01/31/2018
JOB NO.	216-003-35157123
ACAD. NO.	009
SHEET NO.:	2 OF 7

PLANT AND CCR UNIT LOCATION MAP
 EVALUATION OF LOCATION RESTRICTIONS
AMERICAN ELECTRIC POWER
 NORTHEASTERN STATIONS 3 & 4
 OKLAHOMA


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REV.	DATE	BY	DESCRIPTION



LEGEND:

- - - - - LANDFILL CONTAINMENT BOUNDARY
- - - - - EXISTING SLURRY WALL / GROUT CURTAIN
- MW-1
EXISTING MONITORING WELL
- MW-3D
EXISTING CCR NETWORK MONITORING WELL

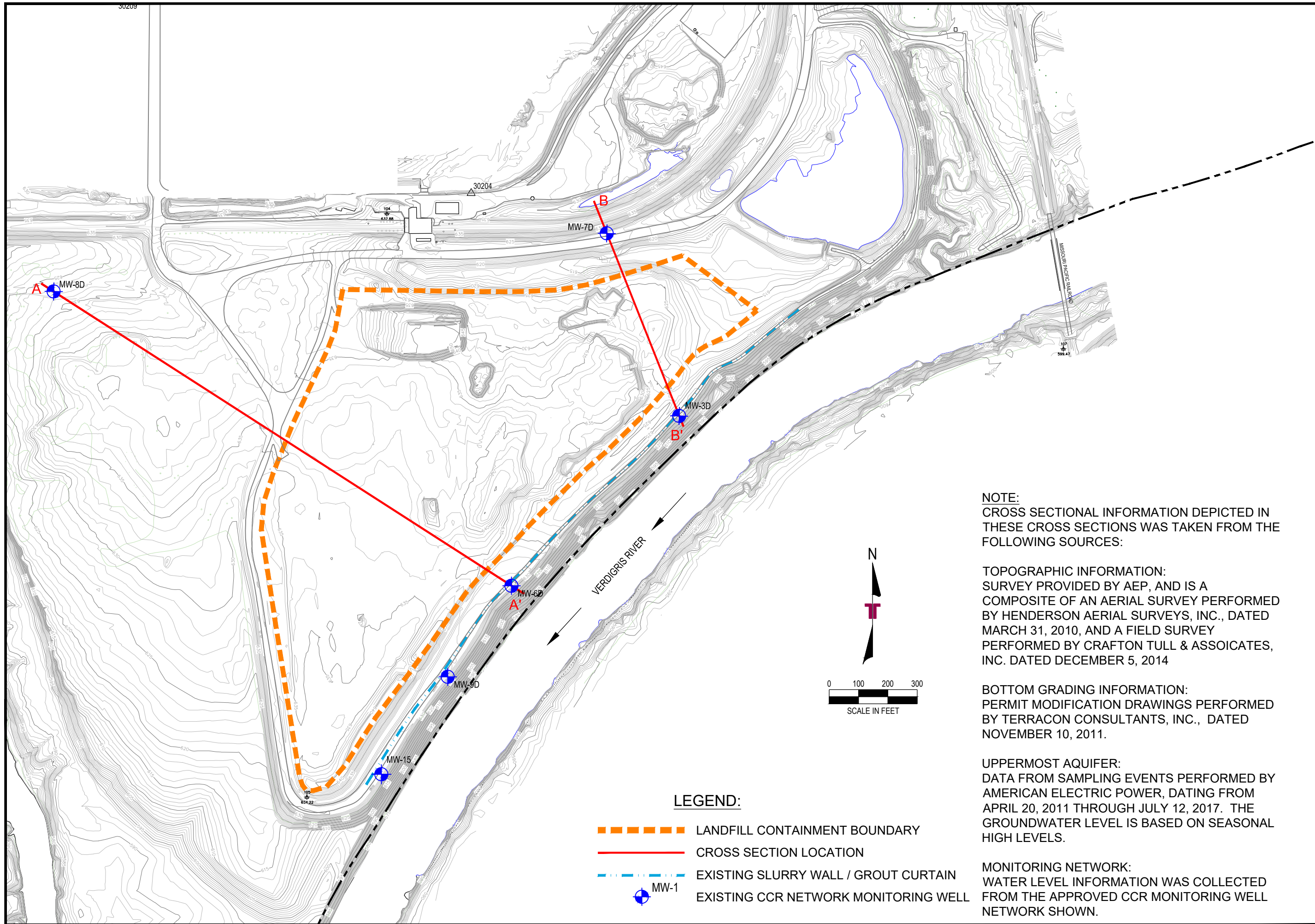
FIGURE 3

DESIGNED BY:	TLB
DRAWN BY:	TLB
APPRD. BY:	DCM
SCALE:	SEE BARSCALE
DATE:	01/31/2018
JOB NO.	216-003-35157123
ACAD NO.	010
SHEET NO.:	3 OF 7

CCR UNIT LAYOUT AND WELL LOCATIONS
 EVALUATION OF LOCATION RESTRICTIONS
AMERICAN ELECTRIC POWER
 NORTHEAST STATION UNITS 3 & 4
 OKLAHOMA

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REV.	DATE	BY	DESCRIPTION



LEGEND:

- - - - - LANDFILL CONTAINMENT BOUNDARY
- CROSS SECTION LOCATION
- - - - - EXISTING SLURRY WALL / GROUT CURTAIN
- EXISTING CCR NETWORK MONITORING WELL

NOTE:
 CROSS SECTIONAL INFORMATION DEPICTED IN THESE CROSS SECTIONS WAS TAKEN FROM THE FOLLOWING SOURCES:

TOPOGRAPHIC INFORMATION:
 SURVEY PROVIDED BY AEP, AND IS A COMPOSITE OF AN AERIAL SURVEY PERFORMED BY HENDERSON AERIAL SURVEYS, INC., DATED MARCH 31, 2010, AND A FIELD SURVEY PERFORMED BY CRAFTON TULL & ASSOCIATES, INC. DATED DECEMBER 5, 2014

BOTTOM GRADING INFORMATION:
 PERMIT MODIFICATION DRAWINGS PERFORMED BY TERRACON CONSULTANTS, INC., DATED NOVEMBER 10, 2011.

UPPERMOST AQUIFER:
 DATA FROM SAMPLING EVENTS PERFORMED BY AMERICAN ELECTRIC POWER, DATING FROM APRIL 20, 2011 THROUGH JULY 12, 2017. THE GROUNDWATER LEVEL IS BASED ON SEASONAL HIGH LEVELS.

MONITORING NETWORK:
 WATER LEVEL INFORMATION WAS COLLECTED FROM THE APPROVED CCR MONITORING WELL NETWORK SHOWN.

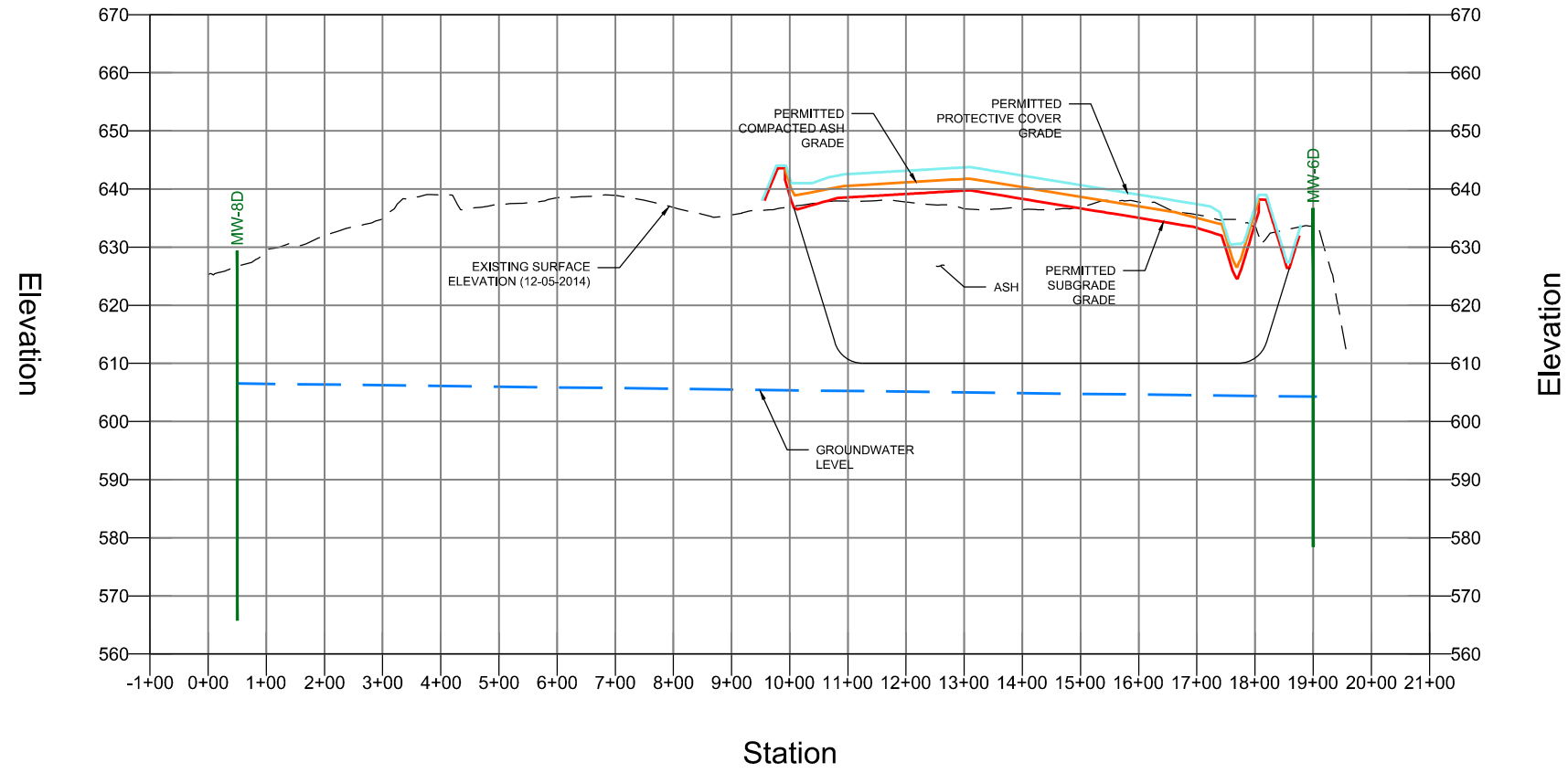
FIGURE 4			
DESIGNED BY: TLB	DRAWN BY: SRE	APP'D BY: DCM	SCALE: SEE BARSCALE
DATE: 01/31/2018	JOB NO: 216-003-35157123	ACAD NO: 011	SHEET NO: 4 OF 7

CROSS SECTION LOCATIONS MAP
 EVALUATION OF LOCATION RESTRICTIONS
AMERICAN ELECTRIC POWER
 NORTHEASTERN STATIONS 3 & 4
 OKLAHOMA

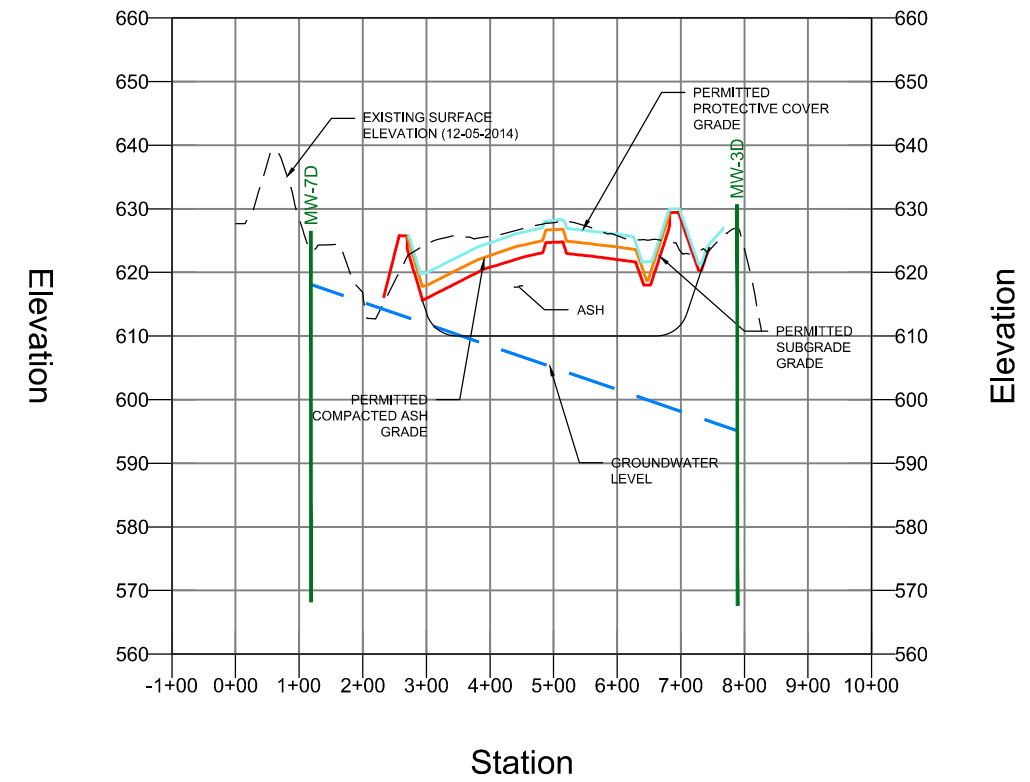
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REV.	DATE	BY	DESCRIPTION

CROSS SECTION A-A'



CROSS SECTION B-B'



NOTE:
 CROSS SECTIONAL INFORMATION DEPICTED IN THESE CROSS SECTIONS WAS TAKEN FROM THE FOLLOWING SOURCES:

TOPOGRAPHIC INFORMATION:
 SURVEY PROVIDED BY AEP, AND IS A COMPOSITE OF AN AERIAL SURVEY PERFORMED BY HENDERSON AERIAL SURVEYS, INC., DATED MARCH 31, 2010, AND A FIELD SURVEY PERFORMED BY CRAFTON TULL & ASSOICATES, INC. DATED DECEMBER 5, 2014

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 PERMIT MODIFICATION DRAWINGS PERFORMED BY TERRACON CONSULTANTS, INC., DATED NOVEMBER 10, 2011.

UPPERMOST AQUIFER:
 DATA FROM SAMPLING EVENTS PERFORMED BY AMERICAN ELECTRIC POWER, DATING FROM APRIL 20, 2011 THROUGH JULY 12, 2017. THE GROUNDWATER LEVEL IS BASED ON SEASONAL HIGH LEVELS.

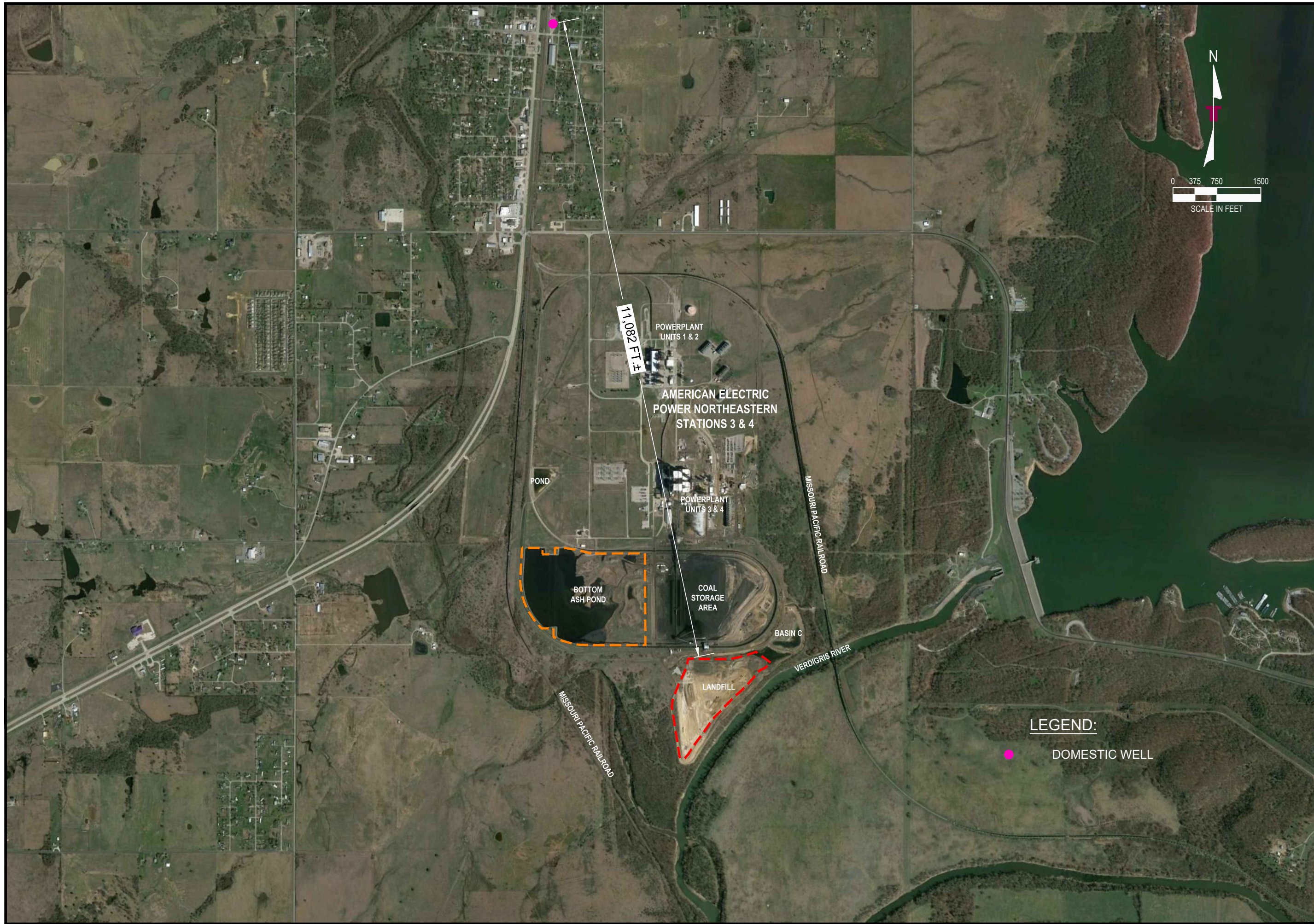
MONITORING NETWORK:
 WATER LEVEL INFORMATION WAS COLLECTED FROM THE APPROVED CCR MONITORING WELL NETWORK (SEE FIGURE 4).

FIGURE 5	
DESIGNED BY: TLB	DRAWN BY: SRE
APPROVED BY: DOM	SCALE: SEE BARSCALE
DATE: 01/31/2018	JOB NO: 216-003-35157123
ACAD NO: 012	SHEET NO: 5 OF 7

CROSS SECTIONS
 EVALUATION OF LOCATION RESTRICTIONS
AMERICAN ELECTRIC POWER
 NORTHEASTERN STATIONS 3 & 4
 OKLOGAH
 OKLAHOMA

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REV.	DATE	BY	DESCRIPTION



LEGEND:
● DOMESTIC WELL

REV.	DATE	BY	DESCRIPTION

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NEAREST DOMESTIC WELL LOCATION
 EVALUATION OF LOCATION RESTRICTIONS
AMERICAN ELECTRIC POWER
 NORTHEASTERN STATIONS 3 & 4
 OOLOGAH OKLAHOMA

FIGURE 6

DESIGNED BY:	TLB
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APPROV. BY:	DCM
SCALE:	SEE BARSCALE
DATE:	01/31/2018
JOB NO.	216-003-35157123
ACAD. NO.	013
SHEET NO.:	6 OF 7

TABLE 1
 NORTHEASTERN STATION 3 & 4
 NON-HAZARDOUS INDUSTRIAL WASTE (NHIW) LANDFILL
 WELL LEVEL DATA
 GROUNDWATER ELEVATIONS (FMSL)

Well	MW-3D	MW-6D	MW-7D	MW-8D	MW-9D	MW-15
Date						
03/20/08	595.14					
07/01/08	594.65					
10/01/08	594.20					
11/11/08	594.10	600.51	586.54	569.47		
11/20/08	593.81	600.59	574.25	567.12		
03/13/09	593.70	599.49	581.24	574.67		
06/16/09	593.74	599.98	577.00	576.20		
09/29/09	593.53	599.83	574.77	574.36		
12/28/09	593.44	599.76	575.28	577.70		
03/09/10	593.70	599.98	571.96	576.87		
06/16/10	593.52	600.27	572.64	587.94	586.32	
09/14/10	593.04	599.53	573.57	575.19	585.01	
12/14/10	593.16	599.45	571.36	571.56	583.30	
03/08/11	593.29	599.61	571.08	578.62	583.56	
06/07/11	593.04	599.98	572.38	584.69	584.97	
09/13/11	594.45	600.18	573.44	586.35	584.25	
12/13/11	593.70	600.48	572.49	590.51	584.96	
03/13/12	593.52	600.45	573.19	603.46	584.08	
06/12/12	593.42	600.39	573.52	602.35	584.45	
09/18/12	593.30	600.01	573.25	592.89	582.42	
12/10/12	593.34	600.39	573.42	595.63	582.16	
03/12/13	593.38	600.78	575.33	600.19	582.33	
06/11/13	593.42	601.38	575.74	604.77	582.71	
09/24/13	593.36	601.93	578.97	599.83	583.58	
12/17/13	593.37	601.91	579.75	597.83	582.28	
03/05/14	593.44	601.49	583.91	606.54	581.95	
06/09/14	593.65	601.90	587.37	603.14	581.17	
09/09/14	593.51	601.90	593.30	598.66	582.00	
03/10/15	593.76	601.85	599.76	599.14	581.43	
06/15/15	593.81	604.26	618.12	589.88	582.32	
12/14/15	593.78	603.57	596.11	585.16	581.41	
03/16/16	592.57	601.89	612.87	597.03	581.63	582.77
05/16/16	593.61	603.16	596.80	586.54	581.35	581.72
07/20/16	-	-	-	583.39	-	577.33
09/19/16	592.95	602.91	603.59	577.05	581.02	576.57
10/06/16	593.00	-	-	570.72	-	576.43
03/14/17	593.50	601.86	604.65	582.44	579.45	573.39
05/18/17	576.24	603.00	576.65	568.34	578.12	591.14
06/15/17	593.39	603.44	617.31	569.53	580.75	581.95
06/27/17	593.34	603.37	598.96	567.86	576.69	579.07
07/12/17	592.63	602.60	582.74	568.45	576.68	577.90
Seasonal High	595.14	604.26	618.12	606.54	586.32	591.14