



Evaluation of Location Restrictions, Existing CCR Landfill

American Electric Power Service Corporation
Rockport Generating Station, Rockport, Spencer County, Indiana
Project # 7382153161

Prepared for:

American Electric Power Service Corporation

1 Riverside Plaza, Columbus, Ohio 43215

4 October 2018



4 October 2018

Mr. David Miller
Director, Land Environment & Remediation Services
American Electric Power Service Corporation
1 Riverside Plaza
Columbus, OH 43215
Email: damiller@aep.com

Wood Environment & Infrastructure Solutions, Inc.
2456 Fortune Drive, Suite 100
Lexington, KY 40509
USA
T: 859-255-3308
www.woodplc.com

Dear Mr. Miller:

Wood Environment & Infrastructure, Inc. (Wood) is pleased to provide American Electric Power (AEP) with this Evaluation of Location Restrictions Report. We have prepared this report on behalf of American Electric Power (AEP) to document the results of the location restrictions evaluation conducted for the existing CCR Landfill at the Rockport Plant in Rockport, Indiana.

We very much appreciate working with AEP on this project. If you require additional information about this report, please feel free to contact Tom Reed at (859) 566-3722 or Kathleen Regan at (859) 566-3724.

Sincerely,

Wood Environment & Infrastructure Solutions, Inc.

Thomas M. Reed, PG
Senior Hydrogeologist

Kathleen D. Regan, PE
Senior Associate Engineer

Attachments

/kdr



Evaluation of Location Restrictions, Existing CCR Landfill

American Electric Power Service Corporation
Rockport Generating Station, Rockport, Spencer County, Indiana
Project # 7382153161

Prepared for:

American Electric Power Service Corporation
1 Riverside Plaza, Columbus, Ohio 43215

Prepared by:

Wood Environment & Infrastructure Solutions, Inc.
2456 Fortune Drive, Suite 100
Lexington, KY 40509
USA
T: 859-255-3308

4 October 2018

Copyright and non-disclosure notice

The contents and layout of this report are subject to copyright owned by Wood (© Wood Environment & Infrastructure Solutions, Inc.) save to the extent that copyright has been legally assigned by us to another party or is used by Wood under license. To the extent that we own the copyright in this report, it may not be copied or used without our prior written agreement for any purpose other than the purpose indicated in this report. The methodology (if any) contained in this report is provided to you in confidence and must not be disclosed or copied to third parties without the prior written agreement of Wood. Disclosure of that information may constitute an actionable breach of confidence or may otherwise prejudice our commercial interests. Any third party who obtains access to this report by any means will, in any event, be subject to the Third Party Disclaimer set out below.

Third-party disclaimer

Any disclosure of this report to a third party is subject to this disclaimer. The report was prepared by Wood at the instruction of, and for use by, our client named on the front of the report. It does not in any way constitute advice to any third party who is able to access it by any means. Wood excludes to the fullest extent lawfully permitted all liability whatsoever for any loss or damage howsoever arising from reliance on the contents of this report. We do not however exclude our liability (if any) for personal injury or death resulting from our negligence, for fraud or any other matter in relation to which we cannot legally exclude liability.



Table of Contents

1.0	Objective	3
2.0	Background Information.....	3
2.1	Facility Location and Description.....	3
2.2	Description of CCR Unit.....	4
2.2.1	General	4
2.2.2	Surface Water and Leachate Control.....	4
2.2.3	Construction and Operational History.....	5
2.2.4	Area/Volume	5
2.3	Previous Investigations.....	6
2.4	Hydrogeologic Setting.....	6
2.4.1	Climate and Water Budget	6
2.4.2	Regional and Local Geologic Setting	7
3.0	Unstable Areas.....	8
3.1	Definition and Review of Local Conditions.....	8
3.2	Compliance.....	9
4.0	PE Certification.....	9
5.0	References	10

List of Figures

- Figure 1 Site Location Map
- Figure 2 Site Layout Map
- Figure 3 Landfill Layout Map
- Figure 4 Topographic Map
- Figure 5 Surface Geology

Appendices

- Appendix A Current Landfill Permit (2015)
- Appendix B Maps and Cross Sections, 1983 Landfill Site Investigation

1.0 Objective

This Location Restrictions Evaluation Report has been prepared by Wood Environment & Infrastructure Solutions, Inc. (Wood), on behalf of American Electric Power (AEP), to document the results of the location restrictions evaluation conducted for the existing CCR Landfill at the Rockport Plant in Rockport, Indiana.

The Location Restrictions Evaluation was conducted to evaluate the landfill's compliance with the coal combustion residuals (CCR) Final Rule issued by the U.S. Environmental Protection Agency (USEPA) on 17 April 2015 and to make recommendations for any items found to be non-compliant. Regulations pertaining to the location restrictions for CCR units are contained in the Code of Federal Regulations (CFR) 40 CFR 257.60 through 64. For an existing CCR landfill, only Section 257.64 of the CCR Rule applies (location restriction pertaining to Unstable Areas).

2.0 Background Information

2.1 Facility Location and Description

The Rockport Power Plant is located in southwest Indiana (**Figure 1**) in Spencer County, on property extending into three Townships: Ohio, Hammond and Grass. The plant is situated on the north bank of the Ohio River, just northeast of the intersection of State Route (SR) 66, and United States (US) Highway 231. SR 66 runs along the river between the Town of Grandview (about 1.5 miles to the east) and the City of Rockport (about 1 mile to the southwest), and US 231 runs south from Interstate 64 (about 20 miles north of the plant), crossing the Ohio River into Kentucky via the William H. Natcher Bridge just southwest of the Power Plant.

The site is owned and operated by Indiana-Michigan Power Company, a regional unit of AEP. The property was developed in the late 1970s and early 1980s. The facility consists of two coal-fired 1,300-megawatt (MW) power generating units. The first unit went into operation in December 1984, and the second in December 1989. The facility has two existing CCR storage/disposal units consisting of the ash landfill located north-northeast of the generating plant, and two adjacent bottom ash (BA) ponds located just south of the generating plant at the north end of a wastewater pond complex. The general layout of the property and the locations of the CCR units are shown on **Figure 2**.

The following description of CCR generation and handling processes at the Rockport Plant is summarized from a letter sent by AEP to the Indiana Department of Environmental Management (IDEM) on 6 May 2009:

The plant burns about 9-10 million tons of coal per year. The coal, delivered by barge, is off-loaded to the coal storage yard then transported by conveyor into one of the two generating units, where it is pulverized to a powder then injected and burned. The heat produced in burning coal converts water to steam used to drive the turbine generators which produce electricity. The burning of coal produces two types of ash - fly ash and bottom ash. The Rockport Plant produces about 400,000 tons of fly ash and 140,000 tons of bottom ash per year.

Fly ash is the fine particulate matter entrained in the hot flue gases. To remove the fly ash prior to the gases exiting through the plant stack, the flue gas is routed through an electrostatic precipitator (ESP), where the ash particles adhere to electrically charged plates. Mechanical rappers knock the fly ash off the plates down into a series of collection hoppers. From the hoppers, the fly ash is pneumatically conveyed to a storage silo. From the silo, the ash is either loaded dry into closed trucks and shipped offsite for various uses, or conditioned with a small quantity of water and hauled by truck to the onsite landfill for disposal.

Bottom ash (BA) includes the heavier coal ash particles that fall to the bottom of the steam generator and are collected into refractory-lined hoppers. The hoppers are kept full of water to protect the lining and break the fall of large pieces of hot slag which shatter upon contact with the relatively cool water. From the hoppers, the BA-water mixture is routed to a crusher station where the ash is crushed to a size suitable for pumping. The BA is then pumped to one of the BA ponds located in the wastewater pond complex, where it precipitates out and can be reclaimed after the pond is drained.

2.2 Description of CCR Unit

2.2.1 General

The CCR unit referred to as the Ash Landfill, or Landfill, is located about 8,000 feet (1.5 miles) northeast of the generating plant. **Figure 3** shows the general layout of the landfill and the monitoring well locations, using the U.S. Geological Survey (USGS) topographic quadrangle map of 1964 (photorevised 1982) as a base. **Figure 4** is a topographic map for the whole plant area.

In March 1984, AEP submitted an application to develop 606 acres in the northern portion of the property for CCR disposal, including 460 acres for fly ash disposal (Storage Area 1) and 146 acres for bottom ash disposal (Storage Area 2). The Indiana Environmental Management Board (precursor agency to IDEM) issued a permit to construct in August 1985, and an operating permit (Facility Permit FP 74-2) in July 1987.

Because the bottom ash produced by the plant has been sold or used onsite for beneficial reuse purposes since the plant started operation, the portion of the property reserved for bottom ash storage and/or landfilling (Area 2) has never been used. The 1984 Permitted Boundary shown on the figures in this report includes only Area 1, the 460-acre area reserved for fly ash disposal. That area is transected by a north-south power line right-of-way (ROW). The area east of the ROW (Storage Area 1A) includes both closed and currently active portions of the fly ash landfill. The area to the west of the ROW has not been used for landfilling, but includes support facilities for the active landfill, including an office trailer, stockpile areas, leachate storage ponds and a NPDES discharge structure.

The fly ash landfill is currently permitted by IDEM Office of Land Quality, Solid Waste Permits Section, as a Restricted Waste Site (RWS) under Indiana Administrative Code (IAC) 329 Title 10 (Solid Waste Landfill Disposal Facilities) Rule 9-4. A Restricted Waste Site may accept only one type, or related types, of waste. The waste is classified according to the results of certain leaching tests for specific parameters specified in the regulation. Classifications range from Type I (highest leachate concentrations) to Type IV (lowest leachate concentrations), and the landfill requirements (including liner system and leachate handling requirements) are determined according to the waste class. The active landfill is permitted as a Restricted Waste Site Type I. The permit was most recently renewed on 10 February 2015 and expires on 11 February 2020. A copy of the permit is provided in **Appendix A**.

2.2.2 Surface Water and Leachate Control

As shown on the topographic maps in **Figures 3 and 4**, the original topography of the fly ash storage area was relatively flat, with grade elevations between 390 and 395 feet above Mean Sea Level (MSL, equivalent to the National Geodetic Vertical Datum of 1929, or NGVD29). Beyond the permitted boundary, the original topographic relief rose gently to the north-northwest, and more steeply toward hills to the northeast and northwest.

Stormwater from the landfill area is directed to perimeter drainage systems. The northeast, north and northwest perimeter of the landfill site is drained by Shafer Drain, part of a former agricultural drainage system that flows to Honey Creek southwest of the landfill. A perimeter ditch on the southeast landfill

boundary also drains southwest to Honey Creek. Honey Creek flows southeast across the plant property to the Ohio River.

Leachate from the landfill cells is collected in lined ponds located north and west of the active landfill area. Prior to discharge, the leachate is transferred to the Leachate Treatment Pond (north of the West Leachate Pond), where it is diluted with well water from supply well PW-7. The effluent from the Leachate Treatment Pond is discharged and monitored under National Pollution Discharge Elimination System (NPDES) Permit No. IN0051845 at Station 002.

2.2.3 Construction and Operational History

Construction on the original fly ash landfill, located in the northeast portion of the permitted area (Area 1), was conducted between 1985 and 1987. In the early years of operation, much of the fly ash generated at the plant was beneficially reused (primarily for Ready-Mix concrete production), and filling of the landfill proceeded more slowly than anticipated at the time of permitting.

The original landfill cells were constructed on the east end of the permitted area, from north to south, with final cover being placed over the cells in this area (showed as Closed Landfill on the figures in this report) between 2000 and 2007. After 2007, expansion of the landfill continued into the southeast section of the area shown as the Active Landfill on the figures.

The ash that was landfilled originally (in the late 1980s and early 1990s) was generated from combustion of fuel high in western coal (relative to eastern coal) and was classified as Type II. This waste had very low permeability, and (consistent with the permit) was placed in cells lined with 5 feet of clay soil (either native in-situ soil or from borrow areas) having an average bulk permeability of 10⁻⁶ centimeters per second (cm/sec) or less. No leachate collection system exists between the CCR and the liner in the original landfill cells. Runoff from the cells was collected in a central pond west of the original landfill and within the currently active landfill area and transferred from there to the leachate treatment pond for discharge via NPDES Station 002. In 2014, the original leachate collection pond in the active landfill area was removed and replaced with the perimeter leachate collection ponds (north and west).

Over a period of years after the mid-1990s, the chemistry of the fly ash changed due to changes in the sources of coal used for combustion at the plant, as well as the introduction of new materials used for emissions controls after 2007 (including sodium bicarbonate used for sulfur dioxide removal in a dry sorbent system, and granular activated carbon used for mercury removal). The landfill was reclassified as a Type I landfill through a permit modification approved by IDEM in August 2012. Under the modified permit, new cells are lined with a composite liner consisting (from the bottom up) of: 2 feet of clay with a bulk permeability of 10⁻⁷ cm/sec or less, a 30-mil PVC synthetic liner, and 2 feet of bottom ash containing a piping network for leachate collection. In some cells, bottom ash (which is still classified as a Type II waste) is also being placed below the composite liner to raise the subgrade level, to allow gravity drainage of the leachate collection system to the collection ponds. Current landfill construction is proceeding according to the design in the modified permit, Fly Ash Landfill Redesign Construction Drawings, Storage Area 1A, RKP Permit #FP-74-2 prepared by Terracon and dated February 2012 (Terracon 2012).

2.2.4 Area/Volume

The total area inside the 1984 permit boundary for Area 1 is approximately 460 acres. The latest permit renewal, issued on 15 February 2015, indicates the total permitted landfill area is 554 acres, including 408 acres in Area 1 and 146 acres in Area 2 (the area designated for bottom ash storage). The permitted portions of Area 1 include Area 1A east of the power line ROW (approximately 175 acres), and Area 1B west of the ROW (approximately 233 acres). Area 1A includes the closed landfill area (approximately 41

acres) and the active landfill area (approximately 134 acres). Within the active landfill area, 110 acres have been approved for conversion from a Type II to a Type I RWS.

Based on information provided by AEP, the total permitted volume of landfill space for Type I waste is 10,840,300 cubic yards (CY). The total estimated volume of fly ash disposed in the Type I RWS through 31 December 2015 was 324,523 CY, leaving 10,514,777 CY of capacity in Area 1A. Area 1B is expected to be developed for landfilling as Area 1A approaches capacity.

2.3 Previous Investigations

Site investigations were performed on the Plant property in the late 1970s and early 1980s to support design, construction and permitting in advance of plant start-up, which occurred in December 1984.

Specifically, for the landfill area, AEP prepared a Landfill Application Package (AEP 1984) containing the methods and findings from a Site Investigation performed in 1983 by AEP Civil Engineering personnel of the northern portion of the plant property, to support permitting of the two CCR stockpile and landfilling areas. A location map and cross-sections as well as a bedrock topography map and a map showing the locations of existing oil and gas wells from that document are provided in **Appendix B**.

In addition, numerous subsequent submittals related to the landfill have been made by AEP to IDEM. These public records, including IDEM responses and notifications, are available for download from IDEM's online Virtual File Cabinet (VFC). They include additional borrow area investigation reports, landfill design submittals, permit modifications, and semi-annual groundwater monitoring reports (GWMRs). While an in-depth review of the totality of these records was beyond the scope of the current study, Wood has consulted selected documents available through the VFC for information on the landfill history and current permit status.

2.4 Hydrogeologic Setting

The following sections provide information on the hydrogeologic setting of the AEP Rockport Plant, including climate, physiography and drainage, geology, hydraulic properties of the principal groundwater flow zone, surface water and interactions between surface water and groundwater, and water users.

2.4.1 Climate and Water Budget

The area of Rockport has a continental climate regime. As described by Ray (1965), summers are long hot and humid, and winters are damp and relatively mild, with brief periods of intense cold. Mean monthly temperatures vary from 35 degrees Fahrenheit (°F) in January to 79°F in July.

The closest meteorological station with long-term data is Owensboro, Kentucky. Based on National Climatic Data Center (NCDC) data for the period from 1971 through 2000, as reported by the Midwest Regional Climate Center (MRCC, <http://mrcc.isws.illinois.edu/>), the normal annual precipitation in Owensboro is 45.07 inches. Precipitation is well distributed throughout the year, on average, but can be highly variable from month-to-month. Monthly normal precipitation varies from 2.67 inches in October to 4.66 inches in May. However, monthly extremes during the period from 1928 through 1990 ranged from 0.06 inches in October 1987 to 16.15 inches in March 1964.

Mean annual potential evapotranspiration in Owensboro is between 31 and 33 inches, according to mapped data available from the Kentucky Climate Center (<http://www.kyclimate.org/index.html>). The adjusted annual potential evaporation estimated in the Landfill Application Package (AEP 1984, Table 10), based on climatic data from Tell City, was 32.22 inches per year. The mean monthly water balance developed for the landfill resulted in the following breakdown (Table 11) for an estimated annual precipitation of 44.27 Inches:

- Surface Runoff – 13.23 inches (30%);
- Actual Evapotranspiration – 25.69 inches (58%);
- Percolation (groundwater recharge) – 5.44 inches (12%).

2.4.2 Regional and Local Geologic Setting

Physiography and Drainage

The area of Rockport lies in the western Interior Low Plateau physiographic province of the United States, in a subarea referred to as the Wabash Lowland. It is an area of broad alluviated valleys and dissected uplands of rolling to hilly terrain with gentle slopes and moderate relief (Ray 1965). The topography in the vicinity of the Rockport Plant is shown on the U.S. Geological Survey (USGS) topographic map reproduced in **Figure 4**.

Drainage in the area is provided by the Ohio River, which is adjacent to the plant property on the southeast, is over 2,000 feet wide in the vicinity of the plant, and flows to the southwest toward Owensboro, Kentucky. The plant property slopes gently across a terraced surface from elevations greater than 410 feet on its northern edge, where it is bordered by low hills and an upper terrace, to as low as 390 feet along the top of the bank of the Ohio River. Much of the property is drained by Honey Creek, which flows south-southeast to the Ohio River and is incised down to an elevation of approximately 380 feet. The power generation plant was developed on the portion of the property between US 231 on the west and Honey Creek on the east. It is located on a watershed divide between Honey Creek and an unnamed tributary offsite to the southwest.

The natural topography over most of the property (outside the channel of Honey Creek) prior to development of the power plant consisted of a relatively flat terrace surface marked by east-west oriented crests and swales. Multiple low-gradient drainage ditches crossed the area, connecting the two watersheds (Honey Creek and the watershed to the west). Regrading for development of the power plant and associated facilities (including construction of the wastewater pond complex) disrupted some of the existing natural drainage as well as the man-made drainage that existed on the surface of the terrace and is still depicted on the USGS topographic map in **Figure 4**.

Geology

The area of the site lies in the southern portion of a broad shallow downward structure referred to as the Illinois Basin (also known as the Eastern Interior Basin) and is underlain by sedimentary bedrock of Pennsylvanian age. The bedrock underlying the site and most of Spencer County is the Pennsylvanian age Raccoon Group, consisting of sandstone and shale with minor amounts of mudstone, coal and limestone (Grove 2006). The rock reported from onsite borings that extended through the unconsolidated overburden into bedrock has been described primarily as shale. The boring for bedrock wells finished at the MW-5 location (at the northeast landfill perimeter) encountered interbedded sandy claystone, sandy shale, limestone, coal and claystone.

The bedrock surface beneath the overburden is uneven, and includes rounded hills, ridges and valleys (draining southeast) representing the erosional surface that existed prior to filling of the valley with glaciofluvial sediments.

The geology of the near-surface unconsolidated Quaternary sediments associated with the Ohio River valley is depicted on the geology map in **Figure 5** (which excludes the far east portion of the Plant property) and described in detail by Ray (1965). These sediments range in thickness from about 20 feet on northern sections of the property, to as much as 130 feet along the Ohio River west of the mouth of

Honey Creek. They include windblown sediments (loess) up to 30 feet thick that mantle bedrock on the northeast perimeter of the property, possibly merging with lacustrine deposits in the tributary valley at the northwest corner of the property, and two series of Wisconsin age valley-train deposits (Tazewell and Cary) under most of the property. The valley-train sediments that fill the broad river valley were deposited by meltwater from retreating continental glaciers to the north and northeast, and were subsequently reworked by modern drainage systems, including the Ohio River and the Honey Creek drainage on the plant property.

Generally, the valley train deposits thicken and coarsen to the southeast, from the loess-mantled bedrock hills along the valley wall, toward and beyond the course of the modern Ohio River. In the subsurface, the valley train sediments typically coarsen downward, and can be classified generally into finer-grained sediments near the surface (including silt, sandy silt, silty clay and clay), and coarser-grained sediments (fine to coarse sand and some gravel) at depth.

Interpretive cross-sections of the subsurface were generated by AEP from data collected in the 1983 Site Investigation of the landfill area, and have been included in **Appendix B**. In the report of the Site Investigation included in the Landfill Application Package (AEP 1984), the unconsolidated sediments encountered above bedrock were grouped into four units, described below in descending order:

- Unit No. 1 – surficial silt and clay. This unit was found to be 2 to more than 15 feet thick. The upper section is predominantly silty, sandy clay that is stiff, and of low to medium plasticity. Very fine-grained sand and silt are stratified with the clay toward the bottom of the unit, suggesting a lacustrine depositional environment where these finer-grained deposits are thickest.
- Unit No.2 – well sorted sand. This unit, where present, was found to extend from the bottom of the fine-grained surficial unit to elevations of 373-376 feet. It was found to consist of fine to medium-grained, well-sorted subangular to subrounded quartz sand.
- Unit No. 3 – poorly sorted sand. This lower sand unit, consisting of poorly sorted, very fine to very coarse-grained sand, is the dominant unit between elevations of 373-376 feet and the underlying bedrock, which is typically found at elevations of 290 to 300 feet under most of the property, and at shallower depths in the north and northwest portions.
- Unit No. 4 – sand and gravel. Unit No. 4, consisting of poorly sorted sand, gravel and gravelly sand, was found to be gradational with Unit No. 3, and to occur as lenses within Unit No. 3. Gravel in this unit is subangular to rounded, ranges in size from 3/8 to 1 inch in diameter, and commonly contains coal particles.

3.0 Unstable Areas

3.1 Definition and Review of Local Conditions

Section 257.64 of the CCR Rule states that new or existing CCR landfill units must not be located in an unstable area unless the owner or operator demonstrates that recognized and generally accepted good engineering practice has been incorporated into the design of the CCR unit to ensure that the integrity of the structural components of the CCR unit will not be disrupted. Unsuitable areas addressed in the CCR Rule include: on-site or local soil conditions that may result in significant differential settling, on-site or local geologic or geomorphologic features, and on-site or local human-made features or events that could disrupt the integrity of the structural components of the CCR unit.

Based on historical subsurface investigations and lithologic logs from the landfill, the subsurface conditions beneath the landfill consist of up to 15 feet of native silts and clays underlain by fine to coarse glaciofluvial sands and gravel. The bedrock beneath the overburden deposits is primarily shale of

Pennsylvanian age, the depth of which is variable across the site, generally ranging from approximately 60 feet to greater than 100 feet, with a bedrock high as shallow as 21 feet.

A permit modification submitted by AEP in 2009 for the currently active area of the landfill included a settlement analysis that estimated the amount of subgrade settlement expected due to the weight of the overlying landfill. The settlement calculations indicated a maximum settlement of less than 2 feet. AEP personnel have indicated that no significant differential settlement has been observed at the landfill, and no indications of settlement were identified during our site visit. It is our opinion that the soils underlying the landfill will not exhibit compressibility that would result in significant long-term differential settlement, or that would impact the structural integrity of the landfill.

Review of historical aerial photos and published geologic information indicates that the landfill was not constructed over underlying geomorphologic features such as ground subsidence or naturally occurring landslides, and the shale bedrock beneath the site is typically not susceptible to the formation of sinkholes. Based on our review, no local geologic or geomorphologic features were identified that would impact the integrity of the structural components of the landfill.

No on-site or local human-made features or events were identified during our review or site visit that would impact the integrity of the structural components of the landfill.

3.2 Compliance

Based on the information reviewed during this study and observations made during a site visit conducted on 30 July 2015, Wood finds no evidence indicating the existence of "unstable ground" conditions that would disrupt the integrity of the structural components of the landfill. Therefore, it is our opinion the landfill meets the requirements of 40 CFR §257.64.

4.0 PE Certification

By means of this certification, I certify that I have completed a review of the available documents (discussed in this report) for the existing CCR landfill at the AEP, Rockport Generating Station located in Rockport, Indiana and have found that it meets the requirements in 40 CFR §257.64.



Kathleen D. Regan
Printed name of Registered Professional Engineer

Kathleen D. Regan
Signature

11400182 Indiana 4 October 2018
Registration No. Registration State Date

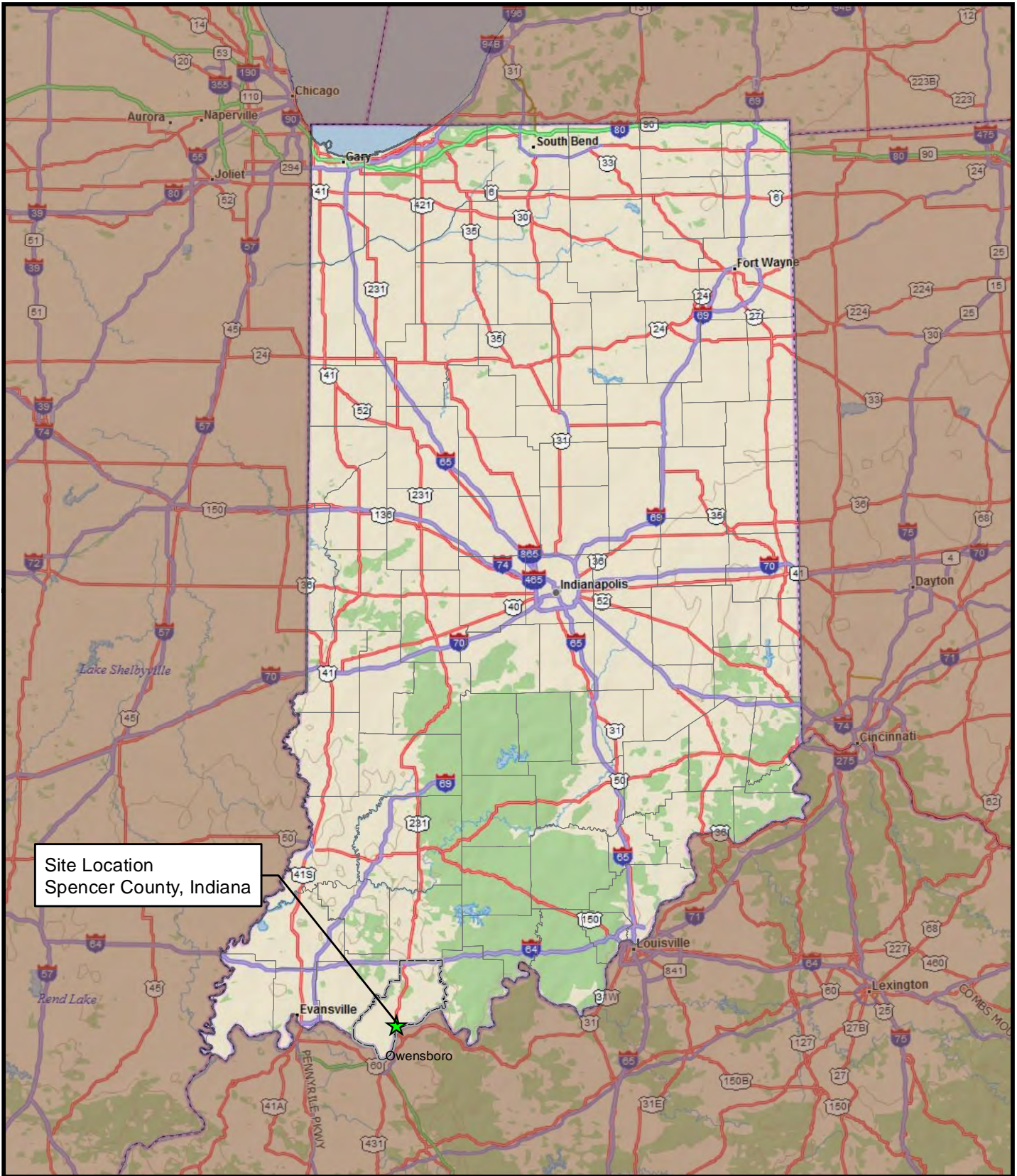
5.0 References

- American Electric Power Company (AEP), April 1984. *Application Package for Construction/Operating Permit for Solid Waste Management Facilities for Indiana and Michigan Electric Company's Ash Disposal Landfill for the Rockport Plant*. Submitted to Indiana Environmental Management Board. (AEP 1984).
- AEP, 15 June 2009, *Minor Permit Modification Application, Fly Ash Landfill, Rockport Plant*. Submitted to Indiana Department of Environmental Management (AEP 2009).
- Grove, Glenn E., May 2006. *Bedrock Aquifer Systems of Spencer County, Indiana*. Indiana Department of Natural Resources (IDNR) map. (Grove, 2006).
- Ray, Louis L., 1965. *Geomorphology and Quaternary Geology of Owensboro Quadrangle, Indiana and Kentucky*. U.S. Geological Survey (USGS) Professional Paper 488, 72 p. (Ray 1965).
- Terracon Consulting Engineers and Scientists, February 2012. *Fly Ash Landfill Redesign Construction Drawings, Storage Area 1A, RKP Permit #FP-74-2*. Design drawings prepared for AEP Indiana Michigan Power Company, Rockport Plant. (Terracon 2012).
- United States Department of Agriculture–Soil Conservation Service (USDA-SCS), 1973. *Soil Survey of Spencer County, Indiana*. (USDA 1973).



wood.

Figures



Site Location
Spencer County, Indiana



Legend

★ Site Location

Service Layer Credits: Copyright © 2015 DeLorme



wood.

2456 Fortune Drive, Suite 100
Lexington, Kentucky 40509
Phone: (859) 255-3308

SITE LOCATION MAP

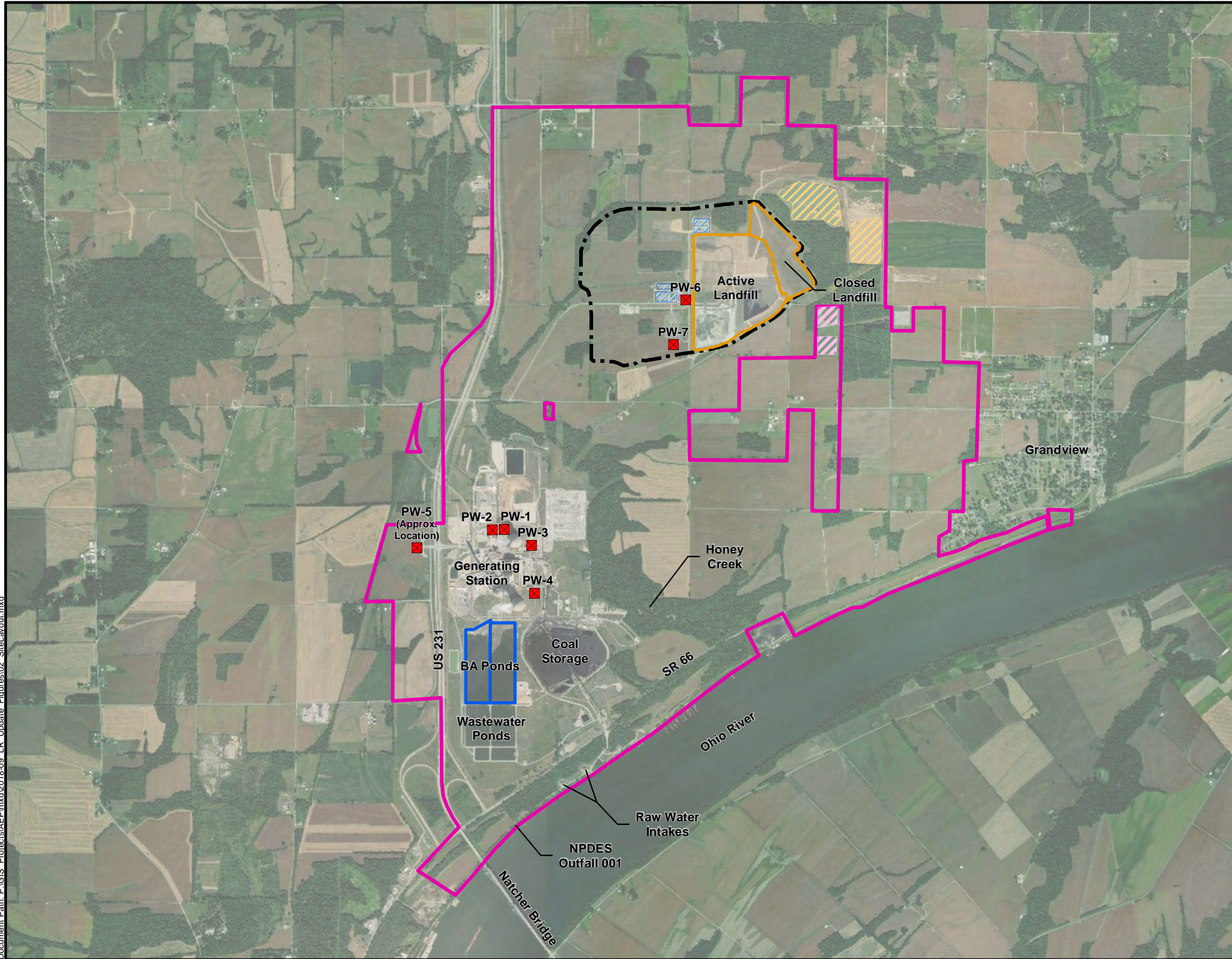
AEP - Rockport, IN

PROJECT NUMBER: 7382153161









SCALE	1" = 40 miles
DATE	9/20/2018
DRAWN BY	TMR
APPROVED BY	KDR

FIG.
1

Document Path: P:\GIS - Projects\AEP\mxd\2018-09_LR_Update_Figures\02_Sitelayout.mxd



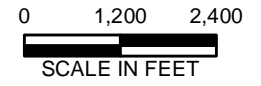
Legend

-  Water Supply Well
-  Stormwater Ponds
-  Landfill Leachate Ponds
-  Grandview Wastewater Ponds
-  Property Boundary
-  Bottom Ash Ponds (BAP)
-  Landfill Area 1A (Active and Closed)
-  1984 Landfill Permit Boundary (Area 1)

Data Sources

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Date of Photography: May-June 2016
 Source of Photography: U.S. Department of Agriculture, National Agriculture Imagery Program (NAIP)



SITE LAYOUT MAP
 AEP - ROCKPORT, IN
 PROJECT NUMBER: 7382153161

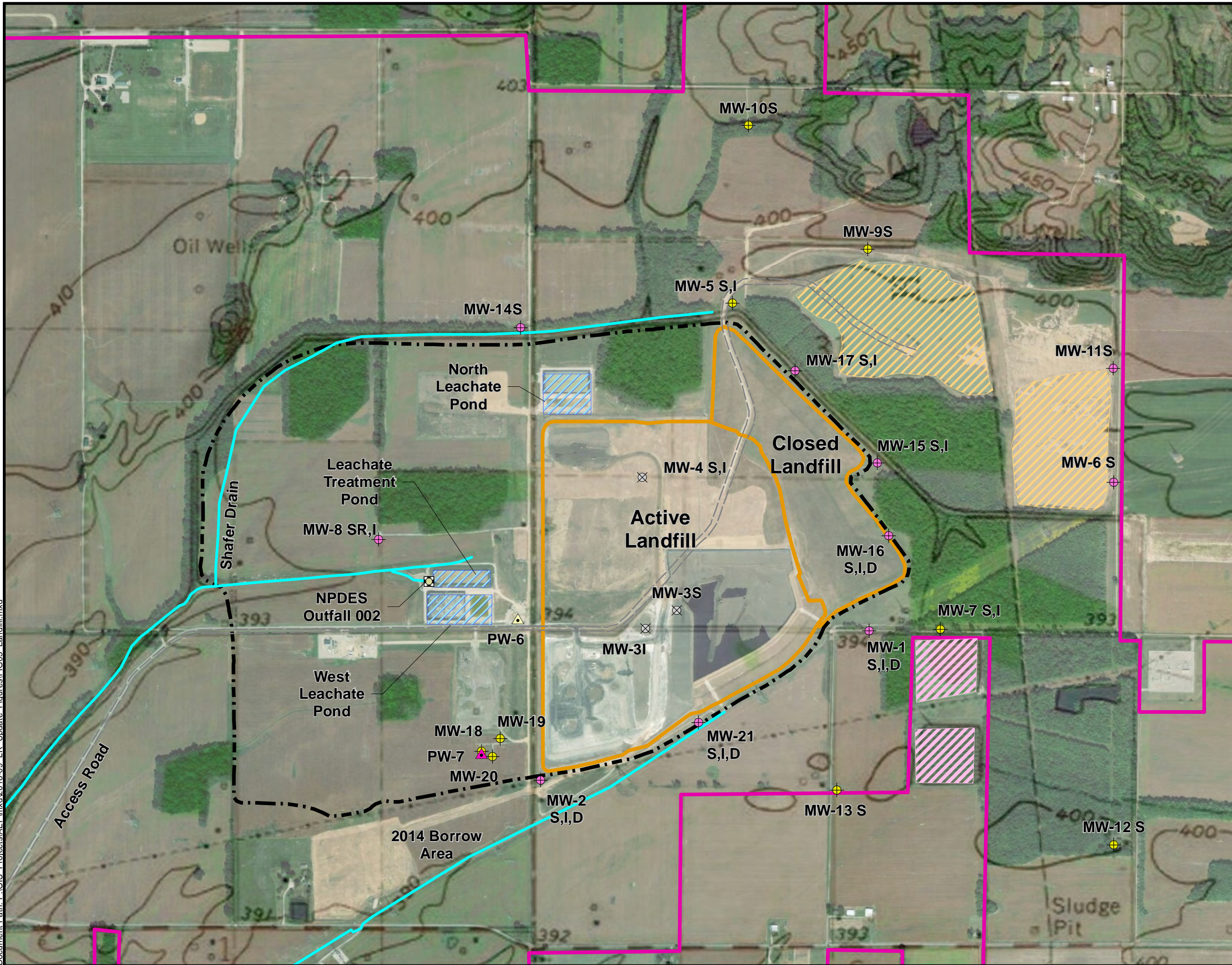
SCALE	1" = 2,400'
DATE	9/20/2018
DRAWN BY	TMR
APPROVED BY	ALD

FIG. 2

















2456 Fortune Drive, Suite 100
 Lexington, Kentucky 40509
 Phone: (859) 255-3308

Document Path: P:\GIS\Projects\AEP\mxd\2018-09_LR_Update_Figures\FIG03_Landfill.mxd



Legend

-  Landfill - Monitoring Well
-  Landfill - CCR Monitoring Well
-  Abandoned Monitoring Well
-  Landfill - Augmentation Water Supply Well
-  Landfill - Dust Control Water Supply Well
-  NPDES Outfall 002
-  Access Road
-  Drains / Ditches
-  Stormwater Ponds
-  Landfill Leachate Ponds
-  Grandview Wastewater Ponds
-  Property Boundary
-  1984 Landfill Permit Boundary (Area 1)
-  Landfill Area 1A (Active and Closed)

Data Sources

Service Layer Credits: Copyright© 2013 National Geographic Society, i-cubed
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Source: USGS Rockport and Lewisport (IN/KY) Topographic Quadrangle Maps, 1964, photorevised 1982



LANDFILL LAYOUT

AEP - ROCKPORT, IN

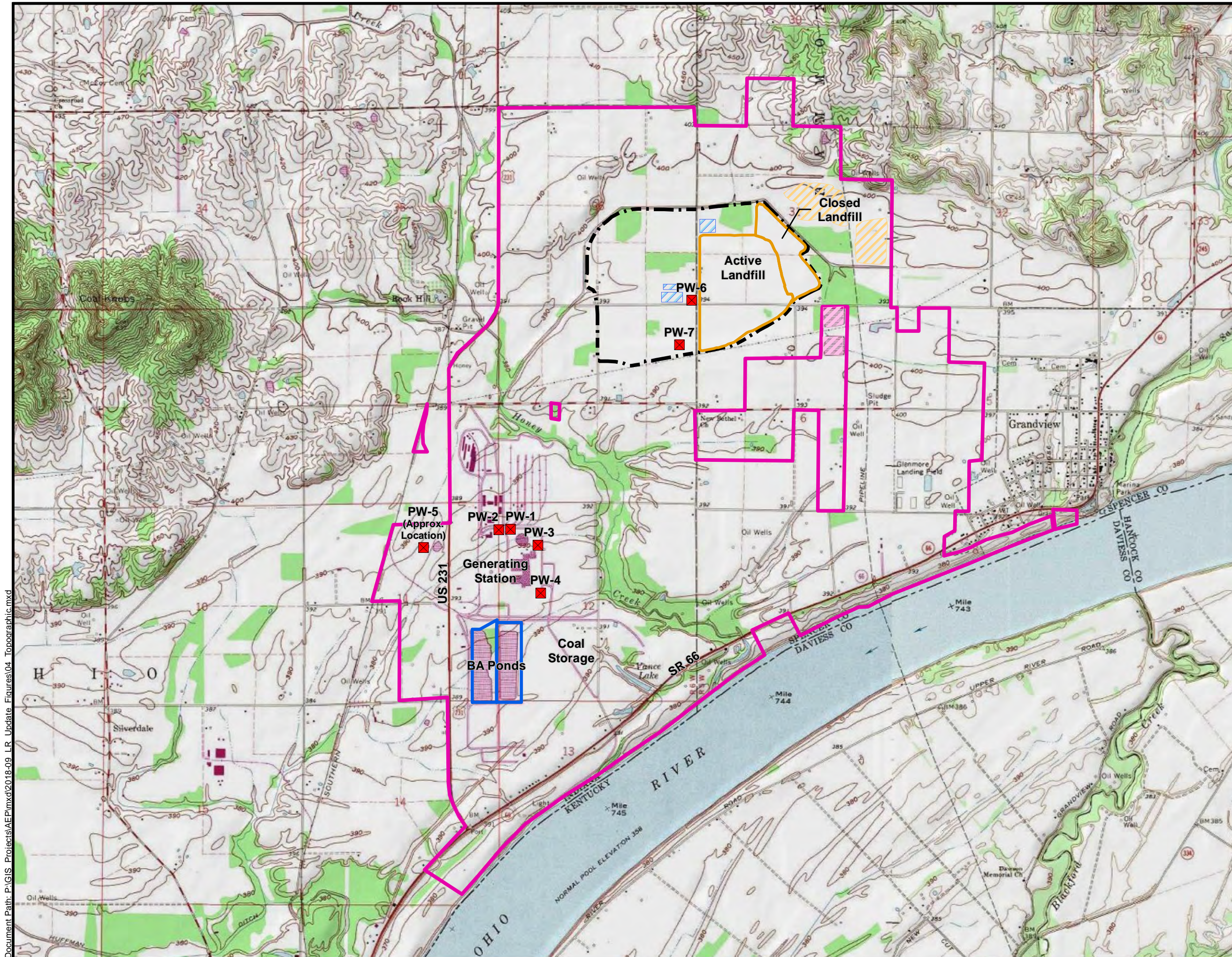
PROJECT NUMBER: 7382153161

SCALE	1" = 800'
DATE	9/20/2018
DRAWN BY	TMR
APPROVED BY	KDR

FIG. 3

wood.

2456 Fortune Drive, Suite 100
 Lexington, Kentucky 40509
 Phone: (859) 255-3308

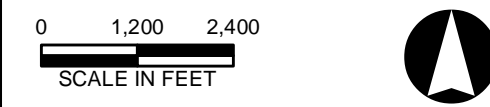


- Legend**
- Stormwater Ponds
 - Landfill Leachate Ponds
 - Grandview Wastewater Ponds
 - Property Boundary
 - Bottom Ash Ponds (BAP)
 - Landfill Area 1A (Active and Closed)
 - 1984 Landfill Permit Boundary (Area 1)
 - Water Supply Well

Data Sources

Service Layer Credits: Copyright© 2013 National Geographic Society, i-cubed

Source: USGS Rockport and Lewisport (IN/KY) Topographic Quadrangle Maps, 1964, photorevised 1982



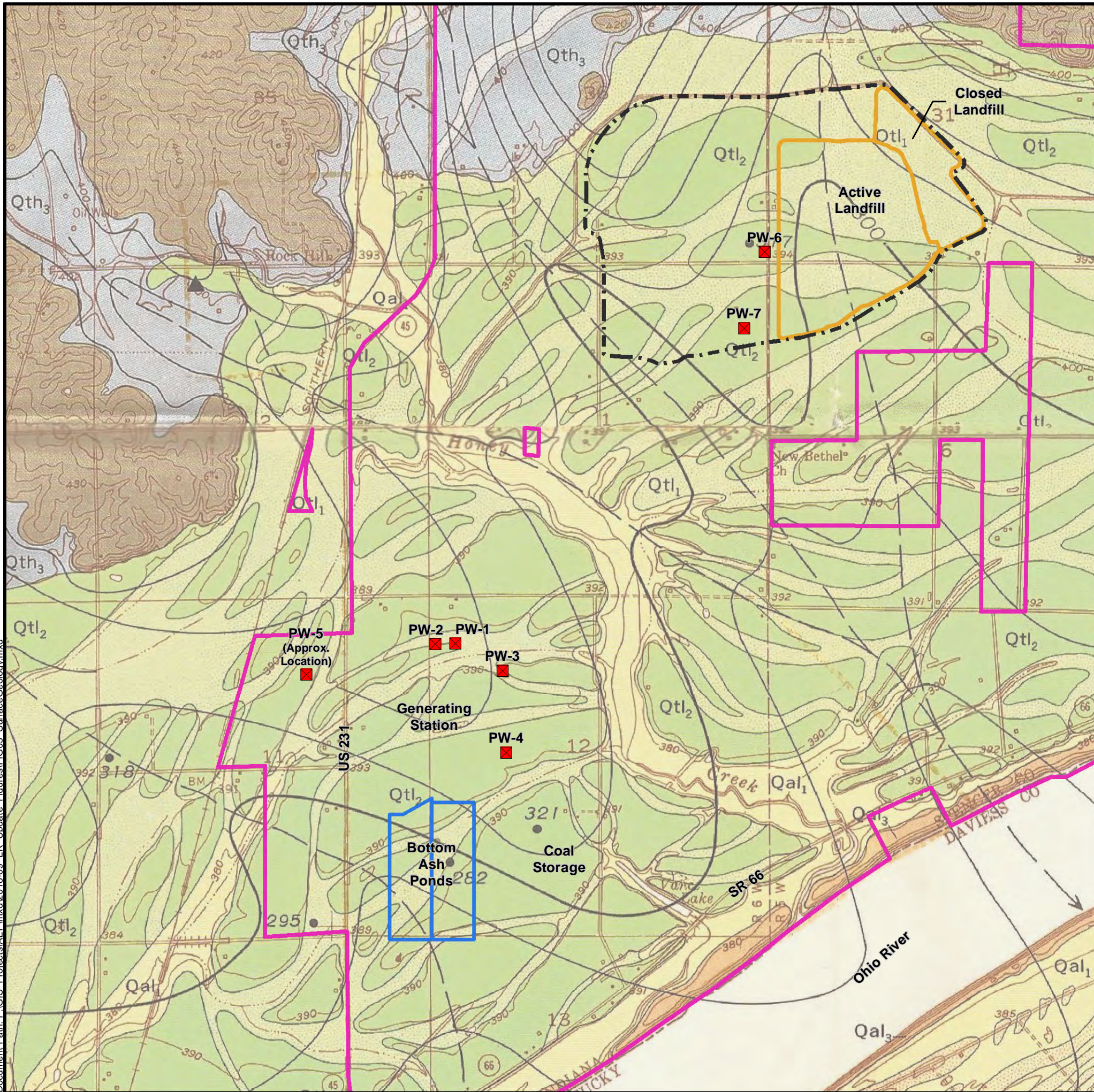
TOPOGRAPHIC MAP
AEP - ROCKPORT, IN
PROJECT NUMBER: 7382153161

SCALE	1" = 2,400'	FIG. 4
DATE	9/20/2018	
DRAWN BY	TMR	
APPROVED BY	ALD	

wood.

2456 Fortune Drive, Suite 100
Lexington, Kentucky 40509
Phone: (859) 255-3308

Document Path: P:\GIS Projects\AEP\mxd\2018-09_LR_Update_Figures\FIG05_SurfaceGeology.mxd



EXPLANATION

<p>Post-Cory</p> <p>Cory</p> <p>Wisconsin</p> <p>Tazewell</p> <p>Pre-Tazewell</p> <p>Illinoian and Wisconsin</p> <p>Pliocene</p>	<p>Qal₁</p> <p>Qal₂</p> <p>Qal₃</p> <p>Alluvium</p> <p>Sandy to clayey silt and scattered lenses and stringers of fine gravel; some humic clay. Overlies sand and gravel. Covered by flood waters on an average of every 1 to 2 years</p> <p>Qal₁, clayey silt in swales, sloughs, and channels on flood plain and along larger creeks; humic clay in boggy areas</p> <p>Qal₂, sandy silt on swells of river flood plain, especially on point bars</p> <p>Qal₃, sand and silt of natural levees</p> <p>Qtl₁</p> <p>Qtl₂</p> <p>Valley-train deposits of low terrace and backwater clayey silt</p> <p>Sandy to clayey silts overlying fine gravel, sand, and silty clay. Frequently covered in whole or in part by flood waters</p> <p>Qtl₁, clayey silt in shallow swales; some humic clay in flood-scour channels</p> <p>Qtl₂, sandy silt of low swells; natural drainage better than in swales</p> <p>Qth₁</p> <p>Qth₂</p> <p>Qth₃</p> <p>Valley-train deposits of high terrace and related lacustrine clayey silt</p> <p>Sandy and clayey silts overlying fine to coarse sand and gravel. Not subject to flooding except where surface is reduced by erosion</p> <p>Qth₁, clayey to fine-sandy silt in shallow swales</p> <p>Qth₂, sandy well-drained silt of low swells</p> <p>Qth₃, clayey, fossiliferous, lacustrine clayey silt; humic in Willow Pond bed. Generally leached to depth near 3 feet; secondary calcareous nodules commonly abundant below depth of leaching</p> <p>Qds</p> <p>Dune sand</p> <p>Loess-mantled ridges and low dunes of fine calcareous sand, in places leached in upper part; rarely fossiliferous</p> <p>Qh</p> <p>Fields at Hubert Court</p> <p>Fine silty sand overlain by clayey, humic, fossiliferous silts and silty clay</p> <p>Ql</p> <p>Loess undifferentiated</p> <p>Clayey silt up to 30 feet or more thick; mantles hill lands of bedrock of Pennsylvanian age and dunes; fossiliferous where unleached. Normally consists of Tazewell Loess overlying Farmdale Loess; some sections include deeply weathered Loveland Loess at base</p> <p>Tl</p> <p>Luce Gravel</p> <p>Cherty bronzed gravel with some vein quartz and jasper; in places cemented by iron oxides. Generally subrounded to well-rounded and bedded. White, orange, and red sand containing stringers and scattered gravel lenses</p> <p>Contact</p> <p>Subsurface contour lines on bedrock</p> <p>Datum is mean sea level. Contour interval 20 feet</p>
--	---

Legend

- Property Boundary
- 1984 Landfill Permit Boundary (Area 1)
- Landfill Area 1A (Active and Closed)
- Bottom Ash Ponds (BAP)
- Water Supply Well

Data Sources

Source: Geologic Map of the Owensboro Quadrangle, Indiana and Kentucky, USGS Professional Paper 488, 1965

0 800 1,600

SCALE IN FEET

SURFACE GEOLOGY MAP
 AEP - ROCKPORT, IN
 PROJECT NUMBER: 7382153161

SCALE	1" = 1,600'	FIG. 5
DATE	9/20/2018	
DRAWN BY	TMR	
APPROVED BY	KDR	

wood.

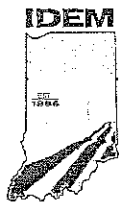
2456 Fortune Drive, Suite 100
 Lexington, Kentucky 40509
 Phone: (859) 255-3308



wood.

Appendix A

..... **7i ffYbh@ubXZ]`DYfa]h**



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

100 N. Senate Avenue • Indianapolis, IN 46204

(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

February 10, 2015

Thomas W. Easterly
Commissioner

American Electric Power
Attn: Dana Sheets, P.E.
1 Riverside Plaza
Columbus, Ohio 43215

Dear Mr. Sheets:

Re: Solid Waste Land Disposal Facility
Permit Renewal
Rockport Plant RWS I
FP 74-02
Spencer County

American Electric Power's permit renewal for the Rockport Plant restricted waste site (RWS) type I landfill is approved. You, the permittee, must comply with Indiana's rules for solid waste land disposal facilities (329 IAC 10) and the terms of this permit. Your attention to the requirements for managing, containing, and disposing of waste and leachate protects public health and the environment in your community. Please feel free to contact us or your compliance inspector if you have any questions.

This permit will expire on **February 11, 2020**. To operate past this date, you must submit a renewal application on or before **October 14, 2019**.

The facility is a restricted waste site type I (RWS I) with a total of 554 acres. 408 of the acres approved for filling are in Area 1; 146 acres approved for filling are in Area 2. The landfill is located at 2791 N. U.S. Highway 231 near Rockport.

Public records for your facility are available in IDEM's Virtual File Cabinet at www.in.gov/idem. Documents related to this approval include the application dated May 2, 2014 (VFC #70151087).

You can review the Indiana Code (IC) and the Indiana Administrative Code (IAC) references in this document at iga.IN.gov. IC references are under the "Laws" link; IAC references are under the "Publications" link.

This permit does not: convey any property rights of any sort or any exclusive privileges; authorize any injury to any person or private property or invasion of other private rights or any infringement of federal, state, or local laws or regulations; or preempt any duty to comply with other state or local requirements (329 IAC 10-13-4(a)).



A State that Works

Please note, as the owner or operator of this facility, and owner of the land upon which it is located, you are liable for any environmental harm caused by the facility (329 IAC 10-13-4(b)).

If you do not comply with the requirements of this permit, IDEM may modify or revoke this permit (329 IAC 10-13-6) or initiate an enforcement action.

If you wish to appeal this decision you must file a request for administrative review with the Office of Environmental Adjudication within 18 days after the postmark of this letter. The enclosed Notice of Decision and Guide to Appeals Process notifies you of additional important details regarding the appeal process and your rights and responsibilities for filing an adequate and timely appeal.

If you have any questions, please contact Cara Kitchen, the permit manager assigned to your facility. She can be reached by dialing (800) 451-6027 and asking for extension 3-0449, by calling her directly at 317-233-0449, or by e-mail at ckitchen@idem.IN.gov.

Sincerely,



Jeffrey L. Sewell, Chief
Permits Branch
Office of Land Quality

Enclosures: Permit Requirements
Notice of Decision
Guide to Appeals Process
Letter to the The Spencer County Journal-Democrat
Letter to the Spencer County Public Library

cc with enclosures: Gibson County Health Department
Gibson County Commissioners
Gibson County Solid Waste Management District
Director, IDEM Southwest Regional Office
The Honorable Harold Goffinet, Mayor of Rockport
The Honorable Connie Hargis, President, Rockport Town Council

PERMIT REQUIREMENTS

- A. General Permit Requirements
- B. Construction Requirements
- C. Pre-operational Requirements
- D. Operational Requirements
- E. Ground Water Monitoring Requirements
- F. Closure Requirements
- G. Post-Closure Requirements
- H. Financial Responsibility for Closure and Post-Closure

A. GENERAL PERMIT REQUIREMENTS

- A1. The permittee must comply with 329 IAC 10 except where alternative specifications or requirements are noted in approved plans or in this permit.
- A2. The permittee must construct, operate, and maintain the facility as described in the approved plans and specifications. The permittee must request approval before modifying the facility or facility operating procedures. The permit modification application requirements are in 329 IAC 10-11. Application forms are available from the permit manager listed below.

Certain insignificant modifications defined in 329 IAC 10-2-97.1 are eligible for the streamlined notification or approval procedures described in 329 IAC 10-3-3.

- A3. The permittee must call **(888) 233-7745** (IDEM's emergency response line) as soon as possible after learning of any event that may cause an imminent and substantial endangerment to human health or the environment, such as a reportable spill (327 IAC 2-6.1) or a fire or explosion that requires the response of the local fire department.

The permittee must follow up with a written report to the IDEM contact given in Requirement A4 within 5 business days after the event. The report must describe the event, and actions taken or planned to correct the event and prevent its recurrence.

- A4. Unless otherwise noted, submittals must be sent to:

**Cara Kitchen, Permit Manager
Indiana Department of Environmental Management
Solid Waste Permits
IGCN 1101
100 North Senate Avenue
Indianapolis, IN 46204-2251**

Please provide 3 copies printed double-sided. We greatly appreciate an electronic copy, in Acrobat PDF format on CD or DVD, or email, in place of one of the printed copies.

Submittals must be signed as specified in 329 IAC 10-11-3.

- A5. The permittee must submit quarterly tonnage reports (329 IAC 10-14-1) to the following address:

**Regulatory Reporting Section
Indiana Department of Environmental Management
IGCN 1101
100 North Senate Avenue
Indianapolis, IN 46204-2251**

B. CONSTRUCTION REQUIREMENTS

- B1. The permittee must notify IDEM in writing at least 15 days before beginning construction of a new area.
- B2. The permittee must install boundary markers to identify the limits of construction of each new area.
- B3. The permittee must verify and document in a Construction Certification Report (CCR) submitted as specified in Requirement C1 that all leachate collection pipes and sumps are free of obstructions before placing waste in a newly constructed area.
- B4. The permittee must construct the base grades for the type I liner as shown on DWG. No.12-30404-A (sheet 5 of 37), titled "Type I Liner sub base Grades," dated March 22, 2012 (VFC #66674065).
- B5. Upon selecting the specific materials for the composite liner system, the permittee must test the materials to verify that the interface friction values meet or exceed the values in the approved design. If the tests show that the interface friction values do not achieve the minimum factor of safety assumed in the approved plans, the permittee must select and test alternate materials and rerun the slope stability analysis. The results of the interface friction tests and any new slope stability analyses must be included in the CCR.
- B6. The permittee must test and install all liner and final cover components as specified in the approved Construction Quality Assurance and Construction Quality Control (CQA/CQC) Plan, Attachment 8, dated March 21, 2012 (VFC #66690329, pages 48-75), and revised in June 5, 2013 (VFC#68406443, pages 3-28), and revised on May 22, 2014 (VFC #70087597).
- B7. The permittee must submit a permit modification application and receive IDEM's approval before beginning modifications to the western half of Area 1 to accommodate for AK Steel power line transmission corridor and upgrade the landfill design to Type I standards.
- B8. The permittee is approved to convert approximately 110 of the 408 acres in landfill Area 1 from a restricted waste site (RWS) type II landfill to an RWS type I landfill with the following requirements:
- a. The permittee must implement the conversion as specified in the minor modification application dated March 27, 2012 (VFC #6660329), including the Engineering Report by Terracon Consultants, Inc., dated March 22, 2012 (VFC #66690329, pages 77-325), and supplemental information dated June 29, 2012 (VFC #66357542) and dated August 14, 2012 (VFC #66675686). The following VFC document numbers are plan sheets dated March 22, 2012, related to the minor modification application dated March 27, 2012:

66674284	66674171	66674187	66674069
66674283	66674184	66674215	66674269
66674112	66674213	66674040	66674271
66674169	66674064	66674038	66674072
66674170	66674237	66674060	66674236
66674067	66674201	66674202	66674198
66674065	66674173	66674172	66674285
66674248	66674125	66674272	66674270
66674113	66674186	66674158	
66674124	66674214	66674156	

- b. The permittee must install a composite liner system (combination of soil and geomembrane) and a leachate collection system as shown on DWG. NO. 12-30436-A (sheet 7 of 37), dated March 22, 2012 (VFC #66674069).
- c. The permittee must construct the composite liner system as listed below, starting from the bottom up:
- a. 5 feet of in-situ soil and/or compacted soil with a hydraulic conductivity of 1×10^{-6} cm/sec;
 - b. Type II ash (thickness varies depending on the desired grade for the construction of the composite liner);
 - c. 2 feet of compacted soil liner with a hydraulic conductivity of 1×10^{-7} cm/sec;
 - d. 30 mil PVC geomembrane;
 - e. 10 oz. /sq., nonwoven geotextile as a cushion layer;
 - f. 1 foot of bottom ash with a hydraulic conductivity of 1×10^{-2} cm/sec as a drainage layer; and
 - g. 1 foot of bottom ash with a hydraulic conductivity of 1×10^{-3} cm/sec as a protective layer.

C. PRE-OPERATIONAL REQUIREMENTS

- C1. The permittee must submit a CCR at least 21 days before placing waste in any newly constructed area. An Indiana registered professional engineer must certify that the construction is in compliance with approved plans and specifications. The report must indicate the boundaries of the certified area and include the results of all tests conducted during construction.

Unless notified otherwise by IDEM, the permittee may begin to accept waste in a newly constructed area 21 days after IDEM receives the documents listed above.

D. OPERATIONAL REQUIREMENTS

- D1. The permittee must comply with 329 IAC 10-28 (Operational Requirements).
- D2. The following wastes generated by American Electric Power-Rockport Plant are approved for disposal in the Restricted Waste Site Type I landfill:
- a. Coal combustion wastes that are exempt from the restricted waste classification process according to 329 IAC 10-9-4(d), including:
 - (1) fly ash
 - (2) bottom ash
 - (3) Flue gas desulfurization (FGD) byproducts
 - b. Wastes that have a valid Type I through Type IV classification under 329 IAC 10-9-4.

The permittee must not dispose of any other wastes in this landfill.

This facility manages coal combustion wastes that are exempt from regulation as hazardous waste under the Bevill Amendment to RCRA (see 329 IAC 3.1-1-7 and 40 CFR 261.4(b)(4)). Bevill exempt wastes are excluded from the hazardous waste characterization process. The wastes listed in Requirement D2.a above are also exempt from the restricted waste classification process according to 329 IAC 10-9-4(d). Bevill wastes not listed in D2.a must have a valid Type I through Type IV waste classification under 329 IAC 10-9-4.

- D3. The permittee must maintain permanent, visible facility and solid waste boundary markers for the life of the facility.
- D4. The permittee must limit solid waste disposal to the areas delineated by the permitted landfill limits shown on DWG. NO. 12-30405-A (sheet 6 of 37), entitled "Type I Liner Top of Clay Grades," dated March 22, 2012 (VFC #66674067).
- D5. The permittee must maintain the site benchmark throughout the entire life and post-closure care period of the facility.
- D6. The permittee must control public access to the facility and prevent unauthorized vehicular traffic and illegal dumping.
- D7. The permittee must inspect the site monthly for compliance with 329 IAC 10 and this permit. The inspections must evaluate the following: landfill cover, run-off control structures, erosion control structures, drainage ditches, monitoring wells and sumps, dust controls, and the leachate collection system. The permittee must keep the inspection records at the facility office for at least 3 years.

- D8. The permittee must manage surface water as shown on DWG. No. 12-30423-A, 12-30424-A and 12-30425-A (sheets 33-35 of 37), titled "Surface Water Ponds and Details," dated March 22, 2012 (VFC#66674270, 66674271 and 66674272) and as specified in the minor modification application referenced in Requirement B8.

The permittee must also meet the following requirements:

- a. Divert surface water from the active fill area to minimize surface water contact with the waste and interference with daily operations.
- b. Properly maintain drainage ditches and the sedimentation basin to prevent off-site deposition of sediment. Remove waste deposits from drainage ditches as necessary to properly convey storm water.
- c. Construct temporary run-off structures in areas which are unable to drain to the sedimentation basin.

- D9. The permittee is approved to use other provisions for cover as provided for in 329 IAC 10-28-11(b), based on the site design, dust controls, and variance request dated August 22, 2014 (VFC #70405282).

The permittee must comply with these additional requirements:

- a. Apply dust control agents or apply 6 inches of cover soil if facility employees observe fugitive dust or conditions that may lead to fugitive dust.
- b. Minimize the working face of the landfill as follows:
 - i. Install final cover as specified in Requirement F3 on all areas of the landfill filled to the approved elevations.
 - ii. Cover with 6" of clay type soil as an intermediate cover on all other areas that have not received waste for one year.

- D10. The permittee must manage waste that generates fugitive dust or fugitive particulate matter in a way that does not violate the rules for fugitive dust (326 IAC 6-4) or fugitive particulate matter (326 IAC 6-5), including 326 IAC 6-5-4(g) for solid waste handling control measures (329 IAC 10-8.2-2).

- D11. The permittee must grade intermediate cover to promote surface water drainage and prevent ponding of water, and implement erosion and sediment control measures within 15 days after placement. The erosion/sedimentation control measures may include the following: establishing vegetation, using alternative/synthetic covers or liners, and/or using other applicable erosion and sedimentation control measures.

- D12. If the permittee notices changes to the physical appearance of the cover soil or uses borrow sites other than those specified in the application, the permittee must, at a minimum, conduct gradation and Atterberg Limits tests on 3 representative samples of the new cover soil. The permittee must submit the results to IDEM within 15 days after such testing and before using the new soil as cover.
- D13. The permittee must meet the following requirements regarding leachate storage at the facility:
- a. Maintain an adequate leachate storage capacity in the leachate ponds during the landfill operation and the post-closure period to ensure proper operation of the leachate collection system and compliance with 329 IAC 10-28-16 (Leachate Disposal).
 - b. Maintain the leachate level in the sumps and manhole at or below the liner system to a maximum of 1 foot head.
 - c. Operate leachate storage in an environmentally safe manner.
- D14. The permittee must meet the following requirements regarding leachate sampling, analysis, and reporting:
- c. Conduct leachate sampling and analysis as required by the wastewater treatment plant or other leachate disposal facility, as applicable, and maintain the results in the facility's operating record
 - d. On or before March 1 of each year, the permittee must submit to IDEM a report for the leachate generated the previous year using the enclosed "Leachate Generation and Recirculation Report" or a similar report developed by the permittee.
- D15. The permittee is approved to temporarily store bottom ash as follows:
- a. Within subcells 4A and 4B of cell 4 as specified in the approval letter dated May 3, 2013 (VFC#68052917). The permittee must route surface water runoff from the temporary storage areas to the North Pond.
 - b. Within the approved solid waste boundary for RWS II as specified in the approval letter dated July 12, 2013 (VFC#68545528). The permittee must comply with the following:
 - (1) Store a maximum of 300,000 cubic yards of bottom ash in this area.
 - (2) Remove the bottom ash from this area before July 12, 2017
 - (3) Route surface water runoff from this area to the West Pond.
 - (4) Maintain the berms to prevent waste migration.
 - (5) Prevent waste migration via wind dispersion.

E. GROUND WATER MONITORING REQUIREMENTS

- E1. The permittee must comply with 329 IAC 10-29 (Ground Water Monitoring and Corrective Action).
- E2. The permittee must label each ground water monitoring well and each piezometer with a permanent and unique identification. When reporting well and piezometer information, the permittee must include the identification for each well or piezometer.
- E3. When abandoning a well or piezometer that is part of the facility's approved ground water monitoring system, the permittee must:
- a. Submit a written proposal for approval explaining the reasons for and detailing the method of abandonment.
 - b. Use methods that comply with Indiana Department of Natural Resources (IDNR) regulation 312 IAC 13-10-2.
 - c. Notify the IDEM Geology Section by phone, e-mail, or letter at least 10 days before the date the abandonment work will occur.
 - d. Provide written notification of abandonment to IDEM and IDNR within 30 days after plugging is complete. (IDNR (312 IAC 13-10-2(f)) requires written notice).
- E4. The permittee must secure and maintain the access ways to monitoring wells and piezometers to prevent unauthorized access, and assure they are passable year round.
- E5. The permittee must maintain all ground water monitoring wells and piezometers as follows:
- a. Complete necessary repairs, other than replacement (see Requirement E6), within 10 days after discovery.
 - b. Keep the monitoring wells securely capped and locked when not in use.
 - c. Repair all cracks in and around the casings.
 - d. Repair cracks in concrete pads.
 - e. Control vegetation height.
 - f. Redevelop the monitoring wells as needed.
- E6. The permittee must notify IDEM by phone, e-mail, or letter within 10 days after discovering that a ground water monitoring well or piezometer has been destroyed or is not functioning properly. The permittee must repair the well or piezometer if possible. If the well or piezometer cannot be repaired, then within 30 days after discovery, the permittee must submit a proposal for abandoning and replacing the well.
- E7. The permittee must submit ground water potentiometric-surface maps or flow maps with each semiannual ground water monitoring report. The maps must

contain the following:

- a. Location and identification of each ground water monitoring well and piezometer.
- b. Static water level relative to mean sea level for each well and piezometer. The permittee must measure all elevations on the same day and as close in time as possible before the purging and sampling event.
- c. Date and time of static water level measurement for each well and piezometer.
- d. Ground-surface elevation at each well and piezometer.
- e. Facility property boundaries.
- f. Identification of the aquifer represented, either by a name or elevation.
- g. Solid waste fill boundaries.
- h. Facility name and county.
- i. Map scale, north arrow, ground water flow direction arrows, and potentiometric-surface contour intervals.
- j. Indications of which monitoring wells are considered background, upgradient, downgradient, or intrawell.
- k. Locations and elevations of all site benchmarks.

- E8. If a ground water potentiometric-surface map or flow map indicates that the ground water flow direction is other than that anticipated in the design of the monitoring well system, the permittee must notify IDEM of the difference in the ground water monitoring report submitted for Requirement E12. The notification must include either of the following: information demonstrating that the monitoring well system still complies with 329 IAC 10-29-1(b); or a proposal to revise the monitoring system design for approval.

If design changes to the existing ground water monitoring system listed in Requirement E11 are necessary, the permittee must make the changes within 30 days after receiving approval of the revised design.

- E9. The permittee must follow the Sampling and Analysis Plan (SAP) and the Quality Assurance Project Plan (QAPjP), dated November 12, 1999 (VFC #52713207).

If IDEM requests a revision, the permittee must submit a revised SAP and QAPjP for approval. The permittee must submit the revision within 60 days after receiving the request. This submittal must include 1 original paper copy and 1 PDF formatted electronic file.

If the permittee makes design changes to the existing ground water monitoring system listed in Requirement E11, the permittee must submit a revised SAP and QAPjP for approval. The permittee must submit the revision within 30 days after completing all field activities associated with the changes. This submittal must include 1 original paper copy and 1 PDF formatted electronic file.

- E10. The permittee must follow the Statistical Evaluation Plan (StEP), dated December 3, 2009 (VFC # 54047681).

If IDEM requests a revision, the permittee must submit a revised StEP for approval. The permittee must submit the revision within 60 days after the request. This submittal must include 1 original paper copy and 1 PDF formatted electronic file. The permittee must not implement a revised StEP before receiving approval.

In the StEP, the permittee must present the data distribution assumptions. The statistical procedures must be appropriate for the data distribution and provide a balance between the probability of falsely identifying a significant difference and the probability of failing to identify a significant difference. To achieve the balance, the permittee should consider the background sample sizes, the number of individual statistical tests performed, and the specific verification resampling method.

If the permittee makes design changes to the existing ground water monitoring system listed in Requirement E11, the permittee must submit a revised StEP for approval. The permittee must submit the revision within 30 days after completing all field activities associated with the changes. This submittal must include 1 original paper copy and 1 PDF formatted electronic file. The permittee must not implement the revised StEP before receiving approval.

- E11. The permittee must sample the facility's ground water monitoring well system during May and November of each year. The monitoring well system includes the following wells: MW-1S, MW-1I, MW-1D, MW-15S, MW-15I, MW-16I, MW-16D, MW-17S, MW-17I, MW-21S, MW-21I, and MW-21D. Each sample must be analyzed for the following Phase I parameters:
- a. Field pH
 - b. Field specific conductance
 - c. Barium (dissolved)
 - d. Boron (dissolved)
 - e. Chromium (dissolved)
 - f. Selenium (dissolved)
 - g. Sulfate
- E12. No later than 60 days after each ground water monitoring event completed for Requirement E11, the permittee must submit the information in a ground water monitoring report to the IDEM Solid Waste Permits Section in 1 unbound paper copy and in 1 electronic version in PDF format. The report must include the following:
- a. One original, unbound, laboratory-certified report with analytical and field parameters results, field sheets, and chain-of-custody forms. The laboratory-certified report must include the following: detection limit for each chemical parameter, date samples collected, date the laboratory received the samples, date the laboratory analyzed the samples, date the laboratory prepared the report, method of analysis the laboratory used for each parameter, sample identification number for each sample, and

- results of all sample analyses.
- b. All information specified in Requirement E7 and a table summarizing the static water level for each well.
 - c. Comments regarding ground water quality, recent notifications of any compliance issues related to a problematic well or piezometer (see Requirement E6), special field observations and procedures, and deviations from the SAP.
 - d. One original unbound copy of the statistical evaluation report (see Requirement E17).

The permittee may mail the PDF copy and electronic data file specified in Requirement E13 on a CD-ROM or DVD. The permittee must clearly label the PDF copy and data file with the facility name and a brief description of the file. Alternatively, the permittee may e-mail the PDF copy and electronic data file to the IDEM Solid Waste Permit Manager listed in Requirement A4 and carbon copy olodata@idem.IN.gov. The e-mail must include the facility name and a brief description typed in the e-mail's subject heading.

- E13. The permittee must submit 1 electronic data file of the analytical and field parameters results formatted as an ASCII, tab-delimited text file. The electronic data file must contain the facility's name, permit number, and the name of the analytical laboratory. Additionally, the file must include the fields listed below for the analytical results and the following field parameters: pH, specific conductance, temperature, well depth, depth to water, and static water elevation.
- a. SamplingDate: Month, day, and year (mm/dd/yyyy). Value should be formatted as a date if possible.
 - b. SamplePointName: Names of monitoring wells, piezometers, leachate wells, surface water collection points, etc.
 - c. LaboratorySample ID: ID assigned to the sample by the laboratory.
 - d. SampleType: Regular, duplicate(s), trip blank(s), equipment blank(s), field blank(s), verification re-sample(s), and replicate(s).
 - e. SpeciesName: Chloride, sodium, ammonia, field pH, etc. The order of parameters is not critical. However, it is best to reflect the order that is on the laboratory-data sheets and keep all field data grouped together. Metals should indicate "dissolved" phase or "total" phase. Associated static water levels do not have their own header, but must be entered as "GW WaterLevel" under the header "SpeciesName." The actual elevations must be entered under the header "Concentration."
 - f. Concentration (results): The entry must be a number. Please do not enter text, such as "NA," "ND," or "<."
 - g. ConcentrationUnits: mg/l, ug/l, standard units for pH, degrees Celsius (°C) or degrees Fahrenheit (°F) for temperature, and umhos/cm for specific conductance.
 - h. Detected: Yes or no.
 - i. DetectionLimit.
 - j. AnalyticalMethods.
 - k. EstimatedValue: Indicate "Yes" if the reported concentration is an

estimated value. If a value recorded was not estimated, enter "No." If a concentration is estimated, use the "Comment" field to explain why the concentration was estimated.

- l. Comment: Analytical laboratory and/or field personnel comments regarding the reported results.
- m. SampleMedium: Ground water, leachate, surface water, etc.
- n. ProgramArea: Solid Waste.

Additional guidance on electronic data file submittals is available on IDEM's website at www.in.gov/idem/5384.htm or by e-mailing questions to olqdata@idem.IN.gov.

- E14. The permittee must retain laboratory quality assurance/quality control (QA/QC) documentation from valid analyses of ground water samples for at least 3 years.

Upon IDEM request, the permittee must submit the laboratory QA/QC for a specified ground water monitoring data package, in 1 paper copy and 1 electronic copy in PDF format, within 60 days after receiving the request. The "Solid & Hazardous Waste Programs, Analytical Data Deliverable Requirements: Supplemental Guidance" provides additional information about laboratory QA/QC. The guidance is available on IDEM's website at www.in.gov/idem/4673.htm.

- E15. The permittee must conduct ground water monitoring throughout the active life and the post-closure care period of the facility (329 IAC 10-29-3). IDEM may extend the post-closure care period if ground water monitoring results show that the facility has not stabilized (329 IAC 10-31-4).

- E16. The permittee must determine the background ground water quality for any background wells added to the facility's ground water monitoring system by sampling each new well for 4 consecutive quarters within 1 year after their installation. The permittee must establish background ground water quality for the following:

- a. The Phase I parameters in Requirement E11.
- b. The secondary standards in 329 IAC 10-29-7(c).
- c. The ground water protection standard in 329 IAC 10-29-10.

- E17. The permittee must apply the StEP in Requirement E10 to determine whether there is a statistically significant increase (or pH decrease) over the background for each Phase I or Phase II parameter, except for field temperature. The statistical determination must include the value obtained during each semiannual analysis with the established background (329 IAC 10-29-5).

- E18. If the permittee determines there is a statistically significant increase (or pH decrease) over background for 2 or more of the Phase I parameters at any of the downgradient monitoring wells, the permittee must comply with the following requirements:

- a. Notify IDEM in writing within 14 days after the finding. The notification must state which Phase I parameters showed statistically significant increases (or pH decrease) over background levels, and which downgradient monitoring well(s) showed the elevated concentrations.
- b. Collect and analyze the ground water from all monitoring wells for the parameters in Requirement E11 and the parameters determined from 329 IAC 10-29-7(d). The permittee must submit the results to IDEM within 60 days after determining the statistically significant increases.
- c. Establish a Phase II monitoring program based on the results obtained from Requirement E18.b and consult with the IDEM Geology Section within 30 days after completing Requirement E18.b.

The permittee must continue the scheduled Phase I monitoring as described in Requirement E11 and 329 IAC 10-29 throughout the establishment and implementation of a Phase II monitoring program.

E19. In lieu of Requirements E18.b and E18.c, the permittee may attempt to demonstrate that a source other than the solid waste facility caused the increase (or pH decrease) or that the increase (or pH decrease) resulted from error in sampling, analysis, or evaluation. For IDEM to approve the demonstration, the permittee must comply with the following requirements:

- a. Notify IDEM in writing of the intent to make a demonstration. The permittee must submit the notification within 7 days after determining a statistically significant increase (or pH decrease).
- b. Submit a report to IDEM within 90 days after determining a statistically significant increase (or pH decrease). The report must demonstrate that a source other than the solid waste facility caused the increase (or pH decrease), or that the increase (or pH decrease) resulted from error in sampling, analysis, or evaluation. The report must state what efforts the permittee will take to prevent these errors from recurring.
- c. Continue to monitor ground water at all monitoring wells according to the scheduled Phase I monitoring established under 329 IAC 10-29-6.

If a demonstration is not acceptable to IDEM, the permittee must continue with Requirements E18.b and E18.c.

E20. If necessary, the permittee must implement a corrective action program as required under 329 IAC 10-29-9. The corrective action program is complete when ground water protection standards have been met at all points of the plume beyond the monitoring boundary for a period of 3 consecutive years using the statistical procedures outlined in 329 IAC 10-29-5 and procedures approved through this permit.

E21. The permittee must analyze the following constituents in accordance with the sampling schedule specified in Requirement E11 for samples collected from the ground water monitoring wells of the monitoring well system.

- a. Alkalinity, bicarbonate (HCO_3)
- b. Alkalinity, total (CaCO_3)
- c. Aluminum (dissolved)
- d. Arsenic (dissolved)
- e. Cadmium (dissolved)
- f. Calcium (dissolved)
- g. Chloride
- h. Fluoride
- i. Iron (dissolved)
- j. Lead (dissolved)
- k. Magnesium (dissolved)
- l. Manganese (dissolved)
- m. Molybdenum
- n. Mercury (dissolved)
- o. Potassium (dissolved)
- p. Nitrate (NO_3)
- q. Sodium (dissolved)
- r. Silver (dissolved)
- s. Total Dissolved Solids

The permittee must include the sampling results in the ground water monitoring report (Requirement E12).

The permittee must complete a statistical evaluation or a geochemical evaluation on the constituents identified in this Requirement (E21) when the IDEM Geology Section deems an evaluation is necessary. Until the IDEM Geology Section requests an evaluation, the permittee must include a nonstatistical, qualitative review of the concentrations for these constituents in each statistical evaluation report.

- E22. The permittee must include static water levels from the following monitoring wells to develop potentiometric maps required for each ground water submittal (Requirement E7).

- MW-2(S, I, and D)
- MW-5(S and I)
- MW-6(S)
- MW-7(S and I)
- MW-8(S, R, and I)
- MW-9(S)
- MW-10(S)
- MW-11(S)
- MW-12(S)
- MW-13(S)
- MW-14(S)

- E23. The permittee must include time series plots (time vs. concentration) of the facility's ground water data when the IDEM Geology Section requests the plots to be included in the statistical evaluation report (Requirement E12.d).

F. CLOSURE REQUIREMENTS

- F1. The permittee must comply with 329 IAC 10-30 (Closure Requirements for Restricted Waste Site Type I Landfill) and follow the facility's approved closure plan dated December 19, 2007 (VFC #27473581, Appendix B, Attachment 17, p. 31-41 of 64), and revisions dated March 27, 2012 (VFC#66690329, p. 21-47 of 325).
- F2. The permittee must notify IDEM in writing at least 60 days before the intended date to begin closure of each area.
- F3. The permittee must construct the final cover as specified in the approved final grading plan as shown on DWG. NO. 12-30429-A (sheet 10 of 37), titled "Top of Final Cover Grades," dated March 22, 2012 (VFC #66674113), and the applicable requirements of 329 IAC 10-30-2 and 10-28-11. Grading and stabilization of final cover must comply with 329 IAC 10-28-14.

G. POST-CLOSURE REQUIREMENTS

- G1. The permittee must perform post-closure monitoring and maintenance as specified in the facility post-closure plan in the permit application dated December 19, 2007 (VFC #27473581, Appendix B, Attachment 17, p. 42-49 of 64), and revisions dated March 27, 2012 (VFC#66690329, p. 21-47 of 325), and the applicable requirements of 329 IAC 10-31.

H. FINANCIAL RESPONSIBILITY FOR CLOSURE AND POST-CLOSURE

- H1. The permittee must maintain a financial assurance mechanism for the costs of closure and post-closure using one of the financial assurance mechanisms and the estimating standards described in 329 IAC 10-39. The permittee must submit signed originals of the financial assurance mechanism and updates used to meet this requirement.
- H2. The permittee must submit a financial responsibility update by June 15 of each year. The annual update must address the following items as detailed in 329 IAC 10-39-2(c) and (d), and 329 IAC 10-39-3(c):
- a. The permittee must adjust the closure and post-closure cost estimates for inflation.
 - b. The permittee must revise the cost estimates to account for changes which increase the cost of closure or post-closure.

- c. The permittee may revise the cost estimates to account for changes which reduce the cost of closure or post-closure. The permittee must provide documentation supporting reduced cost-estimates, for example: letters and maps documenting areas certified as closed.
- d. The permittee must submit an existing contour map showing the approved solid waste land disposal facility that delineates the boundaries of all areas into which waste has been placed, and the boundaries of areas certified as closed. The map must be certified by a professional engineer or a registered land surveyor.
- e. The permittee must submit documentation showing that the financial assurance mechanism is current and adequate to cover the estimated costs of closure and post-closure. The permittee must submit signed originals of the financial assurance mechanism and updates used to meet this requirement.



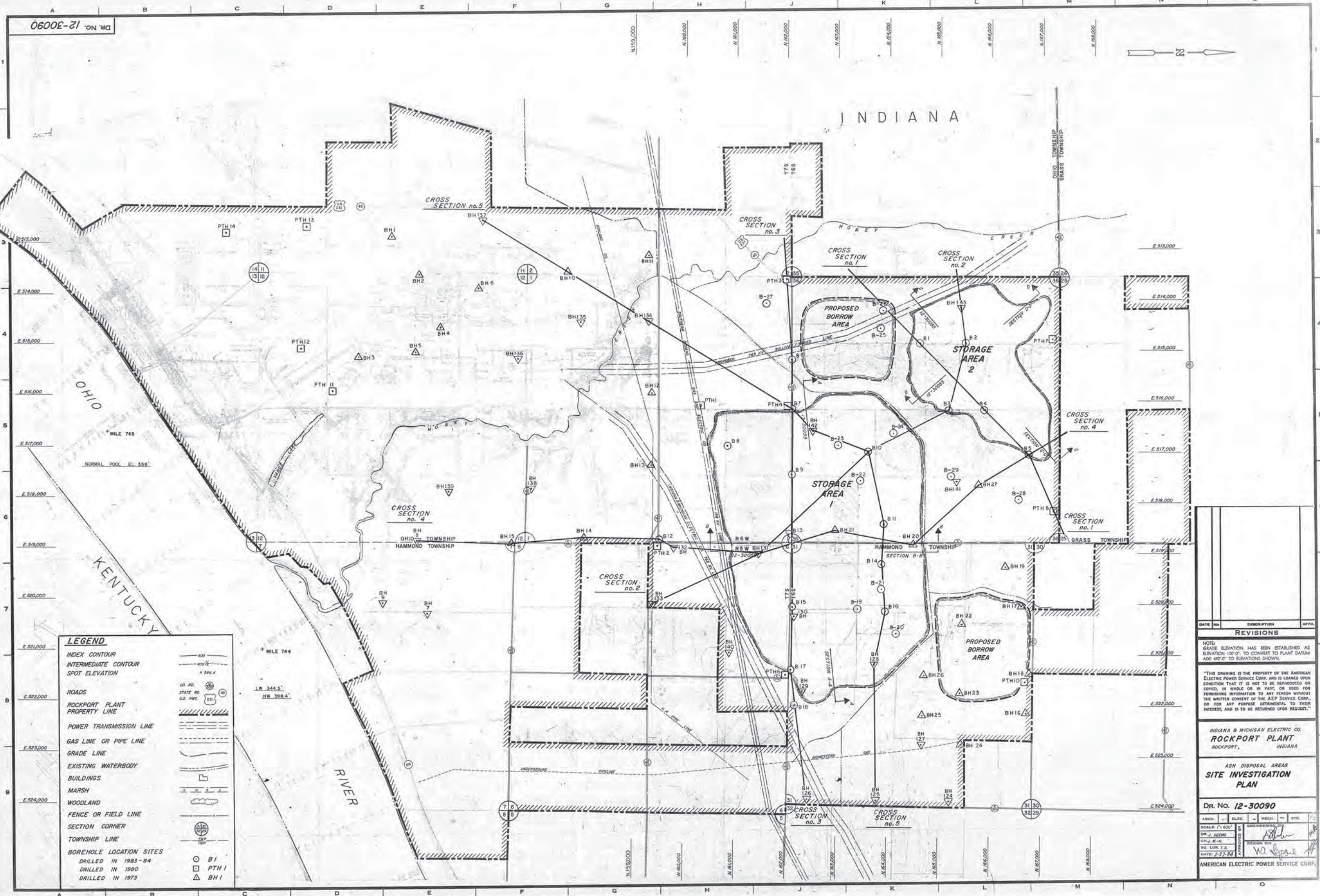
wood.

Appendix B

..... A Udg'UbX'7fcgg! GYM]cbg

..... % , ' @UbXZ]`G]hY' =bj Ygh][Uh]cb





LEGEND

INDEX CONTOUR
 INTERMEDIATE CONTOUR
 SPOT ELEVATION

ROADS

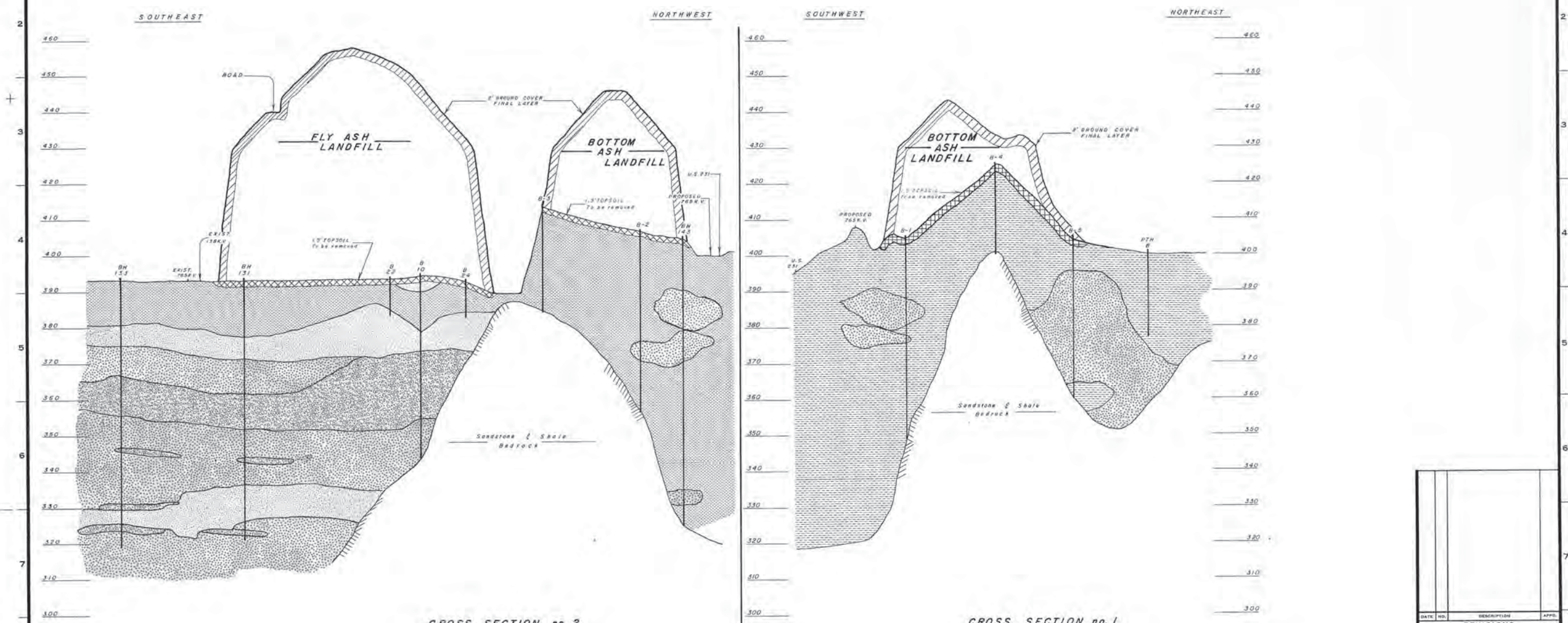
ROCKPORT PLANT
 PROPERTY LINE

POWER TRANSMISSION LINE
 GAS LINE OR PIPE LINE
 GRADE LINE
 EXISTING WATERBODY
 BUILDINGS
 MARSH
 WOODLAND
 FENCE OR FIELD LINE
 SECTION CORNER
 TOWNSHIP LINE

BOREHOLE LOCATION SITES
 DRILLED IN 1983-84
 DRILLED IN 1980
 DRILLED IN 1973

○ B1
 □ PTH1
 △ BH1

DATE	NO.	DESCRIPTION	APPROV.
REVISIONS			
NOTE: GRADE ELEVATION HAS BEEN ESTABLISHED AS ELEVATION 100' TO CONVERT TO PLANT DATUM ADD 452' TO ELEVATIONS SHOWN.			
"THIS DRAWING IS THE PROPERTY OF THE AMERICAN ELECTRIC POWER SERVICE CORP. AND IS LOANED UPON CONDITION THAT IT IS NOT TO BE REPRODUCED OR COPIED, IN WHOLE OR IN PART, OR USED FOR FURNISHING INFORMATION TO ANY PERSON WITHOUT THE WRITTEN CONSENT OF THE AEP SERVICE CORP., OR FOR ANY PURPOSE DETERMINED TO THEIR INTEREST, AND IS TO BE RETURNED UPON REQUEST."			
INDIANA & MICHIGAN ELECTRIC CO. ROCKPORT PLANT ROCKPORT, INDIANA			
ASH DISPOSAL AREAS SITE INVESTIGATION PLAN			
Dr. No. 12-30090			
APPROV.	DATE	BY	BY
DESIGNED BY	DATE	BY	BY
CHECKED BY	DATE	BY	BY
DATE: 3-27-86			
AMERICAN ELECTRIC POWER SERVICE CORP.			



CROSS SECTION no. 2

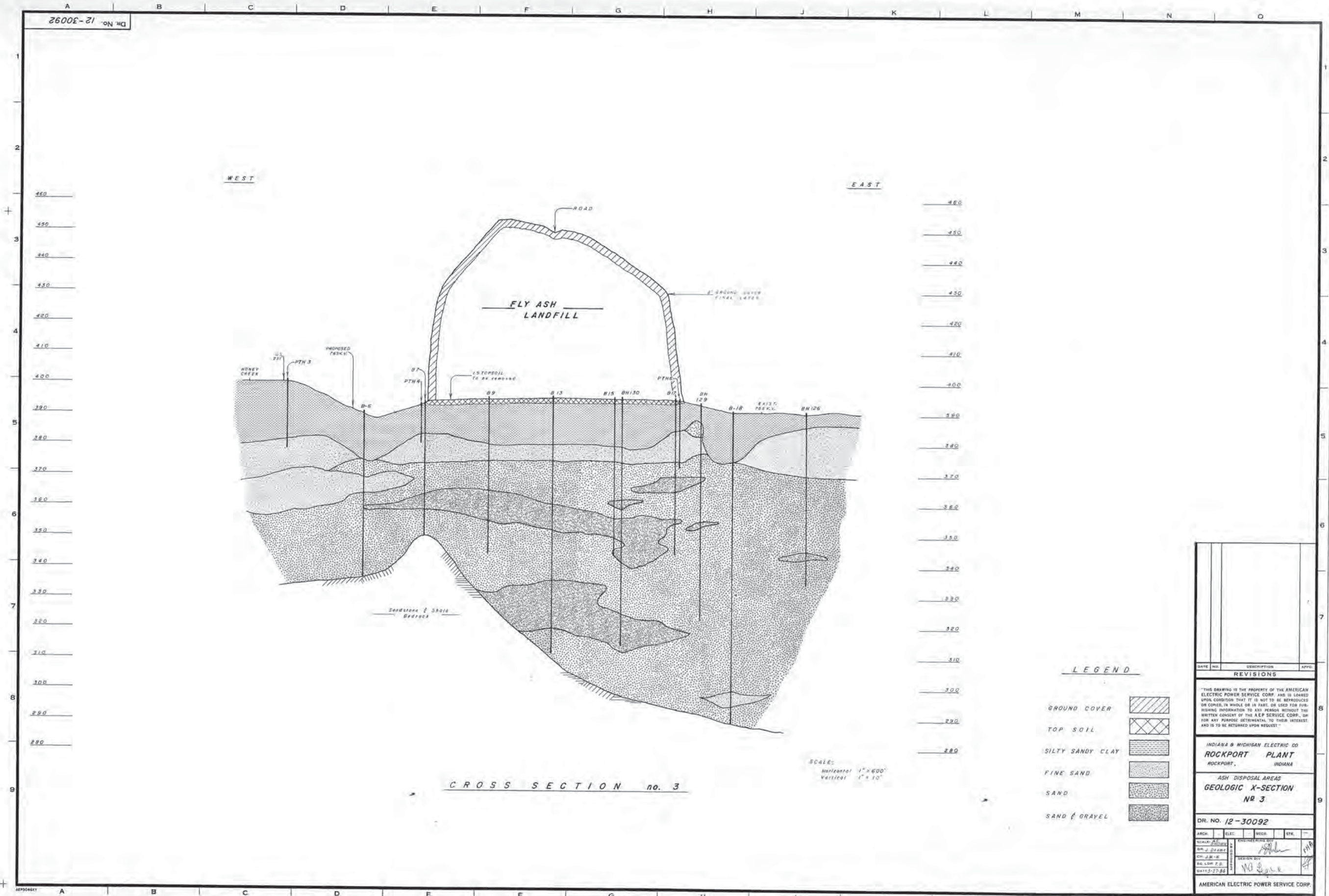
CROSS SECTION no. 1

LEGEND

- GROUND COVER
- TOP SOIL
- SILTY SANDY CLAY
- FINE SAND
- SAND
- SAND & GRAVEL

SCALE:
Horizontal 1" = 800'
Vertical 1" = 10'

DATE	REVISIONS	APPR.
<p><small>THIS DRAWING IS THE PROPERTY OF THE AMERICAN ELECTRIC POWER SERVICE CORP. AND IS LOANED UPON CONDITION THAT IT IS NOT TO BE REPRODUCED OR COPIED IN WHOLE OR IN PART, OR USED FOR FURNISHING INFORMATION TO ANY PERSON WITHOUT THE WRITTEN CONSENT OF THE AEP SERVICE CORP., OR FOR ANY PURPOSE DETRIMENTAL TO THEIR INTEREST, AND IS TO BE RETURNED UPON REQUEST.</small></p>		
<p>INDIANA & MICHIGAN ELECTRIC CO. ROCKPORT PLANT ROCKPORT, INDIANA</p>		
<p>ASH DISPOSAL AREAS GEOLOGIC X-SECTIONS NR 1 & NR 2</p>		
<p>DR. NO. 12-30091</p>		
DRAWN BY DESIGNED BY CHECKED BY DATE	ELEC MECH EST	APPROVED BY DATE
<p>AMERICAN ELECTRIC POWER SERVICE CORP.</p>		

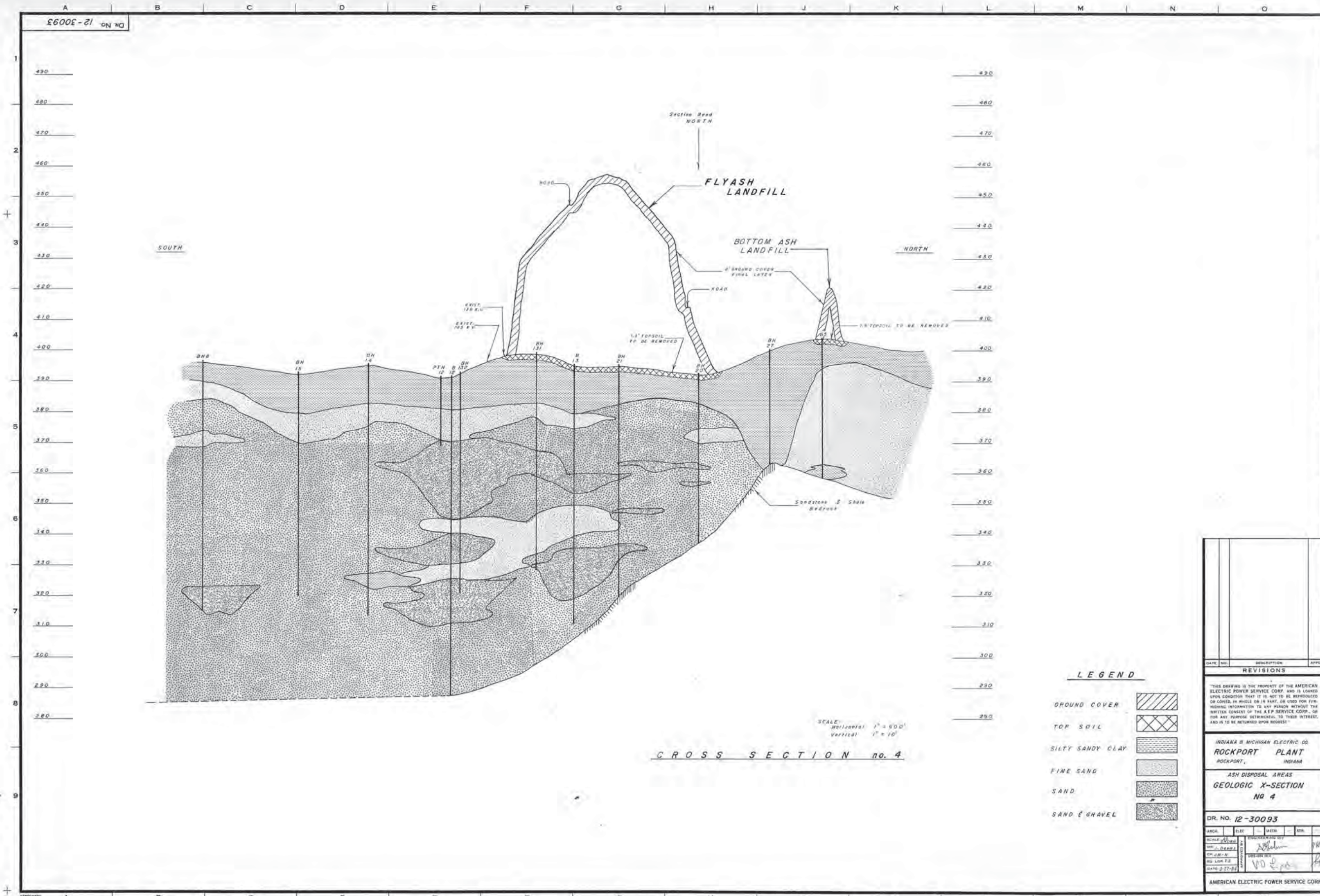


CROSS SECTION no. 3

LEGEND

GROUND COVER	
TOP SOIL	
SILTY SANDY CLAY	
FINE SAND	
SAND	
SAND & GRAVEL	

DATE	NO.	DESCRIPTION	APPR.
REVISIONS			
<p>THIS DRAWING IS THE PROPERTY OF THE AMERICAN ELECTRIC POWER SERVICE CORP. AND IS LOANED UPON CONDITION THAT IT IS NOT TO BE REPRODUCED OR COPIED, IN WHOLE OR IN PART, OR USED FOR FURNISHING INFORMATION TO ANY PERSON WITHOUT THE WRITTEN CONSENT OF THE A.E.P. SERVICE CORP., OR FOR ANY PURPOSE DETRIMENTAL TO THEIR INTEREST, AND IS TO BE RETURNED UPON REQUEST.</p>			
<p>INDIANA & MICHIGAN ELECTRIC CO ROCKPORT PLANT ROCKPORT, INDIANA</p>			
<p>ASH DISPOSAL AREAS GEOLOGIC X-SECTION NO. 3</p>			
DR. NO. 12-30092			
ARCH.	ELEC.	MECH.	STR.
DESIGNED BY	DRAWN BY		CHECKED BY
DATE	DATE		DATE
NO. 12-30092	NO. 12-30092		NO. 12-30092
AMERICAN ELECTRIC POWER SERVICE CORP.			



DATE	NO.	DESCRIPTION	APP'D.
REVISIONS			

THIS DRAWING IS THE PROPERTY OF THE AMERICAN ELECTRIC POWER SERVICE CORP. AND IS LOANED UPON CONDITION THAT IT IS NOT TO BE REPRODUCED OR COPIED, IN WHOLE OR IN PART, OR USED FOR FURNISHING INFORMATION TO ANY PERSON WITHOUT THE WRITTEN CONSENT OF THE AEP SERVICE CORP., OR FOR ANY PURPOSE DETRIMENTAL TO THEIR INTEREST, AND IS TO BE RETURNED UPON REQUEST.

INDIANA & MICHIGAN ELECTRIC CO.
ROCKPORT PLANT
 ROCKPORT, INDIANA

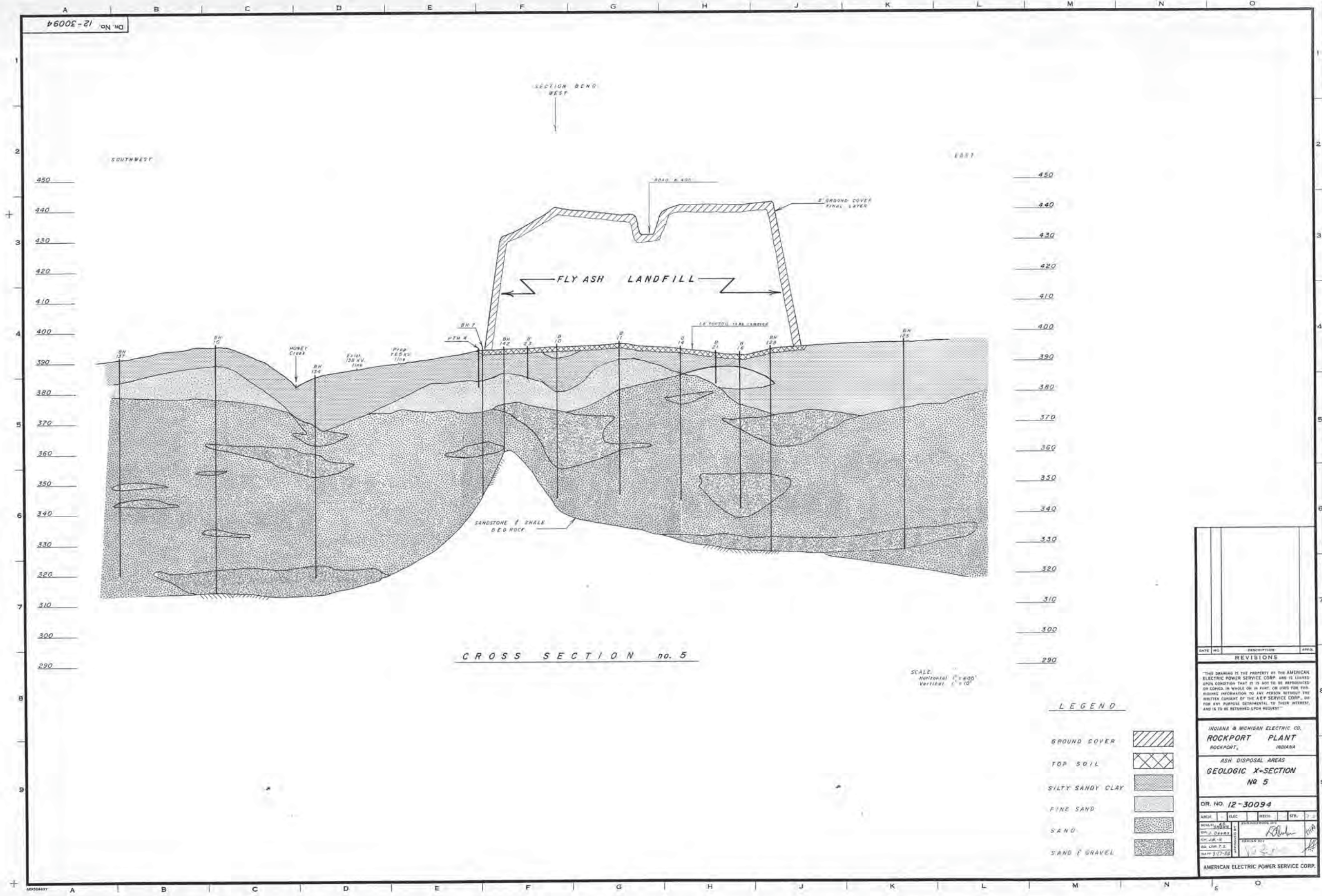
ASH DISPOSAL AREAS
GEOLOGIC X-SECTION
NO. 4

DR. NO. 12-30093

ISSUED	ELEC.	DESG.	CHKD.	APP'D.
DATE				

AMERICAN ELECTRIC POWER SERVICE CORP.

DR. No. 12-30094



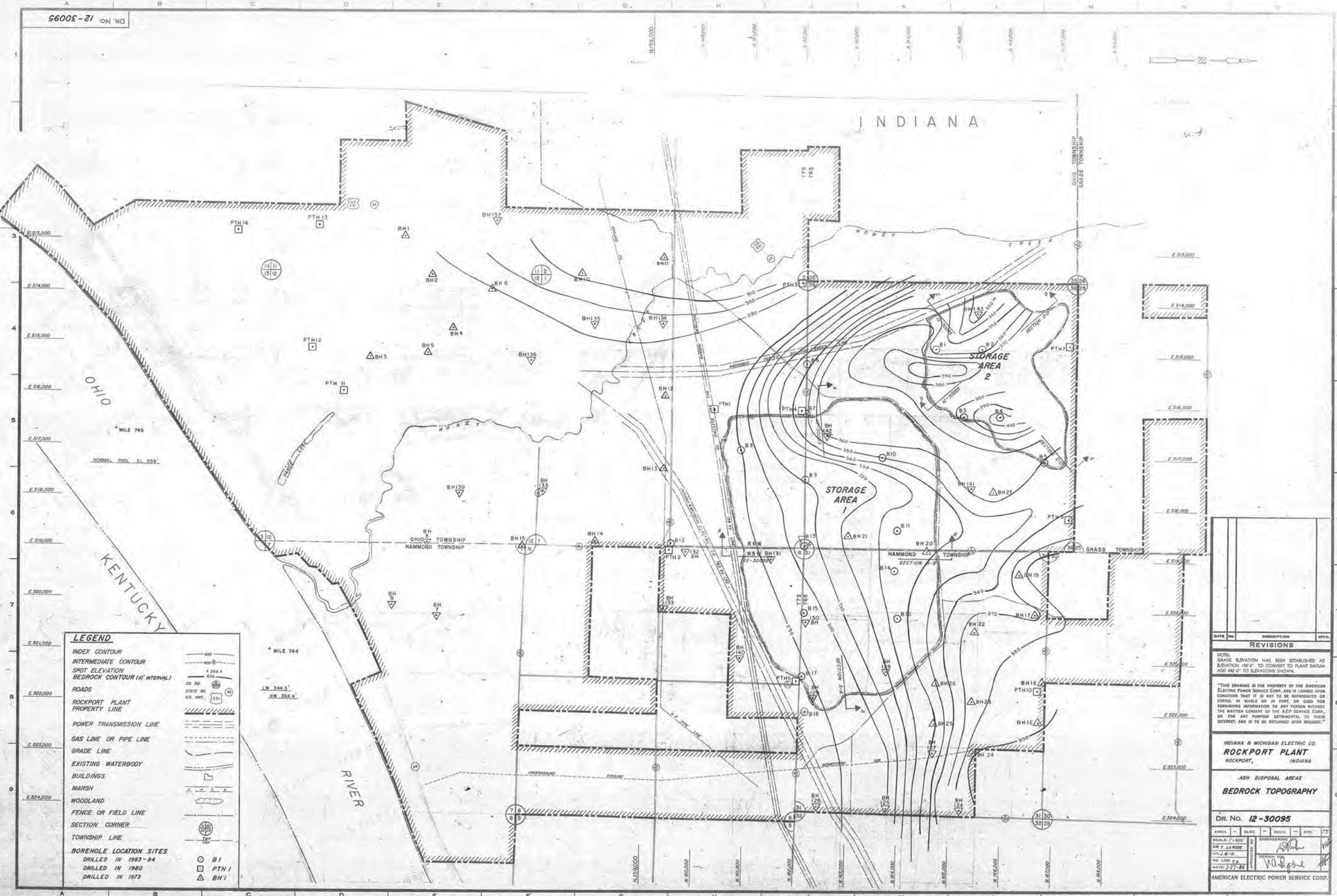
CROSS SECTION no. 5

SCALE:
Horizontal 1" = 400'
Vertical 1" = 10'

LEGEND

- GROUND COVER
- TOP SOIL
- SILTY SANDY CLAY
- FINE SAND
- SAND
- SAND & GRAVEL

DATE	DESCRIPTION	APPROV.
REVISIONS		
THIS DRAWING IS THE PROPERTY OF THE AMERICAN ELECTRIC POWER SERVICE CORP. AND IS LOANED ON THE CONDITION THAT IT IS NOT TO BE REPRODUCED OR COPIED, IN WHOLE OR IN PART, OR USED FOR FORGEING INFORMATION TO ANY PERSON WITHOUT THE WRITTEN CONSENT OF THE A.E.P. SERVICE CORP., OR FOR ANY PURPOSE DETRIMENTAL TO THEIR INTEREST, AND IS TO BE RETURNED UPON REQUEST.		
INDIANA & MICHIGAN ELECTRIC CO. ROCKPORT PLANT ROCKPORT, INDIANA		
ASH DISPOSAL AREAS GEOLOGIC X-SECTION NO. 5		
DR. NO. 12-30094		
ARCH. <input type="checkbox"/> ELEC. <input type="checkbox"/> MECH. <input type="checkbox"/> STR. <input type="checkbox"/>	DESIGNED BY: CHECKED BY: DATE: 1-17-60	
AMERICAN ELECTRIC POWER SERVICE CORP.		



LEGEND

INDEX CONTOUR ——— 400

INTERMEDIATE CONTOUR ——— 400.5

SPOT ELEVATION ——— 399.4

BEDROCK CONTOUR (10' INTERVAL) ——— 400

ROADS

STATE RD. ———

COUNTY HWY. ———

ROCKPORT PLANT PROPERTY LINE ———

POWER TRANSMISSION LINE ———

GAS LINE OR PIPE LINE ———

GRADE LINE ———

EXISTING WATERBODY ———

BUILDINGS ———

MARSH ———

WOODLAND ———

FENCE OR FIELD LINE ———

SECTION CORNER ———

TOWNSHIP LINE ———

BOREHOLE LOCATION SITES

DRILLED IN 1983-84 ○ B1

DRILLED IN 1980 □ PTH1

DRILLED IN 1973 △ BH1

DATE	DESCRIPTION	APPRO.
REVISIONS		
NOTE: GRADE ELEVATION HAS BEEN ESTABLISHED AS ELEVATION 100' TO CONVERT TO PLANT DATUM. ADD 482'-0" TO ELEVATIONS SHOWN.		
THIS DRAWING IS THE PROPERTY OF THE AMERICAN ELECTRIC POWER SERVICE CORP. AND IS LOANED UNDER CONDITION THAT IT IS NOT TO BE REPRODUCED OR COPIED, IN WHOLE OR IN PART, OR USED FOR FURNISHING INFORMATION TO ANY PERSON WITHOUT THE WRITTEN CONSENT OF THE AEP SERVICE CORP., OR FOR ANY PURPOSE UNRELATED TO THEIR INTEREST, AND IS TO BE RETURNED UPON REQUEST.		
INDIANA & MICHIGAN ELECTRIC CO. ROCKPORT PLANT ROCKPORT, INDIANA		
ASH DISPOSAL AREAS BEDROCK TOPOGRAPHY		
DR. NO. 12-30095		
SCALE: 1"=600'	ENGINEERING	APPROVED
BY: T. LA ROSE	DATE: 1-77-81	
BY: W. R. POPE		
AMERICAN ELECTRIC POWER SERVICE CORP.		

DR. NO. 12-30098

INDIANA

BORING LEGEND

- ABANDONED WATER WELL
- ACTIVE OIL WELL (BRINE INJECTION WELL)
- PLUGGED OIL or GAS WELL
- BOREHOLE DRILLED IN 1983-'74
- BOREHOLE DRILLED IN 1980
- △ BOREHOLE DRILLED IN 1973

LEGEND

- INDEX CONTOUR
- INTERMEDIATE CONTOUR
- SPOT ELEVATION
- ROADS
- ROCKPORT PLANT PROPERTY LINE
- POWER TRANSMISSION LINE
- GAS LINE OR PIPE LINE
- GRADE LINE
- EXISTING WATERBODY
- BUILDINGS
- MARSH
- WOODLAND
- FENCE OR FIELD LINE
- SECTION CORNER
- TOWNSHIP LINE

REVISIONS

NOTE: GRADE ELEVATION HAS BEEN ESTABLISHED AS ELEVATION 100'-0" TO CONVERT TO PLANT DATUM ADD 482'-4" TO ELEVATIONS SHOWN.

"THIS DRAWING IS THE PROPERTY OF THE AMERICAN ELECTRIC POWER SERVICE CORP. AND IS LOANED UPON CONDITION THAT IT IS NOT TO BE REPRODUCED OR COPIED, IN WHOLE OR IN PART, OR USED FOR FURNISHING INFORMATION TO ANY PERSON WITHOUT THE WRITTEN CONSENT OF THE A.E.P. SERVICE CORP. OR FOR ANY PURPOSE DETRIMENTAL TO THEIR INTEREST. AND IS TO BE RETURNED UPON REQUEST."

INDIANA & MICHIGAN ELECTRIC
ROCKPORT PLANT
ROCKPORT, INDIANA

ASH DISPOSAL AREA
LOCATION OF OIL / GAS WELLS

DR. NO. 12-30098

ARCH - ELIC - WEL - PLS

SCALE: 1" = 600'

DR. T. LA ROSE

DATE: 3-27-84

AMERICAN ELECTRIC POWER SERVICE CORP.

