

# Indiana-Kentucky Electric Corporation

## CLIFTY CREEK STATION



## COAL COMBUSTION RESIDUAL FUGITIVE DUST CONTROL PLAN

Prepared By:

**Indiana-Kentucky Electric Corporation**  
3932 U.S. Rt. 23  
Piketon, Ohio 45661

**Revision 0 – October 19, 2015**

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## Professional Engineer's Certification – 40 CFR 257.80(b)(7)

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I certify that I am a licensed professional engineer in the state of Indiana. I have reviewed the attached "Coal Combustion Residual Fugitive Dust Control Plan" for the Clifty Creek Station in Madison, Indiana. It is my professional opinion that this plan meets the requirements of 40 CFR 257.80 (b).

*Jacqueline S. Harmon*

Jacqueline S. Harmon, P.E.  
Senior Associate

*Stan A. Harris*

Stan A. Harris, P.E.  
Senior Principal

Stamp



*Stan A. Harris*

Printed Name

*19700150*  
Reg. No.

*IN*  
Reg. State

*6/7/15*  
Date

## **List of Acronyms**

Annual Report	Annual CCR fugitive dust control report
CCR	Coal Combustion Residual
ESP	Electrostatic Precipitators (ESP)
FGD	Flue-Gas Desulfurization
IDEM	Indiana Department of Environmental Management
IKEC	Indiana-Kentucky Electric Corporation
Landfill	Clifty Creek Residual Waste Landfill
OVEC	Ohio Valley Electric Corporation
PEM	Plant Environmental Manager
Plan	CCR Fugitive Dust Control Plan
PTI	Permit to Install
LRCP	Landfill Runoff Collection Pond
USGS	United States Geological Survey
WBSP	West Boiler Slag Pond
WWTP	Waste Water Treatment Plant

## 1.0 INTRODUCTION

This Coal Combustion Residual (CCR) Fugitive Dust Control Plan (Plan) has been prepared pursuant to the air criteria of 40 CFR part 257.80 (see Appendix A) and following good engineering practices to include measures that will effectively minimize CCR from becoming airborne at the Clifty Creek Station and associated CCR units. The Plan and subsequent amendments will be placed in the operating record and retained in the office of the Clifty Creek Station Plant Environmental Manager (PEM). The Plan and subsequent amendments will also be placed on Clifty Creek Station's publicly accessible internet website titled "CCR Rule Compliance Data and Information." The Plan will be amended whenever there is a change in conditions that would substantially affect the written plan in effect, such as the construction and operation of a new CCR unit. Where appropriate, the Plan incorporates fugitive dust control requirements as contained in the IDEM air permits issued for the plant.

There are two CCR surface impoundments and one CCR landfill located at Clifty Creek Station that are subject to the Plan. The surface impoundments are the West Boiler Slag Pond (WBSP) and the Landfill Runoff Collection Pond (LRCP). The Clifty Creek Residual Waste Landfill (Landfill) receives gypsum, fly ash, bottom ash, and Flue-Gas Desulfurization (FGD) Waste Water Treatment Plant (WWTP) filter cake. The Plan addresses these CCR units and the facility's associated paved and unpaved roadways.

## 2.0 FACILITY DESCRIPTION AND CONTACT INFORMATION

### 2.1 Facility Information

#### Facility Information:

Name of Facility: Clifty Creek Station

Street: 1335 Clifty Hollow Road

City: Madison State: IN ZIP Code: 47250

County: Jefferson

Latitude: 38°44'23.49" Longitude: 85°25'18.08"

### 2.2 Contact Information

#### Facility Owner:

Name: Indiana-Kentucky Electric Corporation

Mailing Address: P.O. Box 468

Physical Address: 3932 US Route 23

City, State, Zip Code: Piketon, Ohio 45661

Telephone Number: 740-289-7200

Email address: [CCRCompliance@ovec.com](mailto:CCRCompliance@ovec.com)

**Plan Contact:**

Name: Clifty Creek Station Plant Environmental Manager  
Address: 1335 Clifty Hollow Road  
City, State, Zip Code: Madison, IN 47250  
Telephone number: 812-265-8700

**2.3 Activities at the Facility**

The Clifty Creek Power Plant is located on the shore of the Ohio River at Madison, Indiana, and consists of six electric generating units. The Ohio Valley Electric Corporation's wholly-owned subsidiary, the Indiana-Kentucky Electric Corporation (IKEC), owns and operates the Clifty Creek Station's six nominally rated 217-megawatt units. Approximately three million tons of coal per year is used to produce electricity at the Clifty Creek Station.

The generation of electricity using coal as a fuel source produces fly ash, boiler slag, and synthetic gypsum. The Clifty Creek Station is equipped with multiple pieces of environmental control equipment used to collect each of these materials.

All six units are equipped with high efficiency electrostatic precipitators (ESP) for the removal of fly ash from the flue gas. Fly ash is removed from the ESP and pneumatically transported to two separate fly ash silos. Trucks enter below the suspended fly ash silos. As the fly ash is placed into the trucks, it is conditioned with water in order to reduce or eliminate fugitive dust emissions. Fly ash is taken to the Landfill for disposal or sold for offsite beneficial reuse.

After the flue gas stream has passed through the ESPs removing the fly ash, it then passes through the flue gas desulfurization (FGD) system, which produces a gypsum slurry. This slurry is dewatered, and the remaining dewatered material, synthetic gypsum, is taken to the Landfill for disposal or sold for beneficial reuse. Once the gypsum slurry is dewatered, the process water from the FGD system is treated in an onsite waste water treatment plant (WWTP). This process generates a gypsum filter cake, which is also transported to the Landfill for disposal. These materials are conditioned with water as needed.

Fly ash, gypsum, and FGD WWTP gypsum filter cake are transported by truck to the Landfill. The Landfill is located approximately one mile from the FGD systems. The fly ash and gypsum may also be transported off site by third party marketers/vendors for beneficial reuse.

Boiler slag is also produced by all six Clifty Creek Units and is wet sluiced to the WBSP during unit operations. The boiler slag is routinely reclaimed from the pond and used or sold for beneficial reuse. Any material not used or sold for beneficial reuse will be ultimately disposed of in the Landfill.

## **2.4 Site Maps**

A USGS site location map for the Plant units is included as Figure 1-1 in Appendix B. A facility map is included as Appendix C ( Figure 1-2). Appendix D (Figure 2-1) contains a USGS site location map for the Landfill (including the LFRCP) and shows the property boundaries, surrounding topography and receiving waters. A USGS site location map of the WBSP is contained in Appendix E (Figure 3-1).

## **3.0 FUGITIVE DUST CONTROL SELECTION – 40 CFR 257.80(b)(1)**

### **3.1 Paved and Unpaved Roadways**

#### **3.1.1 Overview**

Trucks are used to transport CCR to the Landfill from the plant site. Gypsum is transported from the gypsum load-out area over approximately one mile of paved plant roadways to the landfill. The gypsum retains sufficient moisture content from the FGD process, which is sufficient to prevent fugitive dust when placed on the load-out area. The load-out area is equipped with a dust suppression system, consisting of multiple water spray units located around the perimeter, that is used to maintain a sufficient moisture content in the gypsum and prevent generation of fugitive dust. In addition, all trucks and loading equipment used to transport gypsum across the load-out area must exit through a wash station where all excess gypsum is rinsed from the vehicle, which aids in controlling fugitive dust during transportation and handling.

The fly ash is transported from the fly ash silos approximately one mile over plant roadways to the Landfill. As the fly ash is fed from the silos it is conveyed through a paddle drum mixer where it is mixed with water to reduce or eliminate fugitive dusting. As the fly ash is loaded curtain water sprays are activated at the truck entrance and exit of the silos to prevent any fly ash dusting from exiting the loading area. Once in transport, netting is mechanically rolled over the loads in the trucks to further prevent fugitive dusting.

FGD WWTP gypsum filter cake is transported from the load-out area at the WWTP plant. The FGD WWTP gypsum filter cake is transported approximately one and a quarter miles over plant roadways to the Landfill. The FGD WWTP is operated in a manner such that the gypsum filter cake retains sufficient moisture content to prevent fugitive dusting when it is placed in the load-out area. Water sprayers are available, if needed, during the loading process to prevent fugitive dust,

but due to the high moisture content of the material is not generally required.

Similarly, boiler slag trucks travel approximately one tenth of a mile from the WBSP, where it is excavated from the pond by excavators over unpaved plant roadways and one quarter of a mile over paved plant roadways to the landfill entrance. The boiler slag may also be used or sold for beneficial reuse.

Within the landfill entrance, the trucks travel approximately one half of a mile over paved roadways to the disposal area, followed by a much shorter unpaved roadway to the location of the active fill area.

The fugitive dust control measures employed at the Clifty Creek Station have been determined to be adequate to control fugitive dust from all Plant areas and approved by the Indiana Department of Environmental Management (IDEM) in the Plant's Title V permit (Permit No. T077-29920-00001).

### **3.1.2 Landfill and Plant Roadways**

The fugitive dust control measures for roadways include watering, sweeping, tarping of trucks, and speed control. Paved roadways are watered using a "water wagon" type truck at a minimum once per hour during hauling operations. Unpaved roadways are watered at a minimum once every three hours using a "water wagon" during normal hauling operations. Watering will not be done when hauling activities are not taking place, during periods of precipitation that keep the roadways visually wet, and when the ambient air temperature is low enough to cause icing. In the event that the ambient air temperature is low enough to cause icing, a street sweeper/vacuum truck is used to clean paved roadways. All truck beds are covered and routinely inspected for overall body integrity, leaks and spillage. Paved Plant roadways have a maximum posted speed limit of 20 mph and unpaved roads have a maximum posted speed limit of 15 mph. Any materials that may be deposited onto paved roadways from trucks will be promptly removed to minimize fugitive emissions. A truck wash is used for all vehicles leaving the gypsum loading area, the FGD WWTP gypsum filter cake area, or the fly ash silos as weather conditions allow. A truck wash is also used for all vehicles leaving the landfill. Implementation of any control measures will be suspended if unsafe or hazardous driving conditions would be created by its use.

## **3.2 Landfill**

### **3.2.1 Overview**

The landfill receives boiler slag, fly ash, gypsum, and FGD WWTP gypsum filter cake from the Clifty Creek Station. Each of these materials is conditioned with moisture prior to emplacing it into the landfill as per 40 CFR 257.80(b)(2). However, additional water may be added at the landfill as necessary to minimize fugitive dust emissions. In addition to the requirements found in the CCR rule, the landfill activities are also subject to US EPA Title V Part 70 Operating Permit No. T077-29920-00001. This permit specifies the applicable and appropriate fugitive dust control measures for the site to minimize or eliminate fugitive emissions. The permit also includes visible particulate emissions limits as well as monitoring, recordkeeping and reporting requirements.

### **3.2.2 Unloading and Placement**

Gypsum, fly ash, and FGD WWTP gypsum filter cake are unloaded from trucks in the active fill area of an open landfill cell, where a bulldozer or similar equipment spreads and compact the materials. A roller may also be used for compaction.

Boiler slag that is not sold or used for beneficial reuse is unloaded from trucks for disposal within the landfill.

The fugitive dust control measures for truck unloading include maintaining moisture in the material. The measures for spreading and compacting include maintaining vehicle speed, watering materials, and application of temporary cover, if needed.

### **3.2.3 Wind Erosion**

Generally, landfill disposal areas can be classified as closed or open. Closed areas have received final cover, and vegetation has been established. Open areas contain both the active fill area and areas that have been compacted but not yet received temporary or final cover. The open area fugitive dust control measures include: precautionary measures such as minimizing the amount of open area, compacting material as it is unloaded, watering, and application of chemical suppressants if needed.

### **3.3 West Boiler Slag Pond**

Clifty Creek Station boiler slag is produced by all six Clifty Creek Units and is wet sluiced to the WBSP during unit operations. The boiler slag is routinely reclaimed from the pond and used or sold for beneficial reuse. Any material that is not used or sold for beneficial reuse is loaded into trucks from the plant and then unloaded for disposal within the landfill. A review of potential control measures concluded that the applicable and appropriate options consist of: watering, and chemical suppressant application. Water or chemical dust suppressant is applied to minimize fugitive emissions as needed. Water spray is applied as needed to the material handling activities and the drop from the loader into the trucks is minimized to further minimize fugitive emissions. Enclosures, compaction and daily cover are not applicable given the size of the area and characteristics of the material.

### **3.4 Landfill Runoff Collection Pond**

The LRCP captures runoff and leachate from the Landfill and surrounding areas. The roadway around the pond is paved to reduce the fugitive dust generation.

## **4.0 PLAN ASSESSMENT – 40 CFR 257.8(b)(4)**

The Plan will be periodically assessed to verify its effectiveness, and if necessary, amended in accordance with Section 7.0 below. The Landfill, LFRCP, WBSP, and associated paved and unpaved roadways are inspected on a daily basis. The purpose of the inspections is to determine if CCR fugitive dust is present and whether the control measures for each CCR unit as described above are being implemented as necessary to minimize or eliminate fugitive emissions. Records of inspections and the control measures implemented as a result of the inspections will be maintained in the Plant's operating record for a period of at least five years. The PEM will review the inspection records quarterly to assess the effectiveness of the Plan and determine if additional or modified measures are warranted. Implementation of any control measure will be suspended if unsafe or hazardous driving conditions would be created by its use.

## **5.0 CITIZEN COMPLAINT LOG – 40 CFR 257.80(b)(3)**

### **5.1 Plant Contacts**

Generally, complaints made to the plant are by telephone and received by the PEM (Plan Contact). In the case of holiday, weekends, or other times when the PEM may not be onsite, the plant guard houses or plant general phone number may receive complaint information by telephone that is provided to the PEM at the earliest convenience. Complaints may also be made via email at [CCRCCompliance@ovec.com](mailto:CCRCCompliance@ovec.com) or to IDEM who in turn will contact the PEM.

## **5.2 Follow-up**

All complaints will be entered into a log by the PEM with details noted such as the nature of the complaint, date, time, and other relevant details. All complaints will be investigated which may include: checking plant operations at the time of the event, reviewing inspection records, discussing with other plant personnel, reviewing weather data, collecting samples and contacting the person making the complaint to obtain additional information.

## **5.3 Corrective Action and Documentation**

Corrective actions will be taken as needed and documented. If it is determined that the Plan needs to be amended as a result of the corrective actions, it will be amended in accordance with 40 CFR 257.80(b)(6). If possible, the PEM will follow-up with the complainant and/or IDEM to explain the findings of the complaint investigation, corrective actions or sampling results. Citizen complaints will be recorded in the Annual Report.

## **6.0 ANNUAL REPORT – 40 CFR 257.80(c)**

The Annual CCR fugitive dust control report (Annual Report) will include the following components: description of actions taken to control CCR fugitive dust, a record of all citizen complaints, and a summary of any corrective measures taken. The initial Annual Report will be completed no later than 14 months after placing the initial CCR fugitive dust control plan in the facility's operating record. The deadline for completing subsequent reports is one year after the date of completing the previous report. The Annual Report will be deemed complete when the plan has been placed in the facility's operating record as described in Section 8.0.

## **7.0 PLAN AMENDMENTS – 40 CFR 257.80(b)(6)**

This Plan is a "living" document and will be amended, as necessary, whenever there is a change in condition that would substantially affect the written plan in effect, such as the construction and operation of a new CCR unit. Amendments made to the Plan will be documented in Appendix E. The amended Plan will be placed into the facility's operating record as described in Section 8.0.

## **8.0 RECORDKEEPING, NOTIFICATION and INTERNET REQUIREMENTS – 40 CFR 257.80(d)**

### **8.1 Recordkeeping – 40 CFR 257.105(g)**

The Plan and files of all related information will be maintained in a written operating record at the facility for at least five years following the date of each occurrence, measurement, maintenance, corrective action, report, record or study. Files may be maintained on a computer or storage system accessible

by a computer. One recordkeeping system may be used for the WBSP, LFRCP and Landfill if the system identifies each file by the name of each unit (i.e. WBSP, LFRCP, or Landfill). The Plan (and any subsequent amendment of the plan) and the Annual Report will be kept in the facility's operating record as they become available. Only the most recent Plan must be maintained in the record.

### **8.2 Notification – 40 CFR 257.106(g)**

IDEM will be notified within 30 days of when the Plan (or any subsequent amended Plan) or the Annual Report is placed in the operating record and on the publicly available internet site. This notification will be made before the close of business on the day the notification is required to be completed. "Before the close of business day" means the notification must be postmarked or sent by e-mail. If the notification deadline falls on a weekend or federal holiday, the notification is automatically extended to the next business day.

### **8.3 Internet Site Requirements – 40 CFR 257.107(g)**

The most recent Plan and annual Report will be placed on the facility's CCR website titled "*CCR Rule Compliance Data and Information*" within 30 days of placing them in the operating record.

Appendix A – 40 CFR Part 257.80 Air Criteria (Published April 17, 2015 in  
80 FR 21468)

**§257.80 Air criteria.**

(a) The owner or operator of a CCR landfill, CCR surface impoundment, or any lateral expansion of a CCR unit must adopt measures that will effectively minimize CCR from becoming airborne at the facility, including CCR fugitive dust originating from CCR units, roads, and other CCR management and material handling activities.

(b) *CCR fugitive dust control plan.* The owner or operator of the CCR unit must prepare and operate in accordance with a CCR fugitive dust control plan as specified in paragraphs (b)(1) through (7) of this section. This requirement applies in addition to, not in place of, any applicable standards under the Occupational Safety and Health Act.

(1) The CCR fugitive dust control plan must identify and describe the CCR fugitive dust control measures the owner or operator will use to minimize CCR from becoming airborne at the facility. The owner or operator must select, and include in the CCR fugitive dust control plan, the CCR fugitive dust control measures that are most appropriate for site conditions, along with an explanation of how the measures selected are applicable and appropriate for site conditions. Examples of control measures that may be appropriate include: Locating CCR inside an enclosure or partial enclosure; operating a water spray or fogging system; reducing fall distances at material drop points; using wind barriers, compaction, or vegetative covers; establishing and enforcing reduced vehicle speed limits; paving and sweeping roads; covering trucks transporting CCR; reducing or halting operations during high wind events; or applying a daily cover.

(2) If the owner or operator operates a CCR landfill or any lateral expansion of a CCR landfill, the CCR fugitive dust control plan must include procedures to emplace CCR as conditioned CCR. Conditioned CCR means wetting CCR with water to a moisture content that will prevent wind dispersal, but will not result in free liquids. In lieu of water, CCR conditioning may be accomplished with an appropriate chemical dust suppression agent.

(3) The CCR fugitive dust control plan must include procedures to log citizen complaints received by the owner or operator involving CCR fugitive dust events at the facility.

(4) The CCR fugitive dust control plan must include a description of the procedures the owner or operator will follow to periodically assess the effectiveness of the control plan.

(5) The owner or operator of a CCR unit must prepare an initial CCR fugitive dust control plan for the facility no later than October 19, 2015, or by initial receipt of CCR in any CCR unit at the facility if the owner or operator becomes subject to this subpart after October 19, 2015. The owner or operator has completed the initial CCR fugitive dust control plan when the plan has been placed in the facility's operating record as required by §257.105(g)(1).

(6) *Amendment of the plan.* The owner or operator of a CCR unit subject to the requirements of this section may amend the written CCR fugitive dust control plan at any time provided the revised plan is placed in the facility's operating record as required by §257.105(g)(1). The owner or operator must amend the written plan whenever there is a change in conditions that would substantially affect the written plan in effect, such as the construction and operation of a new CCR unit.

(7) The owner or operator must obtain a certification from a qualified professional engineer that the initial CCR fugitive dust control plan, or any subsequent amendment of it, meets the requirements of this section.

(c) *Annual CCR fugitive dust control report.* The owner or operator of a CCR unit must prepare an annual CCR fugitive dust control report that includes a description of the actions taken by the owner or operator to control CCR fugitive dust, a record of all citizen complaints, and a summary of any corrective measures taken. The initial annual report must be completed no later than 14 months after placing the initial CCR fugitive dust control plan in the facility's operating record. The deadline for completing a subsequent report is one year after the date of completing the previous report. For purposes of this paragraph (c), the owner or operator has completed the annual CCR fugitive dust control report when the plan has been placed in the facility's operating record as required by §257.105(g)(2).

(d) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in §257.105(g), the notification

requirements specified in §257.106(g), and the internet requirements specified in §257.107(g).

Appendix B – Figure 1-1 Clifty Creek Station Site Map

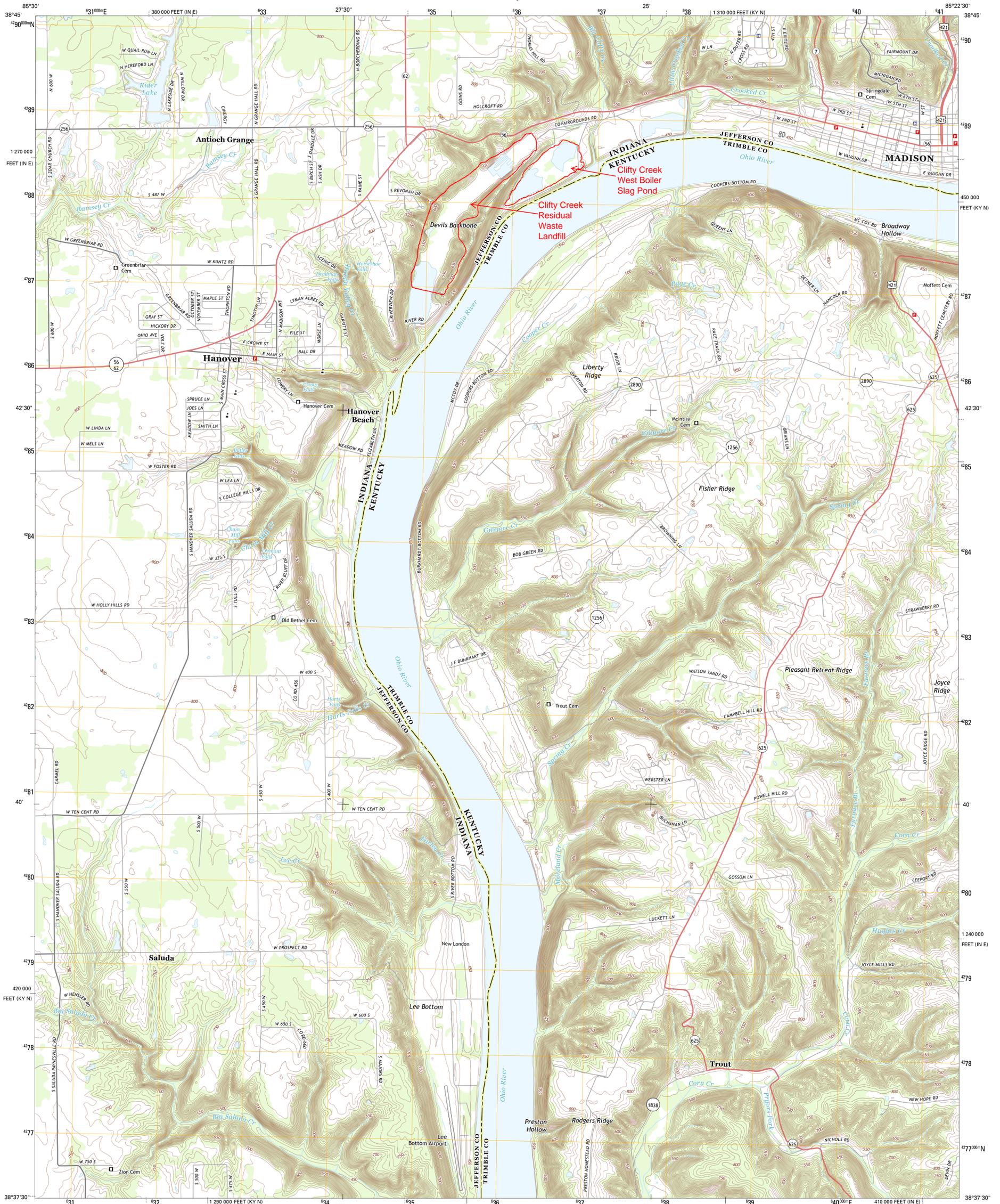
Figure 1-1 Clifty Creek Station Site Map



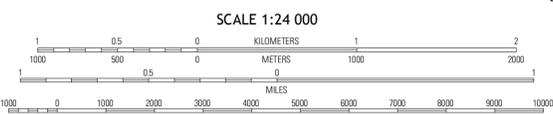
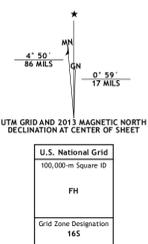
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U. S. GEOLOGICAL SURVEY



MADISON WEST QUADRANGLE  
INDIANA-KENTUCKY  
7.5-MINUTE SERIES



Produced by the United States Geological Survey  
North American Datum of 1983 (NAD83)  
World Geodetic System of 1984 (WGS84). Projection and  
1:000-meter grid: Universal Transverse Mercator, Zone 16S  
10 000-foot ticks: Indiana Coordinate System of 1983 (east  
zone), Kentucky Coordinate System of 1983 (north zone)



CONTOUR INTERVAL 10 FEET  
NORTH AMERICAN VERTICAL DATUM OF 1988  
This map was produced to conform with the  
National Geospatial Program US Topo Product Standard, 2011.  
A metadata file associated with this product is draft version 0.6.11



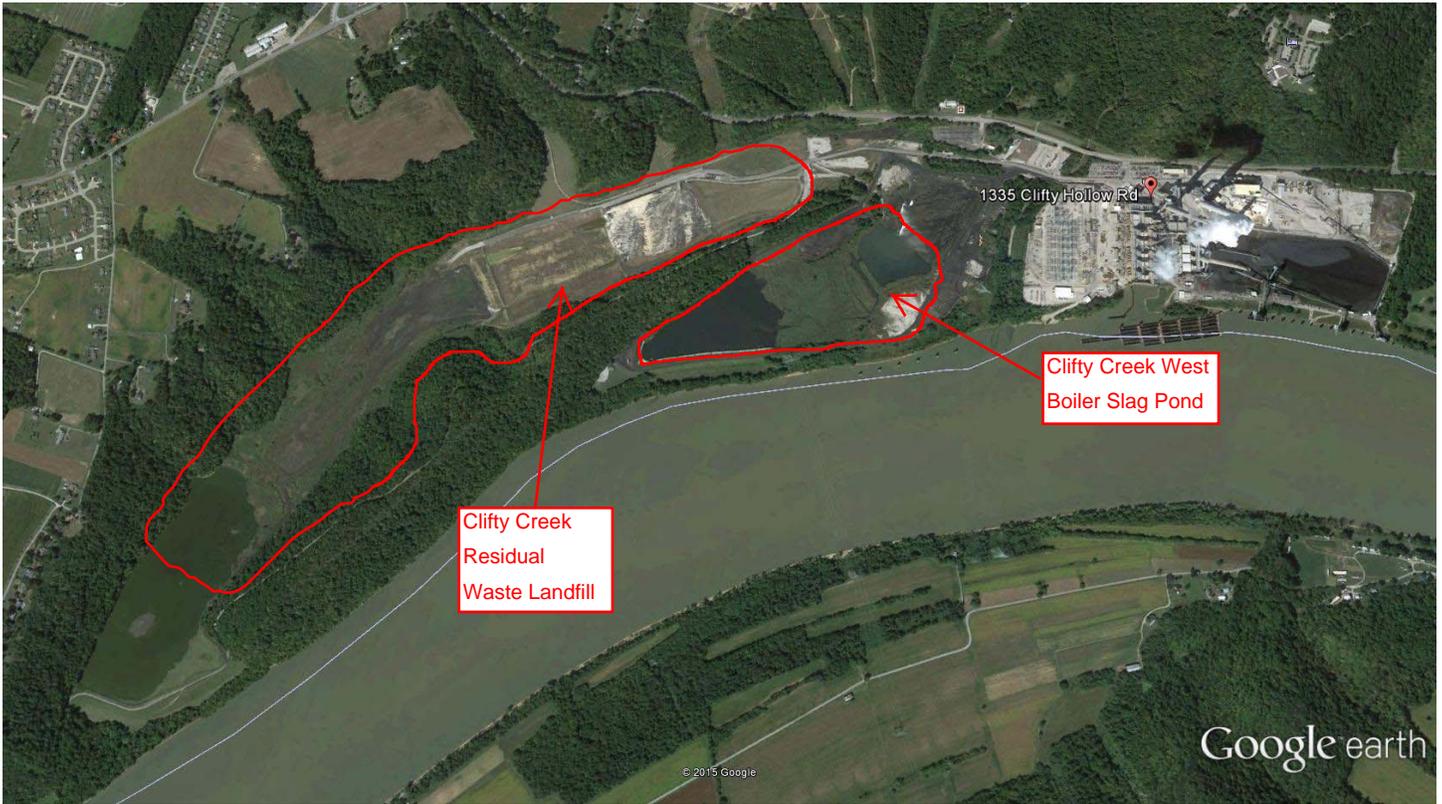
ADJOINING 7.5 QUADRANGLES		
Volga	Clifty Falls	Canaan
Kent	Madison West	Madison East
New Washington	Bethlehem	Bedford



MADISON WEST, IN-KY  
2013

Appendix C – Figure 1-2 Clifty Creek Facility Map

Figure 1-2 Clifty Creek Facility Map



Appendix D – Figure 2-1 Clifty Creek Residual Waste Landfill Map  
(including the Landfill Runoff Collection Pond)

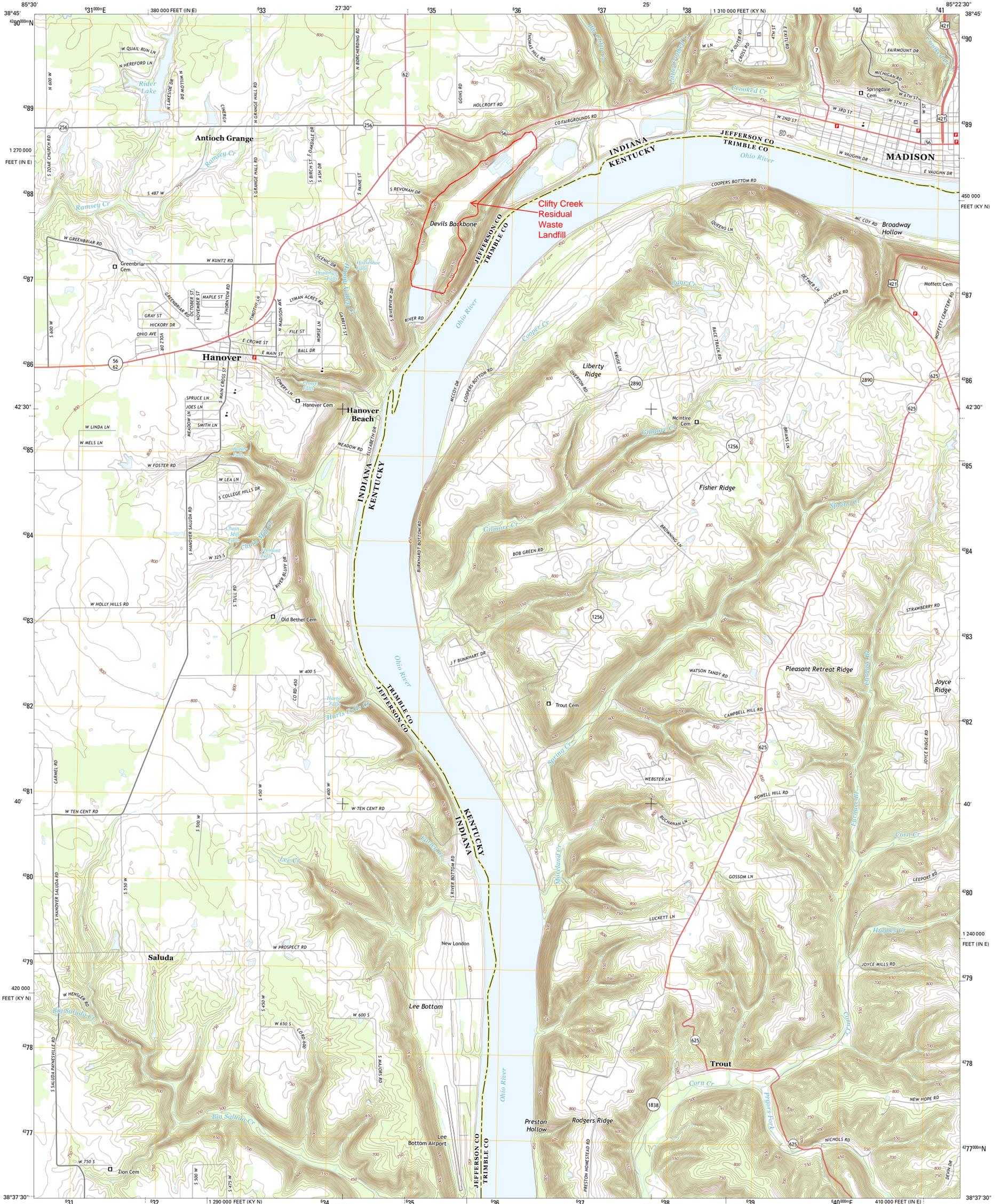
Figure 2-1 Clifty Creek Residual Waste Landfill Map (including the Landfill Runoff Collection Pond)



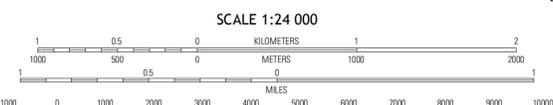
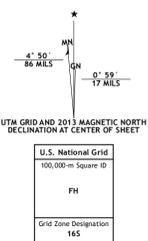
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U. S. GEOLOGICAL SURVEY



MADISON WEST QUADRANGLE  
INDIANA-KENTUCKY  
7.5-MINUTE SERIES



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1:000-meter grid: Universal Transverse Mercator, Zone 16S  
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ADJOINING 7.5 QUADRANGLES		
Volga	Clifty Falls	Canaan
Kent	Madison West	Madison East
New Washington	Bethlehem	Bedford

MADISON WEST, IN-KY  
2013

Appendix E – Figure 3-1 Clifty Creek West Boiler Slag Pond

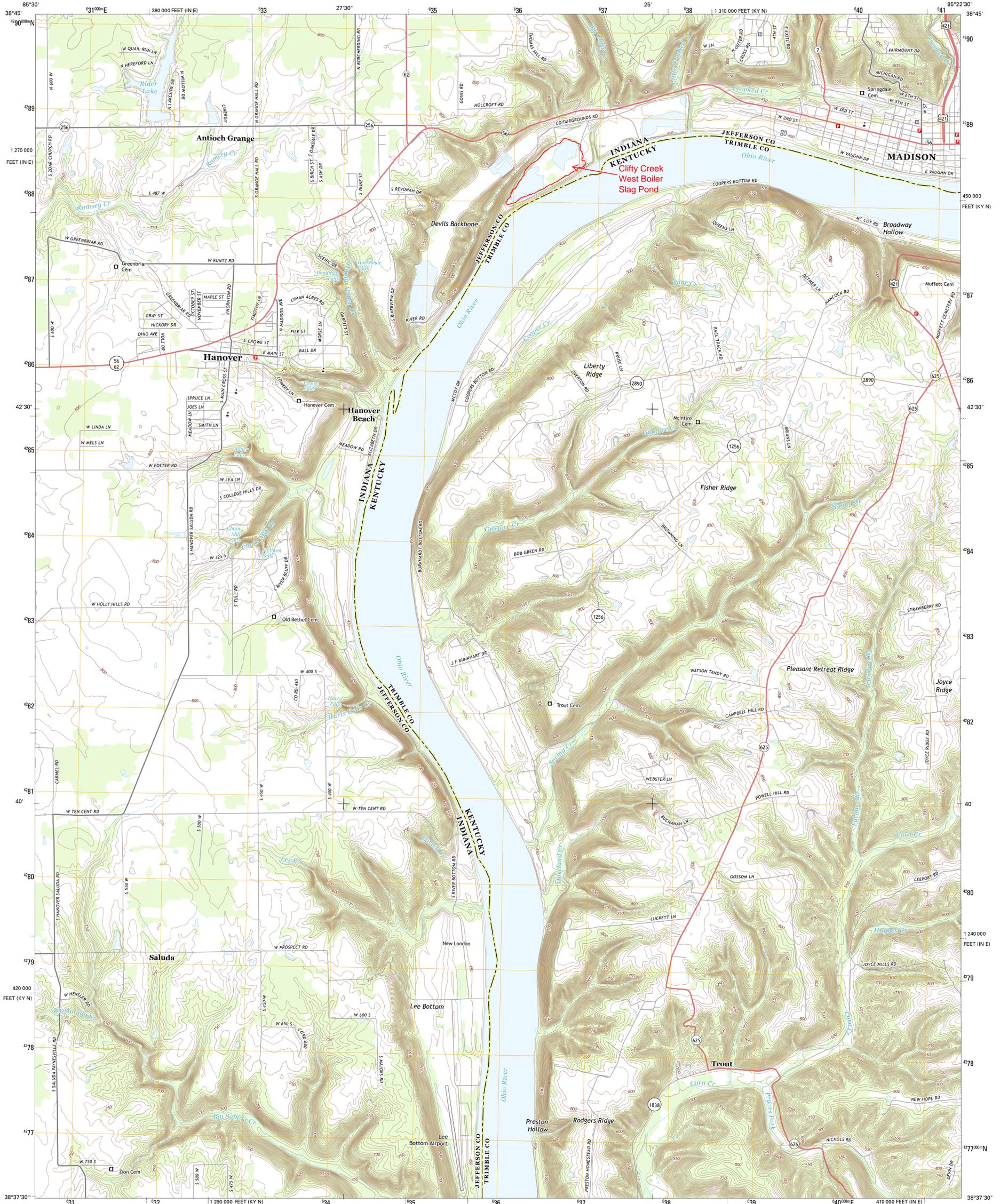
Figure 3-1 Clifty Creek West Boiler Slag Pond Map



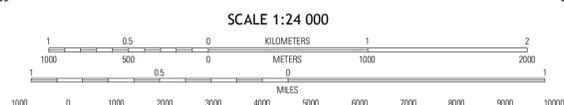
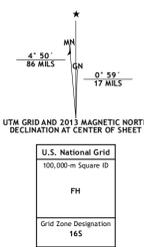
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U. S. GEOLOGICAL SURVEY



MADISON WEST QUADRANGLE  
INDIANA-KENTUCKY  
7.5-MINUTE SERIES

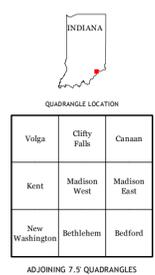


Produced by the United States Geological Survey  
North American Datum of 1983 (NAD83)  
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2013

ADJOINING 7.5 QUADRANGLES

Appendix F – Plan Modification Document

