

Prepared For:

Gavin Power, LLC
Cheshire, Ohio

Amended Emergency Action Plan

*Stingy Run Fly Ash Pond and
Bottom Ash Complex
Gavin Power Plant
7397 State Route 8 North
Cheshire, Ohio 45620*

February 2020

*Environmental Resources Management
204 Chase Drive
Hurricane, West Virginia 25526
www.erm.com*



TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
2.0	PROJECT DESCRIPTION	2
2.1	STINGY RUN FLY ASH POND.....	2
2.1.1	Stingy Run Fly Ash Dam (formerly referred to as the Main Dam)	3
2.1.2	Fly Ash Pond (also known as “Reservoir”) Storage Capacity	3
2.1.3	Principal Spillway.....	3
2.2	BOTTOM ASH COMPLEX.....	4
3.0	MONITORING, DETECTION, EVALUATION, AND CLASSIFICATION.....	5
3.1	MONITORING	5
3.1.1	Stingy Run Fly Ash Pond Monitoring	5
3.1.2	Bottom Ash Complex Monitoring	6
3.2	DETECTION.....	6
3.3	EVALUATION.....	6
3.4	EMERGENCY CONDITION CLASSIFICATION.....	6
3.4.1	Condition A: Non-failure Emergency Condition	7
3.4.2	Condition B: Potential Failure Situation is Developing.....	7
3.4.3	Condition C: Failure is Imminent/Has Occurred Condition (Emergency Warning).....	8
4.0	GENERAL RESPONSIBILITIES.....	9
4.1	ON-SITE INCIDENT MANAGER.....	9
4.2	EAP COORDINATOR RESPONSIBILITIES.....	10
4.3	RESPONSIBILITY FOR EVACUATION	10

4.3.1	<i>Primary Responsibility – Gallia County EMA Director</i>	10
4.3.2	<i>Primary Responsibility – Gallia County Sheriff</i>	11
4.3.3	<i>Secondary Responsibility – Middleport Fire Department</i>	11
4.4	RESPONSIBILITY FOR DURATION, SECURITY, TERMINATION, AND FOLLOW-UP	11
4.5	ORGANIZATION DUTIES	11
5.0	PREPAREDNESS	12
5.1	SURVEILLANCE	12
5.2	RESPONSE DURING DARKNESS	12
5.3	ACCESS TO SITE	12
5.4	RESPONSE DURING WEEKENDS AND HOLIDAYS	12
5.5	RESPONSE DURING ADVERSE WEATHER	12
5.6	MEANS OF COMMUNICATION	13
5.7	EMERGENCY CORRECTIVE MEASURES	13
5.7.1	<i>High Pool Levels/Overtopping Condition</i>	13
5.7.2	<i>Leakage/Cracking Condition</i>	14
5.7.3	<i>Slumping/Sliding of Embankment Crest</i>	14
5.7.4	<i>Sinkhole Condition</i>	15
5.7.5	<i>Severe Downstream Erosion or Minor Structural Damage</i>	15
5.8	EMERGENCY SUPPLIES AND RESOURCES	15
5.9	UPDATING OF THE EAP	15
5.10	ANNUAL FACE-TO-FACE MEETING WITH LOCAL EMERGENCY RESPONDERS	16
6.0	INUNDATION MAPS	17

LIST OF FIGURES

- 1 SITE LOCATION MAP**
- 2 FLY ASH DAM SITE LAYOUT**
- 3 BOTTOM ASH POND SITE LAYOUT**
- 4 WEIRS LOCATION MAP**
- 5 OBSERVATION WELLS LOCATION MAP**
- 6 DEFORMATION MONUMENTS LOCATION MAP**
- 7 SLOPE INCLINOMETERS LOCATION MAP**
- 8 PIEZOMETERS LOCATION MAP**
- 9 FLOOD INUNDATION MAP (SHEET 1 OF 2)**
- 10 FLOOD INUNDATION MAP (SHEET 2 OF 2)**

LIST OF TABLES

- 1 FLY ASH DAM DATA**
- 2 EMERGENCY SUPPLIES AND RESOURCES**

LIST OF APPENDICES

- A PROFESSIONAL ENGINEER CERTIFICATION**
- B REGULATORY CROSS REFERENCE TABLE**
- C EAP NOTIFICATION FLOW CHARTS**
- D DUTIES AND RESPONSIBILITIES FOR EMERGENCY CONDITIONS**

INTRODUCTION

This Emergency Action Plan (EAP) has been prepared in accordance with the regulatory requirements of the federal rule for the Disposal of Coal Combustion Residuals (CCRs) from Electric Utilities, in particular the requirements of 40 CFR 257.73(a)(3), and has been certified by a Professional Engineer (Appendix A). This EAP establishes the notification procedures for implementing emergency actions to be taken prior to and/or following a failure (if one were to occur) of the Stingy Run Fly Ash Pond and/or Bottom Ash Complex (BAC) at the Gavin Power Plant (also referred to herein as the Gavin Plant), located in Cheshire, Ohio. The Bottom Ash Complex consists of two aboveground reservoirs surrounded by continuous earthen dikes: the 57.8-acre Bottom Ash Pond and the 6.7-acre Reclaim Pond. The Bottom Ash Pond is a CCR surface impoundment subject to the CCR Rule; the Reclaim Pond is not subject to CCR Rule.

The EAP will address the following elements in accordance with 40 CFR 257.73(a)(3)(i):

1. Define the events or circumstances involving the CCR unit that represent a safety emergency, along with a description of the procedures that will be followed to detect a safety emergency in a timely manner;
2. Define responsible persons, their respective responsibilities, and notification procedures in the event of a safety emergency involving the CCR unit;
3. Provide contact information of emergency responders;
4. Include a map that delineates the downstream area that would be affected in the event of a CCR unit failure and a physical description of the CCR unit; and
5. Include provisions for an annual face-to-face meeting or exercise between representatives of the owner or operator of the CCR unit and the local emergency responders.

The locations where each of these requirements are addressed in this EAP are summarized in Appendix B. This EAP will be evaluated, at a minimum, every 5 years to ensure that the information is accurate and updated. As necessary, this EAP must be updated and a revised EAP placed in the facility's operating record as required by 40 CFR 257.105(f)(6). In addition, this document must be uploaded to the established CCR website for this facility per the requirements in 40 CFR 257.107.

2.0

PROJECT DESCRIPTION

The Gavin Power Plant is located in Gallia County, Ohio, just south of Cheshire, Ohio, as shown on Figure 1. Nearby towns are Addison, Ohio, to the south on State Route (SR) 7 and Point Pleasant, West Virginia. There are no towns directly across the Ohio River from the power plant. This EAP covers potential emergencies at the following CCR unitsⁱ at the Gavin Power Plant, specifically:

1. The Stingy Run Fly Ash Pond, which consists of the embankment dam and principal spillway. This fly ash dam formerly had an emergency spillway and an emergency spillway closure dam associated with it, but they are no longer present. The site layout of the Stingy Run Fly Ash Pond is shown on Figure 2.
2. The Bottom Ash Complex consists of the bottom ash pond, the reclaim pond, the outlet structure from the bottom ash pond to the reclaim pond, and the outlet structure from the reclaim pond to the discharge to the Ohio River. Site layout of the Bottom Ash Complex is shown on Figure 3.

2.1

STINGY RUN FLY ASH POND

The Stingy Run Fly Ash Pond is located approximately 2.5 miles northwest of the plant on Stingy Run, which is a tributary to Kyger Creek. Kyger Creek empties into the Ohio River approximately 3 miles downstream of the power plant. The location of the Stingy Run Fly Ash Pond is shown on Figure 1 as the “Fly Ash Reservoir.”

Although originally constructed for settling fly ash, plant operations changed with the installation of scrubbers; therefore, the plant ceased all fly ash slurry discharges into the reservoir in 1994. Since that time, only direct precipitation, storm water runoff from upstream areas, and drainage from mined areas enter the reservoir. A preliminary Hazard Potential Classification Assessment was conducted in August 2016 per FEMA 333. The assessment determined that the Fly Ash Dam is classified as a High Hazard Potential Dam.

Closure of the Stingy Run Fly Ash Pond began in 2015. Closure is continuing and will be complete by 2020 with a cover system combined with a series of channels to manage water flow. When finalized, the entire fly ash pond will be capped and covered with a cover system as detailed in The Initial Closure Plan (dated 16 October 2016). The Closure Plan is available on the Gavin Power CCR website (<http://gavinpowerccr.com>).

ⁱ These CCR units are also regulated by the Ohio Department of Natural Resources.

The following subsections describe features of the Stingy Run Fly Ash Pond shown in Figure 1.

2.1.1 *Stingy Run Fly Ash Dam (formerly referred to as the Main Dam)*

The Stingy Run Fly Ash Dam was constructed to retain the fly ash produced by the burning of pulverized coal at the Gavin Power Plant. The dam is an earth fill zoned embankment 145 feet high. The crest of the dam varies but has a minimum elevation of 731 feet above mean sea level. This crest elevation is the maximum height that was planned for this ash retention structure. Reservoir levels are regulated by the 100-foot-high intake tower of the principal spillway. Key information related to the dam is presented in Table 1.

Table 1- Fly Ash Dam Data

Parameter	Value
Embankment Crest Elevation (feet)	731
Maximum Operating Pool Level (feet)	664
Operating Pool Freeboard (feet)	61
Maximum Stop Log Elevation (feet)	672
Surface Area (acres) at Pool Level	262

2.1.2 *Fly Ash Pond (also known as “Reservoir”) Storage Capacity*

The Fly Ash Reservoir was designed to store a total of 19,800 acre-feet of fly ash (31,936,600 cubic yards at a maximum fly ash elevation of 725 feet [maximum pool 726 feet]). In 1994, the previous owner, American Electric Power (AEP), ceased sluicing of fly ash into the reservoir when the plant began placing fly ash in a landfill. At that time, the estimated total amount of fly ash that had been placed in the reservoir was 13,500,000 tons. Until 2014, the plant maintained the pool level at elevation 696 feet.

Since implementation of the Initial Closure Plan, the pool level has been lowered to about elevation 664 feet. This provides a freeboard of approximately 62 feet to the crest of the principal spillway and 71 feet to the crest of the dam. Based on previous calculations for a pool elevation of 696 feet, a Probable Maximum Flood (PMF) would result in a pool rise of approximately 9 feet, based on calculations provided in the 2010 Failure Inundation Mapping Report (prepared by Burgess & Niple, Inc.). Because the pool elevation is now lower, the calculation is considered conservative for the lower pool elevation.

2.1.3 *Principal Spillway*

The principal spillway, located in the left abutment of the dam, is a drop inlet tower with two overflow weir crests, each 4 feet long. The discharge conduit is a 4-foot-diameter steel cylinder reinforced concrete pressure pipe placed on a

reinforced concrete cradle. The spillway was designed to operate as a decanting tower for the fly ash slurry reservoir. A U.S. Bureau of Reclamations impact-type stilling basin is located at the downstream end of the conduit for energy dissipation.

2.2 *BOTTOM ASH COMPLEX*

The Bottom Ash Complex is adjacent to Ohio SR 7, which lies between the complex and the Ohio River, immediately south of the plant. Access to the Bottom Ash Complex is via internal plant roads. A general site layout of the Bottom Ash Complex is shown on Figure 3.

The Bottom Ash Complex consists of two ponds – the Bottom Ash Pond and the Reclaim Pond, which are aboveground reservoirs consisting of continuous earthen dikes on four sides. The Reclaim Pond does not receive significant amounts of CCR from the BAP; was not designed to hold an accumulation of CCR; and does not treat, store, or dispose of CCR; therefore, it is not subject to the CCR Rule. The total surface area of the combined ponds is approximately 84 acres. The height of the dikes varies from 22 to 36 feet, with the lowest crest elevation at 586 feet. The bottom ash pond and reclaim pond pool levels are operated at approximate elevations of 578 feet and 576 feet, respectively. The current freeboard provided for the bottom ash and reclaim ponds is greater than 15 feet. Storage capacity of the complex is 1,122 acre-feet at the top of the dikes.

Bottom ash slurry is pumped into the bottom ash pond. The water is decanted through a drop inlet structure into a reclaim pond within the diked area and is pumped to the plant for reuse or discharged to the Ohio River via an overflow structure.

A preliminary Hazard Potential Classification Assessment was conducted in August 2016 per FEMA 333. The classification assessment determined that the Bottom Ash Pond dikes are classified as High Hazard Potential.

3.0 MONITORING, DETECTION, EVALUATION, AND CLASSIFICATION

3.1 MONITORING

Monitoring is a proactive way to identify maintenance issues and serves as an early warning system for detection and prevention of Emergency Conditions, which are summarized in Section 3.4.

Weekly visits to the Stingy Run Fly Ash Pond and the Bottom Ash Complex are made by qualified plant personnel. Inspection forms are filled out for each weekly inspection at each unit, and any required corrective actions are noted and scheduled. Corrective actions are inspected on subsequent weekly visits. As per 40 CFR 257.83(a)(iii), CCR unit instrumentation is monitored every 30 days as described in subsections 3.1.1 and 3.1.2 of this EAP.

An annual visual engineering inspection of the Stingy Run Fly Ash Pond and the Bottom Ash Complex shall be conducted by a Professional Engineer. During this inspection, the Professional Engineer will assess structural stability indicators, monitoring data, indications of potential seepage through the embankment, vegetative conditions, and other items as necessary. If needed, the Professional Engineer also notes corrective actions to be taken by Gavin Plant personnel or subcontractors, as needed.

3.1.1 *Stingy Run Fly Ash Pond Monitoring*

Locations of the monitoring instruments and gauges within the Stingy Run Fly Ash Pond are provided on Figures 4 through 7. Four monitoring wells, labeled OB-24, OB-28, OB-29, and OB-31, are currently used to collect static water readings. Three V-notched weirs (VWs) are designed to monitor seepage flow from the dam. Weir VW-3 is located upstream and is intended to measure seepage flow from the groin drain of the right abutment. Weir VW-2 is intended to measure seepage flow collected from the dam clay core drain. Weir VW-1 measures the combined flow of VW-2 and flow from the left groin drain.

Fifteen deformation monuments designated SM-6 through SM-20 are located at the toe, lower bench, face, and crest of the dam. Two slope inclinometers labeled SI-1 and SI-2 are located on the lower bench at an approximate elevation of 660 feet. Resultant horizontal and vertical deformation rates are calculated annually and compared to the initial base reading from 1988.

3.1.2 *Bottom Ash Complex Monitoring*

Two piezometers are installed at the Bottom Ash Complex. The piezometers are located west, and south of the complex. The approximate locations of piezometers are shown on Figure 8. Plant personnel regularly inspect and record the static water elevations within the piezometers to check for potential Emergency Conditions, which are listed in Section 3.4.

3.2 *DETECTION*

Potential Emergency Conditions, which are listed in Section 3.4 for the Stingy Run Fly Ash Pond dam and Bottom Ash Complex embankment, may be observed and reported by plant personnel during regular maintenance and/or inspections, by local police during their general rounds, or by a member of the general public. Once notified, it is the On-site Incident Manager's responsibility to lead the response actions. If the On-site Incident Manager is not available to lead the response, then the Coal Yard Superintendent, or next highest ranking on-site supervisor, shall have that responsibility. Roles and responsibilities are further defined in Section 4.0.

The detection of Emergency Conditions will be part of the annual face-to-face meeting with local first responders as described in Section 5.10. The means of communicating these Emergency Conditions are discussed in Section 5.6; the procedure is detailed in the Notification Flowcharts in Appendix C.

3.3 *EVALUATION*

The Gavin Plant's On-site Incident Manager should be the first person notified of a potential problem at the Stingy Run Fly Ash Pond or the Bottom Ash Complex, and would be the first person on the scene. Upon arrival at the site, the On-site Incident Manager will assume responsibility for the Emergency Condition, evaluate the potential emergency, determine initial Emergency Condition classification (Classification A, B, or C, as described in Section 3.4), and continue to evaluate the condition.

3.4 *EMERGENCY CONDITION CLASSIFICATION*

If any of the conditions described below in subsections 3.4.1, 3.4.2, or 3.4.3 are developing, appear imminent, or have occurred, at either the Stingy Run Fly Ash Pond or the Bottom Ash Complex, plant personnel shall implement the notification system plan immediately. The notification plans for each classification of emergency is found in Appendix C.

3.4.1 *Condition A: Non-failure Emergency Condition*

Emergency Condition A covers a non-failure scenario with no immediate threat to the integrity of the unit, such as the following:

- Water impounding behind either impoundment such that the water level from a precipitation event causes a rise in the pool level of 2 feet or more within 48 hours;
- Obstructions are present in any of the spillway structures;
- Sinkholes develop downstream with no water present;
- Structural damage to discharge structures;
- Visible and limited surficial slump of soils on face of embankment; depth of two feet or less;
- Significant erosion on downstream face of the impoundment embankments.

3.4.2 *Condition B: Potential Failure Situation is Developing*

Emergency Condition B covers the scenario where a failure may occur but corrective measures may prevent or mitigate failure, such as the following:

- Water is impounding behind either impoundment such that the water level is within 7 feet of the top of the dam or pond crest;
- Seepage occurs through the dam/embankment and/or foundation at observed flow rates that appear unusually high or not typical of base flow conditions;
- Unusual crack development in the embankment and/or foundation with minor seepage (wet spots on the surfaces) or controllable flow is observed;
- Water is observed in a sinkhole downstream but there is no visible turbidity in the water;
- A previously unidentified seep or similar discharge is observed at the toe of the embankment with no significant turbidity.

3.4.3 *Condition C: Failure is Imminent/Has Occurred Condition (Emergency Warning)*

Emergency Condition C covers the scenario where no time is available to attempt corrective measures and evacuation should be implemented immediately.

Emergency Condition C includes the following:

- Water level is within 2 feet of the top of the crest of the dam or impoundment;
- Uncontrolled water flows through cracks in the intake tower, the embankment and/or the foundation, steadily increasing in size and volume;
- Water is observed in a sinkhole downstream where turbidity is noted in the water;
- A significant single or multiple slide/slumps are observed and are continuing to enlarge;
- Whirlpool is observed in the impounded water;
- A large slump or slide develops in the embankment, which threatens to release the impounded water;
- Dam or embankment sections are displaced or separated;
- A turbid or muddy discharge is observed at the toe of the dam.

4.0 GENERAL RESPONSIBILITIES

4.1 ON-SITE INCIDENT MANAGER

Plant personnel will report unusual observations of the embankments and associated pond facilities, whether from intentional monitoring or casual observations to the On-site Incident Manager. The On-site Incident Manager shall coordinate emergency response action in the event of an Emergency Condition at the dam. The On-site Incident Manager shall take responsibility to make appropriate notifications, and to request assistance as specified in the notification flowcharts in Appendix C. The On-site Incident Manager may delegate responsibility as appropriate. If the On-site Incident Manager is not available or able to lead the response, then the Coal Yard Superintendent, or next highest ranking on-site supervisor, shall have that responsibility.

The On-site Incident Manager shall:

1. Assume responsibility for the Emergency Condition, determine initial Emergency Condition classification (Classification A, B, or C), and continue to evaluate condition;
2. Provide for surveillance of the Stingy Run Fly Ash Pond and Bottom Ash Complex;
3. Initiate and maintain contact with state and local emergency responders according to the Notification Flowchart shown in Appendix C, as appropriate;
4. Document all activations of the EAP;
5. Determine the need for evacuation and initiate evacuation plan. This shall include evacuation downstream of the Stingy Run Fly Ash Pond and Bottom Ash Complex due to an incident. Evacuation must include Gavin Power Plant and/or contractor staff working in potentially flooded areas as well as the general public on potentially flooded land not owned by the Gavin Power Plant;
6. Arrange for road closures within the plant downstream from the potentially failing embankment and notify the Gallia County Sheriff for the sheriff's department to close public roads (e.g., close SR 7 if a Bottom Ash Pond embankment is anticipated to fail);
7. Initiate and direct corrective actions at the dam in consultation with a consulting engineering firm and/or Professional Engineers, as needed;

8. Supervise plant personnel and contractors during the response activities;
9. Coordinate with coal yard superintendent, landfill staff, and outside contractor, as specified in Appendix C;
10. Terminate, when appropriate, emergency status at the Stingy Run Fly Ash Pond or Bottom Ash Complex.

4.2 EAP COORDINATOR RESPONSIBILITIES

The Plant Landfill Supervisor, currently Mr. Doug Workman, shall be the EAP Coordinator, with assistance from plant management staff. The EAP Coordinator will be responsible for:

1. Maintaining the most recent version of the EAP on the publicly accessible internet CCR website and retaining it for at least 5 years;
2. Maintaining the EAP in the facility's operating record;
3. Reviewing and updating the EAP as necessary, and at a minimum every 5 years;
4. Making appropriate notifications as required;
5. Conducting an annual face-to-face meeting or exercise between Gavin staff and local emergency responders;
6. Documenting and maintaining logs recording all activations of the EAP;
7. Coordinating a follow-up evaluation of emergency response activities following any Emergency Condition at either impoundment;
8. Serving as the EAP contact person.

4.3 RESPONSIBILITY FOR EVACUATION

4.3.1 Primary Responsibility - Gallia County EMA Director

In the event of an Emergency Condition requiring evacuation, the Gallia County Emergency Management Agency (EMA) Director shall activate the Gallia County Emergency Operations Center and notify all potentially affected residents of the Emergency Condition while safety staff are being deployed.

4.3.2 *Primary Responsibility – Gallia County Sheriff*

The Gallia County Sheriff shall coordinate with the Gallia County EMA to notify all affected residents of evacuation by loud-speaker-equipped squad cars while safety staff is being deployed. In addition, the Gallia County Sheriff shall provide support staff for road closures (if needed) and maintain communication with other emergency staff.

4.3.3 *Secondary Responsibility – Middleport Fire Department*

The Middleport Fire Department will assist Gallia County Sheriff with evacuation of affected residents as needed.

4.4 ***RESPONSIBILITY FOR DURATION, SECURITY, TERMINATION, AND FOLLOW-UP***

The On-site Incident Manager shall be responsible for determining the Emergency Condition at the Stingy Run Fly Ash Pond and Bottom Ash Complex, coordinating with appropriate response agencies, and maintaining security and surveillance at the affected dam for the duration of Emergency Condition. The communication Notification Flowchart is provided in Appendix C.

The On-site Incident Manager shall be responsible for cancellation of the Emergency Condition once appropriate corrective measures have been implemented. The emergency agencies shall be notified following the Notification Flowcharts, once the Emergency Condition has been concluded.

The EAP coordinator shall conduct a follow-up meeting with the individuals and agencies contacted during the Emergency Condition as soon as practical to assess the effectiveness of the EAP. If some participants cannot attend a meeting, they should be requested to provide written comments on the notification and coordination that their agency received during the Emergency Condition.

4.5 ***ORGANIZATION DUTIES***

Appendix D provides the duties that each agency may be called upon to perform should an Emergency Condition arise at the Gavin Power Plant Stingy Run Fly Ash Pond and Bottom Ash Complex. The hierarchy of notification can be found in the Notification Flowcharts (Appendix C).

5.0 PREPAREDNESS

5.1 SURVEILLANCE

Neither the Stingy Run Fly Ash Pond nor the Bottom Ash Complex is a staffed facility but each is visited regularly by security guards and inspected on a weekly basis by qualified plant personnel.

5.2 RESPONSE DURING DARKNESS

There are no area lights at either the Stingy Run Fly Ash Pond or the Bottom Ash Complex. Portable lighting is available at the plant and will be used during periods of darkness. If necessary, additional portable lighting will be rented to illuminate areas of concern.

Normal operations of the power plant do not include site visits to these areas during hours of darkness. If a condition is identified or significant weather event of concern occurs, operations will be adjusted as needed to safely illuminate and access the embankment areas for inspection during night hours.

5.3 ACCESS TO SITE

Access to the Stingy Run Fly Ash Pond is provided by Stingy Run Road which intersects SR 554. An access road begins after a locked gate at the end of Stingy Run Road, which provides access to the toe of the dam and also to the crest by way of some abandoned coal mine strip benches. Access roads are maintained by the plant.

Access to the Bottom Ash Complex is via internal plant roads that can be reached from the plant entrances off SR 7. The eastern embankment can also be accessed through infrequently used locked gates off of SR 7.

5.4 RESPONSE DURING WEEKENDS AND HOLIDAYS

The Gavin power plant is operated 24 hours per day, 365 days a year. Staff is available to respond to an emergency situation at any time.

5.5 RESPONSE DURING ADVERSE WEATHER

The plant has four-wheel drive vehicles for transportation to the Stingy Run Fly Ash Dam or the Bottom Ash Complex. The power plant also has track-mounted bulldozers that are used in the day-to-day operations of the coal yard that could be utilized to access the ponds during extreme weather conditions.

5.6 *MEANS OF COMMUNICATION*

Communication is dependent on the Emergency Condition present. The means of communication will follow the EAP Communication Notification Flowcharts provided in Appendix C.

The primary means of internal communication is the use of two-way radios. These radios are used for day-to-day operations and also for emergency events. Most plant vehicles are equipped with radios.

The primary means of external communications is via cell phone and the plant telephone system. In addition, the On-site Incident Manager has access to the Multi-Agency Radio Communication System, which uses hand-held radios to directly communicate with various state emergency response agencies.

5.7 *EMERGENCY CORRECTIVE MEASURES*

All work related to the following conditions shall be coordinated with plant technical and management staff, as needed. The corrective measures shall be monitored by qualified engineering or technical staff during and after implementation for effectiveness. Supplemental measures should be incorporated as necessary to reduce potential hazards. If proposed measures appear to be ineffective, plant personnel will discontinue the current activity, promptly reassess conditions and implement alternative measures.

5.7.1 *High Pool Levels/Overtopping Condition*

1. Pumps and/or siphons may be necessary to provide additional capacity to draw down the pool level at either impoundment. It may be necessary to excavate a hole in accumulated fly ash or bottom ash to enhance removal of water from the pond(s). Water from the pump-down condition shall be discharged to a stable channel or on stable ground away from the dam or embankment;
2. The drawdown rate of the pool should be limited to avoid potential slope stability concerns. A consulting engineering firm and/or Professional Engineer may be contacted as needed for an acceptable drawdown rate if pool level drawdown is required;
3. If overtopping is imminent, utilize rock, impervious geomembrane, slope pipes or similar measures to reinforce the overflow area and minimize potential for water flow incising into the soil resulting in erosion of the dam or embankment;

4. Contact a consulting engineering firm and/or a Professional Engineer for permanent repair recommendations.

5.7.2 *Leakage/Cracking Condition*

1. Pumps and/or siphons may be necessary if additional capacity is required for a faster drawdown or if either unit must be drawn down lower than the outlet structures allow. It may be necessary to excavate a hole in accumulated fly ash or bottom ash to enhance removal of water from the pond(s);
2. Place earth or rock fill or other appropriate materials over the leakage area. Attempt to collect significant flows into temporary flexible slope piping and discharge water at a stable location off of the dam or embankment fill. Upon temporary stabilization of the leakage condition, install silt fence, compost sock filter, or similar erosion and sediment controls as appropriate for the condition. Do not install erosion or sediment control devices on the embankment face or at the toe where water will be impounded on the leaking or cracked embankment fill. These materials may be located on site or available from the coal yard operation, or other contractors listed in Table 2;
3. Utilize earth fill, geomembrane, geosynthetic clay liner, bentonite, etc., or a combination as required to temporarily repair or plug apparent upstream leaks and cracks in the dam or embankment that are identified after water draw down;
4. Contact a consulting engineering firm and/or a Professional Engineer for permanent repair recommendations.

Table 2 – Emergency Supplies and Resources

Contact	Title	Emergency Items	Location	Phone
Dave Caldwell	Material Handling Process Owner	Phone, radios	At the plant coal yard	Off. 740-925-3309 Cell 740-645-4481
	Main Guard House	Phone, radios	Plant entrance	Off. 740-925-3012
Colin McKean	Landfill Superintendent	Bulldozers, backhoes, dump trucks	At the plant landfill	Off. 740-925-3169 Cell 740-794-1320
Steve Warnock	Charah	Bulldozers, backhoes, dump trucks	Route 554 adjacent to the Gavin Power Plant	Cell 502-689-1393

5.7.3 *Slumping/Sliding of Embankment Crest*

1. Fill affected area with earth, rockfill, or sandbags. These materials are available from the sources listed on Table 2. If sliding occurs, the toe of the slide should be stabilized by weighting it with earth, rock, or gravel;

2. If the slump reduced the impoundment crest elevation, place sandbags at the slump to restore the dam to its original elevation;
3. Attempt to collect significant flows identified within a slump/slide area into temporary flexible slope piping and discharge water at a stable location off of the embankment fill;
4. Contact a consulting engineering firm and/or a Professional Engineer for permanent repair recommendations as needed.

5.7.4 *Sinkhole Condition*

1. Fill sinkholes with earth or rockfill. These materials may be available on site or from coal yard operations or other contractor as on Table 2;
2. Contact a consulting engineering firm and/or a Professional Engineer for permanent repair recommendations as needed.

5.7.5 *Severe Downstream Erosion or Minor Structural Damage*

1. Monitor and log condition of structures and downstream erosion;
2. Temporarily buttress identified unstable areas with soil and rock fill. Do not unnecessarily add weight to a failing area on a steep slope;
3. Install silt fence, compost sock filter or similar erosion and sediment controls as appropriate for the condition. Do not install erosion or sediment control devices where water will be impounded on identified tension cracks or saturated embankment fill;
4. Contact a consulting engineering firm and/or a Professional Engineer for permanent repair recommendations.

5.8 *EMERGENCY SUPPLIES AND RESOURCES*

In the event of a need to conduct an Emergency Corrective Action, emergency supplies and resource locations are indicated on Table 2.

5.9 *UPDATING OF THE EAP*

The EAP shall be reviewed and updated by the Owner and all affected parties when significant changes to the facility occur, emergency contacts/reporting procedures change or a minimum of once every five years. When updating the EAP, check all contact names and phone numbers for verification. If there are

significant changes to the Plan, such as dam or embankment ownership or major modifications to the dam or embankment, the EAP should be updated as soon as possible.

5.10 ANNUAL FACE-TO-FACE MEETING WITH LOCAL EMERGENCY RESPONDERS

An annual face-to-face meeting will be held with local emergency responders per 40 CFR 257.73 (a)(3)(i)(E). The meeting will cover:

- General information about the CCR impoundments;
- Roles and responsibilities the first responders would have in assisting the facility in an emergency situation; and
- Potential risks these CCR impoundments pose as well as preventative measures plant staff are taking to avoid these potential issues.

The meeting will be held regardless of whether one of the three Emergency Conditions defined in this EAP Section 3.4 has occurred. If an incident defined by one of these Emergency Conditions occurs, then the annual meeting date may be moved to discuss the incident soon after it occurs. Documentation of the annual face-to-face meeting shall be maintained in plant operating record.

INUNDATION MAPS

A 2010 Failure Inundation Mapping Report was prepared by Burgess & Niple, Inc., which provided a brief description of the methods and assumptions that were used to identify the potentially inundated areas from two potential failure scenarios for the Stingy Run Fly Ash Pond and the Bottom Ash Complex. The report provides the PMF with failure of the dam and normal pool (“sunny day”) failure of the dam, as shown on Figures 9 and 10.

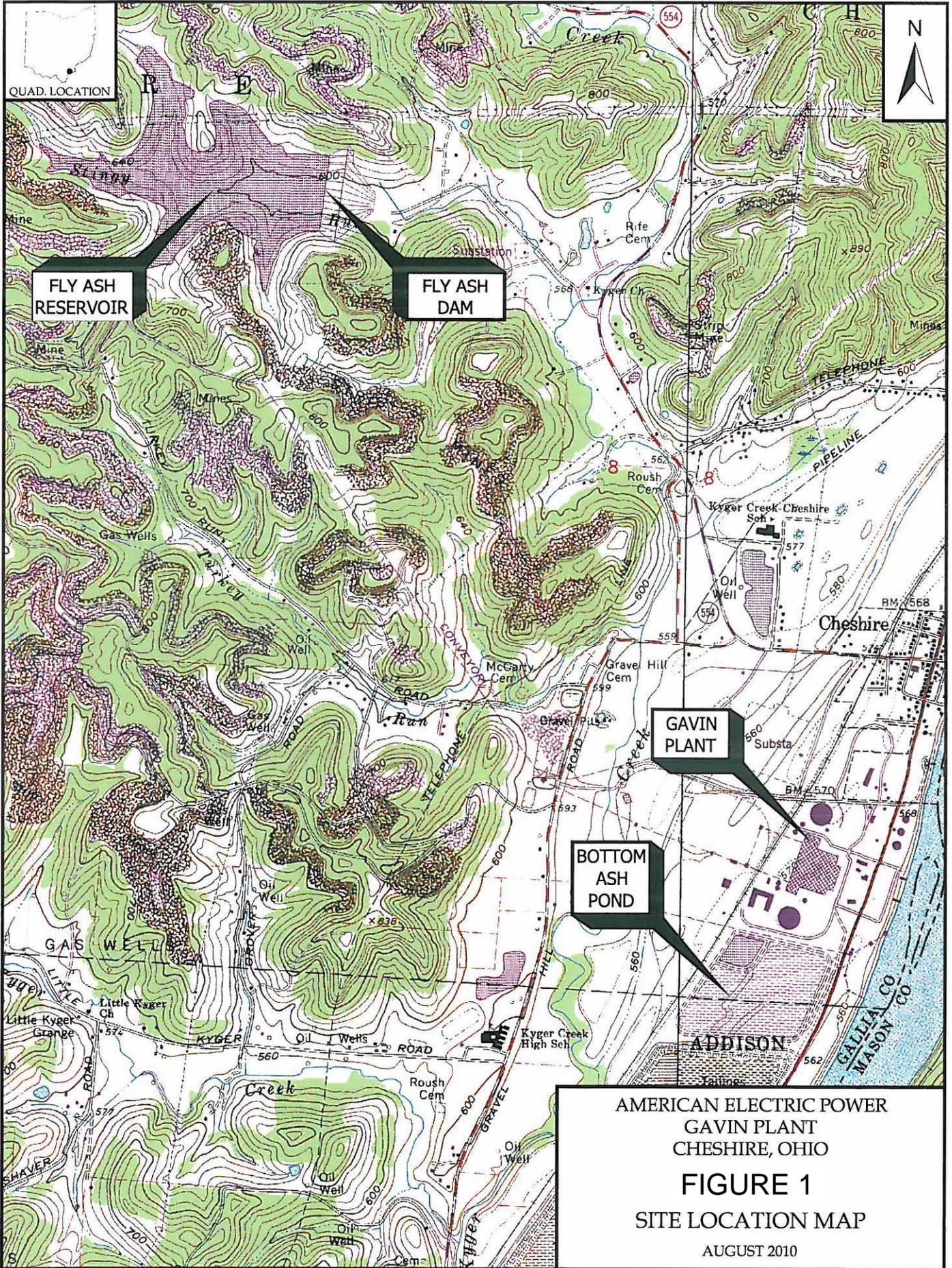
In the analyses presented in the Failure Inundation Mapping Report, the initial pool elevation for the Stingy Run Fly Ash Pond was set at the originally planned maximum normal pool elevation of 726 feet and at 576 to 578 for the Bottom Ash Complex. This was checked for consistency with previously submitted PMF and failure analyses. The Bottom Ash Complex embankment height and pool level have remained at the same levels since the analysis was conducted. The pool water level at the Stingy Run Fly Ash Pond has been lowered, and embankment heights have remained the same since the inundation study was conducted. Therefore, the study and flood inundation maps are still applicable, but conservative for the Stingy Run Fly Ash Pond.

It should be noted that because of the method and procedures used to develop the flooded area, the limits of flooding shown are approximate and should be used solely as a guideline for establishing evacuation zones. Actual evacuation zones may be greater than the area covered by the flooded areas shown and should be established by local officials based on their judgment and knowledge of local conditions.

The Failure Inundation Mapping Report considers events of an extremely remote likelihood. The results are not in any way intended to reflect on the integrity of the dam or surface impoundments.

Figures

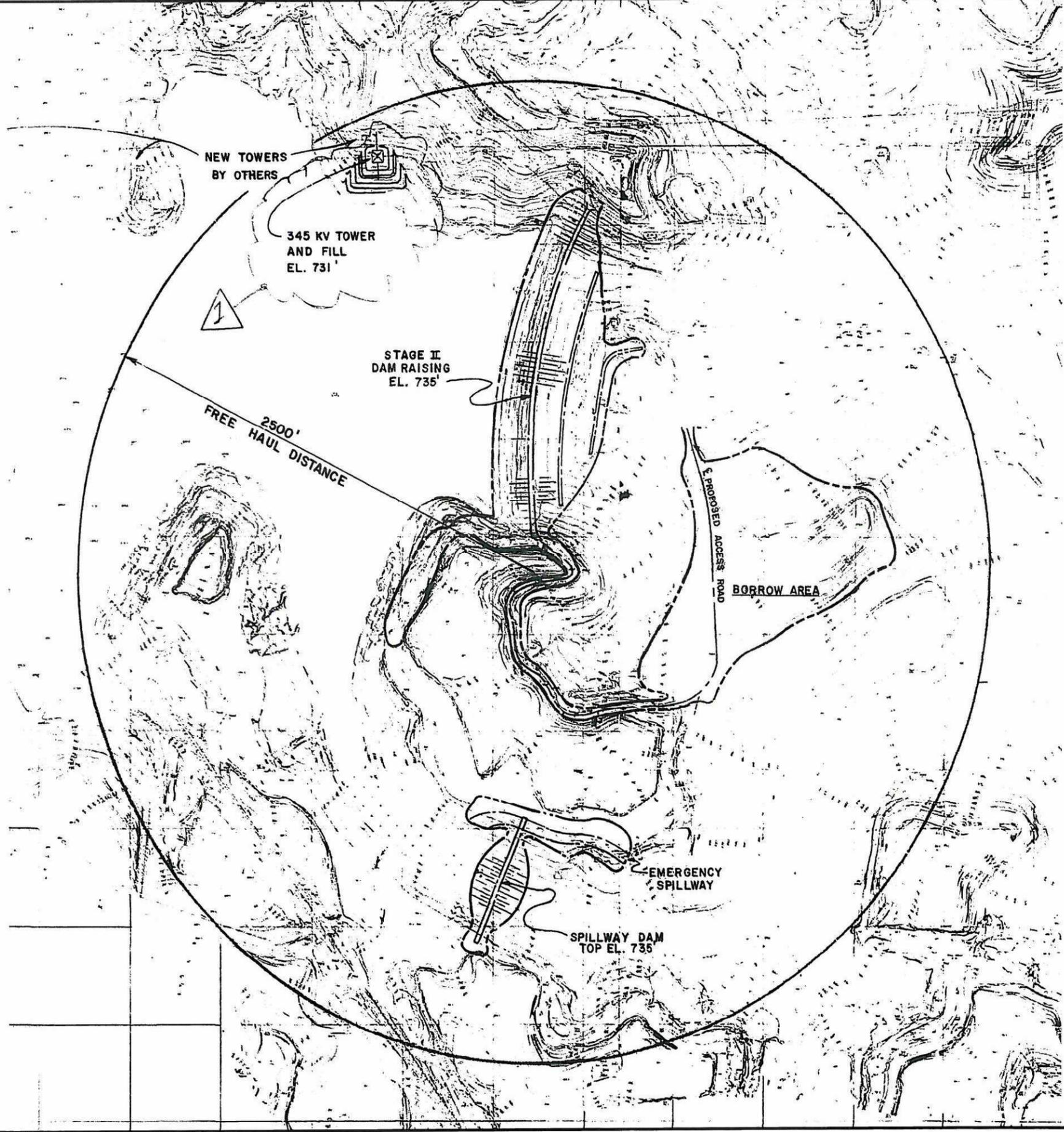
PLOTTED: 8/31/2010 7:40:36 AM



P:\PR48252\cadd\Figure 1.dwg 2/5/2010 11:08:28 AM VonZandt, Ryan

SOURCE:
7.5 MINUTE CHESHIRE, OHIO U.S.G.S. QUADRANGLE MAP

BURGESS & NIPLE
Engineers ■ Environmental Scientists ■ Geologists



SOURCE: DRAWING NO. 12-3000A-1

AMERICAN ELECTRIC POWER
 GAVIN PLANT
 CHESHIRE, OHIO

FIGURE 2
 FLY ASH DAM SITE LAYOUT

AUGUST 2010

BURGESS & NIPLE
 Engineers • Environmental Scientists • Geologists

DR. NO. 12-3014

BURGESS & NIPLE
Engineers • Environmental Scientists • Geologists

AMERICAN ELECTRIC POWER
GAVIN PLANT
CHESHIRE, OHIO

FIGURE 3

BOTTOM ASH POND SITE LAYOUT

AUGUST 2010



SEE A.E.P. TECHNICAL SPECIFICATIONS FOR EARTH MOVING

NOTE A
REINFORCED CONCRETE PILES SHALL CONFORM WITH REQUIREMENTS OF A.S.T.M. SPECIFICATIONS C-70-C9 CLASS "B" WITH TYLON OR EQUAL RUBBER GASKETS.

NO.	DATE	DESCRIPTION	APPROV.
1	8/11/10	Added Note A	[Signature]
2	8/11/10	Added Note B	[Signature]
3	8/11/10	Added Note C	[Signature]
4	8/11/10	Added Note D	[Signature]
5	8/11/10	Added Note E	[Signature]
6	8/11/10	Added Note F	[Signature]
7	8/11/10	Added Note G	[Signature]
8	8/11/10	Added Note H	[Signature]
9	8/11/10	Added Note I	[Signature]

REVISIONS

"THIS DRAWING IS THE PROPERTY OF THE AMERICAN ELECTRIC POWER SERVICE CORP. AND IS LOANED TO YOU FOR YOUR USE ONLY. IT IS NOT TO BE REPRODUCED OR COPIED, IN WHOLE OR IN PART, OR USED FOR ANY OTHER PURPOSE 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."

UNITS 1&2
BOTTOM ASH DISPOSAL AREA
CRADINGS & FENCE

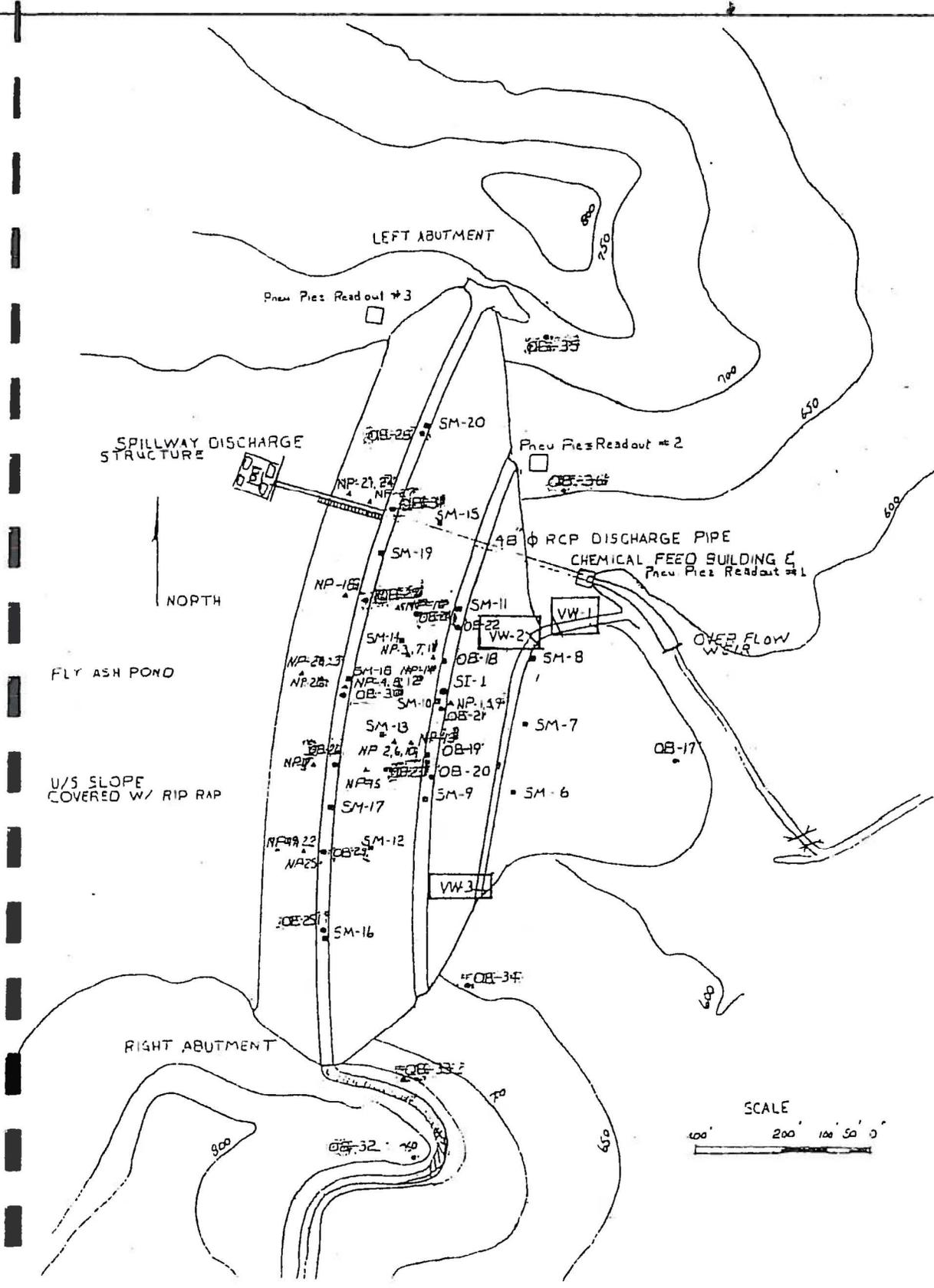
OHIO POWER COMPANY
GAVIN PLANT
CHESHIRE OHIO

DR. NO. 12-3014-9

APPROVED	DATE	BY
[Signature]	8/11/10	[Signature]

AMERICAN ELECTRIC POWER SERVICE CORP.
2 BROADWAY NEW YORK

Figure 4 - Weirs Location Map
Gen. James M. Gavin Plant
Stingy Run Flyash Dam



SPILLWAY DISCHARGE STRUCTURE

NORTH

FLY ASH POND

U/S SLOPE COVERED W/ RIP RAP

LEFT ABUTMENT

RIGHT ABUTMENT

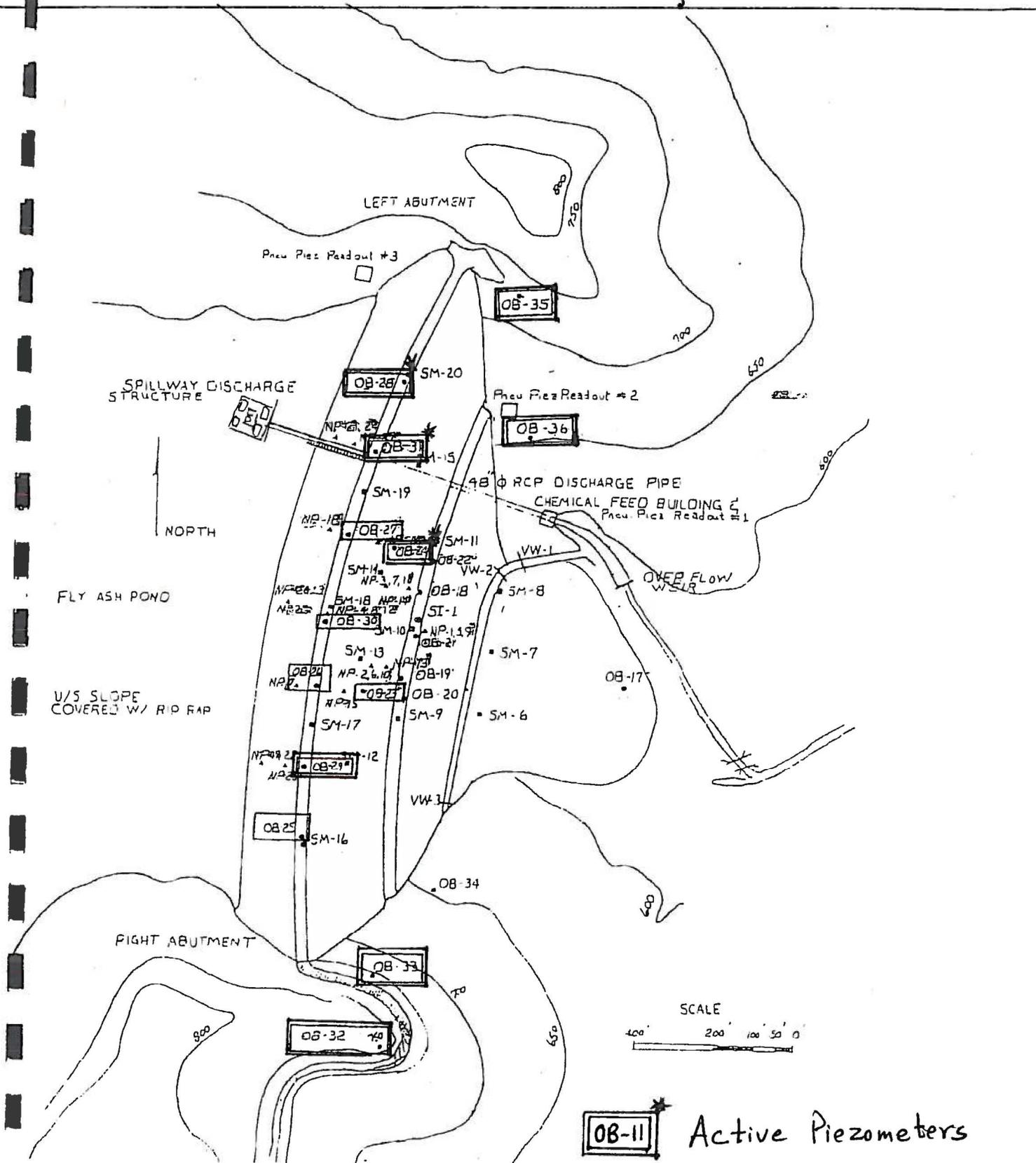
98" ϕ RCP DISCHARGE PIPE

CHEMICAL FEED BUILDING

OVER FLOW WEIR



Figure 5 – Observation Wells Location Map
Gen. James M. Gavin Plant
Stingy Run Flyash Dam



OB-11 * Active Piezometers

Figure 6 - Deformation Monuments Location Map

Gen. James M. Gavin Plant
Stingy Run Flyash Dam

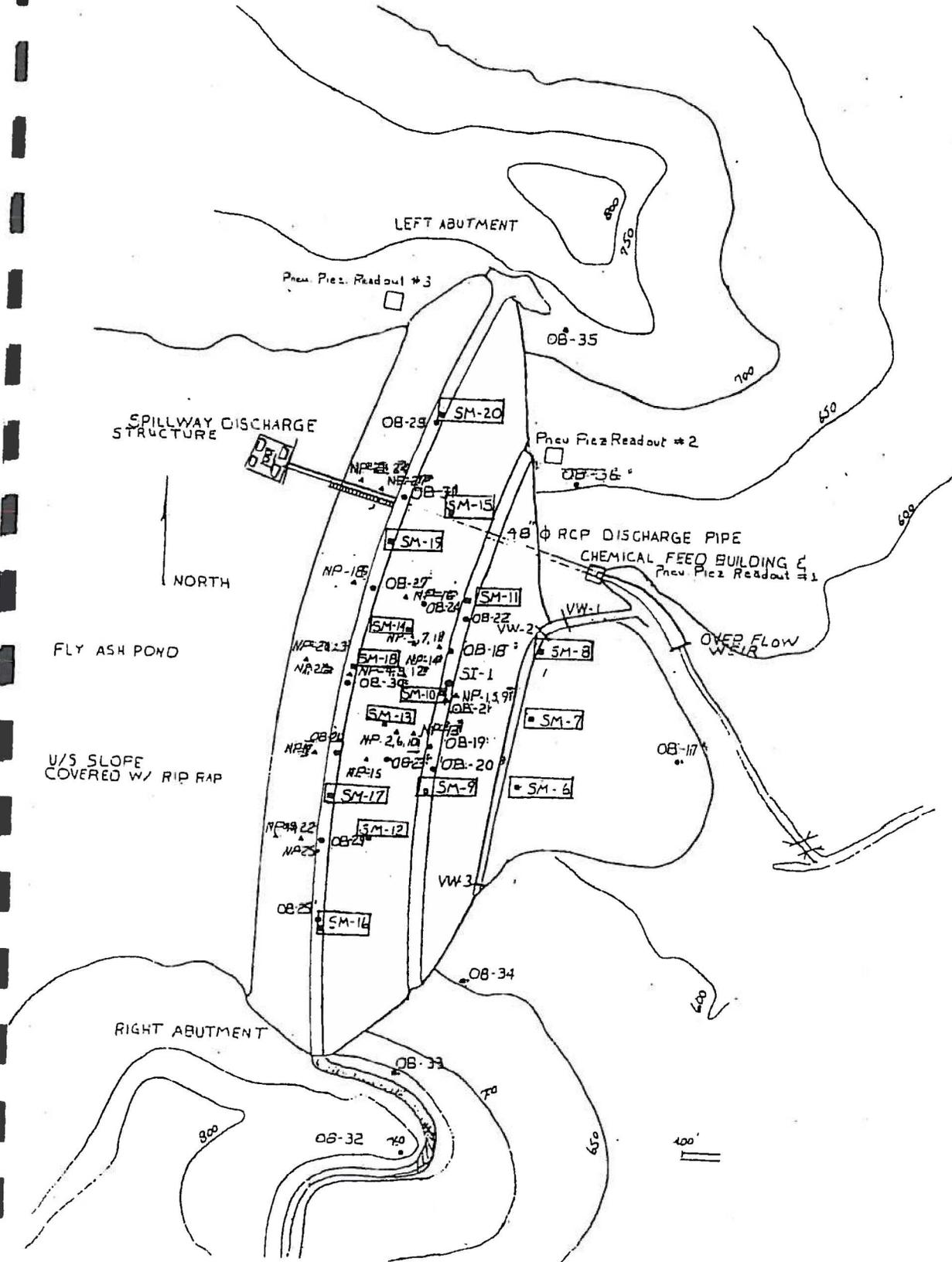
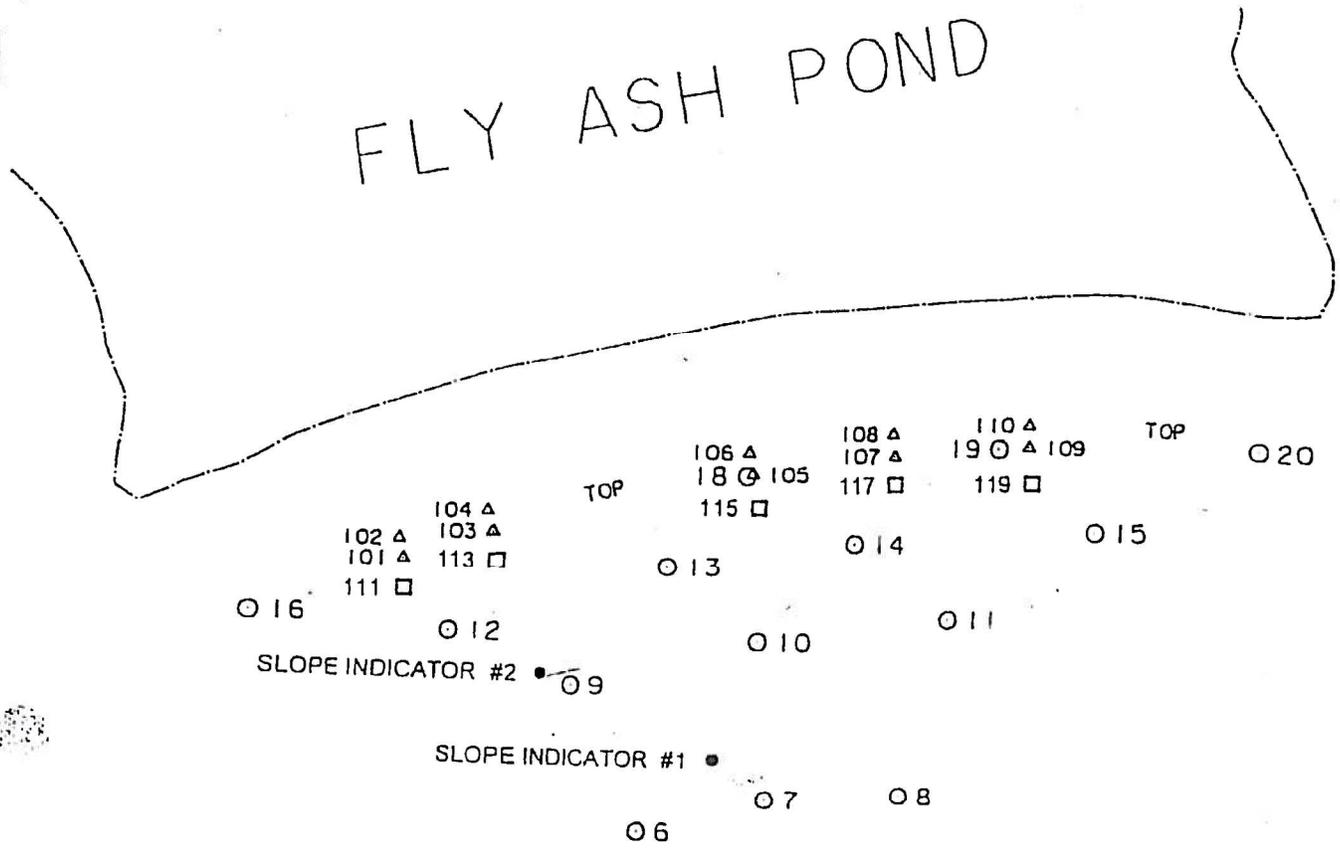


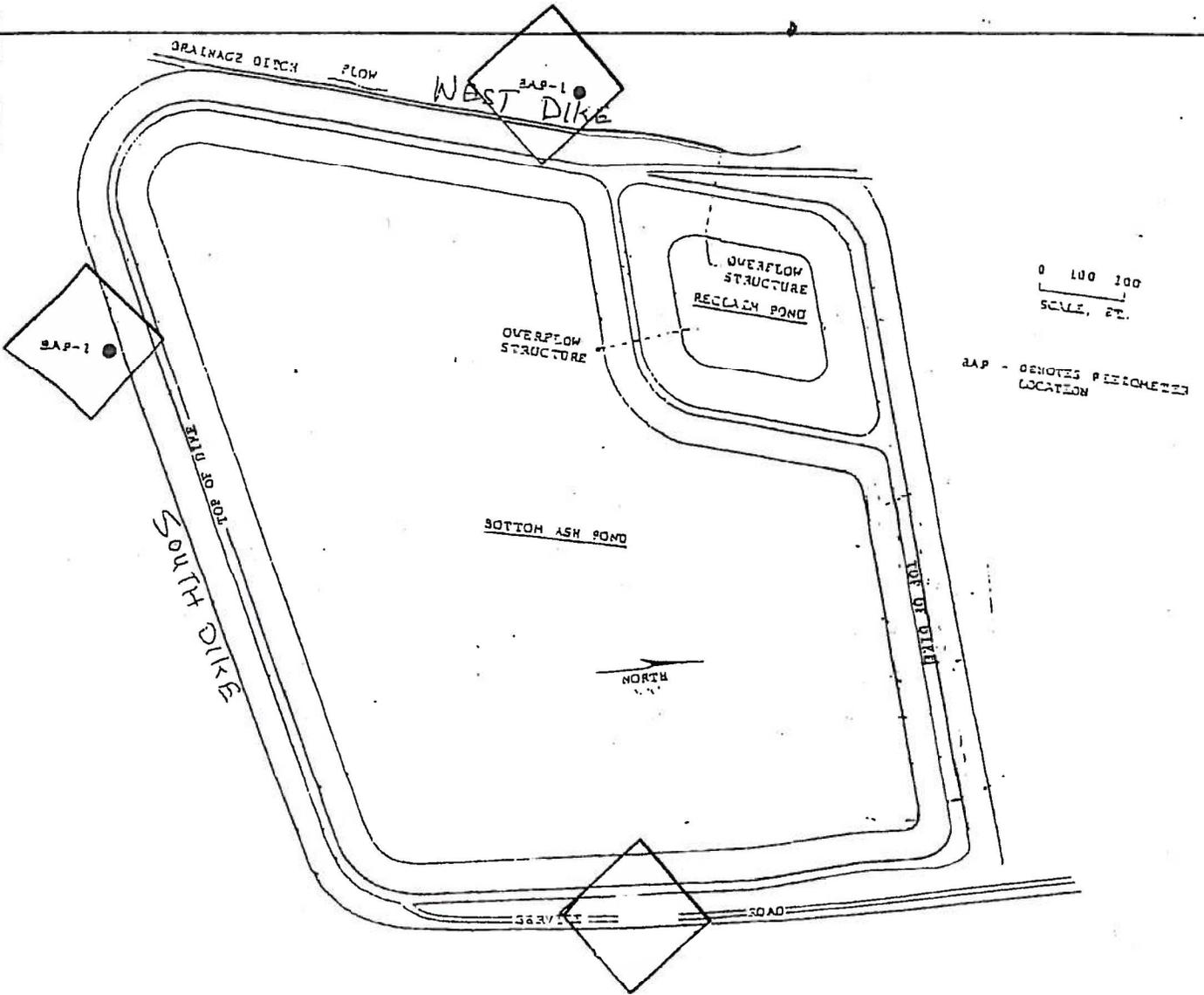
Figure 7 - Slope Inclinerometers Location Map

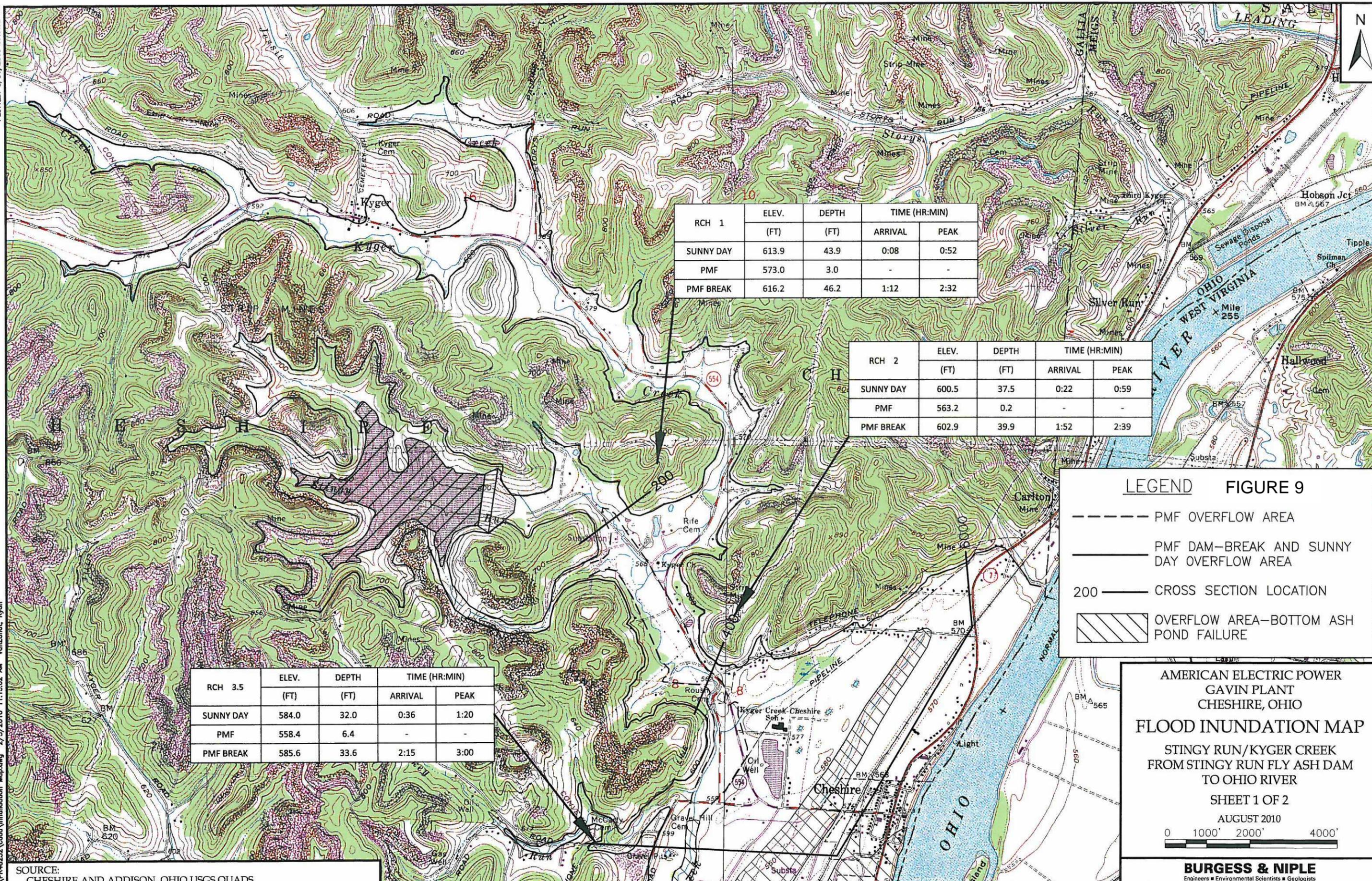
Gen. James M. Gavin Plant
Stingy Run Flyash Dam



GAVIN PLANT
FLY ASH DAM
DEFORMATION MONUMENTATION
MAIN DAM

Figure 8 – Piezometers Location Map
Gen. James M. Gavin Plant
Bottom Ash Pond Complex





RCH 1	ELEV.	DEPTH	TIME (HR:MIN)	
	(FT)	(FT)	ARRIVAL	PEAK
SUNNY DAY	613.9	43.9	0:08	0:52
PMF	573.0	3.0	-	-
PMF BREAK	616.2	46.2	1:12	2:32

RCH 2	ELEV.	DEPTH	TIME (HR:MIN)	
	(FT)	(FT)	ARRIVAL	PEAK
SUNNY DAY	600.5	37.5	0:22	0:59
PMF	563.2	0.2	-	-
PMF BREAK	602.9	39.9	1:52	2:39

RCH 3.5	ELEV.	DEPTH	TIME (HR:MIN)	
	(FT)	(FT)	ARRIVAL	PEAK
SUNNY DAY	584.0	32.0	0:36	1:20
PMF	558.4	6.4	-	-
PMF BREAK	585.6	33.6	2:15	3:00

LEGEND FIGURE 9

- PMF OVERFLOW AREA
- PMF DAM-BREAK AND SUNNY DAY OVERFLOW AREA
- 200 ——— CROSS SECTION LOCATION
- ▨ OVERFLOW AREA—BOTTOM ASH POND FAILURE

AMERICAN ELECTRIC POWER
GAVIN PLANT
CHESHIRE, OHIO

FLOOD INUNDATION MAP

STINGY RUN/KYGER CREEK
FROM STINGY RUN FLY ASH DAM
TO OHIO RIVER

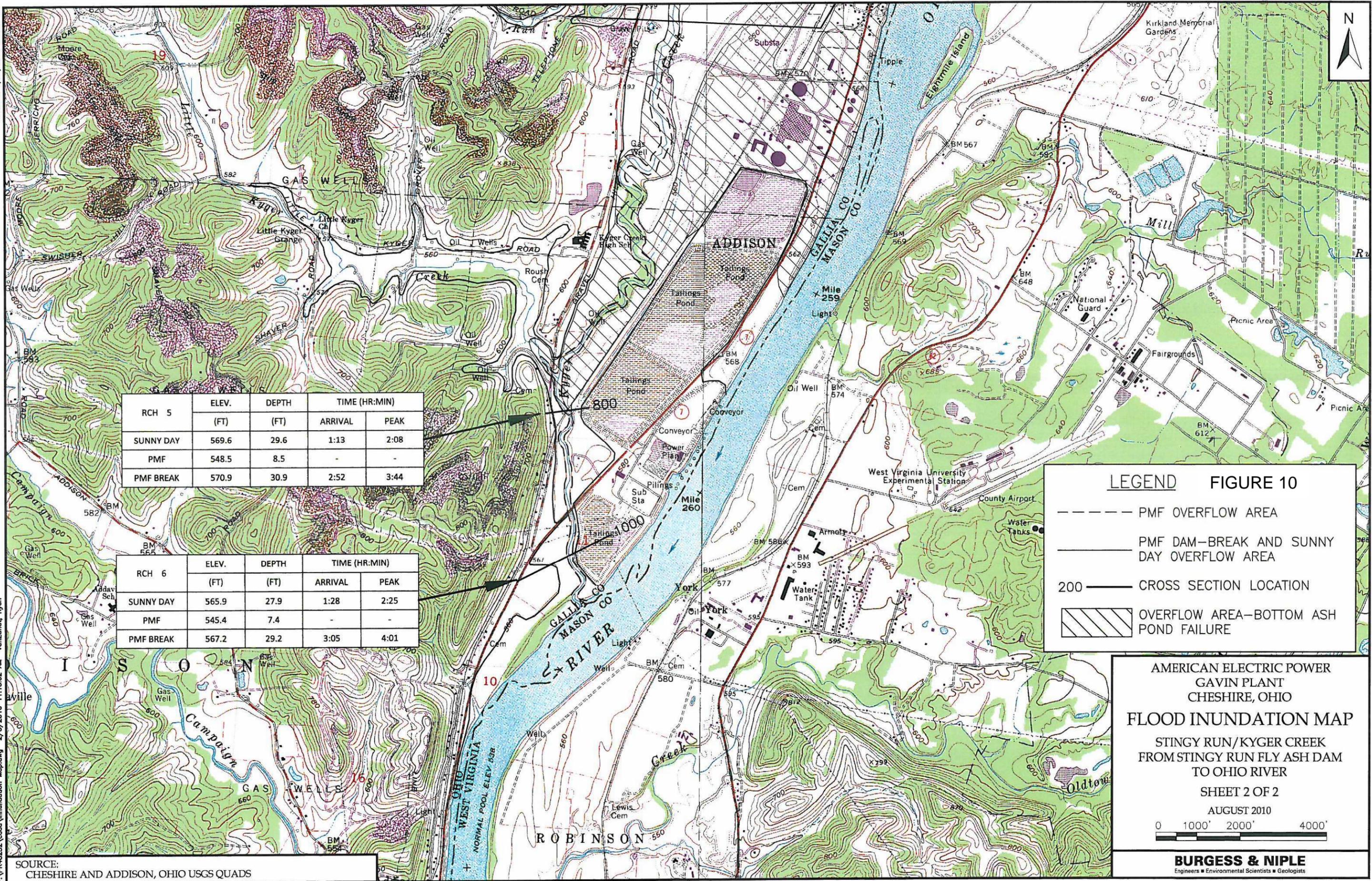
SHEET 1 OF 2

AUGUST 2010

0 1000' 2000' 4000'

BURGESS & NIPLE
Engineers • Environmental Scientists • Geologists

SOURCE:
CHESHIRE AND ADDISON, OHIO USGS QUADS



RCH 5	ELEV.	DEPTH	TIME (HR:MIN)	
	(FT)	(FT)	ARRIVAL	PEAK
SUNNY DAY	569.6	29.6	1:13	2:08
PMF	548.5	8.5	-	-
PMF BREAK	570.9	30.9	2:52	3:44

RCH 6	ELEV.	DEPTH	TIME (HR:MIN)	
	(FT)	(FT)	ARRIVAL	PEAK
SUNNY DAY	565.9	27.9	1:28	2:25
PMF	545.4	7.4	-	-
PMF BREAK	567.2	29.2	3:05	4:01

LEGEND **FIGURE 10**

- PMF OVERFLOW AREA
- PMF DAM-BREAK AND SUNNY DAY OVERFLOW AREA
- 200 — CROSS SECTION LOCATION
- ▨ OVERFLOW AREA-BOTTOM ASH POND FAILURE

AMERICAN ELECTRIC POWER
 GAVIN PLANT
 CHESHIRE, OHIO
FLOOD INUNDATION MAP
 STINGY RUN/KYGER CREEK
 FROM STINGY RUN FLY ASH DAM
 TO OHIO RIVER
 SHEET 2 OF 2
 AUGUST 2010

0 1000' 2000' 4000'

SOURCE:
 CHESHIRE AND ADDISON, OHIO USGS QUADS

BURGESS & NIPLE
 Engineers • Environmental Scientists • Geologists

Appendix A
Professional Engineer
Certification

PROFESSIONAL ENGINEER CERTIFICATION

I hereby certify that I or an agent under my review has prepared this Emergency Action Plan (EAP), and familiar with the provisions of the final rule to regulate the disposal of coal combustion residuals (CCR). I attest that this EAP has been prepared in accordance with good engineering practices and meets the intent of 40 CFR 257.73. To the best of my knowledge, the information contained in this EAP is true, complete, and accurate.



James A. Hemme, P.E.
State of Ohio License No.: 72851

Date: 2/12/2020

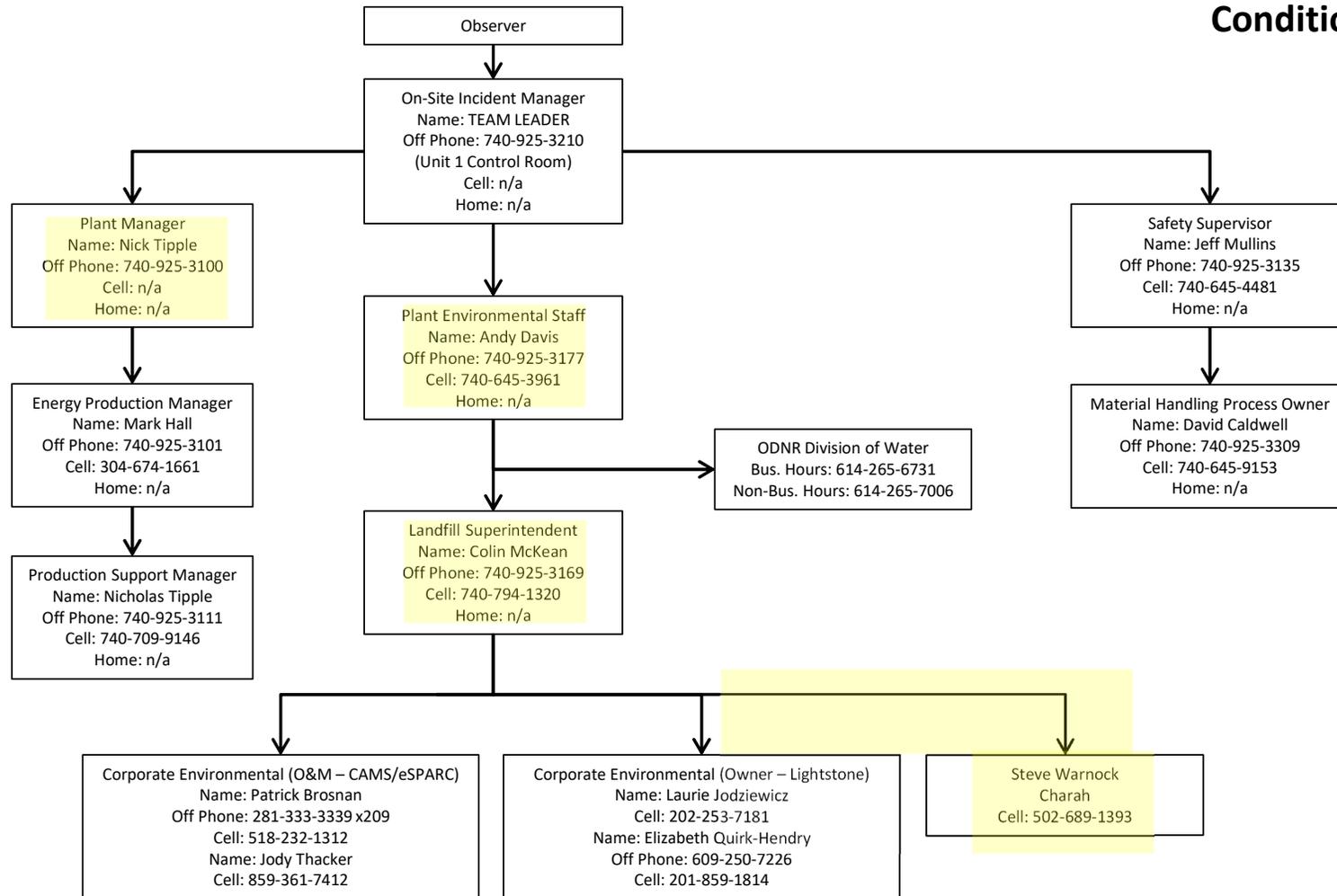
Appendix B
Regulatory Cross Reference Table

REGULATORY CROSS REFERENCE TABLE

Federal Regulatory Requirement	Location in the EAP
Define the events or circumstances involving the CCR unit that represent a safety emergency (§ 257.73(a)(3)(i)(A))	3.4
Description of the procedures that will be followed to detect a safety emergency in a timely manner (§ 257.73(a)(3)(i)(A))	3.2 & 5.0
Define responsible persons and their respective responsibilities (§ 257.73(a)(3)(i)(B))	4.0; Appendix D
Define notification procedures in the event of a safety emergency involving the CCR unit (§ 257.73(a)(3)(i)(B))	4.0 & 5.4; Appendix C
Provide contact information of emergency responders ((§ 257.73(a)(3)(i)(C))	Appendix C
Include a map which delineates the downstream area which would be affected in the event of a CCR unit failure and a physical description of the CCR unit (§ 257.73(a)(3)(i)(D))	2.0; Figures 9 & 10
EAP must be activated once events or circumstances involving the CCR unit that represent a safety emergency condition are detected (§ 257.73(a)(3) (v))	4.0
Include provisions for an annual face-to-face meeting or exercise between representatives of owner or operator of the CCR unit and the local emergency responders (§ 257.73(a)(3)(i)(E))	5.10
Documentation recording the annual face-to-face meeting or exercise between the owner / operator of the CCR and the local emergency responders (§ 257.105(f)(7))	5.10
The owner or operator must amend the written EAP whenever there is a change in conditions that would substantially affect the EAP in effect (§ 257.105(f)(6))	5.9
The written EAP must be evaluated, at a minimum, every five years to ensure information required in the EAP is accurate (§ 257.73(a)(3) (ii)(B))	4.2 & 5.9
The most recent EAP must be uploaded on the owner or operator’s publicly accessible internet CCR website (§ 257.107(f)(5))	4.2
The appropriate State Director must be notified of when the EAP is available on the CCR website, and any revisions of the EAP (§ 257.106(f)(5))	4.2
The current EAP must be maintained in the facility’s operating record (§ 257.105(f)(6))	4.2
The owner or operator of the CCR must obtain a certification from a qualified Professional Engineer stating that the written EAP, and any subsequent EAP meets the requirements of § 257.73(a)(3) (§ 257.73(a)(3)(iv))	Appendix A
Documentation prepared by the owner or operator recording all activations of the EAP (§ 257.105(f)(8))	4.1

Appendix C
EAP Notification Flow Charts

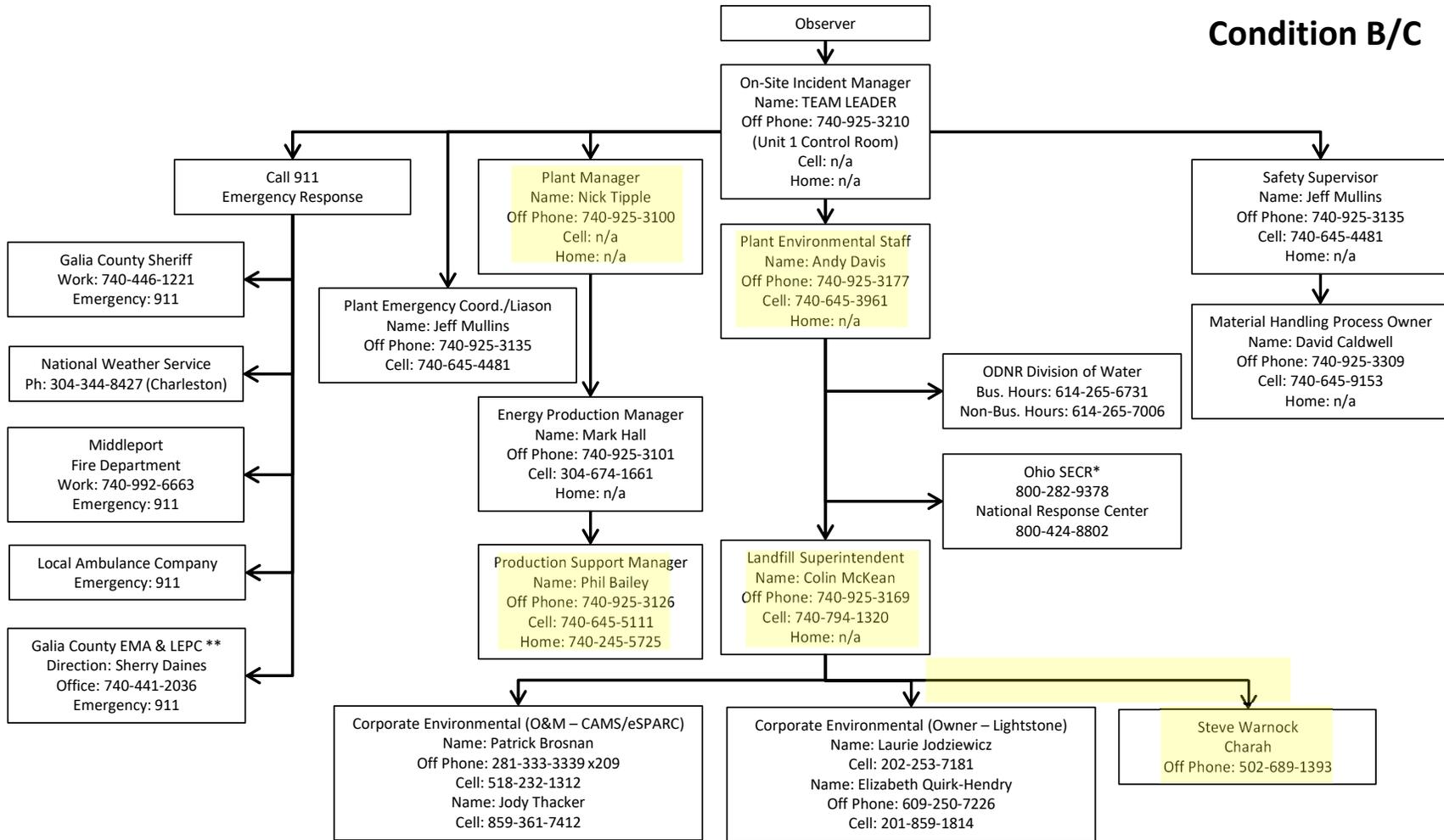
Condition A



NOTES:
 EMERGENCY CONDITIONS A, B AND C
 A: NONFAILURE EMERGENCY
 B: POTENTIAL FAILURE EMERGENCY
 C: IMMINENT FAILURE OR FAILURE HAS OCCURRED EMERGENCY

GAVIN POWER, LLC
STINGY RUN FLY ASH POND AND
BOTTOM ASH COMPLEX
EMERGENCY CONTACT TREE
 NOTIFICATION FLOWCHART
 EXHIBIT 1

Condition B/C



NOTES:
 EMERGENCY CONDITIONS A, B AND C
 A: NONFAILURE EMERGENCY
 B: POTENTIAL FAILURE EMERGENCY
 C: IMMIDENT FAILURE OR FAILURE HAS OCCURRED EMERGENCY

*SECR – STATE EMERGENCY RESPONSE COMMISSION ** EMA – EMERGENCY MANAGEMENT ASSOCIATION LEPC – LOCAL EMERGENCY PLANNING COMMITTEE

GAVIN POWER, LLC
STINGY RUN FLY ASH POND AND
BOTTOM ASH COMPLEX
EMERGENCY CONTACT TREE
NOTIFICATION FLOWCHART
EXHIBIT 2

Appendix D
Duties and Responsibilities for
Emergency Conditions

DUTIES AND RESPONSIBILITIES FOR CONDITION A: NON-FAILURE EMERGENCY

This table provides the potential duties that each organization may be called upon to perform should Emergency Condition A arise at the Gavin Power Plant CCR impoundments.

Organization	Emergency Condition "A" Duties
Gavin Power	<ul style="list-style-type: none">• Notification documents to ODNR recording activation of EAP• Coordinate response activities at the dam/impoundment.• Mobilize local contractors if needed.• Notify ODNR when emergency condition ends.
Engineering Consulting Firm and/or Professional Engineer	<ul style="list-style-type: none">• Provide technical analysis and design support, as needed.
Coal Yard Personnel	<ul style="list-style-type: none">• Provide construction equipment, materials, and personnel to assist staff in responding to the emergency condition.

DUTIES AND RESPONSIBILITIES FOR CONDITION B: POTENTIAL EMERGENCY

This table provides the potential duties that each organization may be called upon to perform should Emergency Condition B arise at the Gavin Power Plant CCR impoundments.

Organization	Emergency Condition "B" Duties
Gavin Power	<ul style="list-style-type: none"> • Notification documents to ODNR recording activation of EAP • Coordinate response activities at the dam. • Mobilize local contractors if needed. • Notify EMA and other agencies when emergency condition ends.
Engineering Consulting Firm and/or Professional Engineer	<ul style="list-style-type: none"> • Provide technical analysis and design support, as needed.
Coal Yard Personnel & Local Contractors: 1. Coal Yard Personnel 2. Charah	<ul style="list-style-type: none"> • Provide construction equipment, materials, and personnel to assist staff in responding to the emergency condition.
Gallia County EMA "911" Emergency Center	<ul style="list-style-type: none"> • Notify the Gallia County Sherriff of the emergency condition. • Notify the Gallia County Emergency Management Director and the Middleport Fire Department of the emergency condition.
1. Gallia County Sheriff 2. Middleport Fire Department	<ul style="list-style-type: none"> • Review the flood inundation maps contained in Figures 9 and 10 of this EAP to be familiar with areas that may require evacuation if an evacuation order is given. • At this level, NO EVACUATION IS REQUIRED.

DUTIES AND RESPONSIBILITIES FOR CONDITION C: IMMINENT FAILURE OR FAILURE OF THE DAM

This table provides the potential duties that each organization may be called upon to perform should Emergency Condition C arise at the Gavin Power Plant CCR impoundments.

Organization	Emergency Condition "C" Duties
Gavin Power	<ul style="list-style-type: none"> • Notify "911" emergency center at beginning of emergency condition. • Coordinate response activities at the dam. • Mobilize coal yard personnel and local contractors if needed. • Notify EMA and other agencies when emergency condition ends. • Notification documents to ODNR recording activation of EAP
Engineering Consulting Firm and/or Professional Engineer	<ul style="list-style-type: none"> • Provide technical analysis and design support, as needed.
Coal Yard Personnel/Landfill Personnel/Local Contractors 1. Coal Yard Personnel 2. Charah	<ul style="list-style-type: none"> • Provide construction equipment, materials, and personnel to assist staff in responding to the emergency condition.
Gallia County EMA "911" Emergency Center	<ul style="list-style-type: none"> • Notify the Gallia County Sherriff of the emergency condition. • Notify the Gallia County Emergency Management Director and the Middleport Fire Department of the emergency condition.
1. Gallia County Sheriff 2. Middleport Fire Department	<ul style="list-style-type: none"> • IMMEDIATELY BEGIN EVACUATION of flood prone areas downstream of the dam as shown on the flood inundation maps shown on Figures 9 and 10 of this EAP. • Evacuation activities may include physical evacuation, calling, knocking on doors, announcements with bullhorns, etc. • Assist in rescue of stranded residents, placing sandbags, and other duties as required.