Dynegy Miami Fort, LLC

MIAMI FORT POWER STATION
NORTH BEND, HAMILTON COUNTY, OHIO

Emergency Action Plan (EAP)

40 CFR § 257.73(a)(3)
Coal Combustion Residual (CCR) Impoundments & Related Facilities

- Basin A (NID # OH01690)
- Basin B (NID # OH01691)

Revision Date: April 13, 2017

Qualified Professional Engineer Certification; Emergency Action Plan for the Miami Fort Power Station Basin A and Basin B.

In accordance with 40 CFR 257.73(a)(3)(iv), the owner or operator of a CCR unit that is required to prepare a written Emergency Action Plan under 40 CFR 257.73(a)(3) must obtain a certification from a qualified professional engineer stating that the written Emergency Action Plan meets the requirements of 40 CFR 257.73(a)(3).

I, David Hayson, being a Professional Engineer in good standing in the State of Ohio, do hereby certify, to the best of my knowledge, information, and belief that:

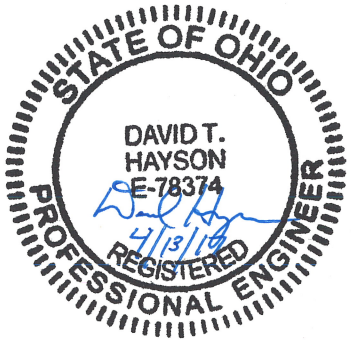
1. the information contained in this Emergency Action Plan was prepared in accordance with the accepted practice of engineering; and

2. this Emergency Action Plan meets the requirements of 40 CFR 257.73(a)(3).

SIGNATURE _____ DATE 4/13/17

ADDRESS: Stantec Consulting Services Inc.
11687 Lebanon Road
Cincinnati OH 45241-2012

TELEPHONE: (513) 842-8200



MIAMI FORT POWER STATION
EMERGENCY ACTION PLAN
CCR IMPOUNDMENTS & RELATED FACILITIES

TABLE OF CONTENTS

List of Tables

List of Figures

MIAMI FORT POWER STATION
EMERGENCY ACTION PLAN
CCR IMPOUNDMENTS & RELATED FACILITIES

1 STATEMENT OF PURPOSE

The Miami Fort Power Station (Station) is located near North Bend in Hamilton County, Ohio. The location is shown in Figure 1-1. The Station is a coal-fired electricity producing power plant operated by Dynegy Miami Fort, LLC, a subsidiary of Dynegy. This Emergency Action Plan (EAP) was prepared in accordance with 40 CFR § 257.73(a)(3) and covers the following Coal Combustion Residual (CCR) surface impoundments located at the site:

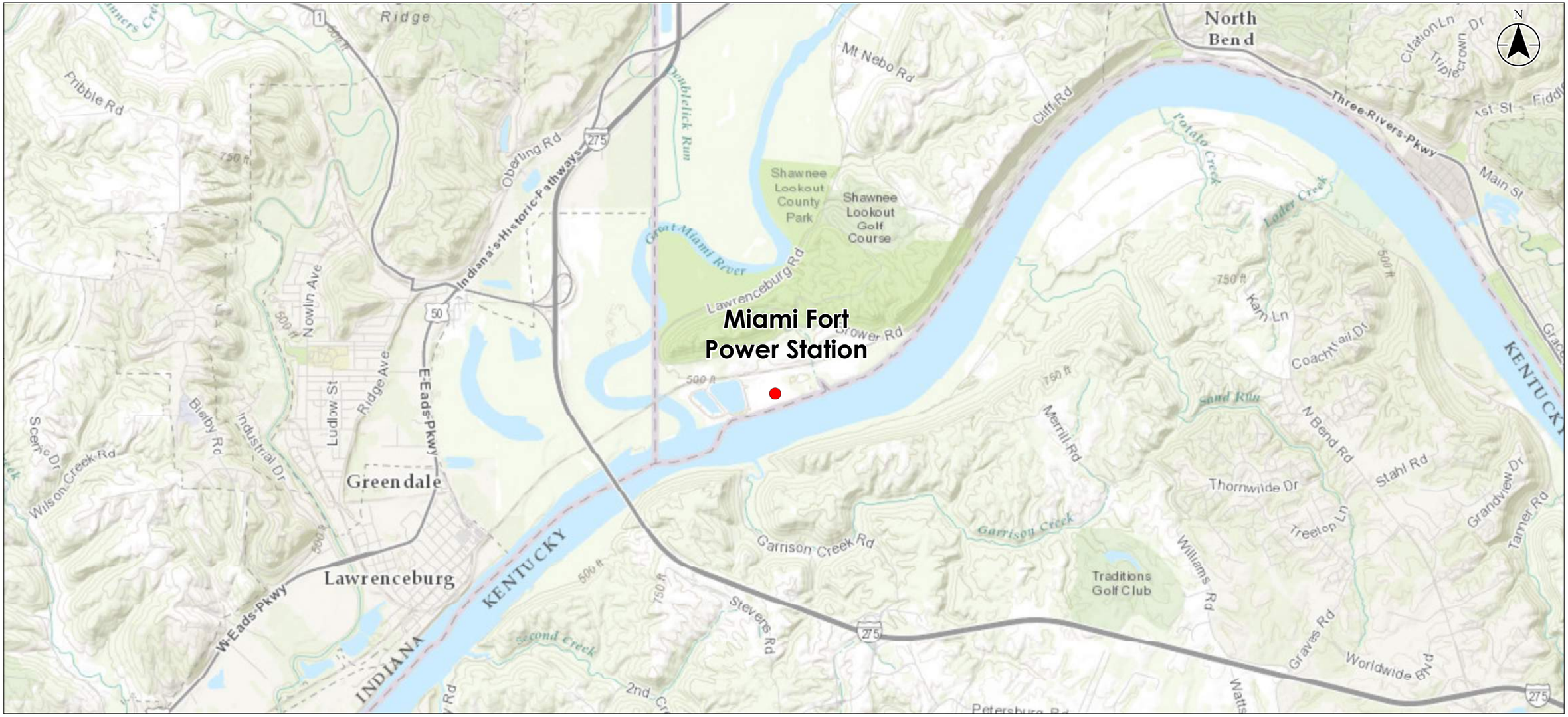
- Basin A
- Basin B

The locations of these impoundments are shown in Figure 1-2. Section 6 of this EAP includes a description of each impoundment.

The purpose of this Emergency Action Plan (EAP) is to:

1. Safeguard the lives, as well as to reduce property damage, of citizens living within potential downstream flood inundation areas of CCR impoundments and related facilities at the Miami Fort Power Station.
2. Define the events or circumstances involving the CCR impoundments and related facilities at the Miami Fort Power Station that represent atypical operating conditions that pose a safety hazard or emergency and how to identify those conditions.
3. Define responsible persons, their responsibilities, and notification procedures in the event of a safety emergency.
4. Provide contact information of emergency responders.
5. Identify emergency actions in the event of a potential or imminent failure of the impoundment.
6. Identify the downstream area that would be affected by failure of the impoundments.
7. Provide for effective facility surveillance, prompt notification to local Emergency Management Agencies, citizen warning and notification responses, and preparation should an emergency occur.

Information provided by Dynegy was utilized and relied upon in preparation of this report..



Notes

1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
2. Aerial Source: Cincinnati Area GIS (CAGIS) Website. Dated 2015. 6-Inch Resolution.
3. Impoundment Boundaries Provided by Client (Dated 9/9/2015)

0 6,000 Feet

1:60,000 (At original document size of 11x17)

Stantec DYNEGY

Project Location	175605019
Latitude: 39.112967	Prepared by DTH on 2017-04-12
Longitude: -84.803705	Technical Review by NS on 2017-04-12
Hamilton County, Ohio	Independent Review by MH on 2017-04-12

Client/Project

Miami Fort Power Station
Emergency Action Plan

Figure No.

1-1

Title

Location Map

DUGAN GAP RD

SHAWNEE DR

Miami Fort Power Station

LAWRENCEBURG RD

Great Miami River

BROWER RD

Ohio River

Basin A

Basin B

N

Legend

CCR Surface Impoundment Boundary

0 2,000 Feet

1:18,697 (At original document size of 11x17)

Notes

1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
2. Aerial Source: Cincinnati Area GIS (CAGIS) Website. Dated 2015. 6-Inch Resolution.
3. Impoundment Boundaries Provided by Client (Dated 9/9/2015)

Stantec DYNEGY

Project Location
Latitude: 39.112967
Longitude: -84.803705
Hamilton County, Ohio

175605019
Prepared by DTH on 2017-04-12
Technical Review by NS on 2017-04-12
Independent Review by MH on 2017-04-12

Client/Project
Miami Fort Power Station
Emergency Action Plan

Figure No.
1-2

Title
CCR Impoundments

U:\175\175605019\gis\mxd\EAP\Final_04_12_2017\012_ccr_impoundments_fig1-2_20170412.mxd Revised: 2017-04-12 By: dhoyson

2 COMMUNICATION

To facilitate understanding among everyone involved in implementing this EAP, four response levels are used to identify the condition of an impoundment. These are:

Response Levels:

- **Level 0:** Normal conditions and routine operations, including surveillance and initial investigation of unusual conditions and effects of storm events.
- **Level 1:** Potentially hazardous condition exists, requiring investigation and possible corrective action.
- **Level 2:** Potential failure situation is developing; possible mode of failure is being assessed; corrective measures are underway.
- **Level 3:** Failure is occurring or is imminent, public protective actions are required.

The 4-Step Incident Response Process is outlined in Figure 2-1. This should be used in conjunction with the Notification Flowchart (Figure 2-2) and EAP Decision Tree (Figure 2-3). Section 4 provides guidance tables for determining Response Levels and a table providing emergency actions to be taken given various situations. Table 2-1 lists contact information for the emergency responders.

Figure 2-1. Summary/Sequence of Tasks 4-Step Incident Response Process

Step 1: Detection, Evaluation, and Response Level Determination

Sequence of Tasks:

- Notify EAP Coordinator, Station Management (Director and Engineering), and Dynegy Dam Safety Manager of unusual condition detected and confer on next steps needed.
- Conduct technical evaluation of conditions as needed.
- Determine Response Level based on evaluation. **(Table 4-1)**
- Reset Response Level as revised evaluations warrant.

Step 2: Notification

Sequence of Tasks:

- Notify authorities, designated personnel, and external response partners of change in Response Level, using the Notification Flowchart. **(Figure 2-2)**
- *Re-notify authorities, designated personnel, and external response partners as Response Level is changed.*

Step 3: Emergency Actions

Sequence of Tasks:

- Perform emergency actions with goal of saving the impoundment and minimizing impacts to life, property, and environment. **(Table 4-3)**
- Take continuous actions to include situation assessment, information sharing, remediation, and public safety advisories or warnings, as warranted.
- *Revise action plan as changes in conditions warrant.*

Step 4: Follow-up

Sequence of Tasks:

- Document conditions and decisions in the Emergency Incident Log.
- Notify authorities, designated personnel, and external response partners that condition is stabilized; limit incident termination declarations to conditions at the site.
- Conduct and document after-action review of incident and response.

Figure 2-2. Notification Flowchart

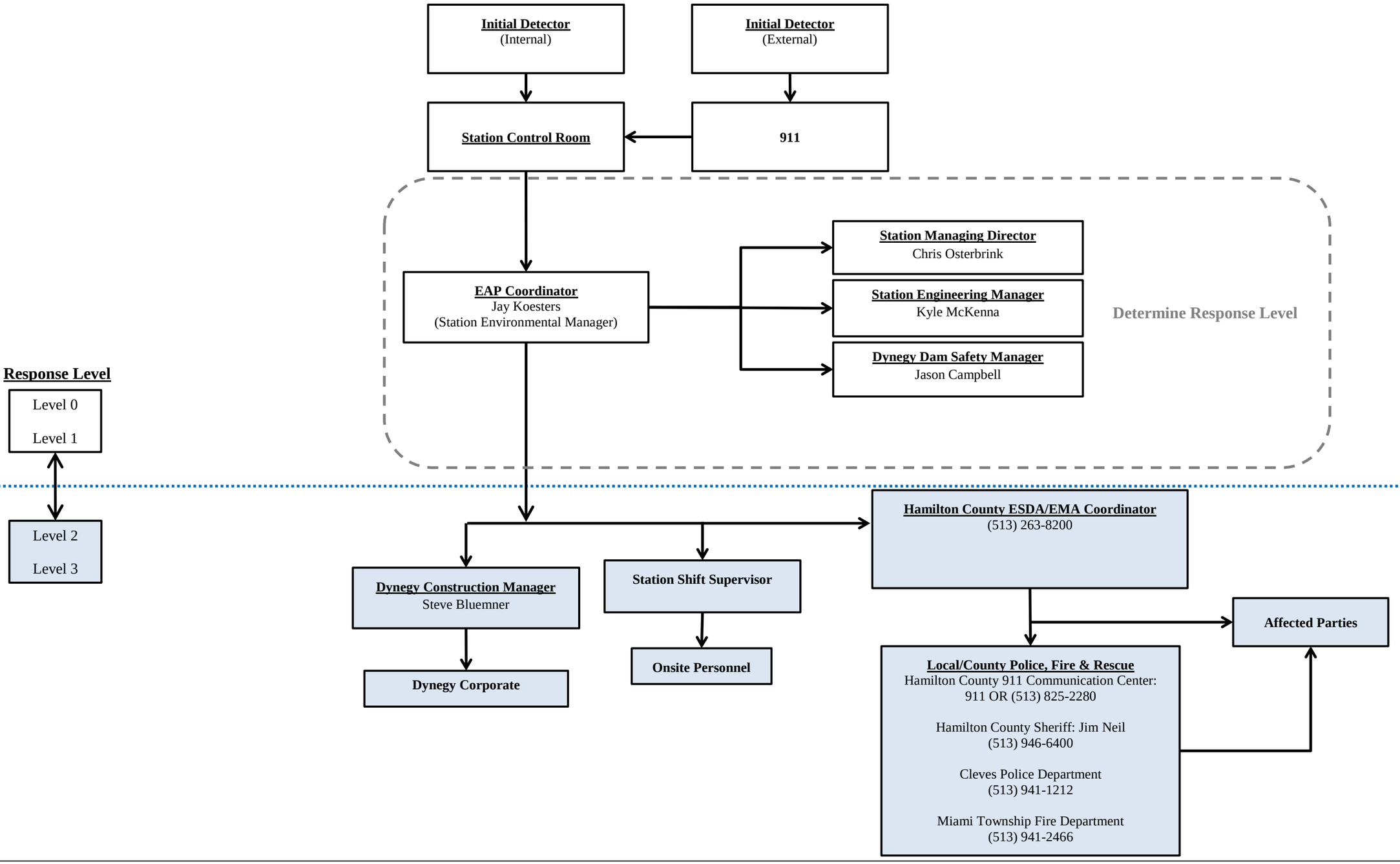


Figure 2-3. EAP Response Process Decision Tree

Note: At any given below, if failure is imminent or actively occurring **CALL 911 IMMEDIATELY** to notify emergency responders and then continue with process afterwards.

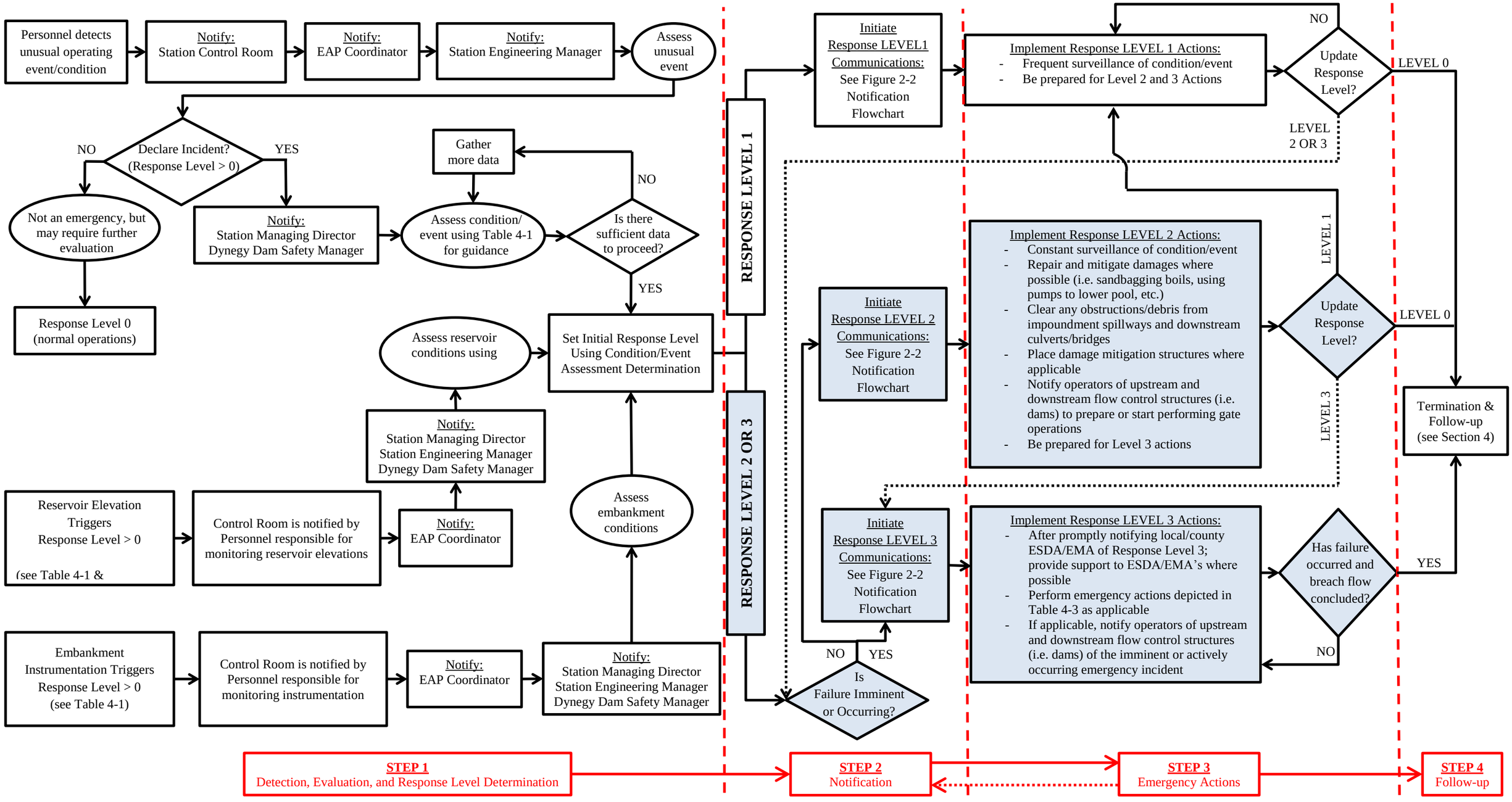


Table 2-1. EAP Emergency Responders

Position / Entity	Contact Information		
Internal Contacts			
Miami Fort Power Station	**Contact**		
Managing Director	Chris Osterbrink		
Environmental Manager (EAP Coordinator)	Jay Koesters	(513) 340-3956	
Engineering Manager	Kyle McKenna		
Control Room		(513) 467-4911	
Dynegy Corporate Operations	**Contact**		
Dam Safety Manager	Jason Campbell	(618) 792-8488	
Construction Manager	Steve Bluemner		
External Contacts			
Local/County ESDA/EMA, Police, & Fire	**Contact**	**Phone #**	**Alternate Phone #**
Hamilton County 911 Emergency Communications Center		911	(513) 825-2280
Hamilton County – ESDA/EMA	Hamilton County EMA	(513) 263-8200	
Cleves – Police Department	Chief Richard Jones, Jr.	(513) 941-1212	
Hamilton County – Sheriff Department	Sheriff Jim Neil	(513) 946-6400	
Miami Township – Fire Department	Chief Steve Ober	(513) 941-2466	(513) 467-3727
State Emergency Management Agencies & Organizations	**Contact**	**Phone #**	**Alternate Phone #**
Ohio Department of Natural Resources - Wildlife		1(800) 945-3543	(614) 265-6314

3 EAP ROLES AND RESPONSIBILITIES

Table 3-1 provides a summary of the EAP roles during an emergency event.

Table 3-1. Summary of EAP Roles

Entity	Role Description
Dynegy Emergency Response Team (ERT)	**ERT:** Dynegy personnel responsible for EAP implementation, distribution, updates/maintenance, and training activities. The *ERT* is comprised of the following roles; 1. **Dynegy Corporate:** Dynegy corporate entity, committee, team, or position with relevant responsibility for a given generating station. 2. **Station Management:** Personnel responsible for day-to-day operation and management of the Station. 3. **Dam Safety Manager:** Personnel that is most knowledgeable about the design and technical operation of facilities at a given Station. 4. **EAP Coordinator:** Personnel responsible for implementing the EAP and associated activities. **Emergency Event – EAP Responsibilities** 1. Respond to emergencies at the Station. 2. Verify and assess emergency conditions. 3. Notify and coordinate as appropriate with participating emergency services disaster agencies or emergency management agencies (ESDA/EMA's), emergency responders, regulatory agencies, and all other entities involved or affected by this EAP. 4. Take corrective action at the Station. 5. Declare termination of emergencies at the Station.
Hamilton County ESDA/EMA	1. Receive Response Level reports from *Dynegy Corporate* through *EAP Coordinator*. 2. Coordinate emergency response activities with local authorities: police, fire and rescue, etc. 3. Coordinate notification of public as necessary through established channels, which may include door-to-door contact. 4. Coordinate notification activities to affected parties within inundation areas. 5. Evaluate risk to areas beyond the inundation areas, communicate needs to *Dynegy Corporate* and/or *EAP Coordinator*, and coordinate aid as appropriate. 6. Responsible for declaring termination of an emergency condition off-site upon receiving notification of an emergency status termination from *Dynegy Corporate*. 7. If necessary, coordinate with *State ESDA/EMA*.
Cleves Police, Miami Township Fire, and Rescue	1. Receive alert status reports from the *ERT* or the *County ESDA/EMA*. 2. If necessary, notify affected parties and general public within inundation areas (see Section 7). 3. Render assistance to Hamilton County ESDA/EMA, as necessary. 4. Render assistance to *Dynegy Corporate* and *Station Management*, as necessary.
Hamilton County Police, Fire and Rescue, and Emergency Services	1. Receive alert status reports from the *ERT* or the *County ESDA/EMA*. 2. If necessary, notify affected parties within the inundation area. 3. Provide mutual aid to other affected areas, if requested and able.

4 EAP RESPONSE

The 4-Step Incident Response Process is shown in Figure 2-1. The Decision Tree shown in Figure 2-3 provides a flowchart for the various elements of the response process. Upon reaching Step 4 of the response process (termination and follow-up), the EAP Coordinator is responsible for notifying the ESDA/EMA's that the condition of the dam/impoundment has been stabilized. The purpose of this section is to provide specific information that can be used during a response. This information is provided in the following tables:

- Table 4-1 provides guidance for determining the response level.
- Table 4-2 provides impoundment pool level trigger elevations.
- Table 4-3 lists emergency actions to be taken depending on the situation.

Table 4-1. Guidance for Determining the Response Level

Event	Situation	Response Level
Spillway flow (see Table 4-2 for relevant elevations)	Primary spillway flow is not causing active erosion and impoundment water surface elevation is below auxiliary spillway crest elevation (if equipped).	Level 0
	Impoundment water surface elevation is at or above auxiliary spillway crest elevation (if equipped). No active erosion caused by spillway flow.	Level 1
	Spillway flow actively causing minor erosion that is not threatening the control section or dam/impoundment stability.	Level 2
	Spillway flow that could result in flooding of people downstream if the reservoir level continues to rise.	Level 2
	Abnormal operation of the spillway system due to blockage or damage that could lead to flooding.	Level 2
	Spillway flow actively eroding the soil around the spillway that is threatening the control section (e.g. undermining) or dam/impoundment stability.	Level 3
	Spillway flow that is flooding people downstream.	Level 3
Embankment overtopping (see Table 4-2 for relevant elevations)	Impoundment water surface elevation at or below typical normal pool fluctuation elevation.	Level 0
	Impoundment water surface elevation above typical high pool fluctuation elevation.	Level 1
	Impoundment water surface elevation within 2 feet of the embankment crest elevation	Level 2
	Impoundment water surface elevation at or above embankment crest elevation.	Level 3
Seepage	New seepage areas in or near the dam/impoundment with clear flow.	Level 1
	New seepage areas with cloudy discharge or increasing flow rate.	Level 2
	Heavy seepage with active erosion, muddy flow, and/or sand boils.	Level 3
Sinkholes	Observation of new sinkhole in impoundment area or on embankment.	Level 2
	Rapidly enlarging sinkhole and/or whirlpool in the impoundment.	Level 3
Embankment cracking	New cracks in the embankment greater than ¼ inch wide without seepage.	Level 1
	Any crack in the embankment with seepage.	Level 2
	Enlarging cracks with muddy seepage.	Level 3

Table 4-1. Guidance for Determining the Response Level

Event	Situation	Response Level
Embankment movement	Visual signs of movement/slippage of the embankment slope.	Level 1
	Detectable active movement/slippage of the embankment slope or other related effects (tension cracking, bulges/heaves, etc.) that could threaten the integrity of the embankment.	Level 2
	Sudden or rapidly proceeding slides of the embankment slopes.	Level 3
Embankment Monitoring Equipment (piezometers, inclinometers, surface displacement mounts, etc.)	Instrumentation readings beyond historic normal.	Level 1
	Instrumentation readings indicate the embankment is susceptible to failure.	Level 2
	Instrumentation readings indicate embankment is at threshold of failure or is currently failing.	Level 3
Earthquake or other event	Measurable earthquake felt or reported on or within 100 miles of the impoundment.	Level 1
	Earthquake or other event resulting in visible damage to the impoundment or appurtenances.	Level 2
	Earthquake or other event resulting in uncontrolled release of water or materials from the impoundment.	Level 3
Security threat	Verified bomb threat or other physical threat that, if carried out, could result in damage to the impoundment.	Level 2
	Detonated bomb or other physical damage that has resulted in damage to the impoundment or appurtenances.	Level 3
Sabotage/ vandalism	Damage to impoundment or appurtenance with no impact to the functioning of the impoundment.	Level 1
	Modification to the impoundment or appurtenances that could adversely impact the functioning of the impoundment. This would include unauthorized operation of spillway facilities.	Level 2
	Damage to impoundment or appurtenances that has resulted in seepage flow.	Level 2
	Damage to impoundment or appurtenances that has resulted in uncontrolled water release.	Level 3

Table 4-2. Impoundment Trigger Elevations

Impoundment	Embankment Crest Elevation	Auxiliary Spillway Crest Elevation	Normal Pool Fluctuation	
			Typical	High
Basin A	507.5 ft.	Not Applicable	501.4 ft.	502.5 ft.
Basin B	507.7 ft.	Not Applicable	499.4 ft.	502.7 ft.

Notes:
*Elevation estimated from 2014 Topographic survey prepared by ESP Associates, P.A. – September 2014

Table 4-3. Step 3: Emergency Actions

Condition	Description of Condition	Action to be Taken
High Water Level/ Large Spillway Release	See Table 4-1 and Table 4-2 for elevations and triggering water levels associated with the impoundments and spillways covered by this EAP.	1. Assess cause of increased reservoir stage, especially during fair weather conditions. 2. Determine Response Level. 3. Make proper notifications as outlined in the Figure 2-2 Notification Flowchart. 4. Perform additional tasks as determined through consultation with the ERT. 5. Make notifications if condition worsens such that downstream flooding is imminent. **Response Level 0**: require enhanced surveillance 3 times per day **Response Level 1**: contact internal chain of command and external response partners as necessary; inspect impoundment minimum 1 time per hour **Response Level 2**: contact internal chain of command; notify ESDA/EMA's and notify external response partners. ESDA/EMA's notify affected parties. **Response Level 3**: contact internal chain of command; notify ESDA/EMA's and notify external response partners. ESDA/EMA's notify affected parties of emergency incident.
Seepage	Localized new seepage or boil(s) observed along downstream face / toe of earthen embankment with muddy discharge and increasing but controllable discharge of water.	1. Measure and record feature dimensions, approximate flow rate, and relative location to existing surface features. Take photos. Document location on a site plan and in inspection notes. 2. Determine Response Level. 3. Make proper notifications as outlined in the Figure 2-2 Notification Flowchart. 4. ERT (with Dam Safety Manager as lead) to determine mitigation actions. The following actions may apply: a) Place a ring of sand bags with a weir at the top towards the natural drainage path to monitor flow rate. If boil becomes too large to sand bag, place a blanket filter over the area using non-woven filter fabric and pea gravel. Attempt to contain flow in such a manner (without performing any excavations) that flow rates can be measured. Stockpile gravel and sand fill for later use, if necessary. b) Inspect the embankment and collect piezometer, water level and seepage flow data daily unless otherwise instructed by the Dam Safety Manager. Record any changes of conditions. Carefully observe embankment for signs of depressions, seepage, sinkholes, cracking or movement. c) Maintain continuous monitoring of feature. Record measured flow rate and any changes of condition, including presence or absence of muddy discharge. 5. Make notifications as outlined in the lower portion of the Notification Flowchart (Figure 2-2) if condition worsens such that failure is imminent.

Table 4-3. Step 3: Emergency Actions

Condition	Description of Condition	Action to be Taken
Sabotage and Miscellaneous Other Issues	Criminal action with significant damage to embankment or structures where significant repairs are required and the integrity of the facility is compromised—condition appears stable with time.	1. Contact law enforcement authorities and restrict all access (except emergency responders) to impoundment. Restrict traffic on embankment crest to essential emergency operations only. 2. Determine Response Level. 3. Make internal notifications as outlined in the upper portion of the Notification Flowchart (Figure 2-2). 4. In conjunction with the Dam Safety Manager, assess extent of damage and visually inspect entire embankment and ancillary structures for additional less obvious damage. Based on inspection results, confirm if extent of damage to various components of the impoundment warrants a revised Response Level and additional notifications. 5. Perform additional tasks as directed by the ERT. 6. Make notifications if conditions worsen.
Embankment Deformation	**Cracks:** New longitudinal (along the embankment) or transverse (across the embankment) cracks more than 6 inches deep or more than 3 inches wide or increasing with time. New concave cracks on or near the embankment crest associated with slope movement.	1. Measure and record feature dimensions, approximate flow rate, and relative location to existing surface features. Take photos. Document location on a site plan and in inspection notes. 2. Restrict traffic on embankment crest to essential emergency operations only. 3. Determine Response Level. 4. Make notifications as outlined in the Figure 2-2 Notification Flowchart. 5. ERT (with Dam Safety Manager as lead) to determine mitigation actions. The following actions may apply: a) Place buttress fill against base of slope immediately below surface feature. Stock pile additional fill. b) Place sand bags as necessary around crack area to divert any storm water runoff from flowing into crack(s). 6. As directed by the Dam Safety Manager, additional inspection and monitoring of the dam may be required. Items may include; inspect the dam on a schedule determined by the engineers; collect piezometer and water level data; and record any changes of condition. Carefully observe dam for signs of depressions, seepage, sinkholes, cracking or movement. 7. Make notifications as outlined in the Figure 2-2 Notification Flowchart if conditions worsen such that failure is imminent.
	Slides / Erosion: Deep slide / erosion (greater than 2 feet deep) on the embankment that may also extend beyond the embankment toe but does not encroach onto the embankment crest and appears stable with time.	1. Measure and record feature dimensions, approximate flow rate, and relative location to existing surface features. Take photos. Document location on a site plan and in inspection report. 2. Restrict traffic on embankment crest to essential emergency operations only. 3. Determine the Response Level. 4. Make notifications as outlined in the Figure 2-2 Notification Flowchart. 5. ERT (with Dam Safety Manager as lead) to determine mitigation actions. Additional actions may include the following items. a) Place sand bags as necessary around slide area to divert any storm water runoff from flowing into slide(s). b) Increase inspections of the dam; collect piezometer and water level data; and record any changes of condition. During inspections, carefully observe dam for signs of depressions, seepage, sinkholes, cracking or movement. 6. Make notifications as outlined in the Figure 2-2 Notification Flowchart if conditions worsen such that failure is imminent.

Table 4-3. Step 3: Emergency Actions

Condition	Description of Condition	Action to be Taken
Embankment Deformation (cont.)	**Sinkholes:** Small depression observed on the embankment or within 50 feet of the embankment toe that is less than 5 feet deep and 30 feet wide or which is increasing with time.	1. Slowly open drain gates to lower pool elevation. 2. Measure and record feature dimensions, approximate flow rate, and relative location to existing surface features. Take photos. Document location on a site plan and in inspection notes. 3. Restrict traffic on embankment crest to essential emergency operations only. 4. Determine Response Level. 5. Make notifications as outlined in the Figure 2-2 Notification Flowchart. 6. ERT (with Dam Safety Manager as lead) to determine mitigation actions. Additional actions may include the following items: a) Backfill the depression with relatively clean earth fill (free of organic materials) generally even with surrounding grade and slightly mounded (6 to 12 inches higher) in the center in order to shed storm water away from the depression. Stock pile additional fill. b) Increase inspections of the dam; collect piezometer and water level data daily unless otherwise instructed by Dam Safety Manager; and record any changes of condition. Carefully observe dam for signs of depressions, seepage, sinkholes, cracking or movement. 7. Make notifications as outlined in the Figure 2-2 Notification Flowchart if conditions worsen such that failure is imminent.
Gate Malfunction or Failure	Sluice gate damaged structurally (sabotage, debris, etc.) with uncontrolled release of water at a constant volume. Condition appears stable.	1. Close any other gates, if open. 2. Determine Response Level. 3. Make notifications as outlined in the Figure 2-2 Notification Flowchart. 4. Obtain instructions from the Dam Safety Manager to determine if there are other methods to stop or slow down the flow of water. 5. If conditions worsen such that failure is imminent, make notifications as outlined in the lower portion of the Figure 2-2 Notification Flowchart.

5 PREPAREDNESS

The intent of this section is to provide information that will be utilized during a response. Established emergency supplies and locations, suppliers, and equipment are provided in Table 5-1. Supplier contact information is listed in Table 5-2.

A coordination meeting shall be conducted annually between representatives of Dynegy Miami Fort, LLC and local emergency responders. This meeting may be in the form of a face-to-face meeting, tabletop exercise, or additional training regarding the EAP.

Table 5-1. Emergency Supplies and Equipment

Item	On-site (Yes/No/Occasionally)	Remarks
Flashlights	Yes	Typically at Miami Fort Power Station Maintenance Facility, contact Shift Supervisor for location(s).
Generator		
Extension Cords		
Fire extinguishers		
Floodlights		
Backhoe	No	Contact Bucher Excavating, Utter Construction (see Table 5-2) and/or other nearby large equipment rental providers for additional large equipment as necessary.
Dozer	Yes	One CAT D5 and one CAT D8. Contact Shift Supervisor for location(s).
Large Equipment (Rental – including excavating equipment, pumps, lighting)	Yes	One 300 Hyundai Short Stick Track Hoe Excavator, one 821E Case Wheel Rubber Tire Front End Loader, one GMC ½ ton site pick-up, one New Holland LS-185 Skid Steer, one Smooth Drum Roller, two Industrial Vacuum Trucks. Contact Shift Supervisor for availability and location(s). Contact Bucher Excavating, Utter Construction (see Table 5-2) and/or other nearby large equipment rental providers for additional large equipment as necessary.
Dump Truck	Yes	One Mack Quint Axle Dump Truck, one Volvo Quint Axle Dump Truck, one International Quint Axle Dump Truck. Contact Shift Supervisor for location(s).
Pump and Hoses	Yes	Three Portable Water Pumps. Contact Shift Supervisor for availability and location(s). Contact Allied Technical Services or Sunbelt Rentals for high capacity portable pumps (see Table 5-2).
Sandbags and Sand	Yes	Soil stockpiled on-site. Contact Shift Supervisor for location(s). Contact Dayton Bag & Burlap or Max Katz Bag Company, Inc for additional sandbags (see Table 5-2).
Fill (Stone, aggregate, sand)	Yes	Medium sized aggregate available on-site. Contact Shift Supervisor for location(s). Contact listed suppliers in Table 5-2 for gravel, sand, and riprap fill as necessary.
Concrete/grout	No	Contact Cannon U-Cart Concrete and/or Hilltop Ready Mix for concrete/grout (see Table 5-2).
Geotextile Filter Fabric	Yes	Contact Shift Supervisor for location(s).
Plastic Sheeting	Yes	Contact Shift Supervisor for location(s).
Rope	Yes	Contact Shift Supervisor for location(s). Should be maintained in close proximity to any features that might require immediate access.
Personal Flotation Devices	Yes	Contact Shift Supervisor for location(s).

Table 5-2. Supplier Addresses

Supply/Rental Item(s)	Supplier Contact Information	Distance from Site (miles)	Address
Backhoe, Large Equipment (Rental – including excavating equipment, pumps, lighting)	**Bucher Excavating** (513) 353-3700	5.6	3707 Hayes McKinney Road North Bend, OH 45052
	Utter Construction (513) 876-8616	63.7	1302 OH-133 Bethel, OH 45106
Pump and Hoses	**Allied Technical Services** (513) 793-0499	33.5	3460 Mustafa Drive Cincinnati, OH 45241
	Sunbelt Rentals (859) 283-5544	26.5	4631 Spring Grove Avenue Cincinnati, OH 45232
Fill (Stone, aggregate, sand)	**Martin Marietta Aggregates** (513) 492-5638	5.4	10905 US-50 North Bend, OH 45052
	Watson Gravel, Inc. (513) 863-0070	6.8	10569 Suspension Bridge Road Harrison, OH 45030
Sandbags and Sand	**Dayton Bag & Burlap** (937) 253-1726	69.0	322 Davis Avenue Dayton, OH 45403
	Max Katz Bag Company, Inc. (317) 635-9561	99.6	235 S La Salle Street Indianapolis, IN 46201
Concrete/grout	**Cannon U-Cart Concrete** (513) 372-6337	9.5	6290 Dry Fork Road Cleves, OH 45002
	Hilltop Ready Mix (513) 621-4995	19.8	511 W Water Street Cincinnati, OH 45202

6 FACILITY/IMPOUNDMENT DESCRIPTION

The impoundments included in this EAP are described as follows and illustrated in Figure 1-2. Table 6-1 contains additional geometric details for each impoundment.

The Miami Fort Power Station is located within Miami Township of Hamilton County, Ohio. The facility is located in the southwest corner of Ohio about 3,500 feet east of the confluence of the Ohio River and the Great Miami River. The facility is bounded to the south by the Ohio River and to the west by the Great Miami River approximately 1 mile upstream of the Interstate-275 bridge over the Ohio River and 2.25 miles upstream of Lawrenceburg, Indiana, the nearest downstream city.

Basin A is located west of the Miami Fort Power Station power plant, approximately 1,250 feet from the power house and 1,500 feet east of the confluence of the Ohio River and the Great Miami River. The Ohio River flows east to west and bounds the impoundment to the south. Basin A is situated directly to the east of Basin B, separated by a shared dike.

Basin A is a diked impoundment that was originally constructed prior to 1959 as a settling pond for CCR with an embankment elevation of 500 feet. A 1976 soil investigation showed the embankment to be primarily comprised of compacted silty clay. Basin B was added to the west between 1979 and 1982 and the embankments of the basins were raised to an approximate elevation of 510 feet. Basin A has a footprint of approximately 31 acres with approximately 5 acres being the impoundment. The water capacity of Basin A is approximately 174 acre-feet with about 68 acre-feet of stored water at normal pool elevation. The lowest crest elevation of the impoundment is at elevation 507.5 feet located on the northeast side of the perimeter. The crest is 52.5 feet above the normal pool elevation of the Ohio River (El. 455 feet). The western crest of Basin A is at an elevation of approximately 510 feet.

Basin A contains "stabilized" material deposited in designated portions of the impoundment (stabilization is achieved by filling, heavy equipment traffic and natural vegetation growth). As a result, approximately 10 acres of the 31 acres of the impoundment is open water contained by the dike. Water is able to pass between Basin A and Basin B through a 36-inch diameter high density polyethylene (HDPE) culvert with a corrugated metal pipe (CMP) extension. Basin B's standpipe acts as the principal spillway structure as Basin B has a lower normal pool level than Basin A (according to 2014 survey drawings which show a normal pool elevation within Basin B of 499.38 feet and a normal pool elevation within Basin A of 501.36 feet). Basin B's principal spillway is a 42-inch corrugated metal pipe discharging to a shared outlet pipe with Basin A to the Ohio River. The spillway has an elevated standpipe with an undetermined crest elevation. The crest of Basin B's standpipe was assumed to be at normal pool elevation (499.38 feet). Basin A has a similar standpipe outfall structure to Basin B; however, flow through the outlet is controlled by a gate structure and is currently not in use.

Basin B was constructed as a settling pond for CCR. The basin has a surface area of approximately 27 acres with approximately 7 acres being the impoundment. The water capacity of Basin B is approximately 377 acre-feet. The lowest crest elevation of the impoundment is 507.7 feet located on the southwest side of the perimeter. The crest is 52.7 feet above the normal pool elevation of the Ohio River (El. 455 feet). The eastern crest of Basin B is at an elevation of approximately 510 feet. The principal spillway is a 42-inch corrugated metal pipe discharging to a shared outlet with Basin A to the Ohio River. The spillway has an elevated standpipe with an invert elevation of 499.5 feet.

Table 6-1. Station Impoundment Characteristics

Feature/Parameter	Basin A	Basin B
Maximum Embankment Height	*50 ft.	*50 ft.
Length of Dam	4,600 ft.	3,750 ft.
Crest Width	*15-20 ft.	*15-20 ft.
Crest Elevation	507.5 ft.	507.7 ft.
Reservoir Area at Top of Dam	26 acres	20 acres
Storage Capacity at Top of Dam	1,050 acre-ft. (NID)	830 acre-ft. (NID)
Primary Spillway Type	36" HDPE Pipe between Basin A and Basin B	42" CMP Morning Glory (NID)
Primary Spillway Crest Elevation	499.5 ft.	499.4 ft. (Assumed based on Normal Pool)
Storage Capacity at Primary Spillway Elevation	355 acre-ft. (NID – Normal Storage)	Approximately 600 acre-ft.
Reservoir Area at Normal Water Surface Elevation	10 acres	16 acres
Auxiliary Spillway Type	Not Applicable	Not Applicable
Auxiliary Spillway Crest Elevation	Not Applicable	Not Applicable

Notes:

- *Source: "Assessment of Dam Safety Coal Combustion Surface Impoundments (Task 3) Final Report – Duke Energy Corporation Miami Fort Generating Station", Prepared for Lockheed Martin by CHA. February 23, 2010. Unless denoted by (NID), all remaining values are GIS estimated.
- Survey Data obtained from (Topographic Survey of Duke Ash Ponds at the Miami Fort Power Station, prepared by ESP Associates, P.A. – September, 2014)
- 2.5-Feet Resolution LiDAR DEM - Downloaded from http://ogrip.oit.ohio.gov/ (January, 2016)
- Elevations are in reference to Mean Sea Level (MSL), NAVD88.

7 BREACH INUNDATION MAPS AND POTENTIAL IMPACTS

Inundation maps for Basin A and Basin B potential breach scenarios are provided in this section. It is the Hamilton County ESDA/EMA's responsibility to keep a current list of affected parties/properties to contact in the case of emergencies that result in Response Level 2 or 3. This list should encompass all properties within and adjacent to the probable inundation extents shown in the provided maps.

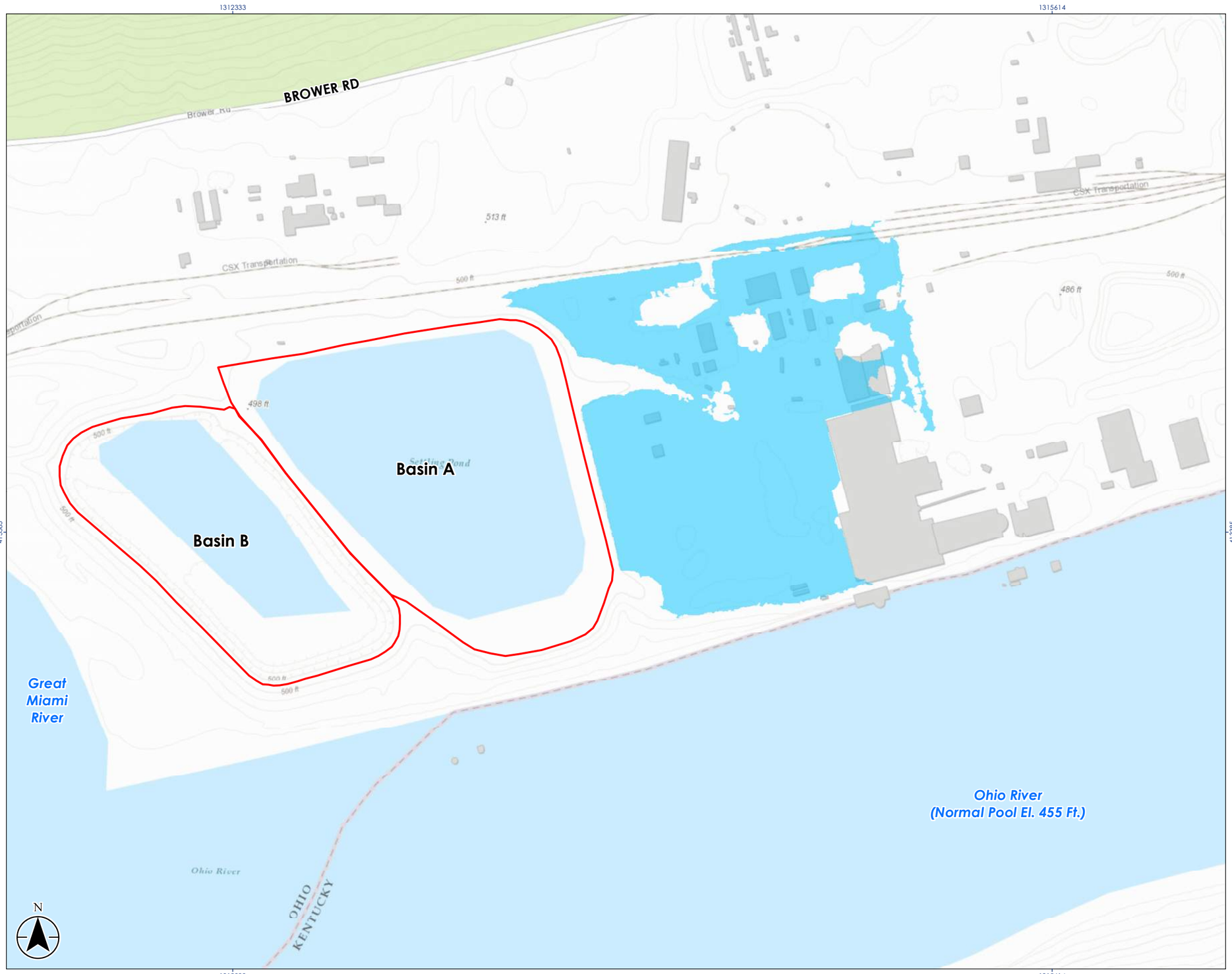
The methodology used to identify probable inundation extents for potential breach scenarios varied as a function of the impoundment size, location, surrounding topography, and surrounding structures/facilities/waterbodies.

A 2-dimensional (2-D) dam breach analysis was performed for Basin A to determine possible inundation limits for the "Sunny Day", 100-Year, and Probable Maximum Flood (PMF) event scenarios. The breach analysis included stormwater runoff calculations, reservoir pool routing and breach failure, and 2-D hydraulic routing of the floodwave over land and into the Ohio River.

The inundation limits were mapped using the modeled maximum water surface elevations (WSE) and a combination of digital elevation data from the topographic survey prepared by ESP Associates, P.A. – September, 2014 and DEM data downloaded from the Ohio OGRIP website.

A visual analysis was performed for Basin B to determine possible inundation limits for a breach scenario. The inundation limits were mapped using a combination of digital elevation data from the topographic survey prepared by ESP Associates, P.A. – September, 2014 and DEM data downloaded from the Ohio OGRIP website.

Approximate inundation areas are illustrated in Figure 7-1 and Figure 7-2.



Stantec DYNEGY

Legend

- CCR Surface Impoundment Boundary
- Expected Breach Inundation Area

1 inch = 400 feet

0 200 400 800 Feet

1:4,800 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Base features: produced from project design elements
3. Base Imagery: Orthoimagery - Hamilton County, 2015.

Project Location
Latitude: 39.112967
Longitude: -84.803705
Hamilton County, Ohio

175605019
Prepared by DTH on 2017-04-12
Technical Review by NS on 2017-04-12
Independent Review by MH on 2017-04-12

Client/Project
Miami Fort Power Station
Emergency Action Plan

Figure No.
7-1

Title
Inundation Map
Basin A

Stantec DYNEGY

Legend

- CCR Surface Impoundment Boundary
- Expected Breach Inundation Area

1 inch = 400 feet

0 200 400 800 Feet

1:4,800 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Base features: produced from project design elements
3. Base Imagery: Orthoimagery - Hamilton County, 2015.

Project Location
Latitude: 39.112967
Longitude: -84.803705
Hamilton County, Ohio

175605019
Prepared by DTH on 2017-04-12
Technical Review by NS on 2017-04-12
Independent Review by MH on 2017-04-12

Client/Project
Miami Fort Power Station
Emergency Action Plan

Figure No.
7-2

Title
Inundation Map
Basin B

U:\175\175605019\gis\mxd\EAP\Final_04_12_2017\013_Inundation_web_fig7-2b_20170412.mxd Revised: 2017-04-12 By: dhayson