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Interstate Power and Light Company
Lansing Generating Station
CCR Surface Impoundment - Emergency Action Plan
154.018.015.002
Plan issued: April 6, 2017
Version 1.0 – Revision 0.0

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INTERSTATE POWER AND LIGHT COMPANY
LANSING GENERATING STATION
2320 Power Plant Drive
Lansing, Iowa 52151

This Emergency Action Plan has been prepared to identify potential emergency conditions and specify preplanned actions to be followed to minimize loss of life, environmental damage, and property damage. To the best of my knowledge, all information contained in this document is correct, and I am authorized to implement and approve this Emergency Action Plan.

SIGNATURE: _____

NAME: MATTHEW P COLE

TITLE: PLANT MANAGER

DATE: 4/7/2017

1. EMERGENCY RESPONSE

1.1 EAP Personnel and Responsibilities (§257.73(a)(3)(i)(B))

The roles and responsibilities of the personnel who discover a safety emergency event and who implement this Emergency Action Plan (EAP) are defined in Table 1-1 at the end of this section.

Contact information of EAP personnel is provided in the facility's Emergency Notification Chart.

1.2 EAP Activation (§257.73(a)(3)(v))

This EAP must be implemented once events or circumstances involving the Coal Combustion Residual (CCR) surface impoundment that represent a safety emergency event are detected, which may include conditions identified during inspections by a qualified person, during an annual inspection by a qualified Professional Engineer (PE), and during periodic technical assessments (e.g. structural stability assessment) of the CCR surface impoundment.

1.3 Safety Emergency Events (§257.73(a)(3)(i)(A))

Safety emergency events are unique to each CCR surface impoundment and, to the extent possible, are identified within this EAP. Events or circumstances that represent a safety emergency event are categorized into three levels, which are identified as follows:

- **Non-failure:** A non-failure safety emergency event level is appropriate for a safety emergency event that will not, by itself, lead to a failure, but requires investigation and notification of internal and/or external personnel. Generally, non-failure safety emergency events shall be identified and resolved in accordance with the Alliant Energy (AE) Inspection and Maintenance (I&M) Plan and Site-Specific I&M Plan.

- **Potential failure:** A potential failure safety emergency event level indicates conditions are developing at the CCR surface impoundment that could lead to a failure.
- **Imminent failure:** An imminent failure safety emergency event level indicates a CCR surface impoundment has failed, is failing, or is about to fail. Imminent failures likely involve a continuing and progressive loss of embankment material from the CCR surface impoundment.

Examples of non-failure, potential failure, and imminent failure safety emergency events are identified in Table 1-2 at the end of this section.

1.4 Response Action and Notification Process (§257.73(a)(3)(i)(B) and §257.73(a)(3)(i)(C))

If a potential or imminent failure safety emergency event is detected, the following steps shall be taken:

- Discoverer of the safety emergency event shall assess the area to ensure no other on-site personnel are in danger. If so, the area should be cleared **IMMEDIATELY**.
- Discoverer shall **IMMEDIATELY** notify the facility manager, or designee.
- The facility manager, or designee, shall utilize the response action and notification checklist, provided in Table 1-3 at the end of this section, in order to confirm all necessary response actions and notifications are conducted.
- The facility manager, or designee, shall document the identification, notification, and response actions of the safety emergency event per Corporate Policy ENV-107 "Environmental Incident Reporting and Tracking".

Contact information for local emergency responders, as well as local/state/federal regulators, is identified on the facility's Emergency Notification Chart.

A list of example response actions that may be taken to address a potential failure safety emergency event is provided in Table 1-4 at the end of this section.

1.5 Evacuation and Assembly Procedures

In the event of imminent failure, evacuation procedures may be implemented by the facility manager, or designee. Evacuation may include both on-site personnel and public that may be affected by the safety emergency event. The following steps should be taken if evacuation is necessary:

- Notify emergency responders of the imminent failure and potential impacts.
- Use on-site communication systems to instruct on-site personnel, contractors, and visitors to evacuate and assemble in the nearest designated assembly location, as identified in Figure 3.
- Conduct roll call at the assembly locations.

1.6 Safety Emergency Event Termination and Post-Response Action Assessment

A safety emergency event may only be terminated if a potential failure or imminent failure safety emergency event no longer poses a threat to public or on-site personnel.

Termination of a safety emergency event, for on-site personnel, shall be the responsibility of the facility manager, or designee. Termination shall only be determined once the facility manager, or designee, has consulted with the local emergency responders, AE Corporate Environmental, and other involved emergency response entities such as engineers, emergency response contractors, and local/state/federal regulators.

The local emergency responders shall be responsible for terminating the emergency response and any public evacuation.

Following the termination of a safety emergency event the facility manager, or designee, in coordination with local emergency responders (if applicable), shall conduct an evaluation of the safety emergency event including all emergency response participants. At a minimum, the following should be discussed and evaluated in a post-emergency response action assessment:

- Events or conditions leading up to, during, and following the safety emergency event;
- Significant actions taken by each participant and improvements for future safety emergency events;
- All strengths and deficiencies observed in the safety emergency event management process, materials, equipment, staffing levels, and leadership; and
- Corrective actions identified and a timeline to implement assigned recommendations.

The results of the post-emergency response action assessment shall be documented per Corporate Policy ENV-107 “Environmental Incident Reporting and Tracking,” and shall be used as a basis for any necessary revisions to this EAP.

Table 1-1. EAP Personnel and Responsibilities

Personnel	Responsibilities
Discoverer	• Assess the area to ensure no on-site personnel are within the vicinity of the identified safety emergency event • IMMEDIATELY notify the facility manager, or designee
Facility Manager or Designee	• Implement the EAP once a safety emergency event is detected • Determine the level of the safety emergency event • Notify AE Corporate Environmental and provide regular status report updates • Notify local emergency responders based on the safety emergency event level and provide regular status report updates • Implement response actions • Document the detection, notification, and response actions per Corporate Policy ENV-107 "Environmental Incident Reporting and Tracking" • Implement evacuation procedures as necessary • Terminate a safety emergency event once resolved • Complete a post-emergency response action assessment and document per Corporate Policy ENV-107 "Environmental Incident Reporting and Tracking" • Coordinate annual meetings with local emergency responders • Coordinate EAP training and exercises • Review and update the EAP on an annual basis • Signatory authority of the EAP and any amendments
AE Corporate Environmental	• Assist in EAP training and exercises • Assist with determining the safety emergency event level • Notify local, state, and federal regulators, as needed • Assist with post-emergency response action assessments

Table 1-2. Example Safety Emergency Events

Event	Situation	Level
Embankment Overtopping	Elevated water level higher than the normal operating level and has the potential to overtop an embankment	**Potential**
	Uncontrolled release of CCR and/or CCR wastewater over the crest of an embankment	**Potential**
	Sudden or rapid loss of embankment material during an uncontrolled release of CCR and/or CCR wastewater from embankment overtopping or erosion	**Imminent**
Seepage	New seepage or leakage on the downstream slope of an embankment	**Non-failure**
	Localized seepage or boil(s) along the downstream slope of an embankment with a muddy/cloudy discharge and increasing but controllable discharge of water	**Potential**
	Seepage along the downstream slope of an embankment with a muddy/cloudy discharge and uncontrollable discharge of water	**Imminent**
Embankment Cracking, Movement, or Deformation	New cracks in an embankment with no seepage	**Non-failure**
	Visual movement/slippage of an embankment slope	**Non-failure**
	New longitudinal or transverse cracking along an embankment that increase with time and produces observable seepage	**Potential**
	Concave cracks on or near an embankment crest associated with slope movement	**Potential**
	Deep slides/erosion on an embankment that may extend beyond an embankment toe	**Potential**
	Sudden or rapid slide of an embankment slope	**Imminent**
Sinkholes	Sinkholes, or small depressions, observed on an embankment or near the toe of an embankment	**Potential**
	Rapidly enlarging sinkhole	**Imminent**
Instruments	Discernible or significant changes detected in instrumentation readings	**Non-failure**
Seismic Activity	Measurable seismic activity felt/reported within the surrounding community of the topographic region and resulted in no visible embankment damage	**Non-failure**
	Measurable seismic activity felt/reported within the surrounding community of the topographic region and resulted in visible embankment damage	**Potential**
	Measurable seismic activity felt/reported within the surrounding community of the topographic region and resulted in uncontrolled release of CCR and/or CCR wastewater	**Imminent**
Security Threat	Presence of unauthorized personnel that have caused damage that could adversely impact impoundment operations	**Non-failure**
	Sabotage or other criminal action with significant damage to an embankment or structures where the integrity is compromised and repairs are required	**Potential**
	Sabotage or other criminal action with significant damage to an embankment or structures where damage has resulted in uncontrolled release of CCR and/or CCR wastewater	**Imminent**
Hydraulic Structure	Debris within a hydraulic structure (i.e. pipe, manhole, channel, spillway, etc.) that may adversely affect impoundment operations	**Non-failure**
	Hydraulic structure which has significant deterioration, deformation, distortion, bedding deficiencies, sedimentation, or blockage that have adversely affected impoundment operations	**Potential**

Table 1-3. Response Action and Notification Checklist

STEP 1. Detection and Evaluation	Yes	No
Did the discoverer clear the area of all on-site personnel?	☐	☐
Did the discoverer notify the facility manager?	☐	☐
Has the facility manager or designee confirmed the area was clear of all on-site personnel?	☐	☐
Has the facility manager or designee assessed the area and identified the cause?	☐	☐
Has the facility manager or designee notified AE Corporate Environmental?	☐	☐
Has the facility manager or designee determined the level of the safety emergency event? If Yes, circle the determined level: **Non-Failure** / **Potential Failure** / **Imminent Failure** *[If determined to be potential or imminent failure, utilize checklists below. A non-failure shall be resolved in accordance with the I&M Plans]*	☐	☐
STEP 2. Potential Failure – Response Action and Notification	**Yes**	**No**
Can on-site equipment/materials/supplies be utilized safely to address the safety emergency event?	☐	☐
Should local emergency responders be notified? *[If yes, determine which local emergency responders. See Emergency Notification Chart for contact information]*	☐	☐
Should local/state/federal regulators be notified? *[If yes, determine which regulators. See Emergency Notification Chart for contact information]*	☐	☐
Should emergency response contractors be contacted to assist with response actions? *[If yes, determine which emergency response contractor based on the required response actions]*	☐	☐
Should an engineering assessment be completed? *[If yes, determine the appropriate engineer based on the safety emergency event]*	☐	☐
Does the safety emergency event level require modification from potential failure to imminent failure? *[If yes, utilize the imminent failure response action and notification checklist identified below]*	☐	☐

Table 1-3. Response Action and Notification Checklist (Cont.)

STEP 3. Imminent Failure – Response Action and Notification	Yes	No
Have on-site personnel, contractors, and visitors been notified to evacuate the affected areas and assemble in the designated assembly locations?	☐	☐
Have local emergency responders been notified of the imminent failure? *[See the facility Emergency Notification Chart for contact information]*	☐	☐
Have local/state/federal regulators been notified of the imminent failure? *[See the facility Emergency Notification Chart for contact information]*	☐	☐
STEP 4. Documentation and Termination	**Yes**	**No**
Has the safety emergency event been addressed so that there is no longer a potential or imminent failure? *[If yes, terminate the safety emergency event]*	☐	☐
Has a post-response action assessment of the safety emergency event been completed? *[See Corporate Policy ENV-107 "Environmental Incident Reporting and Tracking" for documenting the post-response action assessment]*	☐	☐

Table 1-4. Example Response Action Options – Potential Failure

Event	Description	Example Response Action Options
High Water Level	Water level is higher than normal operating level and has potential to overtop an embankment	• Inspect for signs of embankment overtopping, as well as erosion of embankment material along the crest and downstream slope. • Utilize on-site equipment/materials/supplies to respond to the safety emergency event. o If operations allow, reduce or reroute storm water and/or process wastewater flows from discharging into the impoundment. o If available, utilize portable water pump(s) for lowering the surface water elevation. • Contact emergency response contractor(s) to assist with emergency response actions. • Contact engineer to conduct assessment. Following the assessment, implement a response plan.
Embankment Overtopping	Uncontrolled release of CCR and/or CCR wastewater over an embankment crest	• Inspect for signs of embankment erosion and for sudden or rapid loss of embankment material. • Utilize on-site equipment/materials/supplies to respond to the safety emergency event. o If operations allow, reduce or reroute storm water and/or process wastewater flows from discharging into the impoundment. o If available, utilize portable water pump(s) for lowering the surface water elevation. • Contact engineer to conduct assessment. Following the assessment, implement a response plan. • Contact emergency response contractor(s) to assist with emergency response actions. • Contact engineer to conduct assessment. Following the assessment, implement a response plan.
Seepage	Localized seepage or boil(s) along the downstream slope of an embankment with a muddy/cloudy discharge and increasing but controllable discharge of water	• Inspect for signs of depressions, seepage, sinkholes, cracking, movement, and presence/absence of muddy discharge. • Demarcate the area, document the location, and take photographs. Record dimensions and relative location to existing surface features. • Utilize on-site equipment/materials/supplies to respond to the safety emergency event. o Place ring of sand bags, with weir at the top, towards the natural drainage path. Contain flow in such a manner that flow rates can be measured. o If necessary, stockpile fill material for later use. • Collect piezometer data, surface water level elevations, and seepage flow rate data. Monitor the embankment and record any change in conditions. • Contact emergency response contractor(s) to assist with emergency response actions. • Contact engineer to conduct assessment, which may include a geotechnical investigation. Following the assessment, implement a response plan.
Hydraulic Structure Operational Issues	Hydraulic structure with significant deterioration, deformation, distortion, bedding deficiencies, sedimentation, or blockage that have adversely affected operations	• Inspect the hydraulic structure for signs of deterioration, deformation, distortion, bedding deficiencies, sedimentation, or blockage • Utilize on-site equipment/materials/supplies to respond to the safety emergency event. o If surface water elevation increasing within the impoundment, and if facility operations allow, reduce or reroute storm water and/or process wastewater flows from discharging into the impoundment. o If surface water elevation increasing within the impoundment, utilize portable water pump(s) for managing surface water elevation. • Contact emergency response contractor(s) to assist with emergency response actions. • Contact engineer to conduct assessment. Following the assessment, implement a response plan.
Seismic Activity	Measureable seismic activity felt or reported within the surrounding community of the topographic region and resulted in visible damage	• Inspect for signs of embankment stability. • Utilize on-site equipment/materials/supplies to respond to the safety emergency event. • Contact emergency response contractor(s) to assist with emergency response actions. • Contact engineer to conduct assessment. Following the assessment, implement a response plan.
Sabotage	Sabotage or other criminal action with significant damage to an embankment or structures and the integrity is compromised	• Contact law enforcement authorities and restrict access in area to essential emergency response personnel only. • Inspect for signs of embankment stability. • Demarcate the area, document the location, and take photographs. • Utilize on-site equipment/materials/supplies to respond to the safety emergency event. o If necessary, lower water elevation within the impoundment. • Contact emergency response contractor(s) to assist with emergency response actions. • Contact engineer to conduct assessment. Following the assessment, implement a response plan.

Table 1-4. Example Response Action Options – Potential Failure (Cont.)

Event	Description	Example Response Action Options
Embankment Deformation	<u>Cracks:</u> Longitudinal or transverse cracking along embankment that increase with time and produces observable seepage Concave cracks on or near an embankment crest associated with slope movement	• Inspect for signs of depressions, seepage, sinkholes, cracking, or movement. • Demarcate the area, document the location, and take photographs. Record dimensions and relative location to existing surface features. • Utilize on-site equipment/materials/supplies to respond to the safety emergency event. o Place buttress fill against base of downstream slope below surface feature and extending beyond visible feature limits (parallel to embankment). o If necessary, place sand bags around crack area to divert storm water runoff from flowing into crack(s). o If necessary, stockpile fill material for later use. • Collect piezometer data, surface water level elevations, and seepage flow rate data. Monitor the embankment and record any change in conditions. • Contact emergency response contractor(s) to assist with emergency response actions. • Contact engineer to conduct assessment, which may include a geotechnical investigation. Following the assessment, implement a response plan.
	<u>Slides/Erosion:</u> Deep slides/erosion on an embankment that may extend beyond an embankment toe	• Inspect for signs of depressions, seepage, sinkholes, cracking, or movement. • Demarcate the area, document the location, and take photographs. Record dimensions and relative location to existing surface features. • Utilize on-site equipment/materials/supplies to respond to the safety emergency event. o Re-establish the embankment slope with fill material. Place buttress fill against base of downstream slope at the slide location that extends beyond the downstream limits (perpendicular to embankment) and extending beyond visible feature limits at either end (parallel to embankment). o If necessary, place sand bags around slide area to divert any storm water runoff from flowing into slide(s). o If necessary, stockpile additional fill for later use. • Collect piezometer data and surface water level elevations. Monitor the embankment and record any change in conditions. Consider survey monitoring. • Contact emergency response contractor(s) to assist with emergency response actions. • Contact engineer to conduct assessment, which may include a geotechnical investigation. Following the assessment, implement a response plan.
	<u>Sinkholes:</u> Sinkholes, or small depressions, observed on an embankment or near the toe of an embankment	• Inspect for signs of depressions, seepage, sinkholes, cracking, or movement. • Demarcate the area, document the location, and take photographs. Record dimensions and relative location to existing surface features. • Utilize on-site equipment/materials/supplies to respond to the safety emergency event. o Slowly lower water elevation within the impoundment. o Backfill the depression with relatively clean earth fill (free of organic materials) generally even with surrounding grade and slightly mounded in the center in order to shed storm water away from the depression. o If necessary, stockpile additional fill for later use. • Collect piezometer data and surface water level elevations. Monitor the embankment and record any change in conditions. • Contact emergency response contractor(s) to assist with emergency response actions. • Contact engineer to conduct assessment, which may include a geotechnical investigation. Following the assessment, implement a response plan.

2. SUPPLEMENTAL INFORMATION

This EAP has been prepared in accordance with the requirements of §257.73(a)(3) of the United States Environmental Protection Agency (USEPA) published Final Rule for Hazardous and Solid Waste Management System – Disposal of Coal Combustion Residual (CCR Rule).

Additionally, this EAP generally follows the Federal Emergency Management Agency (FEMA) Federal Guidelines for Dam Safety, Emergency Action Planning for Dams[1] guidance document referenced within the Preamble of the CCR Rule (80 FR 21378).

2.1 Applicability

2.1.1 CCR Rule Applicability

The CCR Rule requires an owner or operator of a CCR surface impoundment that is assigned a significant or high hazard potential, per the periodic hazard potential classification assessment (§257.73(a)(2)), must prepare and maintain a written EAP (§257.73(a)(3)). Additionally, the EAP be certified by a qualified PE.

2.1.2 EAP Applicability

The Interstate Power and Light Company (IPL) Lansing Generating Station (LAN) in Lansing, Iowa has one existing CCR surface impoundment. In accordance with the Hazard Potential Classification Assessment - (§257.73(a)(2)), the CCR surface impoundment has been classified as follows:

[1] FEMA 64, Federal Guidelines for Dam Safety, Emergency Action Planning for Dams, July 2013

- LAN Upper Ash Pond – Significant Hazard Potential

This EAP has been prepared for the CCR surface impoundment at LAN that is classified as having a significant hazard potential, as identified above.

2.2 Facility Information

LAN is located three miles southeast of Lansing, Iowa on the western shore of the Mississippi River in Allamakee County, at 2320 Power Plant Drive, Lansing, Iowa. LAN is a fossil-fueled electric generating station that has used four steam turbine electric generating units throughout its history. Unit 1, Unit 2, and Unit 3 were retired by 2014 and Unit 4 is the only operating unit. Sub-bituminous coal is the primary fuel for producing steam at LAN. The CCR at LAN is categorized into three types: bottom ash, fly ash, and scrubber byproduct. Fly ash is collected by electrostatic precipitators and pneumatically conveyed to an on-site fly ash silo, which is equipped with a baghouse for dust control. The fly ash is then either transported off-site for beneficial reuse, landfilled (in the case of high loss on ignition), or sluiced to a CCR surface impoundment identified as the LAN Upper Ash Pond (typically during startup and shutdown). Bottom ash is sluiced to the LAN Upper Ash Pond, where it is dredged, dewatered, and transported to the onsite landfill. The LAN Upper Ash Pond is located south of the generating plant and is the only existing CCR surface impoundment. Scrubber byproduct consists of fly ash, unreacted lime, and activated carbon. Scrubber byproduct is collected in the byproduct silo prior to being landfilled.

General Facility Information:

Date of Initial Facility Operations:	1946
IDNR State ID No.	03-UDP-01-15

NPDES Permit Number:	IA0300100
Latitude / Longitude:	43°20'1.62"N 91°10'11.97"W
Site Coordinates:	Section 02, Township 98 North, Range 03 West
Nameplate Ratings:	Unit 1 (1948): 16.6 MW (Retired)
	Unit 2 (1949): 11.4 MW (Retired)
	Unit 3 (1957): 35.8 MW (Retired)
	Unit 4 (1977): 270 MW

2.2.1 LAN Upper Ash Pond (§257.73(a)(3)(i)(D))

The LAN Upper Ash Pond is located southwest of the generating plant and south of Power Plant Drive. The LAN Upper Ash Pond receives influent flows from the Unit 4 boiler floor sumps, water treatment sumps, fly ash hydroveyor system, storm water runoff from the active dry ash landfill south of the impoundment and hillside east of the impoundment, as well as sluiced fly ash and bottom ash. The LAN Upper Ash Pond is the only receiver of sluiced CCR at LAN. The CCR is sluiced from the generating plant to the south east corner of the LAN Upper Ash Pond. The sluiced CCR discharges into the southeast corner of the LAN Upper Ash Pond where the majority of the CCR settles. Ongoing maintenance dredging is conducted in the southern portion of the LAN Upper Ash Pond. The dredged CCR is temporarily stockpiled and dewatered prior to being transported to the on-site active dry ash landfill located south of the LAN Upper Ash Pond.

The sluiced water that is discharged into the LAN Upper Ash Pond flows to the west prior to flowing north through a series of five interconnected settling areas separated by intermediate dikes. Settling Area #1 is the furthest south, while Settling Area #5 is the furthest north. The intermediate dikes have 30-inch

diameter corrugated metal pipes on the west and east sides, which hydraulically connect the five settling areas. The water from each settling area flows north until it enters the large open area of the LAN Upper Ash Pond.

The north end of the LAN Upper Ash Pond has a concrete wet well and overflow weir structure that controls the LAN Upper Ash Ponds water level, and is identified as Weir Box #1. The water in the LAN Upper Ash Pond overflows a stop log weir into Weir Box #1, and then through a 24-inch diameter corrugated metal pipe under Power Plant Drive, and into Weir Box #2. The water leaves Weir box #2 through a 24-inch diameter high density polyethylene pipe, which connects Weir Box #2 to Weir Box #3 in the backfilled former Lower Ash Pond. The water flows through Weir Box #3 and discharges to the west through a 24-inch diameter corrugated metal pipe into Unnamed Creek #1. Unnamed Creek #1 flows to the north into Unnamed Creek #2 which then discharges into the Mississippi River. The National Pollution Discharge Elimination System (NPDES) Outfall 002 monitoring location, which consists of flow monitoring instrumentation, is located at Weir Box #1 and compliance samples are collected from Weir Box #3.

The total surface area of the LAN Upper Ash Pond, which includes the intermediate dikes that separates the settling areas, is approximately 13.4 acres. The LAN Upper Ash Pond has a western embankment height of approximately 20 feet from the crest to the toe of the downstream slope. The interior storage height of the LAN Upper Ash Pond, from the water surface of the five settling areas to the original bottom, averages approximately 27.25 feet. The interior storage height from the top of the intermediate dikes to the original bottom averages approximately 28.25 feet. The total volume of impounded CCR and water within the LAN Upper Ash Pond is approximately 568,000 cubic yards.

Mis-operation or failure of the LAN Upper Ash Pond would likely result in the release of CCR to either the west or north as the east and south sides of the CCR surface impoundment are incised. Allamakee County Highway X-52 (Great River Road) is located to the west of the CCR surface impoundment. A release of CCR to the west has the potential to engulf the Great River Road. Additionally, a release to the west has the potential to enter Unnamed Creek #1 and extend beyond the facility property limits as Unnamed Creek #1 combines with the high flow rate of the condenser discharge channel, which is located north of the CCR surface impoundment. The high flow rate of the condenser discharge channel would likely cause a release of CCR into the Mississippi River where CCR has the potential to be transported downstream causing economic losses and environmental damages beyond the facility property limits. A release of CCR to the north would disrupt Power Plant Drive, which is the primary access point to the facility and would restrict facility access/egress. Additionally, a release of CCR to the north has the potential to enter Unnamed Creek #1 and follow the same path previously noted.

2.3 Response Action Preparedness

Preparedness for responding to a safety emergency event consists of activities and actions taken before the development of a safety emergency event. The following sub-sections summarize the various preparedness efforts conducted at the facility.

2.3.1 Surveillance and Monitoring (§257.73(a)(3)(i)(A))

Prompt detection and evaluation of a safety emergency event is critical to the effectiveness of this EAP, as well as to the timely emergency response. In order to detect a safety emergency event the facility has developed and implemented an I&M Plan which summarizes the applicable guidance for

inspection, monitoring, and maintenance of each CCR surface impoundment. The I&M Plan follows the CCR Rule, as well as the guidance documents that the USEPA references within the Preamble of the CCR Rule.

The I&M Plan is a tool utilized by the facility in order to prevent an uncontrolled release of CCR and/or CCR wastewater into the surrounding environment. The I&M Plan identifies the factors which may affect the long-term stability of each CCR surface impoundment and recommends activities in order to maintain the integrity of each CCR surface impoundment. The I&M Plan addresses the key roles of I&M personnel, identifies operation and maintenance activities currently implemented at the facility, describes the conditions of each CCR surface impoundment, and provides guidance on the implementation of inspection, monitoring, maintenance, recordkeeping, and training requirements in accordance with the CCR Rule.

The following sub-sections identify the various detection methods implemented at the facility in order to assist with the identification of a safety emergency event.

- **7-Day Inspections:** Each CCR surface impoundment at the facility must be examined by a qualified person in accordance with §257.83(a) of the CCR Rule. At intervals not exceeding seven days, each CCR surface impoundment is required to be visually inspected for any appearance of structural weakness or other conditions which are disrupting or have the potential to disrupt the operation or safety of the CCR surface impoundment. Additionally, discharge of all outlets of hydraulic structures which pass underneath the base of the CCR surface impoundment or through the embankment of the CCR surface impoundment are required to be visually inspected for abnormal discoloration, flow, or discharge of debris or sediment.
- **Instrumentation Monitoring:** Instrumentation supporting the operation of each CCR surface impoundment must be monitored by a qualified

person in accordance with §257.83(a) of the CCR Rule. At intervals not exceeding thirty days, the instrumentation for the CCR surface impoundment is required to be monitored for proper functionality and detecting discernible or significant changes in the operation of the CCR surface impoundment.

- **Event-Related Inspections:** Event-related inspections shall be implemented and performed by a qualified person when significant events occur that could potentially affect the structural stability of each CCR surface impoundment. Examples of these events are as follows:
    - Following a storm event whose twenty-four hour rainfall event meets or exceeds the ten year storm event frequency in the surrounding area of the facility;
    - Following a strong wind-related event that may result in the overtopping of trees in the surrounding area of the facility;
    - Following a seismic event that warrants concern within the surrounding community of the topographic region;
    - When the water level within the CCR surface impoundment is higher than its normal operating levels and there is the possibility of embankment overtopping; and
    - Following major maintenance activities that involve removal of tree stumps and roots from an embankment or the repair of animal burrows where embankment soils (not the vegetative layer) were disturbed.
- **Annual Inspections:** Annual inspections must be conducted by a qualified PE if the CCR surface impoundment has a height of five feet or more and a storage volume of twenty acre-feet or more; or the CCR surface impoundment has a height of twenty feet or more (§257.73(b), §257.73(d), and §257.83(b)).

  The purpose of the annual inspection is to ensure that the design, construction, operation, and maintenance of the CCR surface impoundment is consistent with recognized and generally accepted good engineering standards. The annual inspection of the CCR surface impoundment includes a review of available information regarding the status and condition of the CCR surface impoundment. The information reviewed includes all relevant files available in the operating record at the time of the annual inspection, as well as all relevant publicly accessible internet site entries.

The annual inspection also includes a visual inspection of each CCR surface impoundment in order to identify signs of distress or malfunction of the CCR surface impoundment and appurtenant structures. Additionally, the visual inspection includes hydraulic structures underlying the base of the CCR surface impoundment or passing through the dikes of each CCR surface impoundment for structural integrity and continued safe and reliable operation.

2.3.2 Inundation Map (§257.73(a)(3)(i)(D))

This EAP identifies areas potentially impacted as a result of a failure of a CCR surface impoundment that has been classified as having a significant or high hazard potential. These areas are delineated in an inundation map (Figure 2), which identifies the probable maximum downstream limits that are likely to be impacted by the failure of the CCR surface impoundment. The inundation map shall be used to assist the facility and local emergency responders in the event of a safety emergency event with a potential or imminent failure.

2.3.3 Facility Access and Response Timing

Timely implementation of this EAP, as well as coordination and communication with local emergency responders, are crucial elements in the effectiveness of the emergency response actions.

In the event of a safety emergency event, the primary method of access to the facility is by automobile (e.g. car, truck, etc.). The primary route of travel by automobile is taking Allamakee County Highway X-52 (Great River Road) to the intersection of Power Plant Drive, and turning east onto Power Plant Drive towards the facility.

The expected response time for local emergency responders to mobilize to the facility once notified of a safety emergency event, using the primary method of access to the facility, is as follows:

- **Lansing Iowa Fire Department** (41 S Front St, Lansing, Iowa 52151) – Travel time to facility approximately 45 minutes
- **Lansing Police Department** (201 John St, Lansing, Iowa 52151) – Travel time to facility approximately 5 minutes
- **Allamakee County Sheriff's Office** (110 Allamakee St NW, Waukon, IA 52172) – Travel time to facility approximately 27 minutes

In the event the primary method of access is not available, an alternative method of access to the facility would be by marine vessel. The primary route of travel via marine vessel is the Mississippi River. The nearest boat launch to the facility is Village Creek Boat Landing (1980-1998 Great River Road, Lansing, IA 52151) which is approximately 2 miles upstream of the facility along the Iowa side of the Mississippi River.

The response time for emergency response contractors to mobilize to the facility, once notified of a safety emergency event, will vary based on the type of safety emergency event as that determines the necessary equipment and materials required to be mobilized to the facility.

2.3.4 Response during Periods of Darkness

In the event of a safety emergency event during periods of darkness, the facility manager, or designee, shall utilize available on-site equipment (e.g. portable light towers) in order to properly illuminate the area where the safety emergency event is detected, as well as other crucial areas located at the facility used for assisting with emergency response actions. Additional assistance shall be provided by either the local emergency responders or emergency response contractors, as necessary, in order to effectively illuminate the various areas of the facility.

2.3.5 Response during Weekends and Holidays

The facility manager is typically not present at the facility on weekends or holidays. However, personnel are present at the facility at all times. In the event of a safety emergency event on a weekend or holiday, the most senior on-site facility personnel shall assume responsibility and oversee the implementation of the emergency response actions until the facility manager, or designee, arrives. Additional assistance shall be provided by either the local emergency responders or emergency response contractors, as necessary.

2.3.6 Response during Adverse Weather

In the event of a safety emergency event during adverse weather conditions, the facility manager, or designee, shall utilize on-site equipment, materials, and supplies (e.g. snow plow, salt, sand bags, etc.) in order to provide clear and safe access for implementing the emergency response actions. Additional assistance shall be provided by either the local emergency responders or emergency response contractors, as necessary.

2.3.7 Emergency Equipment, Materials, and Supplies

The facility consists of on-site equipment, materials, and supplies that may be available in order to initiate response actions during a safety emergency event. The following list identifies available on-site equipment, materials, and supplies:

- Heavy equipment which include excavators, dozers, front-end loaders, skid-steer loaders, backhoes
- Portable pumps
- Portable light towers
- Fill material which include sand, gravel, crushed stone, recycled concrete

Additional equipment, materials, and supplies shall be provided by either the local emergency responders or emergency response contractors, as necessary.

2.3.8 Security

Access to the facility is controlled 24 hours per day via a secure access gate. Access through the automatic security gate is controlled using magnetic card access for AE employees and through telephone calls to a Central Alarm System (CAS) for non-AE employees. A list of authorized entrants is provided to CAS.

The facility has plant personnel present 24 hours per day, 365 days per year. A chain link fence surrounds the primary operational area at the facility. Adequate lighting is present at the facility. Security cameras are present throughout the site and are observed from the control room.

2.4 Reviews and Amendments

The following sub-sections summarize the reviews and amendments that are required per the CCR Rule.

2.4.1 Reviews

The EAP shall be reviewed annually for appropriateness, accuracy, and adequacy so as to remain current. The EAP shall be promptly updated to address changes in personnel, contact information and/or significant changes to the facility or emergency response actions. A review and revision log is provided in Appendix A for documenting any revisions to the EAP. Even if no revisions are necessary, the annual review of the EAP shall be documented in Appendix A.

2.4.2 Amendments (§257.73(a)(3)(ii))

At a minimum, the EAP must be evaluated every five years as required per §257.73(a)(3)(ii) of the CCR Rule to ensure the information required per §257.73(a)(3)(i) of the CCR Rule is accurate.

Additional amendments to the EAP must occur as necessary whenever there is a change in conditions which substantially affect the EAP. These changes in conditions include, but are not limited to, changes in personnel, changes in emergency responder contact information, changes in a CCR surface impoundment hazard potential classification designation, or the vertical expansion of a CCR surface impoundment.

Amendments to the EAP must be certified by a qualified PE per §257.73(a)(3)(iv). Once amended, the EAP must be placed in the facility's operating record as required by §257.105(f)(6) of the CCR Rule. Amendments to the EAP shall be documented in the review and revision log in Appendix A.

2.5 EAP Training and Exercise

EAP training and exercises are critical components in evaluating the effectiveness of an EAP. The following sub-sections summaries the training and exercise programs implemented at the facility.

2.5.1 Training

Facility personnel shall receive training to ensure they are thoroughly familiar with all elements of this EAP, which will allow for the effective implementation of this EAP in order to minimize loss of life, environmental damage, and property damage in the event of a safety emergency event of a CCR surface impoundment. Training may be held in conjunction with other emergency response training at the facility.

On an annual basis, facility personnel shall be trained in their roles and responsibilities under this EAP, which include, but is not limited to, the following:

- Facility manager roles and responsibilities;
- Detection and evaluation of a safety emergency event;
- Response action preparedness;
- Implementation of notification procedures;
- Implementation of emergency response actions based on the safety emergency event level;
- Evacuation and assembly procedures; and
- Post-emergency response action assessments.

In addition to annual training, an annual meeting between the facility manager and the local emergency responders shall be conducted (257.73(a)(3)(i)(E)).

A meeting and training log is provided in Appendix B in order to document the occurrence of the annual training and annual meetings.

2.5.2 Exercises

At the discretion of the facility manager, training exercises may be implemented at the facility in order to enhance prevention, preparedness, and response actions. Training exercises demonstrate the EAP's effectiveness in an actual situation and demonstrates the readiness levels of key personnel. Periodic exercises result in an improved EAP as lessons learned are incorporated into EAP review and amendments. If deemed necessary, local emergency responders may also be included in training exercise activities.

Types of exercises may include discussion-based exercises, as well as operations-based exercises. Discussion-based exercises familiarize participants with current plans, policies, agreements, and procedures, or may be used to develop new plans, policies, agreements, and procedures. Operations-based exercises validate plans, policies, agreements and procedures; clarify roles and responsibilities; and identify resource gaps in an operational environment.

Appendix C provides additional information on the types of discussion-based exercises and operations-based exercises, as well as provides recommended frequencies for each type of exercise.

2.6 Changes In Hazard Potential Classification (§257.73(a)(3)(iii))

2.6.1 Declassification

If the owner or operator of a CCR surface impoundment determines during a periodic hazard potential assessment that the CCR surface impoundment is no longer classified as either a high hazard potential CCR surface impoundment or

a significant hazard potential CCR surface impoundment, then the owner or operator of the CCR surface impoundment is no longer subject to the requirement to prepare and maintain a written EAP beginning on the date the periodic hazard potential assessment documentation is placed in the facility's operating record as required by §257.105(f)(5) of the CCR Rule.

2.6.2 Reclassification

If a CCR surface impoundment is classified as a low hazard potential CCR surface impoundment, and the owner or operator subsequently determines that the CCR surface impoundment is properly reclassified as either a high hazard potential CCR surface impoundment or a significant hazard potential CCR surface impoundment, then the owner or operator of the CCR surface impoundment must prepare a written EAP for the CCR surface impoundment as required by §257.73(a)(3) of the CCR Rule within six months of completing such periodic hazard potential assessment.

3. CERTIFICATION (§257.73(a)(3)(iv))

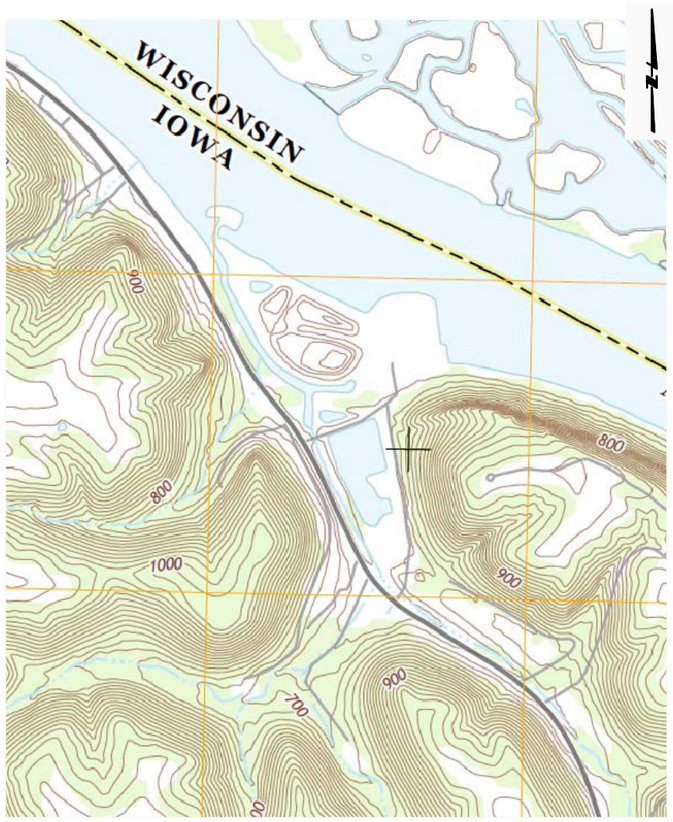
To meet the requirements of 40 CFR 257.73(a)(3), I Mark W. Loerop hereby certify that I am a licensed professional engineer in the State of Iowa; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in 40 CFR 257.73(a)(3).

By: _____

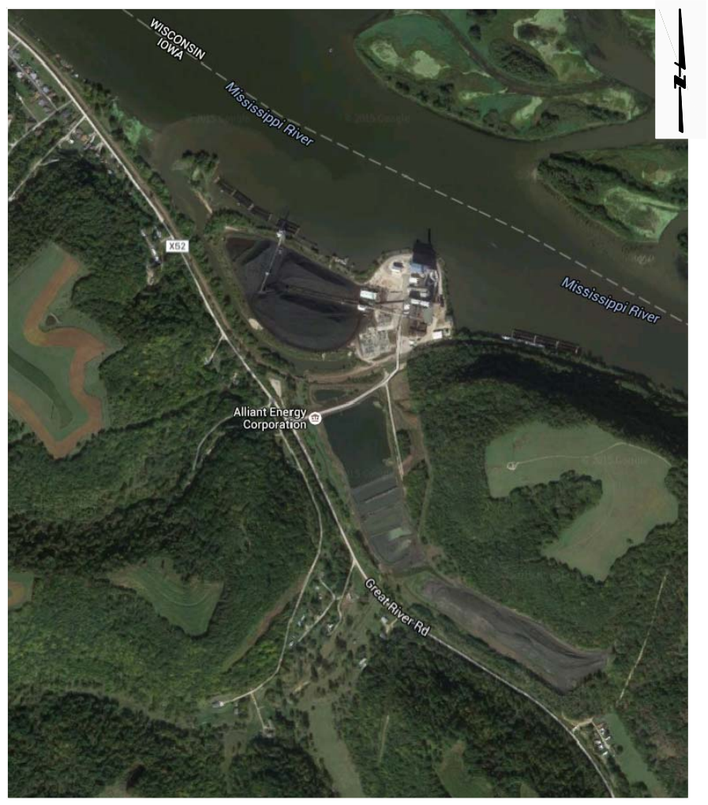
Name: Mark Loerop

Date: April 7, 2017

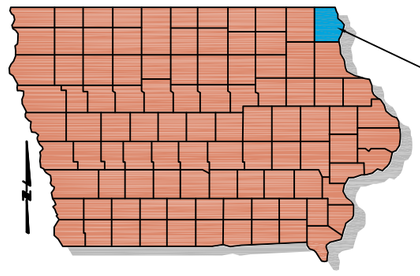
Figures



SITE TOPOGRAPHIC MAP
NOT TO SCALE



SITE AERIAL PHOTOGRAPH
NOT TO SCALE



STATE OF IOWA
NOT TO SCALE

REV	DATE	BY	DESCRIPTION
5			
4			
3			
2			
1			

hard hat SERVICES

SCALE:	AS SHOWN
DATE:	3–28–17
DRAWN BY:	JFD
CHKD BY:	CTS
APRVD BY:	MWL

CLIENT / LOCATION
ALLIANT ENERGY–INTERSTATE POWER AND LIGHT COMPANY
LANSING GENERATING STATION
LANSING, IOWA

DRAWING DESCRIPTION
CCR SURFACE IMPOUNDMENT – EMERGENCY ACTION PLAN
FACILITY LOCATION MAP

JOB 154.018.015.002
SHT. FIGURE 1
DWG. 154.018.015.002–D1

AERIAL VIEW
NOT TO SCALE

NOTES:

1. PER THE REQUIREMENTS OF THE CCR RULE (§257.73(A)(3)) AN INUNDATION MAP DELINEATES THE DOWNSTREAM AREAS WHICH WOULD BE AFFECTED IN THE EVENT OF A FAILURE OF A CCR SURFACE IMPOUNDMENT. THE INUNDATION MAP IDENTIFIES CRITICAL INFRASTRUCTURE AND POPULATION–AT–RISK SITES THAT MAY REQUIRE PROTECTIVE MEASURES, WARNING, AND EVACUATION PLANNING.
2. THIS INUNDATION MAP DOES NOT DELINEATE NOR IDENTIFY DOWNSTREAM AREAS WHICH WOULD HAVE POTENTIAL ENVIRONMENTAL IMPACTS IN THE EVENT OF A FAILURE OF A CCR SURFACE IMPOUNDMENT.
3. A FAILURE OF THE LAN UPPER ASH POND NORTH OR WEST EMBANKMENTS IS IDENTIFIED BY THE INUNDATION AREA. THE INUNDATION AREA DOES NOT INDICATE A FAILURE OF ALL CCR SURFACE IMPOUNDMENT EMBANKMENTS SIMULTANEOUSLY.
4. THE CRITICAL INFRASTRUCTURES IDENTIFIED WITHIN THE INUNDATION AREA AT LAN ARE POWER PLANT DRIVE, A PORTION OF ALLAMAKEE COUNTY HIGHWAY X52 (GREAT RIVER ROAD), AND RAILROAD TRACKS LOCATED NORTH OF POWER PLANT DRIVE. THERE ARE NO POPULATION–AT–RISK SITES LOCATED WITHIN THE INUNDATION AREA AT LAN, HOWEVER, A RESIDENCE LOCATED SOUTHWEST OF THE CCR SURFACE IMPOUNDMENT WAS IDENTIFIED TO BE NEAR THE AREA OF INUNDATION.

LEGEND:

INUNDATION ZONE

REV	DATE	BY	DESCRIPTION
5			
4			
3			
2			
1			

hard hat™ SERVICES

SCALE:	AS SHOWN
DATE:	3–28–17
DRAWN BY:	JFD
CHKD BY:	CTS
APRVD BY:	MWL

CLIENT / LOCATION
ALLIANT ENERGY–INTERSTATE POWER AND LIGHT COMPANY
LANSING GENERATING STATION
LANSING, IOWA

DRAWING DESCRIPTION
CCR SURFACE IMPOUNDMENT – EMERGENCY ACTION PLAN
INUNDATION MAP

JOB 154.018.015.002
SHT. FIGURE 2
DWG. 154.018.015.002–D2

LEGEND:

PRIMARY EMERGENCY
ACCESS/EGRESS ROUTE

AERIAL VIEW
NOT TO SCALE

REV	DATE	BY	DESCRIPTION
5			
4			
3			
2			
1			

hard hat™ SERVICES

SCALE:	AS SHOWN
DATE:	3-28-17
DRAWN BY:	JFD
CHKD BY:	CTS
APRVD BY:	MWL

CLIENT / LOCATION

ALLIANT ENERGY–INTERSTATE POWER AND LIGHT COMPANY
LANSING GENERATING STATION
LANSING, IOWA

DRAWING DESCRIPTION

CCR SURFACE IMPOUNDMENT – EMERGENCY ACTION PLAN
EMERGENCY ACCESS/EGRESS ROUTES MAP

JOB 154.018.015.002

SHT. FIGURE 3

DWG. 154.018.015.002-D3

Appendix A

Review and Amendment Log

APPENDIX A

Review and Amendment Log

Date of Review/Amendment	Completed By	Comments
April 2017	Mark Loerop, P.E. (Hard Hat Services)	The following items were completed: • Preparation of an Emergency Action Plan (EAP), Version 1 - Revision 0, in accordance with 40 CFR §257.73(a)(3).

This log sheet documents all reviews and amendments made to the EAP.

Note: Amendments must be certified by a qualified PE in accordance with 40 CFR 257.73(a)(3)(iv)

Appendix B

Meeting and Training Log

APPENDIX B

Meeting and Training Log

Date:_____ **Meeting Location:**_____

ATTENDEES		
NAME	TITLE	COMPANY/ORGANIZATION

Appendix C

EAP Training Exercises

APPENDIX C

Training Exercises

The following information provides the various types of training exercises that may be implemented at the facility, as identified in the Federal Guidelines for Emergency Action Planning for Dams[1].

Discussion-Based Exercises:

Discussion-based exercises familiarize participants with current plans, policies, agreements, and procedures, or may be used to develop new plans, policies, agreements, and procedures. The following are types of discussion-based exercises:

- Seminar: A seminar is an informal discussion designed to orient participants to new or updated plans, policies, or procedures (e.g., a seminar to review a new evacuation procedure). Seminars should include internal discussions with facility emergency management personnel as well as coordination with local emergency responders and other parties with a role in the Emergency Action Plan (EAP) implementation.
- Workshop: A workshop resembles a seminar but is used to build specific products such as a draft plan or policy. For example, a training and exercise plan workshop is used to develop a multi-year training and exercise plan.
- Tabletop Exercise: A tabletop exercise involves facility emergency management personnel discussing simulated scenarios in an informal setting. Tabletop exercises can be used to assess plans, policies, and procedures.
- Games: A game is a simulation of operations that often involves two or more teams, usually in a competitive environment, using rules, data, and procedures designed to depict an actual or assumed real-life situation.

[1] FEMA 64, Federal Guidelines for Dam Safety, Emergency Action Planning for Dams, July 2013

Operations-Based Exercises:

Operations-based exercises validate plans, policies, agreements and procedures; clarify roles and responsibilities; and identify resource gaps in an operational environment. The following are types of operational-based exercises:

- Drill: A drill is a coordinated, supervised activity usually employed to test a single operation or function, such as testing sirens and warning systems, checking available emergency resources (i.e. equipment, materials, and supplies), and conducting a call-down drill of those listed on the Emergency Notification Procedure Flowchart.
- Functional Exercise: A functional exercise examines and/or validates the coordination, command, and control between the various parties responsible for responding to a safety emergency event, such as facility emergency management personnel, AE Corporate Environmental, and local emergency responders. A functional exercise does not involve any "boots on the ground" such as first responders or emergency officials responding to an incident in real time.
- Full-Scale Exercises: A full-scale exercise involves the various parties responsible for responding to a safety emergency event, such as facility emergency management personnel, AE Corporate Environmental, and local emergency responders. The exercise involves functional response (i.e. boots on the ground) to a simulated event, such as activation of the EAP and role-playing to simulate an actual safety emergency event.

Functional and full-scale exercises are considered comprehensive exercises that provide the necessary verification, training, and practice to improve the EAP and the operational readiness and coordination efforts of all parties responsible for responding to safety emergency events at the facility. The basic difference between these two exercise types is that a full-scale exercise involves actual field movement and mobilization; in a functional exercise, field activity is simulated. The primary objectives of a comprehensive exercise (functional and full-scale) are listed below:

- Reveal the strengths and weaknesses of the EAP, including specified internal actions, external notification procedures, and adequacy of other information, such as inundation maps.
- Reveal deficiencies in resources and information available to the facility emergency management personnel and other parties responsible for responding to a safety emergency event.
- Improve coordination efforts between the facility emergency management personnel and other parties responsible for responding to a safety emergency event. Close coordination and cooperation among all responsible parties is vital for a successful response to an actual emergency.
- Clarify the roles and responsibilities of the facility emergency management personnel, local emergency responders, and all other parties involved in responding to a safety emergency event.
- Improve individual performance of the personnel who respond to the safety emergency event.
- Gain public recognition of the EAP.

Frequency of Exercises

The seminar, drill, tabletop exercise, and functional exercise should receive the most emphasis in an EAP exercise program. The following are recommended frequencies for these exercise types. The facility manager, in consultation with AE Corporate Environmental and local emergency responders, should determine actual frequencies appropriate for their facility.

- Seminars with local emergency responders – annually
- Drills to test the emergency notification procedures, emergency response actions, and emergency equipment / supplies / materials – annually
- Tabletop exercise – every 3 to 4 years or before functional exercises
- Functional exercise – every 5 years

A full-scale exercise should be considered when there is a need to evaluate actual field movement and deployment. When a full-scale exercise is conducted, safety is a major concern because of the extensive field activity. If the facility has the capability to conduct a full-scale exercise, a commitment should be made to schedule and conduct the entire series of exercises listed above before conducting the full-scale exercise. At least one functional exercise should be conducted before conducting a full-scale exercise. Functional and full-scale exercises also should be coordinated with other scheduled exercises, whenever possible, to share emergency management resources and reduce costs.