CCR SURFACE IMPOUNDMENT EMERGENCY ACTION PLAN

Plant Bowen Ash Pond

I hereby certify that this Emergency Action Plan has been prepared in accordance with the requirements of 40 C.F.R. Part 257.73.

James C. Pegues, P.E.
Licensed State of Georgia, P.E. No. 17419

ISSUE DATE: March 12, 2020
REVISION #: **2**

REVISION RECORD

In accordance with 40 C.F.R. Part 257.73, this Emergency Action Plan (EAP) must be amended whenever there is a change in conditions that would substantially affect the EAP in effect. Additionally, the EAP must be evaluated, at a minimum, every five years to ensure the information is accurate. As necessary, this EAP must be updated and a revised EAP placed in the facility's operating record as required by 40 C.F.R. Part 257.105(f)(6).

Revision Number	Date	Sections Affected/Reason
0	04/17/2017	Creation of EAP
1	05/04/2018	Revised Bartow County EMA contact; corrected original Revision Number
2	03/12/2020	Added definitions and added clarifications to Facility Description

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ACRONYMS AND ABBREVIATIONS

CCR	Coal Combustion Residuals
CFR	Code of Federal Regulations
E&CS	Engineering & Construction Services
EAP	Emergency Action Plan
EMA	Emergency Management Agency
EPA	Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
GDOT	Georgia Department of Transportation
GEMA	Georgia Emergency Management Agency
GEOP	Georgia Emergency Operations Plan
GPC	Georgia Power Company
H:V	Horizontal:Vertical
HDPE	High-Density Polyethylene
ID	Inside Diameter
SCS	Southern Company Services

DEFINITIONS

Adverse Consequences. Negative impacts that may result from the failure of a dam. The primary concerns are loss of life, economic loss (including property damage), lifeline disruption and environmental impact.

Category I Dam. State of Georgia Safe Dams Program designation for Hazard Potential indicating that improper operation or failure would result in a probable loss of human life.

Category II Dam. State of Georgia Safe Dams Program designation for Hazard Potential indicating that improper operation or failure would not be expected to result in a probable loss of human life.

Coal Combustion Residuals (CCR). Fly ash, bottom ash, boiler slag, and flue gas desulfurization materials generated from burning coal for the purpose of generating electricity by electric utilities and independent power producers.

CCR Surface Impoundment. A natural topographic depression, man-made excavation, or diked area which is designed to hold an accumulation of CCR and liquids, and the unit treats, stores, or disposes of CCR.

Dam/Dike/Embankment. An artificial barrier that has the ability to impound water, wastewater, or any liquid-borne material for the purpose of storage.

Dam Failure. A catastrophic type of failure characterized by the sudden, rapid and uncontrolled release of impounded water or the likelihood of such an uncontrolled release. It is recognized that there are lesser degrees of failure and that any malfunction or abnormality outside the design assumptions and parameters that adversely affect a dam's primary function of impounding water is properly considered a failure. These lesser degrees of failure can progressively lead to or heighten the risk of catastrophic failure. They are, however, normally amenable to corrective action.

> **Imminent Failure (Condition A Emergency).** Failure of a dam/dike/embankment is imminent or has occurred.
>
> **Potential Failure (Condition B Emergency).** A potential failure condition of a dam/dike/embankment is a developing condition, but adequate time is available to properly evaluate the problem and implement corrective actions that may alleviate or prevent failure.
>
> **Non-Failure Condition.** A condition that will not, by itself, lead to a failure, but that requires investigation and the notification of internal and/or external personnel.

Emergency. A condition that develops unexpectedly, endangers the structural integrity of the dam, and requires immediate action. An emergency can lead to Adverse Consequences in the event of Imminent Failure.

Filter. One or more layers of granular material graded so as to allow seepage through or within the layers while preventing the migration of material from adjacent zones.

Hazard Potential Classification. The possible adverse incremental consequences that result from the release of water or stored contents due to failure of the diked CCR surface impoundment or mis-operation of the diked CCR surface impoundment or its appurtenances. The hazard potential classifications include high hazard potential CCR impoundment, significant hazard potential CCR surface impoundment and low hazard CCR surface impoundment, which terms mean:

> *High hazard potential CCR surface impoundment* means a diked surface impoundment where failure or mis-operation will probably cause loss of human life.
>
> *Low hazard potential CCR surface impoundment* means a diked surface impoundment where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the surface impoundment owner's property.
>
> *Significant hazard potential CCR surface impoundment* means a diked surface impoundment where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities or impact other concerns.

Inundation Map. A graphic representation of the inundation zone that shows the potential impact area due to a breach of a dam/dike/embankment. The inundation maps in this procedure are based on a specific computer-modeled dam breach scenario; therefore, the boundaries depicted are estimates for that particular model. *The models are considered conservative but larger floods could potentially occur.* Please refer to Appendix B.

Inundation Zone. Area subject to flooding in the event of increased flows due to a dam/dike/embankment failure.

Piping. The progressive development of internal erosion of the dam/dike/embankment or foundation material by seepage.

Probable Maximum Flood. The flood that may be expected from the most severe combination of critical meteorologic and hydrologic conditions that are reasonably possible in the drainage basin.

Sunny Day Failure. A night or day failure that occurs during fair weather or when weather-related flooding is not occurring.

1.0 STATEMENT OF PURPOSE

This Emergency Action Plan (EAP) has been prepared for the Plant Bowen Ash Pond (AP-1) to meet the requirements of 40 C.F.R. Part 257.73(a)(3). The EAP identifies potential safety emergency conditions at AP-1 and specifies actions to be followed to minimize potential loss of life and property damage if such conditions exist.

This EAP will provide responding personnel with:

- Pertinent information and description related to Plant Bowen AP-1;
- Definition of events or circumstances that represent a safety emergency;
- Procedures that will be followed to detect a safety emergency;
- Notification procedures in the event of a safety emergency;
- Information to assist in decision making;
- A list of responsible persons and their respective responsibilities;
- A list of resources available to support the response effort;
- Provisions for an annual face-to-face meeting with local emergency responders;
- Contact information for emergency agencies and other emergency responders;
- Contact information for additional resources and outside agencies; and,
- A map that delineates the downstream area that could be affected in the event of a failure.

2.0 FACILITY DESCRIPTION

Plant Bowen is a coal-fired power plant located near Euharlee, Bartow County, Georgia near the Etowah River. This EAP covers emergency response procedures for AP-1, which is designed to receive and store coal combustion residuals and low volume waste streams produced during the electric generating process at Plant Bowen. An overview of Plant Bowen and the surrounding area is shown in Appendix A – Figure 1.

AP-1 is approximately 257 acres in size at the dike crest elevation of 715 feet (Appendix A – Figure 2). AP-1 includes earthen embankments (also referred to as dam/dike) around the perimeter containment area. The upstream and downstream slopes are graded at 2H:1V. The crest is at elevation 715 ft. A berm, approximately 25 ft. wide, was constructed as part of the Phase I construction along the northern section of the west dike to elevation 693 ft. The crest surface is composed of grass and a gravel access drive. Downstream slopes are covered with grass.

With exception of the 30-acre Recycle Pond, (located in the southern portion of the pond) and lined gypsum and ash dewatering cells, AP-1 is mostly dry and does not impound water. The northern 128.6 acres is a dry stack area with ash stacked above the normal full pond elevation. The southern 128.8 acres of the pond contains lined gypsum and ash dewatering cells along with the Recycle Pond, which all impound water. The perimeter dike's inboard slope protection for the Recycle Pond area consists of an HDPE geomembrane. The remaining inboard slope of the dike does not impound water. A perimeter drainage ditch in the southwestern portion of the pond is lined with a HDPE geomembrane.

In the northern 128.6-acre dry stack portion of the impoundment, storm water run-off from the stack area was previously collected in a HDPE lined perimeter drainage ditch along with Clear Pool overflow and routed to the Recycle Pond. In 2016, activities were completed for a modification to the west dike to divert storm water discharges from the HDPE lined northern perimeter ditch to a detention pond constructed at the downstream toe. The modifications consisted of the construction of a lined channel from the existing ditch to discharge pipes installed in the upper section of the west dike. The piping extends down the downstream slope to the new detention pond. The storm water is being routed from the detention pond to Euharlee Creek. In the southern portion of AP-1, all run-off, including discharges from the ash and gypsum dewatering cells Clear Pools is routed to the newly constructed Low Volume Waste Pond. From the Low Volume Waste Pond, water is pumped back to the Plant for process water or mixed with additional blowdown flows and discharged through the plant's NPDES outfall.

The AP-1 dam/dike is classified as a Category II structure by the Georgia Department of Natural Resources – Environmental Protection Division – Safe Dams Program (Georgia Safe Dams Program) and has been assigned a Significant Hazard Potential classification under 40 C.F.R. Part 257.73 of the Environmental Protection Agency's (EPA's) Coal Combustion Residuals (CCR) Rule. These classifications, by definition, indicate that there is no probable loss of human life in the event of a dam/dike failure or misoperation of the facility, but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns. There is an uninhabitable pump structure near the southeast corner of the facility that could be impacted by the failure of the AP-1 dam/dike or improper operation of the surface impoundment. There are no other dams located downstream that could be impacted by the failure of the AP-1 dam/dike. The limits of potential flooding in the event of failure of the AP-1 dam/dike can be seen on the Inundation Map, which is included as Appendix B.

The inundation map was developed based on the results of routing the breach wave downstream using the computer software, HEC-RAS. HEC-RAS is a general application one-dimensional hydraulic model that can perform unsteady flow routing through an open channel system that may also include culverts, bridges, levees, tributaries, storage areas, and other dams. Unsteady flow analyses allow for flow conditions that vary temporally and spatially such as a dam breach simulation. Breach parameters such as failure time, breach width, and breach side slopes were selected from industry accepted empirical formulas. Water surface elevation data was extracted from the hydraulic model and plotted on LiDAR topographic information for the downstream areas. The height of the AP-1 dam is approximately 31 feet along the southern dike and 26 feet along the western dike, as measured from the crest to the lowest portion of the embankment at the respective downstream toe. The failure was modeled at two separate locations, the southern and western dikes of the subject dam, which are depicted in Figure 1. The purpose of the study was to evaluate the impact of a hypothetical dam failure on downstream flooding levels during a simulated "sunny-day" failure event and a "design storm" failure event. It is noted that a "sunny-day" event is a non-storm event where hypothetical failure of the structure is initiated with the water in the reservoir at top of dam. The "design storm" failure event is the 1,000 year, 24-hour storm event where the hypothetical failure of the structure is initiated at the peak water surface elevation within the reservoir.

Normal river/lake levels and the flow from simulated dam breaches were superimposed over topographical maps to identify areas subject to flooding. ***These flood extents are provided for planning purposes only; actual flooding can vary due to actual conditions present at the time of the failure.***

3.0 DETECTION, EVALUATION, AND CLASSIFICATION PROCEDURES FOR EMERGENCIES

3.1 Inspection Schedule and Condition Detection/Evaluation

Trained personnel from Plant Bowen inspect the AP-1 dams/dike on a regular basis to pre-emptively detect conditions, in a timely manner, that could indicate a potential issue so that it can be addressed. Trained personnel from the Plant's Environmental Compliance group perform daily observations and weekly inspections; and SCS E&CS Fossil Dam Safety (Fossil Dam Safety) personnel perform semi-annual inspections.

Piezometers are installed along the AP-1 dam/dike. The piezometers are read on a regular basis by plant personnel with selected piezometers instrumented with automatic data collection systems. The results are reported to Fossil Dam Safety for evaluation.

Plant personnel conducting inspections of the dams/dikes are trained on an annual basis by engineers from Fossil Dam Safety on the appropriate surveillance and monitoring requirements.

Any issues discovered during an inspection are reported to Fossil Dam Safety as prescribed in the Safety Procedure for Dams and Dikes at Fossil Generation Plants (GEN10004). The Fossil Dam Safety Engineer(s) working with plant personnel will recommend a corrective course of action, as needed.

3.2 Condition Severity Classifications

AP-1 dam/dike emergencies will be classified based on the type of event, severity of the situation, and the time required to take corrective measures. This procedure covers the following severity classifications:

NON-FAILURE CONDITION (NFC)

A situation that will not, by itself, lead to a failure and is not considered an emergency. However, an NFC does require investigation and notification of Fossil Dam Safety personnel and may require corrective action.

POTENTIAL FAILURE – Condition B Emergency (B)

A developing situation where failure of a dam/dike may occur but implementation of pre-planned actions may alleviate or prevent failure. In general, adequate time is considered available to properly evaluate and implement corrective actions. *Should conditions worsen, an Imminent Failure emergency may be declared.*

IMMINENT FAILURE – Condition A Emergency (A)

A situation where failure of the dam/dike is imminent or has already occurred.

3.3 Guidance for Determining the Emergency Level

The following table details potential situations that could occur at the AP-1 dam/dike. *The Condition Level indicated in the right-most column corresponds with the Condition Severity Classifications in Section 3.2 above.*

Event	Situation	Condition Level
Embankment Overtopping	Reservoir level is 1 foot below the top of the dam/dike	B
	Water from the reservoir is flowing over the top of the dam/dike	A
Seepage	New seepage areas in or near the dam/dike	NFC
	New seepage areas with cloudy discharge or increasing flow rate	B
	Seepage with discharge greater than 10 gallons per minute	A
Sinkholes	Observation of new sinkhole in reservoir area or on embankment	B
	Rapidly enlarging sinkhole	A
Embankment Cracking	New cracks in the embankment greater than ¼-inch wide without seepage	NFC
	Cracks in the embankment with seepage	B
Embankment Movement	Visual movement/slippage of the embankment slope	NFC
	Sudden or rapidly proceeding slides of the embankment slopes	A
Instruments	Instrumentation readings beyond predetermined values	NFC
Earthquake	Measurable earthquake felt or reported on or within 50 miles of the dam/dike	NFC
	Earthquake resulting in visible damage to the dam/dike or appurtenances	B
	Earthquake resulting in uncontrolled release of water from the dam/dike	A
Security Threat	Verified bomb threat that, if carried out, could result in damage to the dam/dike	B
	Detonated bomb that has resulted in damage to the dam/dike or appurtenances	A
Sabotage / Vandalism	Damage to dam/dike or appurtenances that could adversely impact the functioning of the dam/dike	NFC
	Modification to the dam/dike or appurtenances that could adversely impact the functioning of the dam/dike	NFC
	Damage to dam/dike or appurtenances that has resulted in seepage flow	B
	Damage to dam/dike or appurtenances that has resulted in uncontrolled water release	A

4.0 INCIDENT RESPONSE

The following situations and conditions should be evaluated when performing condition severity detections and evaluations.

Overtopping. AP-1 receives and/or contains rainfall, other process and drainage flows pumped from the plant, and CCR. There are no primary or auxiliary spillways constructed in the impoundment's perimeter dike. Manual valves located upstream of the NPDES pumps can be used to divert emergency discharges to a tributary to Euharlee Creek. The existing water management systems, except for certain sections of the perimeter toe ditch for the northern stack area, are designed, constructed, operated and maintained to adequately manage flow during and following the peak discharge from the 1,000-year flood. The toe drainage ditch collects storm water run-off from only the outboard slope (slope that has been closed by a designed cap cover system) below the lined perimeter drainage ditch for the northern stack. The impoundment was originally designed with an emergency discharge structure which was located in the northern dike. This structure was abandoned by grouting in the 1980's. The downstream slopes of the embankment are not subject to inundation from adjacent water bodies.

Seepage. Failures due to piping and/or internal erosion resulting from seepage would be detected in the early stages during the regular inspections and performance of the level management process conducted by plant personnel. Inspectors are trained to look for evidence of seepage. In addition, piezometer readings will reveal changes in subsurface water pressure. Inspection reports, including piezometer readings, are transmitted to trained dam safety engineers for evaluation. Therefore, the conditions that could lead to failures of this type would likely be discovered and corrected, making an actual failure a remote possibility.

Slope Instability. Slope instability would be demonstrated by sloughing of dam/dike slopes, which would be detected by daily observations and/or weekly inspections by Environmental Compliance personnel. The conditions that could potentially lead to a failure of this type would also be detected in advance and corrected making an actual failure a remote possibility.

In the event that conditions are detected that could potentially lead to a dam/dike failure, the flowcharts in Appendices C (Incident Response) and D (Response Notification) will be used to respond to the situation and alert applicable personnel and emergency agencies. In that situation, local emergency management agencies (EMAs) would respond and begin warnings and evacuations as soon as possible following the declaration of a safety emergency.

4.1 Access to the Site

Plant and emergency personnel are able to access the north and south access gates of AP-1 from the main portion of Plant Bowen by paved roadways. Figures 1 and 2 in Appendix A illustrate the location of AP-1 on Plant property.

4.2 Response during Periods of Darkness

Plant Bowen is operational and/or manned 24 hours a day every day, and personnel and equipment are able to access the site at any time. Response times would not vary significantly from daylight conditions.

4.3 Response during Weekends and Holidays

Plant Bowen is operational and manned 24 hours a day every day, and personnel and equipment will be able to access the site at any time. The response times of certain personnel may be affected, but 24-hour contact information is included in the EAP for responsible personnel.

4.4 Response during Adverse Weather

The dam/dike is accessed by paved and gravel-surfaced roads and is accessible during periods of adverse weather. If severe flooding causes road closures, response times may be adversely affected (see Section 4.1 above for impacts to travel times.)

5.0 RESPONSIBLE PERSONS AND RESPONSIBILITIES

Designated personnel have been trained in the use of these response procedures and are aware of their responsibilities in making the procedures effective. The chain of command and the individual responsibilities for plant personnel, public officials, and agencies are outlined below.

5.1 Plant Manager

The Plant Manager is ultimately responsible for the content, effectiveness, and implementation of the response procedures. The Incident Commander is typically the designated Operations Shift Team Leader unless the Plant Manager assumes responsibility. *Plant Managers have the authority and responsibility to direct all on-site activities.*

The Plant Manager or his/her designee will assess the conditions, direct the corrective and protective measures necessary to mitigate the condition(s), and, if necessary, declare an emergency condition. The Plant Manager or his/her designee will also declare the termination of an emergency condition. Once outside agencies are notified, the Plant Manager or his/her designee is responsible for keeping EMA informed of any changes in conditions. See Emergency Coordinator responsibilities for further details.

5.2 Duty Officer (Operations Shift Team leader)

A 24-hour site Emergency Telephone Number is available to all facility personnel. The Operator receiving the call will immediately notify the Operations Shift Team Leader. Upon notification, the Operations Shift Team Leader will immediately investigate and decide upon the appropriate actions. If the Plant Manager is unavailable, the Operations Shift Team Leader will assume the duties and responsibilities of the Emergency Coordinator until properly relieved by the Plant Manager or other designee.

5.3 Emergency Coordinator (Incident Commander)

The Incident Commander is responsible for:

1. Verifying that an emergency condition exists.

2. Assessing the emergency condition.

3. Consulting with Fossil Dam Safety to evaluate conditions and determine corrective actions.

4. Emergency Actions
   a. If necessary, implement actions to lower the water level in the impoundment in consultation with Fossil Dam Safety.
   b. Call-out of personnel necessary to perform the work required on plant site during the emergency.

5. Ensure the notification process as outlined in the Response Notification Flowchart (Appendix D) is completed in an expedient manner.

6. Other responsibilities include:
    a. Establishing lines of communication from the plant to the local and state EMAs.
    b. Ensuring emergency sources of power are available for the operation of essential equipment such as emergency lighting.
    c. Ensuring the availability of heavy equipment and trained operators to aid in the mitigation effort.

5.4 Plant Security Department

The Plant Security Department is responsible for securing company property and controlling access to company facilities. The Plant Security Department will also perform emergency notifications to Plant Environmental Compliance, the Georgia System Operator, and outside agencies as shown on Response Notification Flowchart (Appendix D). This consists of local and state EMAs. **These notifications are mandatory when an emergency condition has been declared by the Plant Manager.**

5.5 Plant Environmental Compliance

Environmental Compliance personnel are responsible for assessing conditions, contacting the Plant Manager, obtaining assistance from Fossil Dam Safety, and for providing technical updates to the Incident Commander. Plant Compliance personnel shall also notify GPC Environmental Affairs.

5.6 Georgia System Operator

The Georgia System Operator contacts the National Weather Service to inform them of conditions at the plant that may lead to potential flooding downstream.

5.7 SCS E&CS Fossil Dam Safety

Fossil Dam Safety is responsible for coordinating and providing the technical support necessary to mitigate the emergency condition and for notifying the Hydro General Manager (if the failure could impact a FERC regulated reservoir downstream of the surface impoundment) of the emergency condition. The Fossil Dam Safety Manager shall notify the Georgia Safe Dams Program Manager as shown on the Response Notification Flowchart (Appendix D).

5.8 GPC Personnel

Environmental Affairs

GPC Environmental Affairs is responsible for regulatory interface, coordination of long-term environmental response (after the initial response), to mitigate environmental issues, and provide the technical support necessary for any corrective action needs. Environmental Affairs is also responsible for all communications with environmental regulatory agencies for appropriate reporting of releases to the environment and for securing variances to existing permits, if needed.

If necessary, Environmental Affairs will also help secure approved contractors for the specific emergency condition that may exist. They will also provide additional support, such as emergency manpower, material, equipment, and expertise to assist in mitigation efforts, if needed.

Corporate Communications
GPC Corporate Communications is responsible for coordinating the GPC media response and will schedule news briefings and prepare news releases, as required. GPC Corporate Communications will also work with local and State Public Information Officers to ensure that timely, accurate, and consistent information is made available to media outlets.

Corporate Security
GPC Corporate Security is responsible for supporting Plant Security personnel and contracting with local law enforcement for additional security personnel as needed.

Supply Chain Management
Supply Chain Management is responsible for obtaining additional equipment and materials necessary to mitigate the emergency condition and begin the recovery process.

5.9 Emergency Agencies

Local EMAs are responsible for planning and implementing evacuation and sheltering plans as well as directing search, rescue, and recovery efforts. If additional resources are required, the local agencies can contact the Georgia Emergency Management Agency (GEMA) for assistance.

The local EMAs are the point of contact between plant personnel and local jurisdictions. The EMAs are responsible for the direction and control of emergency operations at the local level and keeping local government officials informed of the status of emergency operations.

GEMA generally becomes involved in an emergency situation if the local agencies are not capable of handling the situation or if assistance is requested by a local agency or by the Governor. Refer to the "Georgia Emergency Operations Plan" (GEOP) for an explanation of specific functions. GEMA has responsibilities similar to the local EMAs but is also responsible for mobilizing state military support as well as State Disaster Center operations.

5.10 Law Enforcement

Local Law Enforcement agencies are notified by the appropriate EMA. GEMA notifies the State Patrol as well as the Georgia Department of Transportation (GDOT). Law Enforcement is responsible for traffic control and can assist with evacuation, mitigation, and rescue activities.

6.0 NOTIFICATION PROCEDURES

Communication during an emergency event will primarily be by company phone. In the event of system failure, Southern Linc radios and cell phones would be utilized as an alternate method of communication. These numbers are listed on the Response Notification Flowchart located in Appendix D.

Local and state EMA will be notified in the event of an emergency, and these agencies will be responsible for notifying the public. In the event of an imminent failure, local and state EMA's will be notified to immediately begin evacuation procedures. GPC Corporate Communications will provide information for media outlets and will be responsible for communicating relevant information to the public.

6.1 Incident Response Flowchart for Imminent Failure and Potential Failure Emergencies

This Procedure and the following Incident Response Flowchart (below in text and in Appendix C in visual) for Imminent Failure and Potential Failure Emergencies shall be posted at appropriate locations at Plant Bowen. Personnel responsible for executing mitigation and/or emergency actions shall be thoroughly familiar with their responsibilities under this EAP.

A. When a Condition B or Condition A situation is detected, notify plant personnel in accordance with the Incident Response Flowchart (below and in Appendix C). Plant Environmental Compliance should contact Fossil Dam Safety immediately for technical consultation. Fossil Dam Safety will provide the evaluation of the conditions and provide a determination if there is an immediate threat to the dam/dike. If there is an immediate threat of dam/dike or dike failure, declare an **Imminent Failure Emergency** and proceed to Step I.

B. If no immediate threat is detected, determine if the problem detected could possibly lead to failure of the dam/dike. If there is a potential for failure but corrective measures may be taken to moderate or alleviate failure, declare a **Potential Failure Emergency** (Condition B) and proceed to Step C.

C. If a **Potential Failure Emergency** has been declared, notify personnel and agencies listed on the Response Notification Flowchart (Appendix D). Document all communications using the appropriate forms contained in Appendix E. Once outside agencies have been notified of an issue or potential problem, plant management is responsible for keeping local EMAs informed of any change in conditions.

D. Begin corrective measures to attempt to alleviate or prevent failure.

E. Evaluate the effectiveness of the corrective measures. If the corrective actions are successful, update all personnel/agencies previously contacted of the status of the improved conditions and document relevant communications using the forms provided in Appendix E. At this time, the Emergency Coordinator will end the emergency condition. Fossil Dam Safety will be responsible for preparing the after-action report.

F. If the corrective measures are not effective, Fossil Dam Safety will determine if there is time to take additional corrective measures.

G. If there is not time to take additional corrective measures and failure is imminent, declare an **Imminent Failure Emergency** (Condition A) and proceed to Step I.

H. If there is time to implement additional corrective measures, return to Step E. Additional support can be requested from Civil Field Services or outside contractors, as needed.

I. If an **Imminent Failure Emergency** has been declared by the Plant Manager or his designee, ensure that all personnel have been moved to a safe area and perform notifications per the Response Notification Flowchart (Appendix D). Document all communications using the appropriate forms contained in Appendix E. Once outside agencies have been notified of a problem or potential problem, the Plant Manager or his designee is responsible for keeping local EMAs informed of any change in conditions. Fossil Dam Safety will be responsible for preparing the after-action report.

6.2 Additional Considerations

All communication shall be documented using the *Data Recording Sheet* located in Appendix E.

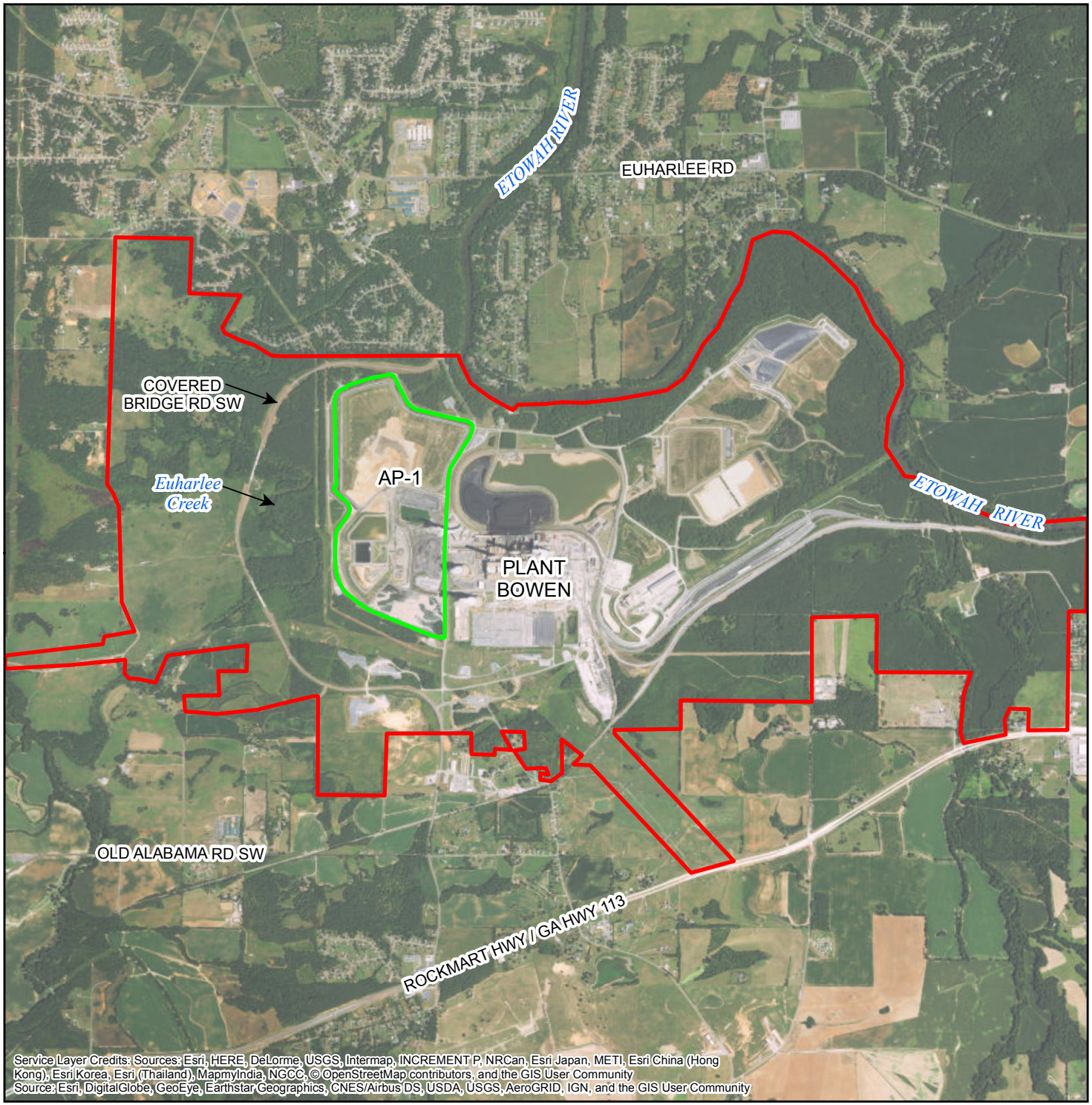
7.0 PROVISIONS FOR ANNUAL COORDINATION MEETING

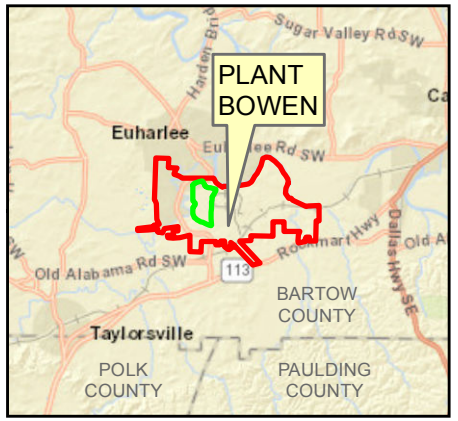
An annual face-to-face meeting will be held with representatives of Plant Bowen, GPC, and the emergency response agencies described in this plan. These emergency response agencies will include:

- Bartow County Emergency Management Agency
- Georgia Emergency Management Agency
- Bartow County Sheriff's Department
- Georgia Environmental Protection Division - Safe Dams Program

APPENDIX A

Plant Bowen Location Map – Figure 1
Ash Pond Overview – Figure 2





0 2.5 5
Miles

1 in = 5 miles

LEGEND

- Ash Pond Boundary
- Plant Boundary

N

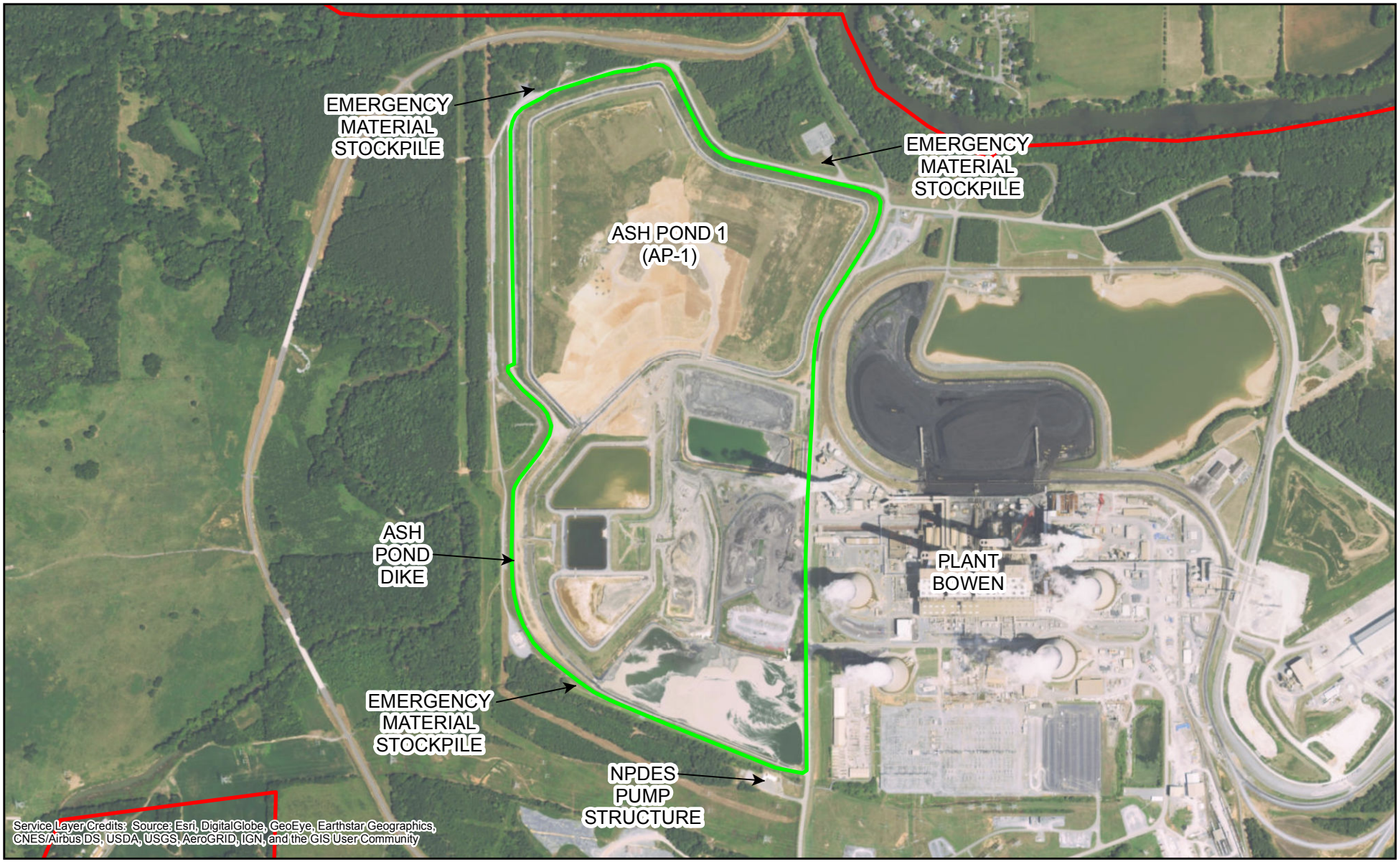
0 0.25 0.5 1
Miles

1 inch = 3,000 feet

FIGURE 1
PLANT BOWEN LOCATION MAP
BARTOW COUNTY, GEORGIA

Southern Company Services
FOR

Georgia Power Company



LEGEND

- Ash Pond Boundary
- Plant Boundary

N

0 500 1,000 2,000

Feet

1 inch = 1,080 feet

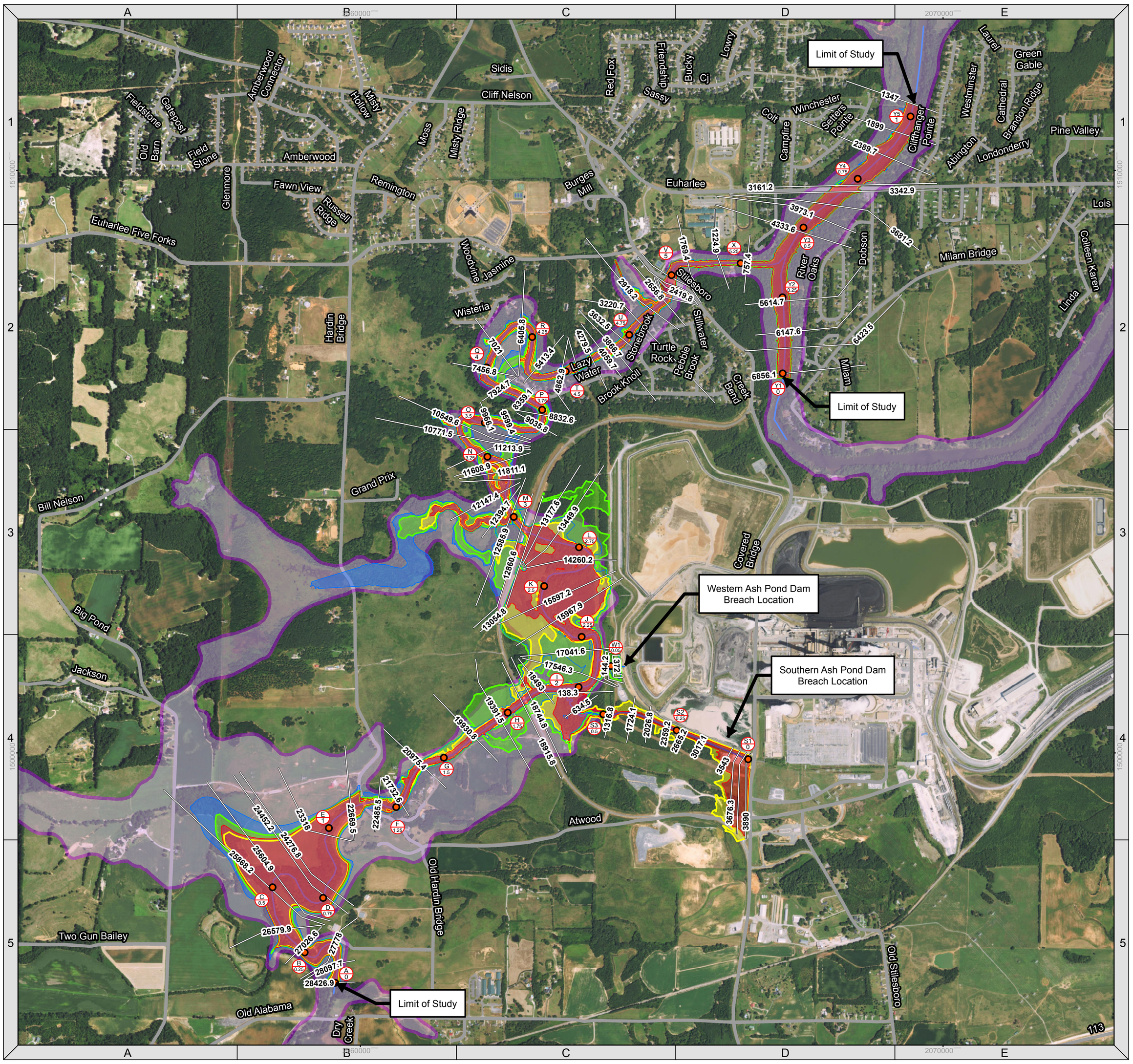
FIGURE 2
AP-1 OVERVIEW
PLANT BOWEN
BARTOW COUNTY, GEORGIA

Southern Company Services
FOR
Georgia Power Company

APPENDIX B

Inundation Maps

PLANT BOWEN ASH POND DAM
HAZARD CLASSIFICATION MAP



Southern Ash Pond

River Station	Cross Section	Normal Water Surface Elevation (ft)	Sunny Day Flow at Max WS Elevation (cfs)	Sunny Day Max WS Elevation (ft)	Sunny Day Change in Water Surface Elevation (ft)	Design Storm Flow at Max WS Elevation (cfs)	Design Storm Max WS Elevation (ft)	Design Storm Change in Water Surface Elevation (ft)
S1	3870.171	690.0	12604.4	711.3	21.3	7128.6	705.6	15.6
S2	2665.15	679.7	11797.4	706.0	26.3	6073.6	700.5	20.8
S3	1316.839	668.1	11594.2	688.8	20.7	5960.5	684.9	16.8
A	28426.9	663.3	100.0	667.1	3.8	500.0	667.9	4.6
B	27026.57	660.3	99.4	667.1	6.8	499.2	667.7	7.4
C	25868.15	659.8	99.2	667.1	7.3	498.4	667.6	7.8
D	24452.18	659.2	88.4	667.1	7.9	492.0	667.6	8.4
E	23318	658.7	85.9	667.1	8.4	478.1	667.6	8.9
F	21732.58	658.3	-3181.5	668.3	10.0	392.5	667.6	9.3
G	20975.41	658.1	-3201.0	669.3	11.2	-1682.2	667.7	9.6
H	19391.46	657.6	-3265.2	670.5	12.9	-1741.8	668.3	10.7
I	17546.27	657.0	6564.6	671.2	14.2	3583.3	668.7	11.7
J	15967.93	655.5	3243.8	668.6	13.1	1806.5	667.3	11.8
K	15597.22	655.4	2968.5	668.5	13.1	1731.8	667.3	11.9
L	14260.16	654.8	2580.9	668.3	13.5	1574.4	667.1	12.3
M	12585.89	653.0	2107.2	662.2	9.1	1315.4	661.1	8.1
N	11213.93	651.4	1967.2	661.6	10.2	1308.0	660.8	9.4
O	9966.09	650.5	1713.5	661.0	10.6	1305.3	660.4	9.9
P	8832.631	649.7	1636.6	660.6	10.9	1303.8	660.1	10.4
Q	7456.823	649.2	1628.1	660.2	11.0	1302.7	659.7	10.5
R	6405.76	648.9	1624.9	659.8	10.9	1302.4	659.5	10.6
T	4862.857	647.3	1624.1	659.3	12.0	1302.3	659.1	11.8
U	3632.526	645.8	1624.6	659.0	13.2	1302.1	658.9	13.1
V	2214.027	645.1	1401.7	653.2	8.1	1270.5	653.0	7.9
X	757.368	642.0	1362.5	652.0	10.0	1259.6	652.0	10.0
Y1	6856.051	642.0	300.0	652.04	10.0	300.0	652.0	10.0
Y2	5614.723	641.7	299.7	652.04	10.3	299.8	652.0	10.3
Y3	4333.642	641.7	1662.2	652.04	10.3	1559.5	652.0	10.3
Y4	3161.168	640.8	1532.8	644.53	3.7	1509.4	644.5	3.7
Y5	1346.953	638.0	1525.8	644.19	6.2	1506.5	644.1	6.1

Western Ash Pond

River Station	Cross Section	Normal Water Surface Elevation (ft)	Sunny Day Flow at Max WS Elevation (cfs)	Sunny Day Max WS Elevation (ft)	Sunny Day Change in Water Surface Elevation (ft)	Design Storm Flow at Max WS Elevation (cfs)	Design Storm Max WS Elevation (ft)	Design Storm Change in Water Surface Elevation (ft)
W1	290.4049	682.5	23522.6	695.3	12.8	11479.8	692.6	10.1
A	28426.9	663.3	100.0	668.8	5.5	2000.0	672.2	9.0
B	27026.57	660.3	99.0	668.8	8.5	1999.3	671.7	11.5
C	25868.15	659.8	94.8	668.8	9.0	1998.0	671.7	11.9
D	24452.18	659.2	80.2	668.8	9.6	1995.3	671.7	12.5
E	23318	658.7	38.3	668.8	10.1	1992.7	671.7	13.0
F	21732.58	658.3	-4429.3	669.7	11.4	842.5	671.5	13.2
G	20975.41	658.1	-4472.4	670.9	12.8	689.3	671.4	13.3
H	19391.46	657.6	-4657.0	672.3	14.7	-2119.3	671.6	14.0
I	17546.27	657.0	-6366.7	673.7	16.7	-2204.3	672.0	15.0
J	15967.93	655.5	7741.8	670.5	15.0	4269.1	670.1	14.6
K	15597.22	655.4	6439.5	670.4	15.0	4211.1	670.1	14.7
L	14260.16	654.8	4533.5	670.2	15.4	4096.7	669.9	15.1
M	12585.89	653.0	3379.7	664.8	11.8	3701.8	666.0	13.0
N	11213.93	651.4	3224.0	664.4	13.0	3647.2	665.6	14.2
O	9966.09	650.5	3043.5	663.6	13.2	3610.7	664.9	14.5
P	8832.631	649.7	2945.3	663.1	13.3	3588.1	664.3	14.6
Q	7456.823	649.2	2856.6	662.3	13.1	3562.1	663.6	14.4
R	6405.76	648.9	2819.8	661.8	12.9	3552.9	663.0	14.1
T	4862.857	647.3	2791.4	660.9	13.6	3547.2	662.0	14.7
U	3632.526	645.8	2784.4	660.4	14.6	3545.5	661.4	15.6
V	2214.027	645.1	2780.1	655.1	10.0	3544.7	656.1	11.0
X	757.368	642.0	2770.1	652.7	10.7	3543.8	653.0	11.0
Y1	6856.051	642.0	300.0	652.7	10.7	300.0	653.0	11.0
Y2	5614.723	641.7	299.5	652.7	11.0	299.9	653.0	11.3
Y3	4333.642	641.7	3069.8	652.7	11.0	3843.7	653.0	11.3
Y4	3161.168	640.8	2907.2	647.3	6.5	3822.8	648.8	8.0
Y5	1346.953	638.0	2902.3	647.0	9.0	3821.8	648.6	10.6

N
W E
S

Projection

NAD 1983 StatePlane Georgia West FIPS 1002 Feet

1 inch = 900 feet

0 300 600 1,200 1,800 2,400 Feet

NOTES
1. THE INUNDATION AREAS DEPICTED ARE THOSE RESULTING FROM THE HYPOTHETICAL FAILURE OF BOWEN ASH POND DAM.
THE FOLLOWING SCENARIOS ARE SHOWN HEREIN:
A. SUNNY DAY CONDITIONS WITH BREACH OF BOWEN ASH POND DAM.
B. DESIGN FLOOD CONDITIONS WITH BREACH OF BOWEN ASH POND DAM.

CREDITS
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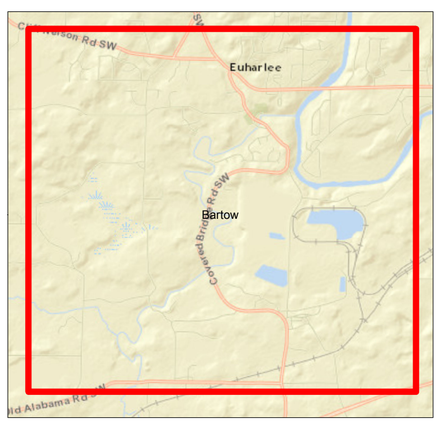
SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEX, GETMAPPING, AEROGRID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY

Legend

- RiverMiles
- Souther Dam Design Storm with Breach
- Southern Dam Sunny Day with Breach
- Western Dam Sunny Day with Breach
- Western Dam Design Storm with Breach
- 100yr_Floodplain
- Stream Centerline



Plant Bowen Ash Pond Dam
Hazard Classification Map

GEORGIA POWER
A SOUTHERN COMPANY

Page 1 of 1

Issue Date: SEPTEMBER 16, 2016

APPENDIX C

Incident Response Flowchart

Incident Response Flowchart

Imminent Failure or Potential Failure Emergencies

Problem Discovered

Call Emergency Number

Operator Notifies IC

Notify Environ. Compliance

Enviro. Compliance Evaluates

Immediate Threat

Notify E&CS Dam Safety

Potential Failure?

NO

Perform Repair/Maintenance **Non-Failure Condition**

END

YES

Time Available to Take Corrective Actions?

YES

Plant Manager Declares **Potential Failure**

Activate EAP, Perform All Notifications, Move Personnel to Safety at Plant Manager's Discretion

Implement Corrective Actions

Corrective Actions Effective?

NO

Time Available to Take Corrective Actions?

YES

YES

Update Personnel and Agencies per Notification Flowchart and Document Actions Taken

END

NO

Plant Manager Declares **Imminent Failure**

Activate EAP, Perform All Notifications, Move Personnel to Safety

Failure Occurs

NO

Update Personnel and Agencies per Notification Flowchart and Document Actions Taken

END

APPENDIX D

Response Notification Flowchart

Response Notification Flowchart

Imminent Failure or Potential Failure Emergencies

Incident Commander Declares Imminent or Potential Failure Emergency

2 → **Southern Co. Generation Executive Vice President**

3 → **GPC Corporate Communications**

1 → **Plant Bowen Security Office**

2 → **Georgia System Operator**

1 → **National Weather Service**
Peachtree City, GA
(770) 486-1133
Ext 241 or 242

Alternate:
Birmingham, AL
(205) 621-5650

3 → **Bartow County EMA**

Marcus Warren
Division Chief
Office: (770) 387-5089
Direct: (770) 387-5029
Mobile: (678) 491-0994

Dial 911

1 → **GEMA 24-Hour Line**
(800) 879-4362

Alternates:
(404) 635-7000

1 → **Plant Bowen Enviro. Compliance**

2 → **GPC Enviro. Affairs**

1 → **Civil Support**
(through Enviro. Affairs)

1 → **Fossil Dam Safety**

Referral Line
(205) 992-6601

See Next Page for Notifications by Fossil Dam Safety

Response Notification Flowchart

Imminent Failure or Potential Failure Emergencies

Fossil Dam Safety Notifications

Fossil Dam Safety

Referral Line
(205) 992-6601

1

Hydro Services

2

GPC Land Dept.

3

GPC Supply Chain Management

4

Georgia EPD Safe Dams Program

Tom Woosley
Office: (404) 463-2461

24-Hour Emergency
(404) 635-7200
(800) 241-4113

APPENDIX E

Data Recording Sheet

EMERGENCY ACTION PLAN
DATA RECORDING SHEET

The Data Recording Sheet will be used to record important information relating to dam safety emergency.

Team Member(s): _____

Date of Incident: _____

Time of Incident: _____

Type of Emergency: _____

Emergency Coordinator: _____

Description of Events:* _____

_____

_____

_____

_____

What is Being Done:* _____

_____

_____

_____

_____

*Attach additional pages as necessary.

For incoming questions, refer all calls to:

Media Inquiries: Georgia Power Company Corporate Communications

Plant Manager/Emergency Coordinator

EMA Inquiries:

GPC Environmental Affairs

Environmental Agency Inquiries:

APPENDIX F

Instructions for the Construction of an Emergency Reverse Filter

EMERGENCY REVERSE FILTER CONSTRUCTION

The purpose of the reverse filter is to slow down the flow of water in order to reduce the ability of the water to carry soil particles. The size of the soil particle that a flow of water can carry is a function of the 3rd power of the velocity of the flow. The slower the velocity, the less soil the water can carry. The other function of the filter is to trap soil particles before they exit.

The usual components of a reverse filter are as follows:

- GDOT washed #10 sand (10NS)
- # 89 stone
- # 57 stone
- GDOT Type 3 rip rap

These materials should be stockpiled in a location where they can easily and quickly be moved to the seepage site. Two truckloads of each type of material should be stored in a convenient location that is out of the way. It is best if they are located so that a backhoe or front end loader can pick them up and transfer them directly to the seepage site. Transport schemes that require multiple vehicles and multiple operators are usually impossible to implement at night or on weekends. The stockpiles should be labeled "Emergency Filter Stockpile – Emergency Use Only" to keep them from being appropriated for other purposes by those unaware of their purpose.

To build a reverse filter over a boil or area of concentrated seepage, follow the directions below. A cross section of the reverse filter construction is provided on the next page.

1) Clear loose material from around the site.

2) Place 6" of #10 washed sand over the area of concern, and extend it for at least 12" beyond the seepage limits.

3) Place 6" of #89 stone over the sand, and extend it for at least 6" beyond the sand.

4) Place 6" of #57 stone over the sand, and extend it for at least 6" beyond the #89 stone.

5) If necessary to stabilize the #57 stone, place rip rap on top of the #57 stone. Conditions that may make the rip rap necessary are anticipated surface flows that might wash away the filter or increasing seepage flows that may try to shift the lighter filter materials.

If the flow is too fast for the sand to remain in place, a layer of #57 stone or GDOT Type 3 rip rap may be placed over the boil to slow the flow down. This is followed by a layer of #89 stone, then the sand, and then the #89, #57 and rip rap in succession.

Sometimes a seep will pop out on the edge of a newly applied filter. In this case, it is generally necessary to apply the granular filter as a blanket to the general area rather than as a spot treatment. The layers are as described above but will cover a larger area.

Filter fabric or geotextile is not acceptable as a substitute for the sand. The fabric tends to smear and clog if applied in a wet situation.

CROSS SECTION OF A REVERSE FILTER OVER A SEEP OR BOIL