



VIA EMAIL

August 25, 2016

Mr. Jeffrey Maxted
Alliant Energy – Sr. Environmental Specialist
4902 North Biltmore Lane
Madison, WI 53718-2148

**Re: Hazard Potential Classification Assessment - §257.73(a)(2)
Alliant Energy – Interstate Power and Light Company
IPL – Burlington Generating Station
Burlington, Iowa**

Dear Mr. Maxted,

Hard Hat Services (HHS) completed the hazard potential classification assessment for the existing CCR surface impoundments located at the Interstate Power and Light Company (IPL) Burlington Generating Station in Burlington, Iowa.

Background Information

In accordance with the requirements set forth in §257.73(a)(2) of the CCR Rule, an owner or operator of an existing CCR surface impoundment must conduct initial and periodic hazard potential classification assessments of their CCR surface impoundment, except for those existing CCR surface impoundments that are incised. The owner or operator must determine each CCR surface impoundment hazard potential classification through a hazard potential classification assessment.

FEMA (FEMA Publication 333, Federal Guidelines for Dam Safety, Hazard Potential Classification System for Dams, April 2004) developed a “hazard potential” classification in order to classify surface impoundments based on the probable loss of human life, and the impacts on economic, environmental, and lifeline interests in the event of an unintentional release from a surface impoundment. Three hazard potential classification levels are used, as follows:

1. High Hazard Potential – Assigned to surface impoundments where failure or mis-operation will probably cause loss of human life.
2. Significant Hazard Potential – Assigned to surface impoundments where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, or disruption of lifeline facilities or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural

or agricultural areas but could be located in areas with population and significant infrastructure.

3. Low Hazard Potential – Assigned to surface impoundments where failure or mis-operation has no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner’s property.

Facility Specific Information

The IPL – Burlington Generating Station (BGS) is located at 4282 Sullivan Slough Road, Burlington, Iowa 52601. Figure 1 provides both a topographic map and an aerial of the BGS facility location, with the approximate property boundary of the facility identified. BGS has four existing CCR surface impoundments, which are identified as follows:

- BGS Ash Seal Pond
- BGS Main Ash Pond
- BGS Economizer Pond
- BGS Upper Ash Pond

BGS Ash Seal Pond

The BGS Ash Seal Pond is located south of the generating plant and east of the BGS Main Ash Pond (Figure 2). The CCR, in 1968, was originally managed by discharging into the BGS Ash Seal Pond for settling. Presently, the BGS Ash Seal Pond only receives storm water runoff from the surrounding area associated with the fly ash storage silo. The BGS Ash Seal Pond also may receive facility process water, such as ash seal water, but only if there is an issue with the ash seal water pumps. At the time of the initial annual inspection on October 26, 2015 this CCR surface impoundment did not contain standing water.

Within the limits of the BGS Ash Seal Pond, the U.S. Fish and Wildlife Service National Wetlands Inventory has identified 0.65 acres “Freshwater Emergent Wetland” with Classification Code PEMAX.

The surface area of the BGS Ash Seal Pond is approximately 5.7 acres and has an embankment height of approximately 12 feet from the crest to the toe of the downstream slope. The interior storage depth of the BGS Ash Seal Pond is approximately 8.5 feet. The total volume of impounded CCR and water within the BGS Ash Seal Pond is approximately 97,000 cubic yards.

BGS Main Ash Pond

The BGS Main Ash Pond is located southwest of the generating plant and west of the BGS Ash Seal Pond (Figure 2). The CCR, prior to being sluiced to the BGS Main Ash Pond, was originally managed in the BGS Ash Seal Pond in 1968. In 1971, BGS managed CCR in the BGS Upper Ash Pond. In 1980, the BGS Main Ash Pond became the primary receiver of CCR, with the BGS Upper Ash Pond becoming a downstream receiver.

Presently, the BGS Main Ash Pond receives bottom ash that is sluiced from the generating plant to the northeast corner of the BGS Main Ash Pond where the majority of the bottom ash settles

out. The bottom ash is recovered for beneficial reuse. Hydrated fly ash is also stored within the Main Ash Pond area prior to being sold as aggregate material for beneficial reuse. Fly ash from the on-site storage silo is no longer added to the pile for storage

The water used to sluice the bottom ash into the BGS Main Ash Pond is routed towards the west end of the BGS Main Ash Pond. The water flows to the west along the north side of a road constructed out of bottom ash through the center of the BGS Main Ash Pond. The water flows along the north side of the road until it reaches the west end where it transitions into a ponded area in the northwest corner of the BGS Main Ash Pond. The water in the northwest corner of the BGS Main Ash Pond flows through two corrugated metal culverts under the generating plant entrance road. The water discharges into a small channel in the southwest corner of the BGS Upper Ash Pond located north of the generating plant entrance road.

Immediately south of the BGS Main Ash Pond the U.S. Fish and Wildlife Service National Wetlands Inventory has identified a “Freshwater Forested/Shrub Wetland” with Classification Codes: PF01A (135 acres) and PF01C (559 acres).

The surface area of the BGS Main Ash Pond is approximately 18.7 acres and has an embankment height of approximately 12 feet from the crest to the toe of the downstream slope. The interior storage depth of the BGS Main Ash Pond is approximately 8 feet. The total volume of impounded CCR and water within the BGS Main Ash Pond is approximately 240,000 cubic yards. Additional volume of impounded CCR, located in the eastern half of the BGS Main Ash Pond above the crest elevation of the embankment, includes the bottom ash storage area and C-stone pile. In 2008, the quantity of the additional CCR above the crest elevation of the embankment is approximately 104,000 cubic yards.

BGS Economizer Pond

The BGS Economizer Pond is located northwest of the generating plant and north of the BGS Main Ash Pond (Figure 2). In 1986, BGS constructed the BGS Economizer Pond in the southern and eastern portion of the original footprint of the BGS Upper Ash Pond. The pond has resulted from economizer ash that has been deposited since 1986, which created the economizer ash pile.

Presently, the BGS Economizer Pond receives economizer ash. The economizer ash is sluiced from the generating plant to the east end of the BGS Economizer Pond via a 10-inch diameter polyvinyl chloride pipe. The economizer ash settles out through the water column of the BGS Economizer Pond while the water flows to the west. The water discharges from the BGS Economizer Pond through an 18-inch diameter high-density polyethylene pipe into a storm water and process water channel located along the south side of the economizer ash pile.

The storm water and process water channel receives the majority of the generating plant storm water. The collected storm water drains into a pump vault located at the toe of the downstream slope of the east embankment of the BGS Economizer Pond. Plant process water flows through an oil/water separator and receives influent flows from the plant floor drains and water treatment process water. After the oil/water separator, the process water discharges into the pump vault. The storm water and process water is then pumped from the vault up to the storm water channel. The storm water channel flows to the west along the south side of the economizer ash pile until

it discharges through an 18-inch diameter high-density polyethylene pipe located in the southwest corner of the economizer ash pile. The water from the storm water channel discharges into a small channel located west of the economizer ash pile and north of the generating plant entrance road. The water in the channel flows to the west along the north side of the generating plant entrance road. The water is then routed to the north along the east side of Sullivan Slough Road, and then along the south side of the gravel dike of the BGS Upper Ash Pond until it discharges into the southwest corner of the BGS Upper Ash Pond.

The total surface area of the BGS Economizer Pond and economizer ash pile is approximately 11 acres and has an embankment height of approximately 13 feet from the crest to the toe of slope. The interior storage depth of the top of the economizer ash pile to the bottom of the original footprint of the BGS Upper Ash Pond is approximately 27 feet. Thus, the total volume of impounded CCR and water within the BGS Economizer Pond is approximately 480,000 cubic yards.

BGS Upper Ash Pond

The BGS Upper Ash Pond is located northwest of the generating plant and north of the BGS Main Ash Pond. In 1971, BGS began managing CCR in the BGS Upper Ash Pond (Figure 2). In 1980, the BGS Main Ash Pond became the primary receiver of CCR and the BGS Upper Ash Pond became a downstream receiver of the BGS Main Ash Pond.

Presently, the BGS Upper Ash Pond receives influent flows from the BGS Main Ash Pond, BGS Economizer Pond, and storm water and process water flow from the generating plant. The influent flows all discharge into a small channel located in the southwest corner of the BGS Upper Ash Pond. The water in the channel routed along the south side of the gravel dike of the BGS Upper Ash Pond until it discharges into the southwest corner of water body within the BGS Upper Ash Pond.

The water flows through the BGS Upper Ash Pond water body to the northeast towards a 24-inch wide precast concrete Parshall flume that discharges into a concrete catch basin. The water in the catch basin flows through a 15-inch diameter polyvinyl chloride pipe and discharges into the BGS Lower Pond. Instrumentation associated with BGS Upper Ash Pond includes a flow meter that monitors the discharges. The discharge from the concrete catch basin enters the Lower Pond. The Lower Pond contains the facility's National Pollution Discharge Elimination System (NPDES) Outfall 001. The water flows through the NPDES Outfall 001 hydraulic structure, which consists of cast in place weir box.

Immediately north of the BGS Upper Ash Pond the U.S. Fish and Wildlife Service National Wetlands Inventory has identified several wetlands that are "Freshwater Forested/Shrub Wetland" and "Freshwater Emergent Wetland" with Classification Codes: PEMFx (0.84 acres) and PF01Cx (1.5 acres).

The total surface area of the BGS Upper Ash Pond is approximately 13.3 acres and has an embankment height of approximately 10 feet from the crest to the toe of the downstream slope. The interior storage depth of the BGS Upper Ash Pond is approximately 7 feet. The volume of

impounded CCR and water within the BGS Upper Ash Pond is approximately 150,000 cubic yards.

Hazard Potential Classification

Each existing CCR surface impoundment has been assigned a hazard potential classification, as identified below.

BGS Ash Seal Pond

BGS Ash Seal Pond has been assigned a **Significant Hazard Potential** classification. Misoperation or failure will likely not result in loss of life as there are no occupied buildings or residences located in the immediate vicinity of the CCR surface impoundment. There is minimal potential to disrupt a lifeline as there are no local streets or county roads located near the CCR surface impoundment that are likely to be become engulfed. The west, north, and east sides of the impoundment are incised. A release to the south into the high flow rate of the condenser discharge channel, would likely result in CCR carried into the Mississippi river where CCR has the potential to be transported downstream causing economic losses and environmental damages beyond the property limits.

BGS Main Ash Pond

BGS Main Ash Pond has been assigned a **Significant Hazard Potential** classification. Misoperation or failure will likely not result in loss of life as there are no occupied buildings or residences located in the immediate vicinity of the CCR surface impoundment. There is minimal potential to disrupt a lifeline as there are no local streets or county roads located near the CCR surface impoundment that are likely to be become engulfed. The north and east sides of the impoundment are incised. A release to the west has limited impact as the elevation embankment and road are nearly the same elevation and the road ditch drains to the south into the wetland south of the impoundment. A release to the south has the potential to disturb a wetland area, which is identified in the U.S. Fish and Wildlife Service National Wetlands Inventory as a “Freshwater Forested/Shrub Wetland” with Classification Codes: PF01A and PF01C. Additionally, a release to the south into the high flow rate of the condenser discharge channel, would likely result in CCR carried into the Mississippi river where CCR has the potential to be transported downstream causing economic losses and environmental damages beyond the property limits.

BGS Economizer Pond

BGS Economizer Pond has been assigned a **Low Hazard Potential** classification. Misoperation or failure will likely not result in loss of life as there are no occupied buildings or residences located in the immediate vicinity of the CCR surface impoundment. Sullivan Slough Road, immediately south of the economizer ash pile, has the potential to become engulfed if a failure of the embankment were to occur. A CCR release to the north would likely be contained within the limits of the BGS Upper Ash Pond and BGS Lower Pond. A release to the east would engulf the open areas of the facility property. A release to the west would likely stay within the limits of the BGS Upper Ash Pond. The facility does have an alternate exit route via the road constructed atop of the Upper Ash Pond embankment. Therefore in the event of a release ingress and egress from the facility can be maintained. In all cases a release, CCR from the surface

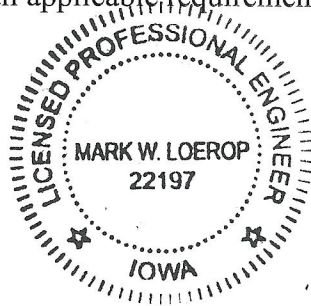
impoundment would principally be limited to the facility property and there would likely be low economic losses and environmental damages.

BGS Upper Ash Pond

BGS Upper Ash Pond has been assigned a **Low Hazard Potential** classification. Mis-operation or failure will likely not result in loss of life as there are no occupied buildings or residences located in the immediate vicinity of the CCR surface impoundment. There is a minimal potential to disrupt a lifeline as there are no local streets or county roads located near the CCR surface impoundment. A release to the north has the potential to disturb the identified wetland area PF01Cx located north of the BGS Lower Pond, but would likely be limited to the facility property. Therefore low economic losses and environmental damages would likely be limited to the facility property.

Qualified Professional Engineer Certification

To meet the requirements of 40 CFR 257.73(a)(2)(ii), 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)(2).



By: _____

Name: _____

Date: _____

[Handwritten Signature]
MARK LOEROP
8-25-2016

cc: Tony Morse, Alliant Energy

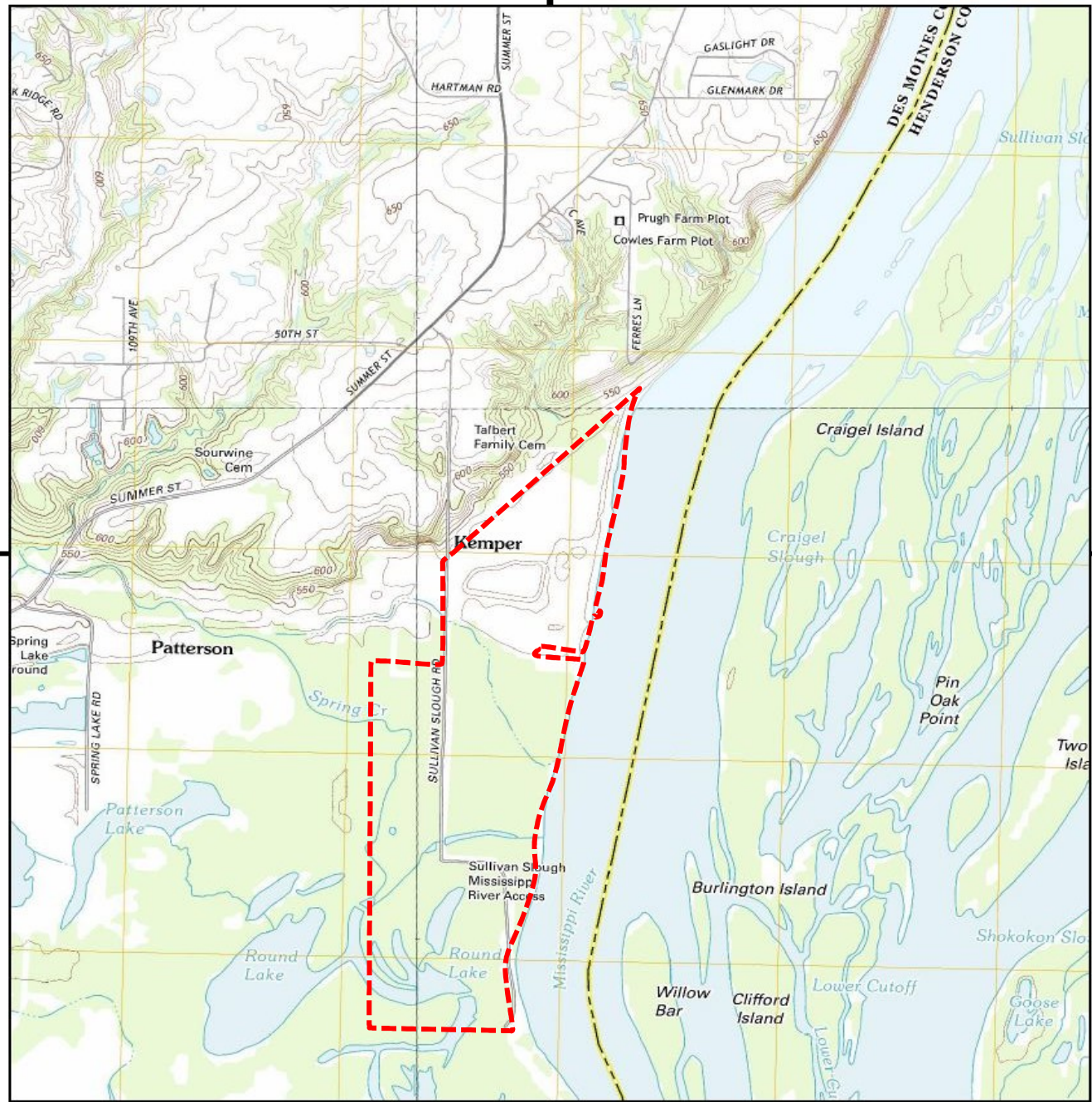
att: Figure 1 – Site Location
Figure 2 – Wetland Location Map

MWL/tjh/CTS

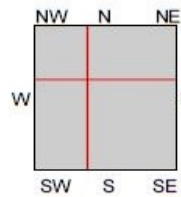
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Historical Topo Map

2012, 2013



This report includes information from the following map sheet(s).

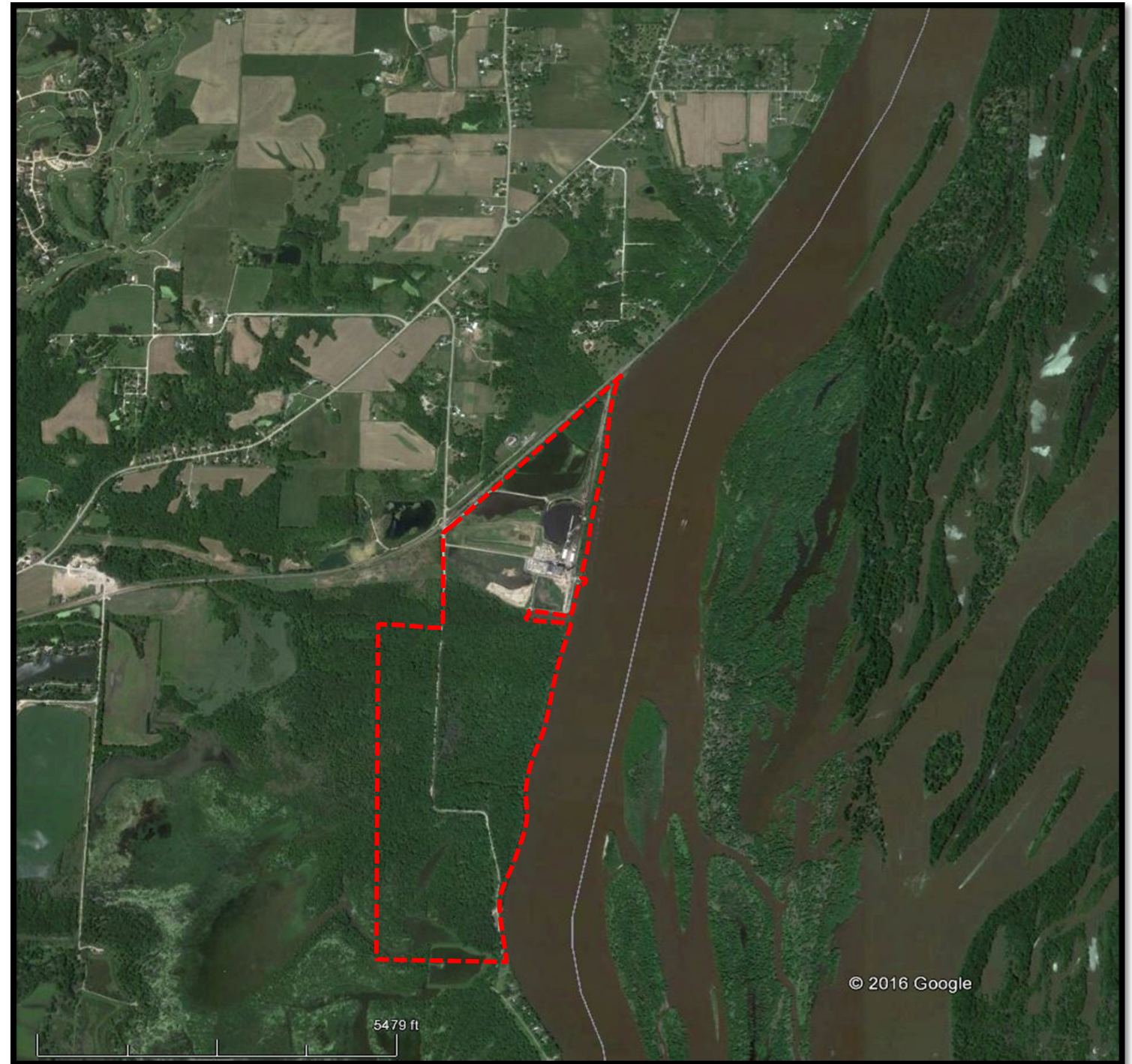


TP, Lomax, 2012, 7.5-minute
 NE, Burlington, 2013, 7.5-minute
 SW, Dallas City, 2012, 7.5-minute
 NW, West Burlington, 2013, 7.5-minute

SITE NAME: Burlington Generating Station
 ADDRESS: 4282 Sullivan Slough Road
 Burlington, IA 52601
 CLIENT: Environmental Site Assessors

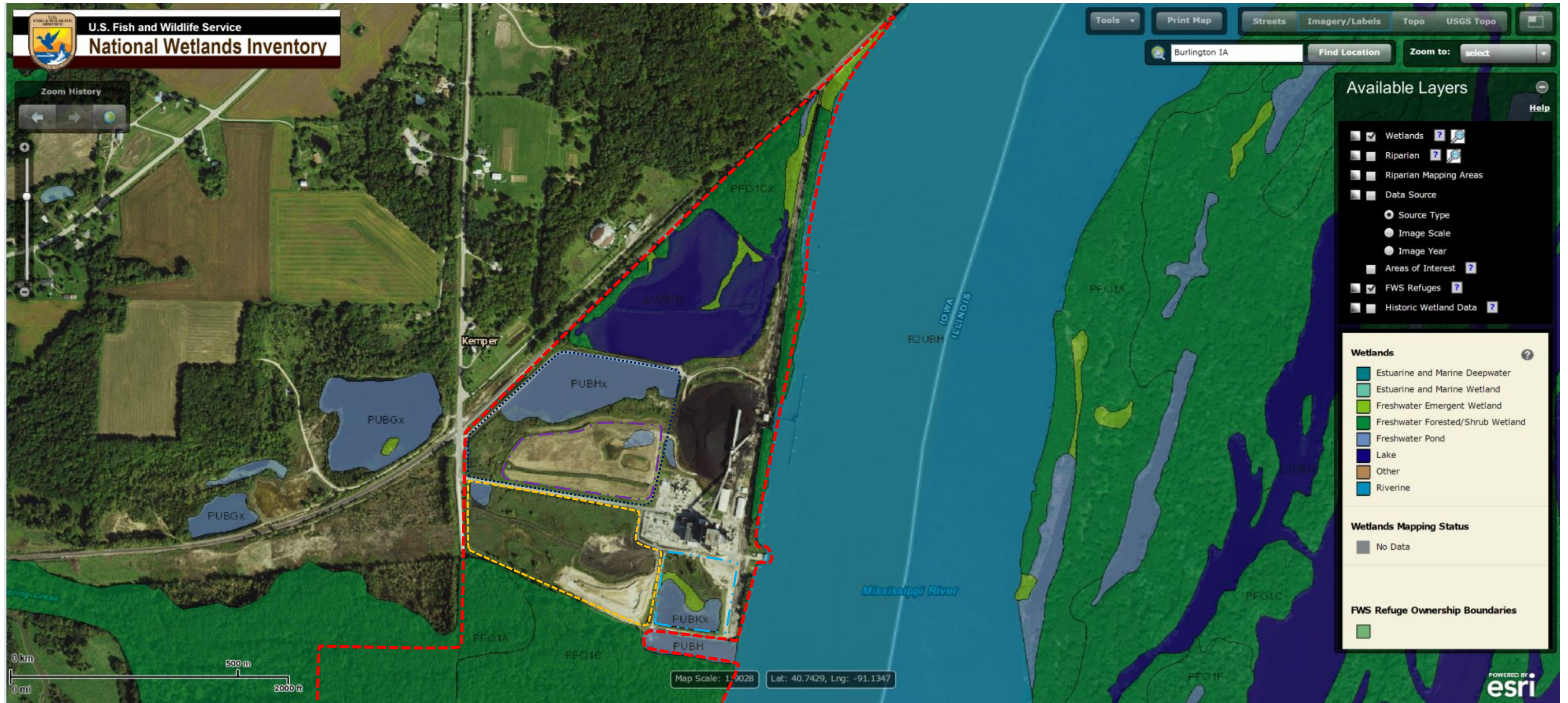


Historical Aerial Photo 6/12/2014



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----- Approximate Property Boundary



- - - - - Approximate Property Boundary
- . . . - BGS Ash Seal Pond
- - - - - BGS Main Ash Pond
- BGS Upper Ash Pond
- . . . - BGS Economizer Pond



Wetland Location Map
Burlington Generating Station
Intersate Power and Light Company

Drawing
Figure 2
Date
5/25/2016