BEFORE THE
ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF: PETITION OF SOUTHERN ILLINOIS POWER COOPERATIVE FOR AN ADJUSTED STANDARD FROM 35 ILL. ADMIN. CODE PART 845 OR, IN THE ALTERNATIVE, A FINDING OF INAPPLICABILITY	AS 2021-006 (Adjusted Standard)

NOTICE OF FILING

To: Don Brown, Clerk of the Board
Illinois Pollution Control Board
60 E. Van Buren St., Ste 630
Chicago, Illinois 60605

Carol Webb, Hearing Officer
Illinois Pollution Control Board
60 E. Van Buren St., Suite 630
Chicago, Illinois 60605

Stefanie N. Diers, Deputy General Counsel
Gabriel H. Neibergall, Assistant Counsel
Rebecca Strauss, Assistant Counsel
Kaitlyn Hutchison
Illinois Environmental Protection Agency
1021 N. Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794

PLEASE TAKE NOTICE that I have today electronically filed with the Office of the Clerk of the Illinois Pollution Control Board the attached **Certificate of Service**, **SIPC's Index of Hearing Exhibits**, and—pursuant to 35 Ill. Admin. Code § 101.627—**SIPC's Hearing Exhibits 48 through 56**, copies of which are hereby served upon you.

Dated: June 13, 2025

Respectfully Submitted,

SOUTHERN ILLINOIS POWER COORPERATION

/s/ *Sarah l. Lode*

One of its Attorneys

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CERTIFICATE OF SERVICE

I, the undersigned, certify that on this 13th day of June, 2025:

I have electronically served a true and correct copy of the Notice of Filing, SIPC's Index of Hearing Exhibits, SIPC's Hearing Exhibits 48 through 56, and this Certificate of Service by e-mail upon the following persons:

Don Brown, Clerk of the Board
Carol Webb, Hearing Officer
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My e-mail address is Sarah.Lode@afslaw.com;

The number of pages in the e-mail transmission is 119.

The e-mail transmission took place before 5:00 p.m.

/s/ *Sarah L. Lode*

Dated: June 13, 2025

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SIPC'S INDEX OF HEARING EXHIBITS

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SIPC Ex. 51	*Curriculum Vitae* of David Hagen
SIPC Ex. 52	Testimony of David Hagen PowerPoint Demonstrative
SIPC Ex. 53	*Curriculum Vitae* of Kenneth W. Liss
SIPC Ex. 54	Testimony of Kenneth W. Liss PowerPoint Demonstrative
SIPC Ex. 55	Testimony of Ari S. Lewis PowerPoint Demonstrative
SIPC Ex. 56	Testimony Exhibits for Andrew Bittner, P.E. PowerPoint Demonstrative

EXHIBIT 48

Testimony of Wendell Watson

AS 2021-006: *IN THE MATTER OF: PETITION OF SOUTHERN ILLINOIS POWER COOPERATIVE FOR AN ADJUSTED STANDARD FROM 35 ILL. ADMIN. CODE PART 845 OR, IN THE ALTERNATIVE, A FINDING OF INAPPLICABILITY*

Wendell Watson

Director of Environmental Services, SIPC

Education

- Bachelor of Chemistry from Illinois State University (1986)

Work History

- Began working at SIPC in June 2018
- Currently holds the position of Director of Environmental Services
- Prior to working at SIPC, worked as an environmental manager for 30 years

Involvement in this Proceeding

- Prepared Revised SIPC Ex. 1 in support of SIPC's Second Amended Petition

SIPC & Marion Generating Station

SIPC is Governed by Seven Electric Distribution Cooperatives

- Clinton County Electric Cooperative, Inc.
- Egyptian Electric Cooperative Association
- Monroe County Electric Co-Operative
- SouthEastern Illinois Electric Cooperative, Inc.
- Southern Illinois Electric Cooperative
- Tri-County Electric Cooperative, Inc.
- Clay Electric Co-operative, Inc.

Marion Generating Station

- Gas- and coal-fired power facility located roughly 7 miles south of the City of Marion, IL
- Employs approximately 77 people
- Utilizes nearby Lake of Egypt for cooling water
- Closest drinking water well is about 2,000 feet away

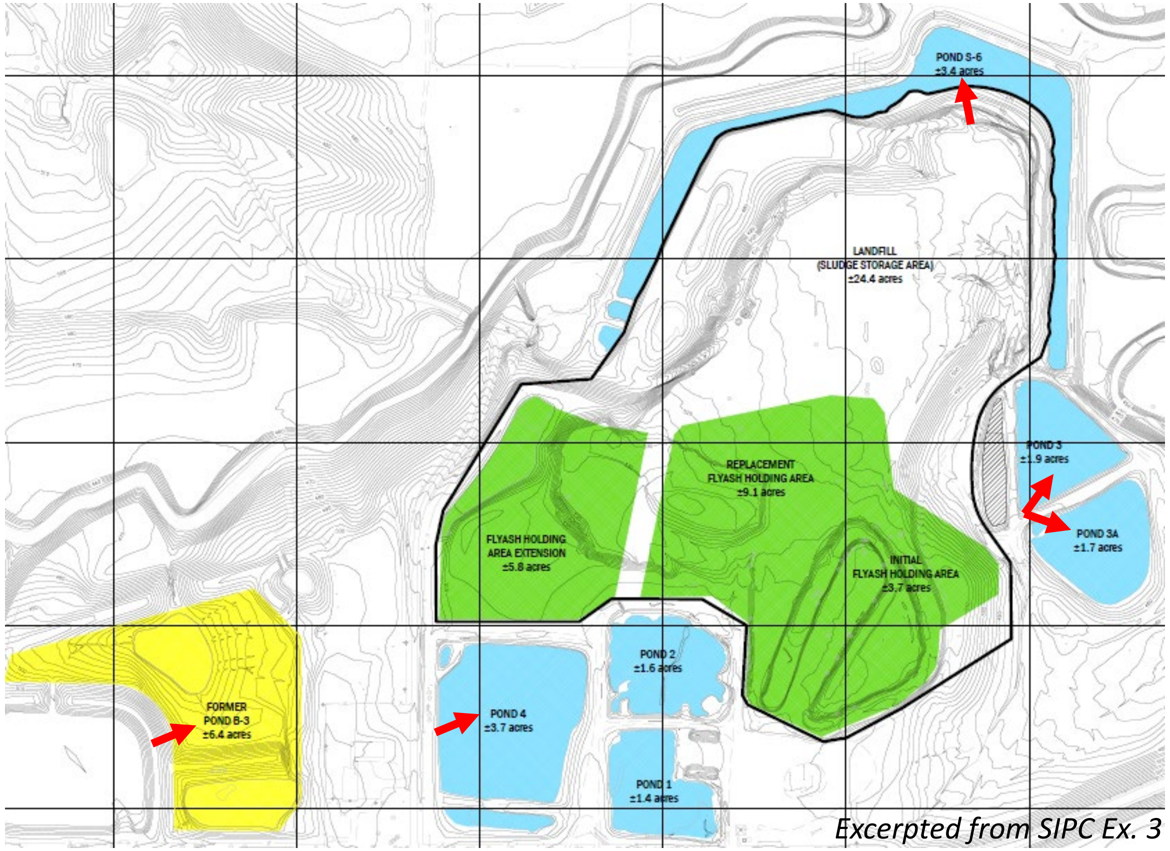
Marion Generating Station at night, available at https://www.sipower.org/power-supply/

Generating Units and Ash Handling

Unit	Operation	Ash Generated	Ash Handling
Unit 123 Boiler	Early 2000s to current	Fly ash and bed ash (bottom ash and limestone)	All ash is handled dry and used off-site for mine reclamation or sold for other beneficial uses
Units 1, 2, and 3	1962 to June 2003	Fly ash and bottom ash	[Stopped operating in the early 2000s]
Unit 4	1978 to Oct. 2020	Fly ash, bottom ash, scrubber sludge, and after 2009, gypsum	• **Gypsum** collected and sold for other uses, such as an ingredient in cement • **Fly ash** handled dry and used off-site for mine reclamation or sold for other beneficial uses • **Bottom ash** sluiced to Pond 1 and 2, and then dredged and sold to shingle manufacturers, grit blasting companies, etc.

Units Subject to the Petition:

The De Minimis Units



Excerpted from SIPC Ex. 3

Excerpted from SIPC Ex. 3

Units Subject to the Petition:

South Fly Ash Pond

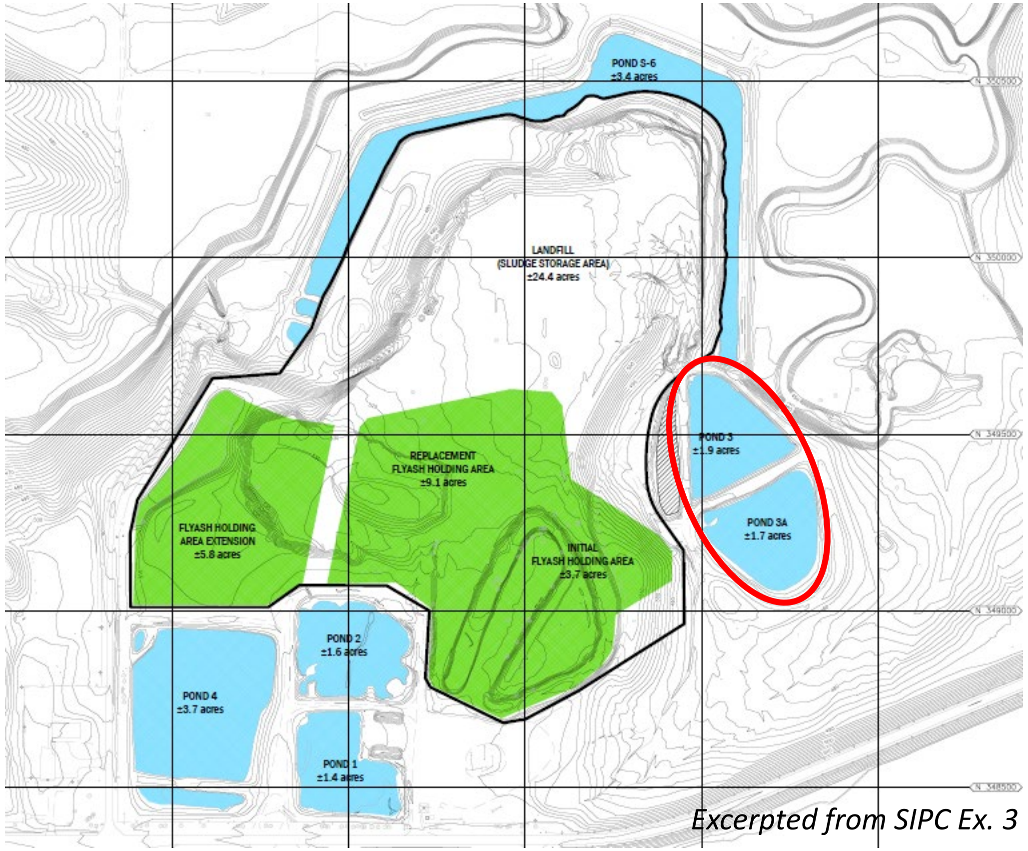
Uses

- Served as a secondary, finishing pond to Emery Pond
  - Received decant water from Emery Pond until it was closed by removal and retrofitted with a linear in 2021
- Following Emery Pond's closure by removal and retrofit, this unit continues to receive rainwater runoff and facility wastewater from what is now called the "stormwater basin"
- Did not directly receive CCR from boiler operations

Excerpted from SIPC Ex. 3

Units Subject to the Petition:

Pond 3 and 3A



Excerpted from SIPC Ex. 3

Uses

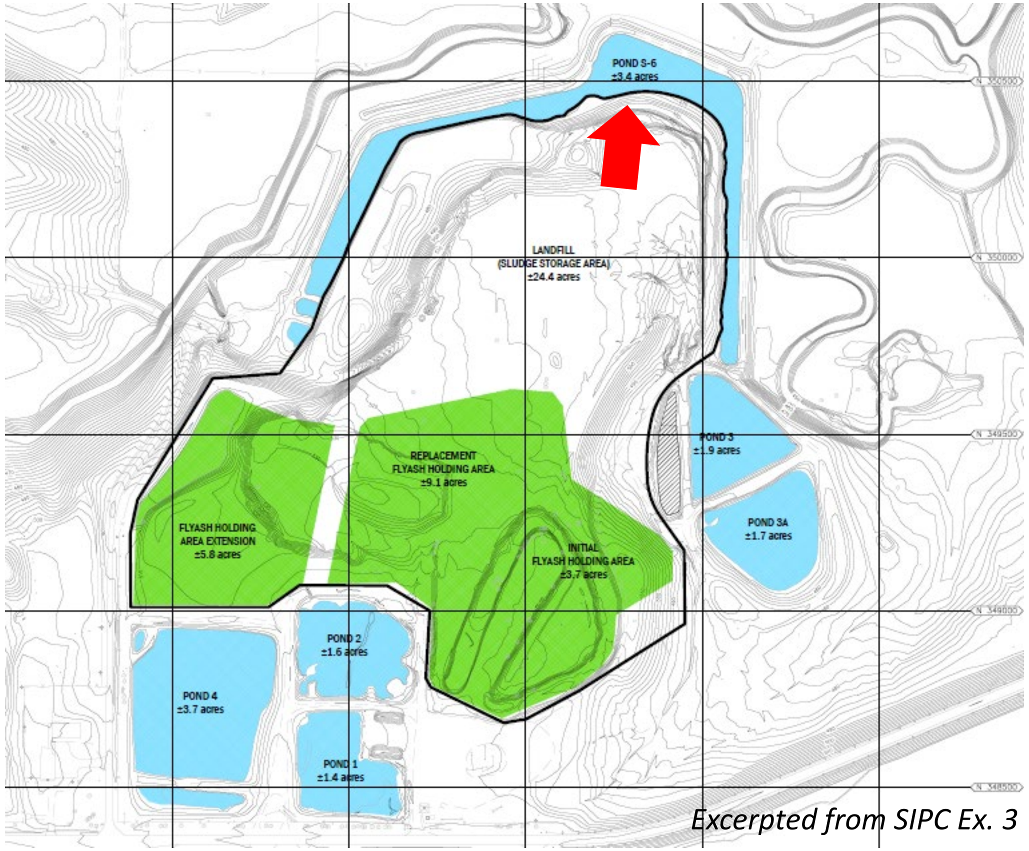
- Water from the South Fly Ash Pond is permitted to flow to Pond 3 (SIPC Ex. 13)
  - Acts as a finishing pond
  - Also receives stormwater runoff, coal pile runoff, and water from the facility’s floor drains
- In 1982, a berm was constructed that separated and continues to separate Ponds 3 and 3A
- Not designed to and did not directly receive CCR from boiler operations

Units Subject to the Petition:

Pond 6

Uses

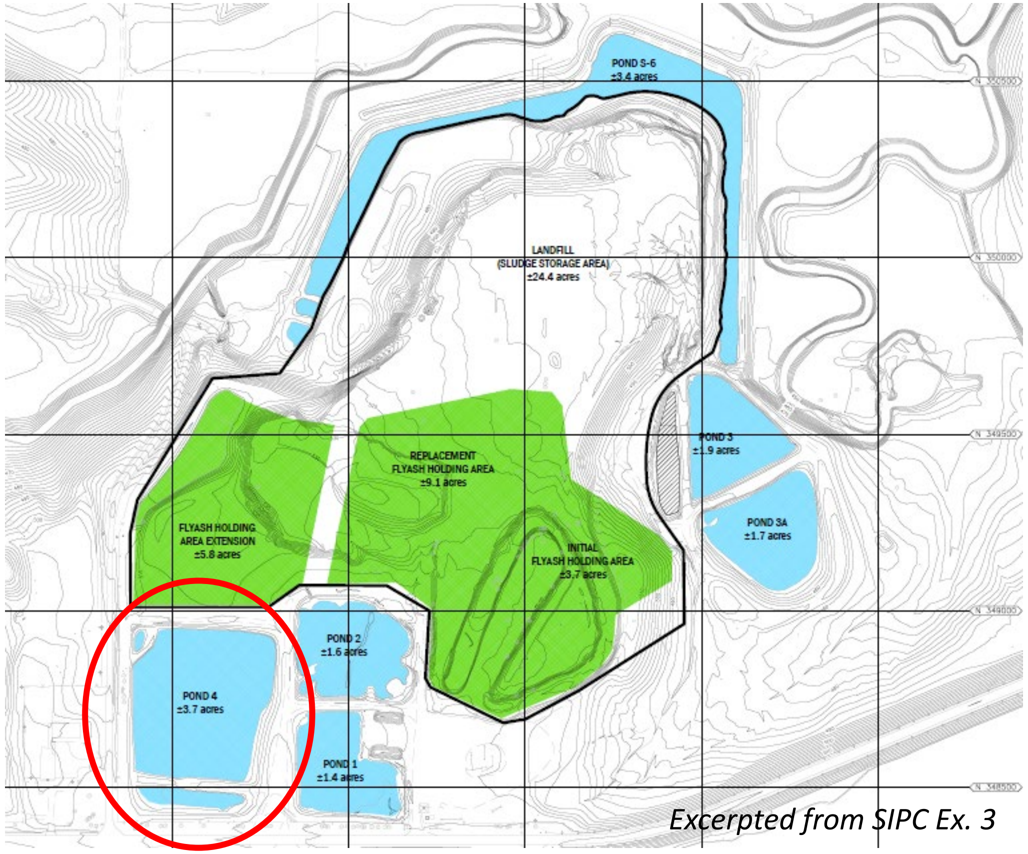
- Sometimes referred to in figures and historical documents as Pond S-6
- Serves as a stormwater runoff collection and finishing pond
    - Manages stormwater runoff associated with the Former CCR Landfill
    - Also receives decanted discharge waters from Pond 3/3A
- Not designed to and did not directly receive CCR from boiler operations
- Permitted to flow to Pond 4 (SIPC Ex. 13)



Excerpted from SIPC Ex. 3

Units Subject to the Petition:

Pond 4



Excerpted from SIPC Ex. 3

Uses

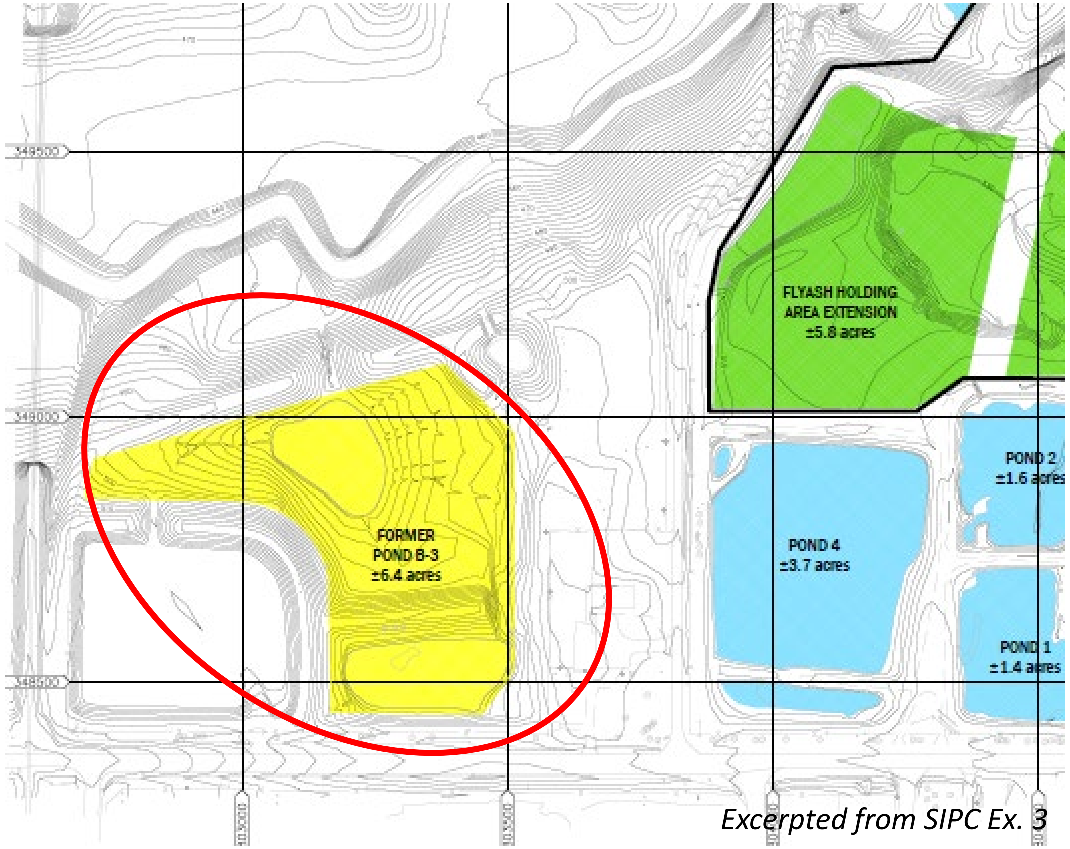
- Serves as a stormwater runoff and final finishing pond
  - Received decant water from Ponds 1 and 2, when they were in operation
  - Receives coal pile runoff
  - Receives decant overflow from Pond 6
  - Not designed to and did not directly receive CCR from boiler operations
- Discharges through NPDES Outfall 002 (SIPC Ex. 13)

Units Subject to the Petition:

Former Pond B-3

Uses

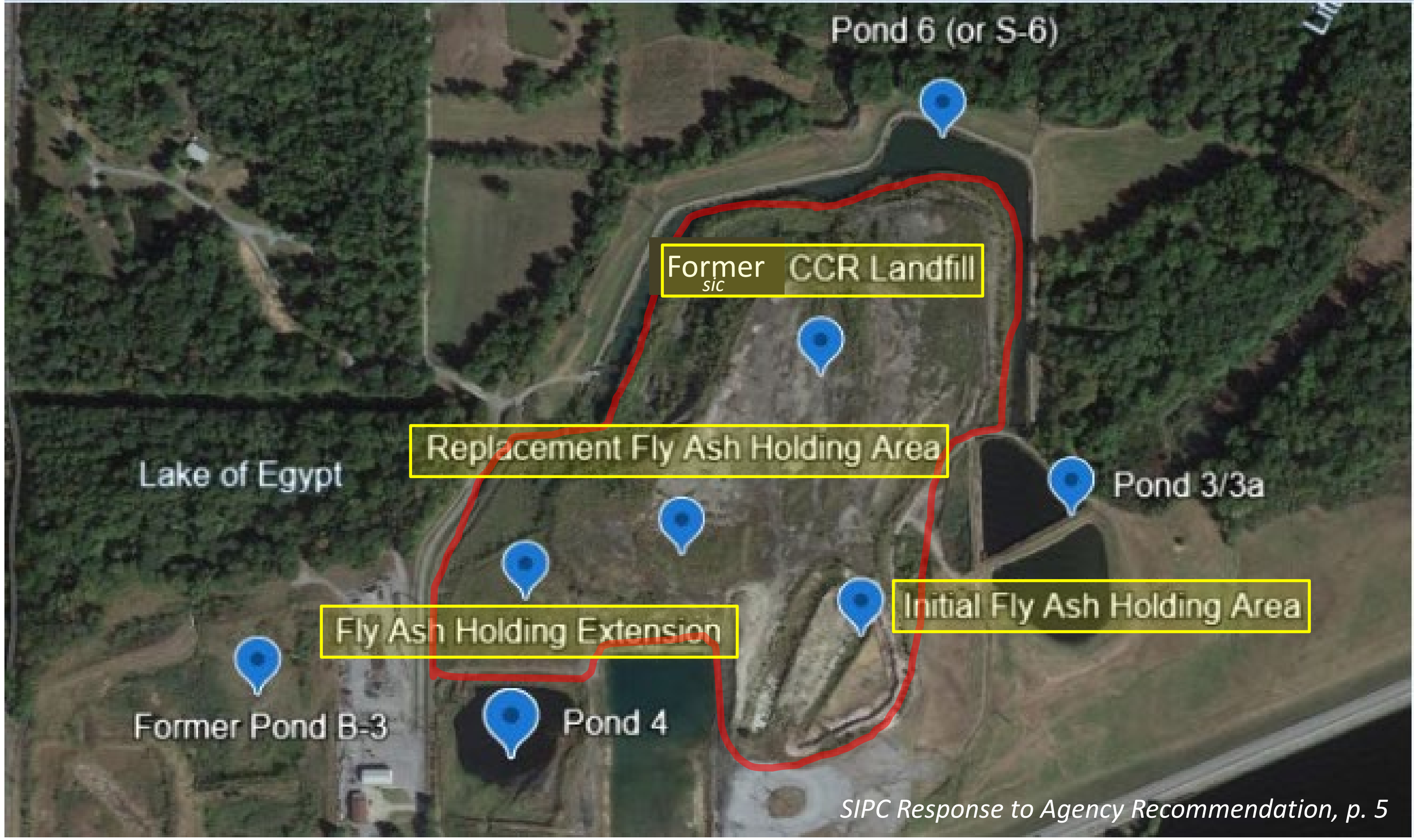
- Used primarily as a secondary finishing pond to Pond A-1
- No longer in operation and contains no sediment or water, except for the occasional rainwater



Excerpted from SIPC Ex. 3

Units Subject to the Petition:

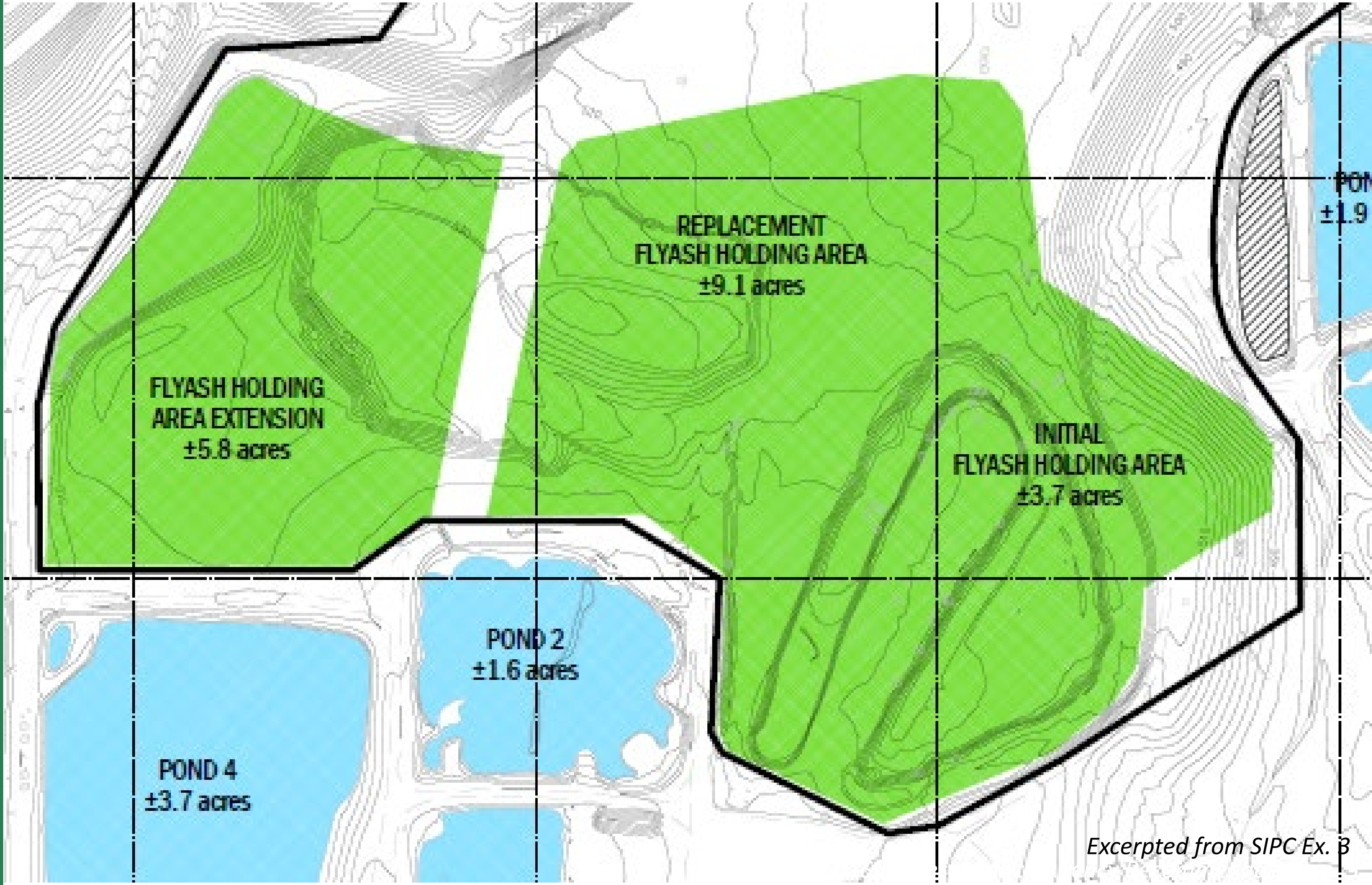
Former Fly Ash Holding Units & Former Landfill



SIPC Response to Agency Recommendation, p. 5

Units Subject to the Petition:

Former Fly Ash Holding Units



Units Subject to the Petition:

Former CCR Landfill

- Received scrubber sludge and fly ash
- Former CCR Landfill covers the dewatered Former Fly Ash Holding Units

SIPC Response to Agency Recommendation, p. 5

Electronic Filing: Received, Clerk's Office 06/13/2025

SIPC’s Requested Relief

Summary of Request

- SIPC requests the Board find Part 845 inapplicable to the (1) De Minimis Units, (2) Former Fly Ash Holding Units, and (3) the Former CCR Landfill.
- In the alternative, SIPC requests the Board adopt SIPC’s proposed adjusted standards for the (1) De Minimis Units, (2) Former Fly Ash Holding Units, and (3) the Former CCR Landfill.

Proposed Adjusted Standard

- If the Board grants SIPC’s proposed adjusted standards,
  - All units will be subject to all Part 845’s groundwater monitoring and corrective action requirements
  - All units will be close pursuant to Part 845 closure standards.

SIPC's Proposed Adjusted Standard:

Pond 3 and 3A/South Fly Ash Pond

Primary Adjustments:

- Timeframes for submitting operating and closure construction permit applications:
  - Operating permit application due 12 months after adjusted standard entry
  - Closure construction permit application due 16 months after adjusted standard entry
- SIPC will agree to closure by removal, so closure alternatives assessment would include only looking at closure by removal with onsite or offsite disposal

SIPC's Proposed Adjusted Standard:

Former Pond B-3

Primary Adjustments:

- Timeframe for submitting operating permit application:
  - Operating permit application due 12 months after adjusted standard entry
- Exemption from closure construction permit application requirements except for a final closure plan, which will be due within 16 months
- Exemption from location restriction, design criteria, and other operating criteria that do not make sense given Former Pond B-3's current physical state

SIPC's Proposed Adjusted Standard:

Pond 4

Primary Adjustments:

- Timeframes for submitting operating and closure construction permit applications:
  - Operating permit application due 12 months after adjusted standard entry
  - Closure construction or retrofit permit application due upon the earlier of the following occurrences:
    - (1) within 12 months of a finding that CCR within Pond 4 is the source of a groundwater protection standard exceedance, or
    - (2) the end of the life of the Marion Generating Station.
- SIPC will agree to closure by removal, so closure alternatives assessment would include only looking at closure by removal with onsite or offsite disposal

SIPC's Proposed Adjusted Standard:

The Former Landfill Area

Includes Pond 6, the Former Fly Ash Holding Unit, the Replacement Fly Ash Holding Unit, the Fly Ash Holding Area Extension, and the Former CCR Landfill.

Primary Adjustments:

- Timeframes for submitting operating and closure construction permit applications:
  - Operating permit and closure construction permit applications due in 18 months
  - Will allow time to determine if beneficial use of CCR is viable
- Closure alternatives assessment allows for closure by removal with beneficial use of the CCR remaining in the area, if SIPC determines, with IEPA oversight, that beneficial use to be a viable option
  - If beneficial use is viable, requires SIPC to request additional time for closure, in two-year increments, including a narrative describing why the extension in time is needed. No more than five two-year extensions will be allowed.
- If beneficial use is not viable, SIPC will close the Former Landfill Area via Part 845's closure in place performance standards, except for Pond 6, which SIPC would close by removal.

EXHIBIT 49

Electronic Filing: Received, Clerk's Office 06/13/2025

Testimony of Todd Gallenbach

AS 2021-006: *IN THE MATTER OF: PETITION OF SOUTHERN ILLINOIS POWER COOPERATIVE FOR AN ADJUSTED STANDARD FROM 35 ILL. ADMIN. CODE PART 845 OR, IN THE ALTERNATIVE, A FINDING OF INAPPLICABILITY*

Todd Gallenbach

Former Vice President of Power Production, SIPC

Education

- Bachelor of Science and Mechanical Engineering from Southern Illinois University (1988)

Work History

- Began working at SIPC in 1991; Retired from SIPC in 2022
- Formerly held the Vice President of Power Production position at SIPC for 25 years
- Formerly licensed as a Professional Engineer in the State of Illinois

Involvement in this Proceeding

- Prepared SIPC Ex. 2 in support of SIPC's Petition

Generating Units and Ash Handling

Units 1, 2, and 3 (1962 to June 2003)

Fly Ash

- Pre-1975: Small amounts of fly ash collected and likely transported to the Initial Fly Ash Holding Area
- 1975-77: *Precipitator installed*
  - Fly ash collected wet and conveyed to Initial Fly Ash Holding Area
- 1978-85: *Hydroveyor system modified*
  - Fly ash collected dry, mixed with Unit 4 scrubber sludge, and conveyed to the Former CCR Landfill
  - Spent water from hydroveyor piped to and disposed of in Replacement Fly Ash Holding Area
  - Fly ash may have been placed in Replacement Fly Ash Holding Area
- 1985-2003: *Pond A-1 constructed*
  - Fly ash collected dry, mixed with Unit 4 scrubber sludge, and conveyed to the Former CCR Landfill
  - Spent water from hydroveyor piped to and disposed of in Pond A-1
  - Fly ash may have been placed in Pond A-1

Bottom Ash

- 1962-2003: Bottom ash sluiced to Pond 1 and 2, then dredged and sold to shingle manufacturers, grit blasting companies, or other beneficial uses

Generating Units and Ash Handling

Unit 4 (1978 to Oct. 2020)

Fly Ash

- 1978-85: *Hydroveyor system modified*
  - Fly ash collected dry, mixed with scrubber sludge, and conveyed to the Former CCR Landfill
  - Spent water from hydroveyor piped to and disposed of in Replacement Fly Ash Holding Area
  - During SSM events, fly ash placed in Replacement Fly Ash Holding Area
- 1985-2003: *Pond A-1 constructed*
  - Fly ash collected dry, mixed with Unit 4 scrubber sludge, and conveyed to the Former CCR Landfill
  - Spent water from hydroveyor piped to and disposed of in Pond A-1
  - During SSM events, fly ash placed in Pond A-1
- 2003-2009: *Conversion to Circulating Fluidized Bed (CFB)*
  - Disposal practices remained the same, except conversion to the CFB allowed all ash to be collected and conveyed dry. No spent water was disposed of after 2003.
- 2009-2020: *Forced oxidation system installed*
  - Fly ash mixed with ash from Unit 123 and sold for mine reclamation or other beneficial uses

Scrubber Sludge

- 1978-2009: Scrubber sludge mixed dry with fly ash for disposal at the Former CCR Landfill
- 2009-2020: *Forced oxidation system installed*
  - Gypsum collected and sold for other uses, such as an ingredient in cement

Bottom Ash

- 1978-2020: Bottom ash sluiced to Pond 1 and 2, and then dredged and sold to shingle manufacturers, grit blasting companies, or other beneficial uses

Generating Units and Ash Handling
Unit 123 Boiler (June 2003 to Current)

Ash Generated by Unit 123 Boiler

- Fly ash and bed ash generated

Ash Disposal from Unit 123 Boiler

- All ash combined and collected dry then used off-site for mine reclamation or sold for other beneficial uses

Units Subject to this Petition:

The De Minimis Units

SOUTH FLY ASH POND, POND 3/3A, POND 6, POND 4, FORMER POND B-3

Units Subject to the Petition:

South Fly Ash Pond

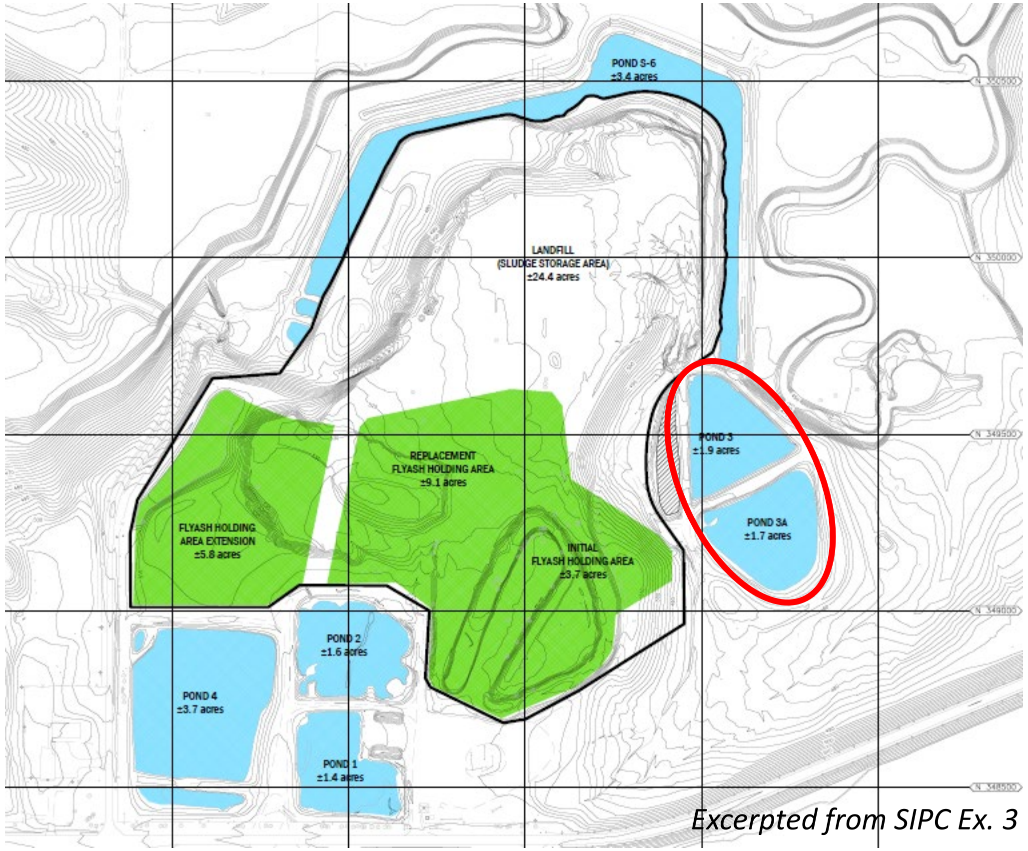
Uses

- Began operating in 1989
- Constructed to serve as a replacement for Pond A-1, if needed
  - Replacement not needed because Pond A-1 continued to operate until 2003
- Did not directly receive CCR from boiler operations
- Served as a secondary finishing pond to Emery Pond
  - Received decant water from Emery Pond until Emery Pond was closed and lined fall of 2020
- Following Emery Pond's closure and lining, collects storm water runoff from the coal pile and clarified water from Emery Pond

Excerpted from SIPC Ex. 3

Units Subject to the Petition:

Ponds 3 and 3A



Excerpted from SIPC Ex. 3

Uses

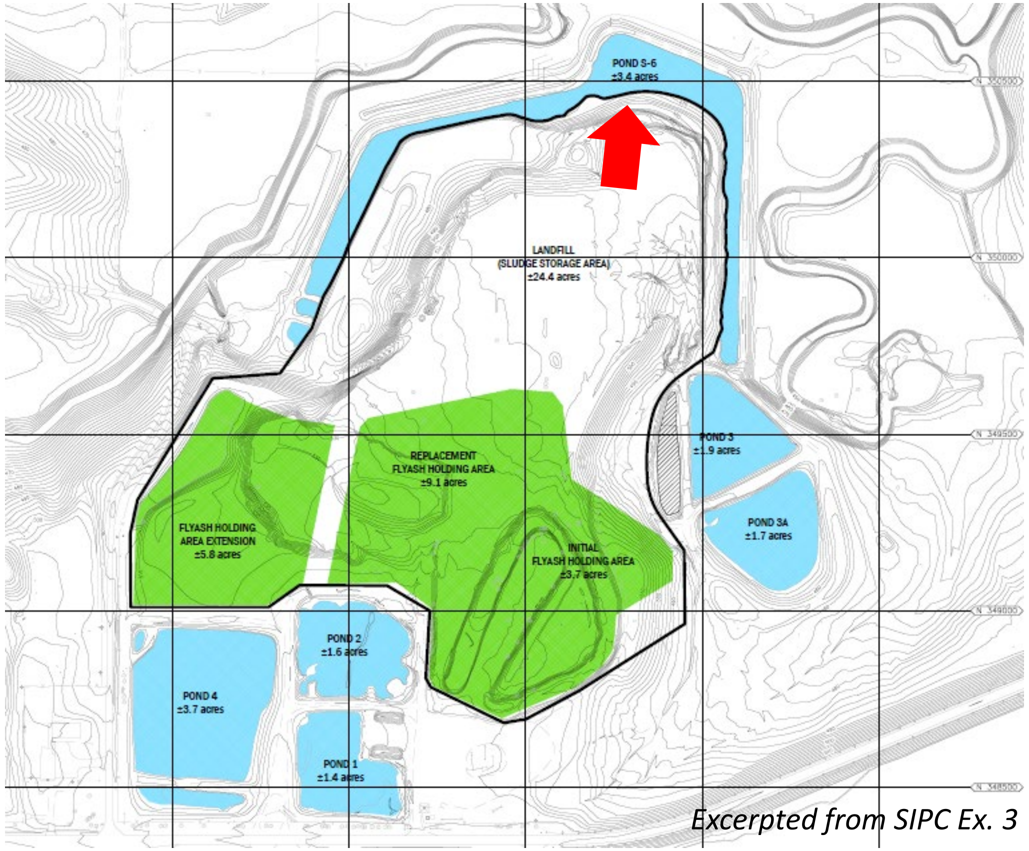
- Water from the South Fly Ash Pond is permitted to flow to Pond 3 (SIPC Ex. 13)
  - Also receives stormwater runoff, coal pile runoff, and water from the facility's floor drains
  - Acts as a finishing pond
- Historically may have received decanted overflow from Initial and Replacement Fly Ash Holding Areas
- Not designed to and did not directly receive CCR from boiler operations
- SIPC constructed a berm to the west of Pond 3/3A in 2007
  - Prevents landfill runoff from reaching that pond

Units Subject to the Petition:

Pond 6

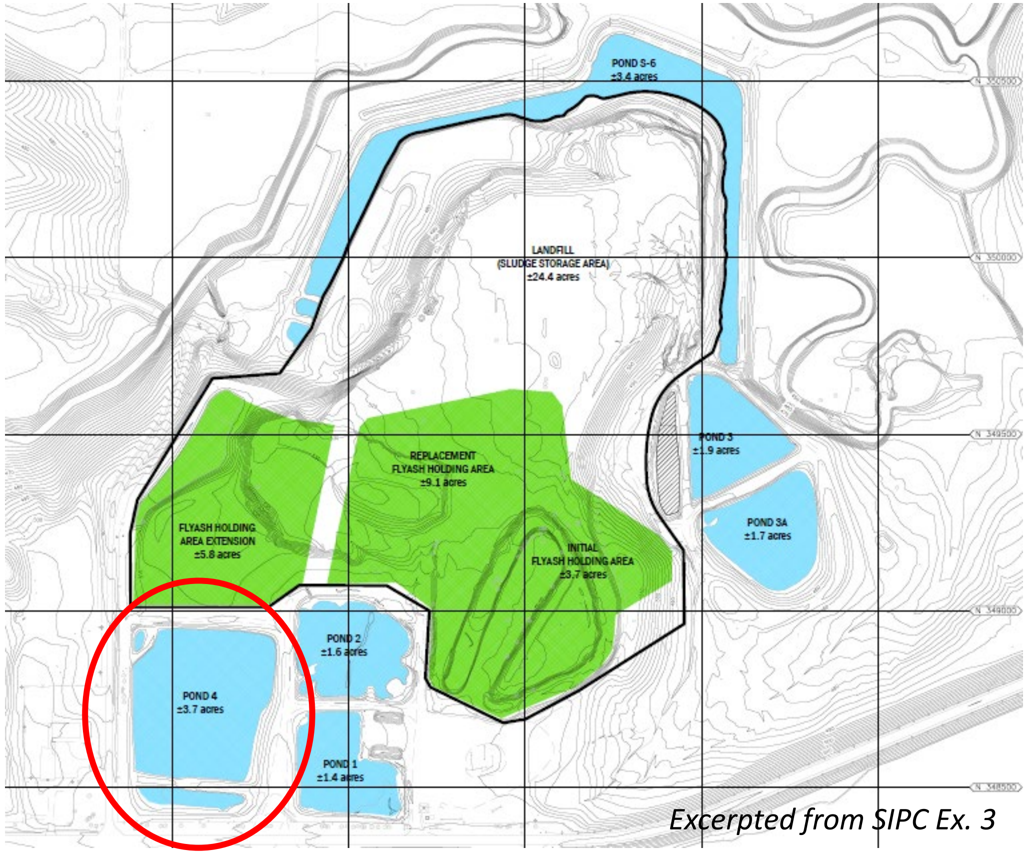
Uses

- Constructed in or around 1982
- Serves as stormwater runoff collection and finishing pond
  - Manages stormwater runoff associated with the Former CCR Landfill
  - Also receives decanted discharge waters from Ponds 3/3A
- Not designed to and did not directly receive CCR from boiler operations
- Discharges to Pond 4, to then discharge to Outfall 002 (SIPC Ex. 13)



Excerpted from SIPC Ex. 3

Units Subject to the Petition:
Pond 4



Excerpted from SIPC Ex. 3

Uses

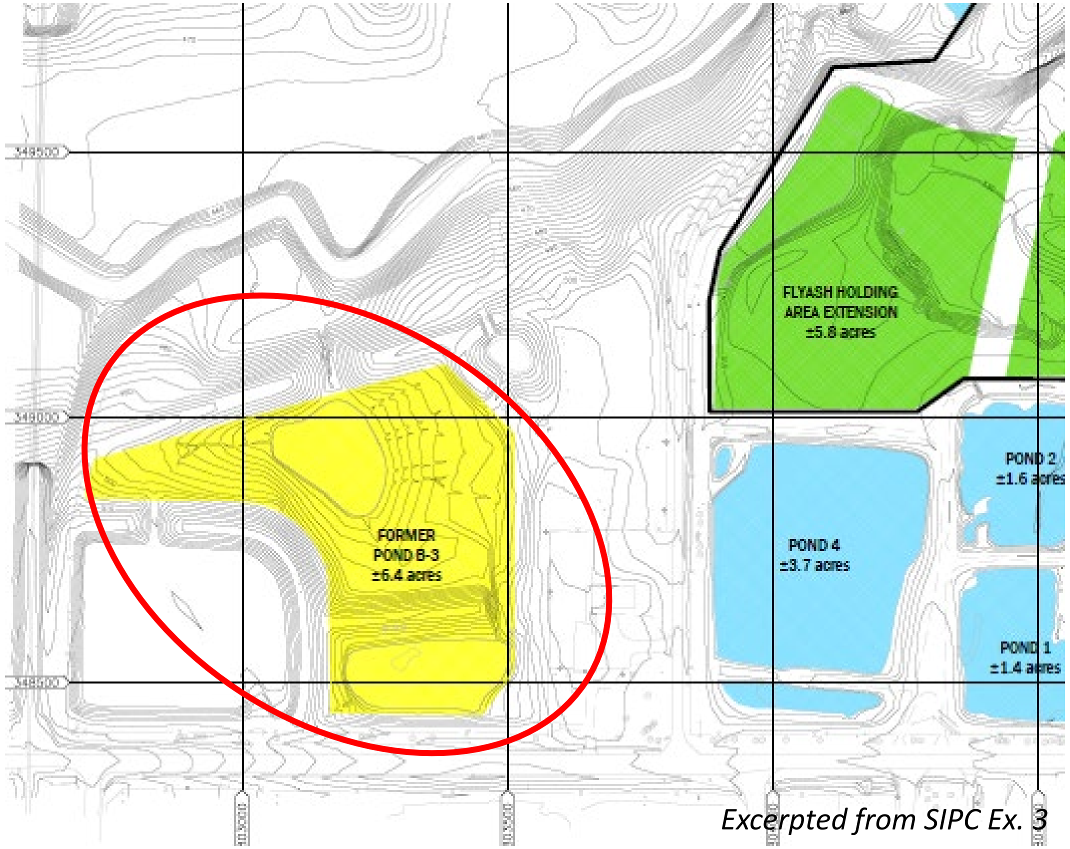
- Serves as a stormwater runoff and secondary finishing pond
  - Received decant water from Ponds 1 and 2, when they were in operation
  - Receives coal pile runoff
  - Not designed to and did not directly receive CCR from boiler operations
  - Receives decant overflow from Pond 6 and discharges through NPDES Outfall 002 to Little Saline Creek (SIPC Ex. 13)

Units Subject to the Petition:

Former Pond B-3

Uses

- Operated from 1985 to 2003
- Used primarily as a secondary finishing pond to Pond A-1
  - During periodic, intermittent outages of Pond A-1, Former Pond B-3 may have received some small amounts of fly ash from Units 1, 2, and 3 prior to 2003
- Dewatered and cleaned to clay in 2017
- No longer in operation and contains no sediment or water, except for the occasional rainwater



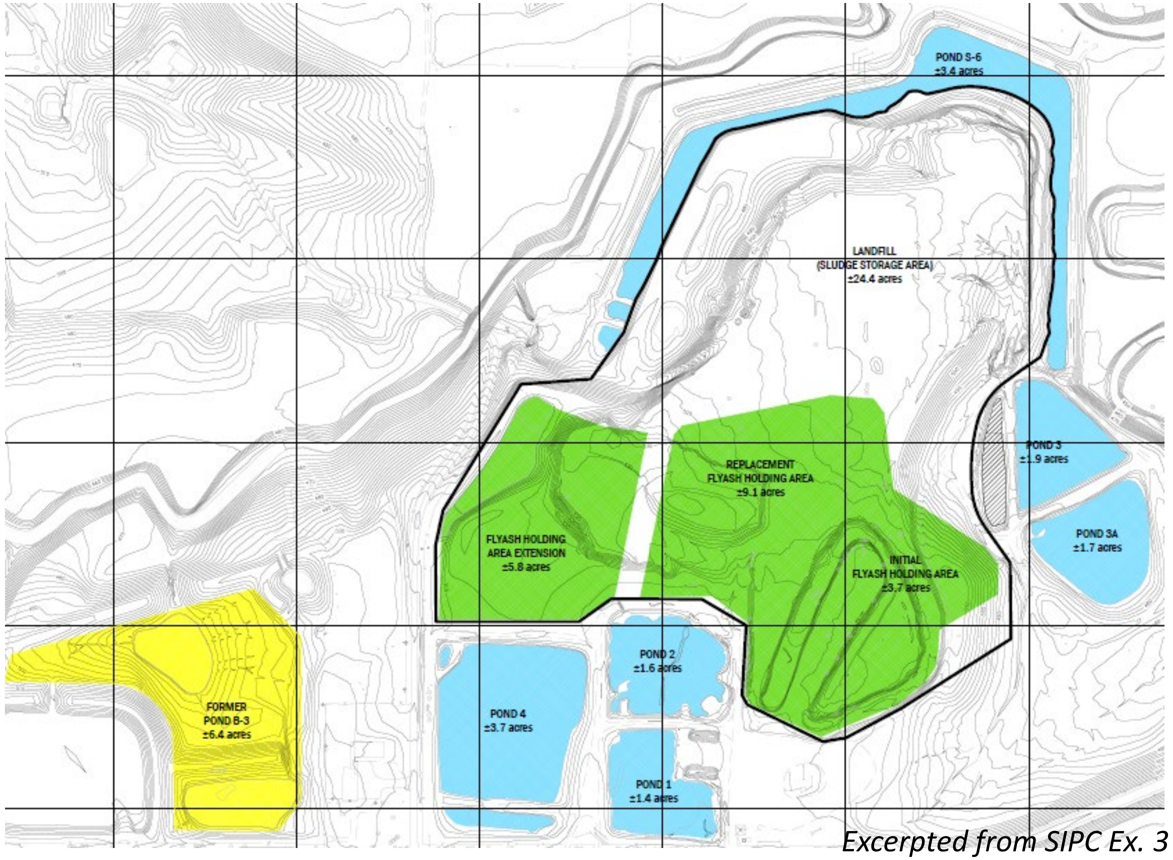
Excerpted from SIPC Ex. 3

Cleaning of the De Minimis Units in 2003

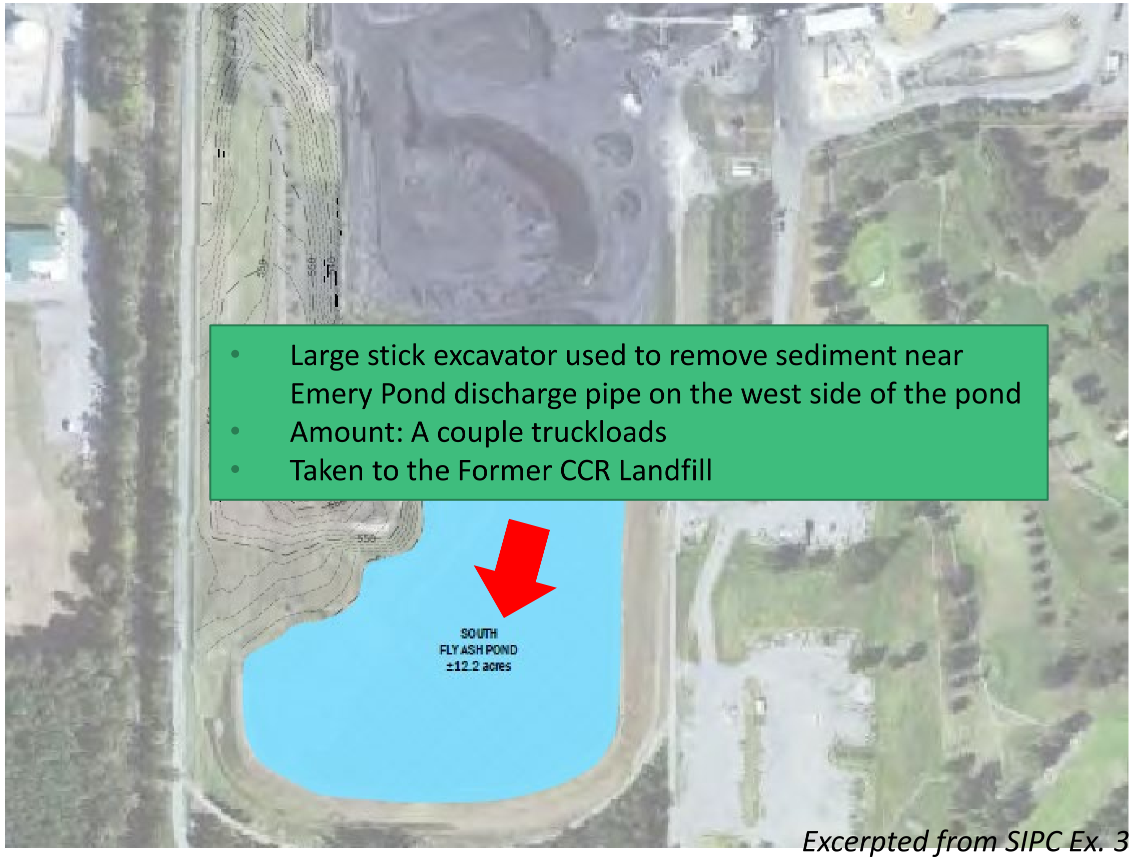
SOUTH FLY ASH POND, POND 3/3A, POND 6, POND 4, FORMER POND B-3

Units Subject to the Petition:

Cleaning of the De Minimis Units in 2003



Excerpted from SIPC Ex. 3

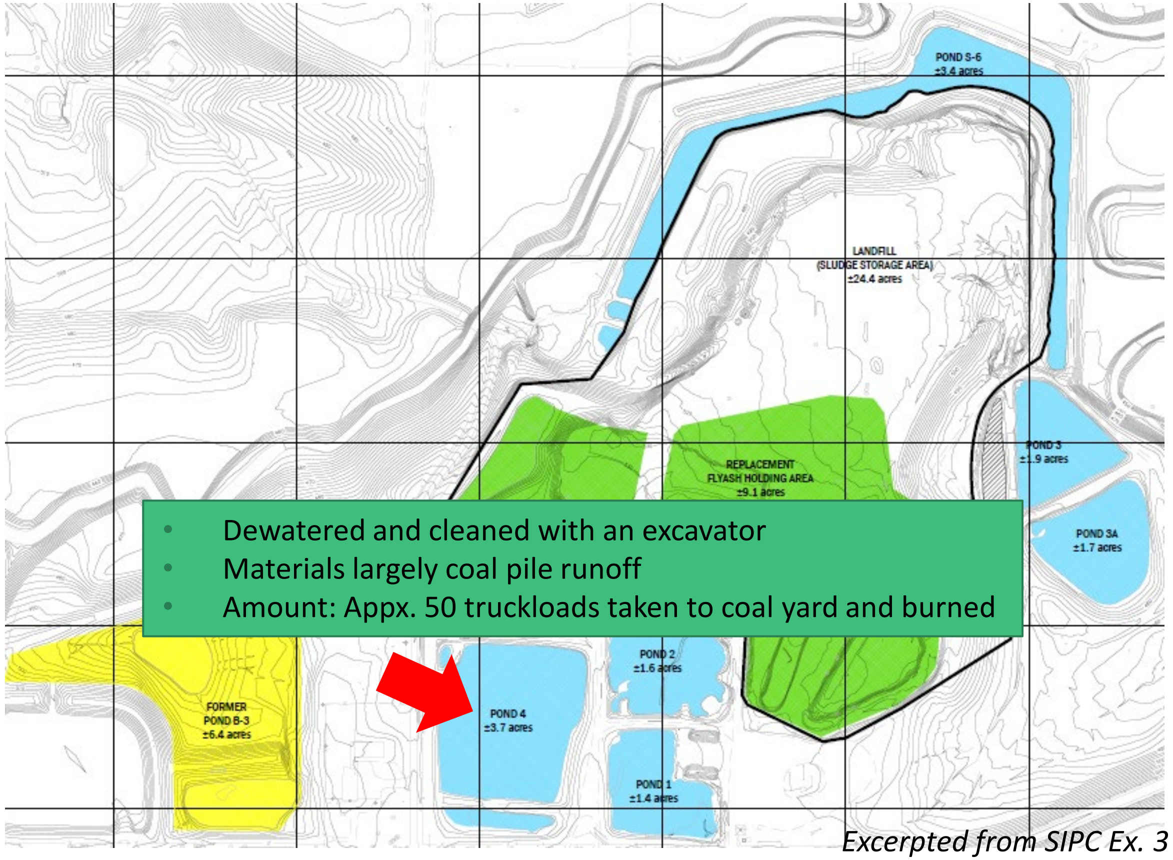


- Large stick excavator used to remove sediment near Emery Pond discharge pipe on the west side of the pond
- Amount: A couple truckloads
- Taken to the Former CCR Landfill

Excerpted from SIPC Ex. 3

Units Subject to the Petition:

Cleaning of the De Minimis Units in 2003



- Dewatered and cleaned with an excavator
- Materials largely coal pile runoff
- Amount: Appx. 50 truckloads taken to coal yard and burned

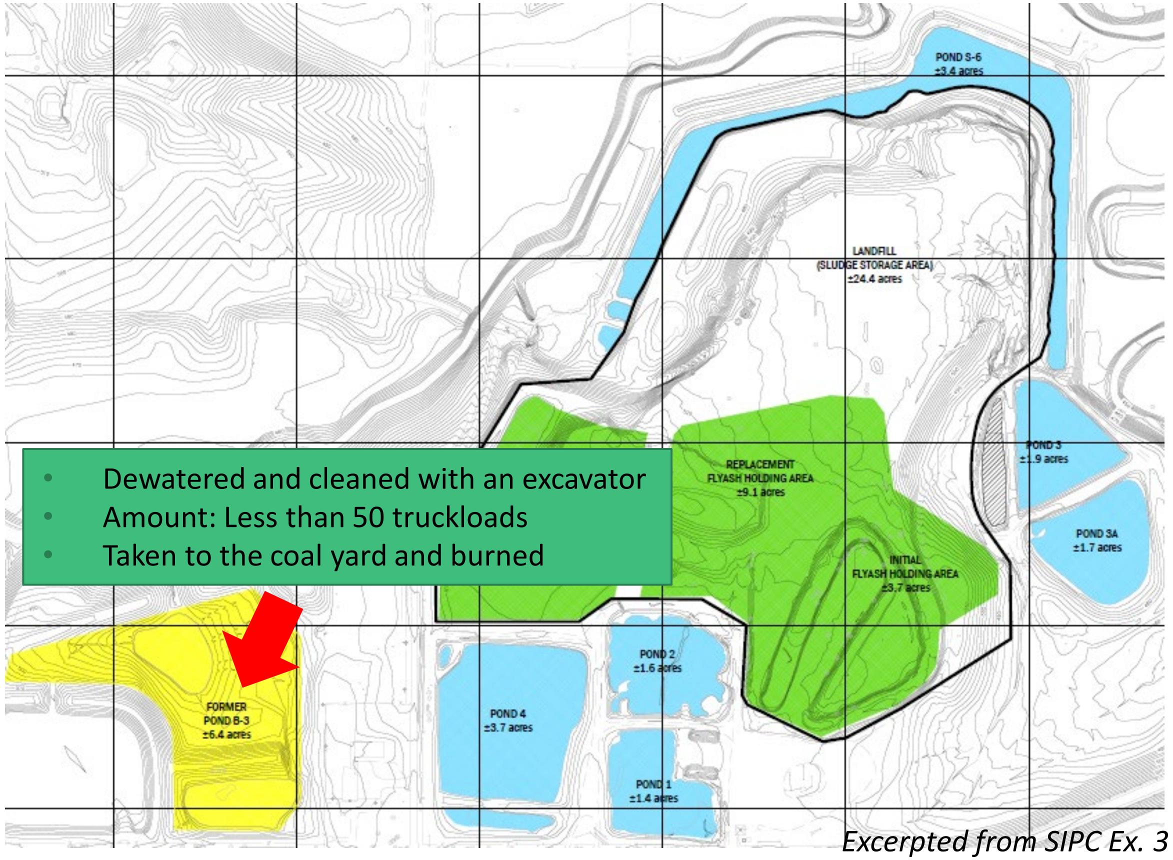
Excerpted from SIPC Ex. 3

Excerpted from SIPC Ex. 3

Units Subject to the Petition:

Cleaning of the De Minimis Units in 2003

- Dewatered and cleaned with an excavator
- Amount: Less than 50 truckloads
- Taken to the coal yard and burned



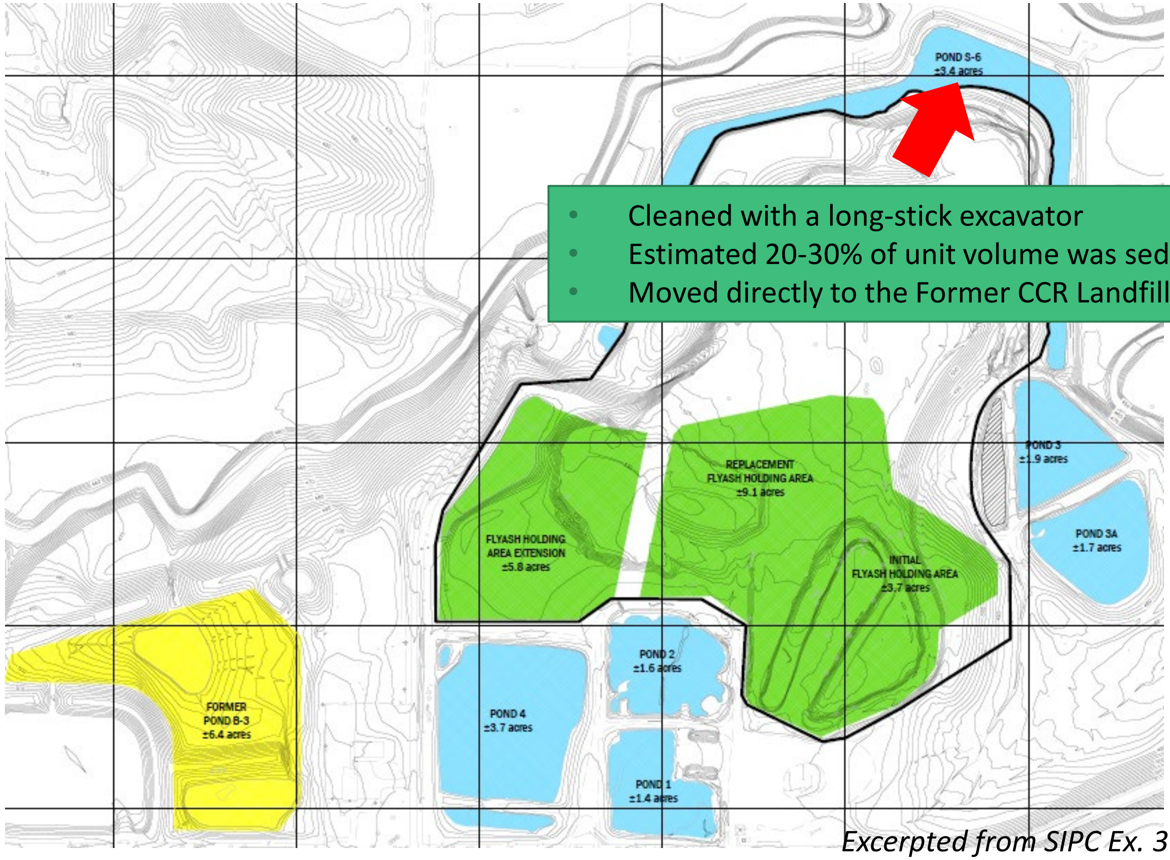
Excerpted from SIPC Ex. 3

Excerpted from SIPC Ex. 3

Units Subject to the Petition:

Cleaning of the De Minimis Units in 2003

- Cleaned with a long-stick excavator
- Estimated 20-30% of unit volume was sediment
- Moved directly to the Former CCR Landfill

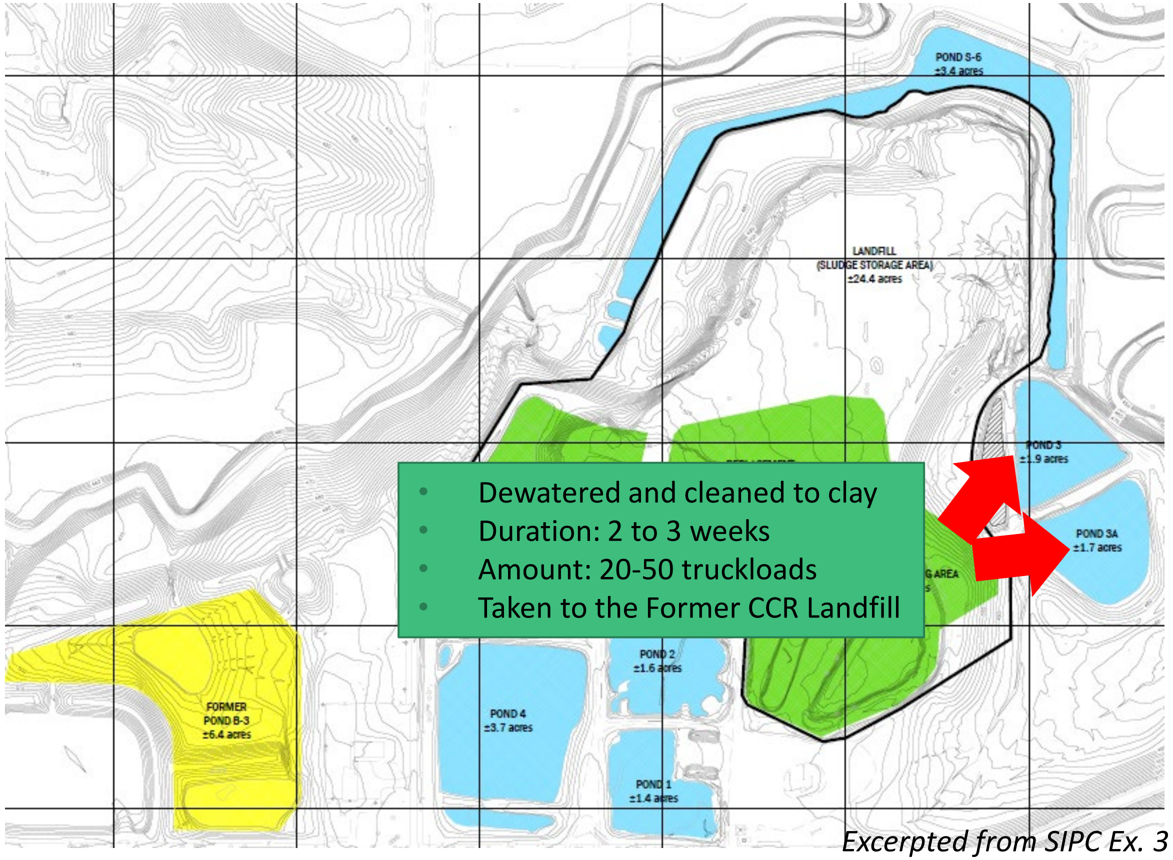


Excerpted from SIPC Ex. 3

Excerpted from SIPC Ex. 3

Units Subject to the Petition:

Cleaning of the De Minimis Units in 2003



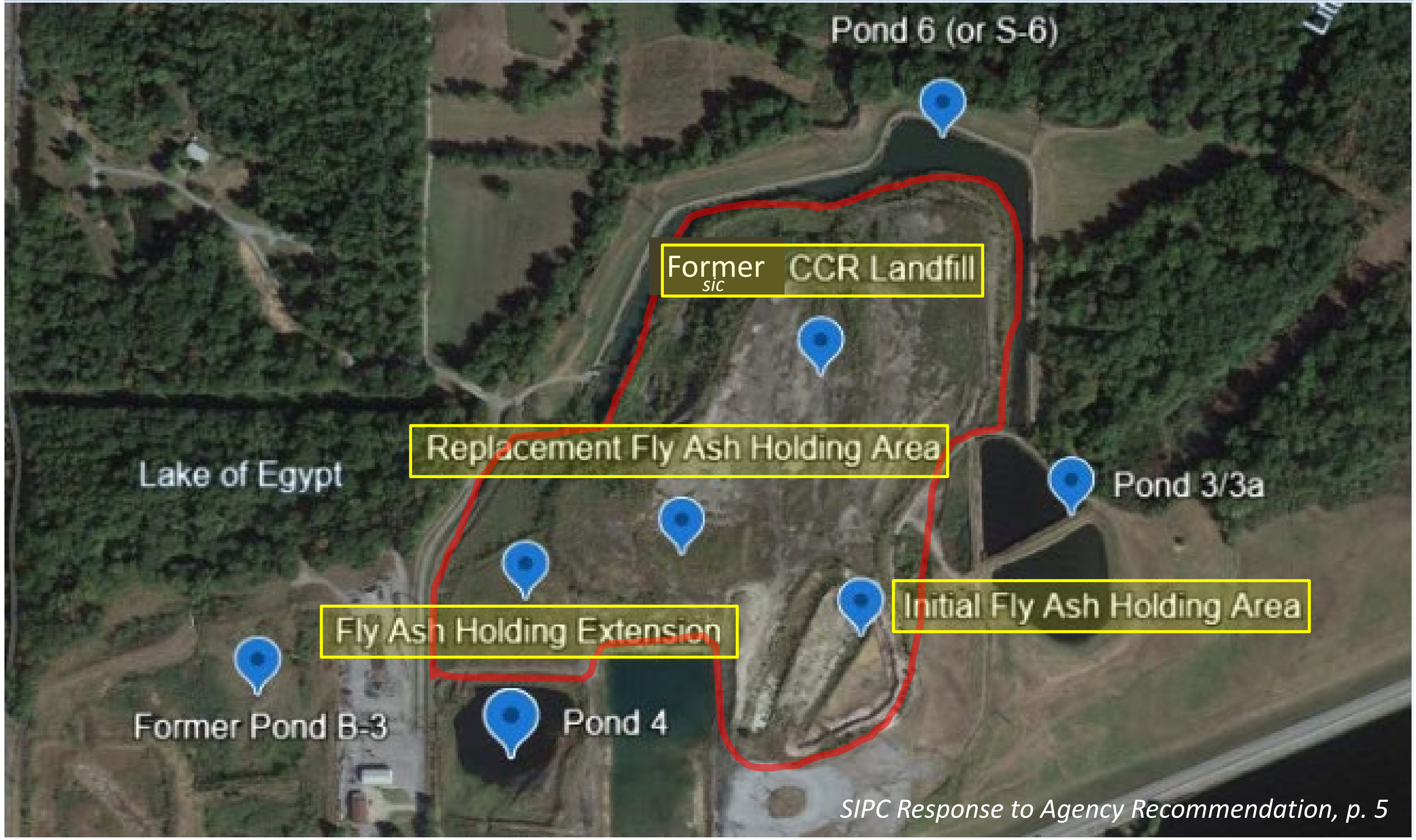
- Dewatered and cleaned to clay
- Duration: 2 to 3 weeks
- Amount: 20-50 truckloads
- Taken to the Former CCR Landfill

Excerpted from SIPC Ex. 3

Excerpted from SIPC Ex. 3

Units Subject to the Petition:

Former Fly Ash Holding Units & Former Landfill

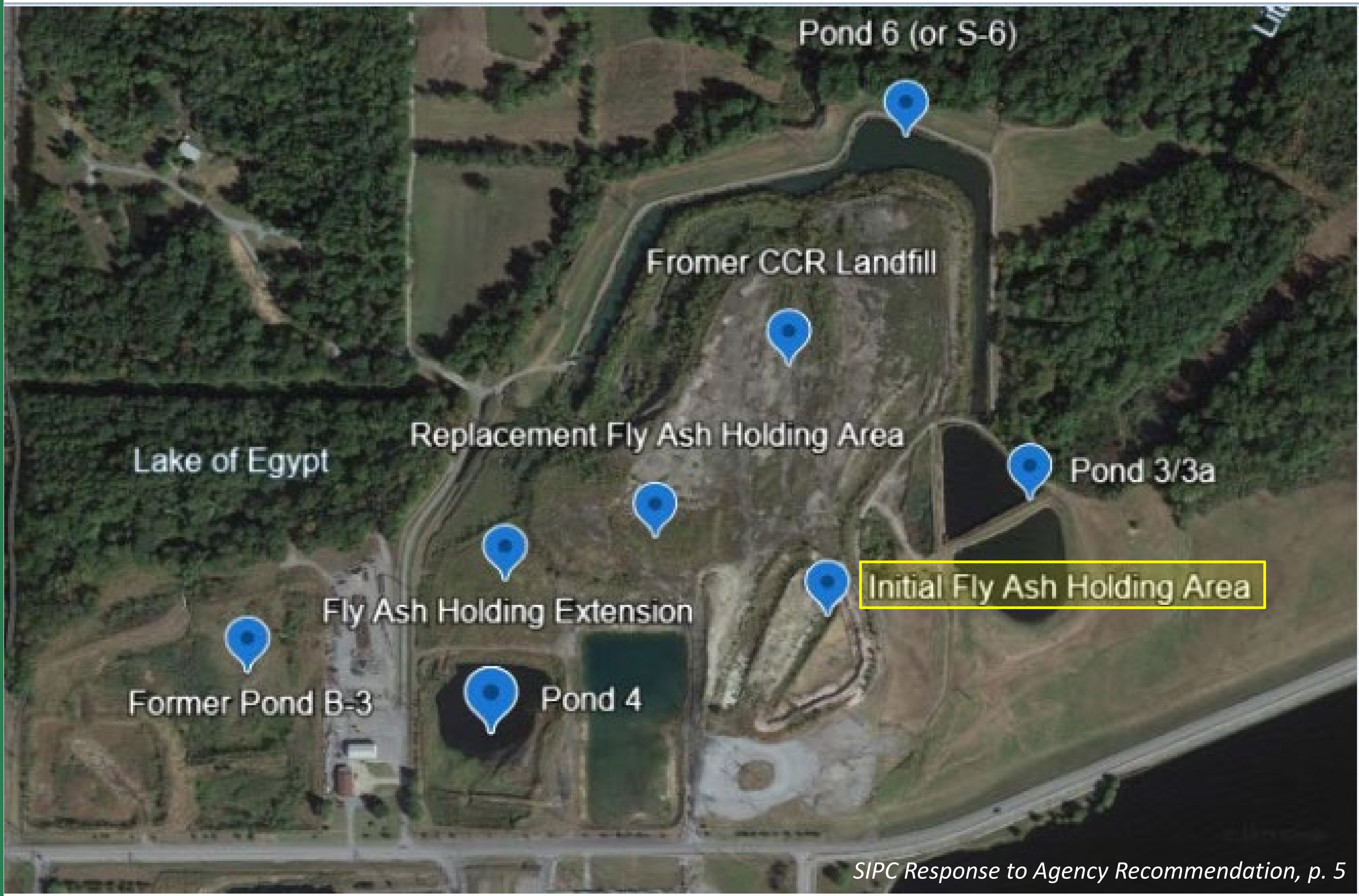


SIPC Response to Agency Recommendation, p. 5

Units Subject to the Petition:

Initial Fly Ash Holding Area

- Operated until 1977
  - 1977: IEPA issued permit for SIPC to construct the Replacement Fly Ash Holding Area and cover/abandon the Initial Fly Ash Holding Area. (SIPC Ex. 5)
- Constructed to receive wet fly ash from Units 1, 2, and 3
- Dewatered and closed
- Former Landfill covered the Initial Fly Ash Holding Area by the early 1990s

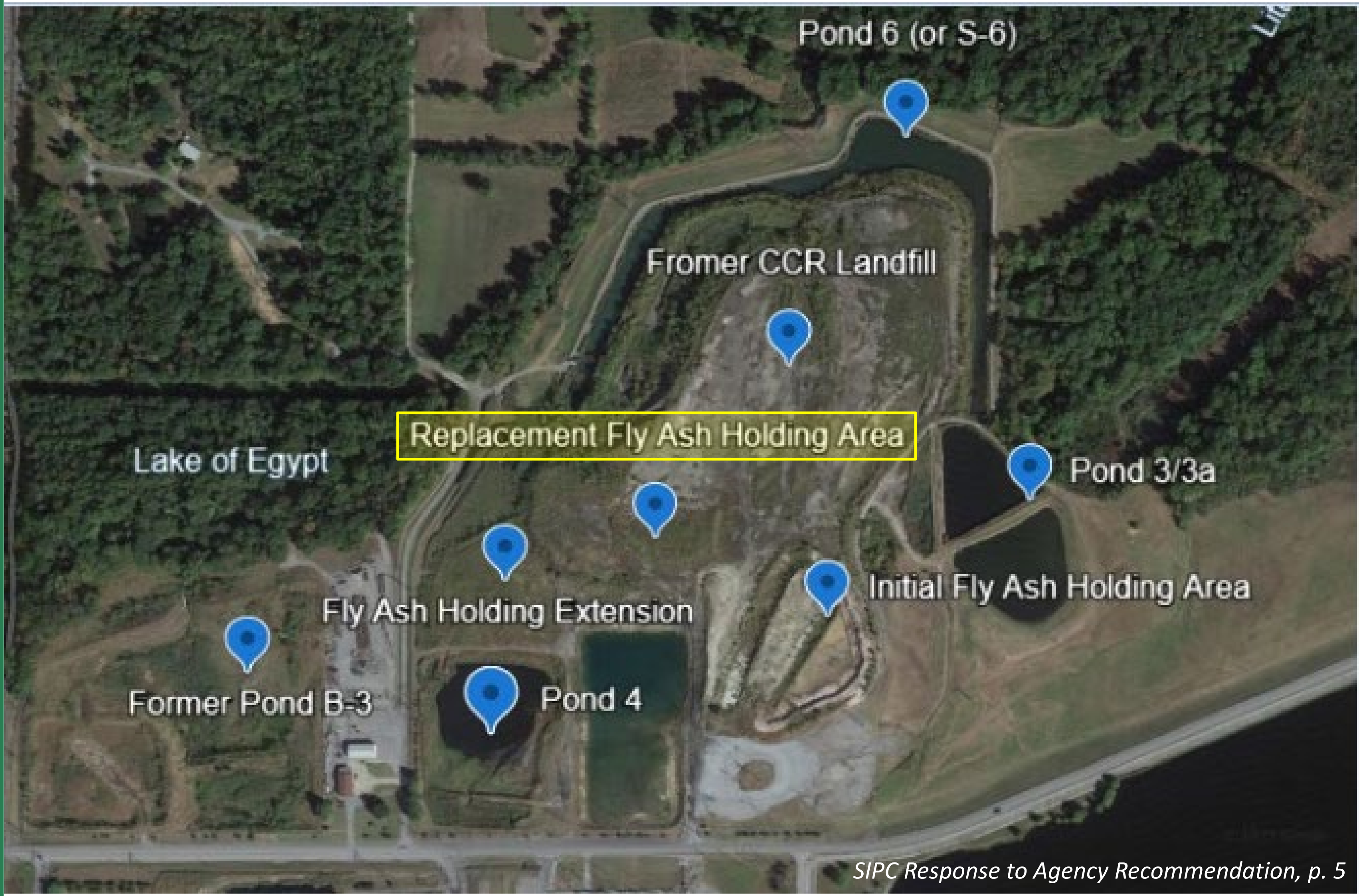


SIPC Response to Agency Recommendation, p. 5

Units Subject to the Petition:

Replacement Fly Ash Holding Area

- Constructed around 1977
- Likely received spent water from the hydroveyor system
- Likely received fly ash from Units 1, 2, and 3 prior to the construction of Pond A-1 in 1985
- Dewatered and closed
- Former CCR Landfill eventually covered the Replacement Fly Ash Holding Area

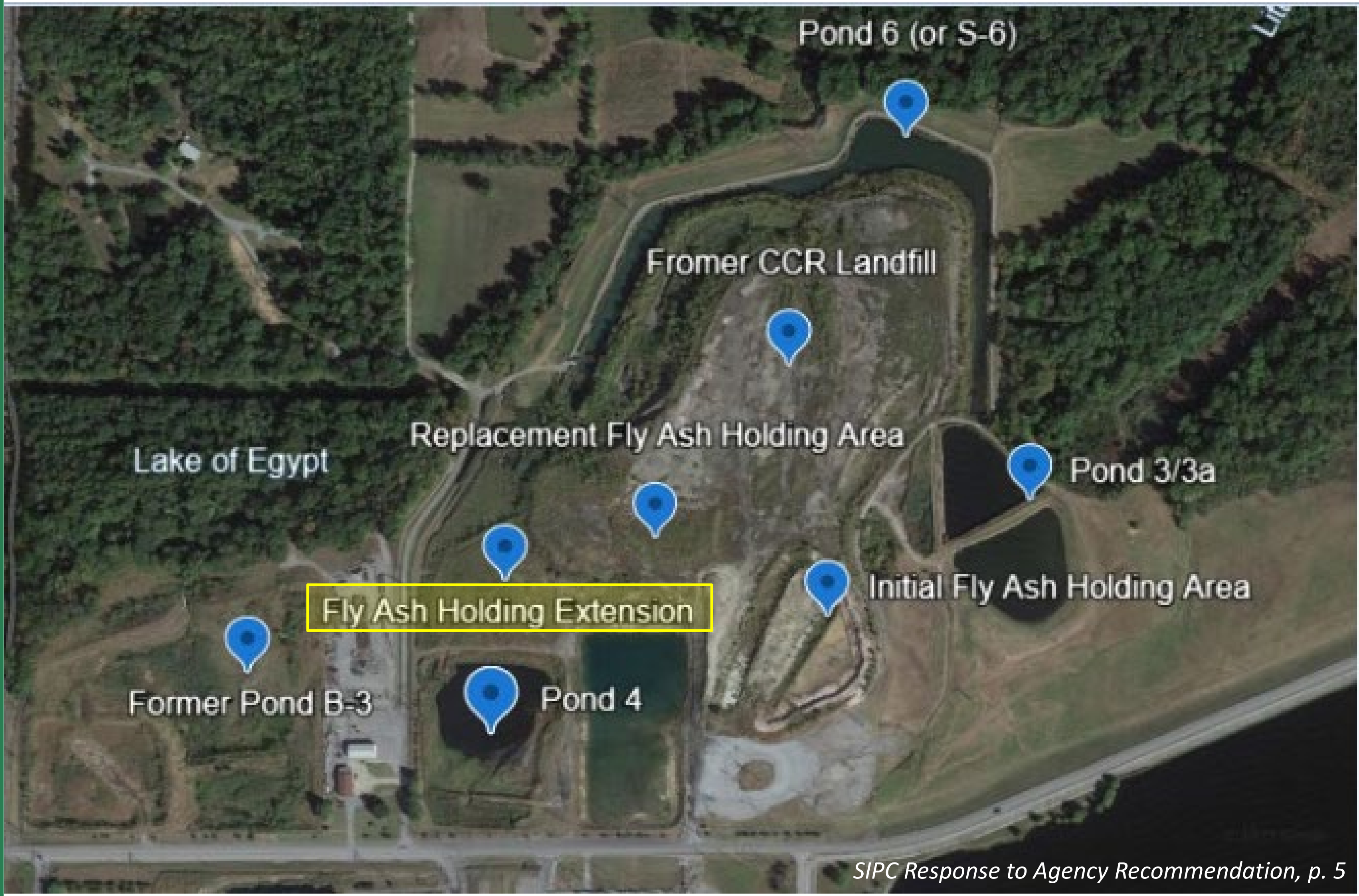


SIPC Response to Agency Recommendation, p. 5

Units Subject to the Petition:

Former Fly Ash Holding Area Extension

- Constructed around 1982
- Intended to receive fly ash but nothing to indicate it was ever used for that purpose
- SIPC intended to use the area to store fly ash that would then be sold
    - Fly ash was not sold, so the fly ash was instead mixed with scrubber sludge and sent to the Former CCR Landfill
- The Fly Ash Holding Extension Area was Dewatered and at least partially covered by Former CCR Landfill

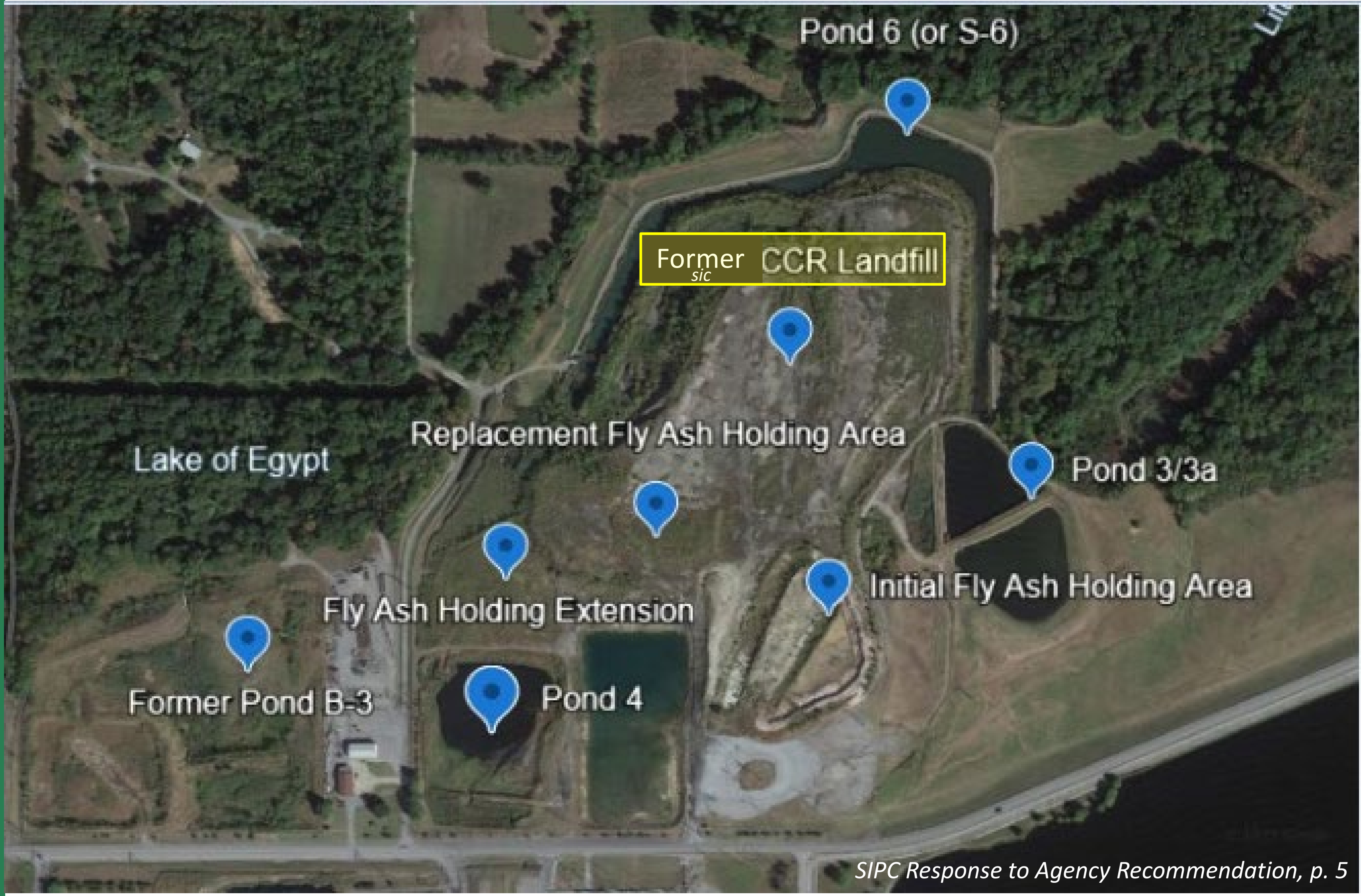


SIPC Response to Agency Recommendation, p. 5

Units Subject to the Petition:

Former CCR Landfill

- Operated from 1978 to 2015 for fly ash and scrubber sludge
- From 2009 to Oct. 2015, the Landfill was used only during upset periods
- Received dry scrubber sludge and fly ash transported via conveyer
    - Volume of ash estimate to be 1.5 million cubic yards
- Operated as permit-exempt Part 815 landfill



SIPC Response to Agency Recommendation, p. 5

EXHIBIT 50

Testimony of Jason McLaurin

AS 2021-006: *IN THE MATTER OF: PETITION OF SOUTHERN ILLINOIS POWER COOPERATIVE FOR AN ADJUSTED STANDARD FROM 35 ILL. ADMIN. CODE PART 845 OR, IN THE ALTERNATIVE, A FINDING OF INAPPLICABILITY*

Jason McLaurin

Environmental Coordinator, SIPC

Education

- Bachelor of Plant and Soil Science from Southern Illinois University – Carbondale (2003)

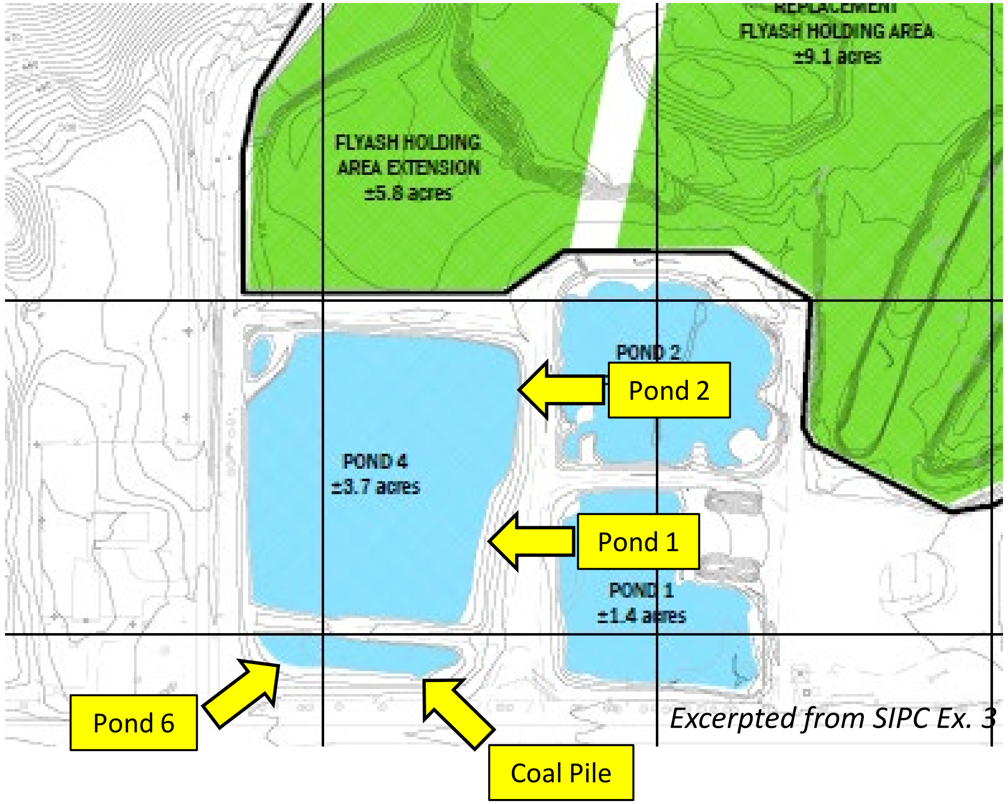
Work History

- Began working at SIPC in July 2007
- Currently holds the position of Environmental Coordinator

Involvement in this Proceeding

- Prepared SIPC Ex. 32 in support of SIPC's Petition
- Prepared SIPC Ex. 41 in support of SIPC's Response to IEPA's Recommendation

Pond 4
Uses



Excerpted from SIPC Ex. 3

Current Use

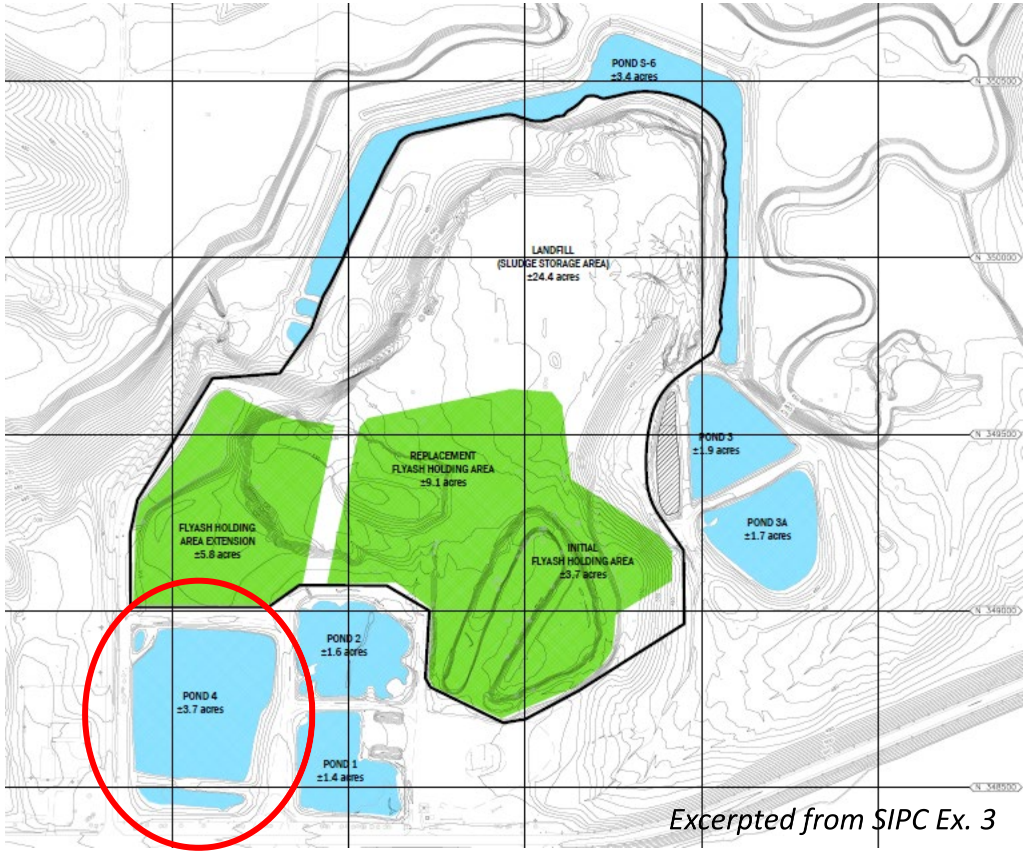
- Serves as a stormwater runoff and secondary finishing pond
    - Receives coal pile runoff, stormwater runoff, and other plant runoff
    - Receives decant overflow from Pond 6

Historic Uses

- In addition to receiving stormwater and coal pile runoff, received decant water from Ponds 1 and 2

Pond 4

2010 Cleaning



Excerpted from SIPC Ex. 3

- Pond 4 was dewatered and cleaned to clay as part of regular maintenance activities in Sept./Oct. of 2010
- Two categories of material were cleaned out:
  - 60 to 70% being a dark and dry material consisting predominantly of coal fines
  - Remaining material being muddy material high in organic matter
  - No visible CCR observed
- Coal fines were taken to the coal pile and burned
- Remaining organic materials was disposed of in the Former CCR Landfill

Pond 4

Alleged Deltas

Excerpted from IEPA Ex. 3 SIPC March 1993

Excerpted from IEPA Ex. 4 SIPC April 1998

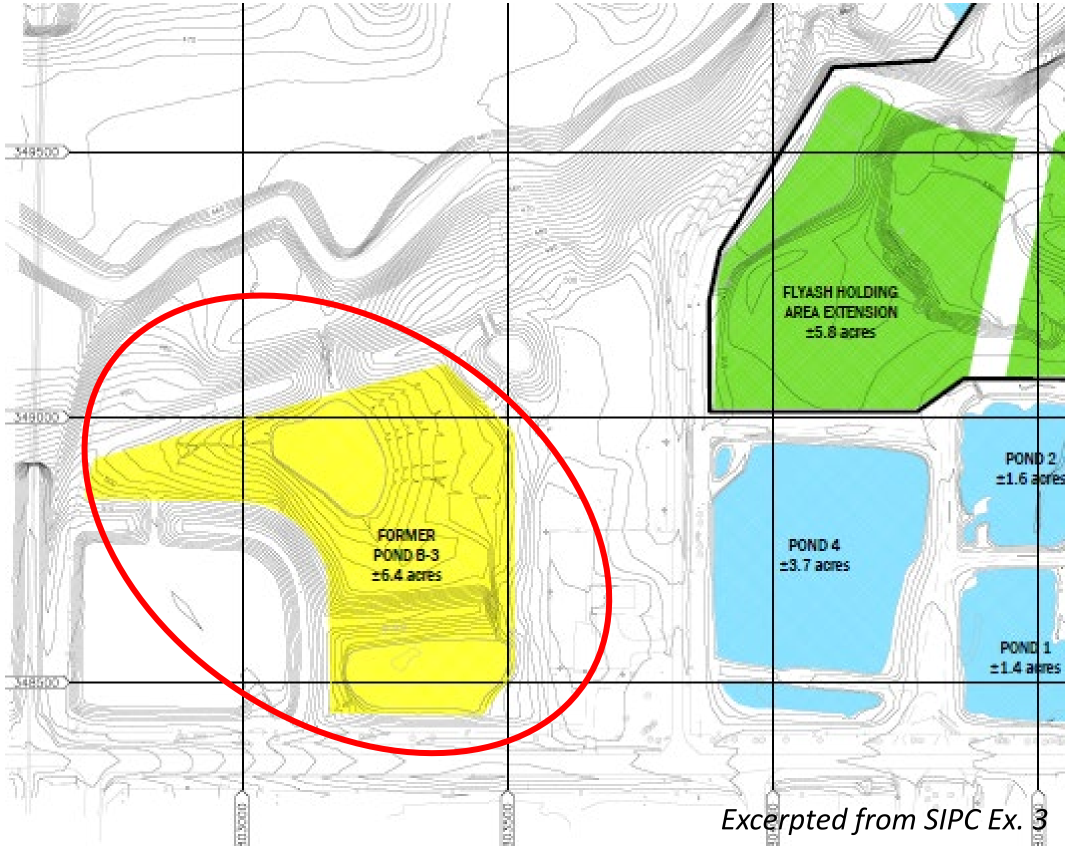
Former Pond B-3

Uses

- Used as a secondary pond to Pond A-1
- No longer in operation and contains no sediment or water, except for the occasional rainwater

2017 Dewatering and Cleaning

- Fully dewatered
- All sediment removed down to clay
- Inner berm was cut so unit can no longer hold water



Excerpted from SIPC Ex. 3

Former Landfill Area

Operations and Regulation

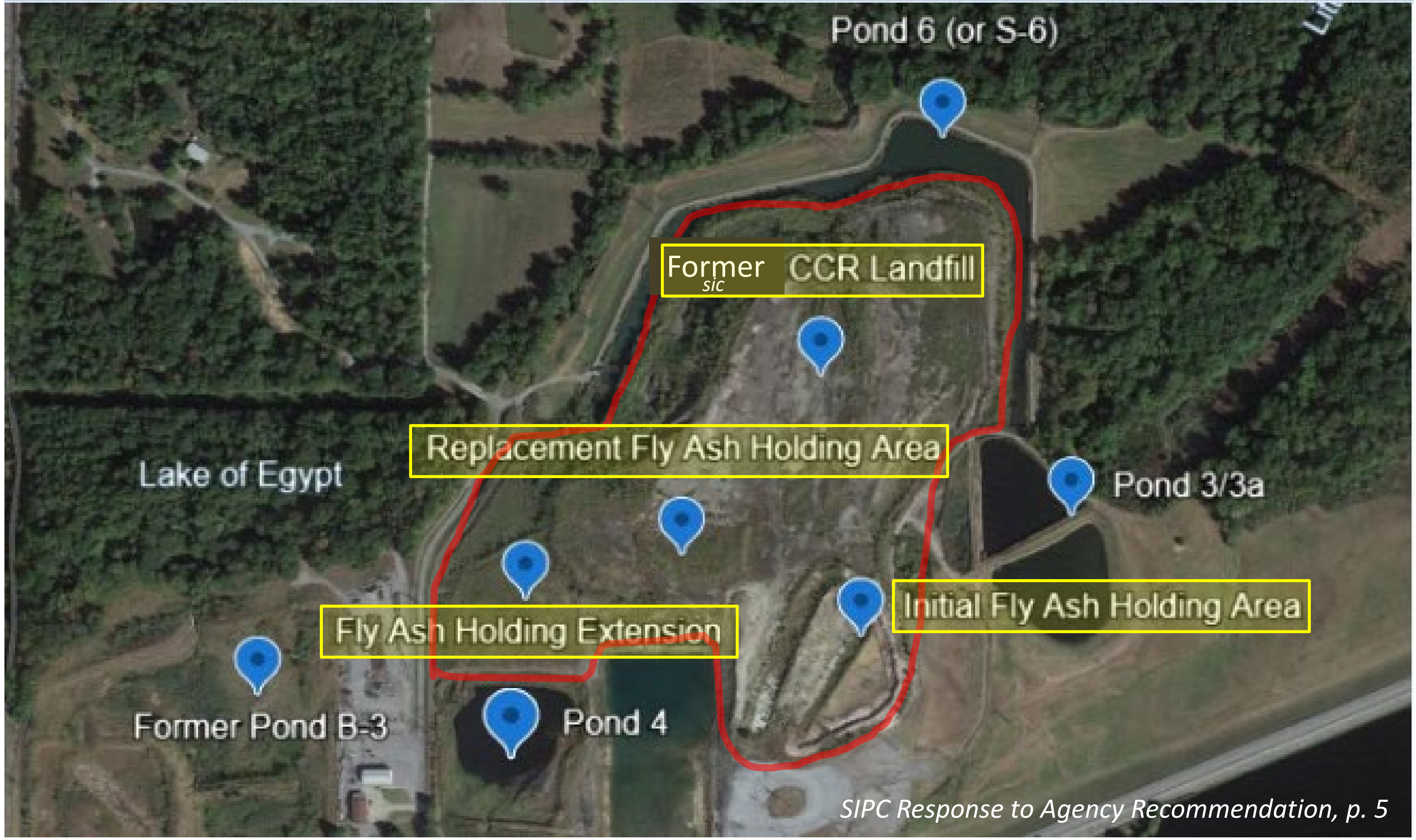


EXHIBIT 51

HALEY ALDRICH

DAVID J. HAGEN

Principal / CCR Strategic Lead, Hydrogeologist

EDUCATION

M.S., Geology, Oklahoma State University
B.S., Biology, Baldwin-Wallace College

PUBLICATIONS AND PRESENTATIONS

CCR Corrective Measures Assessment & Implementation – A Technical Roadmap and Smart Communication/Management Strategies, Steven F. Putrich, VP, P.E., David Hagen, Snr. VP, World of Coal Ash, 2022

Attenuation and Source Zone Depletion of Boron from Coal Combustion Residuals in Groundwater, J.P. Brandenburg and David Hagen, World of Coal Ash, 2022

DNAPLs in Fractured Geologic Media: Behavior, Monitoring and Remediation, University Consortium Solvents in Groundwater Research Program, November 1997

Groundwater Issues and the Ohio Voluntary Action Program, Ohio Environmental Protection Agency, June 1998

The Voluntary Action Program Process, Ohio Environmental Protection Agency, April 1997

Brownfield Redevelopment, International Business Communications, July 1996

Theoretical and Practical Considerations of Flow in Fractured Rocks, Seminar Series with Shlomo P. Neuman

Dave has supported numerous utility companies CCR programs by providing thought-leadership and strategic planning. His CCR Rule expertise and knowledge regarding multiple utility CCR programs enable him to provide thoughtful recommendations and guidance.

Dave is the leader of Haley & Aldrich's hydrogeology team serving electric utility clients on CCR matters. He has consulted on over 20 CCR unit closures, groundwater systems and groundwater corrective measures inclusive of providing expert testimony.

SELECTED PROJECT EXPERIENCE

CCR Experience

The following are specific examples of his CCR experience:

- **Evergy Tecmuseh Facility:** groundwater detection and assessment monitoring, statistics, geochemistry.
- **Ameren:** corrective measures assessment, selection of remedy, community relations for Rush Island, Labadie and Sioux facilities.
- **Vistra:** represented client in Illinois rulemaking for adoption of the Federal CCR Rule including preparation of an expert report and testimony.
- **Talen, Coltrip Facility:** expert testimony on the consistency of a State of Montana consent order and the Federal CCR Rule related to numerous ash ponds.
- **Vectren, AB Brown, Culley East and Culley West:** groundwater detection and assessment monitoring, statistics, geochemistry, corrective measures assessments, selection of remedy, public meetings for numerous regulated units.
- **NiSource:** analysis of remedy alternatives and selection of remedy at their Mitchell facility.
- **Southern Illinois Power Cooperative:** evaluation of a rule applicability on numerous units in their fleet.
- **Indiana Power and Light:** groundwater detection and assessment monitoring, statistics, geochemistry, corrective measures assessments of their units at their Eagle Valley, Petersburg and Harding Street facilities
- **Dayton Power and Light:** groundwater detection and assessment monitoring, statistics, geochemistry, corrective measures assessments at their J.M. Stuart and Killen facilities.

- **East Kentucky Power Authority:** statistical analysis of groundwater data at their Smith, Spurlock, and Cooper facilities.
- **Confidential Southwestern U.S. Client:** review and advisement of their closure approaches and groundwater corrective measures across their fleet.
- **AES Puerto Rico:** groundwater detection and assessment monitoring, statistics, geochemistry, corrective measures assessments, selection of remedy and community relations support.

In addition to the above, Dave has participated in a variety of projects involving environmental regulations, including the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); Resource Conservation and Recovery Act (RCRA); state solid waste laws; petroleum and hazardous substance underground storage tank (UST) regulations; Toxic Substances Control Act (TSCA); the Clean Water Act (CWA); and the Clean Air Act (CAA). His experience includes directly applying the technical aspects of these laws with Federal and State regulatory agencies as well as in private transactions involving environmental matters. He has solved problems in a wide range of environmental conditions at sites contaminated with petroleum hydrocarbons, chlorinated solvents, phthalates, coal tar, metals and polychlorinated biphenyls (PCBs).

David has designed, installed, and monitored groundwater at numerous CCR, industrial waste, and municipal solid waste landfills and RCRA land-based units utilizing the same framework provided in the CCR rules Sections 257.90 through 257.98. As part of his experience, he has provided expert support for a case involving groundwater impacts and corrective action for a power plant located in the Northwestern United States and for a second plant with a release from a CCR management unit in the Southwestern United States. He has testified as an expert on detection monitoring, site and groundwater assessment, and financial assurance for metals associated with a CCR, industrial waste, and municipal solid waste landfill. He is a skilled facilitator and highly sought out for his exceptional planning and strategic thinking skills and CM/CA RCRA and CERCLA type projects.

OTHER RELEVANT PROJECT EXPERIENCE

RCRA

David has led project teams in conducting RCRA Corrective Action, RCRA Hazardous Waste Management Unit Closures (both greater-than and less-than 90-day units), compliance audits, enforcement action representation, and permitting.

Solid Waste

David has been involved in numerous solid waste matter primarily related to landfill siting, closure, and post-closure care. He has worked on solid waste matter in numerous states, with most of his experience in Ohio and New York. Notably, David was involved in the siting of the Monroe County, New York landfill as a hydrogeologic expert, the closure of an industrial landfill in Rochester, New York, and the closure of a municipal solid waste landfill in Cleveland, Ohio.

He is familiar with landfill construction requirements; post-closure care, including groundwater monitoring; and establishing post-closure care financial assurance, all in compliance with applicable state regulations. In addition to the above, David has served as an expert witness related to landfill siting requirements associated with setbacks from surface water bodies and groundwater aquifers, as well as establishing financial assurance for a landfill in Ohio. As noted above, David was also the lead for closure and post-closure care of a hazardous waste (RCRA) landfill in Ohio.

Expert Witness on Environmental Matters

David has served as a testifying expert on several cases involving environmental matters. A sampling of his work is as follows:

- **Testimony related to Proposed Illinois Part 845 Standards for the Disposal of Coal Combustion Residuals in Surface Impoundments, 2020:** Testified on behalf of Vistra Corporation related to coal combustion residuals rule-making with a focus on rules related to groundwater, closure method selection and groundwater remedy selection.

- **Hobart Corporation, et al. v. The Dayton Power and Light Company, et al., Case No. 3:2013cv00115 in the US District Court for the Southern District of Ohio in Montgomery County, 2018:** Testified on behalf of Cox Media Group (defendant) related to the nexus between Dayton Daily News (predecessor) and the South Dayton Landfill. Issuance of expert report and deposition only.
- **Delta Fuels, Inc v. Consolidated Environmental Services, Inc. et al., Case No. CI0200603275, Lucas County Court of Common Pleas, Toledo, Ohio, 2017:** Testified on behalf of Consolidated Environmental Services, Inc. et al. (plaintiff) regarding a release of refined petroleum products from a storage terminal and the environmental damage the release caused to a petroleum pipeline that ran beneath the terminal in an easement. Issuance of expert report and trial (jury) testimony.
- **MEIC, et al. v. MDEQ, et al., Case No. DV 12-42, Montana Sixteenth Judicial District Court, Rosebud County, 2016:** Testified on behalf of Talen Energy related to the standard of practice for issuance of RI/FS orders for response actions related to releases from coal ash residuals in surface impoundments at the Colstrip power plant in Colstrip Montana. Issuance of expert report and deposition only.
- **Georgia-Pacific Consumer Products LP v. NCR Corporation, Case No: 1:11-cv-00483, U.S. District Court for Western District of Michigan, 2015:** Testified on behalf of defendant NCR related to the standard of care and related releases of PCBs from landfills owned and operated by the plaintiff. Issuance of expert report, deposition testimony and trial (bench) testimony.
- **Behr Dayton Thermal Products Litigation, Case No. 03:08-cv-0326-WHR-MJN, Southern District of Ohio, 2014:** Provided rebuttal testimony on behalf of defendant Aramark related to vapor intrusion claims made by Plaintiff's expert. Issuance of rebuttal expert report and affidavit filed with the court.
- **State of Ohio v. Mercomp, et al.:** Testimony included hydrogeology, monitoring well installation and the effects of turbidity on water quality analysis and financial assurance for a solid waste landfill located in Northeast Ohio. Issuance of expert report, deposition testimony and trial (bench) testimony.
- **Moraine Properties, LLC v. Ethyl Corporation:** Testimony on PCB contamination related to the former operations of a paper mill in southwest Ohio. Specifically opined on the applicability of TSCA at a former disposal area, in former wastewater lagoons, and remediation approaches and costs related to the same. Issuance of expert report and deposition testimony.
- **A.M. Todd v. AEG Photoconductor and Hologic:** Prepared an expert report related to Phase I, Phase II, and subsequent remediation of sub-slab vapors and the applicability of the Ohio Voluntary Action Program cost recovery. Issuance of expert report.

Landfills

Dave serves as project manager and project hydrogeologist for hydrogeologic studies performed to support State landfill permitting. Project duties included developing site hydrogeologic investigation work plans, installing monitoring wells, developing groundwater monitoring networks, evaluating hydrogeologic and groundwater quality conditions, designing detection and assessment monitoring systems, statistical analysis of groundwater quality data for detection and assessment monitoring, financial assurance cost estimating, and assistance with permit applications.

EXHIBIT 52

Testimony of David Hagen

Haley and Aldrich

Electronic Filing: Received, Clerk's Office 06/13/2025

Methods of Investigation

- Pond usage and design information
- Bathymetric survey
- Carbon/nitrogen/hydrogen analysis
- Polarized light microscopy
- Characterization of major cation and anion concentrations using the shake test method
- Groundwater monitoring results - sulfate

HALEY ALDRICH

Pond Usage and Design Information

Figure 1: Pond locations and general Site settings. The light blue dashed lines show the water transfer process at the facility through the following sequence: (1) Storm Water Basin, (2) South Fly Ash Pond, (3) Pond 3A/3, (4) Pond S-6, (5) Pond 4, and (6) Outfall 002. Yellow color is used to denote the names of the Ponds included in the petition.

Bathymetric Survey Results

Table 1: Estimated sediment and Pond volumes, mean sediment thickness, and volume ratio.[(1)]

Pond	Sediment Volume (ft.^{3})	Pond Volume (ft.^{3})	Mean Sed. Thickness (ft.)	Sed. as % Pond Volume
Pond 3	83,987.99	936,162.11	1.38	9.0%
Pond 3A	95,666.48	717,739.28	1.45	13.3%
Pond 4 [(2)]	91,076.96	1,370,058.58	1.67	10.9%
Pond S-6	103,452.90	1,264,398.31	0.84	8.2%
South Fly Ash Pond [(3)]	563,054.99	2,944,552.50	1.57	21.8%[11%] [(4)]

Low volume of sediment in all units

Typical CCR Surface Impoundment

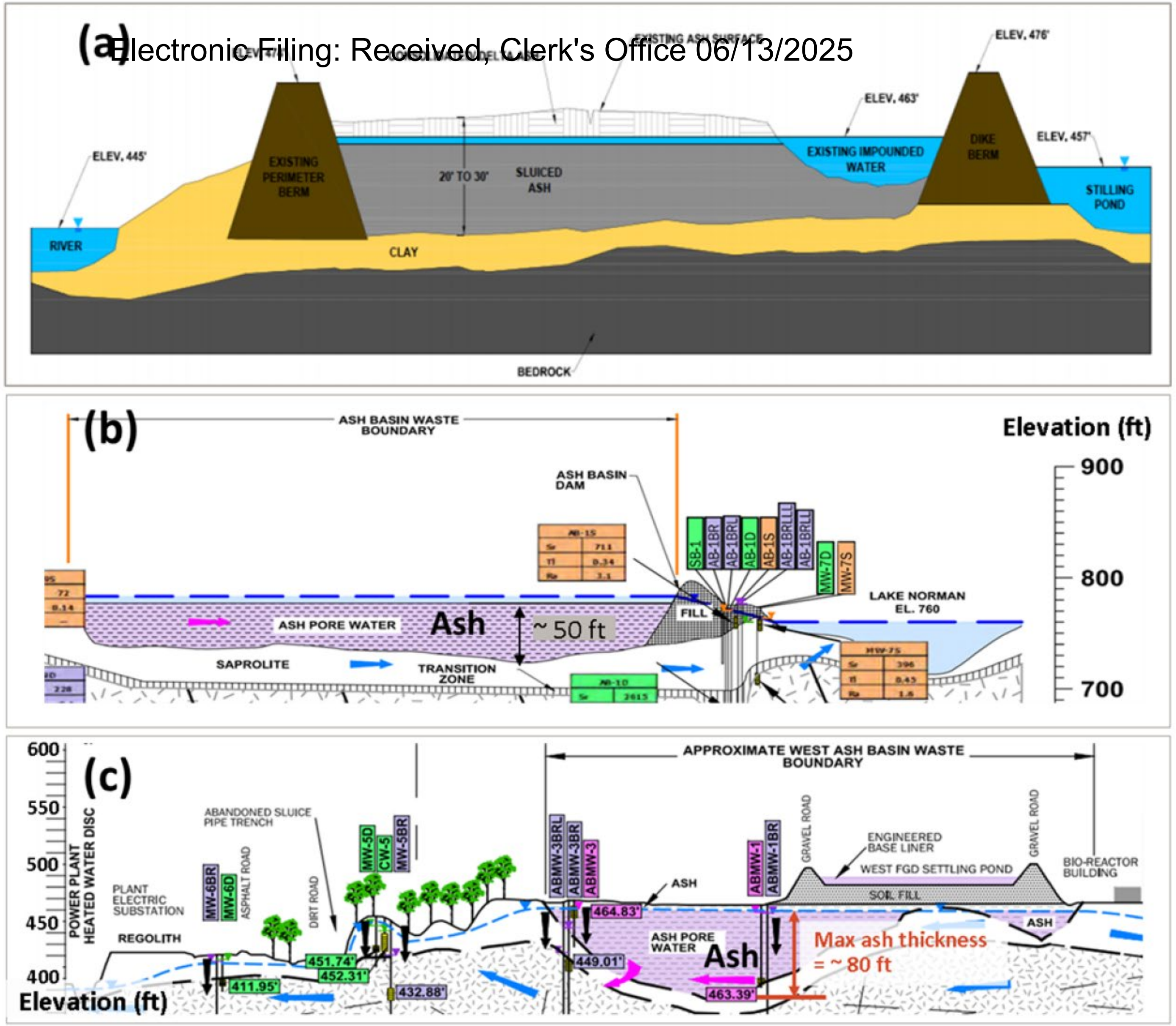


Figure 4: Typical CCR impoundment settings and CCR material thicknesses in impoundments. Panel (a) shows the vertical cross section view of a typical CCR surface impoundment configuration[7], Panel (b) is a vertical cross-section for the CCR impoundment at the Marshall Steam Station Site in North Carolina[8], and Panel (c) is a vertical cross-section for the Roxboro Steam Electric Plant in North Carolina[9].

HALEY ALDRICH

Results of Carbon/Nitrogen/Hydrogen Analysis (1)

Table 2: Carbon, hydrogen, and nitrogen contents for Pond sediment and coal samples.

Pond	Sample	Dry weight %			Pond	Sample	Dry weight %		
		Carbon	Hydrogen	Nitrogen			Carbon	Hydrogen	Nitrogen
Pond 3A	S-3Ax	64.08	4.32	1.35	Pond 3	S-3n	11.17	0.9	0.27
Pond 3A	S-3An	27.05	1.99	0.53	Pond 3	S-3x	15.11	0.97	0.26
Pond 4	S-4gs	47.62	3.03	0.94	Pond 6	S-S6x	7.35	0.51	0.1
Pond 4	S-4gp	36.44	2.39	0.72	Pond 6	S-S6n	4.19	0.6	0.1
Pond 4	S-4x	28.92	1.98	0.62	South Fly Ash Pond	S-SFAn	23.99	1.66	0.49
Pond 4	S-4n	34.14	2.22	0.69	South Fly Ash Pond	S-SFAx	16.52	1.27	0.27
Coal (average)		64.1	4.4	1.3	South Fly Ash Pond	S-SFAgx	8.49	0.93	0.31
Coal (average)		64.1	4.4	1.3	South Fly Ash Pond	S-SFAgn	6.19	0.7	0.22

Note: Average carbon, hydrogen, nitrogen contents in coal samples are provided by the SIPC.

High carbon content in Pond 4 and 3A are indicative of an organic source

HALEY ALDRICH

Results of Carbon/Nitrogen/Hydrogen Analysis (2)

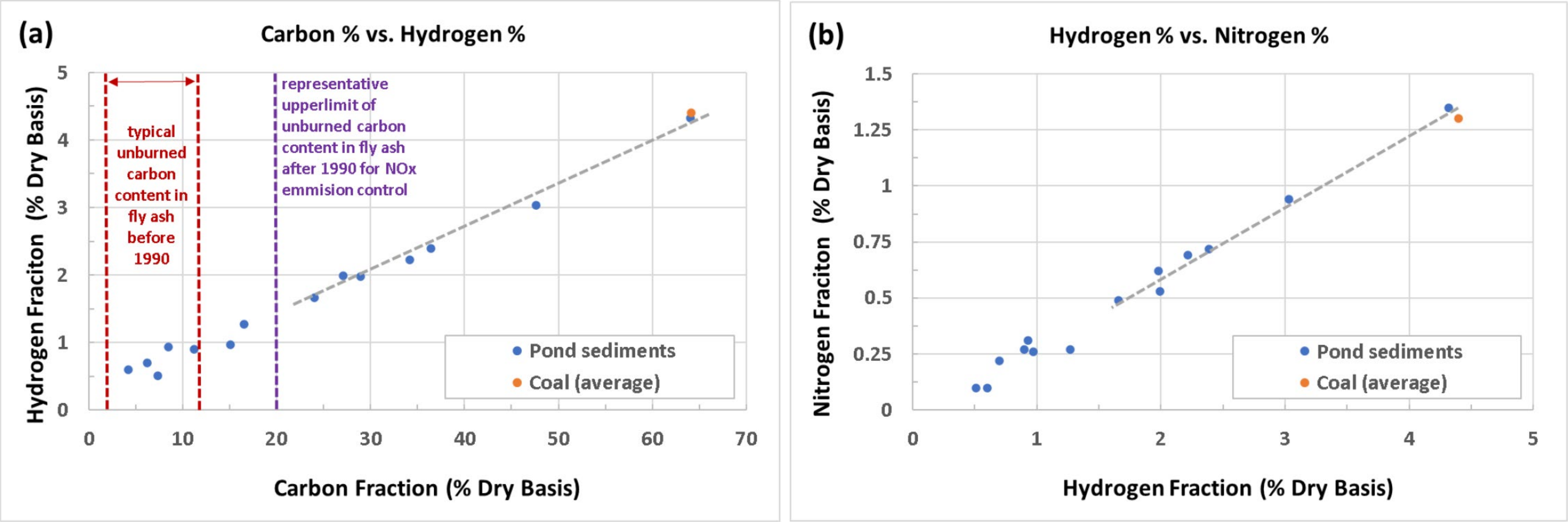


Figure 5: Correlation between (a) the carbon and hydrogen contents and (b) hydrogen and nitrogen contents in Pond sediment samples and coal (average) collected from the Site.

The carbon vs. hydrogen and hydrogen v. nitrogen correlation are *inconsistent with burned coal*

Polarized Light Microscopy

Table 7: Summary of CCR material and coal fractions in Pond sediment samples.

Pond Name	Sample Name	Fly Ash	Bottom Ash	Slag	Slag + Fly Ash + Bottom Ash	Coal	Other	Total
Pond 3A	S-3An	1%	8%	11%	20%	13%	67%	100%
	S-3Ax	1%	6%	27%	34%	48%	18%	100%
Pond 3	S-3n	17%	5%	1%	23%	7%	70%	100%
	S-3x	22%	7%	5%	34%	4%	62%	100%
Pond S-6	S-S6n	27%	3%	0%	30%	2%	68%	100%
	S-S6x	32%	10%	11%	53%	0%	47%	100%
Pond 4	S-4n	1%	1%	23%	25%	23%	52%	100%
	S-4x	13%	19%	32%	64%	0%	36%	100%
	S-4gp	8%	22%	38%	68%	0%	32%	100%
	S-4gs	10%	16%	32%	58%	1%	41%	100%
South Fly Ash Pond	S-SFAn	18%	26%	20%	64%	2%	34%	100%
	S-SFAx	11%	4%	13%	28%	5%	67%	100%
	S-SFAgn	2%	6%	2%	10%	6%	84%	100%
	S-SFAgx	9%	32%	17%	58%	1%	41%	100%

Note: Table adapted from RJ Lee Group (Attachment D).

Any CCR in the units make up only a portion of the sediment

PLM Analysis of Pond Content – "Other Category"

"This [Other] category is a variable category that included constituents that were not of particular interest to the investigation in process but were necessary to provide stereological quantification of subject component populations. In these cases, the Other category generally included constituent classifications such as: Quartz, Carbonates, Vermiculite, Perlite, isotropic/glass, organics, and opaque particles."

HALEY ALDRICH

Characterization of Major Cation and Anion Concentrations Using the Shake Test Method – *Pond Sediments* (1)

Table 4: Summary of major cation and anion concentrations for Pond sediments obtained using the shake test.

		Pond Sediment Shake Test Results													
Parameter	Units	S-3Ax 04/27/2021	S-3An 04/27/2021	S-3n 04/27/2021	S-3x 04/27/2021	S-S6x 04/27/2021	S-S6n 04/27/2021	S-4gs 04/27/2021	S-4gp 04/27/2021	S-4x 04/27/2021	S-4n 04/27/2021	S-SFAn 04/27/2021	S-SFAx 04/27/2021	S-SFAgx 04/27/2021	S-SFAgn 04/27/2021
Alkalinity, Bicarbonate (as CaCO3)	mg/L	53	54	12	28	20	10	66	70	58	56	16	13	12	22
Alkalinity, Carbonate (as CaCO3)	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calcium	mg/L	37.3	44.4	315	612	629	617	28.7	30.6	45.1	46.2	470	654	34.5	43.9
Chloride	mg/L	13	19	14	9	6	10	2	6	25	11	42	81	22	30
Fluoride	mg/L	0.84	3.44	1.63	1.56	1.48	1.24	1.1	0.68	0.9	1.1	2.61	1.21	3.59	3.67
Magnesium	mg/L	2.85	8.01	8.2	3.09	2.9	4.37	1.66	2.34	3.71	3.15	10.2	2.55	4.03	4.56
Potassium	mg/L	1.19	1.74	2.21	2.61	2.94	5.06	0.992	1.55	1.56	1.69	1.36	1.64	1.51	1.23
Sodium	mg/L	1.99	2.65	2.93	1.84	1.55	2.44	1.07	3.98	3.07	1.74	3.14	1.32	1.47	1.58
Sulfate	mg/L	42	50	861	1360	1370	1350	31	11	49	22	1160	1340	59	69

Note: Concentrations greater than both the Part 620 Groundwater Quality Class I Potable Resource Groundwater and Groundwater Quality Class II General Resource Groundwater standards (see Table 3) are highlighted in yellow. Sample locations are shown on Figure 2.

No exceedances of major cations or anions in 3A or 4

HALEY ALDRICH

Characterization of Major Cation and Anion Concentrations Using the Shake test Method – *Berm Samples* (2)

Table 5: Summary of major cation and anion concentrations for berm samples obtained using shake the test.

		Ponds 3, 3A, 4, and S-6, and South Fly Ash Pond Berm Results									Former Pond B-3 Berm Results	
Parameter	Units	B-3a 4-6 ft 03/22/2021	B-3b 4-6ft 3/22/2021	B-3Aa 2-4 ft 03/22/2021	B-3Aa 8-10 ft 03/22/2021	B-4a 0-2 ft 03/22/2021	B-4a 2-4 ft 03/22/2021	B-6b 4-6ft 3/22/2021	B-SFAb 4-6ft 3/22/2021	B-SFAa 2-4ft 3/22/2021	B-B3a 4-6ft 3/22/2021	B-B3b 4-6ft 3/22/2021
Alkalinity, Bicarbonate (as CaCO3)	mg/L	0	16	20	34	23	26	14	6	34	22	26
Alkalinity, Carbonate (as CaCO3)	mg/L	29	0	0	0	0	0	0	0	0	0	0
Calcium	mg/L	209	13.1	5.26	17.1	257	5.35	0.878	0.145	20.9	0.699	<0.100
Chloride	mg/L	4	<1	< 1	< 1	1	2	5	8	7	<1	7
Fluoride	mg/L	0.15	0.32	0.80	1.12	0.59	0.62	0.18	0.29	0.46	0.57	0.37
Magnesium	mg/L	0.257	3.10	1.20	0.308	4.84	1.890	0.277	0.140	3.49	0.397	<0.0500
Potassium	mg/L	13.0	0.326	3.71	1.97	2.54	0.651	0.361	0.818	1.64	<0.100	<0.100
Sodium	mg/L	3.42	0.430	0.465	0.648	3.54	3.60	1.06	3.33	6.47	2.44	4.56
Sulfate	mg/L	1330	19	< 10	25	374	15	<10	<10	41	<10	15

Note: Concentrations greater than both the Part 620 Groundwater Quality Class I Potable Resource Groundwater and Groundwater Quality Class II General Resource Groundwater standards (see Table 3) are highlighted in yellow. Sample locations are shown on Figure 3.

Berm samples generally show low cation/anion concentrations

Shake Test Method – *Sediment Samples* (3)

Impact on groundwater:

- antimony
- arsenic
- boron
- selenium
- thallium

Based on shake tests and groundwater monitoring results, the units at issue are unlikely to be contributing to groundwater quality standard exceedances

Table 9: Simplified summary of the shake test results for Pond sediments and control samples.

Parameter	Units	Part 620 – Groundwater Quality Class I Potable Resource Groundwater (a)	Part 620 – Groundwater Quality Class II General Resource Groundwater (b)	Control Sample Shake Test Results (c): Scrubber Sludge 05/25/2021	Unit 4 Fly Ash 07/08/2021	Coal 05/25/2021	Sediment Shake Test Results (c): S-3Ax 04/27/2021	S-3An 04/27/2021	S-3n 04/27/2021	S-3x 04/27/2021	S-S6x 04/27/2021	S-S6n 04/27/2021
Antimony	mg/L	0.006	0.024	< 0.0010 B	0.0216	< 0.0010 B	< 0.0010	< 0.0010	0.0011	0.002	0.0028	0.0044
Arsenic	mg/L	0.010	0.2	< 0.0100	< 0.0100	< 0.0100	0.0017	< 0.0010	0.0214	0.0037	0.0028	0.0048
Boron	mg/L	2	2	< 0.0200	16.2 S	0.044	0.851	1.13	0.977	0.594	0.497	0.739
Chloride	mg/L	200	200	< 4	623	17	13 H	19 H	14 H	9 H	6 H	10 H
Fluoride	mg/L	4	4	1.37	7.33	0.11	0.84 H	3.44 H	1.63 H	1.56 H	1.48 H	1.24 H
Selenium	mg/L	0.05	0.05	< 0.0400	1.45	< 0.0400	0.0067	0.0059	0.0013	0.0084	0.0048	0.004
Sulfate	mg/L	400	400	1400	1400	100	42 H	50 H	861 H	1360 H	1370 H	1350 H
Thallium	mg/L	0.002	0.02	0.0024 X	0.0495	< 0.0020	< 0.0020	< 0.0020	< 0.0020 B	< 0.0020	< 0.0020	< 0.0020 B
Total Dissolved Solids	mg/L	1200	1200	1950 H	3730 H	166 H	162 H	184 H	1310 H	2110 H	2090 H	2100 H

Parameter	Units	Part 620 – Groundwater Quality Class I Potable Resource Groundwater (a)	Part 620 – Groundwater Quality Class II General Resource Groundwater (b)	Sediment Shake Test Results (c): S-4gs 04/27/2021	S-4gp 04/27/2021	S-4x 04/27/2021	S-4n 04/27/2021	S-SFAn 04/27/2021	S-SFAx 04/27/2021	S-SFAgx 04/27/2021	S-SFAgn 04/27/2021
Antimony	mg/L	0.006	0.024	< 0.0010	0.0017	< 0.0010	< 0.0010	0.0014	0.0022	0.0022	0.0021
Arsenic	mg/L	0.010	0.2	0.001	0.0045	0.0059	0.0056	0.0014	0.0019	0.005	0.0013
Boron	mg/L	2	2	0.197	0.426	0.546	0.639	1.41	1.14	1.08	1.1
Chloride	mg/L	200	200	2 H	6 H	25 H	11 H	42 SH	81 H	22 H	30 H
Fluoride	mg/L	4	4	1.1 H	0.68 H	0.9 H	1.1 H	2.61 H	1.21 H	3.59 H	3.67 H
Selenium	mg/L	0.05	0.05	0.0028	0.0039	< 0.0010	< 0.0010	0.0044	0.127	0.0487	0.0262
Sulfate	mg/L	400	400	31 H	11 H	49 H	22 H	1160 H	1340 H	59 H	69 H
Thallium	mg/L	0.002	0.02	< 0.0020 B	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Total Dissolved Solids	mg/L	1200	1200	132 H	100 H	178 H	118 H	1920 H	2200 H	168 H	216 H

Notes:

< - Not detected above the indicated reporting limit.
- Not sampled.

B - Analyte detected in associated Method Blank.
H - Holding times exceeded.

mg/L - Milligrams per liter.
S - Spike Recovery outside recovery limits.

(a) - Illinois Administrative Code. (July 2013). Title 35: Environmental Protection. Subtitle F: Public Water Supplies. Chapter I: Pollution Control Board. Part 620: Groundwater Quality. Subpart D: Groundwater Quality Standards. Section 620.410 Groundwater Quality Standards for Class I: Potable Resource Groundwater. https://pcb.illinois.gov/documents/dsweb/Get/Document-33425/

(b) - Illinois Administrative Code. (July 2013). Title 35: Environmental Protection. Subtitle F: Public Water Supplies. Chapter I: Pollution Control Board. Part 620: Groundwater Quality.Subpart D: Groundwater Quality Standards. Section 620.420 Groundwater Quality Standards for Class II: General Resource Groundwater. https://pcb.illinois.gov/documents/dsweb/Get/Document-33425/

(c) - Data from Teklab, Inc. Environmental Laboratory. June 7, 2021. Analysis by ASTM D3987, SW-846 3005A, 6010B, 6020A, Metals in Shake Extract by ICPMS, and ASTM D3987, SW-846 7470A in Shake Extract.

(blue) Greater than the Groundwater Quality Class I Potable Resource Groundwater
(yellow) Greater than both the Groundwater Quality Class I Potable Resource Groundwater and Groundwater Quality Class II General Resource Groundwater

Shake Test Method – *Berm Samples* (4)

Impact on groundwater:
- antimony
- arsenic
- boron
- selenium
- thallium

Table 10: Simplified summary of the shake test results for berm samples.

Parameter	Units	Part 620 – Groundwater Quality Class I Potable Resource Groundwater (a)	Part 620 – Groundwater Quality Class II General Resource Groundwater (b)	Ponds 3, 3A, 4, and S-6 and South Fly Ash Pond Berm Results									Fomer Pond B-3 Berm Results	
				B-3a 4-6 ft 03/22/2021	B-3b 4-6ft 3/22/2021	B-3Aa 2-4 ft 03/22/2021	B-3Aa 8-10 ft 03/22/2021	B-4a 0-2 ft 03/22/2021	B-4a 2-4 ft 03/22/2021	B-6b 4-6ft 3/22/2021	B-SFAb 4-6ft 3/22/2021	B-SFAa 2-4ft 3/22/2021	B-B3a 4-6ft 3/22/2021	B-B3b 4-6ft 3/22/2021
Antimony	mg/L	0.006	0.024	< 0.0010	<0.0010	0.0018	0.0081	< 0.0010	< 0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic	mg/L	0.010	0.2	0.0027	<0.0010	0.0025	0.0254	0.0015	< 0.0010	0.0030	<0.0010	0.0011	<0.0010	<0.0010
Boron	mg/L	2	2	0.517	0.0939	0.165	0.196	0.124	0.0847	0.0459	<0.0200	0.0282	<0.0200	<0.0200
Chloride	mg/L	200	200	4	<1	< 1	< 1	1	2	5	8	7	<1	7
Fluoride	mg/L	4	4	0.15	0.32	0.80	1.12	0.59	0.62	0.18	0.29	0.46	0.57	0.37
Selenium	mg/L	0.05	0.05	0.002	<0.0010	0.0107	0.0035	0.0035	< 0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sulfate	mg/L	400	400	1330	19	< 10	25	374	15	<10	<10	41	<10	15
Thallium	mg/L	0.002	0.02	< 0.0020	<0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Total Dissolved Solids	mg/L	1200	1200	2200	55	52	88	604	2080	1540	4770	466	5370	5030

Notes: (1) Definitions of blue and yellow colors are the same as those used in Table 9.
(2) Total dissolved concentrations for B-4a (0-2 ft), B-SFAb (4-6 ft), B-6b (4-6 ft), B-B3a (4-6 ft) and B-B3b (4-6 ft) are considered not reliable because low conductivity values and low major cation and anion concentrations were also observed in these samples (Table 5).

Former Pond B-3 Soil Sample Analysis Using the Shake Test Method (5)

MARION STATION - POND B-3 SOIL SAMPLE EXTRACTION ANALYSIS

Attachment E, SIPC Ex. 29

Parameter	Units	Part 620 – Groundwater Quality Class I Potable Resource Groundwater (a)	Part 620 – Groundwater Quality Class II General Resource Groundwater (b)	Pond B-3 – Group 1 (c)						Pond B-3 – Group 2 (c)		
				West Bank 09/18/2017	East Bank 09/18/2017	South End 09/18/2017	Middle 09/18/2017	Sample 1 07/28/2017	Sample 4 07/28/2017	Sample 3 03/08/2017	Sample 4 03/08/2017	Sample 5 03/08/2017
Antimony	mg/L	0.006	0.024	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.003	< 0.0010	< 0.0010	0.0011	< 0.0010
Arsenic	mg/L	0.010	0.2	< 0.0010	0.0088	0.0031	< 0.0010	0.0244	< 0.0010	0.0062	0.0010	< 0.0010
Barium	mg/L	2	2	0.0566	0.0094	0.0096	< 0.0025	0.0378	< 0.0025	< 0.0025	0.0345	0.0499
Beryllium	mg/L	0.004	0.5	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Boron	mg/L	2	2	0.0381	0.0538	0.0202	< 0.0200	0.238	< 0.0200	< 0.0200	0.0715	0.256
Cadmium	mg/L	0.005	0.05	0.0032	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Chromium	mg/L	0.1	1	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Cobalt	mg/L	1	1	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Copper	mg/L	0.65	0.65	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050 B	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Iron	mg/L	5	5	0.0470	0.0394	1.38	0.0303	< 0.0200	0.0252	< 0.0200	< 0.0200	< 0.0200
Lead	mg/L	0.0075	0.1	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Manganese	mg/L	0.15	10	0.0120	< 0.0030	0.0128	< 0.0030	< 0.0030	0.0095	< 0.0030	< 0.0030	0.0042
Mercury	mg/L	0.002	0.01	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
Nickel	mg/L	0.1	2	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
pH	S.U.	6.5-9	6.5-9	--	--	--	--	--	--	9.09	7.58	7.64
Selenium	mg/L	0.05	0.05	< 0.0010	0.0079	0.0033	< 0.0010	0.0123	< 0.0010	0.0025	0.0022	0.0013
Silver	mg/L	0.05	NA	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Sulfate	mg/L	400	400	--	--	--	--	--	--	< 10	139	100
Thallium	mg/L	0.002	0.02	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Zinc	mg/L	5	10	0.0731	< 0.0100	< 0.0100	<0.0100	< 0.0100	0.0134	< 0.0100	< 0.0100	< 0.0100

Notes:
< - Not detected above the indicated reporting limit.
-- Not sampled.
B - Analyte detected in associated Method Blank.
mg/L - Milligrams per liter.
NA - Not available.
S.U. - Standard Units.

Former Pond B-3 samples from closure indicate it is not contributing to groundwater contamination

USEPA *De Minimis* Exception

The United States Environmental Protection Agency (USEPA) also has not set a threshold for *de minimis* CCR surface impoundments, but it has recognized that the de minimis exemption is necessary and has clarified that secondary or tertiary ponds that do not receive "*significant* amounts of CCR from a preceding impoundment" would not fall within the definition of a regulated CCR surface impoundment. 80 Fed. Reg. at 21.357 (emphasis added).

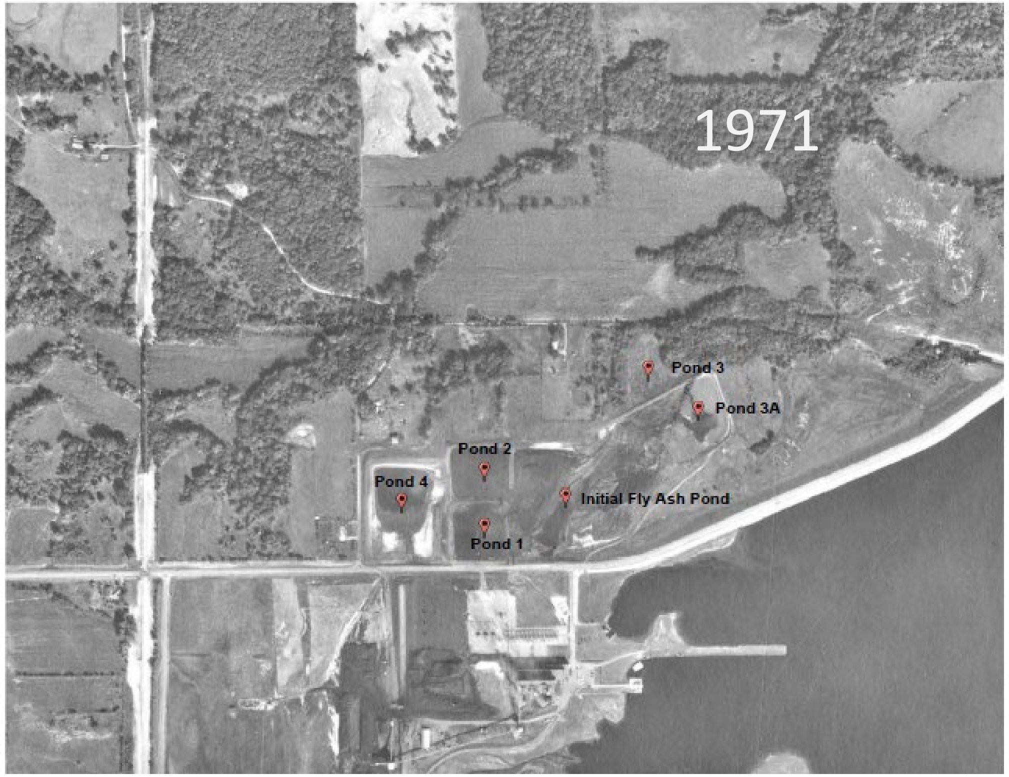
HALEY ALDRICH

General Issues with IEPA Assumptions

- IEPA Recommendation includes incorrect calculations of “CCR”
  - Incorrectly assumes all sediment in Ponds is CCR
  - Incorrectly includes sediment included in berms
- IEPA Recommendation incorrectly assumes the existence of sediment build up based on “deltas” in aerials
- Permitted conditions do not always reflect actual conditions, inappropriate to assume permitted use or volume is actual use or volume
- Incorrect attribution of the sources of sediment in ponds
  - Ponds had multiple non-CCR sources of sediment

Former Landfill Operations

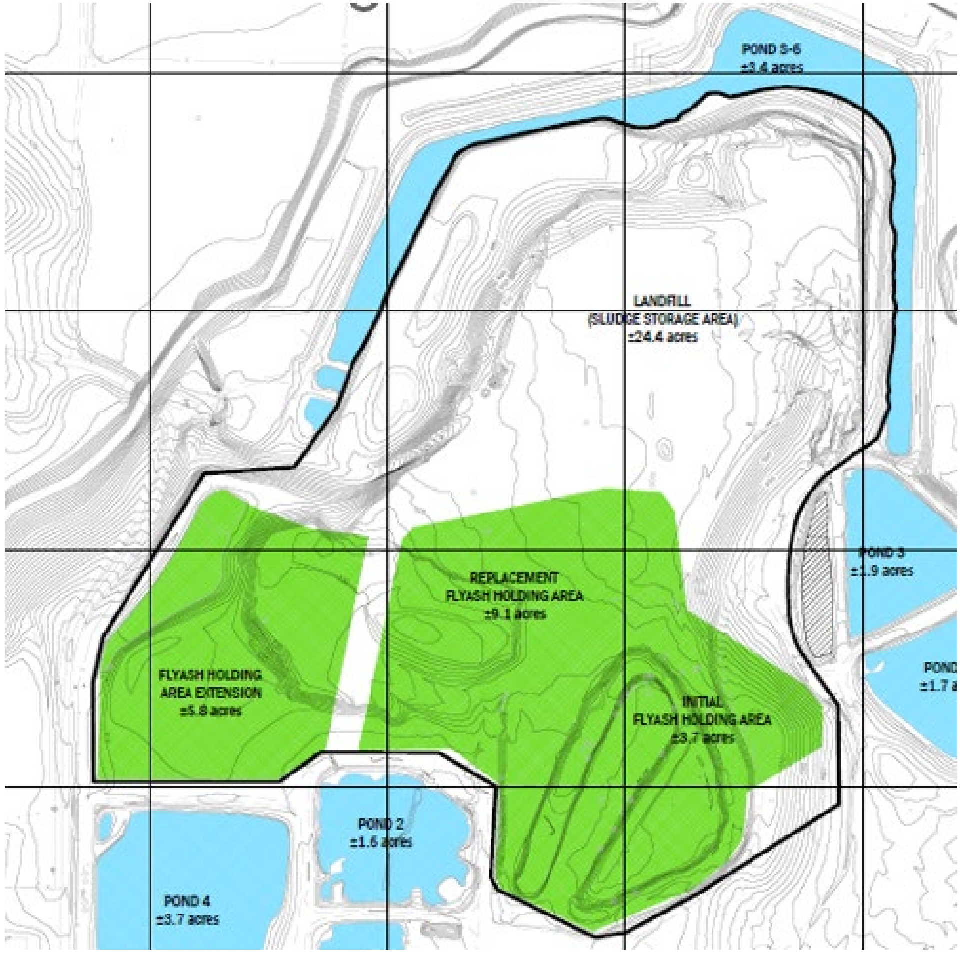
Initial landfill construction occurred on dry land



IEPA Ex. 1

IEPA Ex. 2

Former Landfill Operations



Excerpted from SIPC Ex. 3

- Neighboring ditch/pond for stormwater management
- Use of adjacent ditch/pond for stormwater runoff collection is consistent with good waste management practices
- Presence of neighboring ditch/pond not indicative of saturation of contents in landfill

EXHIBIT 53

Kenneth Liss, L.P.G.
President

Experience
- Andrews: 23 years
- Other Firms: 15 years

Education
- B.S. – Geology
  Illinois State University

Professional Registration
- P.G.: IL

Affiliations
- Chair, Illinois Site Remedial Advisory Committee
- Ethics Officer, Illinois Site Remedial Advisory Committee
- Former Vice Chairman, Illinois Licensing Board for Geologists

Mr. Liss, President of Andrews Engineering, Inc. (Andrews), provides a broad range of environmental expertise to industry, government, and individual clients. He serves as the Principal-in-Charge and/or Program Manager on a number of multi-year contracts with both private and public sector clients.

Prior to joining Andrews, Mr. Liss was the manager of the Groundwater Unit in the Permit Section of Bureau of Land at the Illinois Environmental Protection Agency (EPA). His experience includes permitting and corrective action for hazardous and non-hazardous facilities (**RCRA** Subtitles C & D), **CERCLA** and determining appropriate responses to environmental impacts. In addition, he provided testimony and technical support for rulemakings, enforcement, and implementation of delegation agreements with the USEPA.

As an extension of his previous regulatory involvement with the IEPA, Mr. Liss currently serves as the Solid Waste Industry Chair on the Illinois Site Remediation Advisory Committee (SRAC).

Mr. Liss was appointed as the Vice Chairperson to the first Board of Licensing for Professional Geologists in Illinois.

Illinois Department of Transportation, Former Toastmaster Facility Remedial Investigation – Algonquin, Illinois (February 2008 – September 2015)
IDOT was constructing a new highway bypass along Illinois Route 31 in Algonquin, Illinois. Construction plans included demolition and construction over a pre-CERCLIS site. Because of the site's potential Superfund status, Andrews Engineering performed a remedial investigation using **CERCLA/SARA** and completed a preliminary feasibility study for the project. Work provided during the investigation included soil borings, installation of 64 monitoring wells and surface water and sediment sampling. We completed a groundwater fate and transport model to determine the potential extent of groundwater impacts as part of the remedial investigation/feasibility study. Andrews then prepared several remediation alternatives designed to meet stringent RCRA/ CERCLA/SARA standards for cleanup objectives. Mr. Liss served as Principal-in-Charge and client liaison of this project. He managed project staff and provided technical review of the remedial investigation report.

Illinois Department of Transportation – Statewide Waste Assessment Investigations, Studies and Designs Contract, Statewide, Illinois (October 2002 – Ongoing)
Mr. Liss has been the contract manager and client liaison for seven multi-million dollar various IDOT statewide contracts for hazardous waste investigations. Mr. Liss oversees Andrews' execution of services for preliminary environmental site assessments and the preliminary investigation of a broad array of contaminated properties targeted for IDOT construction and/or acquisition or right-of-way construction. The contracts include providing IDOT with technical investigation results, remediation recommendations, worker safety plans and various state and federal requirements for handling contaminated soils during property development for roadway expansions.

Mr. Liss has overseen numerous task orders for environmental compliance audits (**ECA**s) and reviews for various IDOT facilities in Districts 8 and 9. The ECA reports include, but are not limited to, waste management practices, stormwater runoff control, hazardous materials inventory, handling, management and storage practices to develop a 'findings' report. Mr. Liss reviewed final draft reports for accuracy and appropriate classification of findings, personnel interviews and facility inspections (**RFI**s) prepared by the Andrews' field engineer. The final ECAs are confidential and include asset inventories and IDOT maintenance yard recommendations to ensure facility compliance with various statutes and regulations, including compliance with the IDOT Environmental Management System (EMS), Emergency Planning and Community Right to Know Act (EPCRA), Spill Prevention, Control and Countermeasures (SPCC), solid and hazardous waste management, New Source Performance Standards (NSPS), Illinois Water Well Construction Code, Toxic Substances Control Act (TSCA), Clean Water Act, RCRA Subtitle I Underground Storage Tanks (UST), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), National Environmental Policy Act (NEPA) and the Illinois Office of State Fire Marshal requirements for above ground storage tanks (ASTs).

Riverwoods (Former Hoffelder) Landfill – TSCA (PCB) Remediation, Riverwoods, Illinois (August 2006 – April 2022)
The site is a 37-acre former landfill that closed in 1975 and was abandoned after closure. Investors purchased the property for back taxes for future development and entered the site into the Illinois EPA Site Remediation Program (**SRP**). Andrews is currently addressing soil contamination and free oil on the water table containing PCB congeners with the USEPA. Remediation can be achieved using Tier 3 and Tier 2 under the Illinois Tiered Approach to Corrective Action (TACO). Remediation includes physical removal of contaminants, soil cover, engineered barrier and a local ordinance restricting the use of groundwater in order to obtain a No Further Remediation (NFR) letter from Illinois EPA. Mr. Liss provided oversight of the field investigation, which took place over multiple events. The field investigation revealed several areas requiring remediation including groundwater, surface water entering the adjacent creek, exposed waste, and PCB congener. He additionally, worked through the Illinois EPA to release the site from the landfill Part 807 regulations so the site could be entered into the SRP program.

Former Richardson Electronics Property Site Investigation and Remedial Action Plan – Illinois EPA Site Remediation Program (SRP), Geneva, Illinois (March 2018 – February 2022)
Mr. Liss is the managing Principal-in-Charge of this privately funded brownfield project. The recognized environmental conditions (RECs) included a former **LUST** location, a hazardous waste **RCRA** drum storage area near the former plant and an unpermitted hazardous waste storage area near the property boundary. The site was abandoned and demolition managed by the City of Geneva. Previous remediation at the site was incomplete and a Remedial Action Plan (RAP) was developed to address the impacts identified during site development. The developer abandoned the site. Andrews determined that although the RCRA corrective action was not completed the Illinois EPA issued a clean closure approval. The site was entered into the Illinois EPA Site Remediation Program (SRP). As of 2020, the RAP was conditionally approved by the Illinois EPA and site work continues.

Ashland Avenue Property Redevelopment, Brownfield Remediation, Environmental Audit, Vapor Intrusion Mitigation—Chicago, Illinois (January 2019 – May 2022)
The site known as the former Wrigley Complex on South Ashland Ave. included one half of a city block with multi storied buildings, industrial lot and parking. The entire complex was demolished and redeveloped as an Amazon distribution facility. Mr. Liss was the principal in charge. His tasks included development and maintaining updates to the site management plan (SMP) for evaluation of all environmental issues discovered before and during demolition to identify appropriate actions and interface with regulatory agencies to minimize delays due to environmental issues.

The site known as the former Wrigley Complex on South Ashland Ave. included one half of a city block with multi storied buildings, industrial lot and parking. The entire complex was demolished and redeveloped as an Amazon distribution facility. Mr. Liss was the principal in charge. He was lead on the remedial design **(RD)** and installation of a 114,000 sq. ft. under slab vapor mitigation system for volatile organic compounds meeting Illinois EPA SRP requirements.

EXHIBIT 54

Testimony of Kenneth W. Liss

President, Andrews Engineering, Inc.

AS 2021-006: *IN THE MATTER OF: PETITION OF SOUTHERN ILLINOIS POWER COOPERATIVE FOR AN ADJUSTED STANDARD FROM 35 ILL. ADMIN. CODE PART 845 OR, IN THE ALTERNATIVE, A FINDING OF INAPPLICABILITY*

SIPC Ex. 3, Page 1

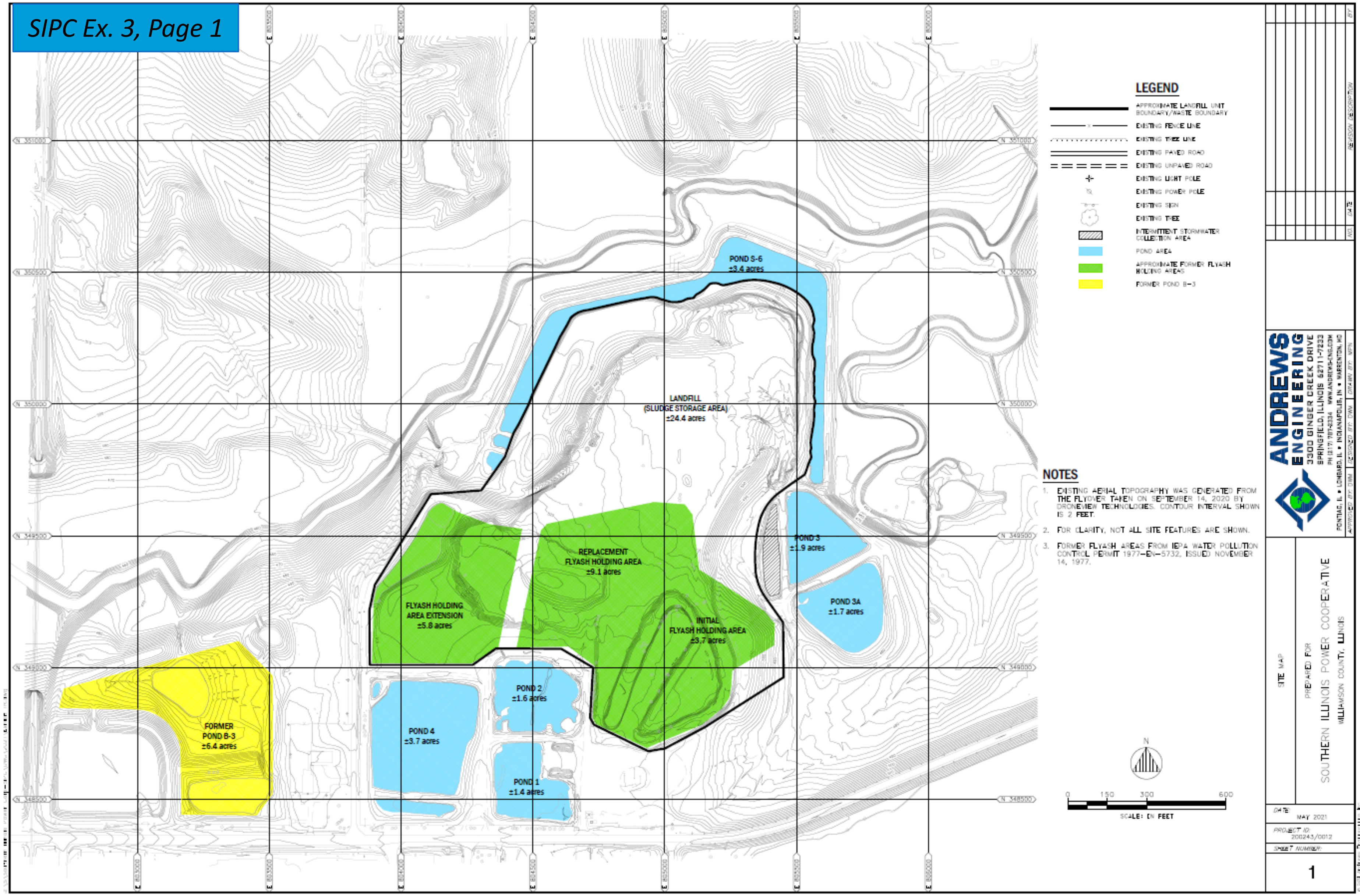


EXHIBIT 55

Electronic Filing: Received, Clerk's Office 06/13/2025

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Testimony of Ari S. Lewis

Gradient

What is Risk Assessment?

- Procedure to quantify risks to human health and/or ecological receptors
  - Quantify exposure to relevant constituents for relevant human or ecological receptors
  - Compare exposures to "safe" exposures (*i.e.*, health-based or ecological benchmark).
    - If exposure is less than benchmarks - No Risk
    - If exposure is greater than the benchmarks - Potential Risk

Key Guidance Documents

United States EPA

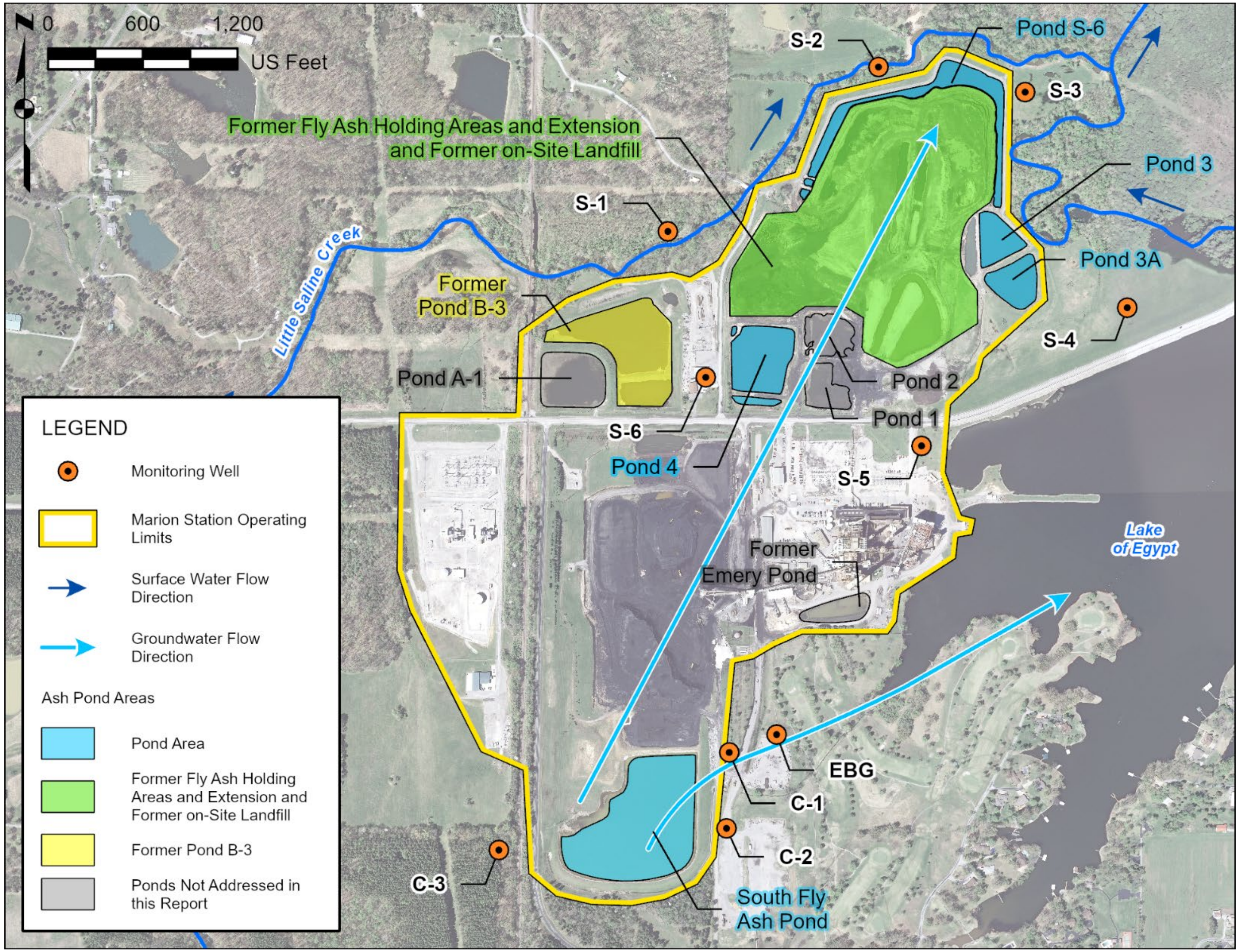
- US EPA. 1989. "Risk Assessment Guidance for Superfund (RAGS). Volume I: Human Health Evaluation Manual (Part A) (Interim final)." Office of Emergency and Remedial Response, NTIS PB90155581, EPA540/189002, December.
- US EPA [Region IV]. 2018. "Region 4 Ecological Risk Assessment Supplemental Guidance (March 2018 Update)." 98p.
- US EPA. 2014. "Human and Risk Assessment of Coal Combustion Residuals (Final)." Office of Solid Waste and Emergency Response (OSWER), Office of Resource Conservation and Recovery,

Illinois EPA

- Illinois Environmental Protection Agency (IEPA). "Title 35: Environmental Protection, Subtitle C: Water Pollution, Chapter I: Pollution Control Board, Part 302: Water Quality Standards."

Electronic Filing: Received, Clerk's Office 06/13/2025

Evaluation of Storage Ponds of Interest

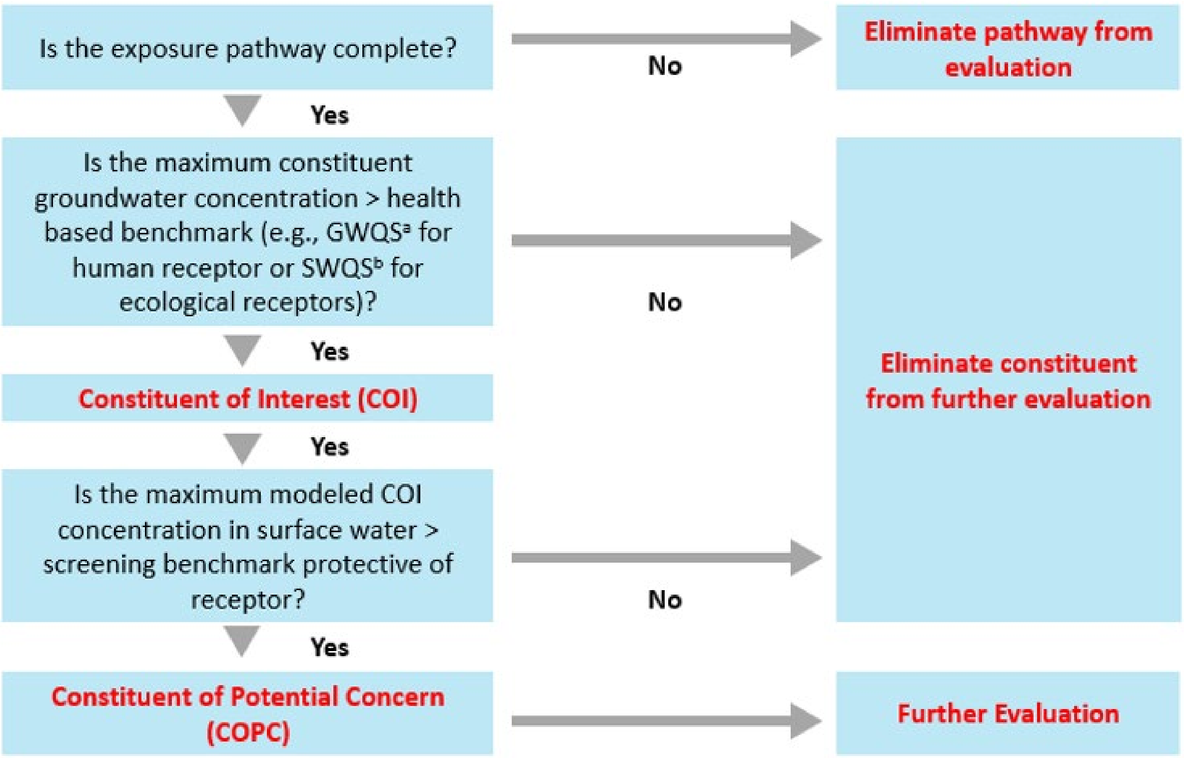


Corrected SIPC Ex. 37, Figure 2.2 with groundwater flow from Figure 3.3

- Pond 4
- Former Pond B-3
- Pond 3/3A
- Pond 6
- South Fly Ash Pond

Steps for Human Health and Ecological Risk Assessment Consistent with US EPA Principles

1. Identify complete exposure pathways and develop a conceptual exposure model (CEM)
2. Identify site-related constituents of Interest (COIs)
3. Perform screening-level risk analysis
4. Perform refined risk analysis
5. Formulate risk conclusions and discuss any associated uncertainties



Corrected SIPC Ex. 37, Figure 3.1

Identify complete exposure pathways and develop a conceptual exposure model (CEM)

Human Health Pathways

Complete Pathways-Human Health

- Drinking water *via* surface water (Lake Egypt only)
- Swimming and Boating (Lake Egypt only)
- Fish Ingestion (Lake Egypt and Little Saline Creek)

Drinking water via groundwater is an incomplete pathway

- No downgradient drinking water well(s) that could be impacted
- Private well screened in deeper aquifer
  - 95 to 260 feet bgs vs. 12 to 28 feet bgs

Identify complete exposure pathways and develop a conceptual exposure model (CEM)

Ecological Pathways

Complete Pathways-Ecological

- Aquatic receptors via surface water
- Aquatic receptors via sediment

Identify Site-related Constituents of Interest (COIs)

Human Health COIs

- S-Wells - Near Pond 4, Pond 3 and 3A, Pond 6, and Pond B-3
  - Arsenic
  - Beryllium
  - Boron
  - Cadmium
  - Cobalt
  - Lead
  - Thallium
- C-Wells - Near the South Fly Ash Pond (2018-2023)
  - Boron
  - Cobalt
  - Cadmium
  - Thallium

*Max concentration compared to Section 845.600 GWPS

Ecological COIs

- S-Wells - Near Pond 4, Pond 3 and 3A, Pond 6, and Pond B-3 (2018-2022)
  - Boron
  - Cadmium
  - Cobalt
  - Thallium

*Max concentration compared to IEPA SWQC or EPA R4 ESV

COI Selection Process

- *Human Health*: Determine whether the maximum detected concentration is > groundwater protection standard (GWPS) identified in Section 845.600 (IEPA, 2021)
- *Ecological*: Determine whether the maximum detected concentration is > relevant surface water quality standard (SWQS) (IEPA, 2019).

Perform Screening-level Risk Analysis

Human Health-Recreators

Water Pathway- Lake of Egypt

COI	Maximum Surface Water Concentration (Measured) (mg/L)	Water and Fish (mg/L)	Water Only (mg/L)	Fish Only (mg/L)	Constituent of Potential Concern?
Boron	0.01	467	1400	700	No
Cadmium	0.0015	0.0019	1.0	0.0019	No
Cobalt	0.0025	0.0035	2.1	0.0035	No
Thallium	0.001	0.0017	0.40	0.0017	No

Corrected SIPC Ex. 37, Table 3.9

Water Pathway- Little Saline Creek

COI	Maximum Surface Water Concentration (Modeled) (mg/L)	Fish Only (mg/L)	Constituent of Potential Concern?
Arsenic	1.15E-06	0.02	No
Beryllium	7.79E-08	0.02	No
Boron	2.98E-05	700	No
Cadmium	5.29E-07	0.0019	No
Cobalt	5.19E-07	0.0035	No
Lead	7.69E-07	0.01	No
Thallium	4.42E-07	0.0017	No

Adapted from Corrected SIPC Ex. 37, Table 3.10

Screening Risk Process:
Compare maximum measured or modeled COI concentrations in surface water and sediment to activity-specific conservative, health-protective benchmarks (exceedances = Constituent of Potential Concern).

No Constituents of Potential Concern
None of the measured or modeled surface water concentrations exceeded the health-based benchmarks for swimming/boating or fish consumption

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Perform Screening-level Risk Analysis

Human Health-Drinking Water

Lake Public Water Supply Data Compared to GWPS (2018-2023)

Constituent	Number of Detects	Number of Samples	Detected Minimum (mg/L)	Detected Maximum (mg/L)	Maximum Detection Limit (mg/L)	GWPS (mg/L)	Constituent of Potential Concern?
Antimony	0	6			*0.003*	0.006	No
Arsenic	0	6			*0.001*	0.01	No
Barium	6	6	0.021	0.0263	NA	2	No
Beryllium	0	6			*0.001*	0.004	No
Cadmium	0	6			*0.003*	0.005	No
Chromium	0	6			*0.005*	0.1	No
Mercury	0	6			0.0002	0.002	No
Selenium	1	6	0.0024	0.0024	0.002	0.05	No
Thallium	0	6			*0.002*	0.002	No
Chloride	6	6	10.4	23	NA	200	No
Fluoride	6	6	0.553	0.73	NA	4	No
Sulfate	6	6	34.6	51.7	NA	400	No
Total Dissolved Solids	6	6	87	158	NA	1200	No
Radium 226 + Radium 228	1	1	1.03	1.03	NA	5	No

Corrected SIPC Ex. 37, Table 3.11

<u>No Constituents of Potential Concern</u>
None of the measured surface water concentrations exceeded the health-based benchmarks for drinking water

Perform Screening-level Risk Analysis

Ecological-Surface Water and Sediment

Risk Evaluation for Ecological Receptors Exposed to Surface Water in Little Saline Creek

COI	Modeled Surface Water Concentration (mg/L)	Ecological Freshwater Benchmark (mg/L)	Basis	Constituent of Potential Concern?
Cadmium	5.29E-07	1.13E-03	IEPA SWQC	No
Cobalt	5.19E-07	1.90E-02	EPA R4 ESV	No
Lead	7.69E-07	2.01E-02	IEPA SWQC	No
Thallium	4.42E-07	6.00E-03	EPA R4 ESV	No

Corrected SIPC Ex. 37, Table 3.12

Risk Evaluation for Ecological Receptors Exposed to Sediment in Little Saline Creek

COI	Modeled Sediment Concentration (mg/kg)	US EPA Region IV ESV (mg/kg)	Constituent of Potential Concern?
Cadmium	2.16E-04	1.0E+00	No
Cobalt	1.60E-04	5.0E+01	No
Lead	1.20E-03	3.6E+01	No
Thallium	5.46E-06	NA	No

Corrected SIPC Ex. 37, Table 3.13

No Constituents of Potential Concern
None of the modeled surface water concentrations exceeded the environmental benchmarks for ecological effects

None of the ecological COIs were identified as having potential bioaccumulative effects.

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Formulate Risk Conclusions

Pond 4, Former Pond B-3, Pond 3/3A, Pond 6, and the South Fly Ash Pond do not pose a risk to human health or the environment.

Specific risk assessment results include the following:

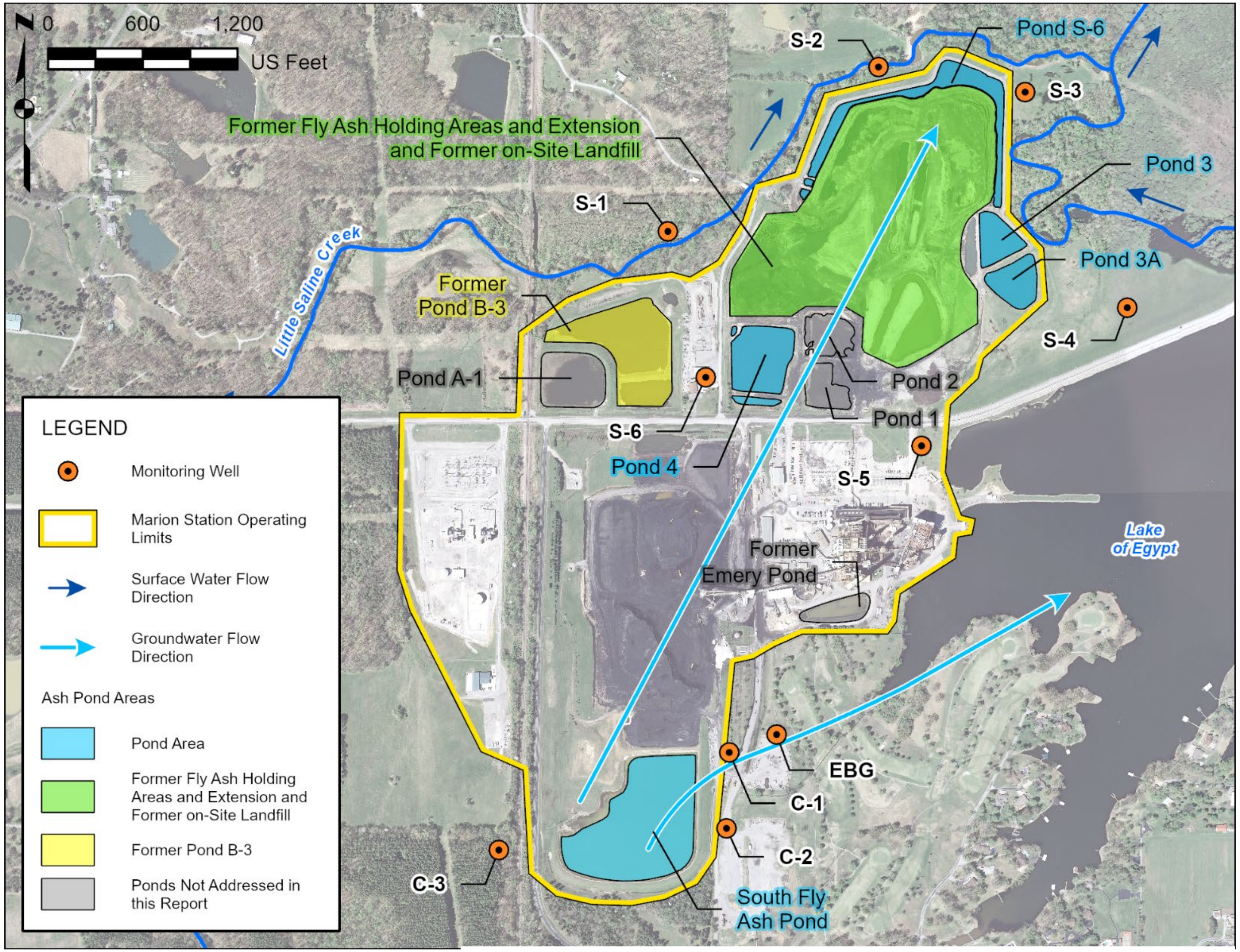
- No completed exposure pathways for any groundwater receptors; consequently, no risks for drinking water and other household purposes.
- No unacceptable risks were identified for the use of Lake of Egypt surface water as drinking water.
- No unacceptable risks were identified for recreators boating/swimming in Lake of Egypt.
- No unacceptable risks were identified for anglers consuming locally-caught fish in Lake Egypt or Little Saline Creek.
- No unacceptable risks were identified for ecological receptors exposed to surface water or sediment in Little Saline Creek.
- No bioaccumulative ecological risks were identified.

Support for the Petition for a Finding of Inapplicability or an Adjusted Standard

- US EPA definition of surface impoundment:
  - "[A] CCR surface impoundment as defined in this rule must meet three criteria: (1) The unit is a natural topographic depression, manmade excavation or diked area; (2) the unit is designed to hold an accumulation of CCR and liquid; and (3) the unit treats, stores or disposes of CCR)".
    - "Primary settling ponds that receive sluiced CCR"
    - "Secondary or tertiary impoundments that receive wet CCR or liquid with significant amounts of CCR from a preceding impoundment…"

- US EPA clarification of *de minimis*
  - Units containing "*de minimis*" levels of CCR are unlikely to present the significant risks this rule is intended to address

Evaluation of Ponds of Interest



Corrected SIPC Ex. 36, Figure 3.1 with groundwater flow from Corrected SIPC Ex. 37, Figure 3.3

- Pond 4
- Former Pond B-3
- Pond 3/3A
- Pond 6
- South Fly Ash Pond

DRAFT

Sediment/CCR in Units

Measured Total Sediment Thickness and Estimated CCR in Sediment

Pond	Mean Sediment Thickness (feet)[1]	Slag + Fly Ash + Bottom Ash (i.e., CCR)	Estimated CCR Thickness (feet)[2]	Estimated CCR Volume as Fraction of Pond Volume
South Fly Ash Pond	1.57	10-64% (40%)	0.63	7.6%
Pond 3	1.38	23-34% (28.5%)	0.39	2.6%
Pond 3A	1.45	20-34% (27%)	0.39	3.6%
Pond 6	0.84	30-53% (41.5%)	0.35	3.4%
Pond 4	1.67	25-68% (54%)	0.90	3.6%

[1] Bathymetric survey to determine the amount of sediment
[2] Polarized light microscopy and carbon content analysis to estimate CCR content

Corrected SIPC Ex. 36, Table 3.2

Former Pond B-3 excluded as it was excavated and cleaned in 2017.

Unique / De Minimis Characteristics of Ponds of Interest

South Fly Ash Pond	
Uses	Built as potential replacement for Pond A-1 but was not needed
Waste Received	Decant water from Former Emery Pond (until 2020).
Dredging/Cleaning	Debris/sediment removed in 2003

- Never directly received sluiced ash from plant operations
- Did not receive significant amounts of ash from other plant operations
  - Extrapolated estimate: 0.63 feet (7.6 inches)
- Unlike surface impoundments modeled in EPA RA
- No human health or ecological risks

Unique / De Minimis Characteristics of Ponds of Interest

Pond 3	
Uses	Built for disposal of wastewater from multiple sources
Waste Received	- overflow from the Fly Ash Holding Areas; - stormwater runoff; - coal pile runoff; - water from floor drains; and - Overflow water from the South Fly Ash Pond.
Dredging/Cleaning	Debris/sediment removed in 2003, 2006, and 2011

Pond 3A	
Uses	Built for disposal of wastewater from multiple sources
Waste Received	- overflow from the Former Fly Ash Holding Units; - stormwater; and - potential overflow from the South Fly Ash Pond
Dredging/Cleaning	Debris/sediment removed in 2003. Water drained and sediment cleaned in 2014

- Never directly received sluiced ash from plant operations
- Did not receive significant amounts of ash from other plant operations
  - Extrapolated estimate: 0.39 feet (4.7 inches)
- Unlike surface impoundments modeled in EPA RA
- No human health or ecological risks

Unique / De Minimis Characteristics of Ponds of Interest

Pond 6	
Uses	Developed to manage stormwater from the Former Landfill
Waste Received	- Stormwater from the Former Landfill. - Expected to receive non-CCR runoff from the Former Landfill in the future.
Dredging/Cleaning	Debris/sediment removed in 2003

- Never directly received sluiced ash from plant operations
- Did not receive significant amounts of ash from other plant operations
  - Extrapolated estimate: 0.35 feet (4.2 inches)
- Unlike surface impoundments modeled in EPA RA
- No human health or ecological risks

Unique / De Minimis Characteristics of Ponds of Interest

Pond 4	
Uses	Built for disposal of wastewater from multiple sources. Currently receives overflow from Pond 6 and discharges into the Little Saline Creek
Waste Received	- decant water from Ponds 1 and 2 until 2020; - water from the South Fly Ash Pond; - coal pile runoff starting in 2003; and - overflow from Pond 6
Dredging/Cleaning	Debris/sediment removed in 2003 and 2012

- Never directly received sluiced ash from plant operations
- Did not receive significant amounts of ash from other plant operations
  - Extrapolated estimate: 0.9 feet (10.8 inches)
- Unlike surface impoundments modeled in EPA RA
- No human health or ecological risks

Unique / De Minimis Characteristics of Ponds of Interest

Former Pond B-3	
Uses	Used as a secondary pond to Pond A-1 (which received fly ash and coal pile runoff until 2003).
Waste Received	Short-term discharges of fly ash during periodic outages of Pond A-1 (outages occurred appx. 3-4 times between 1985 and 2003, two weeks at a time)
Dredging/Cleaning	Debris/sediment removed in 2003. Dewatered and cleaned down to the clay in 2017

- Received minimal amounts of sluiced ash during emergency outages
- Unlike surface impoundments modeled in EPA RA
- No human health or ecological risks

US EPA Risk Assessment

Exposure Pathways

<u>Human Health Pathways:</u>

- **The ingestion of drinking water from groundwater impacted by CCR**
- **Ingestion of fish from surface water affected by groundwater impacted by CCR**
- Direct contact from surface water affected by groundwater impacted by CCR
- Direct contact during showering and bathing with groundwater impacted by CCR
- Inhalation of windblown CCR dust
- The incidental ingestion of soil impacted by CCR windblown dust and runoff
- The ingestion of produce, dairy products, and beef from soil impacted by CCR

<u>Ecological Pathways:</u>

- **Aquatic receptors surface water impacted by groundwater**
- Aquatic receptors exposed to wastewater
- Aquatic receptors exposed from soil impacted by CCR runoff
- Terrestrial receptors exposed from soil impacted by CCR runoff

US EPA Risk Assessment

Key Results

CCR Constituent	Groundwater Ingestion		Fish Ingestion	
	50th Percentile	90th Percentile	50th Percentile	90th Percentile
Cancer Risk				
Arsenic III	No risk	2×10^{-4}	No Risk	No Risk
Arsenic V		1×10^{-5}		
Chromium VI		No Risk		
Noncancer Risk				
Arsenic III	No Risk	5	No Risk	No Risk
Arsenic V		No Risk		
Boron		No Risk		
Cadmium		No Risk		
Cobalt		No Risk		
Fluoride		No Risk		
Lead		No Risk		
Lithium		2		
Mercury		No Risk		
Molybdenum		2		
Selenium IV		No Risk		
Selenium VI		No Risk		
Thallium		No Risk		

Corrected SIPC Ex. 36, Table 4.1

Characteristics of Surface Impoundments Modeled in US EPA RA

CCR Surface Impoundment Characteristics:

- Received sluiced ash from the facility
- CCR solids either accumulate until the surface impoundment's capacity is reached or are periodically dredged
- Constant ponding depth over the operational life
- Large volumes of coal ash:
  - Range 0.5-190 feet
  - 50^{th} percentile: 13.6 feet
  - 90^{th} percentile: 36.6 feet

Conclusions

- The ponds of interest are de minimis in nature
  - The ponds did not directly receive sluiced ash from plant operations and contained negligible amounts of CCR
  - Measurements of sediment and potential ash in the ponds confirm operations did not lead to the accumulation of ash in these ponds
- The characteristics of the ponds of interest differ significantly from the surface impoundments that were assessed under the 2014 US EPA Risk Assessment
  - The risk assessment results are not applicable
- A site-specific risk assessment has confirmed that the ponds of interest do not pose a risk to human health or the environment

For these reasons, the ponds of interest do not qualify as CCR surface impoundments as intended by State and Federal rules.

EXHIBIT 56

Electronic Filing: Received, Clerk's Office 06/13/2025

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Testimony Exhibits for Andrew Bittner, P.E.

Closure Impact Assessment - Pond 4
Marion Generating Station,
Marion, Illinois

June 10th – 12th, 2025

Site Map

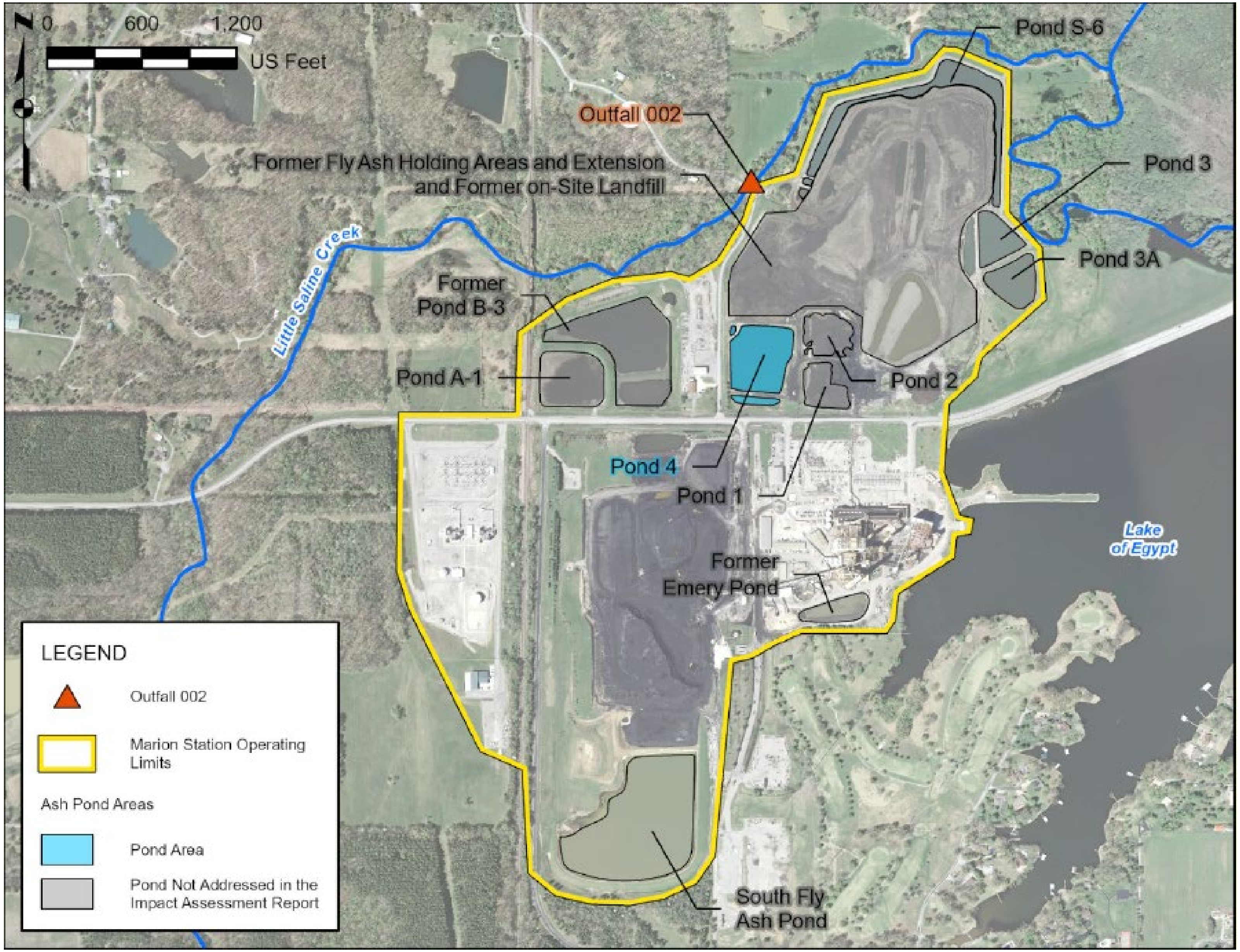

Figure 1.1 (Bittner, 2025)

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What Is a Closure Impact Assessment?

- Holistic evaluation of a one or more scenarios in order to evaluate net benefits and adverse effects of each action
  - Each scenario is evaluated based on a wide range of different factors
  - Analysis is similar to a "Net Environmental Benefit Assessment"
- Scenario evaluated for Pond 4 was "closure-by-removal"; this scenario was compared to the continued operation of Pond 4

Closure by Removal (CBR)

- CBR may include the following work elements
  - Removal of liquids. Water would be managed in accordance with a National Pollutant Discharge Elimination System (NPDES)
  - Excavation of sediments
  - Disposal of the excavated sediments at either an on-Site area or an off-Site landfill;
  - Post-excavation activities
    - may include a retrofit of Pond 4 with an impermeable bottom liner to allow for continued operation and use
    - site restoration such as placement of topsoil along the side slopes and bottom of Pond 4 and revegetation with native grasses

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Factors Used to Evaluate Pond 4 Closure

1. **Risks to Human Health and the Environment:** impact of closure on the reduction of risk
2. **Risks of Potential Future CCR Releases:** residual risk of potential CCR releases
3. **Groundwater Quality:** impacts of closure on groundwater quality
4. **Surface Water Quality:** impacts of closure on surface water quality
5. **Air Quality:** air quality impacts of closure activities, including fugitive dust and diesel emissions
6. **Climate Change and Sustainability:** Greenhouse gas (GHG) emissions and energy consumption associated with closure
7. **Worker Safety:** potential for worker fatalities and injuries during closure, either on-Site or off-Site
8. **Community Impacts:** potential for impacts to the community due to haul truck accidents and nuisance impacts from increased traffic and noise
9. **Environmental Justice (EJ):** potential impacts of the closure activities on EJ communities
10. **Scenic, Recreational, and Historical Value:** potential impacts resulting from noise and visual disturbances to recreators during closure and potential impacts to historical sites

Groundwater Flow Direction

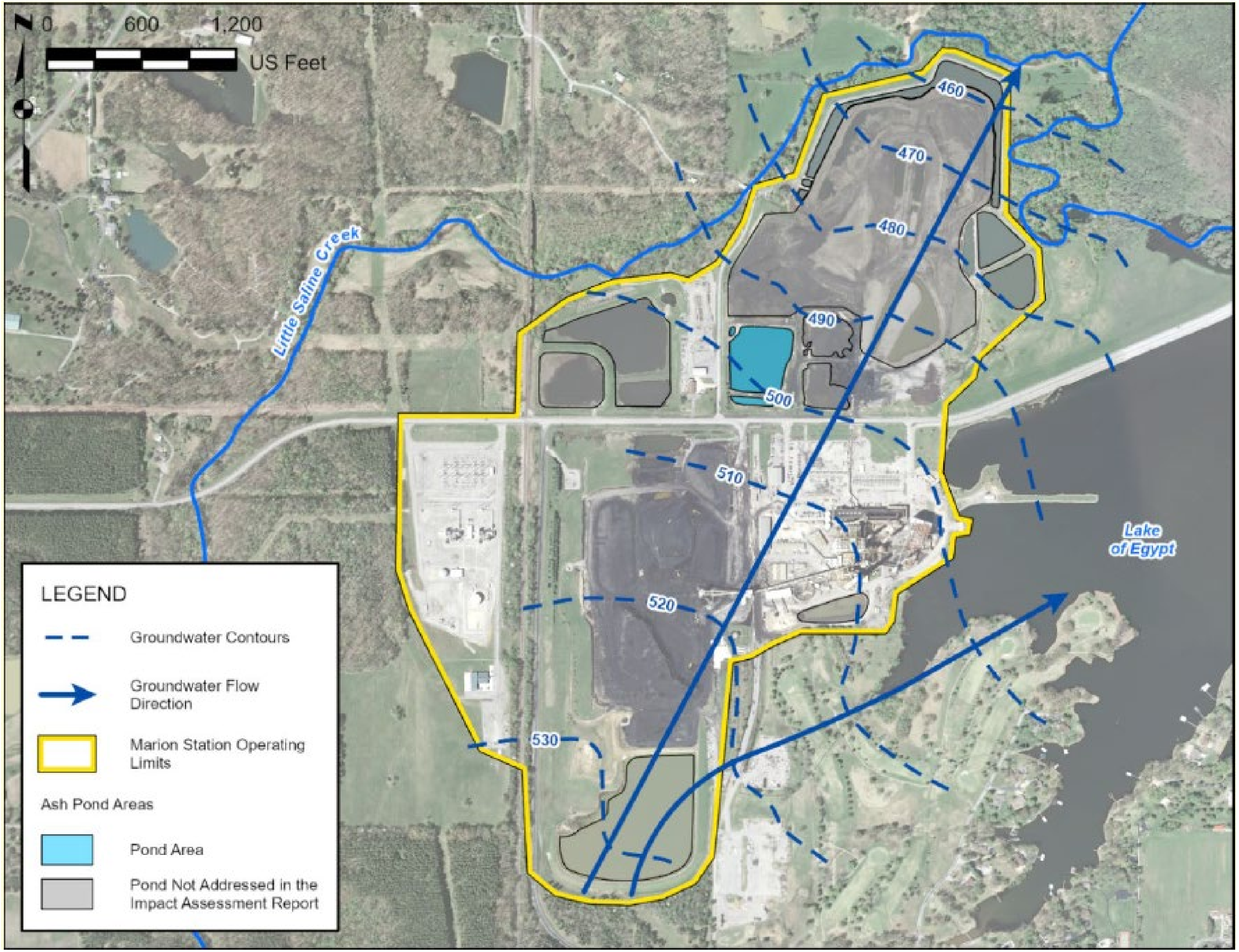

Figure 3.5 (Bittner, 2025)

Electronic Filing: Received, Clerk's Office 06/13/2025

Conclusion

Continued operation of Pond 4 will not result in any greater risk to human health or the environment compared to closure of the unit. In fact, closure by removal may result in several adverse effects that are not associated with the continued operation of Pond 4, including short-term impacts to air quality, increased greenhouse gas emissions, and increased risks to workers and the nearby communities

Closure Impact Assessment Conclusions

1. **Risks to Human Health and the Environment:** No reduction in risk compared associated with CBR
2. **Risks of Potential Future CCR Releases:** Minimal risk of CCR releases under current operation; no risk of future releases for CBR
3. **Groundwater Quality:** CBR will not result in any improvements to groundwater quality
4. **Surface Water Quality:** CBR is not likely to have any effect on surface water quality
5. **Air Quality:** During CBR, some air quality impacts would be expected near the Pond 4 and along haul roads
6. **Climate Change and Sustainability:** CBR associated with increased GHG emissions and energy consumption compared to continued operation of the pond
7. **Worker Safety:** CBR would result in more risks to worker safety than continued operation of the pond
8. **Community Impacts:** CBR would result in more community impacts including air pollution, haul truck accidents, and nuisance impacts from traffic and noise compared to continued operation of the pond
9. **Environmental Justice (EJ):** No EJ impacts would be expected to occur under either scenario
10. **Scenic, Recreational, and Historical Value:** During CBR, there may be negative impacts on the scenic and recreational value along the Lake of Egypt; no impacts to historical sites would be expected

Groundwater Monitoring Well Locations

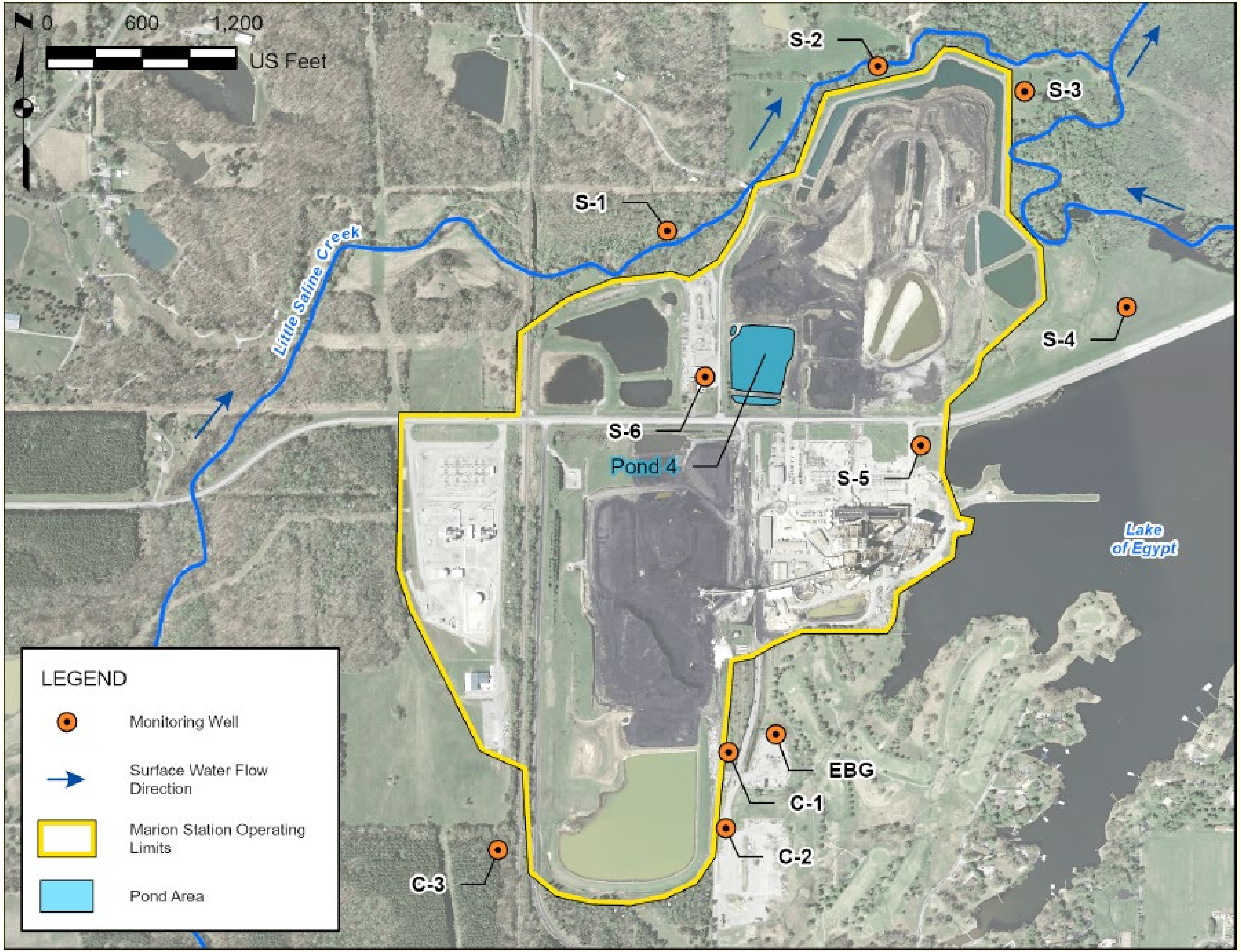

Figure 3.1 (Bittner, 2025)

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