

Indiana Michigan
Power Company
500 Circle Drive
Buchanan, MI 49107 1395



February 4, 2003

AEP:NRC:2401-06
10 CFR 50.4

Docket Nos: 50-315
50-316

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, D.C. 20555-0001

Donald C. Cook Nuclear Plant Units 1 and 2
RESPONSE TO THE ENVIRONMENTAL PROTECTION AGENCY'S
REQUEST FOR ADDITIONAL INFORMATION REGARDING
THE RELEASE OF SODIUM HYPOCHLORITE TO
LAKE MICHIGAN ON NOVEMBER 16, 2002

- References:
- 1) Letter from S. A. Greenlee, Indiana Michigan Power Company (I&M), to Document Control Desk, U. S. Nuclear Regulatory Commission (NRC), "Donald C. Cook Nuclear Plant Units 1 and 2 National Pollutant Discharge Elimination System and Groundwater Discharge Authorization Spill Notification," AEP:NRC:2401-03, dated November 26, 2002
 - 2) Letter from U. S. Environmental Protection Agency (EPA) to J. Carlson (I&M), "Request for Information Pursuant to Section 104(e) of CERCLA for American Electric Power in Bridgeman, Michigan," dated December 30, 2002
 - 3) Letter from A. C. Bakken III (I&M) to James Entzminger (EPA), "November 16, 2002 Sodium Hypochlorite Solution Release," dated January 30, 2003

Indiana Michigan Power Company is the holder of National Pollutant Discharge Elimination System permit MI0005827 and Groundwater Discharge Authorization M00988 for the Donald C. Cook Nuclear Plant (CNP). Spills are required to be reported to the NRC by Appendix B (Environmental Technical Specifications) to Facility Operating Licenses DPR-58 and DPR-74, Part II, Section 3.2.

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Accordingly, in Reference 1, I&M provided the NRC with a copy of I&M's notification to the Michigan Department of Environmental Quality (MDEQ) regarding the November 16, 2002, release of sodium hypochlorite into CNP's forebay and subsequently Lake Michigan. In a letter dated December 30, 2002 (Reference 2), the EPA requested additional information regarding the release. A copy of I&M's response to the EPA (Reference 3) is being provided to the NRC as an attachment to this letter.

This letter contains no new commitments. Should you have any questions or concerns regarding this notification, please contact John P. Carlson, Environmental Manager, at (269) 465-5901, extension 1153.

Sincerely,



S. A. Greenlee
Director of Nuclear Technical Services

BWO/jen

Attachment

- c: K. D. Curry - AEP Ft. Wayne, w/o attachment
- J. E. Dyer - NRC Region III
- J. T. King - MPSC, w/o attachment
- MDEQ - DW & RPD, w/o attachment
- NRC Resident Inspector
- J. F. Stang, Jr. - NRC Washington, DC

bc: A. C. Bakken III, w/o attachment
J. P. Carlson, w/o attachment
M. J. Finissi, w/o attachment
S. A. Greenlee
D. W. Jenkins, w/o attachment
J. A. Kobyra, w/o attachment
B. A. McIntyre, w/o attachment
J. E. Newmiller
J. E. Pollock, w/o attachment
D. J. Poupard
M. K. Scarpello, w/o attachment
T. K. Woods, w/o attachment

ATTACHMENT TO AEP:NRC:2401-06

RESPONSE TO EPA REQUEST FOR ADDITIONAL INFORMATION REGARDING
THE RELEASE OF SODIUM HYPOCHLORITE TO LAKE MICHIGAN

Indiana Michigan
Power Company
Cook Nuclear Plant
One Cook Plant
Bridgman, MI 49106
616 465 5901



Mr. James Entzminger
Office of Chemical Emergency
Preparedness and Prevention (SC-6J)
United States Environmental Protection Agency
77 West Jackson Boulevard
Chicago, Illinois 60604

January 30, 2003

Dear Mr. Entzminger:

Subject: November 16, 2002 sodium hypochlorite solution release.

The attached package is in response to the Information Request received by Indiana Michigan Power Company (d/b/a American Electric Power) via certified mail on January 2, 2002. The request is in reference to the release of sodium hypochlorite solution at the company's nuclear plant in Bridgman, Michigan as reported on November 16, 2002.

The package includes the materials in response to the Information Request received January 2, 2002 from the Region V United States Environmental Protection Agency (USEPA).

We have evaluated this event carefully and have taken the appropriate actions to prevent this release from occurring in the future. We will install redundant spill indicators in the chlorination building sump, which will automatically shut off the chlorine tank and start a strobe beacon installed on the building. AEP is very conscious of protecting our environment and the community we live in. We strive to be good environmental stewards and to be viewed as good corporate citizens.

Should you have any questions regarding this package, please contact John Carlson at (269) 465-5901 extension 1153.

Sincerely,

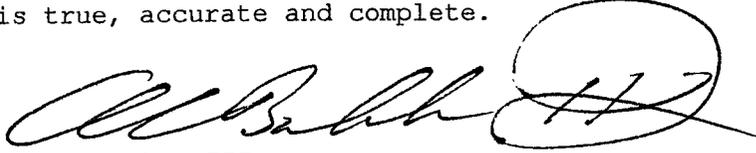
A. C. Bakken III
Senior Vice President Chief Nuclear Officer

Enclosures;

1. Affidavit
2. Responses to Questions

AFFIDAVIT

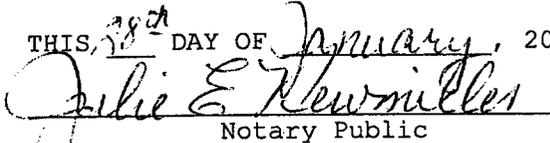
I have personally examined, and am familiar with, the information provided in the attached documents and based on my inquiry of these individuals immediately responsible for obtaining the information to the best of my knowledge and belief, the information provided herein is true, accurate and complete.



A. C. Bakken III
Senior Vice President Chief Nuclear Officer

SWORN TO AND SUBSCRIBED BEFORE ME

THIS ^{28th} DAY OF January, 2003


Notary Public

My commission expires 8-22-2004.

JULIE E. NEWMILLER
Notary Public, Berrien County, MI
My Commission Expires Aug 22, 2004

Enclosure 2

Responses to Questions

This information is provided in response to the USEPA CERCLA Section 104(e) Information Request of December 30, 2002, received on January 2, 2003. The request for information is provided per the instructions set forth in the request concerning the release of sodium hypochlorite solution at the Cook Nuclear Plant located in Bridgman, Michigan. Responses are numbered corresponding to the information request.

The EPA questions for which following responses are provided, made repeated reference to "American Electric Power". Indiana Michigan Power Company, which is, and has been, the owner and operator of D.C. Cook Nuclear Plant, was registered to do business as "American Electric Power" in 1995. Indiana Michigan Power Company remains a fully functioning corporation. There has been no transfer of legal title to D.C. Cook Plant by Indiana Michigan Power Company, and no creation of a new corporation to operate the plant. The legal address for Indiana Michigan Power Company (d/b/a American Electric Power) has been changed from Fort Wayne, Indiana to Columbus, Ohio, but the corporate structure is essentially the same. In responding to EPA's questions, we understand EPA's references to American Electric Power to mean the d/b/a name for Indiana Michigan Power Company, and similarly intend our responses to mean Indiana Michigan Power Company (d/b/a American Electric Power).

1. Persons consulted in the preparation of the answers to this request.
 - Bruce Abby - Environmental Specialist
 - Tom Andert - Plant Chemist
 - Sgt. Michael Bradley - Berrien County LEPC Unit
 - Stewart Beach - Lake Township Water Plant Superintendent
 - John Bundick - Environmental Specialist
 - John Carlson - Environmental Section Manager
 - Mark Carroll - Murray and Trettle Weather Service Chicago
 - Randy Cuyler - Chemistry Technician
 - Greg Danneffel - Michigan Department of Environmental Quality (MDEQ) District Supervisor.
 - Greg Decker - Plant Chemist
 - Alan Gaulke - Principle Environmental Specialist, Environmental Service, AEPSC
 - Steve Gorton - Chemistry Technician
 - Chris Hawk - Senior Engineer, Environmental Service, AEPSC
 - Bob Hershberger - Chemistry Supervisor
 - William Jung - GE Betz Industrial Sales/Service representative
 - Amy Kohlhepp - MDEQ, Environmental Assistance Division
 - Dan Krause - Manager, Budgeting & Contracts
 - Marty Leedy - Environmental Specialist, Environmental Service, AEPSC
 - Kevin Mack - Senior Counsel, Legal Department, AEPSC
 - Eric Mallen - Environmental Specialist

- Edward McClain - Chemistry Procedure Writer
- Jerry Neleson - GE Betz Industrial Sales/Service representative
- Susan Parker - MDEQ, SARA Title III Office
- Art Stolte - Chemistry Technician
- Marcia Strefling - Environmental Clerk
- Thomas Summers - Chemistry Manager
- Gary VanBladdern - Senior Engineer
- Keith Vogel - Chemistry Technician
- Mary Workinger - Human Resources
- Mike Zantello - Chemistry Technician
- Blair Zordell - Environmental Specialist
- Andy Zuber - Training Specialist

2. List of documentation provided

- A. D. C. Cook Electronic Corrective Action Program Condition Report 02320002.
- B. Chlorination Data Sheet 12-THP-6020-CHM-313 for 11/15/02, and 11/16/02.
- C. Course Attendance History for Emergency Plan Training: Course # EA-C-CW05-Environmental (2 pages), #RQ-C-2770-Operations (1 page) # CH-C-T106 Chlorination system training roster (3 pages), GE-C-5100 NGET Requal- Plant Access Training (86 pages).
- D. Lesson plan for Operations personnel RQ-C-2770.RV0.
- E. Lesson plan for Environmental personnel EA-C-CW05.
- F. Lesson plan (excerpt) for general plant personnel.
- G. Emergency Plan: Spill Prevention Control and Countermeasure Plan (SPCC).
- H. Emergency Plan: Pollution Incident Prevention Plan (PIP).
- I. Emergency Plan: PMP-6090-PCP-100 "Spill Response - Oil, Polluting and Hazardous Materials."
- J. Articles of Incorporation for American Electric Power.
- K. The Merck Index. Tenth edition page 1236 - #8463.
- L. Material Safety Data Sheet for Sodium Hypochlorite, and Certificate of analysis from a typical shipment.
- M. NPDES Permit MI0005827.
- N. Response E-Mail: D.L. Boston 1/14/03
- O. Updated Final Safety Analysis Report (UFSAR).
- P. Flow Diagram OP-12-5669: Sewage Treatment System.
- Q. PMP-6090 Spill Response paperwork for the 11/16/02 event.
- R. Reference Drawing 12-5260-39: Yard Piping Units 1 and 2.
- S. 12-THP-6020-CHM-313 "Chlorination", 12 THP 6020 INS-013 "Chlorine Monitor", which is superseded by: 12 THP 6020 INS-513.
- T. GE Betz Service Contract #A-20104, Letter From GE Betz to Mr. John Carlson detailing improvements to the chlorination system at the Cook Nuclear Plant.
- U. Chemistry Technician initial Training CH-C-T106, "Chlorination."
- V. SUR-1 Environmental Surveillance Guideline. Data sheet containing pH analysis for NaOCl solution.

- W. Authorization to Discharge to the Groundwater's of the State of Michigan M00988.
- X. Michigan Emergency Planning and Community Right-to-Know Commission Web site June 21, 2002.
- Y. SARA Title III: The Emergency Planning and Community Right-to-Know Act (EPCRA) web site, March 7, 2002.
- Z. Michigan SARA Title III Program website, September 17, 2002.
- AA. Release Notification Requirements in Michigan website, March 14, 2002.
- BB. MDEQ Spill or Release Report EQP 3465, April 1999.
- CC. State Emergency Response Commission, State of Michigan website, September 13, 2002.
- DD. Michigan Pollution Emergency Alerting System website, March 8, 2002.
- EE. EPA List of List Database, Sodium Hypochlorite.
- FF. Spill/Release Reporting, SARA title III Program, March 8, 2002.
- GG. Sgt Michael Bradley - Berrien County Emergency Management, LEPC. Phone conversation, January 10, 2003.
- HH. Ms Susan Parker, Michigan SARA Title III Office, Phone conversation, January 10, 2003.
- II. Ms. Amy Kohlhepp, Michigan Environmental Assistance Division, phone conversation January 10, 2003.
- JJ. 10-day response letter dated November 26, 2002 to MDEQ, (cc SERC, LEPC).
- KK. Informational Phone Numbers - SARA Title III, Planning and Reporting website, August 26, 2002.
- LL. Emergency Planning and Community Right-to-Know (SARA Title III) Tier II Training Co-sponsored by Indiana Emergency Response Commission (IERC) and USEPA.
- MM. Response E-mail: K.D. Mack Corporate Legal 1/10/03.
- NN. State of Michigan - Department of Environmental Quality, SARA Title III - Section 312 LEPC Mailing Addresses for Tier Two Reporting.
- OO. Procedure 12 EA 2160 CWM.001 "Preparation and Shipment of Waste."
- PP. Weather Data for November 16, 2002 from Site Meteorological tower and Murray and Trettle Weather Service.
- QQ. Plant Drawing 12-5160
- RR. Reference Drawing 12-3041-20: Roads, Parking Areas, and Yard Drainage.
- SS. Response E-mail: Dan Krause 1/13/03.
- TT. Response E-mail: Steve Woody of Poly Processing 1/13/03.
- UU. Excerpt from 40 CFR 261.22, "Characteristics of corrosivity"
- VV. Response E-mail: A.E. Gaulke 1/17/03 regarding environmental impact.
- WW. Lake Township Water Filtration Plant Monthly Report for November 2002.
- XX. USEPA Notification of Regulated Waste Activity, February 6, 1992, and updated notification August 15, 2002.
- YY. Chemistry Technician Training ADHOC 03-0010, 12-THP-6020-CHM-313
- ZZ. Shift Manager Log for November 15 2002 @ 0630 to November 18, 2002 @ 0630.

AAA. Unit One Control Room Log for November 15 2002 @ 0630 to
November 18, 2002 @ 0630.

3. Standard Industrial Code: 4911,

Contributing Source of Information
Reference 2.MM: Corporate legal.

4. The Dun & Bradstreet number applicable to the Indiana Michigan
Power Co (d/b/a American Electric Power) D.C. Cook Plant is 09-
864-7621.

Contributing Source of Information
Reference 2.MM: Corporate legal.

5. Indiana Michigan Power Company (d/b/a American Electric Power)
had a total operating revenue for fiscal year ending December
31, 2001 of \$4,803,625,000. 2002 Annual Sales are not
available at this time.

Contributing Source of Information
Reference 2.SS: Response E-Mail Dan Krause 1/13/03.
Daniel Krause Manager Budget & Contracts

6. There are approximately 1,150 employees employed at One Cook
Place in Bridgman, Michigan.

Contributing Source of Information
Mary Workinger, Human Resources.

7. Presently, there are approximately 2,370 full-time employees of
Indiana Michigan Power Co. (d/b/a American Electric Power).

Contributing Source of Information
Reference 2.MM: Corporate legal

8. The D. C. Cook Plant is a small quantity hazardous waste
generator, which manages hazardous waste under the provisions
of 40 CFR §262.34. The RCRA ID number for the facility is
MID098647621. The facility is not a RCRA Treatment, Storage or
Disposal facility and is not required by the regulations to
file for RCRA interim status or obtain a RCRA permit.

Contributing Source of Information
Reference 2.OO: Procedure 12-EA-2160-CWM-001
Reference 2.XX: USEPA Notification of Regulated Waste
Activity February 6, 1992, and update notification
August 15, 2002.

9. A copy of Emergency Plans: Spill Prevention Control and
Countermeasure Plan (SPCC), Pollution Incident Prevention Plan
(PIP), and PMP-6090-PCP-100 "Spill Response - Oil, Polluting and
Hazardous Materials" are included and referenced below.

Contributing Source of Information
Reference 2.H, 2.G, 2.I: as listed above included

10. Every employee is required to attend annual Nuclear General Employee Training to maintain site access privileges. Lesson plan (excerpt) for general plant personnel describes actions that each employee must take upon discovering a chemical leak or spill. Attendance rosters for this training are included in Reference 2.C.

Operations personnel and Environmental personnel are trained to more specific procedures, referenced below.

Contributing Source of Information

Reference 2.C, 2.F: Lesson Plan excerpt, training records

11. The owner of the property located at One Cook Place, Bridgman, Michigan, during January 1, 2002 to the present is Indiana Michigan Power Company (d/b/a American Electric Power), 1 Riverside Plaza, Columbus, Ohio 43215. Indiana Michigan Power Company headquarters were previously located at One Summit Square, Fort Wayne, Indiana 46801.

Contributing Source of Information

Reference 2.MM: Corporate legal.

12. The name and current address of the operators of the facility at One Cook Place, Bridgman, Michigan during January 1, 2002 to the present is the same company identified in response to question 11.

Contributing Source of Information

Reference 2.MM: Corporate legal.

13. Indiana Michigan Power Company (f/k/a Indiana & Michigan Electric) was incorporated on February 25, 1925 in Indiana. Additional documentation will be provided if EPA determines, after reviewing these responses that such information is necessary.

Contributing Source of Information

Reference 2.MM: Corporate legal.

14. Indiana Michigan Power Company (d/b/a American Electric Power) is a wholly owned subsidiary of American Electric Power Company, Inc. (AEP Co. Inc.), a utility holding company subject to the Public Utility Holding Company Act, and has been during the entire operation of the D.C Cook Plant. Additional documentation will be provided if EPA determines after reviewing these responses that such information is necessary.

Contributing Source of Information

Reference 2.MM: Corporate legal.

15. Indiana Michigan Power Company (d/b/a American Electric Power) is a public utility engaged in the generation, purchase, sale, transmission and distribution of electric power. The company is not a division of a corporation.

Contributing Source of Information
Reference 2.MM: Corporate legal.

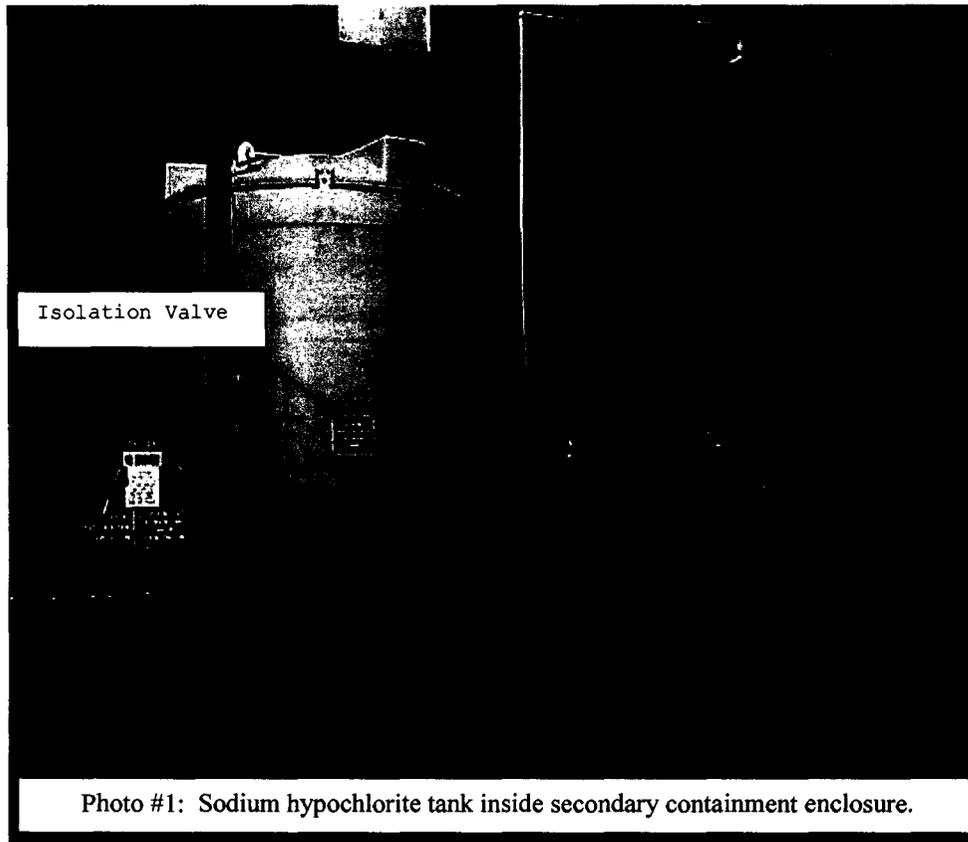
16. Indiana Michigan Power Company (d/b/a American Electric Power) is a public utility engaged in the generation, purchase, sale, transmission and distribution of electric power. The company is not a partnership.

Contributing Source of Information
Reference 2.MM: Corporate legal.

17. Indiana Michigan Power Company (d/b/a American Electric Power) is a public utility engaged in the generation, purchase, sale, transmission and distribution of electric power. The company is not a Trust.

Contributing Source of Information
Reference 2.MM: Corporate legal.

18. The release of sodium hypochlorite solution from the plant on November 16, 2002 was from the plant chlorination system. The chlorination system consists of an 8,800-gallon high density polyethylene tank surrounded by a secondary containment tank (Photo 1).



Sodium hypochlorite solution is routed out of the tank, through an isolation valve to double walled polyethylene tubing (lower

right hand corner of photo) into the chlorination building, which is located inside the screenhouse (Photo #2). The chlorination building is a small fiberglass building separated into two compartments. A computer and control system are located in one section and the pumps are located in another. The room contains a sump to prevent any minor leakage from the tubing and pumps that may occur from leaking to the environment.

Inside the chlorination building the sodium hypochlorite solution is routed to metering pumps via a manifold. The metering pumps accurately feed sodium hypochlorite solution to the plant circulating water and service water systems.

The pumps can deliver up to 4 gallons per hour to the 8,000 gpm Non-Essential Service Water systems (~120,000:1 dilution) and up to 10 gallons per hour to the 10,000 gpm Essential Service Water systems (~60,000:1 dilution) during continuous chlorination (more or less depending on chlorine demand) to prevent zebra mussel infestation. Three larger pumps can deliver approximately 106 gallons per hour each to the 1.6 million gallon per minute Circulating Water Systems (~900,000:1 dilution) during the 160 minute intermittent chlorination period for condenser fouling control.

The release occurred when a pipe on the manifold that routes sodium hypochlorite solution to the metering pumps separated from the pump at the connector (Photo 5). Sodium hypochlorite solution flowed out of the disconnected manifold pipe, through the floor grating (Photo 2a), into the containment sump in the floor of the chlorination building, out of the containment sump through the drain line and drain valve, which was open at the time, and onto the painted concrete screenhouse floor (Photo 4). The solution then ran across the screenhouse floor and through the floor grating into the Unit One circulating water intake forebay.

The water in the intake forebay along with the released sodium hypochlorite solution was pumped through the Unit One condensers and back out into the lake through the 1,159 foot long 16 foot diameter discharge tunnel and discharge structure, NPDES Outfall 001. The cooling water exits the discharge structure at ~ 15.5 ft/s by design to promote rapid mixing with the lake water.

Reference 2.A: Condition Report 0232000; 2.B: Chlorine Data Sheets; 2.N: NPDES Permit

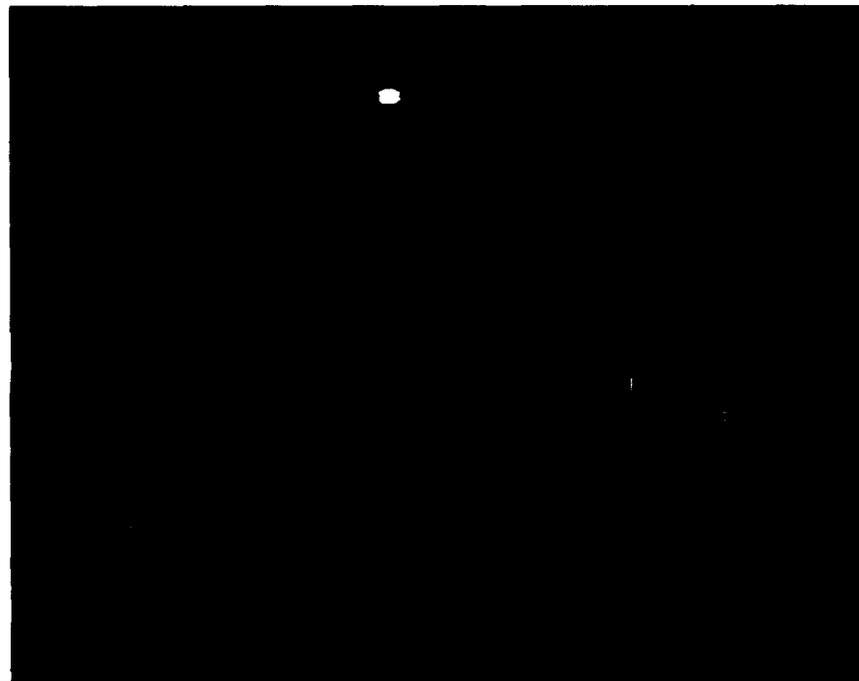
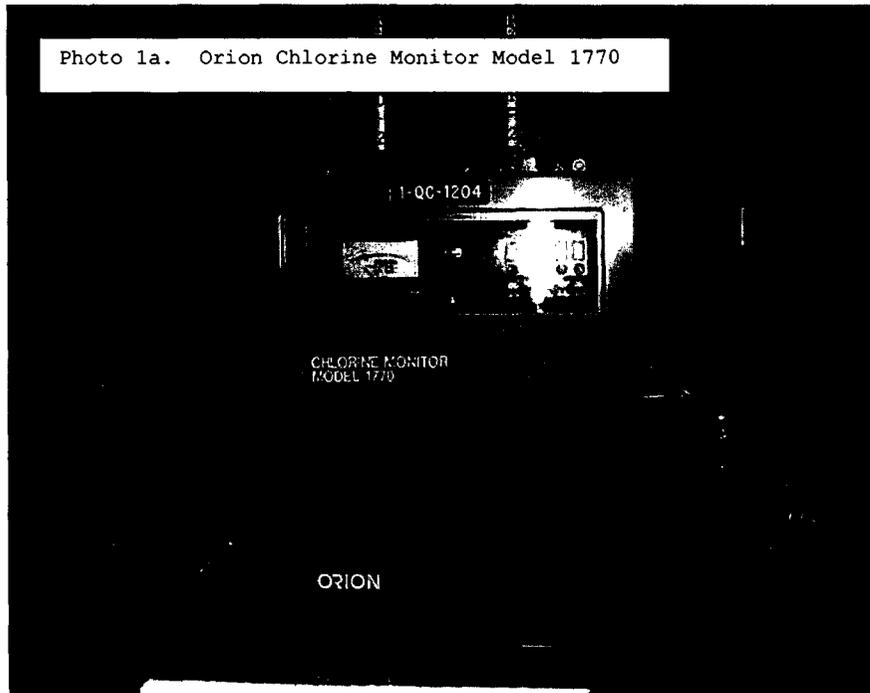


Photo #2: Chlorination building located inside the screenhouse.

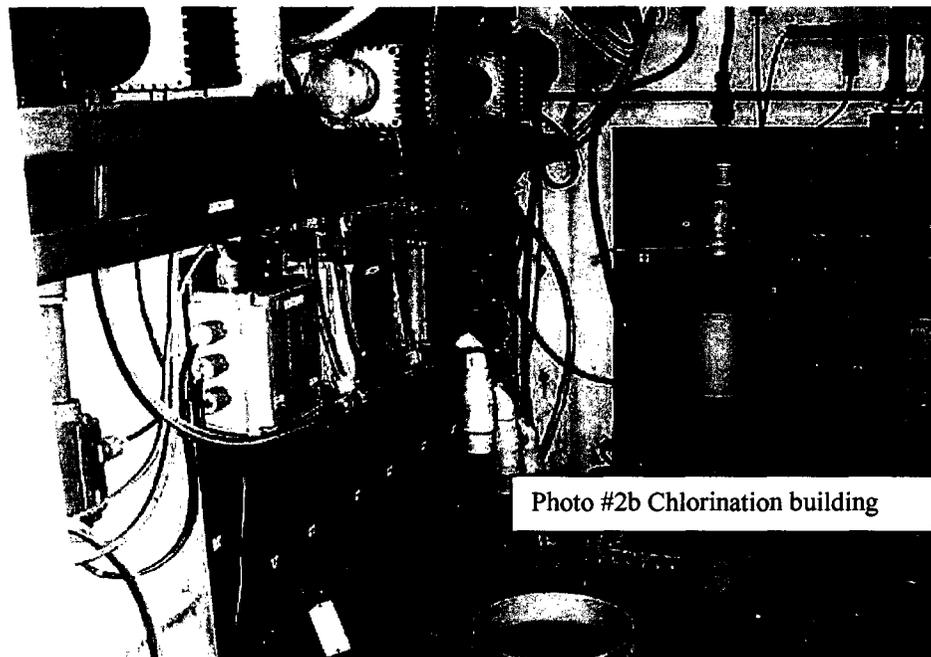
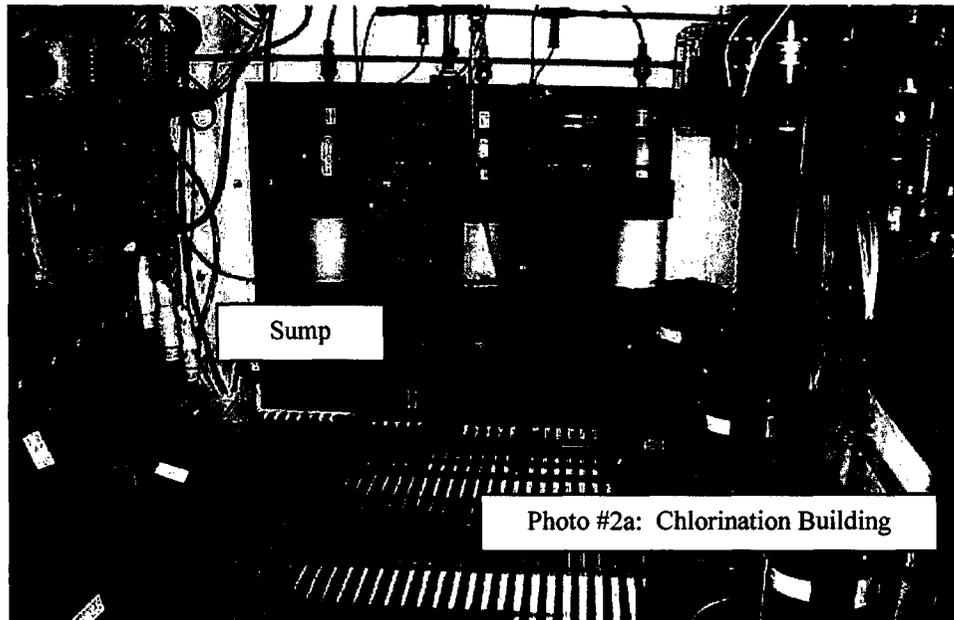
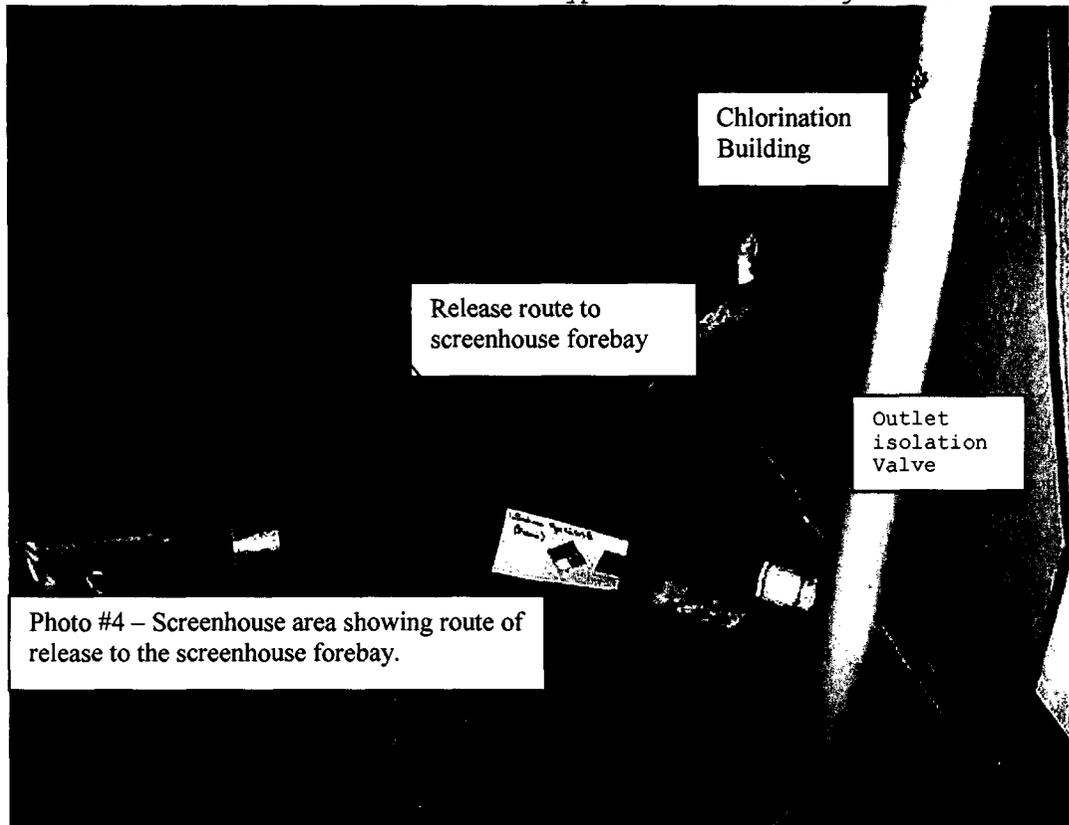


Photo #3 view inside chlorination building pump room.
Note yellow grating that covers the spill containment sump.

19. On November 16, 2002 at approximately 0010, a sodium hypochlorite solution pipe feeding solution into a metering pump became disconnected from the pump. This time estimate was based on the readout from the on-line chlorine analyzer. It is at about this time the concentrations recorded on the strip chart increased. The leak was discovered by a chemistry

technician performing a routine tour of the turbine building at approximately 0915 the same day. The total residual oxidant concentrations on the on-line continuous chlorine monitor (Orion 1770) (Photo 1a) were higher than expected, causing the technician to investigate the cause. The technician entered the chlorination building at approximately 0920 and discovered that sodium hypochlorite was leaking from catch trays onto the floor grating in the room. The technician immediately closed the valve on the containment sump drain, shutdown the metering pumps, and closed the isolation valve on the sodium hypochlorite storage tank.



This action stopped the release at approximately 0920. The technician then began notifying the appropriate plant staff and management of the release.



Photo #5 Detail of teflon tubing connection to the pumps.

Contributing Source of Information

Reference 2.A: Condition Report 0232000; 2.B: Chlorine
Data Sheets; 2.N: NPDES Permit

20. Sodium Hypochlorite solution (12% nominal concentration)
Chemical Abstracts Registry Number 7681-52-9.

Contributing Source of Information

Reference 2.L: Merck Index

21. Approximately 1,033 gallons of sodium hypochlorite solution was released during the release. This was calculated using the change in static level in the sodium hypochlorite solution tank from 93 inches to 75.7 inches (change of 17.3 inches). An electronic Pacesetter monitor recorded the historical level change in the tank during the period of the release. The tank is a cylindrical tank, which contains 4,000 gallons at 67 inches of level. This gives $4,000/67 = 59.7$ gallons/inch. 17.3 inches change $\times 59.7$ gallons/inch = 1,033 gallons The release of 1,033 gallons of 12% sodium hypochlorite solution is equivalent to about 1,034 pounds of sodium hypochlorite, as far as can be determined.

Contributing Source of Information

Greg Decker, Plant Chemist

22. The sodium hypochlorite solution was released into a fiberglass containment sump, and flowed out an open drain valve, which had been left open during an earlier maintenance procedure. The release then left the chlorination building and flowed onto the painted concrete floor of the screen house. (See Photo #4) The release continued into a grating where it entered the plant

Unit One intake forebay area, transferred through the Unit One condensers and discharged to the surface water of Lake Michigan from the Unit One discharge pipe (NPDES Outfall 001). As far as could be determined these are the only materials contacted by the sodium hypochlorite solution released from the disconnected pipe.

Contributing Source of Information

Reference 2.A: Condition Report 02320002; 2.B: Data Sheets.

23. No sodium hypochlorite was released or migrated onto or into the soil or subsurface strata. This answer is based on the fact that the release occurred inside a building with a painted concrete floor. The release drained to a grating (see photo #4). There was no evidence of the release leaving the building by means of a doorway or wall cracks.

Contributing Source of Information

Reference 2.A: Condition Report 0232002, Chemistry Technician interviews.

24. No sodium hypochlorite was volatilized to the atmosphere. This is based on the ambient room temperature of <80 degrees Fahrenheit. According the Material Safety Data sheets for sodium hypochlorite, the evaporation rate is similar to water.

Contributing Source of Information

Reference 2.L: Sodium Hypochlorite MSDS. Blair Zordell evaluation.

25. No sodium hypochlorite discharged into the plant sanitary sewer system.

Contributing Source of Information

Blair Zordell Cook Plant Environmental Specialist

26. No sodium hypochlorite discharged into the plant storm sewer system.

Contributing Source of Information

Blair Zordell Cook Plant Environmental Specialist

27. The sodium hypochlorite solution did not contact any materials other than those reported in the answer to Question 22 (See photo #4). Therefore, no by-products were created by the sodium hypochlorite release.

Contributing Source of Information

Blair Zordell Cook Plant Environmental Specialist

28. The concentration of the sodium hypochlorite solution in the tank was approximately 12% by weight (Reference 2L). This is a nominal concentration as purchased from the chemical supplier.

Contributing Source of Information

Blair Zordell Cook Plant Environmental Specialist
Reference 2.B: Chlorine Data Sheets and Chemistry Data
Management System

29. The Material Safety Data Sheet for sodium hypochlorite is enclosed. Sodium hypochlorite was the only hazardous substance released.

Contributing Source of Information
Reference 2.L. MSDS

30. Due to the concentration of sodium hypochlorite used at the Cook Plant, the pH is 12.22, based on this value the material released does not carry a RCRA hazardous waste code because it is not greater than 12.5. The RCRA hazardous waste identification number for sodium hypochlorite is D002, based on the characteristic of corrosivity.

Contributing Source of Information
Reference 2.V: Data Sheet pH analysis; 2.UU: 40 CFR
261.22, "Characteristics of Corrosivity."

31. The only recorded analyses were the values recorded at the time of the release discovery. Additional information is included from the Discharge Monitoring Report for November 2002 chlorination data. The Total Residual Oxidant concentration at Outfall 001 ranged from 0.282 mg/l to 0.386 mg/l during the 9 hour and ten minute period of the release (less than concentrations in drinking water). This was determined using chart recordings from the installed on-line chlorine monitor.

Contributing Source of Information
Reference 2.B: Chlorination Data Sheet and CDMS data
Reference 2.WW Stewart Beach - Lake Township Water
Filtration Plant Monthly Report for November 2002.

32. The technician discovering the release entered the temporary chlorination building and discovered sodium hypochlorite solution leaking from trays onto the floor grating. Chemical was flowing to the containment sump under the floor grating. When the containment sump outlet drain valve was checked it was found open and sodium hypochlorite solution was flowing down a floor trough to the Unit One forebay via a floor grating. The technician discovering the condition then identified the source of the leak, turned off the injection pumps and isolated the main tank isolation valve for hypochlorite solution to the chlorination system. This action stopped the release. This same technician informed the chemistry lead technician of the condition who notified the Shift Manager at 0920, who notified Environmental on-call person and Environmental Manager who responded to evaluate the release event with the Chemistry Manager and then notified Federal and State agencies. The technician then waited until the chlorine monitor values dropped below the release limit value of 0.038 mg/l chlorine before leaving the area.

No clean-up was necessary as the sodium hypochlorite spill was stopped and no residual was left. Two representatives from GE Betz Industrial came on site to check all of the pump fitting connections. Each of the fitting connections was removed and visually inspected, then reinstalled. A condition report was written, investigated and preventive actions have been and are being implemented to prevent recurrence.

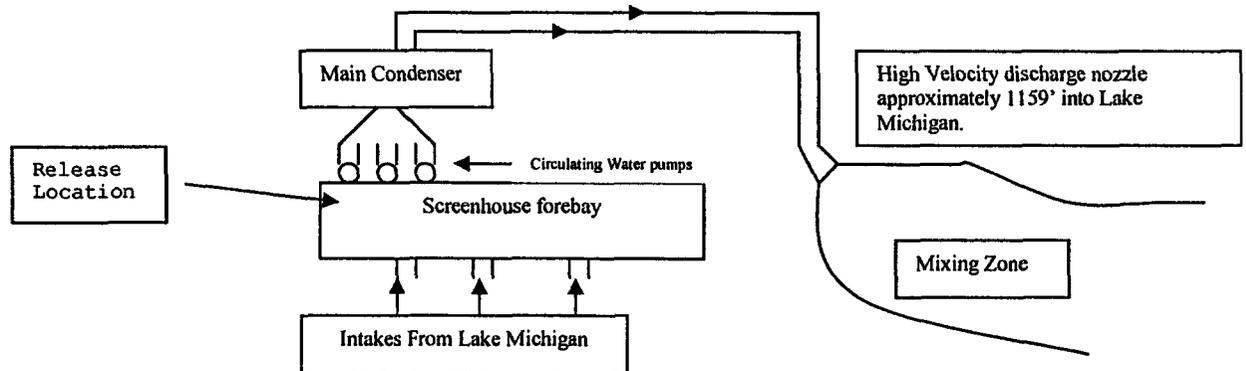
Contributing Source of Information

Reference 2.A: Condition Report 02320002, Reference 2.AAA: Control Room Log, Reference 2.ZZ: Shift Managers Log.

33. The released sodium hypochlorite solution ultimately reached Lake Michigan. The chlorination building sits within the screenhouse as a fiberglass enclosure for the pumps and controls used to perform continuous and intermittent chlorination of the service water and circulating water supplies to the plant (See Photo #2 and 3). The sodium hypochlorite solution was released from the chlorination through the containment sump drain and from there it ran across the screenhouse floor to the Unit One intake forebay. The water in the intake forebay is pumped through the plants main cooling water system and out into Lake Michigan (NPDES Outfall 001).

Contributing Source of Information

Reference 2A: Condition Report 02320002



34. The sodium hypochlorite solution that drained into the Unit One intake forebay was diluted from the 12% solution to the 0.282 mg/l to 0.386 mg/l that was measured at the NPDES Permit discharge point, 001. From the sampling point the water is pumped out into Lake Michigan. The discharge point is 1,159 feet off-shore, which is where the diluted solution leaves the plant system. No evidence of environmental damage was identified following the release. Plant staff did not see any dead or dying fish or other wildlife on the lake or lakeshore. There were no complains made to the plant from the public, law enforcement agencies, or from natural resources agencies of dead or dying fish near the plant. Chlorine toxicity data from

laboratory testing would indicate there is little chance fish would have been killed by the release. At the edge of a mixing zone of 10:1 dilution the concentrations of sodium hypochlorite would be below the range of values for acute toxicity for fish in Lake Michigan, which is 60 to 390 ug/l. The tests that produced these data are run for five days. The release from Cook Nuclear Plant lasted about nine hours. The short exposure period further reduces the likelihood the release was toxic to the aquatic life in Lake Michigan.

Contributing Source of Information

Reference 2.VV E-Mail from A.E. Gaulke.

35. A copy of the current NPDES permit MI0005827, and the current Authorization to Discharge to the Groundwaters of the State of Michigan M00988 is enclosed. The notification was made pursuant to Cook Nuclear Plant's NPDES Permit MI0005827 Part II. Section C.7, Spill Notification and Groundwater Discharge Authorization M 00988, Part II. Section A.7, Spill Notification that this release exceeded the conditions of the permit.

Contributing Source of Information

Reference 2.M: NPDES Permit; 2.W, Groundwater Authorization

36. The release entered the fiberglass containment sump in the floor of the chlorination house, which was designed to contain minor equipment leaks. The chlorination building spill containment dimensions are approximately 69" x 104" x 3.2". No neutralization agents were used or released.

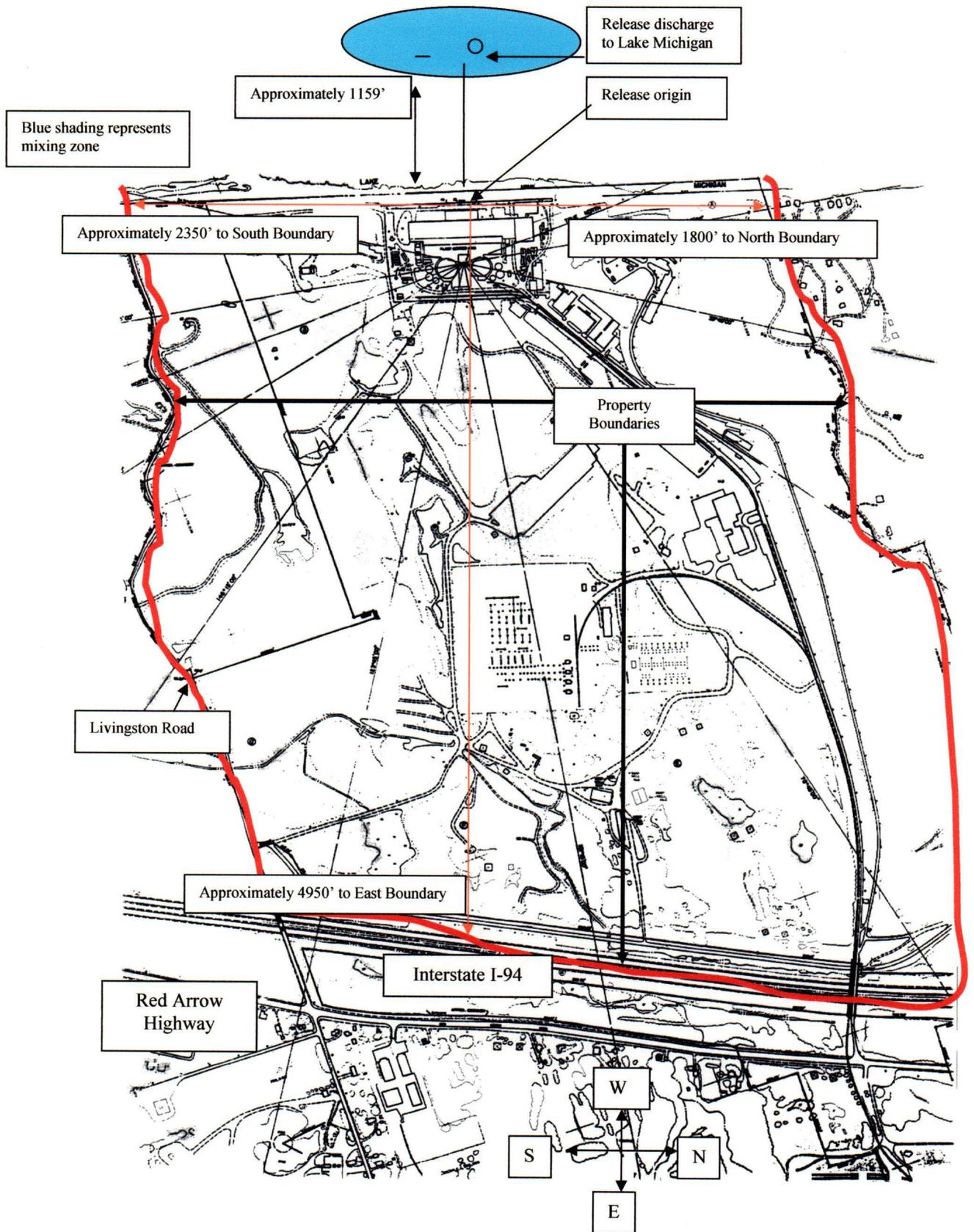
Contributing Source of Information

Reference 2.A: Condition Report 02320002

37. A map of the site is included on the following page. The boundary lines inside of which Indiana Michigan Power exercises exclusive control of access are the property lines which are to the west of the Interstate 94. The line in the area of Lake Michigan is the shore line El 580'-0" extended by 100 feet toward the lake, up to which Indiana Michigan Power exercises rights, besides those obtained to install, maintain and operate the condenser cooling water intake and discharge pipes. Riparian rights extend to the low water line, which in consideration of the lake bottom movement is approximately 100 feet outward from the elevation 580' line. The point of release was inside the greenhouse and the point of entry to Lake Michigan was through NPDES Permit outfall 001, which is 1,159 feet offshore.

Contributing Source of Information

Reference 2.0: USFAR



38. The site is located in a region devoted primarily to agriculture. There are no continuously occupied residences within 2160 feet of the reactor containment structures. The distances from the reactor containment structures to the acres defined in the Rules and Regulations Title 10 CFR, Chapter I, Part 100 are as follows:

- Exclusion Area 650 acres
- Minimum distance to exclusion area 2000 feet
- Outer boundary of low population zone 2 Miles
- Population center distance 8 miles

The closest population center is the twin cities of Benton Harbor-St. Joseph, Michigan. The site therefore provides excellent isolation as well as low population densities over a wide area. Homes are located North and South of the plant property boundaries. Technisand Sand Mining Operations are located east of the property across Red Arrow highway.

The site consists of about 650 acres along the eastern shore of Lake Michigan, with approximately 4,350 feet of lake frontage, and extends an average of about one and one quarter miles eastward from the lake.

Contributing Source of Information
Reference 2.0: USFAR

39. The release was not from a storage area as defined in parts a-f of the question.

Contributing Source of Information
Reference 2.A: Condition Report 02320002

40. Weather conditions: Temperature; 22.1 to 26.7 degrees F; Humidity: 75.1%; Wind Speed: 3.3 - 6.0 mph; Wind Direction: Ranging from 17 to 47 degrees; Precipitation: None; Sunny/cloudy: Clear - Sunny; and Barometric conditions: 1025 mb.

Contributing Source of Information
Reference 2.PP: Weather Data from site meteorological tower and Murray and Trettle Weather Service. Blair Zordell

41. The chlorination system is not pressurized to the point of delivery of chemical to the feed pumps.

Contributing Source of Information
Reference 2.N Response E-Mail from D.L. Boston.

42. At the time the release of sodium hypochlorite solution occurred 5,552 gallons of sodium hypochlorite solution was in the storage tank. Following termination of the release 4,519 gallons of sodium hypochlorite solution remained in the storage tank.

Contributing Source of Information

Tom Andert calculations based on Levels before and after the release.

43. The release of sodium hypochlorite solution occurred from a process pipe in the chlorination building.

Contributing Source of Information
Reference 2.A: Condition Report 02320002

44. The pipe was ½ inch OD teflon tubing.

Contributing Source of Information
Reference 2.A: Condition Report 02320002

45. There were no evacuations, no persons medically treated, no hospitalizations, and no deaths associated with this release of sodium hypochlorite. Reference: Safety Department

Contributing Source of Information
Reference 2.A: Condition Report 02320002

46. No evidence of environmental damage was identified following the release. Plant staff did not see any dead or dying fish or other wildlife on the lake or lakeshore. There were no complaints made to the Plant from the public, law enforcement agencies, or from natural resource agencies of dead or dying fish near the Plant. Chlorine toxicity data from laboratory testing would indicate there is little chance fish would have been killed by the release. At the edge of a mixing zone of 10:1 dilution the concentrations of sodium hypochlorite would be below the range of values for acute toxicity for fish in Lake Michigan, which is 60 to 390 ug/l. The tests that produced these data are run for five days. The release from Cook Nuclear Plant lasted about nine hours. The short exposure period further reduces the likelihood the release was toxic to the aquatic life in Lake Michigan.

Contributing Source of Information
Reference 2.VV E-Mail from A.E. Gaulke.

47. The condition was immediately identified at 9:20 AM on November 16, 2002, as a release exceeding our NPDES Permit limits for Total Residual Chlorine by the chemistry technician discovering the condition. Notifications of plant management personnel were made shortly upon discovery of the condition.

Contributing Source of Information
Reference 2.ZZ: Shift Manager log.

48. By 11 a.m. on November 16, 2002, the Chemistry Manager identified that a reportable spill of sodium hypochlorite solution had been released. He was the first person to quantify the quantity of chemical released to the environment.

Contributing Source of Information
Reference 2.A: Condition Report 02320002

49. By 11:45 a.m. it had been determined by the Chemistry Manager and the Environmental Manager after reviewing the data available that the RQ for sodium hypochlorite solution had been exceeded and notification to Federal and State agencies were required. This included review of the Pacesetter history files on tank levels and chart data. At the time of the event continuous chlorination of the essential service water and non-essential service waters was in progress.

Contributing Source of Information

Reference 2.A: Condition Report 02320002

50. Yes, John Carlson, National Response Center, November 16, 2002, 11:50 a.m.

Contributing Source of Information

Reference 2.Q: Spill Paperwork Reporting

51. Yes, John Carlson, Michigan Department of Environmental Quality, Pollution Emergency Alert System - PEAS, November 16, 2002, 12:05 p.m.

Contributing Source of Information

Reference 2.DD: MPEAS; 2.AA: Release Notification; 2.Q: Spill Paperwork Reporting

52. Yes, John Carlson, Berrien County Emergency Management, Sgt. Michael Bradley, January 10, 2003, 2:30 p.m.

Contributing Source of Information

Reference 2.JJ: Letter to MDEQ cc'd to LEPC; 2.AA: Release Notification; 2.GG: Phone conversation with Sgt. Michael Bradley.

53. Yes, response notification to Michigan Department of Environmental Quality titled Donald C. Cook Nuclear Plant, NPDES Permit No. MI 0005827, Groundwater Permit Authorization M 00988. Copied to SARA Title III Program Lansing Michigan, Susan Parker, January 13, 2003.

Contributing Source of Information

Reference 2.JJ: Letter to MDEQ cc'd to LEPC

54. Yes, response notification to Michigan Department of Environmental Quality titled Donald C. Cook Nuclear Plant, NPDES Permit No. MI 0005827, Groundwater Permit Authorization M 00988. Copied to Berrien County Emergency Management, Sgt. Michael Bradley, January 13, 2003.

Contributing Source of Information

Reference 2.JJ: Letter to MDEQ cc'd to LEPC