UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	Docket No. 50-367
NORTHERN INDIANA PUBLIC SERVICE COMPANY	)	(Construction Permit Extension)
(Bailly Generating Station, Nuclear-1)	)	August 18, 1981

NORTHERN INDIANA PUBLIC SERVICE COMPANY'S RESPONSE TO PORTER COUNTY CHAPTER INTERVENORS' THIRD SET OF INTERROGATORIES

For answer to Porter County Chapter Intervenors' (PCCI) Third Set of Interrogatories, Northern Indiana Public Service Company (NIPSCO) states as follows:

1. Please state the present elevation of the lowest point of the Bailly excavation, expressing such elevation in terms of both true elevation and station elevation.

ANSWER: The present elevation of the lowest point of the Bailly excavation is approximately plus 8 feet station datum. NIPSCO does not understand the term "true elevation".

2. Has there ever been any dewatering (including any diversion of groundwater by drains or pumps of any kind) at the fossil fuel generating plants at the Bailly Generating Station site? If your answer is yes, please state:

(a) The date(s) such dewatering commenced;

(b) The date(s) such dewatering terminated;

(c) The volume of water removed;

(d) The present rate of dewatering; and

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(e) The purpose of the dewatering.

ANSWER: Yes, dewatering has occurred at the fossil fuel generating stations at the Bailly site. For the purposes of this response, NIPSCO interprets "fossil fuel generating station" to mean the main building housing the boiler and turbines for Units 7 & 8.

(a) NIPSCO does not know the precise date that construction dewatering for Unit 7 commenced however it was sometime in 1960. Unit 8 construction dewatering began in October 1965. Dewatering for construction of the Unit 7 miscellaneous sump began in January 1977. The gravity drains installed around the foundations of Units 7 & 8 became operational when the backfilling operations reached an elevation such that groundwater levels rose above the drains which was approximately one year after commencement of construction dewatering.

(b) NIPSCO does not know the date that construction dewatering for either Units 7 or 8 was terminated. Dewatering for the Unit 7 miscellaneous sump was completed in August 1977. The gravity drains are still in service.

(c) NIPSCO does not know what volume of water was removed during the construction of Units 7 & 8 or during the operation of the gravity drain. The dewatering system for the Unit 7 miscellaneous sump removed 80,776,800 gallons.

(d) The present rate of dewatering for the Unit 7, Unit 8 and Unit 7 miscellaneous sump construction is zero. NIPSCO does not know the present rate of dewatering of the gravity drains.

(e) The Unit 7, Unit 8 and Unit 7 miscellaneous sump construction dewatering systems were installed and operated to maintain a dry excavation in which construction could proceed. The gravity drains were installed to prevent seepage of groundwater into Units 7 & 8.

3. (a) Please state all assumptions concerning the status of NIPSCO's fly ash ponds which you contend were included in each of the following:

(i) "Soil Parameters Used in USGS Report 78-138," D'Appolonia Consulting Engineers, May 1980;

(ii) "Assessment of the Influence of Dewatering at Bailly N-1," D'Appolonia Consulting Engineers, November 1980;

(iii) "Effects of Seepage from Fly-Ash Settling Ponds and Construction Dewatering on Ground-Water Levels in the Cowles Unit, Indiana Dunes National Lakeshore," Indiana, USGS 78-138, January 1979.

(iv) "Reassessment of the Effects of Construction Dewatering on Ground-Water Levels in the Cowles Unit, Indiana Dunes National Lakeshore, Indiana," USGS 80-1105, September 1980; and

(v) The decision of the Atomic Safety and Licensing Board authorizing issuance of the construction permit for Bailly N-1.

(b) Please provide the bases for each of the responses to Interrogatories 3(a)(i) through 3(a)(v).

ANSWER: NIPSCO makes no contentions regarding assumptions contained in the identified reports. However, the assumptions regarding the fly ash ponds which were utilized in preparation of the identified reports are as follows:

(a) (i) In preparation of the May, 1980 D'Appolonia report, groundwater drawdown estimates were based on the assumption of the Bailly N-1 dewatering and depressurization programs as the only source of drawdown.

(ii) As the title of the November, 1980 D'Appolonia report implies, the sole source of drawdown considered in this report was the Bailly N-1 dewatering and depressurization programs. It was assumed that lining of the settling basins would be completed and thus that the basins would have no further effects on the groundwater regime.

(iii) The studies discussed in this report assume that either the settling basins are not sealed or the basins have been sealed and the groundwater mound is declining.

(iv) The studies discussed in this report assume that the ash ponds are sealed and that the groundwater mound is declining.

(v) The Atomic Safety and Licensing Board in its Initial Decision for the Construction Permit Hearing relied on calculations which

ignored the effects of the ash ponds on ground-water levels. However, the Board did note that ash pond seepage was likely to offset the effects of construction dewatering to some extent.

(b) The basis of NIPSCO's assumptions concerning the status of NIPSCO's fly ash ponds are contained in the following documents:

For 3(a)(i)and(ii)

Agreement between the Department of Interior and Northern Indiana Public Service Company signed by NIPSCO on February 24, 1978.

For 3(a)(iii)

Report 78-138 "Effects of Seepage from Fly-Ash Settling Ponds and Construction Dewatering on Ground-Water Levels in the Cowles Unit, Indiana Dunes National Lakeshore, Indiana," dated January 1979 and prepared by the USGS (Pages 58 to 85).

For 3(a)(iv)

Report 80-1105 "Reassessment of the Effects of Construction Dewatering on Ground-Water Levels in the Cowles Unit, Indiana Dunes National Lakeshore, Indiana" prepared by the USGS (pages 17 to 48).

For 3(a)(v)

Initial Decision before the Atomic Safety and Licensing Board in the matter of Northern Indiana Public Service Company (Bailly Generating Station Nuclear 1) (Page 75).

4. Please describe in detail each injection point for NIPSCO's proposed dewatering mitigation system.

ANSWER: A description of NIPSCO's proposed dewatering mitigation system for the unconfined aquifer is contained on Pages 12-14 of Sargent & Lundy Report "Hydrogeologic Evaluation of Construction Dewatering, Bailly Generating Station, Nuclear-1", March 30, 1978 and in a July 20, 1978 letter from Mr. R. J. Bohn of NIPSCO to Mr. Ronald L. Ballard of the NRC responding to NRC questions regarding the above report. Both of these documents have been provided to PCCI in response to its second document request. The mitigation system for the confined aquifer has not yet been designed and, therefore, a description of the injection points is not available.

5. Please state the proposed flow rate or rates for the replacement water of NIPSCO's proposed dewatering mitigation plan.

ANSWER: Flow rates for the dewatering mitigation system will vary as required to prevent significant drawdown of groundwater levels beyond the NIPSCO/National Park Service property line. These specific rates will be determined during system operation depending on need and cannot be specified now.

6. In "Northern Indiana Public Service Company's Response to the People of the State of Illinois' First Set of Interrogatories to NIPSCO" filed July 8, 1981, in response to Interrogatory 8(a), you stated that "[o]ther localized dewatering will be required for short periods of time in small areas, e.g., for installation of the pump house." For each instance of such "localized dewatering" please:

(a) Identify each location at which such dewatering will take place;

(b) For each such location, state the depth of such dewatering, expressing the depth in both station elevation and true elevation;

(c) State what amount of water will be removed for such instance of dewatering;

(d) State the purpose of such dewatering;

(e) State the length and rate of such dewatering;

(f) For each instance of dewatering, state the effect at each of the points, numbered "1" through "10" with circles around the numbers, on the map attached hereto and marked "Attachment I."*

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* "Attachment I" is "Figure 2 - Plan Borings and Piezometers - Bailly Generating Station Nuclear 1" from "Assessment of the Influence of Dewatering at Bailly N-1" (D'Appolonia, November 1980), filed November 20, 1980.

ANSWER:

(a) Localized dewatering will be required for construction of the Essential Service Water Pumphouse, the essential service water pipeline, the circulating water pipeline, the drain line to existing Unit 7 & 8 circulating water discharge, the Circulating Water Pumphouse, the tendon tunnel, the Reactor Building, the Radwaste Building Elevator pit and seven sumps located within the main building.

(b) NIPSCO does not understand the meaning of the term "true elevation". However, the elevation of the bottom of the excavation for each item listed in (a) above is provided in terms of the "station elevation". The depth of dewatering will be approximately 2 feet below the elevations listed.

(i) Essential Service Water Pumphouse: -29'

(ii) Essential service water pipeline: Varies from -30' to +29'

(iii) Circulating water pipeline: Varies from -5' to +21'

(iv) Drain line to Unit 7 & 8 circulating water discharge: varies from +1' to +10'

(v) Circulating Water Pumphouse: varies from -13' to +20'

(vi) Tendon tunnel: -19'

(vii) Reactor Building: -6'

(viii) Radwaste Building elevator pit: -6'

(ix) Turbine Building Fire Sump: -5'

(x) Off-Gas Building Sumps: -6'

(xi) Reactor Building H.P.C.S. Pump Casing: -10'

(xii) Tendon Tunnel Sump: -22'

(xiii) Service Building Peripheral Sump: -10'

(xiv) Radwaste Building Sumps: -7'

(xv) Radwaste Building Sumps: -8'

(c) The amount of water which will be removed for each of the above instances of dewatering is not known at this time.

(d) In all cases dewatering is intended to provide a dry excavation in which construction may proceed.

(e) In all cases dewatering will be required until work on that particular item has reached the point where the excavation has been backfilled to approximately 2 feet above the groundwater level. The rate of dewatering is unknown at this time.

(f) For purposes of answering this Interrogatory, PSCO assumes that each point shown on "Attachment I" to PCCI's Third Set of Interrogatories is as shown below:

PCCI Point Number	Location
1	NIPSCO Well Number 16
2	(N 1,508,500 E 490,000) NIPSCO/IDNL Property Line within Pond 1
3	USGS Well D 1A
4	(N 1,508,600 E 491,300) Northwest end of Pond 2
5	(N 1,508,500 E 493,100) West end of Pond 7
6	(N 1,508,100 E 4[illegible],100) NIPSCO/IDNL Property Line at the north end of NIPSCO's dike
7	USGS Well GM-38
8	(N 1,509,500 E 497,800) North central edge of Cowles Bog
9	(N 1,508,500 E 499,100) Mineral Springs Road
10	(N 1,507,800 E 494,200)

In all instances cited above, the localized dewatering activity will have no effect on any of the points numbered 1 through 10 on "Attachment I" to these Interrogatories.

7. In "Northern Indiana Public Service Company's Response to the People of the State of Illinois' First Set of Interrogatories to NIPSCO" filed July 8, 1981, in response to Interrogatory 8(a) you state "[g]eneral construction dewatering is now being conducted and will be required for the period of time necessary to bring the facility foundations to grade level. This is estimated to be between 18 and 30 months after construction resumes." Please state the bases for your estimation that it will take 18 to 30 months to bring the facility foundations to grade level.

ANSWER: C. F. Braun's Detailed Master Schedule, Revised 2/22/80, indicates that the foundation mats for the Reactor Building, Radwaste Building and Off-Gas Building will be completed approximately 17 months after resumption of construction. Shortly after completion of these basemats it is expected that the depressurization system for the confined aquifer could be shut off, thus resulting in the 18-month estimate of the earliest time that a portion of the dewatering system would be shutdown. The above schedule also indicates that backfill to grade will be completed 28 months after resumption of construction, at which time it is expected that the balance of the dewatering system could be shut off. Allowing a two month contingency for potential delays in the NRC's review of the piling installation prior to allowing concrete to be poured resulted in the 30 month estimate of the latest time by which dewatering should be completed.

8. Please provide all calculations upon which your responses to Interrogatories 13(a)(1) through 13(a)(4) of People of the State of Illinois' First Set of Interrogatories to NIPSCO are based.

ANSWER. For the unconfined aquifer, NIPSCO's response was based on the proposed dewatering mitigation program preventing any significant off-site effects of dewatering the unconfined aquifer. Thus, no calculations were required. For the confined aquifer, NIPSCO relied on the calculations described in D'Appolonia Report "Assessment of the Influence of Dewatering at Bailly N-1,"

November, 1980 at pages 34-35, which has been provided in response to PCCI's second request for production of documents.

9. Please describe in detail each item of expense presently being incurred by NIPSCO with reference to the Bailly project, giving a description of each item of expense, and the amount incurred for each item of expense during each month for the past six months.

ANSWER: Objected to.

10. Please identify each person presently on NIPSCO's nuclear staff, and state a description of that person's professional qualifications.

ANSWER: Objected to.

11. Please describe in detail all changes, refinements or revisions, since the date of issuance of the Bailly construction permit, to the plans or specifications for any of the following components of the proposed Bailly plant:

(a) Containment vessel

(b) Turbine room building

(c) Radwaste building

(d) Service building

(e) Cooling tower

(f) Piping between any of the above buildings or structures

ANSWER: Objected to.

12. In "Northern Indiana Public Service Company's Response to Porter County Chapter Intervenors' First Set of Interrogatories" filed April 8, 1981, in response to Interrogatory 8, you attached a table described as "Table I - NIPSCO LOAD AND CAPABILITY DATE."[sic] In that table, you described "Purchase Power - MW" for the years 1980 through 1994. For each such year, please state:

(a) Whether the amounts shown in Table I are the maximum amount of power that can be purchased under the terms of the purchase power agreements;

(b) Whether you are obligated to purchase that amount, or whether your purchase is optional;

(c) If a purchase is obligatory, the number of megawatts which you are obligated to purchase.

ANSWER:

(a) Yes, except for the 100 MW value shown for the year 1988 which has not yet been secured by contract.

(b) NIPSCO is obligated to purchase power from three sources in the amounts shown below:

Year	I&M Contract Expires December 31, 1987	PSI	WVPA
1980	400 MW		
1981	400 "		
1982	400 "		
1983	400 "		
1984	400 "		
1985	400 " "Note 1"		
1986	400 "		
1987	400 "	113 MW "Note 2"	113 MW "Note 3"
1988			226 "
1989			226 "
1990			226 "
1991			226 "
1992			226 "
1993			226 "
1994			226 "

"Note 1" -Upon 48 months notification NIPSCO has the option to reduce the amount of power received to not less than 200 MW. No such notice has been given. The I&M contract expires on December 31, 1987.

"Note 2" 10% of Marble Hill Unit 1 from date of commercial operation (Late 1986) through September 30, 1987.

"Note 3" -10% of Marble Hill Unit 1 from date of commercial operation (Late 1986) and 10% of Marble Hill Unit 2 from date of commercial operation (Late 1987).

(c) See response in 12(b).

13. In footnote (1) of "Table I" referred to in Interrogatory 12, you refer to a "156 MW derating of generating capacity in 1979." Please state the reason for such derating and identify the unit(s) derated.

ANSWER: Adjustments to the Northern Indiana Public Service Company generation capability were made to more accurately reflect the capability actually available to serve the system load under operating conditions. The Units which have been derated are: Michigan City Units 2 and 3, Mitchell Units 4, 5, 6 and 11 and Bailly Units 7 and 8.

14. Please explain the reason for each action or situation described in footnote (7) of "Table I" referred to in Interrogatory 12.

ANSWER:

(a) Includes 113 MW from WVPA of MH 2:

Marble Hill Unit #2 is scheduled for commercial operation in late 1987. By contractual arrangement

with WVPA, NIPSCO will be receiving as purchase and imported power 113 MW of the WVPA portion of Marble Hill #2.

(b) Termination of PSI power from MH1 on 9/30/87:
Marble Hill Unit #1 is scheduled for commercial operation in late 1986. By contractual arrangement with PSI, NIPSCO will be purchasing 113 MW of the PSI portion of Marble Hill #1 from its commercial date of operation until 9/30/87.

(c) End of Firm purchase:
Effective January 1, 1978, NIPSCO is purchasing 400 MW of Firm power from I&M. This contract expires December 31, 1987.

(d) 100 MW purchase power during 1988:
This 100 MW in 1988 is required to maintain our minimum reserve margin but has not been secured by contract.

15. Does NIPSCO have any plans, stand-by, tentative or otherwise, to reduce future peak electrical demand? If your answer is yes, please describe such plans in detail.

ANSWER: Yes, NIPSCO does have plans which should aid in the reduction of peaks. The rate design of 2 rate schedules (832 and 833) applicable to the larger customer contain provisions which provide an economic incentive for them to reduce their demands on the NIPSCO system. This economic incentive has been in effect for a number of years and has proven very successful in reducing the demand at times of system peak.

In addition, NIPSCO has, as part of its electric service tariff, an interruptible rate schedule which allows the Company to request a reduction of customer demand upon 10 minutes notification. This schedule provides for 400 hours of reduction to be available at the Company's request in a 12-month period.

NIPSCO also has a rate schedule which makes provisions for customers to install peak shaving generation equipment to allow them to limit their demands on the NIPSCO system.

16. Does NIPSCO have any plans, stand-by, tentative or otherwise, to reduce long-term electrical demand on its system? If your answer is yes, please describe such plans in detail.

ANSWER: No.

17. Does NIPSCO have any plans, stand-by, tentative or otherwise, to reduce the rate of growth on its system? If your answer is yes, please describe such plans in detail.

ANSWER: No.

18. (a) Using all of the following assumptions, please state what you contend would be the water table level or surface water level at each of the points numbered "1" through "10" with circles around the numbers on "Attachment I" to these interrogatories:

-- Dewatering for 30 months at a rate sufficient to reach the lowest point necessary for construction of the Bailly plant;

-- With the effects of the slurry wall as presently installed;

-- In the absence of any mitigation program; and

-- With no seepage from NIPSCO's ash ponds and no dewatering for the sealing of NIPSCO's ash ponds.

(b) Please state all other assumptions used in calculating your responses to subsection (a), including but not limited to the rate of dewatering assumed, and whether your assumptions include a hydraulic connection between "Unit 1" and "Unit 3"*.

(c) Please give all calculations used in formulating your answers.

(d) Please state the bases for your answers.

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* For the purpose of answering these Interrogatories, NIPSCO may assume that "Unit 1" and "Unit 3" refer to those units so described in ISGS reports 78-138 and 80-1105.

ANSWER:

(a) NIPSCO assumes that the points numbered "1" through "10" on "Attachment I" to these Interrogatories are as defined in the response to Interrogatory 6(f) above. Since none of these points is located within the limits of an interdunal pond, no surface water levels have been calculated.

NIPSCO has not attempted to identify the water table levels of any of these ten points. However, drawdowns (decreases from the seasonal groundwater levels) have been estimated for the unconfined aquifer dewatering system and for the confined aquifer depressurization system. NIPSCO has determined that the total drawdown resulting from the unconfined aquifer dewatering system and the confined aquifer depressurization system will be less than the drawdown which was approved by the Atomic Safety and Licensing Board at the time of the Construction Permit hearing. Thus no calculations have been performed to identify specific drawdowns at points 1 through 10.

(b) Not applicable.

(c) Not applicable.

(d) The presence of a slurry wall and pumping at a lower rate than that discussed in the construction permit hearing will result in less drawdown than that approved by the Licensing Board following the Construction Permit hearings.

19. (a) Using all of the following assumptions, please state what you contend would be the water table or surface water level at each of the points numbered "1" through "10" with circles around the numbers, on "Attachment 1" to these interrogatories:

-- Dewatering for 30 months at a rate sufficient to reach the lowest point necessary for construction of the Bailly plant;

-- With the effects of the slurry wall as presently installed;

-- With NIPSCO's proposed mitigation program; and

-- With no seepage from NIPSCO's ash ponds and no dewatering for the sealing of NIPSCO's ash ponds.

(b) Please state all other assumptions used in calculating your responses to subsection (a), including but not limited to the rate of dewatering assumed, and whether your assumptions include a hydraulic connection between "Unit 1" and "Unit 3."

(c) Please give all calculations used in formulating your answers.

(d) Please state the bases for your answers.

ANSWER:

(a) The mitigation program will be designed to maintain the groundwater levels at the NIPSCO/Indiana Dunes National Lakeshore property line within one foot of seasonal levels. The groundwater levels at both points 1 and 2 which are located on NIPSCO property will be controllable with the mitigation system. There will be no change in groundwater levels at points 3 through 10, inclusive.

(b) The mitigation program design has not been completed. However, the recharge systems will be properly sized and located to allow mitigation of any drawdown at the property line.

(c) No calculations were required to prepare the answers to Interrogatories 19(a) and (b) above.

(d) The bases for the answer is provided in Interrogatory 19(b) above.

20. (a) Using all of the following assumptions, please state what you contend would be the water table level or surface water level at each of the points marked "1" through "10" with circles around the numbers on "Attachment I" to these interrogatories:

-- Dewatering for 30 months at a rate sufficient to reach the lowest point necessary for construction of the Bailly plant;

-- In the absence of the slurry wall;

-- In the absence of any mitigation program; and

-- With no seepage from NIPSCO's ash ponds and no dewatering for the sealing of NIPSCO's ash ponds.

(b) Please state all other assumptions used in calculating your responses to subsection (a), including but not limited to the rate of dewatering assumed and whether your assumptions include a hydraulic connection between "Unit 1" and "Unit 3."

(c) Please give all calculations used in formulating your answers.

(d) Please state the bases for your answers.

ANSWER:

(a) The assumptions specified in this hypothetical question describe the conditions relied upon by NIPSCO and its consultants in the Bailly Nuclear-1 Construction Permit Hearing in 1973 before the slurry wall was considered or installed. The drawdown would be that which was reviewed by the Licensing Board in its initial decision, 7 AEC 557 (April 5, 1974). No specific drawdowns were calculated for points 1 through 10.

(b) Those described in the testimony of the Construction Permit Hearing, to which PCCI was a party.

(c) Those described in the testimony of the Construction Permit Hearing, to which PCCI was a party.

(d) See (b) and (c) above.

21. In "Northern Indiana Public Service Company's Response to the People of the State of Illinois' First Set of Interrogatories to NIPSCO," in response to Interrogatory 14(b)(1), you state, "When construction has resumed...a deep well point system will be installed." Please describe in detail the "deep well point system" to which that response refers.

ANSWER: The deep well point system is described in the Sargent & Lundy report titled "Supplementary Information, Hydrogeologic Evaluation of Construction Dewatering, Bailly Generating Station, Nuclear 1" dated August 27, 1979 which has been provided to PCCI in response to its second document request.

22. In "Northern Indiana Public Service Company's Response to the People of the State of Illinois' First Set of Interrogatories to NIPSCO," in response to Interrogatory 14(b)(2), you state, "The deep well point system will reduce hydrostatic pressures in the confined aquifer such that the uplift pressure is less than the overburden pressure." Please define the following terms as used in that response:

(a) The hydrostatic pressures in the confined aquifer;

(b) The uplift pressure;

(c) The overburden pressure.

ANSWER:

(a) The hydrostatic pressure is the pressure exerted by a static head of water;

(b) The uplift pressure is a pressure acting vertically upward;

(c) The overburden pressure is that pressure exerted by the gravitational weight of overlying materials.

23. Please describe in detail how the deep well point system referred to in Interrogatory 22 above will reduce hydrostatic pressures in the confined aquifer.

ANSWER: The operation of the deep well point system is described in the document identified in response to Interrogatory No. 21.

24. Does NIPSCO have any plans to mitigate the effects of pumping water from the confined aquifer? If your answer is yes:

(a) Please describe such plans in detail;

(b) State how you will determine whether to put such plans into effect; and

(c) State all data on which you base your response to Interrogatory 24(b).

ANSWER: Yes. NIPSCO intends to install a mitigation system as required on page 10 of the NRC Environmental Impact Appraisal, dated July 17, 1981.

(a) Plans for the mitigation system are being developed. but are not now available;

(b) The method by which NIPSCO will determine whether to put such plans into effect will be a part of the overall mitigation plan;

(c) This data has yet to be developed.

25. Does NIPSCO have any plans to mitigate the effects of pumping water from the unconfined aquifer? If your answer is yes:

(a) Please describe such plans in detail;

(b) State how you will determine whether to put such plans into effect; and

(c) State all data on which you base your response to Interrogatory 25(b).

ANSWER: Yes.

(a) The documents referenced in response to Interrogatory 4 provide a description of mitigation plans for the unconfined aquifer;

(b) The documents referenced in response to Interrogatory 4 provide a description of the method which NIPSCO will use to put such plans into effect;

(c) The documents referenced in response to Interrogatory 4 provide a description of the data upon which NIPSCO bases its response to Interrogatory 25(b).

26. Please describe all chemical and physical characteristics of the following:

(a) The ground water in Unit 1 on the Bailly site;

(b) The ground water in Unit 1 within the Indiana Dunes National Lakeshore;

(c) The ground water in Unit 3 on the Bailly site;

(d) The ground water in Unit 3 within the Indiana Dunes National Lakeshore.

ANSWER:

(a) Data on the chemical and physical characteristics of groundwater in Unit 1, which NIPSCO assumes to mean groundwater in the unconfined aquifer, is provided in the following reports; all of which have been furnished to PCCI in response to its second request for documents or are otherwise in the possession of PCCI.

(i) Bailly Generating Station N-1 Preliminary Safety Analysis Report, in Chapter 2.

(ii) Corrosion Report, Bailly Generating Station - Nuclear 1. July 20, 1978 (in Table No. 1). Prepared by I. Cornet, 470 Spruce Street, Berkeley, California 94708.

(iii) Supplementary Information, Hydrogeologic Evaluation of Construction Dewatering dated August 27, 1979. Pg. A-7, A-37.

(b) NIPSCO has no data on the chemical and physical characteristics of Unit 1 water within the Indiana Dunes National Lakeshore.

(c) Data on the chemical and physical characteristics of groundwater in Unit 3, which NIPSCO assumes to mean groundwater in the confined aquifer, is provided in the reports listed in response to Interrogatory 26(a).

(d) NIPSCO has no data on the chemical and physical characteristics of Unit 3 groundwater within the Indiana Dunes National Lakeshore.

27. Please state the basis for each response in Interrogatory 26, and, if your response was based on tests, studies, or samples state the date(s) of all such tests, studies or samples, and by whom each test, study or sample was performed.

ANSWER:

(a) The PSAR references two reports of physical and chemical characteristics of groundwater in the Bailly site aquifers. They are:

(i) Rosenheim, J. S. and Hunn, J. D., "Geohydrology and Groundwater Potential of Lake County, Indiana", Indiana Department of Natural Resources, Division of Water, Bulletin 31, 1968. PSAR § 2.4.3.

(ii) Rosenheim, J. S. and Hunn, J. D. "Geohydrology and Groundwater Potential of Porter and La Porte Counties, Indiana", Indiana Department of Natural Resources, Division of Water, Bulletin 32, 1968. PSAR § 2.4.3.

(b) Groundwater analysis for the July 20, 1978 Corrosion Report was performed by Aqualab, Inc., Route 20 at Valley Lane, Streamwood, Illinois 60103. Table I.

(c) Groundwater analysis in the August 27, 1979, Supplementary Information, Hydrogeologic Evaluation of Construction Dewatering was performed by Northern Laboratories, 158 South Napoleon Avenue, Valparaiso, Indiana 46383 (P. A-7, A-37).

2. In "Northern Indiana Public Service Company's Response to the People of the State of Illinois' First Set of Interrogatories to NIPSCO," in response to Interrogatory 18(a) you state, "NIPSCO has conducted 9 test programs during which a total of 251 piles have been utilized for testing purposes." For each of the 9 test programs please state:

(a) A detailed description of the test program;

(b) The subject matter tested;

(c) What NIPSCO expected to ascertain from the test program;

(d) The date the test program was first proposed;

(e) The person or organization proposing the test program;

(f) The date the test program was conducted;

(g) The results of the test program;

(h) A description of all documents on which you relied in answering this Interrogatory.

ANSWER:

(a) A detailed description of each of the nine test programs is contained in the following documents:

(i) Report SL-3109 "Pile Test Analyses, Bailly Generating Station Nuclear 1" dated September 6, 1974 and prepared by Sargent & Lundy Engineers, Chicago, Illinois.

(ii) Report SL-3130 "Supplementary Foundation Evaluation - Bailly Generating Station Nuclear 1" dated September 6, 1974 and prepared by Sargent & Lundy Engineers, Chicago, Illinois.

(iii) Report SL-3205 "Analyses of Pile Driving Tests, Bailly Generating Station - Nuclear 1" dated September 15, 1975 and prepared by Sargent & Lundy Engineers, Chicago, Illinois.

(iv) Letter of October 27, 1977 from Mr. R. J. Bohn of NIPSCO to Mr. E. G. Case of the NRC with attachments.

(v) Report SL-3629 "Design, Analysis and Installation of Driven H-Pile Foundations, Bailly Generating

Station - Nuclear 1" dated March 8, 1978 and prepared by Sargent & Lundy Engineers, Chicago, Illinois and Dames & Moore, Park Ridge, Illinois.

(vi) Letter of July 14, 1978 from Mr. E. M. Shorb of NIPSCO to Mr. R. S. Boyd of the NRC with the attached responses to the June 22, 1978 NRC questions.

(vii) "Indicator Pile Program, Bailly Generating Station - Nuclear 1" dated September 26, 1978 and prepared by Sargent & Lundy Engineers Chicago, Illinois and Dames & Moore, Park Ridge, Illinois.

(viii) "Supplementary Information on Driven H-Pile Foundations" dated December 4, 1978 and prepared by Sargent & Lundy Engineers, Chicago, Illinois, and Dames & Moore, Park Ridge, Illinois.

Each of the above documents, as well as their transmittal letters, was provided to Porter County Chapter Intervenors in response to its Second Request to NIPSCO for Production of Documents.

(b) The subject matter tested is described in the documents listed in (a) above.

(c) The information which NIPSCO expected to ascertain from the test programs is described in the documents listed in (a) above.

(d)&(e) The date that the test program was proposed and the organization making the proposal are listed below.

(i) The first test program was proposed in 1972 by Dames & Moore;

(ii) The second test program was proposed in 1975 by Sargent & Lundy;

(iii) The third test program was proposed in 1974 by Sargent & Lundy;

(iv) The fourth and fifth test programs were proposed in 1977 by Sargent & Lundy;

(v) The sixth test program was proposed in 1977 by Sargent & Lundy;

(vi) The seventh test program was proposed in 1978 by Sargent & Lundy;

(vii) The eighth test program was required by the NRC in 1978;

(viii) The ninth test program was proposed in 1978 by Sargent & Lundy.

(f) The date that the test program was conducted is described in the documents listed in (a) above.

(g) The results of the test programs are described in the documents listed in (a) above.

(h) Documents relied upon by NIPSCO in responding to this Interrogatory are as listed below:

(i) Documents listed in responding to (a) above.

(ii) Specification T-2967 "Steel H-Piling Installation" dated April 22, 1974 and prepared by Sargent & Lundy Engineers, Chicago, Illinois. (Page 2-1-4)

(iii) Specification T-2967 "Steel H-Piling Installation" dated January 5, 1977 and prepared by Sargent & Lundy Engineers, Chicago, Illinois. (Pages 3-1 to 3-5 and 3-9)

(iv) Report 5676-005-07 "Report - Supplementary Foundation Investigation, Proposed Nuclear Power Plant and Cooling Tower, Bailly Generating Station, Baileytown, Indiana, for Northern Indiana Public Service Company" dated March 31, 1972 and prepared by Dames & Moore, Park Ridge, Illinois. (Pages 11 to 14)

(v) Letter of June 22, 1978 to Mr. E. M. Shorb of NIPSCO from Mr. D. B. Vassallo of the NRC with attachments. (RSP 362.5)

(vi) Letter of May 26, 1978 to Mr. R. S. Boyd of the NRC from Mr. H. P. Lyle of NIPSCO with attachments.

29. In "Northern Indiana Public Service Company's Response to the People of the State of Illinois' First Set of Interrogatories to NIPSCO," in response to Interrogatory 18(h), you state, "the effects of any hydraulic interconnections between Units 1 and 3 will be controlled by (1) depressurizing Unit 3, (2) installing densification piles, and (3) using filter material." For each of the three proposed methods of "controlling" the effects of hydraulic interconnections, please state:

(a) A detailed description of the method;

(b) When and under what circumstances NIPSCO expects to employ that method;

(c) How that method will "control" the "effects of hydraulic interconnections."

ANSWER:

(a) A detailed description of each method for controlling the effects of hydraulic interconnections is provided in the following documents:

(1) Depressurizing Unit 3: "Supplementary Information: Hydrogeologic Evaluation of Construction Dewatering, Bailly Generating Station, Nuclear 1" dated August 27, 1979 and prepared by Sargent & Lundy Engineers, Chicago, Illinois; Dames & Moore, Park Ridge, Illinois and Ground/Water Technology, Inc., Denville, New Jersey. (Pages 7 and 20-24).

(2) Installation of Densification Piles:

(i) Above report listed in response to (a)(1).

(ii) Letter of August 14, 1979 to Mr. D. B. Vassallo of the NRC from Mr. E. M. Shorb of NIPSCO with attachments including "Program for Densification of Preconstruction Areas".

(iii) Letter of May 27, 1980 to Mr. R. L. Tedesco of the NRC from Mr. E. M. Shorb of NIPSCO with attachments including a response to RSP 362.04.

(3) Use of Filter Material: A detailed description of the use of a filter material to control the effects of hydraulic interconnections is provided in the document listed in 29(a)(1) above.

(b) When and under what circumstances NIPSCO expects to employ each of these methods is described in the documents listed in response to 29(a) above.

(c) How each of these methods will control the effects of hydraulic interconnections is described in the documents listed in response to 29(a) above.

All documents listed in response to this interrogatory were provided to PCCI in response to its second request for production of documents.

30. Please state the bases for your response to Interrogatories 19(a) through 19(c) of the People of the State of Illinois' First Set of Interrogatories to NIPSCO.

ANSWER: Accepted soil mechanics principles and engineering experience.

31. Please state the bases for your response to Interrogatories 20(a)(1) through 20(a)(4) of the People of the State of Illinois' First Set of Interrogatories to NIPSCO.

ANSWER: The bases for NIPSCO's response to Interrogatory 20(a)(1) through 20(a)(4) of the People of the State of Illinois' First Set of Interrogatories to NIPSCO is the response to Interrogatory 19(a) through 19(c) of Illinois' First Set of Interrogatories.

32. Please state the bases for your response to Interrogatory 23(a) of the People of the State of Illinois' First Set of Interrogatories to NIPSCO.

ANSWER: The bases for NIPSCO's response to Interrogatory 23(a) of the People of the State of Illinois' First Set of Interrogatories to NIPSCO is the response to Interrogatory 19(a) through 19(c) of Illinois' First Set of Interrogatories.

33. Please state the bases for your response to Interrogatory 24(a) of the People of the State of Illinois' First Set of Interrogatories to NIPSCO.

ANSWER: The bases for NIPSCO's response to Interrogatory 24(a) of the People of the State of Illinois' First Set of Interrogatories to NIPSCO is the response to 19(a) through 19(c) of Illinois' First Set of Interrogatories.

34. Please state the bases for your response to Interrogatory 25(a) of the People of the State of Illinois' First Set of Interrogatories to NIPSCO.

ANSWER: The bases for NIPSCO's response to Interrogatory 25(a) of the People of the State of Illinois' First Set of Interrogatories to NIPSCO is the response to Interrogatory 19(a) through 19(c) of Illinois' First Set of Interrogatories.

35. With reference to your response to Interrogatory 26(a) of the People of the State of Illinois' First Set of Interrogatories to NIPSCO, please state the bases for:

(a) Your response that "in theory" dewatering at the Bailly site could result in subsidence of subsoil structure at Bailly;

(b) Your statement that "the proposed method of dewatering at the Bailly site is designed to preclude subsidence of subsoil structures at Bailly."

ANSWER:

(a) Without the proper controls to prevent soil removal during dewatering, the possibility of subsidence of subsoil structures could not be absolutely ruled out.

(b) NIPSCO will monitor and control removal of soil fines during dewatering, thereby precluding subsidence of subsoil structures at Bailly.

36. Please provide the following information for NIPSCO's system for each of the years from 1973 through 1980:

(a) Peak load;

(b) Net installed capacity

(i) With peaking units;

(ii) Without peaking units;

(c) Purchased power;

(d) Total capacity;

(e) Total reserve; and

(f) Percent reserve.

ANSWER: See attached Table.

QUESTION 36

NIPSCO HISTORIC LOAD AND CAPABILITY DATA

Year	Peak(1) Load-KW	Net Installed Capacity-KW	Purchase Power-KW	Total Capacity-KW	Total Reserve-KW With Peaking Units	%-Reserve With Peaking Units	Total Reserve-KW Without Peaking Units	%-Reserve Without Peaking Units
1973	1,786,780	1,386,100	690,190(2)	2,076,290	289,510	16.2	203,410	11.4
1974	1,872,357	1,854,850(3)	690,190	2,545,040	672,683	35.9	586,583	31.3
1975	1,883,829	1,854,850	690,190	2,545,040	661,211	35.1	575,111	30.5
1976	1,978,066	1,854,850	690,190	2,545,040	566,974	28.7	480,874	24.3
1977	2,204,000	2,174,850(4)	490,190(5)	2,665,040	461,040	20.9	374,940	17.0
1978	2,239,150	2,285,850(6)	590,190(7)	2,876,040	636,890	28.4	550,790	24.6
1979	2,243,650	2,214,850(8)	500,190(9)	2,715,040	471,390	21.0	385,290	17.2
1980	2,223,600	2,685,850(10)	400,190(11)	3,086,040	862,440	38.8	621,440	27.9

NOTES:
(1) 60 minute demand.
(2) Comprised of 90,000 KW Firm from CE; 200,000 KW Firm from I&M; 400,000 KW Unit Power from I&M; 120 KW from Star Milling; 70 KW from Rinkel & Son.
(3) Michigan City Unit 12 in service May 31, 1974 at 468,000 KW.
(4) R. M. Schahfer Unit 14 in service December 31, 1976 at 320,000 KW.
(5) 200,000 KW of I&M Unit Power ended in May, 1977.
(6) R. M. Schahfer Unit 14 uprated to 431,000 KW in September, 1977.
(7) Comprised of 90,000 KW Firm from CE; 400,000 KW Firm from I&M; 100,000 KW Unit Power from IPL.
(8) Michigan City Unit 1 at 71,000 KW retired December, 1978.
(9) 90,000 KW of CE Firm ended in June, 1979.
(10) Reflects the 156,000 KW derating of generating capacity in 1979; R. M. Schahfer Unit 15 in service 10/31/79 @ 472,000 KW; R. M. S. Units 16A&B in service 12/31/79 @ 155,000 KW.
(11) 100,000 KW of IPL Unit Power ended in August, 1979.

37. In "Northern Indiana Public Service Company's Response to Porter County Chapter Intervenors' First Set of Interrogatories, in response to Interrogatory 7, you stated "NIPSCO believes that a minimum reserve margin of 20% excluding combustion turbines [footnote omitted] is the minimum reserve margin required to maintain minimum system reliability." Please state the bases for this statement.

ANSWER: NIPSCO experience has proven that when our reserve margin, excluding combustion turbine units, falls below 20% we have insufficient reserves to perform periodic scheduled maintenance and other repairs while still maintaining adequate system capacity to protect against forced or unforeseen outages on the remaining generating units. NIPSCO's electric system load factor, which is consistently one of the highest in the industry, results in less off-peak capacity to be used for maintenance and forced outages than systems with lower load factors.

38. What was NIPSCO's estimate of the minimum reserve margin required to maintain minimum system reliability at the time it made application for a construction permit for Bailly N-1?

ANSWER: Fifteen percent.

39. What was NIPSCO's estimate of the minimum reserve margin required to maintain minimum system reliability at the time of the issuance of the construction permit for Bailly N-1?

ANSWER: Fifteen percent.

40. Please state the basis for your response to Interrogatory 14 of Porter County Chapter Intervenors' First Set of Interrogatories to NIPSCO.

ANSWER: The basis for our response to Interrogatory 14 of Porter County Chapter Intervenors' First Set of Interrogatories to NIPSCO is stated in the first sentence of NIPSCO's response to Interrogatory 14.

41. Please state the basis for your response to Interrogatory 15 of Porter County Chapter Intervenors' First Set of Interrogatories to NIPSCO.

ANSWER: The basis for our response to Interrogatory 15 of Porter County Chapter Intervenors' First Set of Interrogatories to NIPSCO is the same as the basis for NIPSCO's response to Interrogatory 14.

42. In your response to Interrogatory 7 of Porter County Chapter Intervenors' Second Set of Interrogatories to NIPSCO, you state, "67 geological investigations are referenced in the PSAR and 21 geological investigations were referenced in the testimony of NIPSCO witnesses during the construction permit hearing." For each such "geological investigation," please provide the citation to the reference in the PSAR, and the page citation to the testimony of the NIPSCO witnesses during the construction permit hearing as referred to in your answer.

ANSWER: Objected to.

42. In your response to Interrogatory 7 of Porter County Chapter Intervenors' Second Set of Interrogatories, you state, "All geologic investigations performed by or for NIPSCO or available to NIPSCO prior to the date of issuance of the construction permit which are in NIPSCO's possession are as follows..." Please state whether there are such geologic investigations which are not in NIPSCO's possession. If your answer is yes, please provide the following information for each such geologic investigation:

(a) A description of the investigation;

(b) The date of the investigation;

(c) By whom it was performed; and

(d) In whose possession the investigation or description or results thereof presently is.

ANSWER: Yes, the 67 geological investigations referenced in the PSAR and 21 geological investigations referenced in the testimony of NIPSCO witnesses during the construction permit hearing are not in NIPSCO's possession. Those documents are identified on attached Tables 1 and 2.

(a) See attached Tables 1 and 2.

(b) See attached Tables 1 and 2.

(c) See attached Tables 1 and 2.

(d) NIPSCO is uncertain as to who or what organizations may presently have possession of the documents listed in Tables 1 and 2 which are not in NIPSCO's possession.

Table 1

67 GEOLOGICAL INVESTIGATIONS

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* Denotes primary reference; all other secondary reference.

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22. *McGinnis, L.D., Tectonics and the Gravity Field in the Continental Interior, Jour. Geophysical Research, No. 75, No. 2, pp. 317-33[illegible], 1970.

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Table 2

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THE CONSTRUCTION PERMIT HEARING

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15. Lineback, J.A.; Gross, D.L.; "Depositional Patterns, Facies, and Trace Element Accumulation in the Waukegan Member of the Late Pleistocene Lake Michigan Formation in Southern Lake Michigan," Environmental Geology Notes, Illinois State Geological Survey, December 1972, No. 58.

16. Science and Engineering, Environmental Science Services Administration, July 1, 1967 - June 30, 1969, p. 78.

17. Lineback, J.A.; Ayer, N.J.; Gross, D.L.; "Stratigraphy of Unconsolidated Sediments in the Southern Part of Lake Michigan", Environmental Geology Notes, Illinois State Geological Survey, August 1970, No. 35.

18. Ruch, R.R.; Kennedy E. Joyce; Shimp, Neil F.; "Distribution of Arsenic in Unconsolidated Sediments from Southern Lake Michigan," Environmental Geology Notes, Illinois State Geological Survey, September 1970, No. 37.

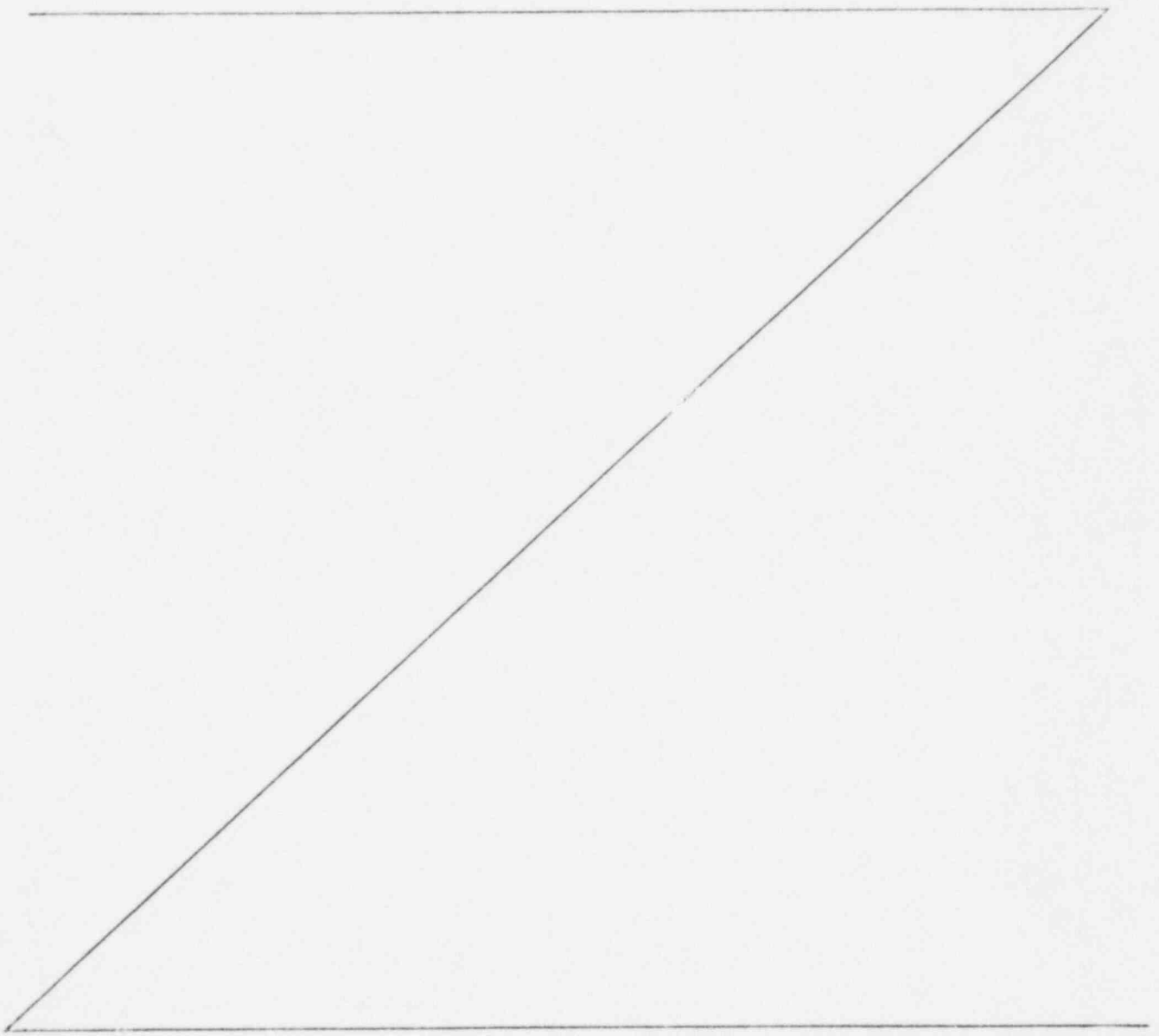
19. Schliker, John A.; Kuhn, John K.; "Phosphorus Content in Unconsolidated Sediments from Southern Lake Michigan", Environmental Geology Notes, Illinois State Geological Survey, November 1970, No. 39.

20. Shimp, Neil F.; Schliker, John A.; Ruch, R.R.; Hook, David B.; Leland, Harry V.; "Trace Elements and Organic Carbon Accumulated in the Most Recent Sediments of Southern Lake Michigan", Environmental Geology Notes, Illinois State Geological Survey, January 1971, No. 41.

21. Wayne, Dr. William J., "Thickness of Drift and Bedrock Physiography of Indiana North of the Wisconsin Glacial Boundary", Indiana Geological Survey.

14. Does NIPSCO contend that it lacked authority to perform any tests of pilings or other foundation systems for the Bailly facility prior to the issuance of the Bailly construction permit? Please state the basis for your answer.

ANSWER: No. In fact, tests were performed prior to issuance of the Construction Permit.



45. Did NIPSCO perform any tests of pilings or other foundation systems prior to the issuance of the Bailly construction permit?

(a) If your answer is yes, please state:

(i) The locations where such tests were performed;

(ii) The reason for each test;

(iii) A description of each test and the date on which it was performed; and

(iv) The result of each test;

(v) A description of all documents which relate to each test.

(b) If your answer is no, please state the reason(s) why such tests were not performed.

ANSWER: Yes.

(a) The locations, reasons, descriptions, dates and results of all such tests are delineated in the following documents:

(1) "Soil Report - Proposed Indiana Public Service Co., Bailey Generating Station Unit #7, Baileytown, Indiana" dated April 12, 1960 and prepared by Soil Testing Services, Inc.

(2) "Report of Geological and Seismological Environmental Studies, Proposed Nuclear Power Plant, Bailly Generating Station, Baileytown, Indiana for the Northern Indiana Public Service Company" dated March 8, 1968 and prepared by Dames & Moore, Park Ridge, Illinois.

(3) "Report - Site Environmental Studies, Geology, Seismology, Foundations - Proposed Nuclear Power Plant, Bailly Generating Station, Baileytown, Indiana - Northern Indiana Public Service Company" prepared by Dames & Moore, Park Ridge, Illinois.

(4) "Preliminary Safety Analysis Report, Bailly Generating Station - Nuclear 1, Northern Indiana Public Service Company" (Chapter 2).

(5) "Supplementary Foundation Investigation, Proposed Nuclear Power Plant and Cooling Tower, Bailly Generating Station, Baileytown, Indiana for Northern Indiana Public Service Company" dated March 31, 1972 and prepared by Dames & Moore, Park Ridge, Illinois.

(6) Report SL-3109 "Draft - Pile Testing Analysis for Bailly Generating Station - Nuclear-1" dated June 10, 1974 and prepared by Sargent & Lundy Engineers, Chicago, Illinois.

(7) Report SL-3109 "Pile Testing Analysis - Bailly Generating Station, Nuclear-1" dated September 6, 1974 and prepared by Sargent & Lundy, Chicago, Illinois.

(8) Report SL-3130 "Supplementary Foundation Evaluation - Bailly Generating Station, Nuclear-1" dated September 6, 1974 and prepared by Sargent & Lundy, Chicago, Illinois.

(9) Specification T-2983 "Pile Testing Work" including all correspondence.

Each of the above documents was provided to PCCI in response to its Second Request for Production of Documents or is in the possession of PCCI.

(b) Not applicable.

46. Did the NRC or its staff, or any of NIPSCO's contractors, subcontractors or consultants advise NIPSCO to perform piling tests prior to the issuance of the Bailly construction permit? If your answer is yes, please state:

(a) The person or organization who so advised;

(b) The nature of such test;

(c) NIPSCO's response to such advice; and

(d) The reason for NIPSCO's response.

(e) Identify all documents relied on in answering this Interrogatory.

ANSWER: Yes.

(a) Sargent & Lundy; Dames & Moore.

(b) Tests would be performed to determine pile tip elevation, pile type and pile bearing capacity.

(c) NIPSCO did not authorize pile testing at the time of S&L's letter to NIPSCO dated 9/1/72, but NIPSCO did commit to a pile testing program 2/20/74.

(d) It was determined that 1974 was the proper time to proceed with pile testing.

(e) (i) Supplementary Foundation Investigation, Proposed Nuclear Power Plant and Cooling Tower, Bailly Generating Station, Baileytown, Indiana. Dames & Moore, March 31, 1972. Pages 6 - 14.

(ii) Letter from R. N. Bergstrom, Head, Structural Project Engineering Division, S&L to J. A. Pelletier, Vice President, Engineering, Construction & Research, NIPSCO dated September 1, 1972.

(iii) Letter from H. P. Lyle, Vice President, Electric Production and Engineering, NIPSCO, to R. N. Bergstrom, S&L, dated October 4, 1972.

(iv) Letter from J. H. Waxman, Purchasing Agent, NIPSCO to R. N. Bergstrom, S&L, dated February 20, 1974.

These documents were provided to PCCI in response to its Second Request to NIPSCO for Production of Documents.

47. In a letter from E. M. Shorb to Robert L. Tedesco, Assistant Director of Licensing, dated July 3, 1981, served on all parties by counsel for NIPSCO under letter dated July 6, 1981, it is stated, "in response to a request by Mr. M. D. Lynch, Project Manager for Bailly, we are providing the following information..." With respect to the "request" referred to, please state:

(a) A complete description of the request;

(b) Whether such request was oral or in writing;

(c) The date of such request;

(d) The reason for the request; and

(e) To whom at NIPSCO the request was communicated.

(f) A description of all documents related to that request.

ANSWER:

(a) Mr. M. D. Lynch requested that NIPSCO provide a current response to Question #13 of Mr. Robert L. Tedesco's letter of December 18, 1980. Mr. M. D. Lynch requested clarification of the last sentence of our Response to Question #14 submitted December 18, 1980.

(b) Oral.

(c) During the week of June 14, 1981.

(d) NIPSCO assumes that the reason for the request is as stated in the answer to Interrogatory 47(a) above.

(e) Alan P. Severance.

(f) NRC letter from Mr. Robert L. Tedesco to Mr. H. P. Lyle dated November 21, 1980. NIPSCO letter from Mr. E. M. Shorb to Mr. Robert L. Tedesco dated December 18, 1980. NIPSCO letter from Mr. E. M. Shorb to Mr. Robert L. Tedesco dated July 3, 1981.

48. For each type of foundation, and for each method of installation of a foundation type, considered by NIPSCO for Bailly N-1, please state:

(a) A description of the type and/or method;

(b) By whom it was proposed;

(c) The date on which it was proposed;

(d) A description of all tests, investigations and studies prepared by or on behalf of NIPSCO, or relied on by NIPSCO, in relation to the foundation type or method; and

(e) The results of each test, investigation and study listed in your response to Interrogatory 12(d).

ANSWER:

(a) A description of each type of foundation, and each method of installation for those foundations, considered by NIPSCO for Bailly N-1 is provided in the following documents. Please note that in the absence of specific sections or page numbers, the entire document is considered pertinent to this response.

(i) "Report of Geological and Seismological Environmental Studies, Proposed Nuclear Power Plant, Bailly Generating Station, Baileytown, Indiana, for the Northern Indiana Public Service Company" dated March 8, 1968 and prepared by Dames & Moore, Park Ridge, Illinois (Pages 4.1 to 4.10).

(ii) "Report - Site Environmental Studies - Geology, Seismology, Foundations, Proposed Nuclear Power Plant, Bailly Generating Station, Baileytown, Indiana, Northern Indiana Public Service Company" prepared by Dames & Moore, Park Ridge, Illinois. (Section 2.5.4)

(iii) "Northern Indiana Public Service Company Preliminary Safety Analysis Report" (Pages 2-5-49 to 2-5-55)

(iv) Report 5676-005-07 "Report-Supplementary Investigation, Proposed Nuclear Power Plant and Cooling Tower, Bailly Generating Station, Baileytown, Indiana, for Northern Indiana Public Service Company" dated March 31, 1972 and prepared by Dames & Moore, Park Ridge, Illinois (Pages 6 to 17).

(v) Report SL-3109 "Draft - Pile Testing Analysis for Bailly Generating Station - Nuclear 1", dated June 10, 1974, and prepared by Sargent &

Lundy. Transmitted by letter dated June 13, 1974 to Mr. John F. O'Leary of the NRC by Mr. H. P. Lyle of NIPSCO.

(vi) Report SL-3109 "Pile Testing Analysis - Bailly Generating Station, Nuclear-1", dated September 6, 1974, prepared by Sargent & Lundy. Transmitted to NRC in September, 1974

(vii) Report SL-3130 "Supplementary Foundation Evaluation - Bailly Generating Station, Nuclear-1", dated September 6, 1974 prepared by Sargent & Lundy. Transmitted to the NRC in September, 1974.

(viii) Report SL-3205 "Analysis of Pile Driving Tests - Bailly Generating Station, Nuclear-1", dated September 15, 1975, prepared by Sargent & Lundy. Transmitted by a letter dated July 14, 1978 from Mr. E. M. Shorb of NIPSCO to Mr. Roger S. Boyd of the NRC.

(ix) Letter dated December 29, 1976 from Mr. F. G. Hiple of NIPSCO to Mr. Bernard C. Rusche of the NRC.

(x) Letter dated September 21, 1977 from Mr. R. J. Bohn of NIPSCO to Mr. Edson Case of the NRC.

(xi) Letter dated October 7, 1977 from Mr. H. P. Lyle of NIPSCO to Mr. Edson Case of the NRC.

(xii) Letter dated October 15, 1977 from R. J. Bohn of NIPSCO to Mr. Edson Case of the NRC.

(xiii) Letter dated October 20, 1977 from Mr. J. W. Dunn of NIPSCO to Mr. Roger S. Boyd of the NRC.

(xiv) Letter dated October 20, 1977 from Mr. J. W. Dunn of NIPSCO to Mr. Roger S. Boyd of the NRC.

(xv) Report SL-3629 "Design, Analysis and Installation of Driven H-Pile Foundations" dated March 8, 1978, prepared by Sargent & Lundy and Dames & Moore. Transmitted by letter dated March 8, 1978 to Mr. Edson G. Case of the NRC by Mr. E. M. Shorb of NIPSCO.

(xvi) Letter dated April 13, 1978 from Mr. E. M. Shorb of NIPSCO to Mr. Edson G. Case of the NRC.

(xvii) Letter dated May 26, 1978 from Mr. H. P. Lyle of NIPSCO to Mr. Roger S. Boyd of the NRC.

(xviii) Letter dated July 14, 1978 from Mr. E M. Shorb of NIPSCO to Mr. Roger S. Boyd of the NRC.

(xix) Letter dated July 14, 1978 from Mr. R. J. Bohn of NIPSCO to Mr. Roger S. Boyd of the NRC.

(xx) Letter dated July 20, 1978 from Mr. R. J. Bohn of NIPSCO to Mr. Roger S. Boyd of the NRC.

(xxi) "Indicator Pile Program, Bailly Generating Station - Nuclear 1" dated September 26, 1978, prepared by Sargent & Lundy and Dames & Moore. Transmitted by letter dated September 26, 1978 to Mr. Roger S. Boyd of the NRC by Mr. E. M. Shorb of NIPSCO.

(xxii) "Supplementary Information on Driven H-Pile Foundations", dated December 4, 1978, prepared by Sargent & Lundy and Dames & Moore. Transmitted by letter dated December 4, 1978 to Mr. Roger S. Boyd of the NRC by Mr. E. M. Shorb of NIPSCO.

(xxiii) Letter dated December 15, 1978 from Mr. E. M. Shorb of NIPSCO to Mr. Roger S. Boyd of the NRC.

(xxiv) "Supplementary Information, Clarifications and Alternatives to the Foundation Pile Design" dated June 29, 1979, prepared by Sargent & Lundy and Dames & Moore. Transmitted by letter dated June 29, 1979 to Mr. Dominic B. Vassallo of the NRC by Mr. E. M. Shorb of NIPSCO.

(xxv) "Response to NRC Requests for Information of June 28, 1979", dated August 14, 1979, prepared by Sargent & Lundy. Transmitted by letter dated August 14, 1979 to Mr. Dominic B. Vassallo of the NRC by Mr. E. M. Shorb of NIPSCO.

(xxvi) Letter dated May 27, 1980 from Mr. E. M. Shorb of NIPSCO to Mr. Robert L. Tedesco of the NRC.

(xxvii) Letter dated May 28, 1980 from Mr. E. M. Shorb of NIPSCO to Mr. B. J. Youngblood of the NRC.

(xxviii) Specification T-2967 "Steel H-Pile Installation" prepared by Sargent & Lundy Engineers, Chicago, Illinois, including all post award correspondence.

(xxix) Specification T-2983 "Pile Testing Work" prepared by Sargent & Lundy Engineers, Chicago, Illinois, including all correspondence.

All of the above documents have been provided by NIPSCO to PCCI in response to "Porter County Chapter Intervenors' Second Request to NIPSCO for Production of Documents".

(b) Unless specifically noted in the documents listed in (a) above, all foundation types and installation techniques that were considered by NIPSCO were proposed by Sargent & Lundy Engineers, Chicago, Illinois and their consultants.

(c) The date on which each foundation type and installation technique was proposed is given in the response to 48(a) above.

(d) A description of all tests, investigations and studies prepared by or on behalf of NIPSCO in relation to the foundation type or method is provided in the response to 48(a) above. In addition to these tests, investigations and studies, NIPSCO relied upon common analytical techniques and research studies in foundations by recognized experts. These techniques and research studies are noted as references in the response to 48(a) above.

(e) Not applicable. PCCI's Third Set of Interrogatories to NIPSCO does not contain an Interrogatory 12(d).

49. Please identify the person or organization who installed the peizometers [sic] and the relief wells within the Bailly excavation.

ANSWER: The piezometers within the excavation were installed by Raimonde Drilling Corporation. The relief wells were installed by Midwest Dewatering Company, Inc.

50. Please describe all methods of recording ground water levels and ash pond and interdunal pond levels by NIPSCO at all times prior to May 1, 1974.

ANSWER: From March 1972 when NIPSCO first began monitoring of pond levels, through September 1973, NIPSCO's records of inter-dunal pond and ash pond levels consist of handwritten tabulations of water levels taken from measuring stakes located in the respective ponds. Beginning in October 1973 and continuing through April 1974, NIPSCO utilized standard survey instruments and techniques to measure pond levels, and recorded the necessary information, including pond levels, on special data sheets developed for the monitoring program.

From October 1973 when the first monitoring well was installed, through April 1974, groundwater levels were recorded on weekly charts by automatic level recorders on the individual wells.

All of the above records have been provided in response to PCCI's Second Request to NIPSCO for Production of Documents.

51. Please describe all pile tests performed by or on behalf of NIPSCO after May 1, 1974. For each test please state:

(a) The locations where such tests were performed;

(b) The reason for each test;

(c) A description of each test and the date on which it was performed; and

(d) The result of each test.

(e) A description of all documents which relate to each test.

ANSWER:

(a) The locations where pile load tests were conducted after May 1, 1974 are described within the reports listed in NIPSCO's response to Interrogatory 28(a), except for 28(a)(i).

(b) The reason for each test was provided in response to Interrogatory 28(b).

(c) A description of each test and the date on which it was performed was provided in response to Interrogatory 28(a) and 28(f), respectively.

(d) The results of each test were provided in response to Interrogatory 28(g).

(e) A description of all documents which relate to each test is as provided below:

(i) All documents listed in response to Interrogatory 28(a), except for 28(a)(i).

(ii) Specification T-2967 "Steel H-Pile Installation" including all correspondence following award of the contract.

(iii) Specification T-2983 "Pile Testing Work" including all correspondence relating to the contract.

52. Please give the following information for the person swearing to the answers to these interrogatories;

(a) Name

(b) Address

(c) Title

(d) Capacity

ANSWER:

(a) R. J. Bohn.

(b) R.R.3, Box 501, Chesterton, Indiana 46304.

(c) Manager, Nuclear Staff.

(d) In charge of the engineering and construction of the nuclear project.

53. Please give the following information of each person who has provided or furnished information to the person identified in Interrogatory 13, consulted with that person in the preparation of the responses to these Interrogatories, or otherwise aided in the preparation of the responses:

(a) Name

(b) Address

(c) Title

(d) Number (including subpart) of each Interrogatory with respect to which that person consulted, aided or provided or furnished information; and

(e) The nature of the information or aid furnished.

ANSWER: NIPSCO assumes that this Interrogatory refers to Interrogatory 52, rather than to Interrogatory 13 as stated.

(a) Alan P. Severance.

(b) R.R. 3, Box 501, Chesterton, Indiana 46304.

(c) Mechanical/Nuclear Supervisor.

(d)&(e) Performed research and provided draft responses for Interrogatories 40, 41, 42, 43 and 47.
Provided draft responses for Interrogatories 12 through 17, 37, 38 and 39.

(a) Mark R. Granback.

(b) R.R. 3, Box 501, Chesterton, Indiana 46304.

(c) Licensing Supervisor.

(d)&(e) Performed research and provided draft responses for Interrogatories 1, 4, 5, 7, 8, 21, 23, 50 and 53.

(a) Mark T. Maassel.

(b) R.R. 3, Box 501, Chesterton, Indiana 46304.

(c) Civil/Structural Engineer.

(d)&(e) Performed research and provided draft responses for Interrogatories 3, 6, 18, 19, 20, 22, 28 through 34, 48, 49 and 51.
Provided draft response for Interrogatory 2.

(a) Mark V. Kaldenberg.

(b) R.R. 3, Box 501, Chesterton, Indiana 46304.

(c) Nuclear Systems Engineer.

(d)&(e) Performed research and provided draft responses for Interrogatories 24, 25, 26, 27, 35, 44, 45 and 46.

(a) Dale E. Bell.

(b) R.R. 3, Box 501, Chesterton, Indiana 46304.

(c) Mechanical Engineer.

(d)&(e) Provided information for response to Interrogatory 2.

(a) Forrest G. Hiple.

(b) 5265 Hohman Avenue, Hammond, Indiana 46325.

(c) Vice President, Electric Operations.

(d)&(e) Provided information for responses to Interrogatories 12, 14, 16, 17 and 36 through 39.

(a) Horace P. Lyle.

(b) 5265 Hohman Avenue, Hammond, Indiana 46325.

(c) Vice President, Electric Production.

(d)&(e) Provided information for responses to Interrogatory 13.

(a) Richard F. Brissette.

(b) Canonie Environmental Services Corp., 1408 N. Tremont Road, Chesterton, Indiana 46304.

(c) President.

(d)&(e) Provided information for response to Interrogatories 3.a(i),(ii), 22 and 30.

(a) J. A. Nieting.

(b) 5265 Hohman Avenue, Hammond, Indiana 46325.

(c) Director of Rate and Contract.

(d)&(e) Provided information for response to Interrogatory 15.

William H. Eichhorn, Counsel for NIPSCO, and Russell J. Bohn, Manager, Nuclear Staff, assisted in the wording and preparation of all Answers to Interrogatories.

NORTHERN INDIANA PUBLIC SERVICE COMPANY

By Russell J. Bohn
Russell J. Bohn

STATE OF INDIANA)
) SS:
COUNTY OF LAKE)

The undersigned, Russell J. Bohn, being duly sworn upon his oath states that he is employed by Northern Indiana Public Service Company as Manager, Nuclear Staff, for the Bailly Nuclear Plant; that he is informed on the matters of inquiry of Porter County Chapter Intervenors' interrogatories; that in answering the above and foregoing interrogatories he has personally reviewed or caused others to review the files and records of Northern Indiana Public Service Company and has caused information to be gathered from employees and officers of Northern Indiana Public Service Company, its contractors and consultants; that the answers to the above and foregoing interrogatories are true and correct as he has been informed and verily believes.

Russell J. Bohn
Russell J. Bohn

Subscribed and sworn to before me, a Notary Public, this 17 day of August, 1981.

Evelyn A Helm
Notary Public

My Commission expires:

2-6-83