UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF ILLINOIS POWER COMPANY, SOYLAND POWER COOPERATIVE, INC. and WESTERN ILLINOIS POWER COOPERATIVE, INC. (Operating Licenses for Clinton Power Station, Units 1 and 2)	)	Docket Nos. 50-461-OL 50-462-OL

RESPONSE OF ILLINOIS POWER TO THE STATE OF ILLINOIS' FIRST SET OF INTERROGATORIES

Illinois Power Company ("Illinois Power" or "the Company" or "IP") hereby responds to the State of Illinois' First Set of Interrogatories as follows:

[1. State all employment positions that will exist at the CPS, when operation is commenced, and for each position state as follows:

a. the total number of persons who will hold the position;

b. the number of persons who have been hired to date;]

ANSWER: Since personnel from the Nuclear Station Engineering Department ("NSED") and the Quality Assurance Department ("QA") have responsibilities that are carried out at the Clinton Power Station ("CPS") site, employment positions in these departments, as well as those for CPS Operations, are set forth in the attached Exhibits A, B, and C.

[1.c. the minimum qualifications that must be met for each position, including education, experience, training, security clearance, and licenses-NRC, state and other;

f. a description of the duties and responsibilities.]

ANSWER: See attached Exhibit D for the NSED, Exhibit E for CPS Operations, and Exhibit F for QA.

[1.d. the training, of any kind, each person will receive subsequent to hiring but prior to assumption of the duties for which he or she was hired;

e. the training, of any kind, each person will receive on a continuing or periodic basis subsequent to assumption of the duties for which he or she was hired;]

ANSWER: See Exhibit G for the NSED, Exhibit H for CPS Operations, and Exhibit I for QA.

[2. Identify and specify the qualifications of all persons who are now or will be assigned to any safety-related supervisory, control or maintenance duties at the CPS, and state the position each person is or will be holding.]

ANSWER: NSED nuclear safety-related supervisory personnel qualifications are set forth in Appendix 13.A of the FSAR. For CPS Operations personnel, see the attached Exhibit J.

[3. Identify all persons IP has employed in Quality Assurance (QA) and Quality Control (QC) positions at the CPS within the last five years, and for each person state:

a. the date when employment began;

b. the date, if applicable, when employment ended;

c. his or her qualifications]

ANSWER: The names, dates of employment, and qualifications for the QA employees are set forth in the attached Exhibit K.

[3.d. the reason(s), if applicable and known to IP, for termination of employment.]

ANSWER: Illinois Power objects to Interrogatory No. 3.d. on the grounds that the information requested (a) is not relevant, and (b) is exempted from disclosure under 10 C.F.R. § 2.790, and disclosure is not necessary to a proper decision in the proceeding.

[4. Identify all documents related to, referring to, or discussing any of the following:

a. the management of QA/QC functions at the CPS;

b. the quality of QA/QC work at the CPS]

ANSWER: Relevant documents are available for inspection at the offices of Illinois Power.

[4.c. the reason(s) for the termination of employment of any person in QA/QC positions.]

ANSWER: Illinois Power objects to Interrogatory No. 4.c. on the grounds that the information requested (a) is not relevant, and (b) is exempted from disclosure under 10 C.F.R. § 2.790, and disclosure is not necessary to a proper decision in the proceeding.

[5. Identify all documents related to, referring to, or discussing any of the following:

a. the management of the construction of the safety-related systems of the CPS

b. the quality or integrity of work on the construction of the safety-related systems of the CPS]

ANSWER: Relevant documents are available for inspection at the offices of Illinois Power.

[5.c. the reason(s) for the termination of persons employed at such tasks.]

ANSWER: Illinois Power objects to Interrogatory No. 5.c. on the grounds that the information requested (a) is not relevant, and (b) is exempted from disclosure under 10 C.F.R. § 2.790, and disclosure is not necessary to a proper decision in the proceeding.

[6. Identify all persons who prepared the Final Safety Analysis Report (FSAR) for the CPS, and for each of the following parts of the FSAR identify all persons whose data, studies, reports, comments or other information were used in the preparation thereof:

a. Volume 16, Chapter 13, Section 13.1, "Organizational Structure of Applicant";

b. Volume 16, Chapter 13, Section 13.2, "Training";

c. Volume 18, Chapter 17, "Quality Assurance'; and

d. Volume 15, Chapter 11, Section 11.2.1.4, "Quality Control."]

ANSWER: The preparation of the FSAR extended over about a two year period and involved several hundred persons from Illinois Power, Sargent & Lundy, General Electric Company ("GE"), and other organizations.

The Illinois Power personnel directly involved in the preparation and approval of the specific FSAR sections identified in Interrogatory No. 6 are:

a. Volume 16, Chapter 13, Section 13.1, "Organizational Structure of Applicant"

L. S. Brodsky
Assistant Power Plant Manager
Clinton Power Station

G. H. Reed
Shift Supervisor
Clinton Power Station

G. E. Wuller
Supervisor - Licensing, NSED
Illinois Power Company

T. F. Plunkett
Power Plant Manager
Clinton Power Station

L. J. Koch
Vice President
Illinois Power Company

J. D. Geier
Manager - Nuclear Station Engineering Dept.
Illinois Power Company

b. Volume 16, Chapter 13, Section 13.2, "Training"

L. S. Brodsky
Assistant Power Plant Manager
Clinton Power Station

R. F. Schaller
Supervisor - Training
Clinton Power Station

J. G. Cook
Supervisor - Technical
Clinton Power Station

T. F. Plunkett
Power Plant Manager
Clinton Power Station

c. Volume 18, Chapter 17, "Quality Assurance"

M. C. Hollon
Supervisor - Construction
Quality Assurance
Clinton Power Station

J. D. Geier
Manager, Nuclear Station Engineering Dept.
Illinois Power Company

d. Volume 15, Chapter 11, Section 11.2.1.4, "Quality Control"

M. C. Hollon
Supervisor - Construction Quality Assurance
Clinton Power Station

G. E. Wuller
Supervisor - Licensing
Illinois Power Company

D. L. Holtzscher
Supervisor - Technology Assessment
Illinois Power Company

[7. State, both in terms of percentage and total outlay, the capital investment of each of IP, Western Illinois Power Cooperative, Inc. ("WIPCO"), and Soyland Power Cooperative, Inc. ("Soyland") in the CPS Unit 1, both to date and the estimated final total investment.]

ANSWER: A Investment to date

Clinton Unit 1
Capital Investment through May 31, 1981

	Amount	Percent
IP	$ 967,243,047	83.0%
WIPCO	94,329,881	8.1
Soyland	104,259,343	8.9
	$1,165 832,271	100.0%

B. Estimated final total investment

Clinton Unit 1
Estimated Total Capital Investment

	Amount	Percent
IP	$1,455,537,000	84.0%
WIPCO	131,786,000	7.6
Soyland	145,658,000	8.4
	$1,732,981,000	100.0%

[8. State the current total assets of IP, as well as the current value of each of IP's operating electrical generation facilities.]

ANSWER: At May 31, 1981, the current total assets of Illinois Power were $2,558,446,514.

At May 31, 1981, the current value (original cost) of Illinois Power's operating electrical generation facilities was as follows:

Generating Station	Original Cost
Havana	$231,730,563
Wood River	101,553,080
Henepin	49,687,714
Vermilion	35,707,345
Baldwin	356,074,128
Oglesby	8,481,417
Stallings	10,045,728
Jacksonville	3,203,270
Bloomington	1,027,561
Vandalia	426,971
Total	$787,937,777

[9. State the percentage of the total assets of IP that CPS Unit 1 will represent when operation is commenced.]

ANSWER: 45.2% (Estimated)

[10. State the current total electrical generating capacity of IP.]

ANSWER: Capacity* owned by IP: 3815 MW

Other capacity**: 57 MW

Total: 3872 MW

In addition to the above capacity, Illinois Power receives 65 MW of firm power from TVA between May and November of each year as part of a seasonal capacity exchange. In 1985, this purchase is scheduled to be reduced to 9 MW.

* Summer ratings

** Available under long term firm power supply contracts.

[11. State the estimated electrical generating capacity of CPS Unit 1 when operation is commenced.]

ANSWER: Total Unit (100%): 950 MW net

IP Share (80%): 760 MW net

[12. State the percentage of the total electrical generating capacity of IP that CPS Unit 1 will represent when operation is commenced.]

ANSWER: Based on Illinois Power's 760 MW of CPS Unit 1 and Illinois Power's 3872 MW of owned and other capacity, CPS will represent 16.4% of Illinois Power's capacity in 1983.

[13. State the percentage of the total electrical generating capacity of WIPCO that CPS Unit 1 will represent when operation is commenced.]

ANSWER: 62%

[14. State the percentage of the total electrical generating capacity of Soyland that CPS Unit 1 will represent when operation is commenced.]

ANSWER: 100%

[15. State the annual load factor (i.e. percentage of capacity) for IP for each of the last five years.]

ANSWER: Illinois Power's average annual system load factor for each of the last five years, based on the formula set forth below, is as as follows:

1980	56.1%
1979	57.6%
1978	58.8%
1977	55.9%
1976	57.7%

$$\text{Load factor} = \frac{\text{MWhrs} \times 100\%}{\text{Peak MW} \times \text{Annual Hours}}$$

[16. State IP's anticipated load factor when operation of CPS Unit 1 is commenced.]

ANSWER: Illinois Power's estimated average annual system load factor, based on the formula set forth below, is 52.4% for 1983.

$$\text{Load factor} = \frac{\text{MWhrs} \times 100\%}{\text{Peak MW} \times \text{Annual Hours}}$$

[17. For the fiscal year 1980, state the amount, if any, of electricity IP sold to other utilities, as well as the revenue derived by IP from such sales.]

ANSWER: During fiscal year 1980, Illinois Power sold 3,224,161 MWhrs of electricity to other utilities, including wholesale deliveries to cooperatives and municipals and interchange sales to other utilities, for revenues of $88,554,335.

[18. For the fiscal year 1981 state the estimated amount, if any, of electricity IP will sell to other utilities, as well as the revenue expected to be derived by IP from such sales.]

ANSWER: During fiscal year 1981, Illinois Power expects to sell 3,346,218 MWhrs of electricity to other utilities for revenues of approximately $101,965,162. These figures include deliveries to cooperatives and municipals and interchange sales to other utilities and are based on actual data through May and estimated data from June through December.

[19. State the estimated annual costs of operating CPS Unit 1, including figures for estimated repairs and maintenance.]

ANSWER: The estimated annual costs for operating, maintenance, and repairs for Illinois Power's 80% share of CPS Unit 1 for a full year (1984) are $10,600,000.

[20. State the estimated total cost of decommissioning CPS Unit 1 at the end of its expected useful life, and state the estimated cost of each of the tasks involved in that decommissioning.]

ANSWER: The estimated total cost of decommissioning CPS Unit 1 is $42 million in 1978 constant dollars.

The assumed method of decommissioning is immediate dismantlement. This method involves removal of radioactive materials from the plant site immediately following final shutdown. After the radioactive materials have been shipped from the site, the facility can be released for unrestricted use. The estimated cost of significant tasks involved in the decommissioning are:

Item	Estimated Cost	Percent of Total
	(Millions of $)	
Fuel Shipment	$3.1	7%
Equipment and Supplies	3.0	7
Disposal of Radioactive Materials	10.7	26
Power	4.4	10
Labor	11.2	27
Contractors and Demolition	8.7	21
Insurance	1.0	2
	$42.1	100%

[21. State the estimated total cost of maintaining CPS Unit 1 in a safe condition after CPS Unit 1 has been decommissioned, and state the estimated cost of each of the tasks involved in that maintenance program.]

ANSWER: The immediate dismantlement decommissioning method allows for unrestricted use of the site after decommissioning is completed. Therefore, there are no estimated costs for maintaining the site.

[22. Identify all documents referring to or discussing any of the matters raised in Interrogatories Nos. 19, 20 or 21 above.]

ANSWER: Relevant documents are available for inspection at the offices of Illinois Power.

[23. Identify the principal financial officers of IP.]

ANSWER: Mr. Charles W. Wells
Executive Vice President
Illinois Power Company
500 South 27th St.
Decatur, Illinois 62525

Mr. Larry D. Haab
Vice President and Treasurer
Illinois Power Company
500 South 27th St.
Decatur, Illinois 62525

[24. Identify all persons, including financial officers, who supervised the preparation of IP's latest annual statement.]

ANSWER: Charles W. Wells
Executive Vice President
Illinois Power Company
500 South 27th Street
Decatur Illincis 62525

A. E. Gray
Vice-President and Secretary
Illinois Power Company
500 South 27th Street
Decatur Illinois 62525

Elmer R. Turner
Manager of Accounting
Illinois Power Company
500 South 27th Street
Decatur Illinois 62525

[25. Identify all persons, including financial officers, who supervised the preparation of IP's proposal to the Illinois Commerce Commission in the proceeding captioned Illinois Power Co., Proposed General Increase in Electric Rates, 80-0544 and 80-0365.]

ANSWER: Mr. Larry D. Haab
Vice President and Treasurer
Illinois Power Company
500 South 27th St.
Decatur, Illinois 62525

Mr. Miro P. Mladiner
Manager of Rates
Illinois Power Company
500 South 27th St.
Decatur, Illinois 62525

[26. Identify the principal financial officers of WIPCO.]

ANSWER: Gene H. Burton
Secretary-Treasurer
WIPCO
Box 609
Jacksonville, Illinois 62651

Robert E. Gant
Assistant Secretary-Treasurer
WIPCO
Box 609
Jacksonville, Illinois 62651

[27. Identify all persons, including financial officers, who supervised the preparation of WIPCO's latest annual statement.]

ANSWER: D. B. Bringman
General Manager
WIPCO
Box 609
Jacksonville, Illinois 62651

Charles W. Heacox
Office Manager
WIPCO
Box 609
Jacksonville, Illinois 62651

[28. Identify the principal officers of Soyland.]

ANSWER: Walter R. Smith, President
Soyland Power Cooperative, Inc.
P.O. Box A1606
Decatur, Illinois 62525

Allen Sisk, Vice-President
Soyland Power Cooperative, Inc.
P.O. Box A1606
Decatur, Illinois 62525

Dennis L. Tachick, Secretary-Treasurer
Soyland Power Cooperative, Inc.
P.O. Box A1606
Decatur, Illinois 62525

William D. Champion, Assistant Secretary
Soyland Power Cooperative, Inc.
P.O. Box A1606
Decatur, Illinois 62525

[29. Identify all persons, including financial officers, who supervised the preparation of Soyland's latest annual statement.]

ANSWER: Walter R. Smith, President
Soyland Power Cooperative, Inc.
P.O. Box A1606
Decatur, Illinois 62525

Allen Sisk, Vice-President
Soyland Power Cooperative, Inc.
P.O. Box A1606
Decatur, Illinois 62525

Dennis L. Tachick, Secretary-Treasurer
Soyland Power Cooperative, Inc.
P.O. Box A1606
Decatur, Illinois 62525

William D. Champion, Assistant Secretary
Soyland Power Cooperative, Inc.
P.O. Box A1606
Decatur, Illinois 62525

Royal B. Newman, Executive Vice President
and General Manager
Soyland Power Cooperative, Inc.
P.O. Box A1606
Decatur, Illinois 62525

Richard R. Ruzich, Assistant General Manager
Soyland Power Cooperative, Inc.
P.O. Box A1606
Decatur, Illinois 62525

[30. State each anticipated transient without scram (ATWS) condition that IP has considered and will consider with respect to the operation of the CPS. For each ATWS condition so stated identify the following:

a. the ASME class into which the condition falls;

b. all documents that describe the ATWS condition; and

c. all persons who were and are responsible for, or who have had and currently have knowledge of, the ATWS condition considered.]

ANSWER: Illinois Power objects to Interrogatory No. 30 on the grounds that the information requested is beyond the scope of the admitted contention, and is therefore irrelevant.

Prairie Alliance Revised Contention 6 contained the general allegation that the "CPS has not been designed and constructed to resolve the matter of [ATWS]," along with the specific allegation that the CPS "is especially vulnerable to ATWS" due to inadequate repair of faulty welds on a number of control rod drive tubes. In its Memorandum and Order issued May 29, 1981, the Board rejected the general allegation concerning design and construction, and admitted a revised version of the ATWS contention based on a narrow question of fact: "It is alleged that faulty welds on a number of control rod drive tubes raise the likelihood that an ATWS can occur." Order at 10.

In the absence of a question of fact concerning a particular vulnerability to ATWS, there is no basis for consideration of the ATWS issue in this proceeding. ATWS was one of the generic issues listed in Prairie Alliance Revised Contention 19, which was rejected by the Board.

The documents made available for inspection by Illinois Power in response to Interrogatories Nos. 33 and 36 show that all control rod drive tubes with faulty welds were discarded and replaced with new tubes. Since there is no increased likelihood that an ATWS can occur at the CPS, information relating to the generic aspects of the ATWS issue is irrelevant.

[31. Describe all analyses or assessments that IP has performed and will perform with respect to the occurrence of an ATWS condition at the CPS. For each analysis or assessment:

a. state the assumed rate of occurrence per reactor year;

b. describe the results and conclusions;

c. identify all documents related to, referring to, or discussing the analysis or assessment; and

d. identify all persons, including BWR owners' groups or other organizations, who were and are responsible for, or who have had knowledge and currently have knowledge of, the analysis or assessment.]

ANSWER: Illinois Power objects to Interrogatory No. 31 for the reasons set forth in its objection to Interrogatory No. 30.

[32. State all measures IP has taken and will take to reduce the risk of an ATWS condition at the CPS. For each measure so stated:

a. describe how it will work;

b. identify all documents referring to, related to or discussing the measure; and

c. identify all persons who were and are responsible for, or who have had and have knowledge of, the use of the measure.]

ANSWER: Illinois Power objects to Interrogatory No. 32 for the reasons set forth in its objection to Interrogatory No. 30.

[33. Identify all documents, including NRC I & E reports and correspondence related thereto, referring to, related to, or discussing the quality of welding during construction of control rods and control rod drive tubes at the CPS.]

ANSWER: Admitted contention No. 5 concerns only control rod drive tubes. Therefore, all parts of this interrogatory concerning the control rods are irrelevant. Relevant documents concerning the control rod drive tubes are available for inspection at the offices of Illinois Power.

[34. Identify all persons who were and are responsible for the management, review, or inspection of welding during construction of the control rods and control rod drive tubes at the CPS.]

ANSWER: Admitted Contention No. 5 concerns only control rod drive tubes. Therefore, all parts of this interrogatory concerning the control rods are irrelevant. Personnel

who were and are responsible for the management, review, or inspection of welding during construction of the control rod drive tubes at CPS are as follows:

Bill J. Wright - Engineer
Clinton Power Station
P.O. Box 306
Clinton, IL 61727

Jim F. Gleason - Technical Services Coordinator
Address not known

Bill W. Merit - Quality Control
Address not known

Ron C. Campbell - Quality Control
Clinton Power Station
P.O. Box 306
Clinton, IL 61727

Mike J. King - Authorized Nuclear Inspector
Clinton Power Station
P.O. Box 306
Clinton, IL 61727

Paul F. Gardner - Welding Inspector
Clinton Power Station
P.O. Box 306
Clinton, IL 61727

John F. Linehan - Manager Quality Control
Address not known

Bill G. Carson - Manager Technical Services
Baldwin Associates
Clinton Power Station
P. O. Box 306
Clinton, IL 61727

Bob L. Peters - Mechanical Superintendent
Clinton Power Station
P.O. Box 306
Clinton, IL 61727

Larry A. Gelbert - Manager Quality Control
Clinton Power Station
P.O. Box 306
Clinton, IL 61727

Glen A. Chapman - Manager Technical Services
Clinton Power Station
P.O. Box 306
Clinton, IL 61727

[35. Identify all persons who have performed and are now performing the tasks of welding during construction of the control rods and control rod drive tubes at the CPS.]

ANSWER: Admitted Contention No. 5 concerns only control rod drive tubes. Therefore, all parts of this interrogatory concerning control rods are irrelevant. The following individuals made tube sheet welds in the control rod drive penetrations associated with the replacement of tubes having burn through or suck back conditions:

J. L. Suttle
615 E. Franklin St., Evansville, Ind. 47711

W. M. Mosby
R. R. 1, Junction, IL 62954

D. R. Rowsey
R. R. 1, Box 337, Farmville, Va. 23901

A. J. Pippitt
4511 Independence, Peoria, IL 61614

H. W. Valencia
R. R. 1, Manito, IL 61546

[36. Identify all documents referring to, related to, or discussing analyses of the strength and adequacy of the control rods and the control rod drive tubes installed at the CPS.]

ANSWER: Admitted Contention No. 5 concerns only control rod drive tubes. Therefore, all parts of this interrogatory concerning control rods are irrelevant.

All control rod drive tubes with faulty welds were replaced with new tubes. All installed control rod drive tubes at CPS meet the original design criteria. The control rod drive tubes which were adversely affected by welding were not specifically analyzed for strength and adequacy since they were replaced with tubes which met the original design criteria.

[37. Identify all persons who have knowledge of any analysis of the strength and adequacy of the control rods and the control rod drive tubes installed at the CPS.]

ANSWER: Admitted Contention No. 5 concerns only control rod drive tubes. Therefore, all parts of this interrogatory concerning control rods are irrelevant.

Since all control rod drive tubes with faulty welds were replaced with new tubes, they were not specifically analyzed for strength or adequacy.

[38. State whether IP has complied, or will comply, with the NRC recommendations, applicable to the CPS, in NUREG 0460, Vol. IV.]

ANSWER: Illinois Power objects to Interrogatory No. 38 for the reasons set forth in its objection to Interrogatory No. 30.

[39. State whether IP has complied, or will comply, with the NRC recommendation in NUREG 0460, alternative 4A, to revise the standby liquid control system (SLCS) to provide for higher flow rates. If the answer is in the negative, please state the reason(s) and explain.]

ANSWER: Illinois Power objects to Interrogatory No. 39 for the reasons set forth in its objection to Interrogatory No. 30.

[40. State whether IP has complied, or will comply, with the NRC recommendation in NUREG 0460, alternative 3A, to revise the SLCS to provide for higher flow rates. If the answer is in the negative, please state the reason(s) and explain.]

ANSWER: Illinois Power objects to Interrogatory No. 40 for the reasons set forth in its objection to Interrogatory No. 30.

[41. Describe all systems that IP has installed, or will install, for the detection of reactor coolant pressure boundary leakage. For each system so described:

a. state what piping, pumps and drains are monitored;

b. state the minimum detectable leak rate, in gallons per minute;

c. state the minimum change in leak rate, in gallons per minute, that can be detected;

d. identify all documents related to, referring to, or discussing its function and operation; and

e. identify all persons who are responsible for its function and operation.]

ANSWER: Illinois Power objects to Interrogatory No. 41 on the grounds that the information requested is beyond the scope of the admitted contention, and is therefore irrelevant. The issues raised under Contention 8 concern

the seismic qualification of sump flow monitoring calculation and indication devices and the accessibility of transmitters for sump flow monitoring instruments.

The systems which Illinois Power has installed for the detection of reactor coolant pressure boundary (RCPB) leakage are described in section 7.6.1.4 of the CPS FSAR. Further description of the monitored parameters is provided in subsection 5.2.5.2.1. of the CPS FSAR. Diverse means are employed to detect RCPB leakage as suggested by Regulatory Guide 1.45, including temperatures, differential temperatures, flow rates, water levels, steam pressures, sump fill rates and pumping times, and fission product levels. Lists of the monitored points are provided in Figure 7.6-2 of the CPS FSAR. The minimum detectable change in leakage rate is 1 gal/minute in a 60 minute period, and the minimum detectable leakage rate is 5 gal/minute for unidentified leakage and 25 gal/minute for identified leakage. This appeared in CPS FSAR, Section 5.2.5.1.1. Responsibility for the function and operation of RCPB leakage detection will rest with the Supervisor-Maintenance of the CPS staff as discussed in Section 13.1.2 of the CPS FSAR.

[42. Describe the analysis performed by IP of the seismic qualifications of the sump flow monitoring, calculation and indication devices to be used at the CPS in the reactor coolant pressure boundary leakage detection systems. For each analysis performed, identify:

a. all documents related to, referring to, or discussing the seismic qualifications for those devices; and

b. all persons who are responsible for or who have knowledge of this analysis.]

ANSWER: The drywell transmitter for floor drain sump monitoring will be seismically qualified. The vendor seismic test reports are not available as yet due to incomplete procurement. The calculation and indication devices will not be seismically qualified and therefore no analyses are to be performed. The calculation and indication devices are not part of the RCPB.

[43. Describe the measures IP has taken or will take to ensure that the sump flow calculation and indication devices are readily accessible for maintenance or replacement during a seismic event. For each measure so described, identify:

a. all documents referring to, related to, or discussing such measure; and

b. all persons who are responsible for the implementation of such measure.]

ANSWER: Sump flow calculation and indication devices are located in areas which are accessible for maintenance or replacement at any time. These devices are located in the Cable Spreading Room at elevation 781 of the Control

Building and in the Main Control Room. Relevant documents are available for inspection at the offices of Illinois Power. The Supervisor-Maintenance on the CPS Plant Operating Staff is responsible for the maintenance of this equipment as discussed in Section 13.2.1 of the CPS FSAR.

[44. Describe the measures IP has taken or will take to account for the lack of accessibility during plant operation to the sump flow monitoring instruments for the drywell equipment and floor drain sumps. For each measure so described, identify:

a. all documents referring to, related to, or discussing such measure; and

b. all persons responsible for the implementation of such measure.]

ANSWER: Illinois Power has committed to install diverse means of detecting leakage from the RCPB. These diverse means are described in the CPS-FSAR Sections 5.2.5 and 7.6.1.4.

Accessibility during plant operation to the sump flow monitoring instruments in the drywell is not a regulatory requirement. The sump monitoring system is not part of the RCPB, and Criterion 14 of 10 C.F.R. Part 50, Appendix A, is therefore not applicable to these devices.

[45. State whether the design, analysis and documentation of the CPS presently complies with the requirements of 10 C.F.R. 50, Appendix K, Section I. If not, describe each area of non-compliance, and for each area:

a. describe the measures IP intends to take to correct the non-compliance;

b. state the date by which IP intends to achieve compliance; and

c. identify all documents, including correspondence between IP and the NRC, referring to, related to, or discussing the non-compliance.]

ANSWER: The design, analysis, and documentation of the CPS presently complies with the requirements of 10 C.F.R. Part 50, Appendix K, Section I.

[46. Describe the analytical models used by IP or its suppliers to analyze fuel swelling and flow blockage in the core due to loss-of-coolant accident (LOCA) conditions. For each model so described;

a. state whether it is conservative or non-conservative in comparison to the models described in NUREG 0630, and explain;

b. describe how the model is different from the models described in NUREG 0630]

ANSWER: The analytical model used by GE for prediction of BWR response to postulated LOCAs is documented in NEDO-20566 (and supplements). Included in this document is a description of the model for predicting cladding swelling and rupture. Further discussions of the fuel clad swelling and rupture model are contained in a letter from GE to the NRC, Buchholz to Rubenstein, GE Fuel Clad Swelling and Rupture Model, dated May 15, 1981. This letter includes a comparison of the GE model with the correlations contained

in NUREG-0630. The GE model is conservative in comparison to the models described in NUREG 0630 within the range applicable to BWRs.

[46.c. describe the computer code for the model]

ANSWER: The computer codes for the GE model are documented in NEDO-20566.

[46.d. identify all documents related to, referring to, or discussing the model, including manuals, dictionaries or machine readable source codes for the model;]

ANSWER: Relevant documents are available for inspection at the offices of Illinois Power.

[46.e. identify all persons who created the model]

ANSWER:

1. John D. Duncan
   Manager, BWR-TMI Programs
   General Electric Company
   175 Curtner Avenue M/C 738
   San Jose, CA 95125

2. Atambir S. Rao
   Manager, ECCS Engineering
   General Electric Company
   175 Curtner Avenue M/C 766
   San Jose, CA 95125

3. John M. Sorensen
   (former GE employee)
   S. Levy Inc.
   1999 S. Bascom Avenue
   Campbell, California

[46.f. identify all persons who are responsible for running the model.]

ANSWER: Atambir S. Rao
Manager, ECCS Engineering
General Electric Company
175 Curtner Avenue M/A 766
San Jose, CA 95125

[47. State whether IP has compared or will compare the models, described in answer to Interrogatory 47, to those in NUREG 0630 to determine the accuracy of those models in predicting the degree of swelling in high stress conditions. If so, describe the results of that comparison and identify:

a. all documents related to, referring to, or discussing this comparison]

ANSWER: GE has compared its LOCA model with the correlations presented in NUREG-0630. This comparison is discussed in a letter from GE to the NRC, Buchholz to Rubenstein, "GE Fuel Clad Swelling and Rupture Model", dated May 15, 1981.

Relevant documents are available for inspection at the offices of Illinois Power.

[47.b. all persons who were responsible for making the comparison.]

The persons responsible for making the comparisons are:

1. Atambir S. Rao
Manager, ECCS Engineering
General Electric Company
175 Curtner Avenue M/C 766
San Jose, CA 95125

2. David A. Hamon
Technical Leader, ECCS Engineering
General Electric Company
175 Curtner Avenue M/C 766
San Jose, CA 95125

3. Richard J. Williams
Engineer, Fuel Rod Thermal and Mechanical Analysis
General Electric Company
175 Curtner Avenue M/C 155
San Jose, CA 95125

[48. State IP's position on the adequacy of the straight line approximation used in the GE model in NUREG 0630 in meeting the requirements of 10 C.F.R. 50, Appendix K.]

ANSWER: Illinois Power's position is that the straight line approximation used in the GE model meets the requirements of 10 C.F.R. Part 50, Appendix K.

[49. Describe IP's justification for the position stated in answer to Interrogatory 48, and state the nature of and schedule for additional connections and analyses, if any.]

ANSWER: Justification for the position stated in the Answer to Interrogatory No. 48 is found in the documents made available for inspection in response to Interrogatory Nos. 46 and 47. GE has agreed with the NRC to perform several additional sensitivity studies. These studies are scheduled for completion by the end of July 1981. No additional changes or analyses are planned.

[50. Identify all documents, including drawings, blue prints and specifications, that are related to and describe the spent full transfer tube, including physical location, access points, cross sections, interlocks, entry and exit points, and methods for removal of stuck fuel bundles.]

ANSWER: The spent fuel transfer tube is described in Section 9.1.4.2.3.11 and 12.3.1.9.1 of the CPS FSAR. CPS FSAR drawings 9.1-14 and 9.1-16 show the fuel transfer tube. CPS FSAR drawings 1.2-4, 1.2-5, 1.2-6, 1.2-8, 1.2-10 and 12.3-63 show the physical location, cross section, access points, and entry and exit points. Other relevant documents are available for inspection at the offices of Illinois Power.

[51. State the anticipated radiation exposure rate, at each point where a person can gain access to the spent fuel transfer tube, during each of the following:

a. normal transfer of fuel bundles through the tube;

b. off-normal occurrence of a spent fuel lodging in the tube at a point of access; and

c. worst-case conditions.]

ANSWER: The spent fuel transfer tube has been provided with radiation shielding on all sides as shown in the FSAR Figure 12.3-63. The shielding is enough to reduce the exposure rate to a few mR/hr at all points outside the shield where access can be gained. This exposure rate is experienced during normal or any "off-normal" transfer of fuel bundles through the tubes.

There are two areas within the shielding envelope where access can be gained; one in the containment building and the other in the fuel building. Access to these areas can only be gained through the removal of massive hatches. Interlocking mechanisms are provided in the fuel transfer system, as discussed in the FSAR Section 12.3.1.9.1, such that the fuel cannot be loaded into the transfer tube whenever either one of the hatches is opened. Hence the exposure rate in any one of these accessible areas will be limited to a few mR/hr, from the residual activity in the tube, whenever access is gained into these areas.

[52. Describe all analyses of anticipated or possible malfunctions of the spent fuel transfer tube system. For each analysis:

a. describe the system's behavior during worst-case conditions;

b. describe the methods IP plans to use to correct malfunctions]

ANSWER: A generic failure modes and effects analysis applicable to all BWR/6's has been performed by GE for the spent fuel transfer system. This analysis does not identify a "worst-case" condition. The results of this analysis, and of the tests described in the Answer to Interrogatory No. 53, demonstrate that the spent fuel transfer system will reliably perform its intended function. The methods used to correct any malfunction can only be described in the context of the specific situation that arises.

Operation, maintenance, and repair procedures are set forth in a manual that is available for inspection at the offices of Illinois Power.

[52.c. identify all documents related to, referring to, or discussing the analysis]

ANSWER: There are no documents related specifically to the GE failure modes and effects analysis in the possession, custody, or control of Illinois Power. These documents are in the possession of GE.

[52.d. all persons who were or are responsible for performing the analysis.]

ANSWER: David Faulstich
Manager of Reactor Refueling and
Servicing Equipment Design
General Electric Company
175 Curtner Avenue
San Jose, CA 95125

[53. Describe all tests that have been performed or will be performed on the spent fuel transfer tube, and for each test:

a. describe the results]

ANSWER: The transfer tube has been extensively tested. The testing is broken into three categories:

First, prototype and life testing of the system was conducted by GE. These tests involved the construction of a full scale mock-up of the system at a GE test facility. A dummy fuel assembly was passed through the system in several hundred different cycles. Following the prototype

test, the operating components used in the test were installed at the Kuo Sheng Power Station in Taiwan. Life testing involved the cycling of fuel bundle substitutes through the transfer tube 12,000 times. Measurements of equipment wear were made at various times during the test procedure. The results of the prototype and life tests demonstrate that the system will reliably perform its intended function.

Second, functional testing is required of all hardware. These tests are designed to insure that each item has been manufactured to design specifications, and that it functions properly in conjunction with other elements of the spent fuel transfer system.

Final preoperational testing will be conducted at the site after the spent fuel transfer equipment has been installed. See FSAR 14.2.12.1.10 for the preoperational testing procedure.

[53.b. identify all documents related to, referring to, or discussing the test]

ANSWER: There are no documents relevant to functional, prototype, or life testing of the spent fuel transfer system in the possession, custody, or control of Illinois Power. Documents concerning GE tests and analyses are in the possession of GE.

[53.c. identify all persons who assisted in or carried out the test.]

ANSWER: The individuals performing the tests were exclusively GE personnel, numbering approximately fifty people, including testing and quality assurance engineers, technicians, and supervisors.

[54. Describe all engineering and field changes to the original design and construction of the spent fuel transfer tube, and identify all documents containing information on these changes.]

ANSWER: The engineering and field changes to the spent fuel transfer tube are minor in nature, such as changing bolt lengths or replacing damaged parts. Relevant documents are available for inspection at the offices of Illinois Power.

[55. State the estimated life, in the number of spent fuel bundle transfers, of the spent fuel transfer tube.]

ANSWER: The design life for the tube and equipment is 12,000 cycles occuring over a 40 year span.

[56. Explain the basis for the estimation stated in the answer to Interrogatory 55.]

ANSWER: The 12,000 cycles over 40 years was based upon a 12 month refueling cycle and an expected 25% discharge of fuel assemblies from the core.

[57. State the percentage completion of construction of the CPS Unit 2:

a. as of the date IP filed its operating license application; and

b. as of the date IP answers these Interrogatories.]

ANSWER: The estimated percentage of completion of construction of CPS Unit 2 to date, and as of the date Applicants filed their operating license application, is 1-1/2%.

[58. State the date by which IP expects to complete construction of the CPS Unit 2.]

ANSWER: For planning purposes, the scheduled completion date of CPS Unit 2 is 1995.

STATE OF ILLINOIS)
) SS
COUNTY OF MACON)

LEONARD J. KOCH, being duly sworn, deposes and says that he is Vice-President of Illinois Power Company, one of the Applicants in the proceeding; that he has read the foregoing Answers of Illinois Power Company to the State of Illinois' First Set of Interrogatories, and that the same are true and correct to the best of his knowledge, information, and belief.

Leonard J. Koch

SUBSCRIBED and SWORN to
before me this 27th day
of July, 1981.

Yvonne M. Bell
Notary Public

ILLINOIS POWER COMPANY

By: _____
Leonard J. Koch
Vice President

SIGNED AS TO OBJECTIONS:

_____
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One of the Attorneys for
Applicants.

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Dated: July 27, 1981