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 License for Clinton Power Station, Unit 1)	))))))))	Docket No. 50-461 OL

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PLEASE TAKE NOTICE that I have today filed with the Secretary of the United States Nuclear Regulatory Commission the attached FIRST SUPPLEMENTAL RESPONSE OF ILLINOIS POWER COMPANY TO PRAIRIE ALLIANCE'S FIRST ROUND OF DISCOVERY. A copy of this document is attached hereto and hereby served upon you.

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Dated November 15, 1984

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FIRST SUPPLEMENTAL RESPONSE OF ILLINOIS POWER COMPANY TO PRAIRIE ALLIANCE'S FIRST ROUND OF DISCOVERY

Pursuant to Section 2.740(e) of the Rules of Practice of the Nuclear Regulatory Commission, Illinois Power Company ("IP"), on behalf of itself, Soyland Power Cooperative, Inc., and Western Illinois Power Cooperative, Inc., the Applicants for an operating license for Unit 1 of the Clinton Power Station, hereby further supplements through September 30, 1984 its responses with respect to Contention III (formerly Contention 6) provided in RESPONSE OF ILLINOIS POWER TO PRAIRIE ALLIANCE's FIRST ROUND OF DISCOVERY, dated July 27, 1981, (the "Response"), as follows:

> [General Interrogatory #2. Provide documents, including research, studies, calculations, memoranda, correspondence, reports, diagrams, computer codes, and all other records, that were relied upon by IP in answering the question, and also those which served as the basis for the answer. Identify the particular parts of such documents that were used in formulating the answer.]

ANSWER: Illinois Power will make available for inspection and copying the documents it relied upon in supplementing its responses to these Interrogatories.

[General Interrogatory #3. Identify by name, title and qualifications the IP employee that has the expert knowledge required to support the answer to the question.]

ANSWER: The Illinois Power employees with the knowledge necessary to support the answers to the Interrogatories relative to this contention are:

1. John P. O'Brien (Interrogatories 1, 2, 3 and 6(a)). Mr. O'Brien's title and qualifications are as stated in IP's prior Response, except that Mr. O'Brien obtained his M.B.A. degree from Illinois State University in 1983.

2. Dale L. Holtzscher (Interrogatories 1 and 3). Mr. Holtzscher's title is Supervisor - Technical Assessment, and his qualifications are as follows:

Formal Education:	B.S. Physics Western Illinois University, 1970
	M.S. Nuclear Engineering University of Missouri, Rolla, 1972
Work Experience:	Illinois Power Company
1981 - Present	Supervisor - Technical Assessment, Nuclear Station Engineering Department
	Supervisory responsibility for the Clinton Power Station independent safety review group. Responsible for the coordination of the TMI response program for Illinois Power.

	Chairman of the Licensing Review Group - II.
1978 - 1981	Licensing Engineer, Generation Engrg. Dept.
	Preparation of operating license application documents for the Clinton Power Station. Responsible for the coordination of the TMI response program for Illinois Power.
1975 - 1978	Generation Engineer, Generation Engrg. Dept.
	Review of design and specifications for Clinton Power Station. NSSS contract coordinator.
Other Experience:	Northern Indiana Public Service Company
1972 - 1975	Nuclear Systems Engineer
	Review of design and specifications for Bailly Generating Station Nuclear - 1.

3. Robert W. Hyndman (Interrogatory No. 5(a)).

Mr. Hyndman's title is Supervisor - Computer Engineering and his qualifications are as follows:

Formal Education:	B.S. & M.S. Electrical Engineering University of Wyoming.
Work Experience:	Illinois Power Company
1983 - Present	Supervisor - Computer Engineering
	Responsible for developing a computer engineering capability, establishing the necessary procedures and staff to support the Clinton project.

Other Experience:

1979 - 1983	Energy Incorporated Director of Process System Engineering. Responsible for the engineering, procurement, fabrication listing and installation of computer base process control systems.
1976 - 1979	Magneto-Hydro Dynamics Montana Energy Research and Development Institute. Assistant Director of MHD test facilities in Butte, Montana. Responsible for developing an Engineering staff to support construction, maintenance, operation and experiment testing of MHD components.
1963 - 1976	Argonne National Laboratory Supervisor of Experiment Programs. Developed the necessary instrumentation and computer support personnel to run the reactor (EBR II) experiment program.
1959 - 1963	General Electric Staff engineer responsible for the control system of the Nuclear Reactor Test Facility.

4. John G. Cook (Interrogatories 1, 3 and 5).

Mr. Cook's title is Assistant Power Plant Manager and Acting Plant Manager and his qualifications are as follows:

Formal Education:	B.S. Engineering Physics University of Illinois, 1969 M.S. Nuclear Engineering University of Illinois, 1970

	M.B.A. Golden Gate University, 1976 Registered Professional Engineer, Ilinois, 1976.
Training:	CPS Licensed Operator Training Program
	General Physics Corp. Mitigating Reactor Core Damage Training
Work Experience:	Illinois Power Company
1983 - Present	Assistant Power Plant Manager, Clinton Power Station. Responsibilities include overall supervision of the Operations, Chemistry and Radwaste Departments at Clinton Power Station.
1977 - 1983	Supervisor - Technical, Clinton Power Station.
	Supervised the activities of the Nuclear Results Engineers assigned to Clinton Power Station.
1975 - 1977	Training Coordinator
	Supervised Training Instructors in the preparation of training courses, interfaced with outside contractors who were presenting training, taught courses related to the Clinton Station.
Other Experience:	U.S. Navy
1970 - 1975	Instructor U.S. Navy Nuclear Power School
	Taught courses in heat transfer, reactor physics and core design to naval personnel.

[General Interrogatory #4. Explain whether IP is presently engaged in or intends to engage in any further research or work which may affect the answer. Identify such research or work.]

ANSWER: Illinois Power is continuously engaged in monitoring information that may affect the design, construction or operation of the Clinton Power Station, including its control room. Unless otherwise noted, or unless new information indicates the need for further investigation, IP does not plan to conduct further research which may affect the answers relative to a particular interrogatory.

[General Interrogatory #5. State the names, addresses, titles, and qualifications of the persons IP intends to call as witnesses or experts for the answer and the subject matter which they intend to testify about.]

ANSWER: Illinois Power presently plans to provide its list of witnesses on Contention III on November 15, 1984 in a separate filing.

[General Interrogatory #6. Provide the computer codes, in machine readable source code, of any computer models or simulations relevant to the question asked.]

ANSWER: Except as otherwise noted, Illinois Power has no computer codes relevant to Interrogatories 1, 2, 3, 5 and 6.

INTERROGATORIES

[1. Describe and provide IP's, BWR Owners Group's, and any other research and studies pertaining to the CPS central water level monitoring system.]

ANSWER: The primary studies prepared by the BWR Owners' Group ("BWROG") on the BWR water level measurement system ("WLMS") are contained in the two proprietary reports:

SLI-8211; "Review of BWR Reactor Vessel Water Level Measurement Systems," prepared by S. Levy, Inc., July 1982.

SLI-8218; "Inadequate Core Cooling Detection in Boiling Water Reactors," prepared by S. Levy, Inc., November 1982.

The first report is an in-depth evaluation of the WLMS used for BWR/2 through BWR/6 product lines. This report identifies several potential concerns related to WLMS indication accuracy during severe accident/transient conditions and recommends modifications to enhance system capability. It further recommends that a plant specific evaluation of the WLMS be performed to evaluate the possible effect of each recommendation on each plant.

The second report evaluates the ability of the WLMS to detect inadequate core cooling ("ICC"), discusses alternative ICC detection devices, and provides a risk assessment comparison of the effectiveness of reducing core melt frequency for alternate ICC devices and the modified WLMS. This report concludes that if the appropriate recommendations of SLI-8211 are incorporated into the WLMS, following a plant specific evaluation, then there is no significant additional risk reduction achieved by providing additional and diverse ICC detection devices.

The Nuclear Regulatory Commission ("NRC") has sponsored evaluations of the WLMS. One report, NUREG/CR-3652,

"Evaluation of Instrumentation for Detection of Inadequate Core Cooling in Boiling Water Reactors," Oak Ridge National Laboratory - April 1984, concludes that use of multiple, redundant cooling level measurements, with overlapping ranges, can be a reliable basis for indication of approach to an ICC condition when considered in correlation with the other control and safety systems. The NRC referred to another report, EGG-REP-6396 (proprietary) prepared under NRC contract by EG&G/ITI in its evaluation of SLI-8211 and SLI-8218.

IP is currently finalizing its Clinton-specific evaluation of the WLMS. The Clinton WLMS design, as modified by the rerouting of sensing lines and relocation of flow orifices, satisfies the recommendations of SLI-8211. An interim report on the Clinton-specific WLMS evaluation was issued to the NRC via the letter U-0749, dated October 10, 1984.

[2. What has IP done to address the need for level monitoring to the dome in BWRs? Provide relevant documents.]

ANSWER: The present CPS WLMS shutdown range monitoring devices are capable of measuring reactor water level up to the dome of the reactor vessel.

[3.a. What instrumentation is proposed for detecting inadequate core cooling in case of an abnormal occurrence? Provide relevant documents.]

ANSWER: IP intends to utilize the reactor vessel WLMS, as described in CPS FSAR Sections 7.4 and 7.5, to determine the adequacy of core cooling. The appropriateness of using this system to detect inadequate core cooling is discussed in the BWROG Sponsored Report SLI-8218, "Inadequate Core Cooling Detection in Boiling Water Reactors," prepared by S. Levy, Inc., November 1982.

[3.b. Has this instrumentation been tested?]

ANSWER: The WLMS to be used at CPS was developed by GE and is typical of that used in currently operating BWRs. Operating experience and testing demonstrated the instrumentation performance to be proper, accurate, and reliable.

[3.c. If so, describe and provide the test and studies which have been conducted pertaining to the efficiency of this instrumentation.]

ANSWER: Generic studies of the WLMS are described in response to Interrogatory No. 1 related to this contention. A Clinton-specific evaluation is also discussed in that response. The GE tests and studies concerning water level instrumentation are not in the possession, custody, or control of Illinois Power. They are in the possession of GE.

[3.d. Does IP plan on following the NRC's recommendation of further instrumentation, specifically incorporation of core-exit thermocouples for BWRs? If so, provide the plan. If not, provide the documents and studies justifying IP's position, and all other relevant documents and studies.]

ANSWER: IP understands that the NRC is still reviewing the question of core-exit thermocouples for BWRs. In January of 1982, the BWROG agreed to sponsor programmatic evaluations of BWR WLMS designs and ICC detection and hardware. In July of 1982, the BWROG submitted the results of its evaluation of BWR WLMS designs to the NRC in SLI-8211, entitled "Review of BWR Reactor Vessel Water Level Measurement Systems", which is discussed in the Answer to Interrogatory No. 1 above.

The BWROG also sponsored preparation of SLI-8218, entitled "Inadequate Core Cooling Detection in Boiling Water Reactors", which is also discussed in the Answer to Interrogatory No. 1. SLI-8218 concluded that if the improvements to the WLMS identified in SLI-8211 were made and if adequate Emergency Procedures were provided to plant operators, then additional instrumentation to monitor for ICC would not be warranted.

The NRC Staff has designated these issues as Unresolved Safety Issue A-50, "Reactor Vessel Level Instrumentation in BWRs". On October 26, 1984, the NRC issued a Generic Letter (84-23) to all BWR licensees, which indicated the requirements for resolving this issue. IP fully satisfies all requirements expressed in this letter.

[4.a. Will an accoustical monitoring system be used at CPS, pursuant to NUREG 0737 II.D.3?

[4.b. If so, how will this qualify as a direct monitoring instrument? Provide documents explaining the accoustical monitoring system and how it qualifies as a direct monitoring system, if it does.

[4.c. Have any studies been made to assure that reliability and accuracy can be maintained, given specific conditions of BWR, for instance, core vibration that could result in deterioration of devices and/or spurious signals? If so, describe and provide such studies. If not, explain why not.]

ANSWER: Since the portion of Contention III (formerly Contention 6) relating to acoustical monitoring has been withdrawn, Illinois Power will not update its response to this Interrogatory.

[5.a. What plans, if any, exist for providing a safety parameter display system for use in the main control room? Describe and explain any such plans.]

ANSWER: A Safety Parameter Display System ("SPDS") is planned for the CPS Control Room. The SPDS requirements, design and functional description are contained in the following documents:

Safety Parameter Display System Requirements Document;

Safety Parameter Display System Functional Description; and

Safety Parameter Display Design Document (currently being revised).

The SPDS is being implemented as a part of the Display Control and Performance Monitoring Systems ("DCS/PMS")

currently installed in the main control room. The DCS/PMS is the plant processing computer system. The Number 5 cathode ray tube in the NUCLENET (principal plant console) has been designated as the SPDS display.

Implementation of the SPDS display will be accomplished by the installation of a permanent display in the DCS and an Alarm Initiated Display ("AID"), which will be automatically displayed on all nine NUCLENET DCS displays when an alarm of any AID parameter occurs. Radioactivity alert is indicated on the Number 5 cathode ray tube with the secondary information available from the Area Radiation Monitor/Process Radiation Monitoring System.

The SPDS code, which is not complete, will be part of the DCS/PMS software. Detail programming is scheduled for completion by January 1985, with testing and system integration to follow. Flow diagrams for the SPDS modules are available in rough draft form for inspection.

[5.b. Provide a list of all meetings of BWR Owner's TMI Group and industry contractors where control room design and instrumentation for CPS was discussed. Provide the agendas for these meetings, and the documents produced from these meetings.]

ANSWER: A listing of the meetings of the BWR Owners' TMI Group and its Control Room Subcommittee held since IP previously responded to this Interrogatory is set forth below:

July 30, 1981	Committee Meeting
July 31, 1981	BWROG Control Room Committee Meeting
August 26, 1981	BWROG Control Room Committee Meeting with NRC
August 12, 13, 1981	BWROG General Meeting
October 20, 21, 1981	BWROG Control Room Committee Meeting
November 18, 1981	BWROG Special General Meeting
January 20, 21, 1982	BWROG General Meeting
February 25, 26, 1982	BWROG General Meeting
March 3, 1982	BWROG Executive Meeting
March 10, 1982	BWROG Control Room Committee Meeting
March 24, 25, 1982	BWROG General Meeting
March 31, 1982	Control Room Improvement Meeting
May 12, 13, 1982	Control Room Improvement Meeting
May 26, 27, 1982	BWROG General Meeting
July 20, 1982	Control Room Improvement Committee Meeting
August 4, 5, 1982	BWROG General Meeting
August 19, 20, 1982	Control Room Improvement Committee Meeting
September 28, 29, 1982	BWROG General Meeting
October 14, 1982	Control Room Meeting
November 4, 5, 1982	Control Room Improvement Meeting
December 7, 8, 1982	BWROG General Meeting

January 12, 13, 1983	BWROG Control Room Improvement Committee Meeting
March 2, 3, 1983	BWROG General Meeting
May 25, 26, 1983	BWROG General Meeting
August 10, 11, 1983	BWROG General Meeting
October 18, 20, 1983	Control Room Design Review Training Meeting
October 26, 27, 1983	BWROG General Meeting
January 25, 26, 1984	BWROG General Meeting
March 28, 29, 1984	BWROG General Meeting
May 3, 1984	Control Room Design Review
May 4, 1984	Meeting with NRC on Task Analysis for Control Room Design Review
June 6, 7, 1984	BWROG General Meeting
August 22, 1984	BWROG General Meeting

[6.a. Describe fully the planned instrumentation for monitoring accident conditions.]

ANSWER: The planned instrumentation for monitoring accident conditions is described in CPS FSAR Chapters 7, 11, and 12 and the Reg. Guide 1.97 compliance report dated September 9, 1983. Illinois Power is completing the design and installation of the instrumentation changes required to comply with Reg. Guide 1.97, and is completing a plant specific ICC study, which is described in the interim report, IP letter U-0749, dated October 10, 1984.

[6.b. Provide documentation of in-house, industry and contractor studies that relate

to IP's compliance to NRC directives of additional instrumentation for monitoring accident conditions (the installing of extended range monitors and improving post-accident sampling capability). Provide the substance of design changes.]

ANSWER: Illinois Power will make available for inspection and copying the in-house, industry and contractor studies within its possession which relate to IP's compliance with NRC directives of additional instrumentation for monitoring accident conditions.

ILLINOIS POWER COMPANY

By: _____
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Dated: November 15, 1984

STATE OF ILLINOIS)
) SS
COUNTY OF MACON)

D. P. Hall, being duly sworn, deposes and says that he is Vice President of Illinois Power Company, one of the Applicants in this proceeding; that he has read, or has knowledge of, the foregoing First Supplemental Response of Illinois Power Company to Prairie Alliance's First Round of Discovery; and that the same are true and correct to the best of his knowledge, information, and belief.

D. P. Hall

D.P. Hall

SUBSCRIBED and SWORN to before me this 14th day of November, 1984.

Notary Public

My Commission Expires October 1, 1986

CERTIFICATE OF SERVICE

I hereby certify that an original and two conformed copies of the foregoing document were served upon the following:

Secretary of the Commission
United States Nuclear Regulatory Commission
Washington, D.C. 20555
Attention: Docketing and Service Branch

and that one copy of the foregoing document was served upon each of the following:

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in each case by deposit in the United States Mail, postage prepaid on November 15, 1984.

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