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ILLINOIS POWER

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June 22, 1990

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PRIORITY ROUTING

First	Second
RA	RC
DRA	EIC
DRP	SGA
DRS	ML
DRSS	OL
DRMA	OI
	PAO

ORIG + 1

FILE

Docket No. 50-461

Mr. A. B. Davis
Regional Administrator
Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

SUBJECT: Followup to Request for Waiver of Compliance Regarding Technical Specification Limiting Condition for Operation Related to Standby Emergency Diesel Generator 1B

Dear Mr. Davis:

On June 22, 1990, IP discussed with Messrs. E. Greenman and R. Knopp of your staff the request for a waiver of compliance submitted via IP Letter U-601696 dated June 22, 1990. During this conversation and based on the information provided in Attachment 1 to this letter, Mr. Greenman approved a waiver of compliance regarding the out-of-service time allowed for diesel generator (DG) 1B under the Technical Specification Limiting Condition for Operation (LCO). Under the granted waiver, the allowed-out-of-service time for DG1B must not exceed seven days from the time that DG1B was removed from service (entry into the LCO Action Statement). The waiver of compliance will therefore expire on or before 0243 on Friday, June 29, 1990, unless otherwise approved by the NRC.

It should be noted that Attachment 1 to this letter is a revision to Attachment 1 of the original request for waiver dated June 22, 1990 (U-601696) as it contains additional information. This letter and its attachments have been reviewed and approved by the CPS Facility Review Group.

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IP appreciated your consideration and prompt response to this request.

Sincerely,

P. B. Gil FOR

J. S. Perry
Vice President

TBE/rgw

Attachments

cc: NRC Clinton Licensing Project Manager
NRC Resident Office
Illinois Department of Nuclear Safety

Description of Condition/Reason for Request

During normal shift rounds at approximately 0200 on June 22, 1990, an operator discovered (via the site glass) that the water level in the jacket cooling water expansion tank on DG1B was overflowing. From earlier experience, IP suspected that this may be caused by service water leaking through the diesel generator heat exchanger tubes and into the DG jacket cooling water within the associated heat exchangers. [A heat exchanger is provided for each of the two tandem engines (one 16-cylinder and one 12-cylinder) associated with DG1B.] Although the condition described above would not prevent the DG from performing its safety function (since the diesel can function with direct service water flow into the cooling jacket), DG1B was removed from service at 0243 hours for investigation and repair.

Microbiologically induced corrosion (MIC) was first identified in the DG heat exchangers at CPS in 1989 as IP was developing and implementing its response to Generic Letter 89-13 and the associated supplement.* As an immediate corrective action, cleaning and closed loop chemical treatment of the DG heat exchangers were performed during planned outage 3 (PO-3) (February, 1990) to temporarily arrest the MIC problem. IP is currently working towards a long-term solution to the MIC problem, including obtaining an Illinois State discharge permit for chemically treating service water on an open-loop basis and retubing the DG heat exchangers. (Retubing of the heat exchanger for DG1A was completed during PO-3.)

The operability requirements (during operational conditions 1,2, and 3) for the emergency standby diesel generators, including the actions to be taken if one (or more) is inoperable, are specified in CPS Technical Specification 3.8.1.1. (See Attachment 2 of this submittal.) Action "b" requires that with either diesel generator 1A or 1B inoperable, operability of the required AC offsite sources must be demonstrated, operability of the remaining operable diesel generators must be demonstrated (unless the DG became inoperable solely due to preplanned preventive maintenance or testing), and the inoperable DG must be restored to operable status within 72 hours. If the inoperable DG cannot be restored within 72 hours, the plant must be brought to a hot shutdown condition within the next 12 hours and to a cold shutdown condition within the following 24 hours.

* Reference: IP Letter U-601574; dated January 29, 1990

By 1300 (on June 22, 1990), IP completed a visual inspection of the tubes within the heat exchanger associated with the 12-cylinder engine. Based on the visual inspection performed and previous experience with MIC in the Division I diesel generator heat exchanger, tube replacement is required for both heat exchangers (i.e., the heat exchanger associated with the 12-cylinder engine and the heat exchanger associated with the 16-cylinder engine). This work will not be able to be completed before the 72-hour time limit expires at 0243 on Monday, June 24, 1990. It is currently estimated that an additional 72 hours will be needed to complete the retubing and to complete the testing required to reverify operability of DG1B. Regardless, IP does not expect and will not permit the time required for retubing and testing to exceed a total of seven days from the time DG1B was removed from service.

Description/Sequence of Work to be Performed

The work plan for retubing both heat exchangers is such that both heat exchangers for DG1B will be repaired in parallel. Because of the size limitation of the DG1B room, the 16-cylinder engine heat exchanger must be removed from the skid for retubing. (The 12-cylinder engine heat exchanger will be retubed in place.) The 16-cylinder engine heat exchanger work will thus take almost another day more than the repair work for the 12-cylinder engine heat exchanger. After retubing and reinstallation of the 16-cylinder engine heat exchanger, pressure testing and service water flow balancing will be required, followed by performance of a post-maintenance surveillance test. IP currently estimates that all of the above will take, approximately, an additional 72 hours beyond the allowed out-of-service normally required by the plant Technical Specifications.

Justification for Proposed Request

The Illinois Power electrical system design provides a diversity of power supplies. The waiver of compliance for the Clinton Power Station Technical Specification (CPS-TS) Limiting Condition for Operation (LCO) to extend the 72-hour allowed out-of-service time approximately 72 additional hours is justified partially on this diversity. The 138-kV offsite power system provides power to the station by one three-terminal transmission line. This line connects the station to the Illinois Power Company grid at the south Bloomington and Clinton Route 54 Substations. Electrical power can be fed to the station through the line from south Bloomington or north Decatur (via Clinton Route 54 Substation) or both. The line terminates directly (through a circuit switcher) at the Emergency Reserve Auxiliary Transformer, which transforms the electrical power to 4160-volt auxiliary

power bus voltage. The 345-kV Offsite Power System provides power to the station through three separate transmission lines. These lines connect the station to the Illinois Power Company grid at the Brokaw, Rising, and Latham substations. All three lines terminate at the station switchyard ring bus which feeds the Reserve Auxiliary Transformer, which in turn transforms the electrical power to the 6900-volt and 4160-volt auxiliary power bus voltage. Only one 138-kV and one 345-kV feeders are required by CPS Technical Specifications.

In the unlikely event that the power sources described above are unavailable, there are two remaining operable diesel generators on site. Diesel Generator 1A (DG1A) supplies power to Division I electrical equipment and DG1C supplies power to Division III electrical equipment. These operable diesel generator units are capable of sequentially starting and supplying the power requirements for safe shutdown of the plant. Because of the diversity of the power supplies described above, the increase in the allowable out of service time for DG1B is justified.

With respect to the current status of other systems at CPS important to safety, the following are currently but temporarily out of service. "LCO"s were entered for these systems strictly due to routine maintenance and not because of any discovered/determined condition of inoperability.

	System	Status*/Comments
(1)	Standby Gas Treatment Subsystem B	This LCO is expected to clear during the current swing shift. Standby Gas Treatment Subsystem A is operable.
(2)	Main Steamline Isolation Valve Leakage Control System (MSIV-LCS) Subsystem B	This LCO is currently being cleared. MSIV-LCS Subsystem A is operable.
(3)	Reactor Core Isolation Cooling (RCIC) System	This LCO is expected to clear during the upcoming midnight shift. The HPCS system is operable.

Imminent restoration of the above systems/subsystems and the operability of redundant systems provides added assurance that the proposed request is justified.

*As of 1800, June 22, 1990.

There are two other plant/equipment conditions of concern surrounding this event. IP is currently monitoring the degradation of the inner mechanical seal on reactor recirculation pump B as pressure across the inner seal has been observed to be increasing. (The outer seal is in good condition.) This condition is not considered to be a condition that warrants special consideration regarding the capability to shut down the plant and mitigate the consequences of an accident. The most likely challenge to the seal would be when shifting the reactor recirculation pump from slow to fast speed during a plant restart.

The second concern is the results of oil testing recently performed on the reserve auxiliary transformer (RAT) which provides power from the CPS switchyard to the Auxiliary Power (AP) System. The transformer is currently in service and is one of two sources of power to the safety-related portion of the AP system. The transformer is rated to carry more than four times the total demand of the safety-related portion of the AP system.

Illinois Power monitors the condition of transformer oil in the RAT by taking periodic oil samples and sending them to an independent laboratory for analysis. The results of oil samples taken in mid June of 1990 are provided below. Two of the parameters were identified as being outside their recommended normal ranges.

	Range	6/15*	6/21*	6/22**
Water Content	15-34 ppm	31 ppm	66 ppm	--
Dielectric Strength	24-31 kV	30 kV	14 kV	45 kV

The samples were taken during extremely wet humid weather and are so divergent that they are questionable. All other parameters are normal and within their respective limits. In particular, the combustible gases are within their normal limits. (Combustible gases are indicative of imminent failure and/or catastrophic damage due to internal arcing.)

The RAT has experienced no failures since IP received its operating license in September 1986. The only outage of the off site power from the 345 kV switchyard occurred in late 1988 due to a failure of a 345 kV switch. This outage was of short duration (24 hours).

*Offsite laboratory test results
**Onsite test results

IP believes the test results indicate that the RAT requires closer attention, but it is not inoperable and is still capable of performing its intended function. However, IP has sent samples to two different laboratories so that the recent test results can be further evaluated. Test results are expected next Monday (June 25, 1990). If the test results for the RAT oil samples are unsatisfactory, IP will take appropriate action to shut down the plant.

Regarding the need for maintaining the plant on line, CPS is presently generating approximately 60 percent of the total electrical IP customer load.

The current status of other Illinois Power Generating Stations is as follows:

Unit	Status	Expected Return-to-Service Date
Baldwin 1 (540 MW)	off-line	6/25/90
Baldwin 3 (540 MW)	off-line	7/23/90
Havana 6 (410 MW)	off-line	6/25/90

It is estimated that if CPS must be shut down, and all of the available IP units are in operation, IP will need to purchase at least 500 megawatts of power and must interrupt service to the interruptible customers on Monday (June 25). If Baldwin 1 and Havana 6 are not available, then IP will need to purchase at least 1200 megawatts (and discontinue service to the interruptible customers). Peaking Units (Gas Turbines) are not included in this forecast.

Additional Mitigating Conditions

IP contacted the National Weather Service (NWS) in Springfield, Illinois to consider the current and expected weather conditions for the immediate service area. The NWS reported that clear weather is forecast for the weekend. The NWS indicated that there is only a slight chance of thunderstorms on Monday (June 25) and that the next possibility of thunderstorms is on Wednesday or Thursday (June 27 or 28).

Compensatory Actions

The remaining operable diesel generators are ready to perform their intended function in the unlikely event that they are needed. In addition, no testing will be performed that might create a transient to normal plant conditions (other than the normal surveillance testing

required to satisfy Technical Specification requirements) during the extended time interval. Also, no systems or equipment important to safety which are associated with the redundant safety-related division (Div. I) will be removed from service for electric maintenance during the extended time interval.

Safety Significance/Basis for No Significant Hazards Consideration

IP does not consider this request to be safety significant in view of the following:

1) As noted previously, only the Division II DG is currently inoperable. As offsite power is also available, sufficient redundancy exists (assuming no concurrent failures) to provide emergency power to systems designed to mitigate the consequences of an accident.

2) Generally, operation under the provisions of an action statement is permitted for limited periods of time as it is recognized that single-failure criteria may not be met during such operation. IP believes that operation with only DG1B out of service for a period of time longer than normally allowed but within the noted limit constitutes no significant increase in risk regarding the safe operation of the facility.

3) In addition, IP does not believe that the present situation should require subjecting the plant to an unnecessary shutdown. Although there is a certain risk associated with the increased allowed out-of-service time, most challenges to plant systems occur during startup and shutdown events. Eliminating the risk associated with these events by preventing an unnecessary plant shutdown due to the current action time limit is viewed to have a positive effect on plant safety.

4) With respect to executing a safe shutdown of the plant if required, the plant design is such that safe shutdown to a cold condition can be achieved with DG1B inoperable, particularly in view of the operability of all redundant power sources and the operable status of systems important to safety.

According to 10CFR50.92, a proposed change to the license (Technical Specifications) involves no significant hazards consideration if operation of the facility in accordance with the proposed change would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated, or (2) create the possibility of a new or different kind of

accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety. The proposed changes are evaluated against each of these criteria below.

1) As noted above, the proposed one-time request would permit DG1B (and only DG1B) to be out-of-service for a longer period of time than normally allowed by the Technical Specifications. However, in view of the operability of all other required on-site sources and all required off-site sources, IP believes that the proposed request does not constitute a significant increase in risk with respect to the capability of safety systems to mitigate the consequences of an accident. Additionally, the proposed request would permit a reasonable amount of time to restore the DG1B heat exchangers to a like-new condition while avoiding an unnecessary plant shutdown and potential challenges to safety systems. Therefore, the proposed request does not involve a significant increase in probability or consequences of any accident previously evaluated.

2) The proposed request does not involve any changes to the design or operation of the plant. Since no new failure modes are effected by the proposed request, the proposed request does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3) Under the proposed request, the allowed out-of-service time for DG1B (although longer than normally allowed) would still be limited to a reasonable period of time. With DG1A and DG1C operable, the proposed change does not involve a significant reduction in the margin of safety normally ensured by the Technical Specifications with respect to the availability of emergency onsite AC sources.

Concluding Remarks

It should be noted that the current MIC problem could be resolved through a number of options. As noted previously, the diesel generator is not rendered inoperable by the MIC condition since the DG could perform its intended function with flow from the service water system through the leaks within the heat exchanger. One possible (but unrealistic) option would be to simply continue operation with the heat exchanger "as-is." Another option would be to plug the leaking tubes in lieu of replacing them. Neither of these options, however, would be effective in mitigating the MIC condition or preventing a potential near-term future need to again address degradation of the DG1B heat exchanger tubes due to MIC.

The third option is to replace the heat exchanger tubes. This can restore either or both heat exchangers to a like-new condition as IP pursues its long-term solution to the MIC problem. IP feels that this is the appropriate course of action. The proposed request would support complete replacement of the tubes in both heat exchangers (for the 12-cylinder and 16-cylinder engines), thus precluding the possibility of having to again remove the DG from service in order to plug more tubes, reassessing the impact of further plugging, and potentially readdressing the MIC problem. Plant and grid conditions are such that now is an appropriate time to request a waiver of compliance in order to implement a complete and thorough (short-term) fix to the MIC problem for DG1B.

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 AC SOURCES

AC SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following AC electrical power sources shall be OPERABLE:

a. Two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system, and

b. Three separate and independent diesel generators, each with:

1. A separate day fuel tank containing a minimum of 385 gallons of fuel for diesel generators 1A and 1B and 240 gallons of fuel for diesel generator 1C.

2. A separate fuel storage system containing a minimum of 48,000 gallons of fuel for diesel generator 1A and 45,000 gallons for diesel generator 1B and 29,500 gallons of fuel for diesel generator 1C.

3. A separate fuel transfer pump.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

a. With one offsite circuit of the above required AC electrical power sources inoperable, demonstrate the OPERABILITY of the remaining AC sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter. If either diesel generator 1A or 1B has not been successfully tested within the past 24 hours, demonstrate its OPERABILITY by performing Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 for each such diesel generator, separately, within 24 hours. Restore the offsite circuit to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. With either diesel generator 1A or 1B inoperable, demonstrate the OPERABILITY of the above required AC offsite sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If the diesel generator became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generators, separately, by performing Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 within 24 hours*. Restore the inoperable diesel generator to OPERABLE

*This test is required to be completed regardless of when the inoperable diesel generator is restored to OPERABLE status. The provisions of Specification 3.0.2 are not applicable.

ELECTRICAL POWER SYSTEMS

AC SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION (Continued)

3.8.1.1 ACTION (Continued):

status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

c. With one offsite circuit of the above-required AC sources and diesel generator 1A or 1B of the above required AC electrical power sources inoperable, demonstrate the OPERABILITY of the remaining AC sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If a diesel generator became inoperable from any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generators, separately, by performing Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 within 8 hours*. Restore at least one of the inoperable AC sources to OPERABLE status within 12 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. Restore at least two offsite circuits and diesel generators 1A and 1B to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

d. With diesel generator 1C of the above required AC electrical power sources inoperable, demonstrate the OPERABILITY of the offsite AC sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If the diesel generator became inoperable as a result of any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generators, separately, by performing Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 within 24 hours*. Restore diesel generator 1C to OPERABLE status within 72 hours or declare the HPCS system inoperable and take the ACTION required by Specifications 3.5.1 and 3.7.1.1.

e. With diesel generator 1A or 1B of the above required AC electrical power sources inoperable, in addition to taking ACTION b or c, as applicable, verify within 2 hours that all required systems, subsystems, trains, components and devices that depend on the remaining OPERABLE diesel generator as a source of emergency power are also OPERABLE; otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

f. With both of the above required offsite circuits inoperable, demonstrate the OPERABILITY of three diesel generators, separately, by performing Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 within 8 hours unless the diesel generators are already operating. Restore at least one

*This test is required to be completed regardless of when the inoperable diesel generator is restored to OPERABILITY. The provisions of Specification 3.0.2 are not applicable.

ELECTRICAL POWER SYSTEMS

AC SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION (Continued)

3.8.1.1 ACTION (Continued):

of the above-required offsite circuits to OPERABLE status within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours. With only one offsite circuit restored to OPERABLE status, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. A successful test(s) of diesel generator OPERABILITY per Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5, performed under this ACTION statement for the OPERABLE diesel generators, satisfies the diesel generator test requirements of ACTION statement a.

g. With diesel generators 1A and 1B of the above-required AC electrical power sources inoperable, demonstrate the OPERABILITY of the remaining AC sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter and Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 for diesel generator 1C within 8 hours.* Restore at least one of the inoperable diesel generators 1A and 1B to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. Restore both diesel generators 1A and 1B to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

h. With one offsite circuit of the above-required AC electrical power sources inoperable and diesel generator 1C inoperable, apply the requirements of ACTION statements a and d specified above.

i. With either diesel generator 1A or 1B inoperable and diesel generator 1C inoperable, apply the requirements of ACTION statements b, d and e specified above.

*This test is required to be completed regardless of when the inoperable diesel generator is restored to OPERABILITY. The provisions of Specification 3.0.2 are not applicable.