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 RECIP. NAME RECIPIENT AFFILIATION
 ADENSAM, E. G. BWR Project Directorate 3

SUBJECT: Forwards request for exemption from requirements of 10CFR50, App A, GDC 17 & 21 until mini-outage completed. Mini-outage will occur within 12 months after commencing power operation.

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October 15, 1986
(NMP2L 0909)

Ms. Elinor G. Adensam, Director
BWR Project Directorate No. 3
U.S. Nuclear Regulatory Commission
7920 Norfolk Avenue
Washington, DC 20555

Dear Ms. Adensam:

Re: Nine Mile Point Unit 2
Docket No. 50-410

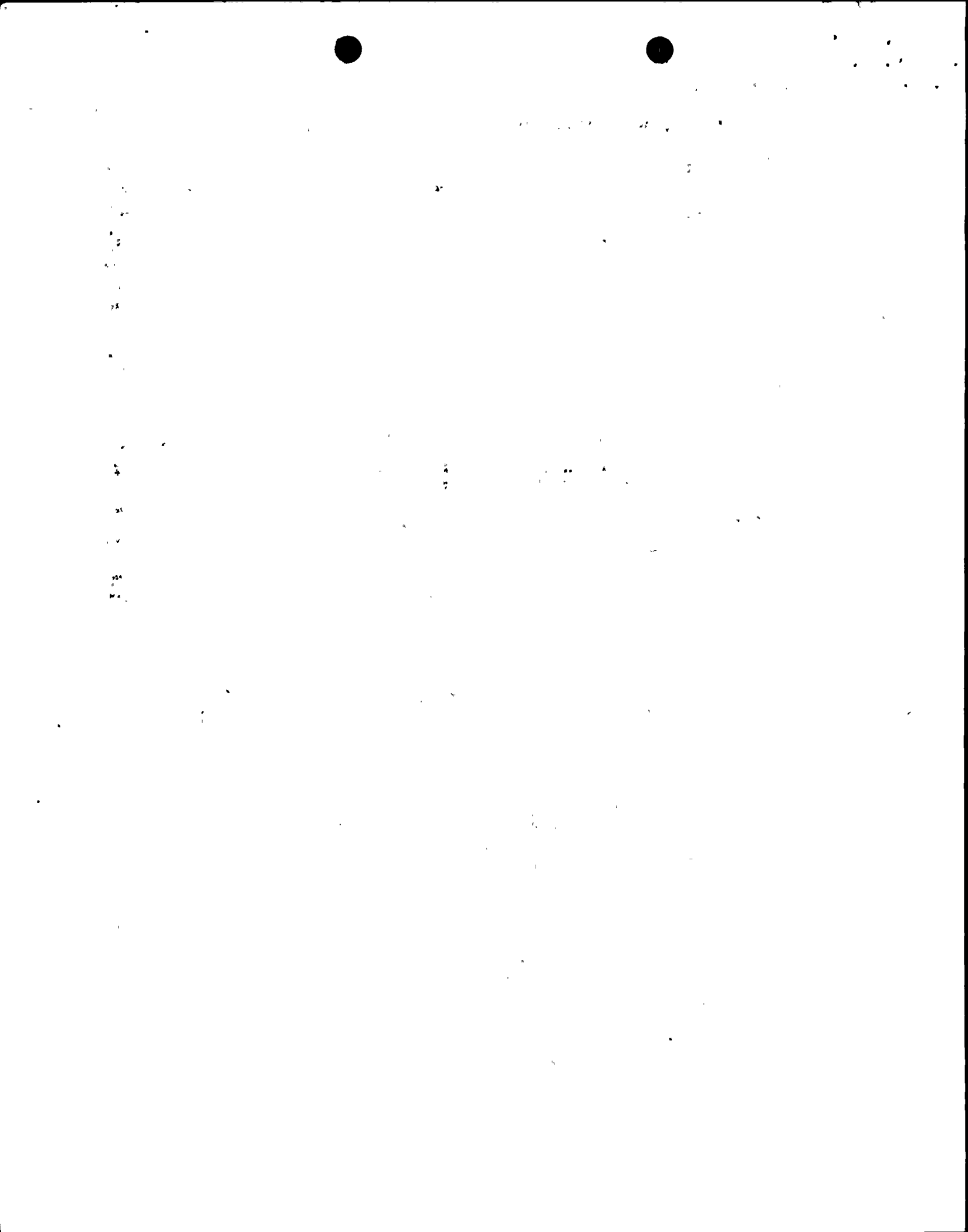
Niagara Mohawk Power Corporation's letter of June 2, 1986 (NMP2L 0730) identified the commitment to install certain redundant Class 1E protective devices and components prior to completion of the "mini-outage." The mini-outage will occur within 12 months after commencing power operation. Niagara Mohawk has been advised by the Commission Staff of its view that installation of these devices and components may be required to achieve full compliance with General Design Criteria 17 and 21 of Appendix A to 10 CFR Part 50.

In accordance with the provision of 10 CFR 50.12(a), Niagara Mohawk Power Corporation hereby requests an exemption for Nine Mile Point Unit 2 from the requirements set forth in Title 10, Code of Federal Regulation (10 CFR) Part 50, Appendix A, General Design Criteria 17 (Electrical Power Systems) and 21 (Protection System Reliability) until such time as the mini-outage is completed.

The attachment to this letter demonstrates that the requested exemption presents no undue risk to the public health and safety, and that special circumstances are present that justify granting the exemption. This exemption has been reviewed and found to be authorized by law and consistent with the common defense and security.

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With regard to the "common defense and security" standard, the grant of the requested exemption is consistent with the common defense and security of the United States. The Commission's Statement of Considerations in support of the exemption rule note with approval the explanation of this standard as set forth in Long Island Lighting Company (Shoreham Nuclear Power Station, Unit 1), LBP-84-45, 20 NRC 1343, 1400 (October 29, 1984). There, the term "common defense and security" refers principally to the safeguarding of special nuclear material, the absence of foreign control over the applicant, the protection of Restricted Data, and the availability of special nuclear material for defense needs. The granting of the requested exemption will not affect any of these matters and, thus, such grants are consistent with the common defense and security.

The proposed exemption has been analyzed in Attachment 1 and determined not to cause additional construction or operational activities that may significantly affect the environment. It does not result in a significant increase in any adverse environmental impact previously evaluated in the Final Environmental Impact Statement-Operating License Stage, a significant change in effluents or power levels or a matter not previously reviewed by the Nuclear Regulatory Commission that may have a significant adverse environmental impact.

Niagara Mohawk is ready to meet with the cognizant Nuclear Regulatory Commission personnel to review this matter should you require additional information.

Very truly yours,


William J. Donlon
President

LL/pns
2111G

Attachment

xc: W. A. Cook, NRC Resident Inspector
Project File (2)



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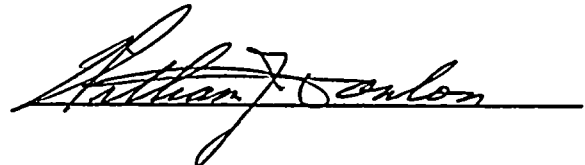
UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
Niagara Mohawk Power Corporation)
(Nine Mile Point Unit 2))


Docket No. 50-410.

AFFIDAVIT

W.J. Donlon, being duly sworn, states that he is President of Niagara Mohawk Power Corporation; that he is authorized on the part of said Corporation to sign and file with the Nuclear Regulatory Commission the documents attached hereto; and that all such documents are true and correct to the best of his knowledge, information and belief.



Subscribed and sworn to before me, a Notary Public in and the the State of Maryland and County of Montgomery, this 15 day of October, 1986.



Notary Public in and for
Montgomery County, Maryland

My Commission expires:

VERONICA L. HUBBARD
NOTARY PUBLIC STATE OF MARYLAND
My Commission Expires July 1, 1990



ATTACHMENT 1

Niagara Mohawk requests an exemption to 10 CFR 50, Appendix A, GDC 17 and 21 be granted until such time as the mini-outage is completed (12 months after commencing power operation) for:

1. Installation of certain redundant Class 1E protective devices for non-Class 1E circuits having Class 1E power supplies in the General Electric Power Generation Control Complex (PGCC) panels, and
2. Installation of certain Class 1E components for those cases where non-Class 1E components are presently used in Class 1E circuits in the PGCC panels.

These protective devices and components are identified in Niagara Mohawk's letter dated June 2, 1986 (NMP2L 0730).

A. Discussion

In the present design of the Nine Mile Point Unit 2 safety-related PCGG panels, a limited number of non-Class 1E protective devices are used for certain non-Class 1E circuits connected to Class 1E buses and a limited number of non-Class 1E components are connected in Class 1E circuits. These cases are specifically identified in Niagara Mohawk's letter dated June 2, 1986 (NMP2L 0730).

To comply with the recommendation of Regulatory Guide 1.75, a plant unique Failure Modes and Effects Analysis (FMEA) was performed for the Nine Mile Point Unit 2 to demonstrate that the failure of each non-Class 1E protective device or non-Class 1E component would not adversely affect the Class 1E power supply, connected Class 1E devices, or any safety function. This analysis considers all circuits containing non-Class 1E devices and components directly connected to Class 1E bus and circuit, respectively. The analysis was submitted to the Nuclear Regulatory Commission (NRC) staff on January 28, 1986 (NMP2L 0594).

The analysis confirmed that, with certain recommended changes, each non-Class 1E device analyzed has no credible failure mode that would adversely affect the Class 1E power supplies, connected Class 1E devices, or any safety function. Niagara Mohawk will make those changes recommended in the analysis. In a few cases, Niagara Mohawk will install qualified components in lieu of isolating non-qualified components. General Electric has stated that the current design meets the same standards for conforming to or exceeds the separation requirements within the General Electric PGCC panels as all other BWR plants, including recently licensed plants.

As a result of subsequent discussion, the NRC staff found the analysis not to be acceptable and that the current design does not meet the separation requirements. On this basis, Niagara Mohawk will provide redundant Class 1E protective devices for those non-Class 1E circuits connected to Class 1E buses and Class 1E components for those cases where non-Class 1E components are presently used in Class 1E circuits in the PGCC panels. These protective devices and components will be installed prior to the completion of the mini-outage.



ATTACHMENT 1 (Continued)

B. Justification For Implementation Schedule

1. Non-Class 1E circuits on Class 1E Power Supplies

The Nine Mile Point Unit 2 current design of the PGCC meets the same standard as in other plants supplied with the General Electric PGCC, including recently licensed plants. The non-Class 1E devices presently installed are similar in design to that of the qualified Class 1E devices. Based on their performance history in operating BWR's and seismic test report information on identical parts, these non-Class 1E devices do not have any different inherent failure mechanism from that of similar qualified devices which could degrade the Class 1E bus or the safety-related function. In addition, Niagara Mohawk will identify on the "Q-List," prior to fuel load, all non-Class 1E protection devices used for non-Class 1E circuits having Class 1E power supply in PGCC panels. As a result, device replacement will be in accordance with the Nine Mile Point Nuclear Station Administrative Procedure No. AP-5.0, Procedure for Repair. This will ensure a Quality Assurance Review.

2. Class 1E circuits using Non-Class 1E Components

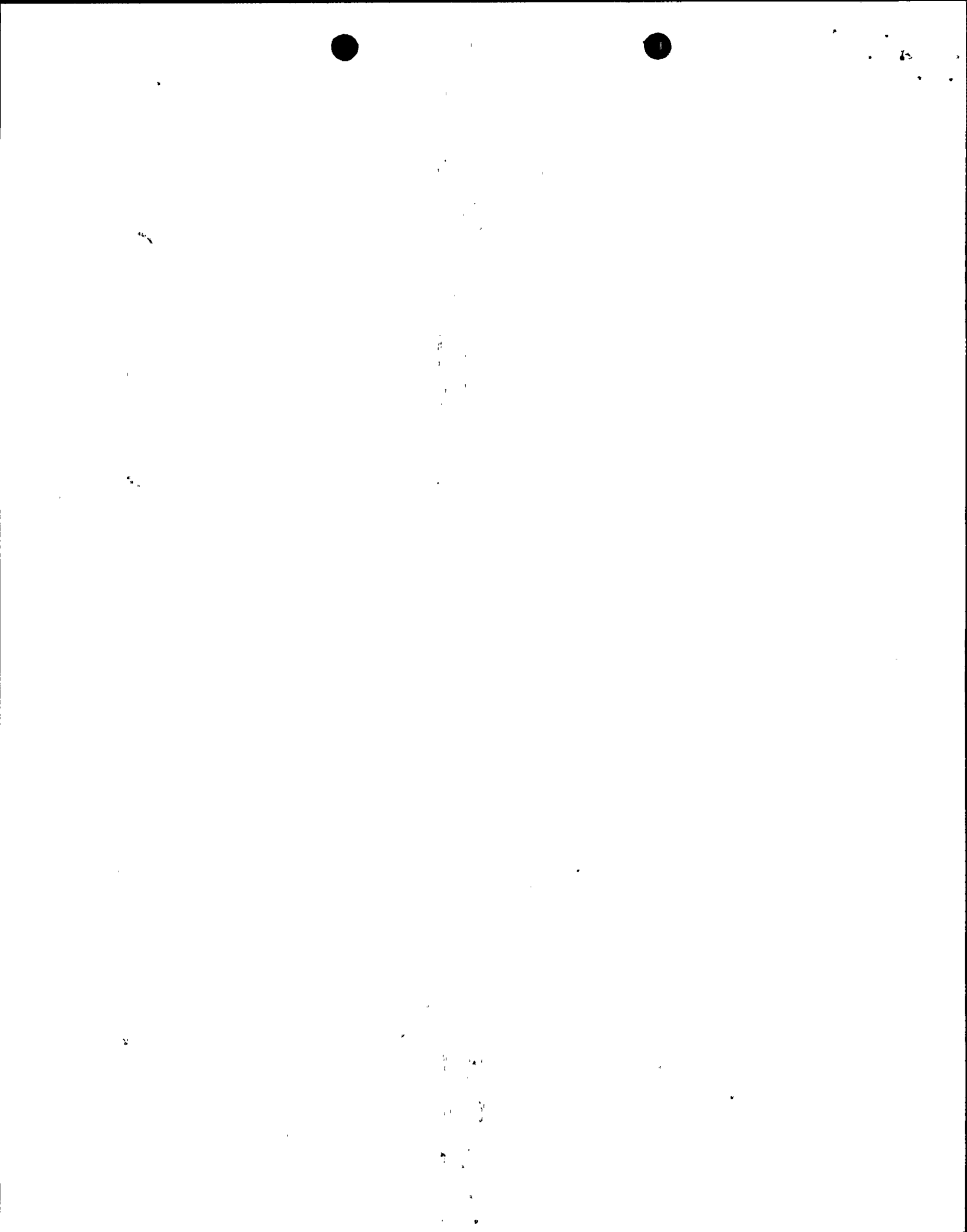
These circuits are further subdivided into several smaller categories. These categories include resistors, signal resistor units, and diodes which are discussed in Sections A.2.a, b and c, respectively.

- a. Two Class 1E resistors (E22-R21, R22) will be installed in the HPCS test valve position indication circuit. This will be accomplished prior to startup after the "mini-outage."

The following is the justification for this implementation schedule:

The high pressure core spray test bypass valves E22-F010 and F011 position indication circuits are powered from a Class 1E supply. The circuit uses 250 ohms non-1E resistors E22A-R21, R22 as voltage divider to adjust the range of the electrical signal for valve position indicators E22-R606, R604. The valve position indication function by itself does not initiate or prevent the core spray pump operation and is not essential for mitigating a LOCA event. The position indication provides operator information during system testing. If the indication is unavailable and the bypass valve is inadvertently left open following a system test and the HPCS is required to operate, the valves are automatically closed. Sufficient other indications are available to the operator to assure proper valve line-up and flow into the vessel. Such indications are:

1. HPCS pump discharge pressure indication, E22-R601, a Class 1E device (PPD 164C5288P239012) at H13-P601.
2. HPCS flow indication, E22-R603, a Class 1E device (PPD 164C5288P162083) at H13-P601.



ATTACHMENT 1 (Continued)

3. HPCS line high point vent level switch E22-N058 (non-1E) which activates an alarm "HPCS HIGH POINT VENT LVL LOW" (alarm point 0819). The level switch is an ultrasonic detector and the alarm function is a non-Class 1E function similar to all other alarm functions.

Based on the above discussion, it is concluded that the valves will be properly positioned and there are enough alternate means available for operator information, assuming the loss of the bypass valve indication due to failure of the non-Class 1E resistor. Also, there is no detrimental effect on the system safety function.

The power supply circuit for the position indications is fed from Division 3, 125Vdc bus, via 10 amp fuses E22B-F4, F5, non-Class 1E, each in series with a 15 amp, double pole, Class 1E circuit breaker (E22B-CB17). Thus, in the event of a failure of the indication circuit causing a low impedance fault (short across +ve and -ve terminals), the faulted circuit will be isolated by opening of one or more of these protective devices without degrading the Class 1E bus. Refer to Figure 1 for simplified circuit representation. Thus, there will be no safety impact on the electrical power system.

- b. Two Class 1E signal resistor units (SRUs) will be installed for the RHR Hx service water flow indication (A&B). This will be accomplished prior to startup after the "mini-outage."

The following is the justification for this implementation schedule:

1. These SRUs are identical to nuclear safety-related SRUs described by PPD#184C5812 (both sets are Bailey type 776 SRUs utilizing the identical components).
2. Each SRU consists of terminal board and wire wound resistors. Potential fault paths are current-limited in the SRUs by series components. The current-limiting components will open on excessive current demand, thus disconnecting the faulty device from Class 1E power. Short circuit of resistors is not a credible failure.
3. The terminal boards are diallyl phthalate and have a dielectric strength of 2,200 volts.
4. The resistors are all fixed wire wound resistors that are epoxy encapsulated with a dielectric strength of 1,000 volts.
5. Identical SRUs were installed on panels that were seismically tested per IEEE 344-1975 to greater than 15g and did not adversely affect the power supply.



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ATTACHMENT 1 (Continued)

6. The SRUs are located in a Class 1E HVAC environment which is less severe than the maximum operating temperature of these units (120°F). The current-limiting resistors in the SRU are functionally rated to 300°F and will be current-limiting at even higher temperatures.
 7. This device is identical to the device of the same equipment part number used in the various BWR 4's, 5's and 6's that have been operating over the past fifteen (15) years. GE has informed us that they are not aware of any failure attributable to this device and its connection to the Class 1E equipment or source.
- c. Six Class 1E diodes, E12A-CR13, E21A-CR21, C72A-CR3A,B and C72A-CR4A,B for the arc suppression on the RHR Class 1E optical isolators will be installed prior to startup after the mini-outage.

The following discussion is provided as justification for this implementation schedule:

The diodes in question block reverse current flow unless subjected to a reverse voltage exceeding 400V. (The nominal voltage for the diode applications is 125Vdc, which is far below the breakdown threshold voltage of 400V. There is no high voltage source available to affect this circuit.)

Arc suppression diode E12A-CR13 (E21A-CR21) is provided to protect the isolator card E12A-AT7 (E21A-AT7) output against the transients caused by switching of inductive relay load E12A-K137A (K137B). The output relay function is to provide an automatic stop signal to RHR pump E12-CO02A(B). This auto stop signal is activated by an input signal from shutdown cooling suction valve E12-F008 (F009) logic.

For diodes E12A-CR13 and E21A-CR21, the unlikely diode failure which would result in current flow in the reverse direction may cause the output of the isolator card to be shorted. This may prevent operation of the RHR pump in the shutdown cooling mode. This shutdown cooling alignment is considered to be a non-safety function. This system is designed to be initiated and secured by operator action. The relay logic is mechanized so that during the LPCI mode of RHR, the stop signal from these valves will have no impact on the pump circuitry. The same justification holds true for the diode open circuit failure which removes the arc suppression protection for the isolator card.

Diodes C72A-CR3A, 4A and 4B are used in the recirculation pump trip coil circuit. Each diode directs the trip signal power to its respective trip coil (52TC1-CB3A, CB3B, CB4A and CB4B).



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ATTACHMENT 1 (Continued)

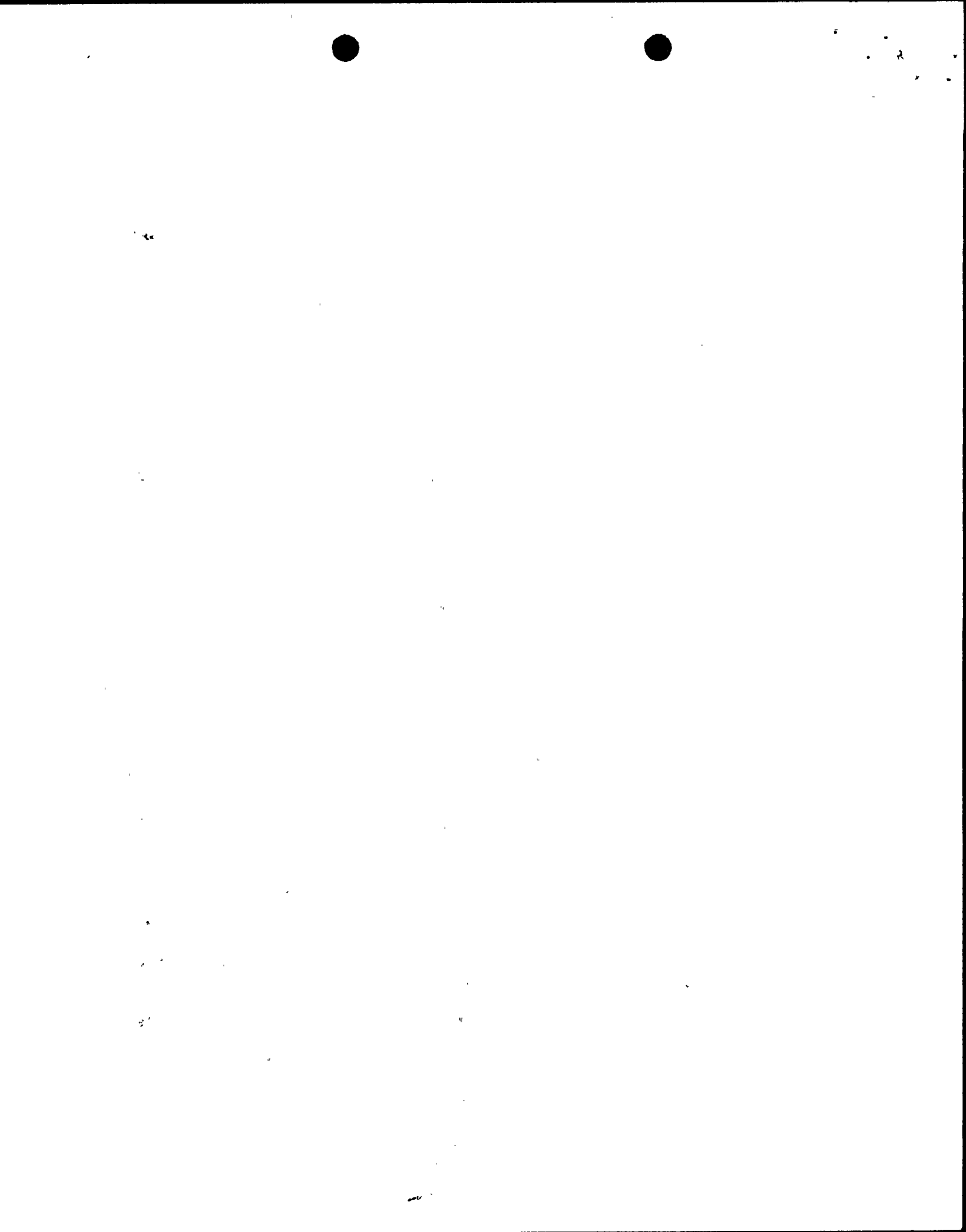
For diodes C72A-CR3A, 3B, 4A and 4B, if anyone of the two diodes in its given pair (CR3A, 2B = pair 1; CR4A, 4B = pair 2) fails open, activation of its associated trip coil is prevented. However, each pump has two redundant trip coils, one in each RPT logic. This allows either trip logic to trip both pumps. Loss of this recirculation pump trip function will not prevent the turbine stop valve or control valve initiated RPS scram function. Diode open circuiting will have no effect on the power supply. A short across the diode will allow the trip coil to be energized when demanded and does not prevent a tripping function.

The diodes E12A-CR13, C21A-CR21, C72A-CR2A, 2B, 4A and 4B are JEDEC Catalog No. 1N4004. The same diodes have been purchased from the same vendor and have a long history of satisfactory performance in nuclear utility operations. These same diodes have been used for years as integral components of the qualified isolator assemblies. The quality of these diodes is comparable to Class 1E and will meet the technical requirements of the safety-related assembly in which they are installed. Identical diodes have been tested successfully to demonstrate their seismic adequacy. The results of these tests are contained in GE DRF C22-00017.

Based on the seismic test data and the continued purchase of the same hardware from the same vendor, it is concluded that the diodes supplied will perform this arc suppression function and the necessary safety function will be satisfied. Thus, there is no threat to the Class 1E bus/power supply or system safety functions.

C. Conclusion

Deferral of the completed installation of certain Class 1E protective devices and Class 1E components until the completion of the "mini-outage" does not present an undue risk to the public health and safety. As stated in the FMEA report, the failure of the current non-Class 1E circuit or components have no adverse effect on the Class 1E power supplies, connected Class 1E devices, or any safety function. The current design meets the same standards for conforming to the separation requirements within the General Electric PGCC as all other BWR plants, including recently licensed plants. These non-Class 1E components are similar in design to that of the qualified Class 1E components. Based on their past performance history in operating BWR's and seismic test report information on identical parts, these non-Class 1E components do not have any different inherent failure mechanisms from that of similar qualified devices which could degrade the Class 1E bus or the safety-related function.



ATTACHMENT 1 (Continued)

D. Special Circumstances Are Present

Special circumstances are present which warrant issuance of this requested exemption. These special circumstances are discussed in accordance with the classification contained in 10 CFR 50.12(a)(2):

- (iii) Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated.

Compliance with the General Design Criteria 17 and 21 would result in undue hardship that are significantly in excess of those incurred by others similarly situated. The current design meets the same standards for conforming to or exceeds the separation requirements within the General Electric PGCC as all other BWR plants, including recently licensed plants. These non-Class 1E components are similar in design to that of the qualified Class 1E components. Based on their long history of satisfactory performance in operating BWR's and seismic test report information on identical parts, these non-Class 1E components do not have any different inherent failure mechanisms from that of similarly qualified devices which could degrade the Class 1E power supplies, connected Class 1E circuit, or any safety-related function. Compliance at the present time would result in significant financial hardship to the Niagara Mohawk Power Corporation since the construction of the Nine Mile Point Unit 2 is completed and is awaiting its fuel load license.

- (v) The exemption would provide only temporary relief from the applicable regulation and the licensee or applicant has made good faith efforts to comply with the regulation.

This exemption request would provide Nine Mile Point Unit 2 with only temporary relief from compliance with the requirements of General Design Criteria 17 and 21. Niagara Mohawk has made good faith efforts to comply with the regulation when informed of the Staff's position in this matter. The current design was first identified as an NRC Staff concern in about February 1985. A Failure Modes and Effects Analysis was performed and several iterations were made in order to resolve the Staff's concern. The analysis has confirmed that the design is acceptable with some recommended changes. Niagara Mohawk will make the changes recommended in the analysis. In a few cases, Niagara Mohawk will install qualified components in lieu of isolating non-qualified components. As a result of recent discussion, the NRC Staff found the analysis not to be acceptable and the current design does not meet its separation requirements. Niagara Mohawk has committed to install the identified redundant Class 1E protective devices and Class 1E components in the General Electric PGCC panels prior to the completion of the mini-outage.

Thus, special circumstances exist warranting the grant of the exemption.



ATTACHMENT 1 (Continued)

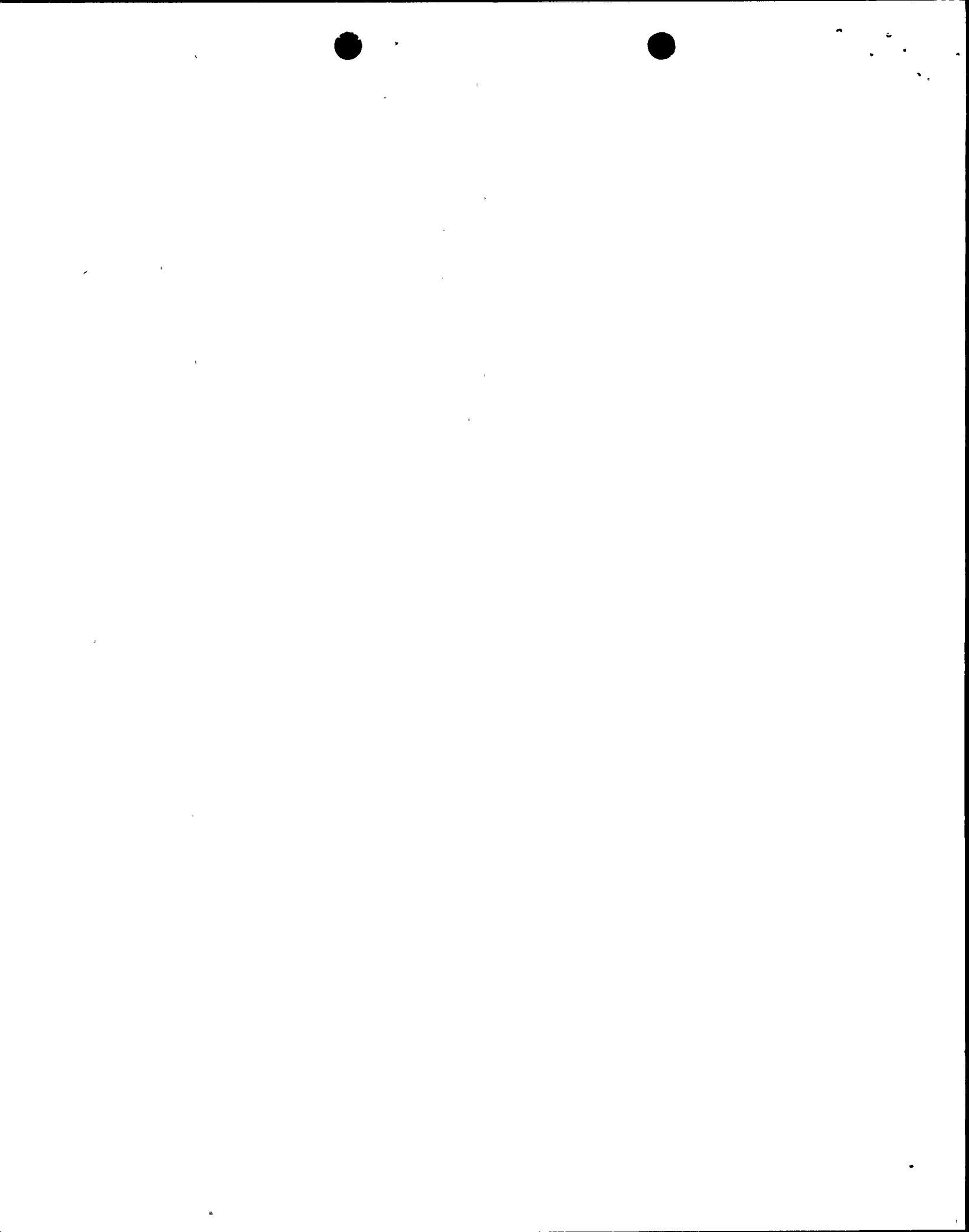
Environmental Impact

The exemption request would allow operation of the plant for a specified time to allow the installation of certain devices and components in the design of the power generation control complex. The installation of these devices (or lack of them) would not affect the processing of any effluents including radioactive effluents from the plant during normal operation of the plant. The installation of additional circuit components, such as protective devices, diodes, resistors and signal resistor units has no impact on normal power operational releases.

The proposed exemption has been analyzed and determined not to cause additional construction or operational activities which may significantly affect the environment. It does not result in a significant increase in any adverse environmental impact previously evaluated in the Final Environmental Impact Statement-Operating License Stage, a significant change in effluents or power levels, or a matter not previously reviewed by the Nuclear Regulatory Commission which may have a significant adverse environmental impact.

The proposed exemption does not alter the land use for the plant, any water uses or impacts on water quality, air or ambient air quality. The proposed action does not affect the ecology of the site and vicinity and does not affect the noise emitted by station. Therefore, the proposed exemption does not affect the analysis of environmental impacts described in the environmental report.

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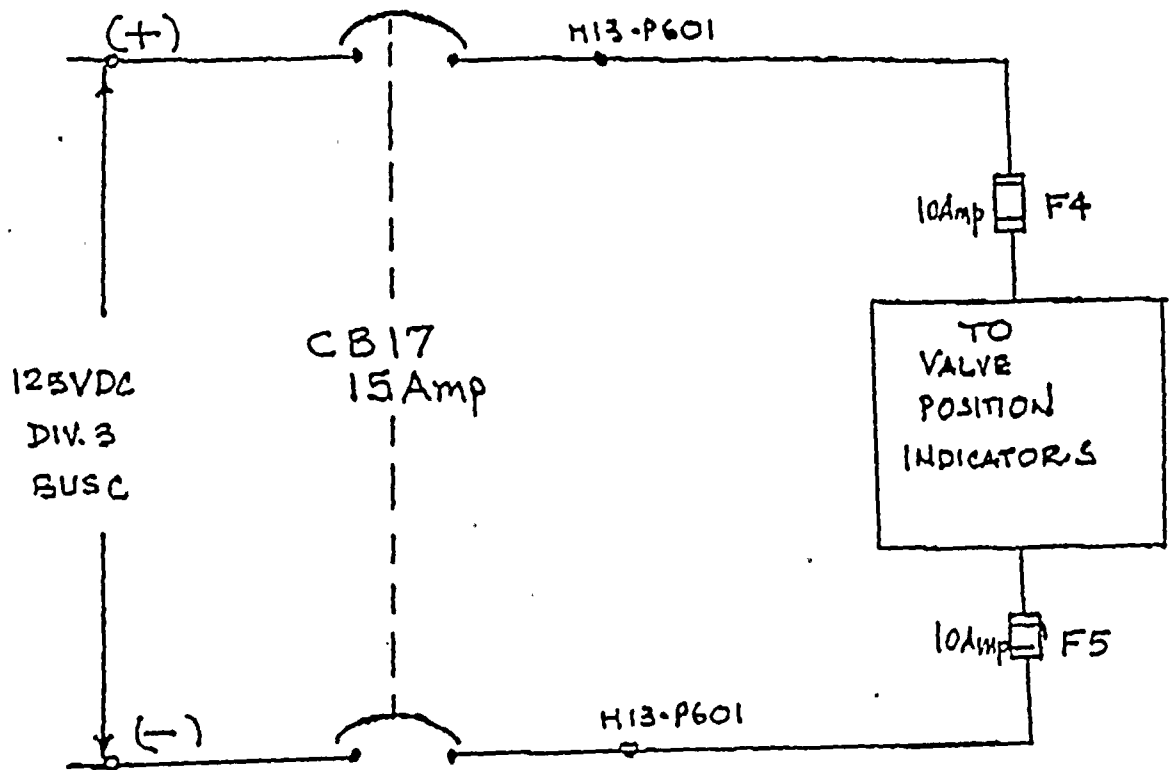


FIGURE 1. HPCS BYPASS VALVE POSITION INDICATION POWER SUPPLY

