Duquesne Light

Nuclear Division
P.O. Box 4
Shippingport, PA 15077-0004

Telephone (412) 393-6000

July 16, 1984

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Attn: Mr. D. G. Eisenhut, Director
Division of Licensing
Washington, DC 20555

Reference: Beaver Valley Power Station, Unit No. 1
Docket No. 50-334, License No. DPR-66
Generic Letter 83-28, Item 4.3

Gentlemen:

In our submittal dated November 4, 1983, we committed to provide a response to the plant-specific questions contained in the NRC's safety evaluation report on the WOG generic shunt trip design if the final ATWS rule did not require a diverse trip system. The final rule, as published on June 26, 1984 (49 FR 26036), did not require a diverse trip system, therefore, attached is the response to the thirteen plant-specific questions regarding our preliminary design for an automatic shunt trip feature. However, the discussion provided with the final rule stated that the requirement for a diverse scram system for Westinghouse plants will be published separately as a proposed rule. Therefore, our preliminary design and schedule may have to be further evaluated based on the requirements for the diverse scram.

Our present plans are to install the shunt trip modification during our fifth refueling outage (Design Change Package 622).

Our original reservations on scheduling the shunt trip modification without a thorough review of the diverse scram requirements were based on the satisfactory performance of the reactor trip breakers, which, combined with the following, will not increase the susceptibility of common-cause failures leading to an ATWS event:

- A planned program of preventive maintenance and testing
- A post-trip review for proper operation of the reactor trip system
- A trending program for breaker response time
- The Westinghouse life cycle testing currently in progress

A055
1/1

It is recognized that an additional reactor trip mechanism is desirable for providing protection for ATWS events. However, as stated in Section 4.3 of our November 4, 1983 submittal, we are concerned that the addition of both features will increase the probability of safety system challenges. To adequately address this concern, the requirements of both features must be defined and reviewed prior to implementation.

As noted in the discussion provided with the ATWS rule, the diverse scram system had only a marginally favorable value/impact evaluation. Therefore, we recommend that the NRC reevaluate the proposed diverse scram requirements for Westinghouse plants in consideration of the number of utilities which are installing the shunt trip. Duquesne Light Company believes that the addition of the automatic shunt feature may result in an unfavorable value/impact for the diverse scram system, recognizing that the Staff and the utilities alike are concerned with the current number of reactor trips being experienced by domestic plants.

With respect to the final rule on ATWS, we have already initiated design work for installation of an ATWS Mitigating System Actuation Circuitry (AMSAC) in accordance with NRC requirements. We consider these actions responsive to the ATWS issue, and will strive to complete all required work in an expedited fashion.

If you have any questions, please contact my office.

Very truly yours,

J. J. Carey
Vice President, Nuclear

Attachment

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF BEAVER)

On this 17th day of July, 1984, before me, Sheila M. Fattore, a Notary Public in and for said Commonwealth and County, personally appeared J. J. Carey, who being duly sworn, deposed, and said that (1) he is Vice President of Duquesne Light, (2) he is duly authorized to execute and file the foregoing Submittal on behalf of said Company, and (3) the statements set forth in the Submittal are true and correct to the best of his knowledge, information and belief.

Sheila M. Fattore

SHEILA M. FATTORE, NOTARY PUBLIC
SHIPPINGPORT BORO, BEAVER COUNTY
MY COMMISSION EXPIRES SEPT. 16, 1985
Member, Pennsylvania Association of Notaries

cc: U. S. Nuclear Regulatory Commission
Division of Licensing
Attn: Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing
Washington, DC 20555

Mr. W. M. Troskoski, Resident Inspector
U.S. Nuclear Regulatory Commission
Beaver Valley Power Station
Shippingport, PA 15077

U.S. Nuclear Regulatory Commission
c/o Document Management Branch
Washington, DC 20555

Director, Safety Evaluation & Control
Virginia Electric & Power Company
P.O. Box 26666
One James River Plaza
Richmond, VA 23261

Question

1. Provide the electrical schematic/elementary diagrams for the reactor trip and bypass breakers showing the undervoltage and shunt coil actuation circuits as well as the breaker control (e.g., closing) circuits, and circuits providing breaker status information/alarms to the control room.

Response

Attached are preliminary electrical schematic/elementary diagrams for the proposed automatic shunt trip modification. These diagrams identify the reactor trip and bypass breaker UVTA actuation circuit, shunt trip actuation circuit, breaker control circuit, and breaker status/alarms.

References: 8700-1.2-249C
8700-1.2-59C
8700-1.11-235A
8700-1.2-392C

Question

2. Identify the power sources for the shunt trip coils. Verify that they are Class 1E and that all components providing power to the shunt trip circuitry are Class 1E and that any faults within non-class 1E circuitry will not degrade the shunt trip function. Describe the annunciation/indication provided in the control room upon loss of power to the shunt trip circuits. Also describe the overvoltage protection and/or alarms provided to prevent or alert the operator(s) to an overvoltage condition that could affect both the UV coil and the parallel shunt trip actuation relay.

Response

Power Supplies:

The 125VDC control power supplied to the reactor trip breakers meets Class 1E requirements. The power supplied to the "A" reactor trip breaker (52-RTA) and "B" bypass breaker (52-BYB) is from Battery Number 1-1, Switchboard 1, breaker 7. The "B" reactor trip break (52-RTB) and "A" bypass breaker (52-BYA) is supplied power from Battery Number 1-2, Switchboard 2, breaker 7. A description of the 125VDC distribution system may be found in the UFSAR, Section 8.

Since the Class 1E circuitry provided to the shunt trip is separated from non-Class 1E circuitry per the criteria in effect at the time of licensing (UFSAR, Section 8), credible faults within non-Class 1E circuitry should not degrade the shunt trip modification.

Indication:

As part of the proposed shunt trip modification, breaker position indicating lights are to be added to the Main Control Board, Section B, for the reactor trip breakers. No lights are to be added for the bypass breakers since annunciation exists for bypass breaker position.

These lights are to be powered from the same 125VDC supply as the shunt trip and closing circuit. The green light is to be in series with a "b" auxiliary contact, which will indicate breaker open and power available for closing. The red light is to be in series with the shunt trip coil and an "a" auxiliary contact, which will indicate breaker closed, power available for tripping, and shunt trip coil continuity.

Overvoltage:

The added shunt trip circuitry and UVTA are powered from the reactor protection logic voltage supplies via the undervoltage circuit board. Two 48VDC power supplies (in one train) are auctioneered to form one 48VDC bus. If an overvoltage condition exists (115% of nominal 48VDC), the power supply supplying the load will turn off and the redundant supply will carry the load. A general warning lamp on the solid state protection system logic cabinet will be lit and a control room annunciator will alarm protection system trouble for the

Response (continued)

particular train. If the overvoltage condition remains, the redundant power supply will turn off. Thus, circuit malfunctions resulting in an overvoltage condition will result in load removal which is a fail-safe condition since the undervoltage coil and the shunt trip actuation relay are deenergized to trip the breaker.

The shunt trip coils in the reactor trip breakers are powered with nominal 125VDC from the station batteries. When required to trip by automatic or manual means, the shunt coils receive a nominal 125VDC signal. As the breaker trips, an auxiliary switch contact in series with the shunt trip coil opens, deenergizing the shunt trip coil. Since 125VDC is supplied via the battery system, the voltage level may temporarily rise to the battery equalizing voltage (not exceeding 115% of nominal voltage, approximately 140V). The shunt trip coil is an inductive device and, as such, instantaneous current changes are not expected. Since it is energized to trip, if an overvoltage condition is applied, the current should increase, somewhat exponentially, thus acting to trip the breaker (i.e., move the plunger) prior to an overcurrent condition causing a coil burnout.

References:

Power Supplies:
RE-5L
RE-5K
UFSAR Section 8.5.3, Figure 8.4-2, Sections 1 and 3
Q*5
OM, Chapter 39
RE-10E
RE-10H
RE-10J
RE-10K
RE-10P
BVS-469
BVS-3001
EC Printouts

Overvoltage:
WOG-83-246, Attachment B, page 2
WCAP-7672
8700-1.2-483A
8700-1.11-235A, "Low Voltage Metal Enclosed Switchgear"
Logic Diagrams
Telecom - Joe Jenkins

References: (continued)

Indication:
OM, Chapter 1
8700-1.2-483A
8700-1.2-249C
WOG-83-246, Attachment B, page 2
Annunciators A4-101, A4-109, A5-44
SER Points 192, 201, 788
P-250 Points Y0026D, Y0027D, Y0006D, Y0007D

Question

3. Verify that the relays added for the automatic shunt trip function are within the capacity of their associated power supplies and that the relay contacts are adequately sized to accomplish the shunt trip function. If the added relays are other than the Potter & Brumfield MDR series relays (P/N 2383A38 or P/N 0955655) recommended by Westinghouse, provide a description of the relays and their design specification.

Response

The relays to be installed are the Potter & Brumfield MDR series (Westinghouse P/N 955655). These are the relays specified in the NRC-reviewed/approved Westinghouse Generic Design Package (SER, August 10, 1984, D. G. Eisenhut to J. J. Sheppard).

The coil of the interposing relay is powered from the undervoltage circuit board. Per Westinghouse, load tests performed on the circuit board driving two UV coils and the Potter & Brumfield MDR relay verified the system capable of maintaining the load. Additional information on the MDR relays, such as contact rating, is to be supplied by Westinghouse with the auto shunt trip panel.

Based on the above, the Potter & Brumfield MDR relay is within the capacity of the associated power supply and the contacts are adequately sized for the shunt trip function.

References: JWJ-84-3
WOG-83-246, Attachment B, page 3
Tech Manual 1.11-235A
OG-101, "Generic Design Package"
NRC SER, D. G. Eisenhut to J. J. Sheppard dated 08/10/84
Potter & Brumfield Relay Catalog

Question

4. State whether the test procedure/sequence used to independently verify operability of the undervoltage and shunt trip devices in response to an automatic reactor trip signal is identical to the test procedure proposed by the Westinghouse Owners Group (WOG). Identify any differences between the WOG test procedure and the test procedure to be used and provide the rational/justification for these differences.

Response

Verification of independent operation of the undervoltage and shunt trip attachments along with the test switches and interposing relay is to be included into plant procedures. The test procedure proposed by the WOG in OG-101 dated June 14, 1983 will be used as the basis in revising the plant-specific procedure. Tentatively, this verification is proposed for inclusion in the 18-month time response test, Maintenance Surveillance Procedure 1.14.

References: OG-101, Section 4
WOG-83-246; Attachment A, p.
Attachment B, page 4
MSPs 1.04, 1.05, and 1.14

Question

5. Verify that the circuitry used to implement the automatic shunt trip function is Class 1E (safety-related) and that the procurement, installation, operation, testing, and maintenance of this circuitry will be in accordance with the quality assurance criteria set forth in Appendix B to 10 CFR, Part 50.

Response

The circuitry used in the shunt trip modification shall be procured/specified Class 1E. The design bases are as described in the UFSAR, Section 7, with the exception that power is required to actuate the shunt trip coil.

Procurement, installation, operation, testing, and maintenance of this circuitry will be in accordance with the DLCo Quality Assurance Program which complies with the criteria set forth in 10CFR50, Appendix B.

References: UFSAR, Section 7
DLW-84-522
UFSAR, Appendix A, Section 1
DLCo QA Program
PO CO23532, "Spare Parts for Reactor Trip Breakers"

Question

6. Verify that the shunt trip attachments and associated circuitry are/will be seismically qualified (i.e., be demonstrated to be operable during and after a seismic event) in accordance with the provisions of Regulatory Guide 1.100, Revision 1, which endorses IEEE Standard 344, and that all non-safety-related circuitry/components in physical proximity to or associated with the automatic shunt trip function will not degrade this function during or after a seismic event.

Response

The shunt trip attachment and added circuitry (auto shunt trip panel) will be seismically qualified. Non-safety-related circuitry components in the physical proximity to or associated with the automatic shunt trip will not prevent completion of a reactor trip during a seismic event.

The WOG is working with Westinghouse to obtain seismic qualification of shunt trip attachment and auto shunt trip panel in accordance with IEEE 344-1975, as endorsed by Regulatory Guide 1.100, Revision 1. It is expected that these tests will be completed prior to installation of the automatic shunt trip feature.

References: W Shop Order MUHN-2052
WOG-83-246, Attachment B, page 5
DLW-84-522
Meeting, Joe Jenkins - M. Rencheck

Question

7. Verify that the components used to accomplish the automatic shunt trip function are designed for the environment where they are located.

Response

The environmental conditions identified in the Westinghouse generic design package, Section 3.4, Table I, envelop the Beaver Valley 1 motor generator room conditions except for normal relative humidity. The Westinghouse package indicates a maximum normal relative humidity of 70%, whereas Beaver Valley 1 motor generator area could be as high as 90%. Appendix A of the Generic Design Package identifies IEEE 323-1974 as applicable, as such the procurement will require components purchased to Beaver Valley environment.

Reference: OG-101, Section 3.4 and Appendix A
PO CO23532
EM 21479
DLW-84-522

Question

8. Describe the physical separation provided between the circuits used to manually initiate the shunt trip attachments of the redundant reactor trip breakers. If physical separation is not maintained between these circuits, demonstrate that faults within these circuits can not degrade both redundant trains.

Response

Physical separation is maintained between circuits. Main Control Board manual reactor trip switches are provided with fire barriers between redundant train switch decks. The field cabling from the Main Control Board and the Reactor Protection Logic to the redundant Train A and Train B Reactor Trip Switchgear are routed as Train A and Train B circuits. The interposing relays used to actuate the shunt trip attachments and their associated terminal blocks are to be mounted in separate metal enclosures. The Reactor Protection System logic outputs energizing the interposing relays are enclosed in existing separate metal enclosures.

References: BVS-3001
UFSAR, Sections 1 and 8
DLW-84-522
OG-101

Question

9. Verify that the operability of the control room manual reactor trip switch contacts and wiring will be adequately tested prior to startup after each refueling outage. Verify that the test procedures used will not involve installing jumpers, lifting leads, or pulling fuses, and identify any deviations from the WOG procedure. Permanently installed test connections (i.e., to allow connection of a voltmeter) are acceptable.

Response

Verification of the control room manual reactor trip switches contacts and wiring is to be included into plant procedures. The test procedure will not include installing jumpers, lifting leads or pulling fuses, and will be based on the WOG procedure in WOG-83-246, Attachment B, dated September 20, 1983. Tentatively, this verification is proposed for inclusion in the startup manual reactor trip test, Operating Surveillance Test 1.1.7.

The bypass breakers are not to be modified with permanent test connections, therefore, the verification will require connecting a voltmeter at the field terminals.

References: WOG-83-246; Attachment B, page 7;
Attachment A, page 12
OST 1.1.7

Question

10. Verify that each bypass breaker will be tested to demonstrate its operability prior to placing it into service for reactor trip breaker testing.

Response

Functional testing of bypass breakers is performed prior to startup via the manual trip switches.

As identified in our November 4, 1983 response to Generic Letter 83-28 item 4.5.2, testing of the bypass breakers during power operation is not justified since:

1. The hardware configuration will not permit both bypass breakers to be racked in at the same time.

2. The time that a bypass breaker may be in use is limited by Technical Specifications. Currently, one bypass breaker is in operation for less than two hours per month.

3. When a bypass breaker is in service, the automatic reactor trip system will initiate a trip signal to one of the trip breakers which is functionally tested bimonthly.

4. The present configuration would require lifting leads and installing jumpers for testing at power. A design modification would require additional components which would decrease the level of confidence in the operation since there would be components which could fail. Also, the failure of these components may cause additional safety system challenges since the modification should comply with GDC 23.

5. The bypass breakers are provided with a local trip pushbutton which energizes the shunt trip attachment. Although this does not provide total testing of the shunt trip circuit, it does verify the shunt trip function from the shunt trip through breaker opening. This switch is used to open the bypass breaker after bimonthly testing of the trip breakers.

6. Testing occupies approximately 12-18 hours per year or 0.14% - 0.21% of the reactor trip system operating time per year. In addition, testing the bypass breakers every 18 months results in an unavailability value of 3.2 E-3, based on the method and data described in WCAP-10271, Sections 4.1 and 4.2.

Response (continued)

7. A situation which requires a bypass breaker to trip the reactor is:

- One Train in Test	2.0 E-3 hr/hr
- Demand for a Reactor Trip	12 demands/year
- Failure of Main Trip Breaker	3.5 E-4 failures/demand

Based on this condition, the probability of this situation occurring is 8.4 E-6 per year.

References: ND1SLC:0813, Item 4.5.2
WOG-83-246, Attachment B, page 8
WCAP-10271, Sections 4.1 and 4.2
WCAP-10271, Supplement 1, Section 3.1

Question

11. Verify that the test procedure used to determine reactor trip breaker operability will also demonstrate proper operation of the associated control room indication/annunciation.

Response

The control room indication/annunciation for breaker positions is to be included into plant-specific procedures. Tentatively, the breaker position indication checks are proposed for the bi-monthly reactor protection logic system tests, Maintenance Surveillance Procedures 1.04 and 1.05 with verification of the annunciator indicating stationary gripper coil power disconnected (A5-44, "Turbine Trip Initiation Due to Reactor Trip") proposed for the startup manual reactor trip test, Operating Surveillance Test 1.1.7.

References:
8700-1.2-249
Logic Diagrams
OM, Chapter 1
OST 1.1.7
MSPs 1.04 and 1.05
RE-5K
RE-5L
Annunciator A5-44, A4-101, A4-109
SER Points 192, 201, 788
P-250 Points Y0006D, Y0007D, Y0026D, Y00027D

Question

12. Verify that the response time of the automatic shunt trip feature will be tested periodically and shown to be less than or equal to that assumed in the FSAR analyses or that specified in the technical specifications.

Response

Independent response time testing of the shunt and undervoltage trip attachments is performed during the 18-month time response testing required by Technical Specification Surveillance 4.3.1.1.3. The inclusion of the shunt trip attachment was initiated as a result of the concerns identified in IE Circular 81-12.

Neither the FSAR nor the Technical Specifications identifies a response time for the reactor trip breakers specifically, however, the Technical Specifications identify the overall response time from sensor through loss of gripper coil voltage.

References: TS Definition 1.22, 3/4.3.1
MSP 1.14
ND1SLC:0813, Item 4.2
UFSAR, Section 14

Question

13. Propose technical specification changes to require periodic testing of the undervoltage and shunt trip functions and the manual reactor trip switch contacts and wiring.

Response

Attachment 1 are proposed Technical Specification changes for Beaver Valley Unit 1. These will be verified and formally submitted for approval following installation of the shunt trip modification and onsite reviews.

- Independent verification of the undervoltage and shunt trip functions is proposed for Functional Unit 21 (Reactor Trip Breakers) during their Channel Function Tests at an 18-month frequency, as indicated by note (7). The 18-month frequency is proposed because a single failure of the added circuitry would not prevent a protective action at the system level.

  1. If the Test Auto Shunt Trip pushbutton fails closed, the shunt trip attachment will still receive an auto trip signal. If the pushbutton fails open, a reactor trip will be initiated.

  2. Failure of the interposing relay resulting from a short across the coil will cause a loss of power condition. This will deenergize the interposing relay and initiate a reactor trip via the shunt trip attachment and the UVTA. An open across the coil will result in the relay deenergizing and initiating a reactor trip via the shunt trip attachment. A failure such as rotor binding on the interposing relay will defeat only the automatic shunt trip feature.

  3. If the Block Auto Shunt Trip pushbutton would fail closed, the shunt trip attachment will still receive an auto trip signal. For open failures of the pushbutton, only the automatic shunt trip feature is defeated.

  Based on the above, any signal failure of the added circuitry which affects both the UVTA and shunt trip attachment would initate a reactor trip, thus fail safe. For failures which defeat only the automatic shunt trip, the UVTA is not affected.

- The manual reactor trip switches contacts and wiring verification is implied by the definition of the Channel Functional Test for Functional Unit 1 (Manual Reactor Trip) and is currently performed by OST 1.1.7 prior to startup. The present testing of the Manual Reactor Trip function does not include independent verification of contacts and wiring for the UVTA and shunt trip attachment, however, as noted in the response to Question 9, the independent verification will be added after installation of the shunt trip modification.

Response (continued)

- Time response testing is addressed in the response to Question 12. No specific specification on reactor trip breaker time response is deemed necessary since the Technical Specification definition of Reactor Trip Response Time states from when "monitored parameter exceeds its trip setpoint at the channel sensor until loss of stationary gripper coil voltage." Based on this definition, Table 3.3-2 already requires time response testing for the reactor trip breakers. Presently, neither the UFSAR nor Technical Specifications specifies a response time for the reactor trip breakers only.

- Verification of alarms and control room indication is implied by the definition of Channel Functional Test.

References:
NRC SER for Virgil C. Summer Nuclear Station,
Reactor Trip Breaker Automatic Shunt Trip, 11/23/83
NUREG-0452, Revision 4
WCAP-10271, Supplement 1
OST 1.1.7
MSPs 1.04, 1.05, 1.14
UFSAR, Section 7
Technical Specifications 3.3.1
WCAP-10426
WOG-83-246, Attachment A, page 5

ATTACHMENT 1

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
1. Manual Reactor Trip	N.A.	N.A.	S/U(1)	N.A.
2. Power Range, Neutron Flux	S	D(2), M(3) and Q(6)	M	1, 2
3. Power Range, Neutron Flux, High Positive Rate	N.A.	R	M	1, 2
4. Power Range, Neutron Flux, High Negative Rate	N.A.	R	M	1, 2
5. Intermediate Range, Neutron Flux	S	N.A.	S/U(1)	1, 2 and *
6. Source Range, Neutron Flux	N.A.	N.A.	S/U(1)	2, 3, 4 and 5
7. Overtemperature ΔT	S	R	M	1, 2
8. Overpower ΔT	S	R	M	1, 2
9. Pressurizer Pressure--Low	S	R	M	1, 2
10. Pressurizer Pressure--High	S	R	M	1, 2
11. Pressurizer Water Level--High	S	R	M	1, 2
12. Loss of Flow - Single Loop	S	R	M	1

ATTACHMENT I

TABLE 4.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
13. Loss of Flow - Two Loops	S	R	N.A.	1
14. Steam Generator Water Level--Low-Low	S	R	M	1, 2
15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	S	R	M	1, 2
16. Undervoltage - Reactor Coolant Pumps	N.A.	R	M	1
17. Underfrequency - Reactor Coolant Pumps	N.A.	R	M	1
18. Turbine Trip				
A. Auto Stop Oil Pressure	N.A.	N.A.	S/U(1)	1, 2
B. Turbine Stop Valve Closure	N.A.	N.A.	S/U(1)	1, 2
19. Safety Injection Input from ESF	N.A.	N.A.	M(4)	1, 2
20. Reactor Coolant Pump Breaker Position Trip	N.A.	N.A.	R M(10)	N.A.
21. Reactor Trip Breaker	N.A.	N.A.	M(5) and S/U(1)	1, 2*
22. Automatic Trip Logic	N.A.	N.A.	M(5)	1, 2*

ATTACHMENT 1

TABLE 4.3-1 (Continued)

NOTATION

* - With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.

(1) - If not performed in previous 7 days.

(2) - Heat balance only, above 15% of RATED THERMAL POWER.

(3) - Compare incore to excore axial imbalance above 15% of RATED THERMAL POWER. Recalibrate if absolute difference $\geq$ 3 percent.

(4) - Manual ESF functional input check every 18 months.

(5) - Each train tested every other month.

(6) - Neutron detectors may be excluded from CHANNEL CALIBRATION.

(10) - The CHANNEL FUNCTIONAL TEST of the Reactor Trip Breakers shall verify independant OPERABILITY of the undervoltage and shunt trip attachments at least once per 18 months.

DOCUMENT/ PAGE PULLED

ANO. 8407240296

NO. OF PAGES 1

REASON

☐ PAGE ILLEGIBLE
☐ HARD COPY FILED AT. PDR CF
OTHER _____

☐ BETTER COPY REQUESTED ON __/__/__

☒ PAGE TOO LARGE TO FILM
☒ HARD COPY FILED AT. PDR (CF)
OTHER _____

☐ FILMED ON APERTURE CARD NO 8407240296-01