July 21, 2006

Mr. Gary Van Middlesworth
Vice President
Duane Arnold Energy Center
3277 DAEC Road
Palo, IA 52324-9785

SUBJECT: DUANE ARNOLD ENERGY CENTER - RELIEF REQUESTS RELATED TO THE FOURTH 10-YEAR INTERVAL INSERVICE TESTING (IST) PROGRAM (TAC NOS. MC8713, MC8784 AND MC8785)

Dear Mr. Van Middlesworth:

By letter to the Nuclear Regulatory Commission (NRC) dated August 1, 2005, as supplemented by letters dated January 4, May 8, and May 19, 2006, Nuclear Management Company, LLC (NMC) (the former licensee), for Duane Arnold Energy Center (DAEC), submitted three requests for relief which are related to the DAEC Inservice testing program (IST) program for the fourth
10-year interval. The supplemental letter dated May 8, 2006, provided additional information for two of the relief requests, VR-01 and PR-02 (TAC Nos. MC8713 and MC8785), withdrew one of the relief requests, PR-01 (TAC No. MC8784), and submitted a new relief request PR-03, for which the staff review is being completed under TAC No. MD1844).

Amendment No. 260, issued on January 27, 2006, transferred the DAEC license from NMC to FPL Energy Duane Arnold, LLC, (FPL Energy), thus, any reference to the “licensee“ refers to FPL Energy.

The NRC staff has completed its review of the licensee’s submittal.

In regards to relief request VR-01, our safety evaluation (SE) concludes that the licensee’s proposed alternative provides reasonable assurance of the operational readiness of the identified pumps, and that the proposed alternatives provide an acceptable level of quality and safety. The NRC staff has determined that relief is authorized for VR-01 pursuant to 10 CFR 50.55a(a)(3)(i) for the fourth 10-year IST program.

In regards to relief request PR-02, our SE concludes that compliance with the Code requirements is impractical and that the alternative provides reasonable assurance of the operational readiness of the Standby Liquid Control Pumps. The NRC staff has determined that granting relief pursuant to 10 CFR 50.55a(f)(6)(i) is authorized by law and will not endanger life or property or the common defense and security, and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. Relief is therefore authorized for PR-02 pursuant to 10 CFR 50.55a(f)(6)(i) for the fourth 10-year IST program.

If you have any questions concerning this matter, please contact your project manager, Ms. D. Spaulding of my staff at (301)415-2928.

A copy of the SE is also enclosed.

Sincerely,

/RA/

L. Raghavan, Chief
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-331

Enclosure:
As stated

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

NUCLEAR REACTOR REGULATION

DUANE ARNOLD ENERGY CENTER

FPL ENERGY DUANE ARNOLD, LLC

DOCKET NO. 50-331

1.0 INTRODUCTION

By letter to the Nuclear Regulatory Commission (NRC) dated August 1, 2005, as supplemented by letters dated January 4, May 8, and May 19, 2006, Nuclear Management Company, LLC (NMC) (the former licensee), for Duane Arnold Energy Center (DAEC), submitted three requests for relief which are related to the DAEC Inservice testing program (IST) program for the fourth
10-year interval. The supplemental letter dated May 8, 2006, provided additional information for two of the relief requests, VR-01 and PR-02 (TAC Nos. MC8713 and MC8785), withdrew one of the relief requests, PR-01 (TAC No. MC8784), and submitted a new relief request PR-03, for which the staff review is being completed under TAC No. MD1844.

Amendment No. 260, issued on January 27, 2006, transferred the DAEC license from NMC to FPL Energy Duane Arnold, LLC, (FPL Energy), thus, any reference to the “licensee“ refers to FPL Energy.

2.0 REGULATORY EVALUATION

The *Code of Federal Regulations*, 10 CFR 50.55a, requires that IST of certain American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 pumps and valves be performed at 120-month (10-year) IST program intervals in accordance with the specified ASME Code incorporated by reference in the regulations, except where alternatives have been authorized or relief has been requested by the licensee and granted by the Commission pursuant to paragraphs (a)(3)(i), (a)(3)(ii), or (f)(6)(i) of 10 CFR 50.55a. In accordance with 10 CFR 50.55a(f)(4)(ii), licensees are required to comply with the requirements of the latest edition and addenda of the ASME Code incorporated by reference in the regulations 12 months prior to the start of each 120-month IST program interval. In accordance with 50.55a(f)(4)(iv), IST of pumps and valves may meet the requirements set forth in subsequent editions and addenda that are incorporated by reference in 10 CFR 50.55a(b), subject to NRC approval. Portions of editions or addenda may be used provided that all related requirements of the respective editions and addenda are met.

In proposing alternatives or requesting relief, the licensee must demonstrate that: (1) the proposed alternatives provide an acceptable level of quality and safety; (2) compliance would

ENCLOSURE

result in hardship or unusual difficulty without a compensating increase in the level of quality and safety; or (3) conformance is impractical for the facility. Section 50.55a authorizes the Commission to approve alternatives and to grant relief from ASME Code requirements upon making necessary findings. NRC guidance contained in Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," provides alternatives to Code requirements which are acceptable. Further guidance is given in GL 89-04, Supplement 1, and NUREG-1482, Revision 1, "Guidance for Inservice Testing at Nuclear Power Plants."

The DAEC, fourth 10-year IST interval commenced February 1, 2006. The program was developed in accordance with the 2001 Edition through 2003 Addenda of the ASME *OM Code*. By letter dated August 1, 2005, NMC requested relief from certain requirements of the OM Code for its DAEC fourth 10-year IST interval.

The NRC's findings with respect to granting or denying the IST program relief requests are given below:

3.0 TECHNICAL EVALUATION

3.1 Relief Request No. VR-01

3.1.1 Code Requirements

2001 Edition and 2003 Addenda of the ASME OM Code

Paragraph ISTC-3510 Exercising Test Frequency, Active Category A, Category B, and Category C check valves shall be exercised nominally every 3 months except as provided by ISTC-3520, ISTC-3540, ISTC-3550, ISTC-3560, ISTC-5221 and ISTC-5222. Power-operated relief valves shall be exercise tested once per fuel cycle. Relief is requested for the following excess flow check valves (EFCVs):

XFV2119	XFV4457B	XFV4513	XFV4590	XFV4668
XFV2139	XFV4458A	XFV4514	XFV4591	XFV4669
XFV2246A	XFV4458B	XFV4515	XFV4607	XFV4670
XFV2246B	XFV4459A	XFV4516	XFV4608	XFV4671
XFV2246C	XFV4459B	XFV4518	XFV4611	XFV4672
XFV2246D	XFV4460A	XFV4519	XFV4612	XFV4673
XFV2443A	XFV4460B	XFV4528	XFV4637	XFV4674
XFV2443B	XFV4501A	XFV4562	XFV4638	XFV4675
XFV2443C	XFV4501B	XFV4578	XFV4641A	XFV4676
XFV2443D	XFV4503	XFV4579	XFV4641B	XFV4677
XFV4453A	XFV4504	XFV4580	XFV4642A	XFV4678
XFV4453B	XFV4505	XFV4581	XFV4642B	XFV4679
XFV4454A	XFV4506	XFV4582	XFV4643A	XFV4780
XFV4454B	XFV4507	XFV4583	XFV4643B	XFV4681
XFV4455A	XFV4508	XFV4584	XFV4644A	XFV4682
XFV4455B	XFV4510A	XFV4585	XFV4644B	XFV4666
XFV4456A	XFV4510B	XFV4586	XFV4663	XFV4667
XFV4456B	XFV4511	XFV4587	XFV4664	XFV4589
XFV4457A	XFV4512	XFV4588	XFV4665	

3.1.2 Licensee's Basis for Requesting Relief (As Stated)

The licensee states:

> The excess flow check valve is a simple device: the major components are poppet and spring. The spring holds the poppet open under static conditions. The valve will close upon sufficient differential pressure across the poppet. Functional testing of the valve is accomplished by venting the instrument side off the tube. The resultant increase in flow imposes a differential pressure across the poppet, which compresses the spring and decreases flow through the valve.
>
> Excess flow check valves have been extremely reliable throughout the industry. In the first 30 years of operation at the DAEC, no excess flow check valve has failed to close due to actual valve failure (i.e., not related to test methodology). The DAEC Technical Specifications (TS) detail what frequency is required to maintain a high degree of reliability and availability, and provide an acceptable level of quality and safety. In the NRC's safety evaluation, associated with Amendmemt No. 29, the staff concluded, "Based on the acceptability of the methods applied to estimate the release frequency, a relatively low release frequency estimate in conjunction with unlikely limit on core damage and negligible consequence of a release in the reactor building, we conclude that the increase in risk associated with the licensee's request for relaxation of EFCV surveillance testing to be sufficiently low and acceptable." DAEC requested this relief pursuant to 10CFR50.55a(a)(3)(i) to exercise excess flow check valves at the frequency specified in amended DAEC TS Surveillance Requirement (SR) 3.6.1.3.7.
>
> The NRC's Safety Evaluation also states that the radiological consequences of an unisolable rupture of an instrument line were evaluated in response to Regulatory Guide 1.11, as documented in DAEC UFSAR Section 1.8.11. This evaluation assumed a continuous discharge of reactor water through an instrument line with a 1/4 inch orifice for the duration of the detection and cooldown sequence. The assumptions for the accident evaluation do not change as a result of the change in test frequency, and the evaluation in the DAEC UFSAR Section 1.8.11 remains acceptable.
>
> General Electric NEDO-32977-A (Boiling Water Reactor Owner's Group (BWROG) Topical Report B21-00658-01), Excess Flow Check Valve Testing Relaxation, dated November, 1998, (revised through June, 2000) was approved by the staff on March 14, 2000. NEDO-32977-A provides additional bases for this relief request. The report concludes that the change in the test frequency had insignificant impact on valve reliability, and that the demonstrated reliability of EFCVs coupled with low consequences of EFCV failure provided adequate justification for extending the test interval up to once every 120 months.

3.1.3 Licensee's Proposed Alternative Testing

The licensee proposes:

> Excess flow check valves will be exercised at the frequency specified in amended DAEC TS Surveillance Requirement (SR) 3.6.1.3.7. The surveillance requirement is to test a representative sample of Excess Flow Check Valves so that each Excess Flow Check Valve is tested at least once every 10 years.
>
> The Excess Flow Check Valves have position indication in the control room. Check valve remote position indication is excluded from Regulatory Guide 1.97 as a required parameter for evaluating containment isolation. The remote position indication will be verified in the closed direction at the same frequency as the exercise test, which will be performed at the frequency prescribed in the amended DAEC TS Surveillance Requirement (SR) 3.6.1.3.7. After the close position test, the valves will be reset, and the remote open position indication will be verified. Although inadvertent actuation of an EFCV during operation is highly unlikely due to the spring-poppet design, the DAEC will verify the EFCV indicate open in the control room at a frequency greater than once every 2 years.
>
> The failure of an EFCV to isolate would be evaluated per the DAEC corrective action program. The DAEC 10 CFR 50.65 Maintenance Rule Program specifies a performance criteria of less than or equal to 1 maintenance preventable failure to isolate per year on a 3 year rolling average.

3.1.4 Evaluation - Relief Request No. VR-01

An EFCV is provided in each instrument process line that penetrates the drywell and is connected to the reactor coolant pressure boundary. The EFCV is designed so that it will not close accidently during normal operation, will close if a rupture of the instrument line is indicated downstream of the valve, can be reopened when appropriate, and has its status indicated in the control room. Because of the unique design, testing of these ECVs and verifying their closure indication require a simulated instrument line break. With a larger number of EFCVs at DAEC, the Code-required test could result in a burden as well as significant costs for the licensee. Therefore, the licensee proposes to perform the exercise tests on a sampling basis, i.e., approximately equal number of EFCVs are tested every 24 months and each EFCV is tested at least once every 10 years.

The proposed alternative described in the relief request is identical to the technical specification (TS) amendment request for Surveillance Requirement (SR) 3.6.1.3.7 that was submitted by letter dated April 12, 1999. The NRC staff safety evaluation (SE) regarding the proposed amendment was issued on December 29, 1999, and concluded that the increase in risk associated with the licensee's request for relaxation of EFCV testing is sufficiently low and acceptable. Additionally, an orifice is installed just inside the drywell in each of these instrument lines. The orifice limits leakage to a level where the integrity and functional performance of secondary containment and associated safety systems are maintained, and the coolant loss is within the capability of the reactor coolant makeup system.

The initial relief request VR-01 submitted by the licensee's letter dated August 1, 2005, referenced the DAEC TS Amendment No. 230 and referenced the Boiling-Water Reactor (BWR) Owners Group Topical report B21-00658-01, "Excess Flow Check Valve Testing Relaxation" as a basis for the relaxation. By letter dated March 14, 2000, the NRC submitted comments concerning generic application of EFCV testing relaxation to the BWR Owner's Group on this Topical Report and requested that the report be revised accordingly. The General Electric NEDO-32977-A Report, dated June 2000, which was submitted in response to the NRC comments, concluded that individual licensees will develop their own EFCV performance criteria. This conclusion considered that DAEC has included the EFCVs as a subset within the Maintenance Rule. As identified in the March 14, 2000, letter to the BWR Owners Group, the EFCV performance criteria should be based on sound reliability modeling that is consistent with generally expected performance of the EFCVs. Further, the corrective action program must evaluate equipment failures and establish appropriate corrective actions to comply with the performance criteria. NEDO-32977-A also identifies that such performance criteria and the basis, once developed, will be subject to staff review.

In response to staff questions, the licensee submitted a revised VR-01 relief request by letter dated January 4, 2006. This revised relief request correctly references NEDO-32977-A dated June, 2000, as additional bases for the relief request. This report concludes that the change in the test frequency had insignificant impact on valve reliability, and that the demonstrated reliability of EFCVs coupled with low consequences of EFCV failure provided adequate justification for extending the interval up to once every 120 months.

Section 4.1 of NEDO-32977-A speculates that most EFCVs fail to close due to sticking, and Attachment A testing data identifies 21 failures on Browns Ferry Nuclear (BFN) Plant, Unit 2, and 5 failures on BFN, Unit 3, due to crud buildup and sticking after extended outages. Table 4-1 of NEDO-32977-A shows that both BFN and DAEC use the same make of EFCV. Considering that NEDO-32977-A indicates DAEC has included EFCVs as a subset of the Maintenance Rule, the staff questioned if adequate maintenance would be performed on the EFCVs. The licensee was requested to indicate if there is any preventive maintenance performed on the EFCVs to prevent sticking and if no preventive maintenance is performed, to explain why such failures reported with similar valves are not expected when the valves are not exercised as frequently. The licensee's response by letter dated May 8, 2006, stated that the EFCV vendor manual states that, under normal operating conditions, the valve does not require maintenance of any kind and DAEC concurs with the vendor that preventive maintenance is not needed. Although the licensee did not address valve failures at BFN, it appears that these failures may have resulted from the plant-specific layup conditions during the extended outage, rather than defective valves.

Attachment B to NEDO-32977-A includes a radiological analysis of the consequences of an unisolable instrument line break. The NRC staff was concerned that the consequences of a common-mode failure caused by sticking in the event of a postulated high-energy line break outside containment, should be considered in evaluating the reliability of the valves to close. By letter dated May 19, 2006, the licensee responded that instrument lines containing EFCVs would not be impacted by postulated high-energy line breaks outside containment.

On the basis of information submitted by the licensee and the topical report submitted by the BWR Owner's Group, there is reasonable assurance that the proposed alternative testing

approach provides an acceptable level of quality and safety. The sampling approach that is consistent with the TSs will reduce radiation exposure during testing and provides a 95 percent confidence level for reliability based on current testing experience. Preventive maintenance is not required for these valves and the specified DAEC Maintenance Rule performance criteria should ensure continued reliability through effective corrective actions. The consequences of a rupture in an instrument line combined with a single-failure of an EFCV, have been analyzed and are shown to be acceptable. Therefore, the NRC staff finds that, due to the high reliability of the EFCVs and the acceptable consequences of a failure of an EFCV to isolate and trending of any EFCV test failures, the proposed alternative provides an acceptable level of quality and safety.

3.1.5 Conclusion - Relief Request No. VR-01

Based on the above evaluation, the staff concludes that the licensee's alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative provides an acceptable level of quality and safety. The licensee's proposed alternative provides reasonable assurance of the operational readiness of the identified pumps. Accordingly, the proposed alternative is authorized for the fourth10-year IST interval at DAEC.

3.2 Pump Relief Request No. PR-02

3.2.1 Code Requirements

Paragraph ISTB 3510(e), General Frequency Response Range, of the ASME OM Code requires that the frequency response range of the vibration measuring transducers and their readout system shall be from one-third minimum pump shaft rotational speed to at least 1000 Hz. Relief is requested for the following standby liquid control (SBLC) pumps.

1P230A
1P230B

3.2.2 Licensee's Basis for Requesting Relief

The licensee states:

> The nominal shaft rotational speed of these pumps is 242 rpm which is equivalent to approximately 4 Hz. Based on this frequency and ISTB-3510(e), the required frequency response range of instruments used for measuring pump vibration is 1.33 to 1000 Hz. Procurement and calibration of instruments to cover this range is impractical due to the limited number of vendors supplying such equipment and the level and sophistication and cost of the equipment.
>
> These are of a simplified reciprocating (piston) positive displacement design with rolling element bearings, Model Number TD-60, manufactured by Union Pump Corporation. Union Pump Corporation has performed an evaluation of the pump design and has determined that there are no probable sub-synchronous failure modes associated with these pumps under normal operating conditions. Furthermore, there are no known failure mechanisms that would be revealed by vibration at frequencies below that related to shaft speed (4 Hz); thus no useful information is obtained below this frequency nor

will indication of pump degradation be masked by instrumentation unable to collect data below this frequency to within tolerance prescribed by IST.

Sub-synchronous peaks are usually associated with sleeved bearing components. These frequencies detect shaft to sleeve rub and oil whirl. The IST requirement for detection to 1/3 running speed is to detect these failure mode types. However, this Union pump design utilizes roller bearings which do not have the same failure modes. For a roller bearing design, typical failure is ball or race related and occurs at frequencies greater than turning speed, classified as non-synchronous. As roller bearing fails, a corresponding change in 1 times turning speed and harmonics indicating excessive looseness and random impacting, not sub-synchronous frequencies, will be seen.

Per the manufacturer, there is no internal gearing in this pump model, therefore the input shaft RPM is also the crank RPM. The instrumentation for measuring vibration must be adequate for accurately assimilating information at this RPM. The significant modes of vibration with respect to equipment monitoring are as follows:

1-Times Crankshaft Speed - An increase in vibration at this frequency may be an indication of rubbing between a single crankshaft cheek and rod end, cavitation at a single valve, or coupling misalignment.

2-Times Crankshaft Speed - An increase in vibration at this frequency may be an indication of looseness at a single rod bearing or crosshead pin, a loose valve seat in the fluid cylinder, a loose plunger/crosshead stub connection, or coupling misalignment.

Other Multiple of Shaft Speed or Non-synchronous peaks - An increase in vibration at other frequencies may be an indications of cavitation at several valves, looseness at multiple locations or bearing degradation.

Per the manufacturer, all failure modes that cause vibration in the pump will be at multiples greater than the crank RPM.

Based on the forgoing discussion, it is clear that monitoring pump vibration within the frequency range of 4 to 1000 Hz will provide adequate information for evaluating pump condition and ensuring continued reliability with respect to the pumps' function.

Relief is requested pursuant to 10CFR 50.55a(a)(3)(i); the alternative testing will provide an acceptable level of quality and safety

3.2.3 Licensee's Proposed Alternative Testing

The licensee proposes:

Vibration levels of Standby Liquid Control Pumps will be measured in accordance with the applicable portions of ISTB 3500 with the exception of the lower frequency response limit for the instrumentation (ISTB 3510(e). In this case the lower response limit of the vibration measuring equipment will be 4.00 Hz.

In addition to the normal SBLC pump IST vibration peak overall result, DAEC engineering department personnel will routinely perform post spectral/waveform analysis of the vibration data to ensure no adverse trends toward mechanical degradation go undetected. This lower limit restriction will not affect the operational readiness of the Standby Liquid Control Pumps, and the OM Code maximum allowable vibration limits for the required action range are being maintained.

The proposed alternative will result in corrective action on a pump prior to the occurrence of significant degradation.

3.2.4 Evaluation - Relief Request No. PR-02

The licensee requests relief from the frequency response range requirements for the SBLC P230A and P230B. This relief is requested for the 4th 10-year inservice testing program interval. The ASME OM Code in paragraph ISTB 4.7.1(f) requires that the frequency response range for vibration measuring transducers and their readout system shall be from one-third of the minimum pump shaft rotational speed (2.3 Hz) to at least 1,000 Hz. The licensee proposes to use its existing instrumentation with a range of 4.03 Hz to 1,000 Hz.

These pumps are simplified, reciprocating (piston), positive-displacement pumps with rolling-element bearings. The pump manufacturer informed the licensee that this type of pump has no sub-synchronous failure modes. Furthermore, there are no known failure mechanisms that would be revealed by vibration at frequencies below those related to shaft speed (4 Hz). The licensee states that, based upon the absence of a credible failure mode, no useful information will be obtained by testing below the 4 Hz frequency nor will any indication of pump degradation be masked by instrumentation unable to collect data below frequency.

The licensee identified the frequencies where high vibration would provide an indication of pump degradation as a one time (1X) pump running speed, (2X) pump running speed, and multiples of pump running speed. The types of problems that could be encountered at these frequencies were also identified. The frequency spectrum of the signals generated is characteristic of each pump and constitutes a unique pattern. Analysis of the pattern allows identification of vibration sources, and monitoring of change over time permits evaluation of the mechanical condition of the pump.

By letter dated May 8, 2006, the licensee provided additional information to support the determination that the low frequency Code requirement was impractical for this application. The licensee stated that, in regard to a similar relief request for Pilgrim addressed in NUREG/CP-0152, Vol. 5, that the instrumentation utilized for Pilgrim would not meet the Code required accuracy for the DAEC's lower value of 1.33 Hz. Further, based on discussion with the DAEC instrument vendor, the licensee stated that technology is not readily available that can achieve the Code-required accuracy for the DAEC's 1/3 turning speed frequency of 1.33 Hz. On the low end of the range, the signal is integrated from acceleration to obtain velocity. The instrument manufacturer indicated that even with additional signal filtering the integration from acceleration to velocity will create a slope that would prevent from obtaining reliable data at frequencies this low. The integration creates a "ski-slope" on the low end so that at the Code-required frequencies low end frequencies for the DAEC, the data is corrupted by the "ski- slope" and the data would be unreliable.

Relief is granted pursuant to 10 CFR 50.55a(f)(6)(i) based on (1) the impracticality of performing the Code required testing; (2) consideration of the burden on the licensee if the Code requirements were imposed on the facility, and; (3) the proposed alternative testing providing an acceptable level of assurance of the operational readiness of the pumps.

3.2.5 Conclusion - Relief Request PR-02

Based on the above evaluation, the staff concludes that the licensee's alternative is authorized pursuant to 10 CFR 50.55a(f)(6)(i) on the basis that compliance with the Code requirements is impractical and that the alternative provides reasonable assurance of the operational readiness of the SBLC Pumps. The staff further concludes that granting the relief will not endanger life or property or the common defense and security and is otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. The licensee's proposed alternative provides reasonable assurance of the operational readiness of the identified pump. Accordingly, relief is authorized for the fourth 10-year IST interval.

4.0 CONCLUSION

In regards to relief request VR-01, our SE concludes that the licensee's proposed alternative provides reasonable assurance of the operational readiness of the identified pumps, and that the proposed alternatives provide an acceptable level of quality and safety. The NRC staff has determined that relief is authorized for VR-01 pursuant to 10 CFR 50.55a(a)(3)(i) for the fourth 10-year IST program.

In regards to relief request PR-02, our SE concludes that compliance with the Code requirements is impractical and that the alternative provides reasonable assurance of the operational readiness of the SBLC Pumps. The NRC staff has determined that granting relief pursuant to 10 CFR 50.55a(f)(6)(i) is authorized by law and will not endanger life or property or the common defense and security, and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. Relief is therefore authorized for PR-02 pursuant to 10 CFR 50.55a(f)(6)(i) for the fourth 10-year IST program.

Principal Contributor: R. McNally

Date: July 21, 2006

Duane Arnold Energy Center

cc:

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