

March 20, 2015

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U.S. Nuclear Regulatory Commission  
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50-247  
TAC MF5727

Re: Proposed license amendment for Indian Point Unit 2 regarding Technical Specification 3.1.4  
"Reactivity Control Systems"

Dear Mr. Pickett:

The State of New York welcomes the opportunity to provide comments on the February 12, 2015  
proposed license amendment. The State's comments are enclosed.

Thank you for your consideration of our comments. We look forward to your response.

Sincerely,



Alyse Peterson  
Senior Project Manager  
State Liaison Officer – Designee

Designated Original  
Douglas Pickett  
3/23/15

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Written Comments Submitted by the State of New York  
Concerning Proposed License Amendment Regarding Indian Point Unit 2  
Technical Specification 3.1.4 “Reactivity Control Systems”  
(Operating License DPR-26)

I. Introduction

On February 12, 2015, pursuant to 10 CFR § 50.92(c), Entergy requested an amendment to the operating license for its Indian Point Unit 2 facility (IP2) (“Request”). Section 50.92(c) states that the NRC will only approve such a request if it can find that operation of the facility post-amendment would not involve any “significant hazards.” In its Request, Entergy seeks to postpone from March 15, 2015 until March 2016 – when IP2’s next refueling outage is scheduled – the further testing and repair of the control rod drive mechanism (CRDM) for Control Rod G-3, which recent testing has shown to be “mis-aligned.”

Entergy’s bottom-line rationale for requesting this year-long postponement of safety testing appears to be that since this particular Control Rod has not responded as expected during two surveillance tests, it would rather not further disturb the Control Rod – risking a malfunction – until it can do so without upsetting its previously-determined commercial operation schedule.

But this delay in finally determining and addressing the cause of the misalignment is at odds with both the State of New York’s imperative for certainty with respect to the safety and reliability of IP2, and with the standard for the NRC’s review of such amendment requests. Importantly, Entergy does *not* address in its Request the questions of whether (1) the identified likely cause of the “misalignment” – a build-up of Corrosion Related Unidentified Deposit (CRUD) on the CRDM – could cause the Rod to fall into the reactor inadvertently, which would result in a significant down-powering of the plant and a likely unplanned shutdown in order to remove the Rod, or (2) the CRUD build-up could be unique to this particular Control Rod, or whether it is reasonable to assume that because of conditions within the reactor such CRUD build-up may be now, or should be expected to become over the next year, problematic for other Control Rods.

Therefore, and for the reasons discussed in more detail below, operation of IP2 for the next year without further investigating and addressing the problems with respect to the functionality of at least one Control Rod does not satisfy the criteria the NRC must use when considering such an amendment request. Moreover, such uncertainty with respect to IP2 is not acceptable to the State of New York.

II. Technical Background

Overall reactivity control, or core power output, of IP2 is accomplished through the manipulation of 53 control rod clusters. The reactor control system Surveillance Requirement 3.1.4.2 is intended to demonstrate that the control rods are operable to perform their design function of tripping and dropping by gravity into the core. Each individual control rod is required to meet Surveillance Requirement 3.1.4.2 every 92 days. However, Control Rod G-3 did not respond as expected during the last two surveillance tests. Therefore, as explained in its request, Entergy

has concerns that any additional testing on Control Rod G-3 may cause the Rod to drop into the core, causing a multiple-day plant shutdown for repairs.

New York State technical staff has reviewed the February 12, 2015 license amendment request, and has the following significant technical concerns:

1. Entergy has concluded that the cause of Control Rod G-3 misalignment during testing is CRUD. The NRC describes CRUD as radioactive corrosion products generated through the neutron activation of general corrosion products at nuclear power plants. Generally, radioactive corrosion products exist in soluble and insoluble forms, and are removed by ion exchangers and purification filters. Most of the insoluble radioactive corrosion products have the characteristic of showing strong ferrimagnetism and are attracted to control rod drive mechanisms due to their magnetic fields.

CRUD buildup on Control Rod G-3 could result in mechanical binding during movement, preventing the Control Rod from fulfilling its intended reactor safety purpose. If Control Rod G-3 is incapable of inserting fully into the reactor core due to CRUD, staff recommends this be revealed through the required surveillance testing and not after an event requiring full shutdown of the Unit 2 reactor.

2. Entergy expresses the concern that Control Rod G-3 could drop into the core with any additional manipulation or testing. See Request at p. 7. The loss of Control Rod G-3 would result in a Unit 2 maintenance outage lasting several days. The State of New York respectfully suggests that this maintenance outage be planned in an orderly manner to occur in the next 60 days rather than following an unanticipated and rapid shutdown on an unplanned date over the next year. Staff recommends Control Rod G-3 be tested and repaired in accordance with the current surveillance schedule mandated by IP2's Operating License.

### III. Review of Entergy's Amendment Request

The NRC only grants amendments to operating licenses if it determines that such an amendment would lead to "no significant hazards." To make such a determination the NRC must find that operation of the facility post-amendment would not:

- (1) Involve a significant increase in the probability or consequences of an accident previously evaluated;
- (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.

10 CFR § 50.92(c).

Entergy answers each of these questions in the negative in its Request, but the factual foundation for its answers is incomplete. With respect to each prong of the analysis, Entergy puts forth unproven factual premises, fails to contemplate potential accidents that may be caused by a malfunction of the Control Rod, and does not address at all the "significance" of any of the

potential accidents that could occur during the proposed year-long postponement of safety testing.

1. With respect to the first prong of the analysis – whether operation pursuant to the requested amendment would not “Involve a significant increase in the probability or consequences of an accident previously evaluated” – Entergy’s assessment of this probability is limited to a conceptual framework that does not include the possibility that whatever the cause of the identified Control Rod problem, such cause may be exacerbated to a level that is even more problematic over the course of time. Entergy only answers the question of whether the delay may further increase the likelihood that the Control Rod could not be tripped to fall into the reactor; Entergy fails to address the question of whether the postponement and continued build-up of CRUD or exacerbation of another cause could lead to the inadvertent drop of the Control Rod into the reactor. Such an accident could cause an unanticipated and unplanned shut-down of IP2. Therefore, Entergy has failed to provide the factual basis for the NRC to make a finding with regard to this criterion.

2. In its response regarding the second prong – whether operation under the amendment would not “Create the possibility of a new or different kind of accident from any accident previously evaluated” – Entergy addresses only a straw proposal of whether a proposed change to the operation of IP2, or installation of new equipment, creates such a possibility. Entergy does not address at all the question of whether a year-long postponement of addressing a “mis-alignment” of one of its control rods creates a possibility of the Rod inadvertently dropping into the reactor or of not dropping into the reactor, nor does Entergy address the question of whether such a potential accident caused by a misaligned control rod has been “previously evaluated.” Therefore, Entergy has failed to provide the factual basis for the NRC to make a finding with regard to this criterion.

3. With regard to the third prong of the NRC’s “no significant hazards” consideration – whether operation under the amendment would not “Involve a significant reduction in a margin of safety” – Entergy’s analysis is again incomplete. In particular, Entergy only states that since prior testing has not indicated problems with “binding that could prevent the rod from inserting,” “[t]here are no indications that the trip function would not work.” See request at p. 9. But Entergy does not address at all whether a current potential impact of the CRUD build-up could be an inadvertent drop of the Rod, nor does Entergy address the potential problems that may be caused to the Control Rod at issue or any other control rod or cluster of rods if the build-up is allowed to go unaddressed for another year.

#### IV. Conclusion

Entergy’s Request is incomplete and fails to satisfactorily address numerous questions surrounding the cause of the Rod misalignment, the impacts of the requested testing postponement, and the various potential accidents that may occur in addition to a failure of the Rod to drop into the reactor when tripped. In light of the NRC’s clear criteria for considering such a request, and given the potential impacts of any accident at the facility due to its geographic location, the State of New York hereby opposes Entergy’s Request for an amendment deferring this required test. New York State’s strongly held position is that any issue with this

particular CRDM and Control Rod should be addressed as soon as possible, and other control rods should be inspected for a determination of whether CRUD build-up is or may impact their operability in the future.