

Paul M. Blanch
Energy Consultant

17 September 2018

Ms. Margaret Doane
Executive Director for Operations
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Ms. Doane:

SUBJECT:

10 CFR 2.206 Petition Regarding Violations of Regulations
Indian Point Units 2 and 3
Docket Nos. 50-247 and 50-286
License Nos. DPR-26 and DPR-64

I am submitting this 10 CFR 2.206 petition on behalf of myself based upon my review of the enclosed referenced documents. It is my belief that Entergy violated the requirements of 10 CFR 50.5 and 50.9 in that it provided material false and misleading information to the NRC and that enforcement actions must be imposed against Entergy for clear violations of these explicit NRC Regulations.

The first material false statement by Entergy was contained in the letter from Entergy dated August 21, 2014 (Reference #3) and stated:

"This hazards analysis considers the effects of the gas pipeline rupture to involve the approximately 3 miles of pipeline between isolation valves and considers the event to be terminated by manual action within 3 minutes¹ after any pipeline rupture event by closing the closest isolation valves and limiting the event to the gas between these valves."

and

"Based on an average release rate of 1877 kg/s for a 360-second period. This rate comprises the release of 376,000 kg in the first minute (from ALOHA), a release of 200,000 kg in the next two minutes (accounting used for the pressure drop) and 100,000 kg after valve closure. This last will take an additional 3minutes after the valves are closed² (from ALOHA)."

¹ I have reviewed numerous documents both from the NRC and Entergy, and have not been able to find any reference supporting this claimed 3-minute isolation time. Search of all literature, including NTSB Investigations, also fails to identify any case where a gas line was isolated within 30 minutes of a gas line rupture.

² On September 10, 2018 a 24" gas line ruptured "shortly before 5 a.m. ET in Center Township in Beaver County," Pennsylvania. This rupture reportedly also caused to failure of electrical transmission towers in the vicinity.²

and

"After valve closure, full bore release from the pipeline will persist for another 2 to 3 minutes. The release following guillotine rupture will therefore be 5 to 6 minutes duration."

These statements were reinforced in response to FOIA requests. They are materially false and appear to be deliberate in that any engineer conducting research on historic gas line failures³ would quickly recognize the impossibility of isolating lines and terminating flow within 3 or 6 minutes. These statements are material in that these assumptions formed the basis for confirmatory analysis and final approval by FERC for the AIM project.

The statement *"approximately 3 miles of pipeline between isolation valves"* appears to have no basis as more than three miles of piping exists between isolation valves and may also be an inaccurate statement.

On September 10, 2018, FERC sent a letter⁴ to the Honorable Sandra Galef, New York State Legislature stating:

"In regard to your concerns about the pipeline in proximity to the Indian Point Energy Center, the Commission takes safety very seriously. The final EIS included a robust safety analysis, acknowledging that the U.S. Nuclear Regulatory Commission (NRC) is the expert authority and enforcing agency for evaluating and ensuring the safe operation of nuclear facilities at Indian Point Energy Center, including risks associated with external factors. As documented in the EIS, the NRC reviewed a safety evaluation by Entergy Nuclear Operations Inc. (Entergy), the owner and operator of the Indian Point facility. The evaluation included considerations related to the construction of a portion of the AIM Project in the vicinity of the Indian Point facility, and determined that the proposed pipeline would not pose increased risks to the Indian Point facility or reduce the margin of safety."

And

"The NRC also performed its own independent confirmatory analysis and concluded that the AIM Project would not adversely impact the safe operation of the Indian Point facility. The final EIS explained that the NRC's analysis covered everything within Indian Point's Security Owner Controlled Area, or outer most fenced area of the facility, including the area with the spent fuel rods. Based on these analyses, the Commission found that the AIM Project will not result in increased safety impacts at the Indian Point facility."

This letter from FERC reinforces the safety impact of these false statements and their impact on the entire FERC approval process. The NRC must immediately inform FERC and PHMSA that Entergy's and the NRC's analyses were based upon this material false information.

The pipelines near Indian Point also cross redundant electrical transmission lines that may be impacted by a gas line event resulting in a loss of offsite power, thus increasing the probability of an analyzed event. This rupture also supports the fallacy of the 3-minute isolation time. This event was identified at 5:00 AM and isolated at 5:52 AM. Actual time of the event has not yet been determined.

³ <https://www.nts.gov/investigations/AccidentReports/Pages/pipeline.aspx>

⁴ Attachment 2

These statements by Entergy appear to be a violation of “10 CFR § 50.5 Deliberate Misconduct” by Entergy and its contractors for failing to identify the potential of unignited methane (natural gas) entering either or both the Indian Point Control or the electrical switchgear room located below the control room.

The second issue is the lack of “10 CFR § 50.9 Completeness and accuracy of information.” It appears that Entergy and its contractors failed to consider the high probability event of natural gas leaking from any of the gas transmission lines in the vicinity of Indian Point. Entergy has never considered this event, as the results are so catastrophic. The identification of this potential event is required to be reported within eight hours as required by § 50.72 “Immediate notification requirements for operating nuclear power reactors.” Which states

(3) Eight-hour reports. If not reported under paragraphs (a), (b)(1) or (b)(2) of this section, the licensee shall notify the NRC as soon as practical and in all cases within eight hours of the occurrence of any of the following:

(B) The nuclear power plant being in an unanalyzed condition that significantly degrades plant safety.

10 CFR 50.59 clearly states:

(c)(1) A licensee may make changes in the facility as described in the final safety analysis report (as updated), make changes in the procedures as described in the final safety analysis report (as updated), and conduct tests or experiments not described in the final safety analysis report (as updated) without obtaining a license amendment pursuant to Sec. 50.90 only if:

it does not

(v) “Create a possibility for an accident of a different type than any previously evaluated in the final safety analysis report (as updated);”

In its analysis, Entergy failed to consider this “accident of a different type than any previously evaluated in the final safety analysis report (as updated). I have reviewed the FSAR and this potential accident has never been evaluated, therefore Entergy and the NRC should not have permitted this change under 10 CFR § 50.59.

The cited references also discuss the potential for a “vapor cloud” capable of reaching safety related structures, systems and components from the existing gas transmission pipelines, none of these references discuss the high probability that a vapor cloud may encompass the Unit #3 control building and the electrical switchgear room located directly below the control room.

Reference #1 totally discounts this possibility and with respect to a potential vapor cloud and clearly state:

*“The report concluded that the rupture of the natural gas pipelines that cross the Indian Point site and subsequent ignition of methane released **will result in a jet fire**”*

[Emphasis added] and injury or death to any people exposed to flames or intense thermal radiation. It will not, however, damage any safety related structure.”

“Even in the unlikely event of a hypothetical vapor cloud explosion, structural damage to buildings other than the waterfront warehouse adjacent to the pipelines will not occur. A flammable vapor cloud that engulfs the plant is improbable because the turbulent momentum with which the methane exits the pipeline will confine flammable concentrations to the point of release.”

Reference #4 states:

*“Assuming 3 miles of AIM Project pipeline near IPEC, the accident rate is determined to be 1.5×10^{-3} /yr. Based on the information in these references, estimating 1 percent of accidents result in a complete pipe break or 100 percent instantaneous release, and **assuming also only 5 percent of the time that the released gas becomes ignited** [Emphasis added] leading to potential explosion, the explosion frequency for the AIM project pipeline near IPEC is calculated to be about 7.5×10^{-7} /yr.”*

The impact of a vapor cloud was totally ignored even though it is the most likely scenario from Entergy’s own analysis approved by the NRC. When it was considered, the impact of overpressure was assumed external to the vital structures and did not consider ingress to the Control and Switchgear rooms and other vital structures

Using Entergy’s own words that “... 5 percent of the time that the released gas becomes ignited,” means that for any given gas line rupture or leak there is a 95% chance a vapor cloud will be produced. This vapor cloud may originate from either the new AIM pipeline or the existing gas lines adjacent (400 feet) to the Unit #3 control and switchgear rooms.

With a stated pipeline failure probability of 1.5×10^{-3} /yr/mile and a 95% chance of a vapor cloud formation from a leak or rupture, the probability remains in the range greater than 10^{-3} /yr for the three gas transmission lines. I fully recognize there is not a 100% chance this unignited methane will reach the control building thus the probability of the event will be somewhat lower but still much greater than the probabilities provided to the NRC. Even if there is only a 1% chance of the vapor cloud reaching the control and switchgear rooms, the probability of this event remains unacceptable.

There is a non-zero probability that the unignited gas will migrate to the control room intake and the air intake to the electrical switchgear room. Should this occur, it is likely that a contained detonation will occur in the control room⁵, as there is no means to detect and isolate the control room other than detection from the “smell⁶” from the methane gas. From personal

⁵ Examples of confined detonations are provided in Attachment 1

⁶ From Regulatory Guide 1.78: “Human detection, i.e., smell, may be appropriate when no detection instruments are available in the control room for given chemical types.”

experience as a reactor control operator in a confined space, it would be likely this foul odor could originate from a different commonly experienced source and no action taken. Regulatory Guide 1.78 permits detection via “smell” but only when no detection instruments are available⁷. There is no training of the control room operators for this type of event.

A second and potentially more significant event would be the ingestion of the vapor cloud into the electrical switchgear room. Like the control room, there is no means to detect this unexploded gas and no one present to detect the gas by its “smell.”

Should this event occur, there are hundreds of ignition sources that would result in either a deflagration or the detonation, likely destroying most safety and non-safety electrical supplies. Even the post Fukushima “fixes” and generators may not be available as the connections for these emergency systems are also located in the impacted area.

The consequences of loss of the switchgear room are an accident that has never been analyzed or considered. Not only would loss of off site power occur but also all AC and DC power would eventually be lost resulting in an extended station blackout.

All emergency core cooling systems (ECCS) and spent fuel cooling would be lost with unimaginable consequences. The integrity of the control building may be lost.

Reference #3 provides a summary of Entergy’s 10 CFR 50.59 evaluations. One of the criterion for a change to be approved under 10 CFR 50.59 is that it will not “*Create a possibility for an accident of a different type than any previously evaluated in the final safety analysis report (as updated);*”

Once again, Entergy failed to consider a vapor cloud and other potential events and their impact on the control room and the electrical switchgear room. This is a new type of accident that has not been previously considered.

In its analysis Entergy only considered to volume of 3 miles of pipe when the actual distance between valves is significantly greater. Again, this appears to be an inaccurate statement.

In summary, Entergy has provided material false statements to the NRC related to the gas closure times and inaccurate and incomplete information related to its 10 CFR 50.59 evaluations by failing to identify accidents of a different type than any previously evaluated in the final safety analysis report.

This is an extremely significant issue as these failures by Entergy and its contractors has resulted in the propagation of this false and incomplete and inaccurate information to both

⁷ Methane detectors are readily available from numerous suppliers.

Federal and State agencies resulting in the approval of the 42-inch gas pipeline based on this false information.

I respectfully request the NRC take immediate enforcement actions for potential violations of 10 CFR § 50.5 and 10 CFR § 50.9 and inform FERC, PHMSA, and the State of New York that the NRC's analysis was based on inaccurate and false information provided to the NRC by Entergy.



Paul M. Blanch
135 Hyde Rd.
West Hartford, CT 06117
860-236-0326

cc:

NRC Chairman Svinicki
Honorable Sandra Galef
FERC Chairman Kevin McIntyre

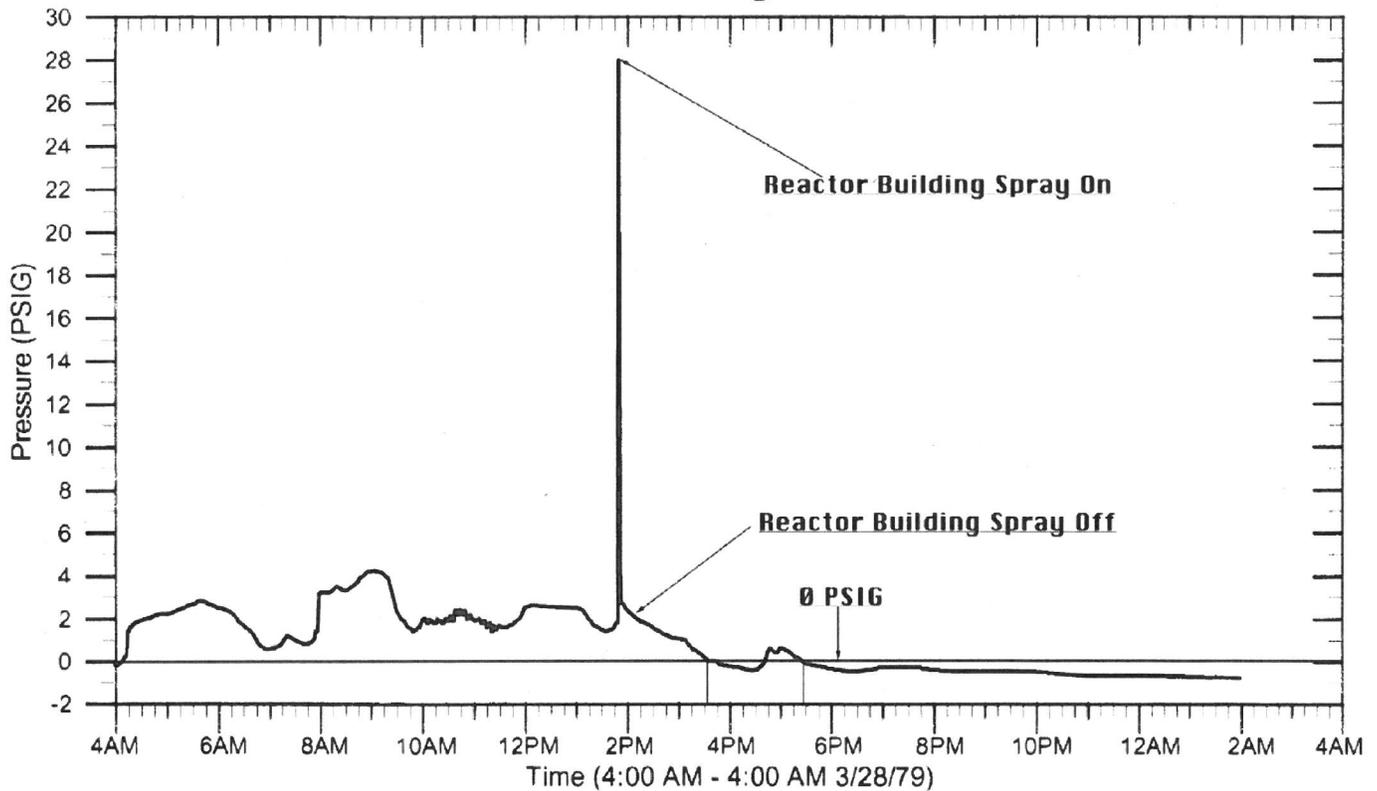
REFERENCES:

1. Engineering Report No. IP-RPT-15-00048, consisting of a cover sheet and a 2015 Evaluation Report, "Consequences of a Postulated Fire or Explosion Following the Release of Natural Gas from the Existing 26" and 30" Pipelines Near IPEC", dated October 7, 2015
2. 2008 Report (ENOC-08-00046), "Consequences of Fire and Explosion Following the Release of Natural Gas from Pipelines Adjacent to Indian Point"
 - a. Indian Point Nuclear Generating Unit Nos. 2 & 3
3. 10 C.F.R. 50.59 Safety Evaluation and Supporting Analyses Prepared in Response to the Algonquin Incremental Market Natural Gas Project Indian Point Nuclear Generating Unit Nos. 2 & 3 Docket Nos. 50-247 and 50-286 License Nos. DPR-26 and DPR-64 dated August 21, 2014
4. IN RESPONSE REFER TO FOIA Appeal 2015-0012A (FOIA Request 2015-0062) Dated February 26, 2015
5. Letter From FERC Chairman McIntyre to Honorable Sandra Galef, New York State Legislature dated September 10, 2018

Attachment 1

Examples of confined deflagrations or detonations are shown below, the first from TMI event and the most recent from August 30, 2018. All of these events (TMI included) resulted in loss of integrity of the containing structures.

Figure 1.8
Reactor Building Pressure



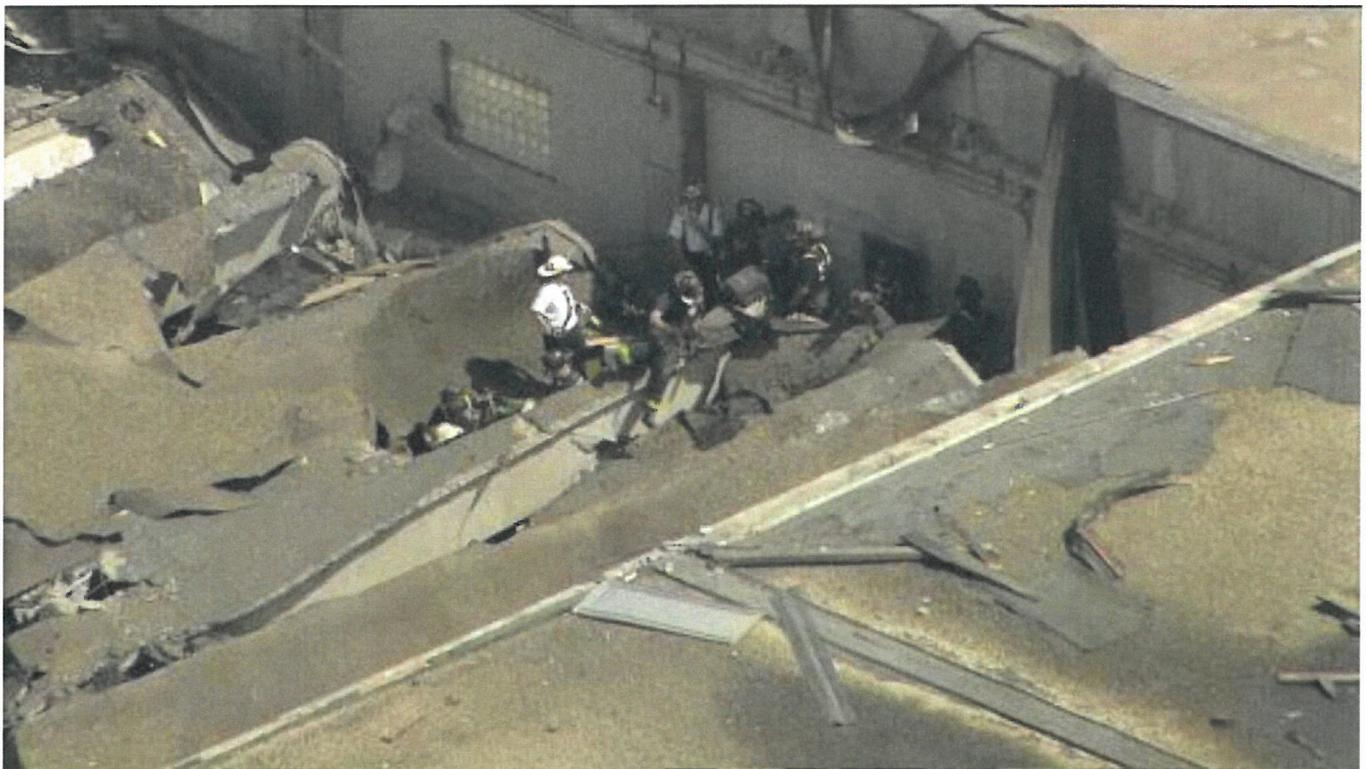
Confined detonation in containment at TMI
resulting in loss of reactor containment integrity



Results showing effects of partially contained natural gas explosion in Connecticut 2010
(Five Fatalities)



Partially contained explosion at Fukushima March 2011



Chicago Natural Gas Explosion August 30, 2018

Attachment 2

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, DC 20426

September 10, 2018

OFFICE OF THE CHAIRMAN

The Honorable Sandra Galef
New York State Legislature
2 Church Street
Ossining, NY 10562

Dear Assemblywoman Galef:

Thank you for your July 24, 2018, letter concerning Algonquin Gas Transmission L.L.C. (Algonquin) Algonquin Incremental Market (AIM) Project (Docket No. CP14-96-000). Your letter also forwards correspondence to my attention from the New York State agencies dated June 22, 2018.

The Commission expended significant efforts to address public safety concerns regarding the AIM Project and its proximity to the Indian Point Energy Center during its review of the project. Commission staff performed an independent analysis of constructing and operating the AIM Project in a final environmental impact statement (EIS), issued on January 23, 2015. The final EIS consisted of over 2,500 pages, providing direct responses to individual comments and analyzing the potential health, safety, and environmental impacts of the AIM Project.

In regard to your concerns about the pipeline in proximity to the Indian Point Energy Center, the Commission takes safety very seriously. The final EIS included a robust safety analysis, acknowledging that the U.S. Nuclear Regulatory Commission (NRC) is the expert authority and enforcing agency for evaluating and ensuring the safe operation of nuclear facilities at Indian Point Energy Center, including risks associated with external factors. As documented in the EIS, the NRC reviewed a safety evaluation by Entergy Nuclear Operations Inc. (Entergy), the owner and operator of the Indian Point facility. The evaluation included considerations related to the construction of a portion of the AIM Project in the vicinity of the Indian Point facility, and determined that the proposed pipeline would not pose increased risks to the Indian Point facility or reduce the margin of safety.

The NRC also performed its own independent confirmatory analysis and concluded that the AIM Project would not adversely impact the safe operation of the Indian Point facility. The final EIS explained that the NRC's analysis covered everything within Indian Point's Security Owner Controlled Area, or outer most fenced area of the facility, including the area with the spent fuel rods. Based on these analyses, the Commission found that the AIM Project will not result in increased safety impacts at the Indian Point facility.

The Commission further addressed stakeholder concerns regarding the Indian Point facility in its March 3, 2015 Order Issuing Certificate and its January 28, 2016 Order Denying Rehearing and Dismissing Stay Request. On July 27, 2018 the U.S. Court of Appeals for the D.C. Circuit upheld the Commission's approval of the AIM Project.¹ In particular, the court found that the Commission acceptably relied on the NRC's expertise in assessing external threats to the nuclear facilities it regulates, noting the NRC's extensive formal responses to opposing expert concerns. The court also found that the Commission's factual findings were conclusive, meeting the substantial-evidence threshold. The Commission authorized Algonquin to fully place the AIM Project into service on December 30, 2016, and there is no pending proceeding before the Commission related to this project. The Commission is unaware of any proposals to increase the capacity or pressure on the AIM Project pipelines, and a review of identified safety implications on any future modifications would occur in response to a specific application, as applicable.

In addition, the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) has exclusive jurisdiction to enforce compliance with pipeline safety standards and regulations. PHMSA's safety mission is to ensure that people and the environment are protected from the risk of pipeline incidents. This work is shared with state agency partners and others at the federal, state, and local level who may perform inspections of interstate pipelines; however, PHMSA maintains the exclusive authority to enforce compliance. Commission staff has forwarded your safety concerns to PHMSA, and I encourage you to continue coordinating with PHMSA to resolve your safety concerns. I have copied the appropriate PHMSA point of contact to assist in your coordination efforts.

Finally, you seek responses to five questions regarding previous Entergy and NRC safety analyses, as posed by the New York State Agencies, including the New York State Department of Homeland Security and Emergency Services, Department of Public Service, Department of Health, and the Department of Environmental Conservation. These questions relate to the Entergy and NRC analyses performed for the AIM Project, as well as other past NRC analyses of Algonquin's pre-existing pipelines that cross the Indian Point facility property, including one pipeline that has been in operation since before the Indian Point facility was constructed. These questions regarding NRC's specific assumptions, modeling, and historical practices; comparisons to other nuclear facilities; results of other NRC evaluations at the Indian Point facility; and public availability of NRC studies are more appropriately directed to the NRC for response. I have copied the appropriate NRC point of contact, and encourage you to coordinate with NRC to resolve your specific questions about their analyses.

¹ *City of Boston Delegation, et al. v. FERC*, No. 16-1081, *et al.* (D.C. Cir. July 27, 2018).

I hope the above information has been helpful. If I can be of any further assistance in this or any other Commission matter, please let me know.

Sincerely,

A handwritten signature in black ink, appearing to read "Kevin J. McIntyre". The signature is fluid and cursive, with the first name "Kevin" and last name "McIntyre" clearly legible.

Kevin J. McIntyre
Chairman

cc:

Office of Pipeline Safety

Pipeline and Hazardous Materials Safety Administration

U.S. Department of Transportation

Attention: Allie Aguilera, Director of Office of Governmental, International and Public Affairs (PHG-1)

1200 New Jersey Ave, SE, Mail Stop: E24-455

Washington, DC 20590

Kristine Svinicki, Chair

U.S. Nuclear Regulatory Commission

Mail Stop O-16B33

Washington, DC 20555-0001

CHAIRMAN Resource

From: Paul <pdblanch@comcast.net>
Sent: Monday, September 17, 2018 12:50 PM
To: Doane, Margaret
Cc: CHAIRMAN Resource; Haagensen, Brian; Holian, Brian; Raspa, Rossana; Spicher, Terri; Paul Blanch; Steve Otis; Madeline Johl; courtney williams; Amy Rosmarin; Unknown; Marie Inserra; Sandra Galef; Tina Bongar; nancy vann; Paola Dalle Carbonare; Unknown; Sandra Galef; Unknown; Bette Ann Jaster OP; David Buchwald; Ellen Weininger; Andrew Leibert; Dave A Lochbaum; Maggie Coulter; Richard Webster; Joel Gordes; steve; rossbuggy@aol.com; Erik Pedersen; Susan Babdolden; Bob Alvarez; arnie@fairewinds.com; Karen Boyler Andrews; Basil Seggos; Carolyn Elefant; Dorfman, Prof. David N.; Jim Conca; Peter Alexander; William Huston; Lucas Hixson; Vincent Hammer; Suzannah Glidden; Paul Gallay; Gary Shaw; Yuri Gorby; Dentel, Glenn; Gordon Thompson; George Fowler; Mark F Samek; Freedhoff, Michal; Kim Fraczek; Florance Crossman; marilyn elie; Eur opean. Cruises; Jeff Donn; Screnci, Diane; Dean, Bill; Lew, David; Don Reder; dpringle@cleanwater.org; Greg Jaczko; George and Eileen; john.sipos@dps.ny.gov; Jeff Donn; Kim, James; Michael Quinn; Matthew WALD; Nancy Vann; notification+p=zgfc6z@facebookmail.com
Subject: [External_Sender] 2.206 Petition on Entergy's material false statements
Attachments: 20180917 2.206 Final signed NRC Petition.pdf

Ms. Doane:

Please see enclosed 2.206 petition.

Also note I have sent a copy to the NRC's Senior Resident Inspector at Indian Point as I believe one of the issues addressed herein requires immediate attention by the NRC and Entergy for an eight hour report under 10 CFR 50.72.

Please acknowledge receipt.

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Paul M. Blanch
Energy Consultant

17 September 2018

Ms. Margaret Doane

Executive Director for Operations

U.S. Nuclear Regulatory Commission

Washington, DC 20555-0001

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