FOIA/PA NO: 2015-0176

GROUP: B

RECORDS BEING RELEASED IN-PART

The following types of information are being withheld:

Ex. 1: ☐ Records properly classified pursuant to Executive Order 13526
Ex. 2: ☐ Records regarding personnel rules and/or human capital administration
Ex. 3: ☐ Information about the design, manufacture, or utilization of nuclear weapons
☐ Information about the protection or security of reactors and nuclear materials
☐ Contractor proposals not incorporated into a final contract with the NRC
☐ Other_____
Ex. 4: ☐ Proprietary information provided by a submitter to the NRC
☐ Other_____
Ex. 5: ☑ Draft documents or other pre-decisional deliberative documents (D.P. Privilege)
☐ Records prepared by counsel in anticipation of litigation (A.W.P. Privilege)
☐ Privileged communications between counsel and a client (A.C. Privilege)
☐ Other_____
Ex. 6: ☐ Agency employee PII, including SSN, contact information, birthdates, etc.
☐ Third party PII, including names, phone numbers, or other personal information
Ex. 7(A): ☐ Copies of ongoing investigation case files, exhibits, notes, ROI's, etc.
☐ Records that reference or are related to a separate ongoing investigation(s)
Ex. 7(C): ☐ Special Agent or other law enforcement PII
☐ PII of third parties referenced in records compiled for law enforcement purposes
Ex. 7(D): ☐ Witnesses' and Allegers' PII in law enforcement records
☐ Confidential Informant or law enforcement information provided by other entity
Ex. 7(E): ☐ Law Enforcement Technique/Procedure used for criminal investigations
☐ Technique or procedure used for security or prevention of criminal activity
Ex. 7(F): ☑ Information that could aid a terrorist or compromise security

Tammara, Seshagiri

From: Tammara, Seshagiri
Sent: Wednesday, September 17, 2014 2:36 PM
To: Pickett, Douglas
Subject: FW: IPEC Gas Line 50.59 Review

From: McCarver, Sammy
Sent: Tuesday, September 16, 2014 11:06 AM
To: Tammara, Seshagiri
Cc: Krohn, Paul; Burritt, Arthur; Setzer, Thomas; Stewart, Scott
Subject: RE: IPEC Gas Line 50.59 Review

Rao,

I've been in touch with both the licensee and the Residents. I plan to walk down the proposed pipeline path, take photos, and verify distances using a rangefinder. I'll email everything when I get it together.

Sam McCarver, PE
Physical Security Inspector
U.S. Nuclear Regulatory Commission
Region I Division of Reactor Safety
2100 Renaissance Boulevard, Suite 100
King of Prussia, PA 19406
610-337-5382

From: Tammara, Seshagiri
Sent: Tuesday, September 16, 2014 10:52 AM
To: McCarver, Sammy
Cc: Krohn, Paul; Burritt, Arthur; Setzer, Thomas; Stewart, Scott
Subject: RE: IPEC Gas Line 50.59 Review

Sam:

The HZARDOUS ANALYSIS (Enclosure 2) to 10 CFR 50.59 evaluation Table 1 provides the safety or safety related structures distances. Please verify that they are reasonable/correct. In addition, please observe any other such structures closer or nearby that could have inadvertently missed from consideration.

(b)(5),(b)(7)(F)

Thanks for your help in this regard.

b1

Thanks,
Seshagiri Rao Tammara

From: McCarver, Sammy
Sent: Monday, September 15, 2014 9:01 AM
To: Tammara, Seshagiri
Cc: Krohn, Paul; Burritt, Arthur; Setzer, Thomas; Stewart, Scott
Subject: IPEC Gas Line 50.59 Review

Rao,

With Steve Pindale being tied up with issues at Oyster Creek, I'll be the on-site person next week. I understand you are looking for distances from pipeline to SSCs as well as elevations and topography in the area, including photos where possible. Please let me know if there is anything else you need that I can get on-site.

Thanks!

Sam McCarver, PE
Physical Security Inspector
U.S. Nuclear Regulatory Commission
Region I Division of Reactor Safety
2100 Renaissance Boulevard, Suite 100
King of Prussia, PA 19406
610-337-5382

Tammara, Seshagiri NRO

From: Tammara, Seshagiri
Sent: Thursday, September 04, 2014 8:45 AM
To: McCoppin, Michael
Subject: FW: NRC Planned Activities for the New Gas Pipe Line Near Indian Point - Follow-up Actions for Week of 9/22 inspection

Mike:

FYI

Rao

-----Original Message-----
From: Setzer, Thomas
Sent: Wednesday, September 03, 2014 9:32 PM
To: Krohn, Paul; Pindale, Stephen
Cc: Burritt, Arthur; Kennedy, Silas; Cline, Leonard; McCarver, Sammy; Dimitriadis, Anthony; Tammara, Seshagiri
Subject: RE: NRC Planned Activities for the New Gas Pipe Line Near Indian Point - Follow-up Actions for Week of 9/22 inspection

The NRO blast representative:

Seshagiri Tammara <Seshagiri.Tammara@nrc.gov> is the name. I have copied for awareness.

-----Original Message-----
From: Krohn, Paul
Sent: Wednesday, September 03, 2014 4:21 PM
To: Pindale, Stephen
Cc: Burritt, Arthur; Setzer, Thomas; Kennedy, Silas; Cline, Leonard; McCarver, Sammy; Dimitriadis, Anthony
Subject: RE: NRC Planned Activities for the New Gas Pipe Line Near Indian Point - Follow-up Actions for Week of 9/22 inspection

Steve,

I talked to Tony D. Sammy is available the week of 9/22 (Sammy - please confirm and work with Steve).

Tom - what was the name of the NRO blast rep? Please provide to Steve to help organize the inspection. The vision is that all 3 NRC staff (Pindale, McCarver, NRO rep) will be at IPEC at the same time for about a 3 day period during the week of 9/22.

Steve - in talking to tony D. there is a safeguards NUREG 6190 that talks about blast analysis in some detail and that may be helpful in prepping for the inspection. Tony has a hard copy in his office to look at when you are in. As an alternative, the OC licensee should also have a copy locked away onsite that you could access.

Paul

-----Original Message-----
From: Krohn, Paul

Sent: Wednesday, September 03, 2014 2:00 PM
To: Pindale, Stephen
Cc: Burritt, Arthur; 'Thomas Setzer'; 'Silas Kennedy'; 'Leonard Cline'
Subject: RE: NRC Planned Activities for the New Gas Pipe Line Near Indian Point

Steve,

Thanks for the update and your great support at OC, we are definitely keeping you busy. When you get a chance, please give me a call. Two quick items:

1. The IPEC 50.59 review will need to be done in the 3rd qtr. 2014. I would propose that you, Sammy, and NRO Blast rep head to IPEC that latter part of the week of 9/22 (e.g. Sept 24, 25, 26th). This will allow us to document the inspection in the 3rd qtr. inspection report. The NRC owes a response to FERC on 12/19, but there is a strong push to have a public inspection footprint on the docket when we give our comments to FERC. Please let me know if you can support the latter part of the week of 9/22.

Outside of Scope

Paul

-----Original Message-----
From: Pindale, Stephen
Sent: Wednesday, September 03, 2014 7:58 AM
To: Krohn, Paul
Subject: RE: NRC Planned Activities for the New Gas Pipe Line Near Indian Point

Paul:

Did not get a voice mail, but I understand from your email. I will be at Oyster Creek until the end of next week, then I'll be on (b)(6) In between my OC EMRV inspection, I will be completing my Ginna mods inspection doc, which includes a finding. So, my near term schedule is tight and I'm in the middle of 5 consecutive weeks out of the office (although last of the five (b)(6) The earliest I can do IPEC is the week of 9/22, but maybe the next week would be better. I'm on the IPEC EP exercise on 10/6, but I'm working with the State, so I'll be in Albany.

Finally, FYI, we received the OC EMRV root cause report, and are in process of reviewing it. For today... I have had a bit of (b)(6) this morning. Amar knows I'll be in late, but will be onsite for most of the day still.

Please let me know what you think about the IPEC schedule.

Steve

From: Krohn, Paul
Sent: Tuesday, September 02, 2014 5:01 PM
To: Pindale, Stephen
Cc: Gray, Mel; Burritt, Arthur; Setzer, Thomas
Subject: FW: NRC Planned Activities for the New Gas Pipe Line Near Indian Point

Steve,

This is the info I talked to you about in my voice mail. Basically, involves a 50.59 inspection associated with a new natural gas pipeline (using a resident permanent plant mods sample) at IPEC. Involves security (Sammy McCarver) and an NRO blast analysis guru. The NRC owes comments to FERC on their EIS by 9/29, so we would be looking for a 2 or 3 day inspection at IPEC sometime in the 2nd, 3rd or 4th week of September.

With NMP CDBI in full swing and the CC Mods starting, you are the only EB2 person who looks like they have availability to support this. Please let me know if you will be able to do this. Hope all is going well at OC. Thanks.

Paul

From: Burritt, Arthur
Sent: Friday, August 29, 2014 1:16 PM
To: Trapp, James; Welling, Blake; Nieh, Ho; Scott, Michael; Lew, David; Dean, Bill
Cc: Tifft, Doug; McNamara, Nancy; Screnci, Diane; Sheehan, Neil; Beasley, Benjamin; Pickett, Douglas; Gray, Mel; Krohn, Paul; Dimitriadis, Anthony; Setzer, Thomas; Stewart, Scott
Subject: NRC Planned Activities for the New Gas Pipe Line Near Indian Point

The attached documents support NRC activities for the proposed new natural gas pipeline to be constructed near Indian Point. This new gas line is part of the Algonquin Incremental Market (AIM) project. The email below provides an overview of the project timeline and the roles of other Federal partner's. The attached documents include:

- a proposed inspection plan
- a plan for providing comments back to FERC
- a communication plan

All documents are still considered draft, please provide any comments or concerns to Tom Setzer, Doug Pickett and me. We plan on finalizing all documents by 9/10.

From: Tifft, Doug
Sent: Thursday, August 28, 2014 4:32 PM
To: Burritt, Arthur
Subject: FERC call summary

RI

Schedule

The basic schedule for FERCs review and the pipeline construction is as follows. Note that all the dates are the *earliest* that things could happen. The schedule can slip but cannot move up.

Final EIS on December 19, 2014

After the final EIS is issued, the FERC Commission can issue an Order approving or denying the project. This is very similar to how the NRC Commission operates and could be the next day or months later. Algonquin has requested final approval by January or March 2015 to meet their construction schedule. FERC will try to meet this request, but is not obligated to.

Construction for the overall project will begin in spring 2015.

Specifically, the portion of the pipeline that runs closest to Indian Point is the Stony Point to Yorktown segment. This is scheduled for construction from March 2015 to October 2015.

The segment of pipe running closest to Indian Point will be new piping, not replacement of existing pipeline. Therefore, when construction of this new pipeline is completed, it will not be in service until it is connected to the rest of the service loop. It is not expected to be tied in and placed in service until October 2016.

Inspections

FERC performs inspections to ensure the pipeline is constructed in accordance with the provisions of the final EIS. These inspections occur at least every 28 days. For the NY segments, Algonquin has committed to have a 3rd party monitor the progress daily. These inspections do not ensure that the pipeline is built safely, ie with the correct wall thickness, welded properly, etc. Pipeline safety is under the DOT. DOT is a cooperating agency, with FERC.

-Doug

Doug Tifft
Regional State Liaison Officer
Office: 610-337-6918
Cell: (b)(6) EX.6

Tammara, Seshagiri

From: Tammara, Seshagiri
Sent: Tuesday, October 21, 2014 1:13 PM
To: Pickett, Douglas; McCoppin, Michael
Subject: FW: 50.59 eval/inspection

Doug:

Do you have any insights/answers to these questions. I have only the document you sent to me, which contains the letter from Entergy with enclosures 1 and 2. I have not seen any information relating to these issues. Please clarify.

Thanks,
Rao

From: Dimitriadis, Anthony
Sent: Tuesday, October 21, 2014 12:31 PM
To: McCarver, Sammy; Tammara, Seshagiri
Cc: Krohn, Paul; Burritt, Arthur
Subject: 50.59 eval/inspection

Sammy: Two questions for you and Seshaqiri:

1. Are any of the documents related to this Gas pipeline considered proprietary by the licensee? (10 CFR 2.390 b(4) "financial", etc.)
   If you could pulse Bob Walpole at IPEC to make sure Licensing can answer this question, I would appreciate it.

2. Did we close the loop on the qualifications question that Division had about the licensee's expert? Has that been answered?

One of my questions was the level of discussion in the proposed feeder and the size of the diameter, etc., and if that information is not publicized, the licensee may be considering it financial.... But that's why we need to check.

Thank you.

Anthony Dimitriadis, Chief
Plant Support Branch 1

US NRC Region I
2100 Renaissance Blvd
King of Prussia, PA 19406
Telephone: 610-337-6953 (office)
Cell: (b)(6) (cell) Ex.6
Fax: 610-337-5320
E-mail: Anthony.Dimitriadis@nrc.gov

b6

NLO

Tammara, Seshagiri

From: Tammara, Seshagiri
Sent: Tuesday, December 09, 2014 9:49 AM
To: McCoppin, Michael
Subject: IPEC blast analysis write-up revised
Attachments: IPEC pipeline blast analysis talking points.docx

Mike:

Sorry I attached wrong file. This is correct file.

Thanks,
Rao

b4

IPEC pipeline blast analysis talking points:

1. The staff performed independent confirmatory analysis to evaluate proposed pipeline impacts from both probabilistic and deterministic perspective. The probability of occurrence of explosion due to the release of methane from pipeline rupture is calculated to less than 1.0E-07, and minimum safe distance to 1psi overpressure due to potential explosion is less than the actual distance to the nearest safety related Structure, System and Component (SSC). The analysis is performed with conservative assumptions and rationale using methodology given as follows:

   (a). NRC Regulatory Guide, RG 1.91," Evaluations of Explosions Postulated to Occur Nearby Facilities on Transportation Routes Near Nuclear Power Plants" methodology,

   (b). NRC NUREG-0800,"Standard Review Plan", Section 2.2.3,"Evaluation of Potential Accidents",

   (c). Using the ALOHA (Areal Locations of Hazardous Atmospheres) computer model developed by EPA/NOAA for Emergency Planning and preparedness evaluations. ALOHA models key hazards overpressure (explosion blast force), thermal radiation(heat), flammability(fire) related to chemical releases that result in fires or explosions.

   Using conservative meteorological conditions and pipeline characteristics, the amount of methane released is calculated using ALOHA model and further RG 1.91 equations are used to calculate distance to 1 psi overpressure. The calculated minimum safe distance is less than the actual distance to nearest safety related Structure, System and Components (SSC) inside Security Owner Controlled Area (SOCA). Flat terrain is conservatively considered in the analysis.

2. The proposed pipeline is much farther away from the plant than the existing pipeline.

3. Using ALOHA model it is also determined that no 1psi overpressure due to vapor plume explosion, no potential fire damage, and also there no thermal radiation level of (b)(7)(F) (b)(7)(F) extended to any safety related SSC inside SOCA.

4. In addition to deterministic analysis, a probability exposure due to pipeline failure is determined based on Pipeline Hazardous Materials Safety Administration (PHMSA) data, and also published information from "Handbook of Chemical Hazards Analysis Procedures" using conservative assumptions to be less than 1.0E-7 per year, and therefore, is not identified as a design basis event. A design basis event is defined as the event which has probability of greater than 1.0E-7 having radiological dose in excess of 10 CFR 50.34(a)(1). Hence, it is concluded that the pipe failure resulting in a methane

release from the proposed pipeline near IPEC would not pose any increased risk to IPEC or would not reduce any further the existing safety margins.

H

Tammara, Seshagiri

From:	Tifft, Doug
Sent:	Wednesday, December 17, 2014 8:56 AM
To:	Trapp, James; Lorson, Raymond; Krohn, Paul; Burritt, Arthur; McCarver, Sammy; Tammara, Seshagiri; McCoppin, Michael; Weil, Jenny; Dimitriadis, Anthony; Pickett, Douglas; Beasley, Benjamin
Subject:	RE: draft response to Galef follow up items for review and comment
Attachments:	Galef AIM gas line call follow up questions Rev2.docx

Thank you all for your comments. Attached is the final version with all of the comments incorporated. **I intend to send this response at 1pm today**, so if you would like to take a second look, please do so before then.

Thanks again,
-Doug

From: Tifft, Doug
Sent: Tuesday, December 16, 2014 9:36 AM
To: Trapp, James; Lorson, Raymond; Krohn, Paul; Burritt, Arthur; McCarver, Sammy; Tammara, Seshagiri; McCoppin, Michael; Weil, Jenny; Dimitriadis, Anthony; Pickett, Douglas; Beasley, Benjamin
Subject: draft response to Galef follow up items for review and comment

All,

Attached is a draft of proposed responses to Assemblywoman Galef's office. I would like to be able to send the response tomorrow, so please review and give me comments by COB today.

Thanks,
-Doug

Doug Tifft
Regional State Liaison Officer
Office: 610-337-6918
Cell: (b)(6) Ex. 6

b-5

What is the technical basis behind the assumption that valves will close to isolate a gas leak within 3 minutes?

Section 11.4.3.2, Equipment, from Resource Report 11, "Reliability and Safety," filed with FERC by Algonquin in February 2014 related to the AIM Project states as follows:

> "A gas control center is maintained in Houston, Texas. The gas control center monitors system pressures, flows, and customer deliveries. Further, the gas control center is manned 24 hours a day, 365 days a year. Algonquin also operates area and sub-area offices along the pipeline route whose personnel can provide the appropriate response to emergency situations and direct safety operations as necessary.
>
> Algonquin's proposed AIM Project pipeline will be equipped with remote control shutoff valves as required by the USDOT regulations. This allows the shutoff valves to be operated remotely by the gas control center in the event of an emergency, usually evidenced by a sudden loss of pressure on the pipeline. Remotely closing the shutoff valve allows the section of pipeline to be isolated from the rest of the pipeline system.
>
> Data acquisition systems are present at all meter stations along the system. If system pressures fall outside a predetermined range, an alarm is activated and notice is transmitted to the Houston gas control center. The alarm provides notice that pressures at the station are not within an acceptable range."

In response to NRC questions regarding monitoring of the gas line, Entergy stated they had conferred with Algonquin regarding remote monitoring of gas pipelines and responses to potential pipeline ruptures and Algonquin confirmed to Entergy that the gas control center is manned 24 hours per day, 365 days per year. Algonquin also stated to Entergy that electronic instruments at the valve site provide an alarm signal to gas control center if abnormal flow conditions occur, e.g., a pipeline pressure drop. The well-trained gas control personnel can then immediately diagnose the situation. Gas control personnel will acknowledge an alarm in seconds and will initiate a 'close' command following prompt evaluation of data generating the alarm condition, and sending a "close" signal to the valve takes only seconds, and the valve closing time is a little over one minute.

Entergy also stated that a consultant independently determined that natural gas isolation valves, similar to those proposed to be used on the AIM Project near Indian Point, generally close at approximately 1 inch per second. Therefore, a 42-inch valve is expected to close within the one minute timeframe provided by Algonquin. Entergy further stated they estimated the time for Gas Control Center personnel to respond to an abnormal flow condition alarm and initiate a valve close command at one minute. Entergy then conservatively estimated a total of three minutes in its evaluations of the AIM Project.

As we noted during our telephone discussion, our hazards analysis assumed a complete rupture of the pipeline, resulting in an opening equal to the pipe diameter. We further assumed

the pipeline was operating at its maximum allowable operating pressure and the pressure would remain constant while the gas escaped and until the pipeline was isolated. A time of three minutes at these conditions was used to calculate the mass of natural gas that could be involved in an initial explosion, should one occur. This resulted in a worst case scenario for the initial pressure wave and exceeding the three minute valve closure time will not affect our conclusions. This is further supported by a Department of Transportation (DOT) Pipeline Hazardous Material Safety Administration (PHMSA) website reference to a May 1998 study conducted by C. R. Sparks, et al., Southwest Research Institute, which updated a 1995 study through a review of gas pipeline incidents and noted none of the new incidents involved fatalities/injuries that occurred more than 3 minutes after rupture.

In addition, NRC personnel reviewed information from the PHMSA website and determined natural gas transmission line regulations are found in 49 CFR 190-199. These regulations require written procedures for conducting operations and maintenance activities and for emergency response, controller training, valve and pipeline maintenance, fatigue management, and other aspects related to design, construction, and operation of gas transmission and distribution pipelines.

How many other U.S. nuclear plants have gas lines as close to the site as Indian Point?

> After discussions with other NRC staff, we determined that Susquehanna, Calvert Cliffs, and San Onofre likely had gas lines in the vicinity of the site. Using a mapping system of gas lines available to the public at https://www.npms.phmsa.dot.gov/ we calculated distances from those sites to the nearest gas lines. None were as close as the gas lines at Indian Point.
>
> Susquehanna is about a mile from a gas line.
> Calvert Cliffs is about 1.5 miles from the nearest line.
> San Onofre is approximately 2.4 miles from the nearest line.

What is the differential between the distance where we are okay, and where we would not be okay. I.e. what is the "margin of error" in these calculations? Where is the distance where these pipes could not be without compromising safety? I think maybe someone said that was protected info that couldn't be shared. If so, please confirm.

> Yes, this information is Official Use Only – Security Related Information and cannot be shared.

Also, a follow up question from another office discusses the confluence of variables. i.e. if you were to have a complete rupture of a pipe, you could deal with that as an isolated event (based on the distance from the plants, where the break would happen), but if it were to occur during a seismic event, would you be able to deal with all the other things that could break, at the same time as you were now having to deal with a gas line rupture? Similar to Fukushima, I guess: flooding, fires, power loss, etc. all at the same

time. When the seismic eval is done, it would seem that any new additions to the area that could impact IP should be taken into account.

The scenarios (i.e. a seismic event combined with an external event that does not impact plant safety equipment) that you mention are within the licensing basis of the plant. Specifically, the plant is designed such that safety related equipment will be available to safely shutdown the plant following a seismic event. Since the NRC's analysis determined that a postulated explosion of the gas line would not disable safety related equipment, it would not prevent Entergy from safely shutting down the plant. If these events (i.e. seismic event combined with a gas line explosion) were to happen at the same time, all required equipment would remain available to safely shutdown maintain the plant in a safe condition.

There are additional seismic reviews underway at Indian Point (and at all reactors), due to the Fukushima action items. If these reviews uncover any vulnerabilities, the NRC will take any action necessary to ensure safety.

Finally, I do think we would love the opportunity to have Paul Blanch speak with Rahul (not sure what his name is exactly) and/or Mike to ask a few questions directly, specifically if Paul is interested in conducting his own study, finding out exactly what the same assumptions would be that were made. I am sure he would understand the detailed lingo much better and faster than any of us.

We have received a 2.206 petition from Paul Blanch regarding the AIM gas line issue at Indian Point. As part of that process we will offer a meeting with the petitioner. The petitioner has the option of calling in for the meeting or coming to headquarters in person. The meeting will be open to the public and I will let you know when that meeting is scheduled.

Tammara, Seshagiri

From: McCoppin, Michael
Sent: Wednesday, March 04, 2015 11:22 AM
To: Terry.turpin@ferc.gov
Cc: Miller, Chris; Tammara, Seshagiri
Subject: FW: AIM Project Approval by FERC

Good morning Terry....

I just left you a voicemail to follow up with our discussion last Thursday. I'm curious if you had a chance to discuss with your management my request for a NRC/FERC alignment teleconference. We were also wondering if one of your technical staff would be willing to review Rao's assumptions and calculations as it relates to the use of the ALOHA model for use in our Indian Point gas pipeline analysis.

Also, it looks as if FERC approved the AIM pipeline...below.

Thanks,

Mike McCoppin

Branch Chief, Radiation Protection &
Accident Consequences (RPAC)

DSEA | DIVISION OF SITE SAFETY AND ENVIRONMENTAL ANALYSIS

Office of New Reactors
United States Nuclear Regulatory Commission

Mail Stop: T7-F03
Office: T7-F18
Ph: 301.415.6533
Cell: (b)(6) EX
FAX: 301.415.5399
Email: michael.mccoppin@nrc.gov

From: Tammara, Seshagiri
Sent: Wednesday, March 04, 2015 8:55 AM
To: McCoppin, Michael
Subject: AIM Project Approval by FERC

Mike:
This is in "

b6

FERC Approves AIM Pipeline Project That Will Run Near Indian Point Plant. The Lower Hudson Valley (NY) Journal News (3/3, Garcia, 320K) reports the Federal Energy Regulatory Commission Tuesday issued its approval to the Algonquin natural gas pipeline expansion in New York. The FERC's approval for Spectra Energy's Algonquin Incremental Market Project "will allow an increased flow of natural gas from Ramapo to various cities' delivery points in the Northeast." Critics of the expansion like Susan Van Dolsen of the group Stop the Algonquin Pipeline Expansion were "disappointed" at the FERC decision especially in light of "unanswered questions about the impact of a major pipeline breach near the Indian Point nuclear power plant." But both Entergy and the NRC advised FERC that the "pipeline would not endanger the power plant even if it exploded at its closest point to the plant."

The Armonk (NY) Daily Voice (3/4, Auchterlonie) adds that regarding the pipeline's proximity to Indian Point, "FERC notes that Entergy...performed a safety evaluation and submitted it to the Nuclear Regulatory Commission (NRC), which in turn conducted a review." FERC said the "NRC concluded that a breach and explosion of the proposed 42-inch-diameter natural gas pipeline would not adversely impact the safe operation of the Indian Point facility." FERC added, "Therefore, the final EIS concludes that the project will not result in increased safety impacts at the Indian Point facility."

Rao

Tammara, Seshagiri

Subject:	FW: Results of Confirmatory Blast Analysis for Indian Point 42-inch Natural Gas Pipeline
Location:	HQ-OWFN-08B06-12p
Start:	Wed 10/15/2014 3:00 PM
End:	Wed 10/15/2014 4:00 PM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	Pickett, Douglas

-----Original Appointment-----
From: Pickett, Douglas
Sent: Friday, October 10, 2014 2:42 PM
To: Pickett, Douglas; Tammara, Seshagiri; Burritt, Arthur; Setzer, Thomas; Dimitriadis, Anthony; Trapp, James; Stewart, Scott; Petch, Jeromy; McCarver, Sammy; Beasley, Benjamin
Subject: Results of Confirmatory Blast Analysis for Indian Point 42-inch Natural Gas Pipeline
When: Wednesday, October 15, 2014 3:00 PM-4:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: HQ-OWFN-08B06-12p

Rao Tammara has completed his confirmatory blast analysis for the proposed 42-inch diameter natural gas pipeline. His results are consistent with the licensee. The purpose of the phone call is to allow Rao to provide a brief summary of his assumptions and analysis and answer questions.

Telephone conference bridge is 1888-324-8524 with pass-code [(b)(6)] Ex. 6

b7

Tammara, Seshagiri

From: Tammara, Seshagiri
Sent: Monday, December 08, 2014 8:37 AM
To: Tifft, Doug
Subject: RE: Availability tomorrow for call with Assemblywoman Galef

Doug:

I am also available for time slot 2-3.

Thanks,
Rao

From: Tifft, Doug
Sent: Monday, December 08, 2014 8:27 AM
To: McCoppin, Michael; Pickett, Douglas; Tammara, Seshagiri
Subject: RE: Availability tomorrow for call with Assemblywoman Galef

Thanks. If Rao is available, it sounds like 2 – 3 tomorrow will work. I hope to confirm the time for the actual call during today's pre-brief.

-Doug

From: McCoppin, Michael
Sent: Monday, December 08, 2014 8:13 AM
To: Tifft, Doug; Pickett, Douglas; Tammara, Seshagiri
Subject: RE: Availability tomorrow for call with Assemblywoman Galef

2-3 is better for me.

thanks

From: Tifft, Doug
Sent: Monday, December 08, 2014 7:51 AM
To: Pickett, Douglas; Tammara, Seshagiri; McCoppin, Michael
Subject: Availability tomorrow for call with Assemblywoman Galef

Doug, Mike, and Rao,

I'm trying to schedule the actual call with the Assemblywoman for tomorrow afternoon (Tuesday). According to the Outlook calendars, you three are showing conflicts and I wanted to check in to see if it was anything that could be moved.

Please let me know if you can support a call from 2-3pm Tuesday. Other possibilities are 1-2pm Tuesday and 11:30-12:30 Tuesday, so please let me know if you can be available then as well.

Thanks,
-Doug

Doug Tifft
Regional State Liaison Officer

Office: 610-337-6918
Cell: (b)(6) Ex. L

Tammara, Seshagiri

From: McCoppin, Michael
Sent: Monday, January 12, 2015 7:11 PM
To: Tammara, Seshagiri
Subject: Fw: IP Proposed Pipeline

Fyi

Mike McCoppin
Sent from my NRC Blackberry
(b)(6) Ex. 6

From: Kock, Andrea
Sent: Monday, January 12, 2015 07:09 PM
To: McCoppin, Michael
Subject: Re: IP Proposed Pipeline

Go Rao!

Sent from NRC blackberry
Andrea Kock
(b)(6) Ex. 6

From: McCoppin, Michael
Sent: Monday, January 12, 2015 11:23 AM
To: Flanders, Scott; Kock, Andrea; Campbell, Andy
Subject: IP Proposed Pipeline

For awareness...

NRC Addresses Rep. Lowey's Concerns About Proposed Pipeline Near Indian Point. WAMC-AM Albany, NY (1/10, Dunne, 845) reported on its website that the NRC responded to a Rep. Nita Lowey's (D-NY) "concerns" about the proposed Algonquin Incremental Market pipeline expansion near Westchester County-based Indian Point nuclear plant. The NRC Chairman Stephen Burns, "in a written reply to Congresswoman Nita Lowey, says that Indian Point-owner Entergy Nuclear submitted to the NRC a detailed analysis of potential hazards, and based on this and NRC review," the NRC has determined that the proposed AIM project "does not add significant safety risk and so further NRC review and approval is not required."

b9

Tammara, Seshagiri

From: Tammara, Seshagiri
Sent: Wednesday, January 14, 2015 2:51 PM
To: McCoppin, Michael
Subject: FW: Supplement to 2.206 Petition on the Algonquin Natural Gas Pipeline

FYI
Rao

From: Pickett, Douglas
Sent: Tuesday, December 09, 2014 8:23 AM
To: McCoppin, Michael; Tammara, Seshagiri
Subject: FW: Supplement to 2.206 Petition on the Algonquin Natural Gas Pipeline

Any objections to revealing Rao's name to Paul Blanch? We received a 2.206 petition from Mr. Blanch regarding the 50.59 evaluation from Indian Point and I'll be requesting that Rao be part of our Petition Review Board.

From: Paul [mailto:pmblanch@comcast.net]
Sent: Monday, December 08, 2014 1:17 PM
To: Pickett, Douglas
Cc: Banic, Merrilee; Rick Kuprewicz (b)(6); Dave Lochbaum
Subject: Re: Supplement to 2.206 Petition on the Algonquin Natural Gas Pipeline

Thank you. Can you tell me the author of the NRC's independent analysis?

Sent from my Maxipad

Paul Blanch
Home 860-236-0326
Cell 860-922-3119

On Dec 8, 2014, at 11:13, Pickett, Douglas <Douglas.Pickett@nrc.gov> wrote:

> Mr. Blanch –
>
> Thank you for the additional information. We will include it as a supplement to your original petition and there are no other actions that you need to take. In response to your question regarding the process to supplement a petition, we do not have a formal process other than the petitioner providing the information and requesting that it be considered as a supplement to the petition.
>
> With regard to your request for the Entergy and NRC confirmatory blast analyses, we have received this request from you previously and it is being handled separately from the 2.206 process.
>
> Doug
>
> Douglas V. Pickett, Senior Project Manager
> Indian Point Nuclear Generating Unit Nos. 2 & 3

b-10

James A FitzPatrick Nuclear Power Plant
Douglas.Pickett@nrc.gov
301-415-1364

From: Paul Blanch [mailto:pmblanch@comcast.net]
Sent: Monday, December 08, 2014 10:10 AM
To: Pickett, Douglas
Cc: Rick Kuprewicz; Dave Lochbaum; Susan Van Dolsen; Ellen Weininger
Subject: Supplement to 2.206 Petition on the Algonquin Natural Gas Pipeline

Doug:

I would like to supplement my petition based on the opinions of the world recognized gas line expert, Richard Kuprewicz.

A copy of his report/analysis is enclosed.

Please explain the process to formally supplement my original 2.206 petition.

I would appreciate a copy of the NRC's and Entergy's expert analysis for comparison purposes.

When we have our PRB meeting, Mr. Kuprewicz will be participating.

Please **do not withhold** this information under 10 CFR 2.390. This communication is public information and may be placed in ADAMS.

Paul

On 11/24/14 3:29 PM, Pickett, Douglas wrote:

> Thank you for the response. I'll be contacting you in the future regarding scheduling a presentation before the PRB.
>
> Doug
>
> Douglas V. Pickett, Senior Project Manager
> Indian Point Nuclear Generating Unit Nos. 2 & 3
> James A FitzPatrick Nuclear Power Plant
> Douglas.Pickett@nrc.gov
> 301-415-1364

From: Paul [mailto:pmblanch@comcast.net]
Sent: Monday, November 24, 2014 2:45 PM
To: Pickett, Douglas
Cc: Dave Lochbaum
Subject: Re: 2.206 Petition on the Algonquin Natural Gas Pipeline

Douglas
I would appreciate an opportunity to have a conference with the petition review board.
I have no objections to placing my petition in the public document room and in Adams
You may also include within this petition and make it publicly available my allegation about the qualifications of the individual conducting the analysis.

Sent from my Maxipad

Paul Blanch
Home 860-236-0326
Cell 860-922-3119

On Nov 24, 2014, at 13:39, Pickett, Douglas <Douglas.Pickett@nrc.gov> wrote:

> Mr. Blanch:
>
> I'm the NRR project manager for Indian Point and I will be serving as the petition manager for your 2.206 petition to Mr. Mark Satorius regarding the proposed 42-inch diameter natural gas

pipeline that will traverse the owner controlled property at the Indian Point facility.

We will be forming a Petition Review Board in accordance with NRC Management Directive 8.11, which is our guidance on reviewing 2.206 petitions. As you may know, prior to the initial meeting of the PRB, you will have the opportunity to address the Board in order to provide any additional information you may want to offer. Following your presentation, if you chose to have one, the PRB will formally meet to make its initial determination. At that time, you will be notified of the Board's initial determination and offered a second opportunity to make a presentation before the Board. Thus, at this point, I would like to know if you are interested in making a presentation before the Board. Presentations by petitioners are typically done via telephone conference call in lieu of a face-to-face public meeting.

I also want to remind you that the 2.206 process is a public process and ask whether you have any objections to our making your petition publicly available in ADAMS, our electronic database. An item of note is your concern about Entergy's contractor not being qualified per Appendix B to 10 CFR Part 50. I understand that NRC Region 1 has contacted you and they are reviewing this concern as part of our allegation process. Our allegation process is not public and we do not release this kind of information to the public. Thus, I want to confirm whether you have any objections to our including your concerns about the contractor's qualifications in the publicly available version of your petition. Clearly, we could redact this portion of your petition if you request it.

Please feel free to contact me if you have any questions.

Doug

Douglas V. Pickett, Senior Project Manager
Indian Point Nuclear Generating Unit Nos. 2 & 3
James A FitzPatrick Nuclear Power Plant
Douglas.Pickett@nrc.gov
301-415-1364

--
Paul Blanch
860-236-0326
860-922-3119 cell

<Kuprewicz IP Gas analyis.pdf>

Tammara, Seshagiri

Subject:	Petitioner Presentation Before the Petition Review Board
Location:	HQ-OWFN-07B04-25p
Start:	Wed 01/28/2015 2:30 PM
End:	Wed 01/28/2015 4:00 PM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	Pickett, Douglas
Required Attendees:	Banic, Merrilee; Setzer, Thomas; Carpenter, Robert; Beaulieu, David; Cylkowski, David; Meighan, Sean; Beasley, Benjamin; Prescott, Paul; Solomon, Tahirih; Tammara, Seshagiri; Miller, Chris; Prussman, Stephen G (SPrussm@entergy.com)
Optional Attendees:	Willis, Dori; Oberson, Greg; DLRCalendar Resource; 'Zulla, Salvatore (CAE)'; 'Coyle, Lawrence'; Basturescu, Sergiu; 'Dacimo, Fred R. (CAE)'; Crutchley, Julie; McCarver, Sammy; Dimitriadis, Anthony; Burritt, Arthur; Thompson, William; 'Drake, Richard S'; Render, Diane; magdalene.suter@ferc.gov; jennifer.lee@nrg-llc.com; Tifft, Doug; Sheehan, Neil; McCoppin, Michael; Opara, Stella

Paul Blanch and Richard Kuprewicz of Accufacts, Inc. will make their initial presentation before the Petition Review Board on Wednesday, January 28, 2015, from 2:30 to 3:30 p.m. The original Blanch petition and the two supplements are attached.

The green ticket is OEDO-14-00737 and the TACs are MF5050 and MF5051.

UPDATE: The call will be conducted through the recorded NRC Operations Center. The bridge number is 800-772-3842 and the pass-code is (b)(6)

b-11

Tammara, Seshagiri

NRR

From:	Pickett, Douglas
Sent:	Monday, January 26, 2015 4:27 PM
To:	Miller, Chris; Banic, Merrilee; Setzer, Thomas; Carpenter, Robert; Beaulieu, David; Cylkowski, David; Beasley, Benjamin; Prescott, Paul; Solomon, Tahirih; Tammara, Seshagiri; Sheehan, Neil; Render, Diane; Dimitriadis, Anthony; Willis, Dori; Basturescu, Sergiu; Crutchley, Julie; McCarver, Sammy; Thompson, William; Tifft, Doug; Oberson, Greg
Subject:	NRC Script for Meeting with Petition Review Board
Attachments:	OEDO-14-00737 PRB Blanch Presentation Script January 28 2015.docx

Attached is the script we will read from during Wednesday's Petition Review Board meeting with Mr. Paul Blanch and Mr. Richard Kuprewicz regarding the proposed 42-inch diameter natural gas pipeline that will traverse a portion of the Indian Point owner controlled property.

The meeting will be in O7B-04 and starts at 2:30 p.m.

Doug

Douglas V. Pickett, Senior Project Manager
Indian Point Nuclear Generating Unit Nos. 2 & 3
James A FitzPatrick Nuclear Power Plant
Douglas.Pickett@nrc.gov
301-415-1364

B-tn

January 28, 2015
2.206 Petition Review Board Discussion with Petitioner
Indian Point Nuclear Generating Unit Nos. 2 & 3
Paul Blanch
Assisted by Richard Kuprewicz of Accufacts Inc.
OEDO-14-00737
TAC Nos. MF5050/MF5051
Phone Bridge: 800-772-3842 Passcode (b)(6)

Agenda

Purpose:

1. For the petitioner, Mr. Paul Blanch, assisted by Mr. Richard Kuprewicz of Accufacts Inc., to address the Petition Review Board (PRB) regarding the 2.206 petition with respect to Entergy's 10 CFR 50.59 site hazards analysis concerning the proposed Spectra Energy 42-inch diameter natural gas pipeline that is planned to traverse a portion of the owner controlled property at the Indian Point facility

A. Welcome and Introductions (Doug Pickett, Petition Manager)

B. PRB Chairman's Introduction (Chris Miller, PRB Chair)

C. Petitioner's Presentation (Paul Blanch, assisted by Richard Kuprewicz)

D. PRB Chairman's Closing Remarks (Chris Miller)

Talking Points

A. Welcome and Introductions (Doug Pickett)

- Good afternoon and I'd like to thank everybody for attending this meeting. My name is Doug Pickett and I am the Indian Point Project Manager. We are here today to allow the petitioner, Mr. Paul Blanch, assisted by Mr. Richard Kuprewicz of Accufacts Inc., to address the Petition Review Board, also referred to as the PRB, regarding the 2.206 petition submitted by Mr. Blanch on October 15, 2014. I am the Petition Manager for the petition. The PRB Chairman is Mr. Christopher Miller.

- As part of the PRB's review of this petition, Mr. Paul Blanch has requested this opportunity to address the PRB.

- This meeting is scheduled from 2:30 to 3:30 p.m. eastern time. The meeting is being recorded by the NRC Operations Center and will be transcribed by a court reporter. The transcript will become a supplement to the petition. The transcript will also be made publicly available.

- I'd like to open this meeting with introductions. As we go around the room, please be sure to clearly state your name, your position, and the office that you work for within the NRC. I'll start off with myself, Douglas Pickett.

- We've completed introductions at the NRC headquarters. At this time, are there any NRC participants from Headquarters on the phone? Are there any NRC participants from the Regional Office on the phone? (Regional participants introduce themselves)

- Are there any representatives for the licensee on the phone?

- Mr. Blanch and Mr. Kuprewicz, would you please introduce yourselves along with anyone else assisting you, for the record?

- It is not required for members of the public to introduce themselves for this call. However, if there are any members of the public on the phone that wish to do so at this time, please state your name, for the record.

- I'd like to emphasize that we each need to speak clearly and loudly to make sure that the court reporter can accurately transcribe this meeting. If you do have something that you would like to say, please first state your name.

- For those dialing into the meeting, please remember to mute your phones to minimize any background noise or distractions. If you do not have a "mute" button, this can be done by pressing the keys *6. To unmute press the *6 keys again. Thank you.

- At this time, I'll turn it over to the PRB Chairman, Chris Miller.

B. Opening Remarks For Chris Miller

Good afternoon. Welcome to this meeting regarding the 2.206 petition submitted by Mr. Paul Blanch.

- I'd like to first share some background on our process:

  Section 2.206 of Title 10 of the *Code of Federal Regulations* describes the petition process – the primary mechanism for the public to request enforcement action by the NRC in a public process. This process permits anyone to petition the NRC to take enforcement-type action related to NRC licensees or licensed activities. Depending on the results of its evaluation, the NRC could modify, suspend or revoke an NRC-issued license or take any other appropriate enforcement action to resolve a problem. The NRC staff's guidance for the disposition of 2.206 petition requests is in Management Directive 8.11, which is publicly available.

- The purpose of today's meeting is to give the petitioner an opportunity to provide any additional explanation or support for the petition before the Petition Review Board's initial consideration and recommendation.

  a. This meeting is not a hearing, nor is it an opportunity for the petitioner to question or examine the PRB on the merits or the issues presented in the petition request.

  b. No decisions regarding the merits of this petition will be made at this meeting.

c. Following this meeting, the Petition Review Board will conduct its internal deliberations. The outcome of this internal meeting will be discussed with the petitioner.

d. The Petition Review Board typically consists of a Chairman, usually a manager at the senior executive service level at the NRC. It has a Petition Manager and a PRB Coordinator. Other members of the Board are determined by the NRC staff based on the content of the information in the petition request.

e. As described in our process, the NRC staff may ask clarifying questions in order to better understand the petitioner's presentation and to reach a reasoned decision whether to accept or reject the petitioner's requests for review under the 2.206 process.

- I would like to summarize the scope of the petition under consideration and the NRC activities to date.

a. On October 15, 2014, Mr. Blanch submitted a 2.206 petition to the NRC regarding the 10 CFR 50.59 site hazards analysis prepared by Entergy Nuclear Operations, Inc., the licensee for Indian Point Nuclear Generating Unit Nos. 2 & 3. The 50.59 analysis was performed by the licensee to determine the safety impact on the Indian Point plant due to Spectra Energy's proposed 42-inch diameter natural gas pipeline that is planned to traverse a portion of the owner controlled property at the Indian Point facility.

b. In the petition, Mr. Blanch requests that the NRC take the following enforcement actions against Entergy, the licensee, for the following violations:

  - Violation of 10 CFR 50.9, "Completeness and Accuracy of Information," for providing inaccurate and incomplete information in the 50.59 site hazards analysis;
  - Violation of 10 CFR 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," for relying on a contractor who was not qualified in accordance with Appendix B requirements; was not qualified in accordance with Entergy's Quality Assurance program; and, as a result, was not qualified to perform an analysis for such a significant safety-related issue; and
  - Violation of 10 CFR 50.59, "Changes, Tests, and Experiments," for failing to perform the necessary safety evaluation requirements.

Furthermore, in the petition, Mr. Blanch requested that NRC issue a Demand for Information against Entergy for the following:

  - Demand an explanation from Entergy seeking an explanation as to why the previously identified violations do not also constitute a violation of 10 CFR 50.5, "Deliberate Misconduct;"
  - Demand that Entergy seek the results of a new and realistic risk/hazard analysis consistent with the guidance provided by OSHA Appendix C, Section 1910.119, "Compliance Guidelines and Recommendations for Process Safety Management;" and

- Demand that Entergy attest to the completeness and accuracy of Entergy report IP-PRT-08-00032 prepared in August 2008, that assessed the safety impact of the existing 26 and 30-inch diameter natural gas pipelines that traverse the owner controlled property at Indian Point. That report was performed by the same contractor who performed the current site hazards analysis for Entergy. In addition, the report from August 2008 contributed to NRC's rejection of a previous 2.206 petition submitted by Mr. Blanch concerning the existing natural gas pipelines.

The petitioner has also supplemented his original petition with the following:

- The Town of Cortlandt, NY, contracted with Accufacts Inc. to perform a review and analysis of the proposed Spectra Energy natural gas pipeline and how it may affect Cortlandt. The Blanch petition is supplemented by the Accufacts letter dated November 3, 2014, that is critical of Entergy's 50.59 site hazards analysis and characterizes it as seriously deficient, inadequate, and under-representing the real risks.
- The petitioner's letter dated November 11, 2014, discusses the proposed West Point Partners construction of a high voltage direct current transmission cable that may run near or adjacent to the proposed natural gas pipelines before tying into the Buchanan switchyard. This letter also supplements the Blanch petition. The petitioner has expressed concerns that stray DC currents emanating from the high voltage cable could adversely impact the existing gas pipelines, the new gas pipelines, and underground safety-related components at the Indian Point facility.

c. Allow me to discuss the NRC activities to date.

On November 24, 2014, the petition manager contacted the petitioner to discuss the 10 CFR 2.206 process and to offer the petitioner an opportunity to address the PRB by phone or in person. The petitioner requested to address the PRB by phone prior to its internal meeting to make the initial recommendation to accept or reject the petition for review.

- As a reminder for the phone participants, please identify yourself if you make any remarks, as this will help us in the preparation of the meeting transcript that will be made publicly available. Thank you.

- Mr. Blanch, I'll turn it over to you and Mr. Kuprewicz to provide any information you believe the PRB should consider as part of this petition.

C. Petitioner's Presentation

D. PRB Chair Closing Remarks (Chris Miller)

- At this time, does the staff here at headquarters have any questions for Mr. Blanch or Mr. Kuprewicz? What about the Region? Does the licensee have any questions or comments?

- (IF THERE ARE ANY MEMBERS OF THE PUBLIC) Before I conclude the meeting, members of the public may provide comments regarding the petition and ask questions about the 2.206 petition process. However, as stated at the opening, the purpose of this meeting is not to provide an opportunity for the petitioner or the public to question or examine the PRB regarding the merits of the petition request.

- Mr. Blanch and Mr. Kuprewicz, thank you for taking the time to provide the NRC staff with clarifying information on the petition you've submitted.

- Before we close, does the court reporter need any additional information for the meeting transcript?

- With that, this meeting is concluded, and we will be terminating the phone connection.

Tammara, Seshagiri

From: Tammara, Seshagiri
Sent: Monday, February 02, 2015 3:40 PM
To: Krohn, Paul
Cc: McCoppin, Michael
Subject: RE: OUO - SENSITIVE SECURITY-RELATED INFORMATION - Follow-up to IPEC Gas Pipeline Question after Receipt of Accufacts Report for Town of Cortlandt, NY

Paul:

7F/5

As I relayed to you over the phone. Please make a change in 4th paragraph from

(b)(5),(b)(7)(F)

Thanks,
Rao

From: Krohn, Paul
Sent: Monday, February 02, 2015 2:30 PM
To: Lorson, Raymond; Trapp, James
Cc: McCarver, Sammy; Dimitriadis, Anthony; Burritt, Arthur; Setzer, Thomas; Stewart, Scott; Newman, Garrett; Patel, Ami; Tammara, Seshagiri; McCoppin, Michael; Ennis, Rick
Subject: OUO - SENSITIVE SECURITY-RELATED INFORMATION - Follow-up to IPEC Gas Pipeline Question after Receipt of Accufacts Report for Town of Cortlandt, NY

Ray and Jim,

Regarding the IPEC gas pipeline, you recently placed a copy of an Accufacts report on my desk with the question of whether anything in the report would change the conclusions of Sammy's inspection, our inspection feeder, the 3rd qtr IPEC integrated inspection report, or the agency's conclusions. The short answer is, "No."

I read the Accufacts report, re-read Rao's OUO analysis, re-read portions of Entergy's safety eval, and talked to Rao via phone on 2/2/15. Section 4 of the Accufacts report discusses the time to isolate the pipeline following a break. The Entergy safety eval assumes 3 minutes (i.e., 1 minute to detect in alarm center, 1 minute to stroke valves closed, and 1 minute margin). The author of the Accufacts reports asserts that 3 minutes to isolate the pipeline this is very non-conservative.

I talked to Rao about the relevance of the 3 minutes to isolate the gas line and the effect of the isolation time on the analysis results. Bottom-line - the additional effect of an infinite gas source (where the isolation valves never shut) is minimal, and the agency's conclusions do not change.

Basis - Rao ran some sensitivity studies and test cases for the infinite source. In the infinite source case, the 1 psig pressure wave was not exceeded for safety related SSCs in the security owner controlled area.

(b)(5),(b)(7)(F)

In summary, when comparing a 3 minute valve isolation time with an infinite source of gas, the thermal radiation level is relatively constant and the criteria for peak pressure (1 psig) is still met.

B-13

Rao and Mike – please let me know if I got any of the above narrative wrong or missed some key concepts. Also, is the Accufacts report included in the current 2.206 petition deliberations? Does the Accufacts report and the 2.206 petition taken collectively pose any new questions we have not yet considered or answered?

Paul

Tammara, Seshagiri

From: Tammara, Seshagiri
Sent: Tuesday, February 03, 2015 10:43 AM
To: McCoppin, Michael
Subject: Additional Modeling AIM Project Blast Analysis for IPEC
Attachments: Additional Modeling IPEC.docx; IPEC1.tiff; IPEC2.tiff

Mike:

Attached is the brief write-up pertaining to the additional analysis in addressing the concern of valves closure within 3 minutes, along with summary of results and pictorial representation of the layout of site/pipeline. Please review, comment and correct as appropriate, so that we will keep this as our back up in further consideration/discussion.

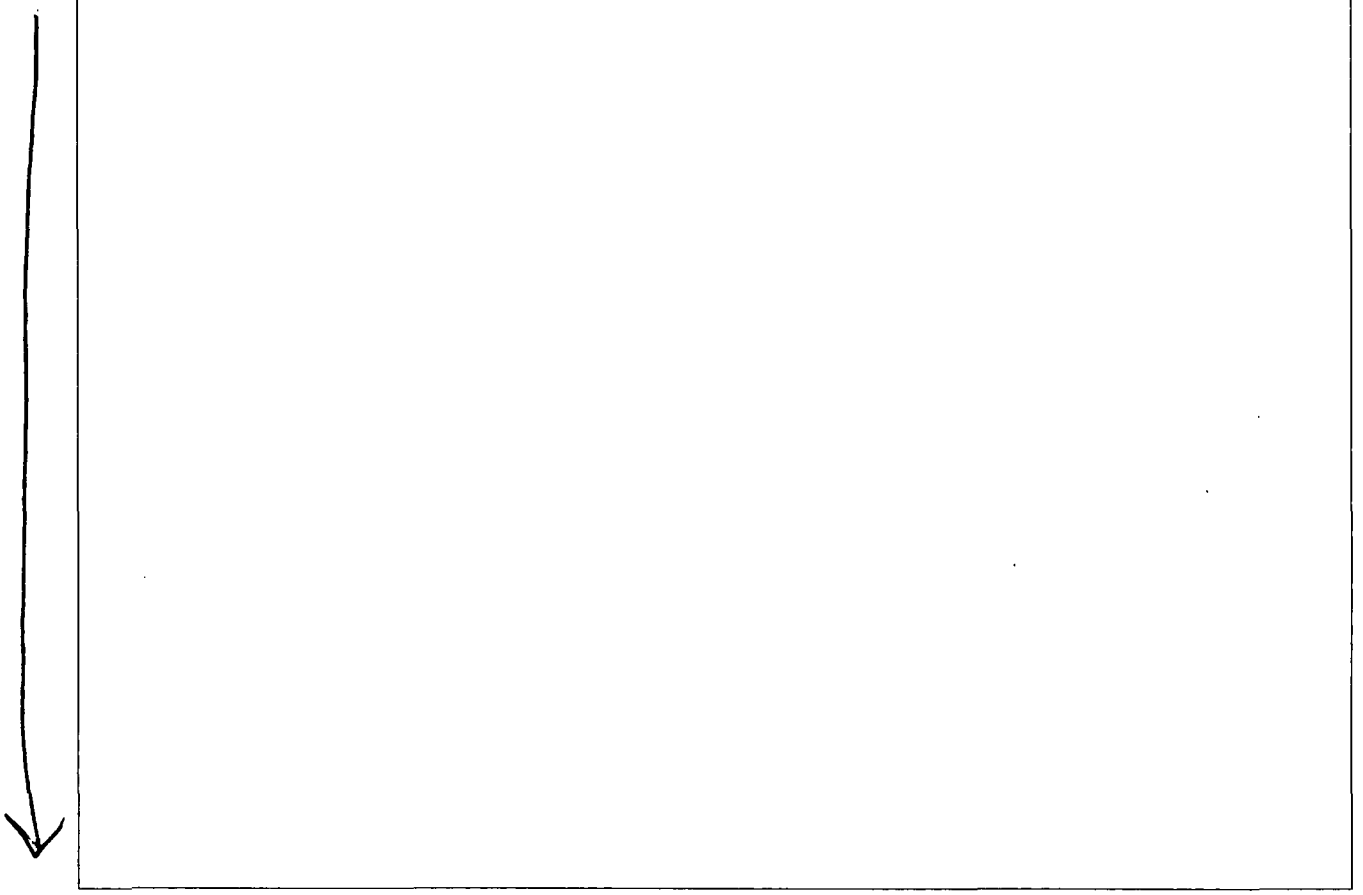
Thanks,
Rao

B-14

7F15

Additional Modeling for proposed AIM Project Pipeline Impact on IPEC

(b)(5),(b)(7)(F)



Tammara, Seshagiri

From:	Pickett, Douglas
Sent:	Tuesday, February 10, 2015 7:43 AM
To:	Burritt, Arthur; Setzer, Thomas; Petch, Jeromy; Stewart, Scott; Newman, Garrett; Banic, Merrilee; McCoppin, Michael; Tammara, Seshagiri; Carpenter, Robert; Beasley, Benjamin; Cylkowski, David; Beaulieu, David; Basturescu, Sergiu; Oberson, Greg; Render, Diane
Cc:	Screnci, Diane; Sheehan, Neil; McNamara, Nancy; Tifft, Doug
Subject:	FW: AIM Letter.pdf
Attachments:	AIM Letter.pdf; ATT00001.txt

-----Original Message-----
From: Paul [mailto:pmblanch@comcast.net]
Sent: Monday, February 09, 2015 4:46 PM
To: Miller, Chris; Pickett, Douglas
Cc: (b)(6) Ex.6
(b)(6) Ed Vergano; RICHARD KUPREWICZ;
(b)(6) Banic, Merrilee; (b)(6) Linda Puglisi; Freedhoff, Michal; Lampert Mary;
Dave Lochbaum; Raspa, Rossana Ex.6
Subject: AIM Letter.pdf

Chris, Doug

I would appreciate it if you would take into consideration the enclosed letter from the two New York Unites States Senators when evaluating my 10 CFR 2.206 petition.

b-15

United States Senate

February 9, 2015

Chairwoman LaFleur
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Dear Chairwoman LaFleur,

As the Federal Energy Regulatory Commission (FERC) considers final approval of the Algonquin Incremental Market pipeline expansion (AIM) project, we urge you to ensure that the environmental, safety, and public health concerns of our constituents are thoroughly and substantially addressed before a final determination on this proposal is issued.

The AIM project is a significant expansion of the current natural gas transmission line on a route which travels through densely-populated communities in Rockland, Putnam and Westchester Counties in New York. The project would replace the current 26-inch pipeline with a new 42-inch diameter pipeline, nearly doubling its current size. Our offices have received comments from impacted communities and from local elected officials who have serious concerns about the safety and potentially negative environmental impacts of the proposed pipeline expansion.

We have serious questions about this pipeline, including:

1. What safety hazards it poses to the communities through which it will traverse, particularly given the pipeline's proximity to the Indian Point Energy Center, which houses two operating nuclear power plants,
2. What impact the pipeline will have on local park land,
3. What the potential health and environmental impacts are from exposure to airborne contaminants,
4. Whether the "pigging" process will have an impact on water and air quality, and if it has been adequately studied by an independent entity.

In light of the significant potential health, safety, and environmental concerns raised throughout the approval process, we ask that FERC not issue a final determination on this proposal until a thorough, independent review of all of the project's potential impacts is completed and made available to the public, with full opportunity for comment and review, including additional public meetings.

We hope that FERC will fully engage with the local elected officials, residents and community organizations in New York who have raised issues and concerns throughout the approval process.

Sincerely

Charles E. Schumer
United States Senator

Kirsten Gillibrand
United States Senator

Tammara, Seshagiri

From: McCoppin, Michael
Sent: Thursday, February 19, 2015 11:41 AM
To: Pickett, Douglas; Tifft, Doug; McNamara, Nancy; Burritt, Arthur; Petch, Jeromy; Setzer, Thomas; Tammara, Seshagiri
Subject: RE: Request Comments on Proposed Response to Sandra Galef
Attachments: Sandra Galef Response (2).docx

Importance: High

Please see minor edits from RPAC.

Thanks,

Mike McCoppin

Branch Chief, Radiation Protection &
Accident Consequences (RPAC)

DSEA
DIVISION OF SITE SAFETY AND ENVIRONMENTAL ANALYSIS

Office of New Reactors
United States Nuclear Regulatory Commission

Mail Stop: T7-F03
Office: T7-F18
Ph: 301.415.6533
Cell: (b)(6) Ex 6
FAX: 301.415.5399
Email: michael.mccoppin@nrc.gov

NRR.

From: Pickett, Douglas
Sent: Wednesday, February 18, 2015 4:19 PM
To: Tifft, Doug; McNamara, Nancy; Burritt, Arthur; Petch, Jeromy; Setzer, Thomas; McCoppin, Michael; Tammara, Seshagiri
Subject: Request Comments on Proposed Response to Sandra Galef

I'm preparing a response to the January 15, 2015, letter from NY Assemblywoman Sandra Galef to the Chairman. Ms. Galef's incoming letter is in the link below. My proposed response is attached and I am requesting comments.

Mike/Rao – Please make sure I've properly characterized the sensitivity analysis in the proposed response.

Could you please provide comments no later than COB Monday, February 23rd?

b/6

Thanks - Doug

View ADAMS P8 Properties ML15027A419
Open ADAMS P8 Document (LTR-15-0043 Sandra Galef, Assemblywoman, State of New York, Letter re: concerns about the safety of siting the AIM pipeline in close proximity to the Indian Point Energy Center.)

Douglas V. Pickett, Senior Project Manager
Indian Point Nuclear Generating Unit Nos. 2 & 3
James A FitzPatrick Nuclear Power Plant
Douglas.Pickett@nrc.gov
301-415-1364

Sandra R. Galef
Assemblywoman 95th District
The Assembly State of New York, Room 641
Legislative Office Building
Albany, NY 12248

Dear Ms. Galef:

I am responding to your letter of January 15, 2015, to NRC Chairman Allison Macfarlane regarding the proposed Algonquin Incremental Market (AIM) Project where a 42-inch diameter natural gas pipeline is proposed to cross a portion of the owner controlled property at the Indian Point Energy Center in Buchanan, NY. Members of your staff have previously discussed the AIM project with staff from the Nuclear Regulatory Commission (NRC) Region I Office located in King of Prussia, PA, with support from NRC headquarters staff located in Rockville, MD.

NRC regulations required that Entergy Nuclear Operations, Inc., the licensee for Indian Point, perform a site hazards analysis to determine the impact that the proposed natural gas pipeline would have on the facility. Accordingly, Entergy performed an analysis ~~that assumed a complete rupture~~ of the proposed 42-inch diameter gas pipeline and concluded that the plant could safely shut down and that the proposed gas pipeline would ~~did~~ not represent an undue risk to the safe operations of the facility. Separately, the NRC staff reviewed Entergy's analysis and concluded that it was reasonable and included rationale assumptions. In addition, the staff performed an independent confirmatory analysis assuming conservatively a complete rupture of the 42-inch diameter gas pipeline and similarly concluded that the plant could operate safely or could shut down and that the proposed pipeline would ~~did~~ not represent an undue risk.

Your letter stated that the NRC analysis was based on unrealistic assumptions and severely underestimated the ability of remote operators to isolate the gas pipelines and stop the flow of gas. Your letter also included a letter from Mr. Richard Kuprewicz, President of Accufacts, Inc., where he states that the Entergy site hazard analysis is severely deficient and inadequate. Finally, you requested that an independent risk analysis be performed before the Federal Energy Regulatory Commission approves a certificate to build the proposed AIM Project.

During previous discussions with your staff, you questioned Entergy's assumption that remote operators located in Houston, TX, could recognize a pipeline break and take appropriate manual actions to close system isolation valves and stop flow within 3 minutes of a pipe break. During these same discussions, you were informed that the NRC had received a petition from Mr. Paul Blanch where he also called for an independent analysis of the safety impact of the proposed AIM Project and that Mr. Blanch would have the opportunity to discuss his concerns with the NRC's Petition Review Board.

On January 28, 2015, Mr. Paul Blanch, with assistance from Mr. Richard Kuprewicz, made their presentation before NRC's Petition Review Board where they discussed their concerns over the proposed AIM Project. Their presentation focused on the following three items. First, they stated that it was absolutely unreasonable to assume that remote operators located in Houston, TX, would be able to detect pressure losses resulting from a postulated pipe rupture and take actions resulting in isolating gas flow within 3 minutes. Based on his experience, Mr. Kuprewicz

estimated that the remote isolation valves would not close prior to 30 to 60 minutes following a pipe rupture. Second, they believed that the controlling factor following a postulated pipe rupture would be the critical heat flux resulting from an extended fire that would last much longer than 3 minutes and would result in melting of essential safety systems and components at the Indian Point site. They acknowledged that the robust concrete structures at the Indian Point site would not likely be adversely impacted by the overpressure pulse associated with the initial explosions. Third, they insisted that an independent safety analysis be performed to more accurately determine the impact of the proposed AIM project on the Indian Point site.

As a result of the presentation by Messrs. Blanch and Kuprewicz, the NRC staff performed a series of sensitivity studies to determine the impact of a delayed closure of the pipeline's isolation valves. The sensitivity studies were bounded with the assumption of an infinite source which, simply stated, is the case where the isolation valves are not closed and remain ~~open~~(open (not closed in 3 minutes) ~~indefinitely~~. The results of the infinite source on the staff's confirmatory analysis resulted in only a minimal increase in the ~~peak~~ overpressure pulse as well as the ~~critical~~ heat flux at safety related Structures, Systems and Comopnets (SSCs) of the plant. Due to the distance between the proposed routing of the 42-inch diameter natural gas pipeline and structures, safety systems and components located at the Indian Point site, the predicted increase in peak pressure and critical heat flux remained below levels that would adversely impact the safe operations at the Indian Point site.

The NRC staff believes that it has adequately addressed the primary objective of safe operation ~~of the plant~~ or safe shutdown of the plant, and principal concerns of Messrs. Blanch and Kuprewicz. Conservative analysis performed independently by both Entergy and the staff have concluded that the initial peak pressure pulse and critical heat flux are dominant and that the actual time to close the piping system's isolation valves has little impact on the results. The proposed routing of the AIM Project pipeline will be located at a sufficient distance such that a postulated rupture of the pipeline will not adversely impact the safe operations at the Indian Point site. Finally, as described in the NRC's inspection report dated November 7, 2014, NRC inspectors thoroughly examined the qualifications of the individuals who performed the blast analysis for both Entergy and the NRC and concluded that both had the requisite knowledge and expertise to perform these calculations thus precluding the need for an additional independent analysis.

Thank you for sharing your concerns on this important issue. Please do not hesitate to contact me if you have any additional questions or concerns.

Sincerely,

Michele G. Evans, Director
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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~~As a result of the presentation by Messrs. Blanch and Kuprewicz, the NRC staff performed a series of sensitivity studies to determine the impact of a delayed closure of the pipeline's isolation valves. The sensitivity studies were bounded with the assumption of an infinite source which, simply stated, is the case where the isolation valves are not closed and remain open indefinitely. The results of the infinite source on the staff's confirmatory analysis resulted in only a minimal increase in the peak pressure pulse as well as the critical heat flux. Due to the distance between the proposed routing of the 42-inch diameter natural gas pipeline and safety systems and components located at the Indian Point site, the predicted increase in peak pressure and critical heat flux remained below levels that would adversely impact the safe operations at the Indian Point site.~~

~~The NRC staff believes that it has adequately addressed the principal concerns of Messrs. Blanch and Kuprewicz. Conservative analysis performed independently by both Entergy and the staff have concluded that the initial peak pressure pulse and critical heat flux are dominant~~

~~and that the actual time to close the piping system's isolation valves has little impact on the results. The proposed routing of the AIM Project pipeline will be located at a sufficient distance such that a postulated rupture of the pipeline will not adversely impact the safe operations at the Indian Point site. Finally, as described in the NRC's inspection report dated November 7, 2014, NRC inspectors thoroughly examined the qualifications of the individuals who performed the blast analysis for both Entergy and the NRC and concluded that both had the requisite knowledge and expertise to perform these calculations thus precluding the need for an additional independent analysis.~~

Thank you for sharing your concerns on this important issue. Please do not hesitate to contact me if you have any additional questions or concerns.

Sincerely,

Michele G. Evans, Director
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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DATE	02 / / 2015	02 / / 2015	02 / / 2015	02 / / 2015	02 / / 2015

OFFICIAL RECORD COPY

Tammara, Seshagiri

From: Tammara, Seshagiri
Sent: Thursday, February 26, 2015 1:57 PM
To: McCoppin, Michael
Subject: Additional IPEC modeling Revised writeup
Attachments: Additional Modeling IPEC.RV.docx; IPEC1.RV.tiff; IPEC2.RV.tiff

Mike:

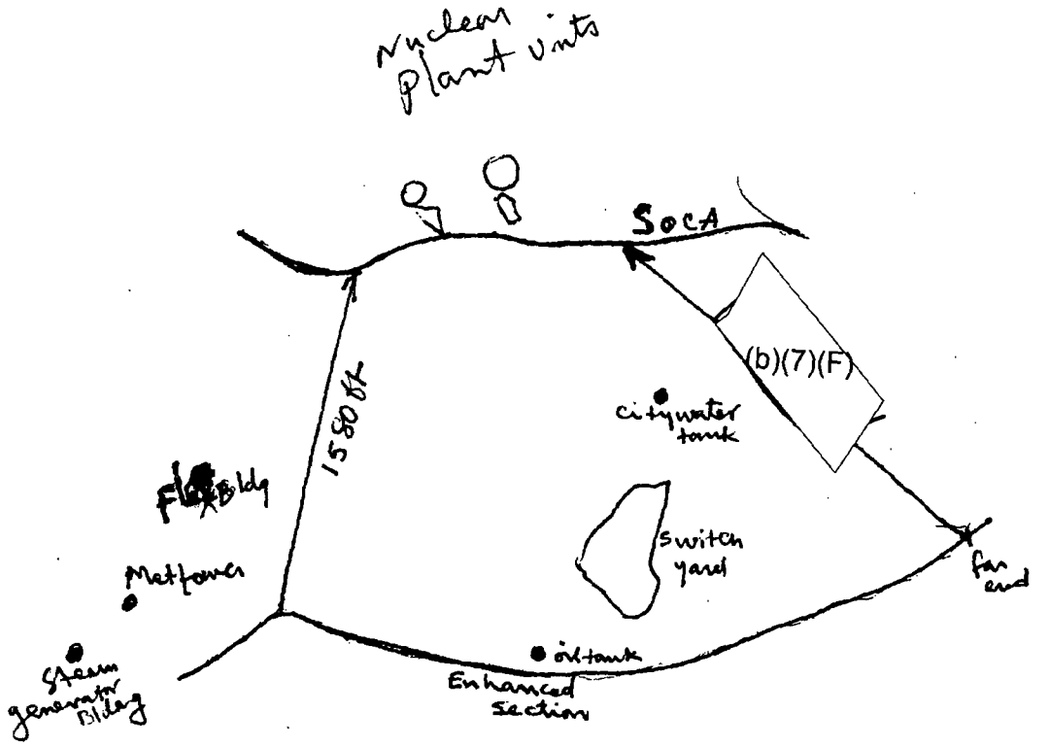
I have slightly revised the write-up for the clarity of modeling effort, along with redacting the determined impact values and other distance numbers (shown in yellow color). The redacted numbers are also shown in yellow on the attached table and pictorial figure. Please review and correct as needed, so that we will keep for any further use/explanation.

Thanks,
Rao

b-17

Additional Modeling for proposed AIM Project Pipeline Impact on IPEC

(b)(5),(b)(7)(F)



SOCA: Security owner controlled Area

distance to SOCA from enhanced Section of pipeline = 1580 ft

distance to SSC from enhanced Section of pipeline =

distance to SOCA from far end (surface) Section of pipeline =

distance to SSC from far end (surface) Section of pipeline

(b)(7)(F)

SUMMARY OF RESULTS

SOCA = Security owner control Ar
SSC = Structure, system and comp

Scenario	Minimum safe Distance to 1 PSi (Distance to SOCA) ((Distance to SSC))	Heat flux kw/m² at SOCA Distance of 1580ft
pipe burst with unbroken end closed (valve closed) RG 1.91 (Direct explosion)	(b)(7)(F)	—
pipe burst with unbroken end connected to infinite source (valve open)		—
vapor plume explosion with no congestion	No explosion	— —
pipe burst with unbroken end closed	—	(b)(7)(F)
pipe burst with unbroken end of pipe connected to infinite source	—	

Tammara, Seshagiri

NRR.

From: Beasley, Benjamin
Sent: Friday, February 27, 2015 9:58 AM
To: McCoppin, Michael; Miller, Chris; Pickett, Douglas
Cc: Uhle, Jennifer; Flanders, Scott; Kock, Andrea; Tammara, Seshagiri; Campbell, Andy
Subject: RE: IP Blast Analysis Follow-up

Chris, Mike and Doug,

I talked with Alan Kuritzky, who is leading the Level III PRA effort in RES. Alan said that they evaluated some external hazards but that gas line events were screened out for their plant (Vogtle). Alan did not know of anyone in RES that could do natural gas explosion modeling.

Regards,
Ben

From: McCoppin, Michael
Sent: Friday, February 27, 2015 9:07 AM
To: Miller, Chris; Pickett, Douglas; Beasley, Benjamin
Cc: Uhle, Jennifer; Flanders, Scott; Kock, Andrea; Tammara, Seshagiri; Campbell, Andy
Subject: IP Blast Analysis Follow-up
Importance: High

Chris,

As an action resulting from briefing Jennifer yesterday, I contacted my counterpart at the FERC, Terry Turpin, Chief LNG Engineering & Compliance Branch and gave him a heads-up that we would like to schedule a conference call with he and his management to discuss the potential use of their expertise to act as a sounding board for our initial blast calculations and sensitivity study. Unfortunately, he mentioned that he is off today (Friday); however, said will run it up his chain on Monday and get back to me. I'll let you know when I hear something and circle back with him toward the beginning of next week.

Mike McCoppin

Branch Chief, Radiation Protection &
Accident Consequences (RPAC)

DSEA
DIVISION OF SITE SAFETY AND ENVIRONMENTAL ANALYSIS

Office of New Reactors
United States Nuclear Regulatory Commission

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FAX: 301.415.5399
Email: michael.mccoppin@nrc.gov

ex. 6

b-A

Tammara, Seshagiri

From: Lorson, Raymond
Sent: Friday, February 27, 2015 5:05 PM
To: McCoppin, Michael; Krohn, Paul; Trapp, James
Cc: Tammara, Seshagiri
Subject: RE: ~~OUO - SENSITIVE SECURITY-RELATED INFORMATION~~ - Follow-up to IPEC Gas Pipeline Question after Receipt of Accufacts Report for Town of Cortlandt, NY

RI

Thanks Mike - fyi, the issue is continuing to generate continued interest with our external stakeholders. While we have a good story to share from a safety perspective, I am not sure how well the message has been received and whether our inability to discuss certain aspects of the analysis publically may have hampered communications. We are looking to conduct additional outreach in the IPEC area in April and will be reaching out separately to seek support from HQ.

Ray

From: McCoppin, Michael
Sent: Friday, February 27, 2015 3:00 PM
To: Krohn, Paul; Lorson, Raymond; Trapp, James
Cc: Tammara, Seshagiri
Subject: RE: ~~OUO - SENSITIVE SECURITY-RELATED INFORMATION~~ - Follow-up to IPEC Gas Pipeline Question after Receipt of Accufacts Report for Town of Cortlandt, NY

Rao is out of the office today; however, I'll ask him to respond first thing Monday morning...I believe it deals with the selected input and assumptions to the ALOHA model; however, Rao is the best person to address the question...

mike

From: Krohn, Paul
Sent: Friday, February 27, 2015 2:49 PM
To: Lorson, Raymond; Trapp, James
Cc: Tammara, Seshagiri; McCoppin, Michael
Subject: RE: ~~OUO - SENSITIVE SECURITY-RELATED INFORMATION~~ - Follow-up to IPEC Gas Pipeline Question after Receipt of Accufacts Report for Town of Cortlandt, NY

RI

Rao,

I'll have to let you answer this one.

Paul

From: Lorson, Raymond
Sent: Friday, February 27, 2015 2:45 PM
To: Krohn, Paul; Trapp, James
Cc: Tammara, Seshagiri; McCoppin, Michael
Subject: RE: ~~OUO - SENSITIVE SECURITY-RELATED INFORMATION~~ - Follow-up to IPEC Gas Pipeline Question after Receipt of Accufacts Report for Town of Cortlandt, NY

RI

Paul or Rao – I would be interested in understanding how we compute the mass of the gas for the infinite source case?

B19

Thanks

Ray

From: Krohn, Paul
Sent: Monday, February 02, 2015 3:46 PM
To: Lorson, Raymond; Trapp, James
Cc: McCarver, Sammy; Dimitriadis, Anthony; Burritt, Arthur; Setzer, Thomas; Stewart, Scott; Newman, Garrett; Patel, Ami; Tammara, Seshagiri; McCoppin, Michael; Ennis, Rick
Subject: RE: OUO - SENSITIVE SECURITY-RELATED INFORMATION - Follow-up to IPEC Gas Pipeline Question after Receipt of Accufacts Report for Town of Cortlandt, NY

All,

Slight correction based on further conversation with Rao. Conclusion remains unchanged.

Pervious Basis Paragraph
Basis - Rao ran some sensitivity studies and test cases for the infinite source. In the infinite source case, the 1 psig pressure wave was not exceeded for safety related SSCs in the security owner controlled area.

(b)(7)(F)

Revised Basis paragraph
Basis - Rao ran some sensitivity studies and test cases for the infinite source. In the infinite source case, the 1 psig pressure wave was not exceeded for safety related SSCs in the security owner controlled area.

(b)(7)(F)

Paul

From: Krohn, Paul
Sent: Monday, February 02, 2015 2:30 PM
To: 'Lorson, Raymond'; James.Trapp@nrc.gov<mailto:James.Trapp@nrc.gov>
Cc: 'Sammy McCarver'; Dimitriadis, Anthony; Burritt, Arthur; 'Thomas Setzer'; Stewart, Scott; Newman, Garrett; 'AMI Patel'; Tammara, Seshagiri; McCoppin, Michael; Ennis, Rick
Subject: OUO - SENSITIVE SECURITY-RELATED INFORMATION - Follow-up to IPEC Gas Pipeline Question after Receipt of Accufacts Report for Town of Cortlandt, NY

Ray and Jim,

Regarding the IPEC gas pipeline, you recently placed a copy of an Accufacts report on my desk with the question of whether anything in the report would change the conclusions of Sammy's inspection, our inspection feeder, the 3rd qtr IPEC integrated inspection report, or the agency's conclusions. The short answer is, "No."

I read the Accufacts report, re-read Rao's OUO analysis, re-read portions of Entergy's safety eval, and talked to Rao via phone on 2/2/15. Section 4 of the Accufacts report discusses the time to isolate the pipeline following a break. The Entergy safety eval assumes 3 minutes (i.e., 1 minute to detect in alarm center, 1 minute to stroke valves closed, and 1 minute margin). The author of the Accufacts reports asserts that 3 minutes to isolate the pipeline this is very non-conservative.

I talked to Rao about the relevance of the 3 minutes to isolate the gas line and the effect of the isolation time on the analysis results. Bottom-line - the additional effect of an infinite gas source (where the isolation valves never shut) is minimal, and the agency's conclusions do not change.

Basis - Rao ran some sensitivity studies and test cases for the infinite source. In the infinite source case, the 1 psig pressure wave was not exceeded for safety related SSCs in the security owner controlled area.

(b)(7)(F)

In summary, when comparing a 3 minute valve isolation time with an infinite source of gas, the thermal radiation level is relatively constant and the criteria for peak pressure (1 psig) is still met.

Rao and Mike – please let me know if I got any of the above narrative wrong or missed some key concepts. Also, is the Accufacts report included in the current 2.206 petition deliberations? Does the Accufacts report and the 2.206 petition taken collectively pose any new questions we have not yet considered or answered?

Paul

Tammara, Seshagiri

From: McCoppin, Michael
Sent: Monday, March 02, 2015 1:33 PM
To: Lorson, Raymond; Krohn, Paul; Trapp, James
Cc: Tammara, Seshagiri; Pickett, Douglas
Subject: Re: OUO - SENSITIVE SECURITY-RELATED INFORMATION - Follow-up to IPEC Gas Pipeline Question after Receipt of Accufacts Report for Town of Cortlandt, NY

Release.

Great we look forward to it.

Mike McCoppin
Sent from my NRC Blackberry
(b)(6)

Ex. 4

----- Original Message -----
From: Lorson, Raymond
Sent: Monday, March 02, 2015 01:28 PM
To: McCoppin, Michael; Krohn, Paul; Trapp, James
Cc: Tammara, Seshagiri; Pickett, Douglas
Subject: RE: OUO - SENSITIVE SECURITY-RELATED INFORMATION - Follow-up to IPEC Gas Pipeline Question after Receipt of Accufacts Report for Town of Cortlandt, NY

RI

Mike et el:

The meeting in the region this afternoon is to develop/align on an external comms strategy to reach out to governmental stakeholders in the IPEC area that have some lingering concerns with the gas line. I would like to talk to yourself and roa later is a few questions that I have after reviewing the calc once more.

Ray

-----Original Message-----
From: McCoppin, Michael
Sent: Monday, March 02, 2015 10:51 AM
To: Lorson, Raymond; Krohn, Paul; Trapp, James
Cc: Tammara, Seshagiri; Pickett, Douglas
Subject: RE: OUO - SENSITIVE SECURITY-RELATED INFORMATION - Follow-up to IPEC Gas Pipeline Question after Receipt of Accufacts Report for Town of Cortlandt, NY

Release. NRO

Ray...I understand there is a RI meeting today a 14:00 to discuss. Doug Picket just sent me the scheduler. We will call into support as necessary.

mike

-----Original Message-----
From: McCoppin, Michael
Sent: Monday, March 02, 2015 10:39 AM
To: Lorson, Raymond; Krohn, Paul; Trapp, James
Cc: Tammara, Seshagiri; Kock, Andrea
Subject: RE: OUO - SENSITIVE SECURITY-RELATED INFORMATION - Follow-up to IPEC Gas Pipeline Question after Receipt of Accufacts Report for Town of Cortlandt, NY
Importance: High

b7D

Ray-

Release

Rao is in today if are you available to discuss? When would be a good time? He can explain his modeling assumptions and calculations. He would prefer to discuss on a phone call first... and we could follow-up with a short summary paragraph. I'm available from 1050 to 11:15 or later from 2-3 or 4-5...

Thanks,

Mike McCoppin

Branch Chief, Radiation Protection &
Accident Consequences (RPAC)

Office of New Reactors
United States Nuclear Regulatory Commission

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Office: T7-F18
Ph: 301.415.6533
Cell: (b)(6) Ex. 6
FAX: 301.415.5399
Email: michael.mccoppin@nrc.gov

-----Original Message-----
From: Lorson, Raymond
Sent: Saturday, February 28, 2015 9:54 AM
To: Krohn, Paul; Trapp, James
Cc: Tammara, Seshagiri; McCoppin, Michael
Subject: RE: ~~OUO - SENSITIVE SECURITY-RELATED INFORMATION~~ - Follow-up to IPEC Gas Pipeline Question after Receipt of Accufacts Report for Town of Cortlandt, NY

RT

We can discuss on Monday if Rao is available. I have been using the ALOHA software to recreate Rao's analysis and the best I can determine is that he is using the blast analysis feature of ALOHA using the infinate source case (which actually assumes a one hour source term) to determine the standoff distance for a postulated overpresssure of 1 psi. I dont believe that he performed a blast analysis using an infinite source term iaw with the RG 1.91 methodology where you convert the mass of the gas released to a tnt equivalent. I would be interested in clarifying this point.

Thanks

Ray

From: Krohn, Paul
Sent: Friday, February 27, 2015 2:48 PM
To: Lorson, Raymond; Trapp, James
Cc: Tammara, Seshagiri; McCoppin, Michael
Subject: RE: ~~OUO - SENSITIVE SECURITY-RELATED INFORMATION~~ - Follow-up to IPEC Gas Pipeline Question after Receipt of Accufacts Report for Town of Cortlandt, NY

RT

Rao,

I'll have to let you answer this one.

Paul

RI

From: Lorson, Raymond
Sent: Friday, February 27, 2015 2:45 PM
To: Krohn, Paul; Trapp, James
Cc: Tammara, Seshagiri; McCoppin, Michael
Subject: RE: ~~OUO - SENSITIVE SECURITY-RELATED INFORMATION~~ - Follow-up to IPEC Gas Pipeline Question after Receipt of Accufacts Report for Town of Cortlandt, NY

Paul or Rao – I would be interested in understanding how we compute the mass of the gas for the infinite source case?

Thanks

Ray

RI

From: Krohn, Paul
Sent: Monday, February 02, 2015 3:46 PM
To: Lorson, Raymond; Trapp, James
Cc: McCarver, Sammy; Dimitriadis, Anthony; Burritt, Arthur; Setzer, Thomas; Stewart, Scott; Newman, Garrett; Patel, Ami; Tammara, Seshagiri; McCoppin, Michael; Ennis, Rick
Subject: RE: ~~OUO - SENSITIVE SECURITY-RELATED INFORMATION~~ - Follow-up to IPEC Gas Pipeline Question after Receipt of Accufacts Report for Town of Cortlandt, NY

All,

Slight correction based on further conversation with Rao. Conclusion remains unchanged.

Pervious Basis Paragraph
Basis - Rao ran some sensitivity studies and test cases for the infinite source. In the infinite source case, the 1 psig pressure wave was not exceeded for safety related SSCs in the security owner controlled area.

(b)(7)(F)

7F15

Revised Basis paragraph
Basis - Rao ran some sensitivity studies and test cases for the infinite source. In the infinite source case, the 1 psig pressure wave was not exceeded for safety related SSCs in the security owner controlled area.

(b)(7)(F)

Paul

From: Krohn, Paul
Sent: Monday, February 02, 2015 2:30 PM
To: 'Lorson, Raymond'; James.Trapp@nrc.gov<mailto:James.Trapp@nrc.gov>
Cc: 'Sammy McCarver'; Dimitriadis, Anthony; Burritt, Arthur; 'Thomas Setzer'; Stewart, Scott; Newman, Garrett; 'AMI Patel'; Tammara, Seshagiri; McCoppin, Michael; Ennis, Rick
Subject: ~~OUO - SENSITIVE SECURITY RELATED INFORMATION~~ - Follow-up to IPEC Gas Pipeline Question after Receipt of Accufacts Report for Town of Cortlandt, NY

RI

Ray and Jim,

Regarding the IPEC gas pipeline, you recently placed a copy of an Accufacts report on my desk with the question of whether anything in the report would change the conclusions of Sammy's inspection, our inspection feeder, the 3rd qtr IPEC integrated inspection report, or the agency's conclusions. The short answer is, "No."

I read the Accufacts report, re-read Rao's OUO analysis, re-read portions of Entergy's safety eval, and talked to Rao via phone on 2/2/15. Section 4 of the Accufacts report discusses the time to isolate the pipeline following a break. The Entergy safety eval assumes 3 minutes (i.e., 1 minute to detect in alarm center, 1 minute to stroke valves closed, and 1 minute margin). The author of the Accufacts reports asserts that 3 minutes to isolate the pipeline this is very non-conservative.

I talked to Rao about the relevance of the 3 minutes to isolate the gas line and the effect of the isolation time on the analysis results. Bottom-line - the additional effect of an infinite gas source (where the isolation valves never shut) is minimal, and the agency's conclusions do not change.

Basis - Rao ran some sensitivity studies and test cases for the infinite source. In the infinite source case, the 1 psig pressure wave was not exceeded for safety related SSCs in the security owner controlled area.

(b)(7)(F)

Ex. 7F

In summary, when comparing a 3 minute valve isolation time with an infinite source of gas, the thermal radiation level is relatively constant and the criteria for peak pressure (1 psig) is still met.

Rao and Mike – please let me know if I got any of the above narrative wrong or missed some key concepts. Also, is the Accufacts report included in the current 2.206 petition deliberations? Does the Accufacts report and the 2.206 petition taken collectively pose any new questions we have not yet considered or answered?

Paul

Tammara, Seshagiri

From: McCoppin, Michael
Sent: Tuesday, March 10, 2015 10:50 AM
To: Tammara, Seshagiri; Miller, Chris; Beasley, Benjamin; Pickett, Douglas
Subject: RE: OUO-Security Sensitive

Ok thanks Rao...

From: Tammara, Seshagiri
Sent: Tuesday, March 10, 2015 10:47 AM
To: McCoppin, Michael; Miller, Chris; Beasley, Benjamin; Pickett, Douglas
Subject: RE: OUO-Security Sensitive

Mike:

Please note that additional numbers (b)(7)(F) (b)(7)(F) addressed in the write-up should also be redacted. Attached file reflects these additional suggested redacted numbers those are to be highlighted to be consistent with previous redacted version write-up. Please review and correct as appropriate.

Thanks,
Rao

From: McCoppin, Michael
Sent: Tuesday, March 10, 2015 9:39 AM
To: Miller, Chris; Beasley, Benjamin; Pickett, Douglas
Cc: Tammara, Seshagiri
Subject: OUO-Security Sensitive

Attached is a draft write-up from Rao with suggested redacted portions in yellow high light that may be of use in the future. It more closely follows the inspection feeder outline but focuses on the infinite source scenario and gap between the original model and the infinite model.

Mike McCoppin

Branch Chief, Radiation Protection &
Accident Consequences (RPAC)

DSEA
DIVISION OF SITE SAFETY AND ENVIRONMENTAL ANALYSIS

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United States Nuclear Regulatory Commission

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FAX: 301.415.5399
Email: michael.mccoppin@nrc.gov

mike

Safety Review and Confirmatory Analysis

Entergy's 10 CFR 50.59 Safety Evaluation

Algonquin Incremental Market (AIM)

Project Indian Point Energy Center (IPEC)

EXPLOSION

The ALOHA model used for explosion scenario 1 of the original blast analysis report (ADAMS accession number ML14330A276) used as a feeder to the Region 1 Inspecting Report (ADAMS accession number ML14314A052) conservatively assumed that the pipeline rupture occurred at the far end of the pipe line above the surface, considering the length of pipeline to be 3 miles, with the rupture creating a hole (b)(7)(F) at a maximum operating pressure of 850 psig. The ALOHA calculation for this scenario resulted in a maximum sustained methane release rate of (b)(7)(F) and estimated total release amount of (b)(7)(F) considering instantaneous closure of the isolation valves within 3 minutes, based on the assumption that the entire gas in the pipeline section between the closed valves is being released. Conservatively assuming the maximum release (b)(7)(F) (b)(7)(F) and determining the TNT equivalent amount with a yield factor of (b)(7)(F) with information given below, the minimum safe distance (d) to 1 psi overpressure is calculated to be (b)(7)(F) by using the TNO 1.91 methodology as follows:

WTNT= (Mf * DHC * Y)/4680

Where

WTNT= TNT equivalent Mass,

Mf = Mass of vapor, kg

DHC = Heat of combustion, kg (50[illegible])

Y = (b)(7)(F)

$d = 45 * (w)^{1/3}$ where

d= minimum safe distance (ft) to 1 psi overpressure

w= TNT equivalent mass in pounds

This calculated minimum safe distance of (b)(7)(F) is smaller than the actual distance of (b)(7)(F) to the SOCA (Security Owner Control Area) from the pipeline at the far end above surface or (b)(7)(F) to the nearest safety-related SSC (nearest safety-related SSC inside SOCA from is about (b)(7)(F) in from the edge of the SOCA) and therefore 1 psi overpressure is not expected at any safety-related SSC inside the SOCA from a potential rupture and explosion at the far end of the pipeline located above the surface. However, as the calculated minimum safe distance of (b)(7)(F) ft is larger than the actual distances to all SSC ITS, they may experience greater than 1 psi overpressure. Therefore, the SSC ITS would be impacted. Nevertheless, their impacts are bounded by the severe/beyond design basis accidents considered as part of low probability

events such as natural phenomena that include seismic, hurricane and tornado events including Loss of Offsite Power and Station Black Out (SBO) considerations with design of redundant systems, engineering safeguards and mitigation measures in the plant UFSARs.

However, due to a concern for the validity/uncertainty of valves closure within 3 minutes of pipeline leak/burst considered in the impact evaluation that was raised, additional modeling with ALOHA was performed to determine the variation of results with and without valves closure. The original scenario 1 modeling considered that the unbroken end of pipe is closed due to valves closure, and the natural gas present in the pipeline in between upstream and downstream closed valves, is allowed to exit until pipeline is evacuated. The impacts are determined based on a maximum (b)(7)(F) as a conservative/bounding impact in determining the minimum safe distance to 1 psi overpressure and also potential heat flux due to jet fire at SSC/SOCA. In this infinite source scenario the analysis is remodeled with the same conditions by imposing that the unbroken end of pipe (i.e., upstream) is assumed to be connected to infinite source (with no valves closed) for one hour (limitation of ALOHA model). Since the maximum calculated release rate of natural gas determined by the ALOHA model is slightly varied, the calculated results are marginally changed. The distance to 1 psi overpressure changed from (b)(7)(F) which are still lower than the distance to the most limiting SSC of (b)(7)(F)

The frequency of exposure due to the failure of the SSC ITS from potential rupture of the AIM Project pipeline is also briefly presented later in this report to address whether the margin of safety is reduced or compromised due to a rupture of the AIM Project pipeline.

JET FIRE

The ALOHA model for Jet Fire of Natural Scenario was run conservatively assuming that the pipe rupture occurred at the far end of the pipe line above the surface, considering the length of pipeline to be 3 miles, with rupture creating a hole (b)(7)(F) at a maximum operating pressure of 850 psig. Methane is assumed to be released from the ruptured pipe as a flammable gas and burning. The ALOHA model run resulted in a maximum burn rate of (b)(7)(F), and an estimated total amount burned of (b)(7)(F) and considering manual closure of the isolation valves within 3 minutes, with the assumption that the entire gas in the pipeline section between the closed valves is being released. The distances to thermal radiation levels of (b)(7)(F) 5.0 kW/m^2, and 2.0 kW/m^2 calculated by ALOHA are (b)(7)(F) respectively. In the infinite source scenario, this analysis is remodeled with the same conditions by imposing that the unbroken end of pipe (i.e.,upstream) is assumed to be connected to infinite source (with no valves closed) for an hour (limitation of ALOHA model). The maximum calculated burn rate of natural gas determined by the ALOHA model is not changed, however, the calculated heat fluxes are marginally changed at the SOCA distance of (b)(7)(F) from the enhanced pipeline from (b)(7)(F) due to sustained burning for extended time period, and are also much lower than the potential threshold heat

flux rate of (b)(7)(F) that would potentially damage any digital equipment.

CONCLUSION

A sensitivity analysis considering whether the valves are closed (within 3 minutes) and the flow of natural gas from infinite source is stopped or the valves are open such that the gas considered flowing for an hour was performed. Based on this analysis, it is concluded that the changes in impact results due to closer of valves within 3 minutes or extended period of time, would be minimal, and NRC conclusion of safe operation or safe shutdown of the nuclear units without radiological release, is still valid as the NRC acceptance criteria and regulatory requirements are met, whether 3 minute criterion of valve closure is applied or not.

However, it should be noted that if the valves are not closed for the extended period time, potential adverse impacts consisting of direct property damage, some injuries and possible fatalities may result due to the fire in the close proximity of the pipeline which is outside the preview of the NRC's regulatory frame work, consideration and jurisdiction from safe operation/shutdown of the nearby IPEC nuclear plant's perspective.

Tammara, Seshagiri

From: Tammara, Seshagiri
Sent: Wednesday, March 18, 2015 9:46 AM
To: Pickett, Douglas
Cc: McCoppin, Michael
Subject: FW: Indian Point Sensitivity Study of 3 Minute Valve Closure.docx
Attachments: Indian Point Sensitivity Study of 3 Minute Valve Closure 3-17-15 Version.docx

Doug:

It is fine. I have no comments.

Thanks,
Rao

From: Pickett, Douglas
Sent: Tuesday, March 17, 2015 4:30 PM
To: Tammara, Seshagiri
Subject: FW: Indian Point Sensitivity Study of 3 Minute Valve Closure.docx

Rao – Per Mike's response, let me know if you agree with the attached version. I inserted the proper security headers on all pages.

Doug

From: McCoppin, Michael
Sent: Tuesday, March 17, 2015 2:26 PM
To: Pickett, Douglas
Cc: Tammara, Seshagiri
Subject: RE: Indian Point Sensitivity Study of 3 Minute Valve Closure.docx

If Rao is good with it, then so am I...

From: Pickett, Douglas
Sent: Tuesday, March 17, 2015 12:38 PM
To: McCoppin, Michael
Cc: Tammara, Seshagiri
Subject: FW: Indian Point Sensitivity Study of 3 Minute Valve Closure.docx

Mike – I should have included you with this request.

Doug

From: Pickett, Douglas
Sent: Tuesday, March 17, 2015 11:21 AM
To: Tammara, Seshagiri
Subject: Indian Point Sensitivity Study of 3 Minute Valve Closure.docx

Rao –

Please take a look at the attached. Considering that the calculation really did not assume that the isolation valves close within 3 minutes, I propose deleting those specific words as indicated by the redline/strikeout in the attached. I also revised the portion on page 2 regarding valve closure times as discussed.

Please let me know if you agree with this version and I will place it in ADAMS.

Doug

Safety Review and Confirmatory Analysis

Entergy's 10 CFR 50.59 Safety Evaluation

Algonquin Incremental Market (AIM)

Project Indian Point Energy Center (IPEC)

EXPLOSION

The ALOHA model was used for explosion scenario 1 of the original blast analysis report (ADAMS accession number ML14330A276) and used as a feeder to the Region I Inspecting Report (ADAMS accession number ML14314A052). The analysis conservatively assumed a pipe rupture (b)(7)(F) (b)(7)(F) at a maximum operating pressure of 850 psig. The pipe rupture was assumed to occur at the far end of the pipeline where the pipe rises above ground level and includes the volume of gas within the 3 mile length of pipeline between the nearest isolation valves. The ALOHA calculation for this scenario resulted in a maximum sustained methane release rate of (b)(7)(F) and estimated the total release amount of (b)(7)(F) (b)(7)(F) The calculation assumed that the entire pipeline gas volume between the isolation valves is released. The calculation conservatively assumed the maximum release (b)(7)(F) and determined the TNT equivalent amount with a yield factor of (b)(7)(F). In the equation below, the minimum safe distance (d) to 1 psi overpressure is calculated to be (b)(7)(F) by using Regulatory Guide 1.91 methodology as follows:

WTNT= (Mf * DHC * Y)/4500
Where
WTNT= TNT equivalent Mass, kg
Mf = Mass of vapor, kg
DHC = Heat of combustion, kj/kg (50030)
Y = (b)(7)(F)
$d = 45 * (w)^{1/3}$ where
d= minimum safe distance (ft) to 1 psi overpressure
w= TNT equivalent mass in pounds

The calculated minimum safe distance of (b)(7)(F) is smaller than the actual distance of (b)(7)(F) between the Security Owner Control Area (SOCA) barrier and the pipeline at the far end above ground. Furthermore, the pipeline at the far end above ground is located (b)(7)(F) from the nearest safety-related structure, system, or component (SSC) within the SOCA. This is because the nearest safety-related SSC inside the SOCA is about (b)(7)(F) from the edge of the SOCA barrier. Therefore, a 1 psi overpressure is not expected to occur at any safety-related SSC inside the SOCA from a potential rupture and explosion at the far end of the pipeline located above ground. However, since the calculated minimum safe distance of (b)(7)(F) is larger than the distance to SSC important to safety (ITS) outside the SOCA barrier, they may experience greater than 1 psi overpressure. Therefore, SSC ITS would be impacted. Nevertheless, their impacts are bounded by the severe/beyond design basis accidents considered as part of low

probability events such as natural phenomena that include seismic, hurricane and tornado events including Loss of Offsite Power and Station Black Out (SBO) considerations with design of redundant systems, engineering safeguards and mitigation measures in the plant UFSARs. A detailed discussion of the impact of SSC ITS, which was reviewed by NRC inspectors as part of their inspection report, is included in the licensee's submittal of their site hazards analysis submitted pursuant to 10 CFR 50.59 on August 21, 2014 (ADAMS accession number ML14253A339).

Due to concerns whether remote pipeline operators would be able to recognize that a pipeline ruptured occurred and then take timely actions to close the nearest pipeline isolation valves within 3 minutes, additional ALOHA modeling was performed to determine the sensitivity of valve closure times. The original scenario 1 modeling assumed (b)(7)(F) (b)(6),(b)(7) as a conservative/bounding condition in determining the minimum safe distance to 1 psi overpressure and the potential heat flux due to a jet fire at the SSC/SOCA. In the bounding infinite source scenario, the analysis assumes that the pipeline isolation valves do not close and gas continues to flow, as if there was an infinite source, for one hour. Since the maximum calculated release of natural gas determined by the ALOHA model for the infinite source scenario is only slightly varied, the calculated results are marginally changed. The distance to 1 psi overpressure changed from (b)(7)(F) which remains lower than the distance to the most limiting SSC inside the SOCA barrier of (b)(7)(F)

JET FIRE

Similar to the assumptions used for the ALOHA pipe explosion modeling, the ALOHA model for Jet Fire original Scenario 1 conservatively assumed a pipe (b)(7)(F) (b)(7)(F) at a maximum operating pressure of 850 psig, the pipe rupture was assumed to occur at the far end of the pipeline where the pipe rises above ground level, and the modeling includes the volume of gas within the 3 mile length of pipeline between the nearest isolation valves. Methane is assumed to be released from the ruptured pipe as a flammable gas. The ALOHA model resulted in a maximum burn rate of (b)(7)(F) and an estimated total amount burned of (b)(7)(F) The calculation assumed that the entire pipeline gas volume between the isolation valves is released. The distances to thermal radiation levels of (b)(7)(F) 5.0 kW/m^2, and 2.0 kW/m^2 calculated by ALOHA are (b)(7)(F) (b)(7)(F) respectively. In the infinite source scenario, this analysis is remodeled with the same conditions by imposing that the unbroken end of pipe (i.e.,upstream) is assumed to be connected to an infinite source (with no valves closed) for an hour. The maximum calculated burn rate of natural gas determined by the ALOHA model is not changed. The calculated heat fluxes, which are marginally changed at the SOCA distance of 1580 ft from the enhanced pipeline from (b)(7)(F) due to the sustained burning for an extended period of time, remain much lower than the potential threshold heat flux rate of (b)(7)(F) that would potentially damage any digital equipment.

CONCLUSION

Due to concerns that Entergy's assumption that remote control room operators would be able to recognize a pipeline rupture and take actions to close the nearest pipeline isolation valves within 3 minutes may not be realistic, the NRC staff performed a bounding sensitivity analysis. The analysis assumed that following a complete pipeline rupture, the pipeline provides an infinite source of natural gas and the pipeline isolation valves do not close for an hour. Based on this analysis, the NRC staff has determined that there are only minimal changes to the peak overpressure calculation and the heat flux calculation. Therefore, the staff concludes that pipeline isolation valve closure times are inconsequential and the previous staff conclusions that the proposed 42-inch diameter natural gas pipeline at the Indian Point site does not represent an undue risk and that the plant could safely shut down following a postulated pipeline rupture remain valid.

It should be noted that if the valves are not closed for an extended period time, potential adverse impacts consisting of direct property damage, some injuries and possible fatalities may result due to the fire in the close proximity of the pipeline, which is outside the preview of the NRC's regulatory frame work, consideration and jurisdiction from safe operation/shutdown of the nearby IPEC nuclear plant's perspective.

Tammara, Seshagiri

From: McCarver, Sammy
Sent: Tuesday, September 23, 2014 9:16 AM
To: Tammara, Seshagiri
Subject: RE: IPEC Gas Line 50.59 Review

Thanks Rao,

I should have the answers to your questions today.

Plan to walk down as much of the propose pipeline route as possible tomorrow with responsible Entergy engineer. Because no physical work has started route is still tree covered with some areas of heavy underbrush. When (if) line is constructed route will be cleared of trees and underbrush for a width of 100' along the route. Topographical map suggests proposed route is relatively flat and open (other than existing trees/vegetation).

For most of the route, because of trees, it does not appear possible to see SSCs at IPEC; the distances shown in the 50.59 packages are based on scaling using Google Maps from identifiable reference points in Spectra Energy aerial maps of proposed routing.

Sam McCarver, PE
Physical Security Inspector
U.S. Nuclear Regulatory Commission
Region I Division of Reactor Safety
2100 Renaissance Boulevard, Suite 100
King of Prussia, PA 19406
610-337-5382

From: Tammara, Seshagiri
Sent: Tuesday, September 23, 2014 8:53 AM
To: McCarver, Sammy
Subject: RE: IPEC Gas Line 50.59 Review

Yes. In the Table on page A-2, third column, the mass of methane(kg) for various types of releases are provided, but how they are generated/calculated are not provided. Are the calculations for the determination of these amounts could be obtained/audited?
Thanks,
Rao

From: McCarver, Sammy
Sent: Tuesday, September 23, 2014 8:37 AM
To: Tammara, Seshagiri
Subject: RE: IPEC Gas Line 50.59 Review

Rao,

For clarification, in the highlighted question below, you are asking for the calculations used to determine the mass of methane provided in App A correct?

Sam McCarver, PE

b-7b

Physical Security Inspector
U.S. Nuclear Regulatory Commission
Region I Division of Reactor Safety
2100 Renaissance Boulevard, Suite 100
King of Prussia, PA 19406
610-337-5382

From: Tammara, Seshagiri
Sent: Wednesday, September 17, 2014 3:20 PM
To: McCarver, Sammy
Cc: Krohn, Paul; Burritt, Arthur; Setzer, Thomas; Stewart, Scott; McCoppin, Michael; Pickett, Douglas
Subject: FW: IPEC Gas Line 50.59 Review

Sam:

Please try to get some more information used in their hazard impacts calculations for 50.59 evaluation.

The results summarized in Table 10 using RG 1.91 methodology, use the mass of methane provided in appendix A (but not explained how those amounts are determined), can those calculations be provided ? Did BREEZE results use the same mass of methane ? Is BREEZE model available in public domain or proprietary information ? Provide the assumptions and inputs used(i.e., mass of methane, duration of release and other parameters for ALOHA and BREEZE models). What assumptions are made for terrain and surrounding area, and any other credits are applied for methane release due to underground pipeline. This information would facilitate the review and confirmatory calculations.

Thanks,
Rao

From: Tammara, Seshagiri
Sent: Tuesday, September 16, 2014 10:52 AM
To: McCarver, Sammy
Cc: Krohn, Paul; Burritt, Arthur; Setzer, Thomas; Stewart, Scott
Subject: RE: IPEC Gas Line 50.59 Review

Sam:

The HZARDOUS ANALYSIS (Enclosure 2) to 10 CFR 50.59 evaluation Table 1 provides the safety or safety related structures distances. Please verify that they are reasonable/correct. In addition, please observe any other such structures closer or nearby that could have inadvertently missed from consideration.

(b)(5),(b)(7)(F)

Thanks for your help in this regard.

Ex. 5 TF

Thanks,

Seshagiri Rao Tammara

From: McCarver, Sammy
Sent: Monday, September 15, 2014 9:01 AM
To: Tammara, Seshagiri
Cc: Krohn, Paul; Burritt, Arthur; Setzer, Thomas; Stewart, Scott
Subject: IPEC Gas Line 50.59 Review

Rao,

With Steve Pindale being tied up with issues at Oyster Creek, I'll be the on-site person next week. I understand you are looking for distances from pipeline to SSCs as well as elevations and topography in the area, including photos where possible. Please let me know if there is anything else you need that I can get on-site.

Thanks!

Sam McCarver, PE
Physical Security Inspector
U.S. Nuclear Regulatory Commission
Region I Division of Reactor Safety
2100 Renaissance Boulevard, Suite 100
King of Prussia, PA 19406
610-337-5382

Tammara, Seshagiri

From: Tammara, Seshagiri
Sent: Wednesday, September 24, 2014 2:31 PM
To: McCarver, Sammy
Subject: RE: Request for additional information

Sammy:

The minimum distance to SOCA from enhanced pipe is 1580ft and from above surface is (b)(7)(F) (Table 1). I wish to know, what is the closest SSC inside SOCA that is at a minimum distance of 1580 from enhanced pipeline and also that is at a minimum distance of (b)(7)(F) from the above surface pipeline provided in Table 1. If my calculations exceed 1psi overpressure at SOCA distance, I wish to check whether or not 1psi criterion would be met at actual SSC distance inside SOCA.

Thanks,
Rao

From: McCarver, Sammy
Sent: Wednesday, September 24, 2014 1:24 PM
To: Tammara, Seshagiri
Subject: RE: Request for additional information

Rao,

Not sure if this answers your question –

There are six SSCs important to safety OUTSIDE the SOCA:

1. MET tower – approximately 630' from beginning of enhanced southern end of pipe
2. FLEX building – approximately 1160' from enhance pipe
3. Reserve oil storage tank – approximately 115' from enhance pipe
4. Emergency Operations Facility – approximately 1250' from enhanced pipe
5. City Water Tank 0 approximately 1800' from unenhanced piping

With regard to SSCs inside the SOCA, everything is another 250' or more beyond the distances you referred to in Table 1.

Sam McCarver, PE
Physical Security Inspector
U.S. Nuclear Regulatory Commission
Region I Division of Reactor Safety
2100 Renaissance Boulevard, Suite 100
King of Prussia, PA 19406
610-337-5382

From: Tammara, Seshagiri
Sent: Wednesday, September 24, 2014 11:11 AM
To: McCarver, Sammy
Cc: McCoppin, Michael; Pickett, Douglas
Subject: Request for additional information

Sammy:

Can please find out how far is the nearest SSC(Safety Structure Component) to the enhanced pipeline and un-enhanced(above ground) pipeline where the distances of 1580ft and (b)(7)(F) respectively to SOCA are provided in Table 1. In other words, how far the nearest SSC from the these respective SOCA distances.

Thanks,
Rao

Tammara, Seshagiri

From:	Krohn, Paul
Sent:	Tuesday, October 28, 2014 9:28 AM
To:	Tammara, Seshagiri
Cc:	Trapp, James; Lorson, Raymond; Dimitriadis, Anthony; McCarver, Sammy
Subject:	Review of IPEC vendors qualifications to do work for gas pipeline
Attachments:	Resume DJA.pdf; IPEC 3Q Report FeederR1 - Pipeline Blast Analysis Rev6.docx

RT

Rao,

Here is the latest write-up for the IPEC proposed gas pipeline inspection report. I have highlighted the areas that have changed since you last looked at it. Please look specifically at those areas dealing with the vendor's qualifications to ensure, in your judgment, that the individual had the requisite knowledge and experience to perform the analysis for Entergy.

Appreciate any other comments you might have on the rest of the write-up as we have made some other additions. I have attached the individual's resume as well. Thanks.

Paul

b-h5

David J. Allen

The Risk Research Group, Inc.

(b)(6)

Ex. 6.

Experience:

1988 - . Consultant.

Prepared the analyses addressing high winds, external flooding and other events as part of the IPEEE reports prepared for the James A. FitzPatrick and Indian Point Unit 3 Nuclear Plants. These analyses included transportation risk assessments predicting the frequency and consequences of events associated with the movement of hazardous materials on and offsite.

Prepared control room habitability studies for Indian Point. These entailed the identification of possible source for the release of hazardous chemicals and asphyxiants in the vicinity of Indian Point, the application of screening criteria to identify the releases that might require more detailed evaluation and this more detailed evaluation. This last included consequence modeling for releases.

Performed hazard analyses of new hydraulic fracturing technologies involving liquefied natural gas (LNG) and liquefied propane gas (LPG). These analyses entailed consequences modeling of events that might follow the release of these flammable gases.

Performed a safety audit, hazard analysis and risk assessment of an LNG liquefaction plant and ammonia and methanol loading at a marine pier.

Modeled the reliability of an urban steam generation and distribution system and of numerous individual steam generating units. This entailed the creation of fault tree reliability models of steam generating units and the dynamic simulation of steam generators, pipes, tunnels and valves.

Performed an availability analysis, FMEA and dynamic simulation of a major oil terminal.

Assisted in a risk audit of a major tar sands project now under construction.

Assessed the risks involved in the transportation of hazardous wastes to an incinerator and delivered testimony on the assessment at administrative law hearings.

Assessed the risks involved in the transportation of HF from a ship to a plant.

Assessed risks posed by explosions, fires, and toxic gas releases to existing and proposed control rooms at a refinery. This assessment entailed the modeling of over 1350 releases and the creation of risk contours.

Hazard analysis and risk assessments of facilities that handle extraordinarily hazardous substances: chlorine, phosgene, phosphoryl chloride, toluene diisocyanate and anhydrous ammonia.

Safety Analysis of the US Environmental Protection Agency's Mobile Incinerator System.

Review and preparation of a preliminary hazards analysis for the cleaning, stripping and painting facility at the Navy Ship Parts Control Center

Help prepare the regulatory impact statement for the NRC reliability data collection rule.

Participated in an evaluation of insurance risk for a utility examining possible loss scenarios and their likelihood.

Reliability modeling of network and non-network electrical transmission and distribution systems by simulating the failure and repair of these systems. This work included extensive data analysis, computer programming and the development of graphical user interfaces.

Developed life-cycle maintenance plans for transformers, air compressors and other electrical systems in nuclear power plants.

Prepared the reports upon the probabilistic risk assessments of the James A. FitzPatrick and Indian Point Unit 3 Nuclear Power Plant submitted to the U.S. Nuclear Regulatory Commission. Prepared the internal flooding analyses and HVAC calculations for both plants and internal flooding analyses for the Arkansas Nuclear One, Grand Gulf, Indian Point Unit 2, Pilgrim, Vermont Yankee, River Bend, St. Lucie, Turkey Point and Waterford nuclear power stations. Modeled screenwell fires for JAF.

Participated in audits of the NRC Maintenance Rule program at the Fort Calhoun Station, Ginna and Wolf Creek Nuclear Plants; assisted in Maintenance Rule implementation at the Nine Mile Point Unit 2 Nuclear Power Plant.

Developed Maintenance Rule reliability performance criteria for the James A. FitzPatrick Nuclear Power Plant.

Prepared draft guidance document for the updating and application of the probabilistic risk assessment of the James A. FitzPatrick Nuclear Plant.

Statistical analysis of mains failures in secondary electrical networks.

Statistical analysis of steam expansion joint failures.

Reliability assessments of turbines, compressors, power plants and a wastewater treatment facility.

Failure modes and effects analysis of a pressurized fluidized bed combustor.

Prepared and presented course in safety analysis techniques to a U.S. Department of Energy contractor and other organizations and in reliability engineering to a utility.

1985-1988. Senior Reliability Engineer. New York Power Authority.

Probabilistic risk assessment of the James A. FitzPatrick Nuclear Power Plant—responsible for initial development the fault trees for the electric power system.

Reliability studies upon main and feedwater turbine control systems, and upon a service water and condensate polisher system. These studies entailed the statistical analysis of plant data as well as fault tree analysis.

Devised and implemented a cost-effective reliability program for new small hydro units.

1978-1985. Research Associate. Foster Wheeler Development Corporation.

Performed extensive reliability and safety analyses on power plants and their components, energy systems and chemical processes.

Provided consulting services to Consolidated Edison, Du Pont, Union Carbide, and the Dutch Ministry of the Environment.

Developed and programmed highly efficient methods for the synthesis and analysis of fault trees.

Completed numerous economic analyses and bid evaluations.

Drafted reports and proposals and made presentations to clients and professional societies.

Managed engineering teams -- tasks included system selection, analysis, design and construction, and client liaison. Clients included the US Department of Energy and Sandia National Laboratories.

1976-1978 Senior Engineer. Union Carbide Corporation

Successfully developed and tested techniques for risk analysis in the chemical process industry.

Performed major safety analyses on reactors, storage vessels and other chemical process units.

Education:

Ph.D. Chemical Engineering. McMaster University, Canada. 1976

M.Eng. Chemical Engineering. McMaster University, Canada. 1971

B.A. Chemical Engineering. Cambridge University, UK. 1970

Attended short courses on boiling water reactor technology, hydroelectric power generation, reliability, safety and economic analysis, synfuels and artificial intelligence.

Author of 13 papers and numerous presentations to professional societies. Member A.I.Ch.E. and I.E.E.E.

Professional Engineer (Alberta).

FEEDER COVER PAGE TEMPLATE
Items listed in purple are to be completed by the DRS Admin Staff
Everything else is completed by the inspector
Waiting for Response from T. Dimitradis

Date: _____

Inspection Report No.: 05000247/2014004 and 05000286/2014004

Licensee and Plant: Entergy Nuclear Operations, Inc., Indian Point Nuclear Generating Units 2 and 3

Inspection: Plant Modifications, IP 71111.18

On-Site Dates: September 22 – 23, 2014

Cover Letter Input: No input.

Inspection Summary Input: None

Other comments: None

DRS Inspection Tracking Entered/Updated: (Y/GC)

This feeder represents the completion of one (1) inspection procedure sample for IP 71111.18. The RPS database has not been updated to reflect the completion of this sample and the completion status of the associated procedures.

DRS Tracking System Updated (Y/GC)

Inspector: S. McCarver, PE/ October , 2014
Physical Security Inspector

SRA Review: N/A

BC Approval: P Krohn/ October , 2014
A Dimitriadis/ October , 2014

SUNSI Review Complete _____ (Reviewer's Initials)
Non-Public Designation Category: MD 3.4 Non-Public B.1

File: G:\DRS\Plant Support Branch 1\IPEC 3Q Report FeederR1 - Pipeline Blast Analysis Rev6.docx~~G:\DRS\Plant Support Branch 1\IPEC 3Q Report FeederR1 - Pipeline Blast Analysis Rev4.docx~~

ADAMS Accession No.:

Distribution:

P. Krohn, DRS	A. Dimitriadis, DRS	B. Bollinger, DRP, RI (Actg)
A. Burritt, DRP	T. Setzer, DRP	D. Hochmuth, DRP, AA
J. Petch, DRP	S. Stewart, DRP, SRI	S. McCarver, DRS
Ami Patel, DRP, RI	G. Newman, DRP, RI	G. Cowan, DRS

REPORT DETAILS

1. REACTOR SAFETY

1R18 Plant Modifications (71111.18 – 1 sample)

Permanent Modifications

a. Inspection Scope

On February 28, 2014, Spectra Energy submitted an application before the Federal Energy Regulatory Commission (FERC) for a certificate to build a new natural gas pipeline near the Indian Point Energy Center (IPEC) one-quarter mile or more from the Unit 2 and Unit 3 reactors. Because the proposed pipeline would intersect with a small portion of the licensee's owner controlled property, Entergy personnel performed a 50.59 review and, on August 21, 2014, submitted the safety evaluation and supporting analysis to the NRC for information. The Entergy review concluded that the change in the design basis external hazards analysis associated with the installation of the proposed new natural gas pipeline across a portion of the Indian Point site does not require prior NRC review and approval.

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Entergy's evaluation analyzed the effects of a pipeline rupture with a subsequent jet flame, cloud fire, detonation of a vapor cloud, and/or missile generation to structures, systems, and components (SSCs) important to safety. The licensee's analysis of potentially hazardous events precipitated by a pipeline rupture demonstrates that the threshold for damage to safety-related or important-to-safety SSCs within the Security Owner Controlled Area (SOCA) will not be exceeded because of the distance between the SOCA and the new pipeline. However, a portion of the proposed pipeline would be located near SSCs important-to-safety outside the SOCA. Due to the potential impact to these components they were also evaluated to determine whether any further reductions in safety margins would occur should the pipeline rupture. The Entergy analysis concluded that there would be no additional reduction in safety margins from these components and, therefore, the new pipeline poses minimal or no increased risk to the safe operation of Units 2 and 3.

NRC inspectors and staff reviewed the 50.59 safety evaluation and supporting hazard analysis, conducted a walk-down of the proposed pipeline routing, and performed an independent analysis of the potential hazards associated with failure of the proposed pipeline. NRC staff also reviewed the qualifications of Entergy's subject matter expert (SME) who performed the licensee's analysis to ensure that the individual possessed the requisite knowledge, experience, and abilities to conduct the hazards analysis for the new pipeline. The NRC staff also reviewed the requirements of 10 CFR Part 50, Appendix B, Criterion I, "Organization," to evaluate whether the SME was required to be included on the station's qualified vendor list.

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b. Findings, Observations, and Independent NRC Analysis

No findings were identified.

Based on the review of Entergy's hazards analysis and the NRC's independent calculation results using conservative assumptions and rationale, the NRC staff

concluded that safety-related SSCs inside the SOCA would not be exposed to conditions exceeding the threshold for damage. However, SSCs important-to-safety outside the SOCA would be affected, because the calculated minimum safe distances to the impacts are not satisfied. The staff determined that the impacts to the one SSC important-to-safety outside the SOCA from the proposed new pipeline are bounded by the impacts from low probability events of extreme natural phenomena (including seismic activity, tornado winds, and hurricanes) which have been previously assessed and are addressed in the Indian Point Units 2 and 3 Updated Final Safety Analysis Report (UFSARs). In addition a cloud flash fire may occur aloft and burn very rapidly in a few seconds, without affecting any safety-related SSCs or equipment; and the existing margin of safety is not expected to be reduced due to a potential rupture of the proposed pipeline near IPEC. In performing the analysis for the new pipeline, the staff noted that the proposed pipeline is located at greater distances from safety-related and important-to-safety SSCs than two currently operating ~~38" diameter~~ gas pipelines. Finally, the staff determined that Entergy's conclusions involving the potential rupture of the proposed pipeline near IPEC poses no threat to safe operation of the plant or safe shutdown of the plant, are reasonable and acceptable, and are also comparable to the staff's conclusions.

The staff's hazards analysis was performed by a physical scientist in the Office of New Reactors/Division of Site Safety and Environmental Analysis/Radiation Protection and Accident Analysis Branch with more than eight years of experience performing power plant siting evaluations, and assessing external man-made hazards from nearby facilities at proposed new nuclear power plant sites. The NRC's physical scientist performed an independent analysis of the hazards associated with the proposed pipeline. The analysis was performed based on the following conditions and hypothetical scenarios: rupture of the proposed pipeline located near IPEC resulting in an unconfined explosion or jet flame at the source; delayed vapor cloud fire or vapor cloud explosion; and accompanying missile generation. For the assessment of an unconfined explosion, Regulatory Guide (RG) 1.91, "Evaluations of Explosions Postulated to Occur at Nearby Facilities and on Transportation Routes Near Nuclear Power Plants," Revision 2, methodology was used to calculate the minimum safe distance. For the jet flame, cloud fire, and vapor cloud explosion, the "Areal Locations of Hazardous Atmospheres" (ALOHA) chemical release modeling computer software was used to determine the hazard impact distances which were compared with the actual distances at IPEC to safety-related SSCs or SSCs important-to-safety. In order to assess the impact potential. ALOHA software was employed using the appropriate source term (amount of methane released) for the scenario considered, using conservative meteorological conditions and open country ground roughness condition modeling assumptions.

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In addition, NRC staff reviewed the qualifications and resume of Entergy's SME who performed the licensee's analysis. The NRC staff determined that the individual possessed the requisite knowledge, experience, and abilities to conduct the pipeline hazards analysis and that the analysis had been conducted in accordance with IPEC procedures (EN-DC-149 and EN-LI-101). Specifically, the SME possessed a Ph.D. and Masters of Engineering Degree in Chemical Engineering and was a licensed Professional Engineer. In addition, the SME had performed similar analyses for several industrial applications, including commercial nuclear stations.

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Regarding Entergy's qualified vendor list, the NRC staff reviewed 10 CFR Part 50, Appendix, B, Criterion 1 which states, in part, that "licensees may delegate to others,

such as contractors or consultants, the work of establishing and executing the Quality Assurance (QA) program, or any part thereof, but shall retain the responsibility for the QA program." Based on a review of the SMEs qualifications and Entergy's 10 CFR 50.59 review which accepted the SME's work under the QA program (EN-DC-149; Steps 1.2, 1.6, 5.3.2.a, 5.3.2.c, and Attachment 9.1 dated August 20, 2014), the NRC staff determined that the SME was not required to be listed on the station's qualified vendor list.

As a result of the above inspection activities and independent analysis, the staff determined Entergy had appropriately concluded that the proposed pipeline does not introduce significant additional risk to safety-related SSCs and SSCs important-to-safety at Indian Point Units 2 and 3, and therefore, the change in the design bases external hazards analysis associated with the proposed pipeline does not require prior NRC review and approval.

b. Findings

No findings were identified.

4OA6 Meetings, including Exit

.1 Exit Meeting Summary:

The inspectors presented the inspection results to Mr. R. Walpole at the conclusion of the inspection on September 23, 2014. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel
S. Pressman, Licensing Engineer
J. Skonieczny, Engineer

LIST OF DOCUMENTS REVIEWED

Section 1R18: Plant Modifications (71111.18)

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Drawings:
S7-A-2100, Algonquin Incremental Market Project Stony Point Discharge Proposed 42" M/L, Revision B
S7-A-2114 through S7-A-2124, Algonquin Incremental Market Project Stony Point Discharge Proposed 42" M/L, Revision D

Procedures:
EN-LI-101, 10 CFR 50.59 Evaluations, Revision 12
EN-DC-149, ~~xxxx~~Acceptance of Vendor Documents, Revision 9

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Other Documents:
NL-14-106, 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 Units 2 & 3, dated August 21, 2014
Spectra Energy Memorandum: Entergy Pipeline Enhancement Measures dated 7/29/14
Report 14-126, Puncture Assessment for Algonquin Pipeline, dated August 27, 2014
IP-RPT-14-00010, Report of Liquefaction Potential Assessment
NRC Memorandum, Review of Natural Gas Hazards, Indian Point Nuclear Generating Unit Nos. 2 and 3, dated April 25, 2003
Regulatory Guide 1.91, Evaluations of Explosions Postulated To Occur on Transportation Routes Near Nuclear Power Plants, Revision 2
NUREG-0800, Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition
GRI-00/0189, A Model For Sizing High Consequence Areas Associated With Natural Gas Pipelines, October 2000
OPS TTO13, Potential Impact Radius Formulae for Flammable Gases Other Than Natural Gas, June 2005
US Nuclear Regulatory Commission, Regulatory Guide 1.91, "Evaluations of Explosions Postulated to Occur at nearby Facilities and on Transportation Routes Near Nuclear Power Plants," Revision 2, April 2013.
US EPA, NOAA,"ALOHA User's Manual," February 2007
FEMA, US DOT, US EPA, "Handbook of Chemical Hazard Analysis Procedures."