Rosebrook, Andrew

From: Rosebrook, Andrew
Sent: Wednesday, May 31, 2017 9:56 AM
To: 'Bill Peil'
Cc: Dimitriadis, Anthony
Subject: RE: Re: Follow-up From Calvert Cliffs Annual Assessment Open House - additional questions

Bill and Cindy

I apologize for the delay in responding to your follow-up questions. I have been out of the office for the last several weeks on inspections.

The NRC's process for requesting action affecting the licensing of an NRC licensed facility is described in 10 CFR 2.206," Requests for action under this subpart." §2.206 (link). There is easy to understand information on the NRC webpage on filing such a petition.

However, considering that your concerns have to do with the operation and hazard presented by the LNG terminal, I would recommend you contact the US Department of Energy which licensed the LNG facility, The Federal Energy Regulatory Commission (FERC) which conducted the environmental impact assessment and made the recommendation to DOE for the licensing action, and the State of Maryland.

The NRC's role is to evaluate the impact on the ability of the Calvert Cliff Nuclear Power Plant Units 1 and 2 to reach and maintain the units in cold shutdown following a potential accident at the Cove Point Facility or due to its operations. The documented SAFETY EVALUATION REGARDING (SER) REVISIONS TO HAZARDS ANALYSIS RELATED TO THE EXPANDED LIQUEFIED NATURAL GAS PLANT OPERATIONS AT COVE POINT -CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2 -(TAC NOS. MD8189 AND MD8190) (ML092180424), does this. In accordance with the Maryland Power Plant Research Program Report (referenced in the SER above) the risk of a fatality on the grounds of the Calvert Cliffs Nuclear Power Plant was 2.3 x 10-9 per year prior to the expansion at Cove Point and 6.6 x 10-9 per year following the expansion at Cove Point. This assumes the individual is outside at the time of the event. The safety systems relied upon at Calvert Cliffs to reach and maintain safe shutdown are housed in Class IE structures rated for seismic events, hurricane force winds, and tornado borne missiles. There are also multiple redundant trains of safety systems, each train is fully capable of reaching and maintaining safe shutdown. Thus the impact to plant safety is several orders of magnitude within the NRC's acceptance criteria for external hazards.

As stated in the SER, the event of concern to Calvert Cliffs is a potential maritime accident or a loading/unloading event at the pier. The SER evaluated the increased shipping traffic. The primary concern to the nuclear power plant is the impact of the shock wave from the explosion. Thus the bounding analysis is the explosion of the largest above ground LNG storage tank since one cannot assume that multiple tanks will explode at the same instant. Additionally it is noted that the propane which is used during the LNG liquification process, is stored in two underground tanks in a separate area within the facility. When evaluating the escalation of an accident, it is reasonable to postulate that a fire in one above ground LNG tank could result in pooling and subsequent gasification and ignition in the vicinity of an adjacent above ground tank. The resulting fire could reasonably heat the LNG in the adjacent tank, cause vaporization and result in a secondary explosion after a period of time. However, the propane being in an underground tank, has limited ability to spread as the combustion gases would be directed straight up, the liquid propane could not flow to an adjacent area and the shock wave of an explosion would be attenuated by the ground. Therefore, for purposes of the impact on the Calvert Cliffs Nuclear Power Plant, a discussion related to the propane tanks is not required.

With respect to the hazards and risk presented by potential terrorist activities, the NRC is well aware of the fact the nuclear power plant is a potential target due to the terrorist attacks that occurred on September 11, 2001. In response to those attacks, the NRC issued orders implementing new requirements and measures for the power plants security to mitigate this new risk. Since we do not include security related information in a public document, it would not have been included in a publicly available SER.

Respectfully,

Andrew Rosebrook
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From: Bill Peil [redacted]
Sent: Wednesday, May 03, 2017 6:22 AM
To: Rosebrook, Andrew <Andrew.Rosebrook@nrc.gov>; BPEIL <BPEIL@COMCAST.NET>
Subject: [External_Sender] Re: Follow-up From Calvert Cliffs Annual Assessment Open House - additional questions

Thank You for this information. It has helped answer some of our questions and raised other questions.

The report at this link https://www.nrc.gov/docs/ML0921/ML092180424.pdf. talks about a

SAFETY EVALUATION REGARDING REVISIONS TO HAZARDS ANALYSIS RELATED TO THE EXPANDED

LIQUEFIED NATURAL GAS PLANT OPERATIONS AT COVE POINT -CALVERT CLIFFS NUCLEAR POWER

PLANT, UNIT NOS. 1 AND 2 -(TAC NOS. MD8189 AND MD8190)

It indicates that there is a **3 fold increase in risk** between the old plant and the proposed plant.

The PPRP study concluded that the risk of fatalities at the CCNPP site was 2.3 x 10-9 per year prior to the expansion at Cove Point and 6.6 x 10-9 per year following the expansion at Cove Point.

The report fails to mention the **410,000 gallons of "propane"** that will be stored onsite which is a **much more explosive gas** than the LNG. For this reason, I believe the reports 3 fold increase in risk has been significantly understated. The risk evaluation should revisit this. An independent quantitative risk assessment including the 410,000 gallons of propane would answer questions about additional risk posed by having this highly explosive gas sitting next to the 14.6 billion cubic feet of LNG.

Also, the report fails to take into account the elevated risk associated with potential attacks mentioned in the PPRP report "Environmental Review of Proposed Unit 3 at Calvert Cliffs Nuclear Power Plant January 2011".

> Emergency management is important in Calvert County because the county is a peninsula with many waterfront communities. With 143 miles of shoreline and an average elevation of 120 feet above msl, the county is susceptible to hurricanes and floods. Furthermore, the county hosts the Calvert Cliffs Nuclear Power Plant, the Dominion Cove Point LNG terminal and is near the Patuxent River Naval Air Station, which are facilities associated with elevated risk and are potential terrorist targets. Emergency planning is complicated by the county's geography which constrains evacuations to four major roads, two of which cross the Patuxent River over two-lane bridges.

How can I get more information and what needs to be done to request that the NRC begin work on an independent quantitative risk assessment (QRA)?

Thank You

William Peil

[redacted]

On 5/1/2017 10:59 AM, Rosebrook, Andrew wrote:

> Bill and Cindy
>
> Thank you for attending the Calvert Cliffs Annual Assessment Open House for the Calvert Cliffs Nuclear Power Plant on April 25, 2017. I enjoyed meeting you and enjoyed our conversation.
>
> I have provided the documents and/or links to reports for the issues we discussed.
>
> 1) Safety Evaluation for the impact of the Expansion of the Cove Point LNG Terminal on the Calvert Cliffs Nuclear Power Plant.
> https://www.nrc.gov/docs/ML0921/ML092180424.pdf. This report is the Safety Evaluation Regarding Revisions to Hazard Analysis Related to the Expanded Liquefied Natural Gas Plant Operations at Cove Point. Dated October 28, 2009. The report also provide links to the Hazard Analysis and the three studies used as a basis for the report (including the State of Maryland PPRP report you provided). This Report does consider the impact of a transportation accident and factors in the increase in shipping traffic and the expansion of terminal storage capacity.

Keep in mind the PPRP report was used as a basis to license the LNG terminal expansion (including exporting as well as importing) and the licensing of that facility is not within the NRC purview or jurisdiction.

2) Water Use at Calvert Cliffs. Calvert Cliffs has a groundwater usage permit issued by the state of Maryland DEP Permit Number CA1969G010(06). The plant is required to make a semi annual report to the State detailing actual water usage to ensure their usage is with in the limits of the permit.
The last two semi annual reports are attached and the Maryland DEP department's which oversees the ground water permits can be found in the header of those reports. Each state has jurisdiction over groundwater usage matters for nuclear power plants.

3) Spent Nuclear Fuel Storage and Transportation. I included the following links to the NRC's programs concerning the strage and transportation of spent nuclear fuels and high level waste. https://www.nrc.gov/waste/spent-fuel-storage.html and https://www.nrc.gov/waste/spent-fuel-storage/cis.html The second link also has information about the license submittal for the proposed Consolidated Interim Storage Facility (CISF) in Andrew County Texas. Information about Transportation of Spent Nuclear Fuel and high level waste can be found at the following link https://www.nrc.gov/waste/spent-fuel-transp.html The related information tabs provide more detailed information which should help address some of the questions you had.

I hope this helps address the questions you had for me. If I can be of further assistance feel free to contact me (E-mail tends to work best) and I will do my best to help.

Thank you

Respectfully,

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