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Z Hollcraft review of IP 2/3 proposed LNG pipeline 50.59 evaluation and accompanying hazards analysis

Entergy 50.59 Evaluation Observations:

1. Specific Hazards evaluated:
 - a. Jet Fire: Methodology and assumptions seem appropriate, no threat to Safety related SSCs.
 - b. Cloud Fire: The Gaussian plume models utilized don't account for the buoyancy of methane compared to normal air. As a result they over-conservatively show the plume exhibiting a flammable concentration that could threaten safety related SSCs within the SOCA. The licensee assumes that "the buoyant nature of methane generally precludes the formation of a persistent flammable vapor cloud at ground level let alone one that would travel downhill to the SOCA." However they provide no deterministic means of proving this. A more conservative approach would be to use either a model that does account for buoyancy of methane (e.g. FLACS or other computational fluid dynamics model), or evaluate by some other means the rate of ascent of methane in air (difficult to model in an unconfined state).
 - c. Vapor Cloud Explosion: Methodology and assumptions seem appropriate, no threat to Safety related SSCs.
 - d. Missile Generation: Methodology and assumptions seem appropriate, no threat to Safety related SSCs.
 - e. PRA Analysis (Appendix B): The "enhanced" pipeline section does not have definitive statistical data on failure rates specifically accepted by the NRC (via RG 1.91) so the licensee calculated their own. Their assumptions appear conservative given the extra steps they are taking to harden the pipeline, but I'm not a risk engineer, so I cannot definitely say whether their PRA methodology is in keeping with regulatory guidance and is acceptable for this 50.59 evaluation.
2. Generic Comments:
 - a. The GT2/3 tank doesn't seem to fit the normal model for SSCs within TSs and subject to GDCs. Without further study, I can't determine its licensing basis, but the licensee refers to it as an SSC "important to safety," which implies that it is not an Appendix B safety related SSC. It seems to be covered by TS 3.8.3.C which only states that >29,000 gallons of diesel fuel be on site. But the analysis does not state whether the tank is required to be hardened against external hazards or events.
 - b. Question eight of the 50.59 evaluation (sheet 21 of 21) incorrectly concludes that "there is no departure from past methodologies used for the plant and does not depart from a method of analysis contained in the UFSAR." Seeing as how the PRA utilized in Appendix B of the Hazard Evaluation utilizes a technique endorsed by the NRC in a Regulatory Guide not implemented until 2011, it could not have been utilized during the initial license application. However, NEI 96-07 (endorsed by the NRC) allows for "different methods without first obtaining a license amendment if those methods have been approved by the NRC for the

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intended application." So the methodology is acceptable, but for a different reason.

NRC independent Hazard Analysis. The independent analysis performed by Rao Tammara is also completed using accepted methodologies and realistic, conservative assumptions. The conclusions match the licensee's.

Conclusion. From the documents provided to me, the 3rd quarter Indian Point Integrated Inspection Report (05000247/2014004 and 05000286/2014004) conclusion that the licensee appears to provide adequate evidence that the hazards analysis associated with the proposed pipeline does not require prior NRC review and approval is supported.