



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, DC 20555 - 0001**

July 11, 2022

MEMORANDUM TO: Ronald G. Ballinger, Lead  
SHINE License Application Review Subcommittee  
Advisory Committee on Reactor Safeguards

FROM: Gregory H. Halnon, Member  
Advisory Committee on Reactor Safeguards

Gregory H.  
Halnon

SUBJECT: INPUT FOR ACRS REVIEW OF OPERATING LICENSE –  
SAFETY EVALUATION FOR CHAPTER 12, “CONDUCT OF  
OPERATIONS,” SECTION 12.7, “EMERGENCY PLAN”

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Gregory H. Halnon  
Date: 2022.07.11  
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In response to the Subcommittee’s request, I have evaluated the submitted Emergency Plan and associated staff safety evaluation report (SER). The following details my review and recommendations.

### **Background**

The SER documents the staff’s review of the SHINE operating license application in accordance with the requirements contained in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, “Domestic Licensing of Production and Utilization Facilities.”

### **Summary**

The Emergency Plan description in Section 12.7 of the final safety analysis report (FSAR) and the document titled Emergency Plan (EPlan) has been reviewed against the safety review plan and reflected in the staff SER. My overall conclusion is the plan document meets the requirements of 10 CFR 50.34(b)(6)(v). I concur with this Nuclear Regulatory Commission (NRC) staff assessment and find no discrepancies in the documents that would hinder an adequate emergency response infrastructure. It must be noted that the list of, no less than 10, emergency plan implementing procedures are considered part of the EPlan and have not been developed as of this date. Therefore, important details on how items in the EPlan will be implemented are yet to be written and cannot be fully assessed. This review encompasses the emergency plan description in the FSAR and EPlan only. Finally, some suggestions and enhancements are detailed below that would improve the document and potentially avoid confusion.

R. Ballinger

### **Concerns**

I have no concerns that need follow-up at the full committee meeting. The following are suggestions and enhancements for SHINE consideration ***when making a future revision to the Eplan and for providing an enhanced level of detail*** when drafting implementing ***procedures***.

1. The SHINE facility utilizes a concept of confinement rather than containment for radiological release control. It would be beneficial to provide a brief description of confinement in the introductory descriptions of the facility.
2. There is no mention of who oversees cyber security or how cyber security is considered in the plan. Physical security is clear that the security department has the accountability, however cyber security is sometimes covered by engineering, which is a corporate function. Adding this description would be helpful. Additionally, the SHINE staff should think through how the advanced digitalization of this facility and associated cyber controls may impact the EPlan, specifically emergency action levels if appropriate.
3. In Section 3.3.1, the list of decisions and tasks that cannot be delegated by the Emergency Director (ED) contains what appears to be a duplicate entry on the delegable tasks regarding activation of the emergency response organization. During our discussion with SHINE, it was clarified that one is a decision, and one is the act of activation. This is not clear and could be described with more detail to ensure there is no confusion.
4. The plume exposure emergency planning zone (EPZ) boundary is the defined operational boundary. Figure 1 does not use the same terms as the definition, so it is not exactly clear what the operational boundary is on the drawing. For example, the definition calls for a boundary using the controlled access area and the drawing only lists the security fence. Synchronizing the terms used to describe and annotate the operations boundary and plume exposure EPZ could enhance the clarity of the EPZ.
5. It is suggested, based on experience in being an ED for both simulated and actual emergencies, adding the concept of decisions that can and cannot be delegated to ED refresher training is very beneficial.

### **Recommendation**

As lead reviewer for this Area of Focus, I recommend no further action on this area.

### **References**

1. U. S. Nuclear Regulatory Commission, "Conduct of Operations," Chapter 12, Section 12.7, Emergency Plan, Staff Safety Evaluation Report, May 11, 2022 (ML22131A273).
2. SHINE Technologies, LLC, Application for Operating License Supplement 14, Revision to Final Safety Analysis Report, Chapter 12, Conduct of Operations, June 26, 2022 (ML22034A626).
3. SHINE Technologies, LLC, Operating License Application Supplement No. 16 Submittal of a Revision to the SHINE Emergency Plan, January 27, 2022, (ML22027A666).

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Package No: ML22164A908

Accession No: ML22154A914

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