

ENCLOSURE 6

SHINE MEDICAL TECHNOLOGIES, INC.

**MEETING SLIDES FOR THE JANUARY 29 AND 30, 2019 MEETING
BETWEEN SHINE MEDICAL TECHNOLOGIES, INC. AND THE NRC**

**SHINE IDENTIFICATION OF SAFETY-RELATED CONTROLS
PUBLIC VERSION**



Identification of Safety-Related Controls

John Olvera, Safety Analysis Manager

Health. Illuminated.™



Summary

- Methodology for Integrated Safety Analysis
- Current status of Integrated Safety Analysis
- Example Process Hazard Analysis Accident Sequences
- Discussion of preliminary list of safety-related controls
- Review of detailed tables of safety-related controls



Methodology for the Integrated Safety Analysis

- The Integrated Safety Analysis (ISA) is prepared in accordance with the requirements of Subpart H of 10 CFR Part 70
- Guidance documents SHINE used in the preparation of the ISA include:
 - NUREG-1513, "Integrated Safety Analysis Guidance Document"
 - NUREG-1520, "Standard Review Plan for Fuel Cycle Facilities License Applications"
 - Final Interim Staff Guidance Augmenting NUREG-1537
 - NUREG/CR-6410, "Nuclear Fuel Cycle Facility Accident Analysis Handbook"



Methodology for the Integrated Safety Analysis

- Process Hazard Analyses (PHA) accident sequence development:
 - Based on hazard evaluation results and the guidance provided in the Interim Staff Guidance Augmenting NUREG-1537
 - Estimate an uncontrolled risk index for each potential accident sequence (likelihood x unmitigated consequences)
 - Identified engineered and administrative controls for those scenarios which have an unacceptable risk
 - Evaluate controlled risk indices crediting risk reduction from controls
 - Develop list of safety-related controls



Methodology for the Integrated Safety Analysis

- Types of Controls – Safety-related
 - Active Engineered Controls (AEC)
 - Passive Engineered Controls (PEC)
 - Administrative Controls (ADM)
- Types of Controls – Nonsafety-Related
 - Defense-in-Depth (DID)



Current Status of the Integrated Safety Analysis

- Hazard identification and evaluations completed
- Process Hazard Analysis completed
- Safety-related controls drafted and in review
- Integrated Safety Analysis Summary Report drafted and in review



Example Process Hazard Analysis Accident Sequences

- Inadvertent Reactivity Insertion or Criticality

Security-Related Information



Example Process Hazard Analysis Accident Sequences

- Deflagration and Detonation

Security-Related Information



Example Process Hazard Analysis Accident Sequences

- Reduction in Cooling

Security-Related Information



Discussion of Draft Safety-Related Controls

Security-Related Information



Discussion of Draft Safety-Related Controls

Security-Related Information