

From: Beasley, Benjamin
Sent: Monday, April 18, 2022 4:21 PM
To: Drew Peebles
Cc: Ray, Sheila; Goel, Vijay K; Helvenston, Edward; Cuadrado de Jesus, Samuel; Darrell Gardner
Subject: Questions on electrical power for the General Audit

Drew,

Below are some questions for the General Audit on electrical power from our review of PSAR Chapter 8. We would like to schedule an audit meeting when you have had time to review the questions and are ready to discuss them.

Regards,
Ben

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|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8-1 | The Preliminary Safety Analysis Report (PSAR), Section 8.1 states that "Owing to the passive design of Hermes, safety-related structures, systems, and components (SSCs) do not require electric power to perform safety-related functions for a minimum of 72 hours following a design basis event. Therefore, AC power from off-site or backup power sources is not required to mitigate a design basis event." Clarify whether any normal or backup power will be needed after 72 hours and include any relevant design information to support this clarification.                                                                                                       |
| 8-2 | Please clarify which portions of electric power systems of Hermes (described in Section 8 of PSAR), will be designed and constructed to comply with KP-FHR-PDC-17 and KP-FHR-PDC-18. Further, please specify if the UPS power supplies are required for performing any safety-related function for safe shutdown of the plant and to keep the plant in the safe shutdown condition. If power supplies are required for performing any safety-related function, please explain whether the individual and collective loss of the power supplies was considered for design basis events, to determine safety-significance, and any special treatment of these power supplies. |

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|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | <p>If the UPS is not required to be available, please explain the means to verify the reactor is shutdown.</p>                                                                                                                                                                                                                                                                                                                                                                 |
| 8-3 | <p>In PSAR Section 8.2.1.1, the following is stated: "Each UPS provides a highly reliable power supply during normal operations and is automatically configured to provide backup power during a loss of normal electrical power event." The staff is unclear on the configuration of the UPS as stated above, and as such, please clarify the configuration of the UPS and any connection to the DC batteries for backup power.</p>                                           |
| 8-4 | <p>In PSAR, Section 8.2.1.2, the following is stated: "AC electrical power is supplied to these cabinets [that require 24 VDC] via UPS to ensure continuous, failure-tolerant DC power during normal operation and for a specified minimum duty cycle following a total loss of AC electrical power." Please explain the term "failure-tolerant" for the DC power system. Also clarify the minimum duty cycle; whether it is 20 seconds as indicated in PSAR Figure 8.1-1.</p> |

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