

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 10, 2003

TO: J. K. Fortenberry, Technical Director

FROM: D. F. Owen, RFETS Site Representative

SUBJECT: RFETS Activity Report for the Week Ending January 10, 2003

Plutonium Stabilization and Packaging System (PuSPS). In the past few weeks, RFETS has begun stabilization of oxides containing less-than-80% plutonium and uranium. Moisture measurement to confirm proper stabilization of these oxides is being performed via the thermogravimetric analysis/infrared (TGA/IR) technique.

During site rep. observation of PuSPS operations on Monday, PuSPS operations personnel indicated to the site rep. that some sparking was observed with a recent batch of oxide that had been through the furnace stabilization cycle. The site rep. inquired with DOE-RFFO and Kaiser-Hill management who indicated they had not been informed of this instance of sparking. The site rep. and staff requested a discussion of this issue with RFETS personnel who noted the following:

- This batch of oxide material contained less-than-80% uranium plus plutonium (mostly uranium).
- This was the first observed instance of sparking on oxide that had been through the expected PuSPS furnace stabilization cycle.
- The sparking occurred when clumps of oxide were being struck by a PuSPS operator with a steel spoon to breakup the clumps and stir the oxide as is normally done as part of obtaining a proper oxide sample for TGA/IR moisture measurement.
- Three sparks were observed on three strikes and the sparking occurred on the outer surface of the clumps; there was no spontaneous sparking observed.
- The PuSPS operations crew stopped the operation, obtained subject matter expert and shift management review (the sparking occurred on the evening shift), and sent the batch through the stabilization cycle with no further sparking observed as part of obtaining a moisture measurement sample.

DOE-RFFO and Kaiser-Hill management noted that they do not believe that the sparks were from a pyrophoric reaction but have initiated further review of the issue and intend to document that review in a technical paper. Kaiser-Hill management also noted that action is being taken to ensure that PuSPS and shift management personnel properly report such anomalous conditions in the future to senior Building 371 management. (3-A)

cc

Board Members