

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 27, 2005

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director
FROM: T. D. Burns Jr. and C. H. Keilers, Jr.
SUBJECT: Los Alamos Report for Week Ending May 27, 2005

Jordan and Plaue were on site this week reviewing startup preparations for the new Pu-238 aqueous scrap recovery line. Burns is off-site until the week of June 13th.

Pu-238 Operations: The schedule leading to startup of the new Pu-238 aqueous scrap recovery line is: LANL readiness assessment (RA) starts next week; NNSA RA would be in July; and startup would be in August. As discussed in the Board's letter of August 1st, 2003, Pu-238 is the dominant source term in TA-55 glove-box operations, and any future upset involving Pu-238 in this unique facility could adversely affect the health and safety of the public, the workers, and the environment, as well as national security. For perspective, LANL analyses indicate that inhaling one or two 2-micron diameter particles of Pu-238 oxide (i.e., about the ICRP default size) results in 0.5 Rem CEDE dose. Aqueous processing of Pu-238 is a particular concern since it results in more particles of respirable size than nearly all other operations; this increases the potential consequences from certain upsets.

NNSA and LANL have worked for years to develop appropriate controls for this increased hazard; some issues remain. The LANL RA team appears qualified and independent (4 of the 9 members are from SRS); it plans to examine both closure of previous Board issues and readiness. NNSA's RA team is undefined, and NNSA's level of commitment to a thorough federal review is unclear at present.

Following startup, TA-55 may have to operate the new line at the advertised sprint rate (8 kg/yr) for two years if they are to meet customer needs. For relief, they intend to also run the manually-intensive bench-scale line to produce about 3 kg/yr through 2007. Both a fast, early operating tempo for the new line and the extensive use of bench-scale for production would have significant safety implications.

Plutonium Facility: NNSA has approved two new Hazard Category 2 nuclear facilities at TA-55: (1) the safeguarded trailer pad and cover to support TA-18 Early Move for 5 years and (2) a metal shed (PF-185) to store unirradiated mixed oxide fuel within shipping containers for 4 years. Accident analyses indicate that both have unmitigated off-site consequences below the evaluation guideline.

NNSA is requiring that Operational Readiness Reviews (ORRs) be done before these two storage facilities start up. This is driven by NNSA's designation that these are new facilities. NNSA envisions that the ORRs will be done in June. The TA-18 Early Move Project had planned to be using the pad on June 1st and may be delayed. The mixed oxide fuel is already at LANL in another facility; that facility will be outside its safety basis on June 30th when the shipping container certification expires, unless the shed is authorized and in use.

The late decision to require these ORRs has led to safety concerns for other activities: (1) attention has been diverted and resources have been pulled away from the thorough startup review needed for the higher risk Pu-238 scrap recovery line – this is particularly true for the NNSA RA oversight of the scrap recovery line startup; (2) this action increases programmatic pressure on both TA-18 Early Move and on Pu-238 scrap recovery line startup, creating conditions that are more conducive to human fallibility and potential accident precursors. These were both challenging projects before and are now more challenging if the current schedules are to be maintained.