February 27, 1998

Dr. C. Paul Robinson
[ ]
Sandia Corporation
Sandia National Laboratories
Albuquerque, NM 87185-1142

Subject: Noncompliance Report NTS-ALO-KO-SNL-6000-1997-0001

Dear Dr. Robinson:

This letter refers to the Department of Energy's (DOE's) evaluation of Sandia National Laboratories' (SNL's) report of potential noncompliances with the requirements of 10 CFR 835 (Occupational Radiation Protection). The noncompliances, which involved operational and work control deficiencies related to the use of three radiation generating devices (RGDs), were identified on October 1, 1997, and reported to DOE on October 21, 1997, in the Noncompliance Tracking System (NTS).

The first instance occurred on October 1, 1997, when unexpected levels of radiation were identified during a radiation survey of the Electron Beam Test System (EBTS) located in [a building] of TA-III. The source of the expected radiation levels was determined to be an unshielded equipment attachment port (pyrometer port) located on the top of the EBTS. The October 1, 1997, survey also documented another EBTS unshielded port, a camera port with the leaded glass window removed. SNL's review of this incident determined that, on September 29, 1997, the pyrometer had been moved to a second equipment attachment port on the ETBS, and the original port was left unshielded. The facility owner had not been notified of this modification. SNL could not identify when the leaded glass window was removed from the camera port, but concluded that the window may have been removed prior to September 23, 1997, when the EBTS was cleaned. A second radiation survey conducted October 7, 1997, identified a third source of radiation which had resulted from repositioning the ETBS ion gauge on September 23, 1997. SNL operating procedures required that radiation surveys be performed and documented subsequent to equipment modifications. These required post modification surveys were not performed following the three modifications to the ETBS. A dose reconstruction estimated that a worker's potential deep dose would be less than 10 millirem.

The second incident involved several procedural noncompliances during startup of a vacuum tube. On October 7, 1997, an operations technician proceeded with start up of a vacuum tube and operations at low power without the radiological control

technician being present to perform the required radiological survey. During these initial operations, equipment interlocks were defeated and the equipment door, which provided shielding for the vacuum tube, was opened. Additionally, the operations technician had not taken a radiation safety course even though he knew completion of the course was required prior to operating the device. The technician's dosimeter was read and zero dose was recorded.

A third incident involved the identification of elevated radiation levels at floor level in an unposted, uncontrolled hallway. The elevated radiation levels were identified on July 18, 1997, during an annual survey of an RGD located in an adjacent room. Inadequate installation of shielding material caused radiation streaming into the unposted hallway since the wall shielding did not extend all the way to the floor. A dose estimate for a potentially exposed individual was calculated to be less than 10 millirem.

Based upon our evaluation, we have concluded that noncompliances with 10 CFR 835 have occurred. Specifically, noncompliances with Monitoring in the Workplace, Access Control, Design and Control (Administrative Controls), and Posting requirements have been identified. These noncompliances are of particular concern since they are similar to previously identified work control issues associated with field radiography operations conducted between February 1-7, 1996, in SNL's Liquid Metal Processing Laboratory. SNL was issued an enforcement action (EA 96-03) on August 14, 1996, as a result of the field radiography work control violations. Furthermore, radiological work control deficiencies were again identified during waste sorting activities conducted August 2-16, 1996, in the Radioactive and Mixed Waste Management Facility (RMWMF), and SNL was issued an enforcement action (EA 97-07) on August 14, 1997. Corrective actions for work control deficiencies specific to the RMWMF were completed on May 23, 1997.

Under the evaluation criteria described in the DOE Enforcement Policy (Appendix A to 10 CFR 820), the circumstances surrounding these violations, as described above, would warrant enforcement action including the imposition of civil penalties. However, I have decided to defer enforcement action on these issues contingent upon implementation of your corrective actions. Further violations involving similar repetitive, underlying causes, including those described in the DOE-Kirtland Area Office letter dated February 4, 1998, to Dr. John C. Crawford, [ ], Sandia National Laboratories, will result in escalated enforcement.

If you would like to discuss these matters further, please contact Ms. Susan Adamovitz of my staff at 301-903-0125.

Sincerely,

R. Keith Christopher
Director
Office of Enforcement and Investigation