

FOREIGN TRIP REPORT

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A trip was made to Madrid, Spain from 15 to 27 September 1975. This trip was made at the request of ERDA Headquarters for the purpose of assisting the Spanish Junta de Energia Nuclear (Atomic Energy Commission).

Recent data obtained by the J.E.N. indicated possible internal contamination of a large number of Spanish personnel with significant quantities of plutonium. Some questions had arisen about performance of the detector system used and about its calibration. Ahead of the trip several new calibration sources, prepared by the Lawrence Livermore Laboratory, had been sent to the J.E.N. through the State Department and U.S. Embassy in Madrid.

Upon my arrival in Madrid a careful examination was made of the data and the counting equipment. I quickly discovered that a number of problems occurred during the rather long counting period of January to July 1975, including intermittent failure of a high voltage power supply, appearance of a high electronic noise level, and contamination of the counting room with radioactive isotopes. These problems combined to make invalid all estimates of lung burdens of plutonium. Although these problems were not as severe in the detection of ^{241}Am , changes in the detector calibration for this isotope also invalidates these results. The electronic problems have been corrected and the detectors are now operating very well. The ventilation of the counting room has been improved and the major source of contamination eliminated. Further improvements to the ventilation to remove gaseous contaminants will be made by the Spanish.

The calibration standards, which were to have been in Madrid upon my arrival, had been lost (misplaced) by the State Department and did not arrive in Madrid until late on 23 September 1975. I remained in Madrid two extra days, canceling my trip to London, in an effort to get the recalibration

completed. Other commitments precluded my remaining in Madrid any longer. A partial calibration of the detector system was performed and indicated that the previous calibration is in error. The calibration procedure will be continued by Spanish personnel. There is, unfortunately, some question as to the activity of the new calibration standards. This problem is now being studied by the Hazards Control Department personnel who were responsible for making the sources and will hopefully be resolved shortly. If necessary new sources will be prepared and sent to Spain.

It is my belief that the personnel at the J.E.N. who are responsible for the in vivo radioactivity monitoring program, principally Dr. Emilio Iranzo, head of the Division of Medicine and Protection, and Dr. Francisco de los Santos, head of the counting facility, are very competent, meticulous, and conscientious people. They fully understand the complexity of the equipment involved and the difficulty in detecting plutonium in vivo. They lack only experience and do require contact with more experienced persons. Dr. Iranzo discussed at length with me the possibility of establishing a closer relationship with an ERDA laboratory, something he would very much like to do and I strongly recommend.

Since a complete recalibration of the system was not possible due to the late arrival of the standards, the Spanish have requested that I visit them again soon. This I propose to do as part of a trip to Vienna, Austria in December of this year.