

To: J.ROBERTSON (DOE1217)
To: J.THIESSEN (DOE670)
From: C.LUSHBAUGH (DOE1258) Posted: Tue 26-June-84 13:11 EDT Sys 64 (73
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Subject: From: C.Lushbaugh

Subject: Subject: June 26 letter to Mr. Wayne Lowder, DOE

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Dear Mr. Lowder:

Karl Hubner, my associate, indicated to me that Mr. Zolon Burson (EG&G/DOE, Las Vegas) has discussed with you the recent cobalt-60 radiation accident in Mexico.

Members of ORAU'S Radiation Emergency Assistance Center and Training Site (REAC/TS), especially Dr. Hubner and Dr. Littlefield, have been involved in the assessment of the medical consequences of this accident. For your information, I am sending you copies of three trip reports prepared by Dr. Hubner.

We still have not made much progress in identifying the population at risk. Mr. Burson has calculated isodose contours for a neighborhood in Juarez where a pickup truck contaminated with between 60 to 110 Ci of cobalt-60 was parked for a period of 8 weeks. According to Mr. Burson, the total accumulated doses in some of the houses could be as high as 175 rads. The next step in assessing exposures, respectively doses, in this neighborhood would

be to mock-up the accident using small cobalt-60 sources and take direct measurements and/or assess total accumulated doses using thermoluminescent dosimetry techniques on ceramic tile, pottery or bricks. The latter could be done in Dr. Macdonald E. Wrenn's laboratory at the University of Utah. Both Mr. Burson and Dr. Wrenn have agreed to provide their expertise and assistance to the Mexican officials. At this time we are still waiting for a response from the Mexicans and specific arrangements concerning the physical dose assessment of this accident.

Once the calculated exposures are confirmed by direct measurements, we would then attempt to further validate the doses biologically, i.e., by chromosome analysis, in selected persons. Eventually we should be in a position to identify the exposed population and establish a roster for a long-term follow-up study. A medical followup is indicated for various reasons and we at REAC/TS, also managing the U.S. and worldwide radiation accident registries, are especially interested in following this latest Mexican radiation accident.

This accident is unique in that the cobalt-60 source did not remain intact but rather the cobalt-60 pellets were spread around and ended up in a junk yard, two foundries, in reinforcing steel rods, and in a street of Juarez. Consequently the potential number of seriously exposed persons is greater than 200: 6 junkyard workers, 70 foundry workers, 50 to 100 persons in the street and possibly 50 construction workers. So we have a fairly big accident in terms of numbers of people and larger than the Marshall Island Fallout Problem in terms of doses received. We have already determined by chromosome analysis that the doses for some of the people may be as high as 750 rad or even more. The highest total-body doses for the Marshallese Islanders was about 175 rad. The situation in the Marshallese Islands was complicated by the fallout and the unavoidable incorporation of radionuclides. In the Mexican accident we have only an external radiation scenario.

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In addition to the number of people involved and size of the dose, there are other reasons for doing a follow-up study. This is one of the few radiation accidents where we have early chromosome aberration information. Here we have an opportunity to monitor the chromosomal changes on a yearly basis. In parallel, a medical surveillance program needs to be carried out in order to determine endpoints in terms of morbidity, mortality, etc. (Note: The H on the end of line 3 in this paragraph should not be on the screen.)

We would very much like to continue our involvement in this accident, the biologic dosimetry and the epidemiological aspects. Limited funds, however, permit us only to play a small part in the overall effort. Thus far DOE has approved our assistance in the Mexican accident with financial support out of the current FY 1984 REAC/TS budget. In view of a 50% cut of the REAC/TS budget in FY-85, our continued participation in the Mexican accident follow-up is in question and I would like to ask whether DOE could help establish special funds or perhaps arrange for joint funding (NRC, NAS, DOD, EPA, NIH, CDC, PAHO) of future REAC/TS involvement in this accident. We would be more than happy to prepare a draft of a proposal for your consideration. Sincerely, C. C. Lushbaugh, M. D.

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Disposition: fi Mexico
Filed in category MEXICO

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