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Mr. S. L. Ramos, Chief
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Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Steve:

Following your request, I have reviewed the handouts titled *Perspectives on the Role of Radiological Monitoring in an Emergency* and *Radioiodine Monitoring in an Emergency - A Case of I-135*, by James A. Martin, Jr. It is not possible to determine the exact conclusions that the author intended to reach from a review of the handout. Consequently, the following comments should not necessarily be viewed as definitive statements.

The author makes a case for monitoring beta dose rates, or more accurately, count rates, in pastures as a means of detecting PAG levels of iodines. To be sure, the use of GM survey instruments may allow a very rapid determination of the spacial extent of an incident during the early moments when rapid decisions must be made regarding protective actions. This was demonstrated in Pennsylvania in October 1976 when Tom Gerusky requested that civil defense teams monitor ground surfaces near the outlets of downspouts during the unusual fallout incident which occurred there. He quickly discovered that the radiation was not derived from a point source and mapped out the localities which had received the greatest deposition. However, GM detectors were not sufficient to determine the nature of the radioactivity or aid in preparing protective action plans after the initial alert was declared. Quantitative isotopic measurements were employed in the fallout case and would be relied upon during future emergencies at nuclear power stations.

Even if the precise composition of a deposition were known, it is difficult to establish the "distance" between a detector and the "surface of a pasture", since such a surface is far from being a planar surface. Roadways, parking lots, vehicle surfaces, sidewalks, etc., could be surveyed to determine the extent of a deposition after passage of a plume. During passage of a plume, the presence of a plume may mask deposition or raise the background rate to a point where beta measurements are more difficult. Moreover, protective actions relative to plume passage are of concern during plume passage; the problems of the ingestion pathway may be dealt with in a more protracted time frame.

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Measurement of environmental I-135 using NaI detectors is probably not feasible because the major gamma emissions might not be discerned if appreciable noble gases are present. The high energy lines possess low yields and the intrinsic efficiency of NaI detectors at energies greater than 2 MeV is greatly reduced, thereby further reducing sensitivity. Portable GeLi detectors could discern I-135 in the presence of noble gases, but such instruments are still in the development stage and are not readily available or abundant. Several of the major DOE response teams do not possess such instruments.

In conclusion, there appears to be no advantage of abandoning the present emphasis on ionization chambers for measuring external dose rates and a combination of iodine - specific air filter cartridges and survey probes calibrated for I-131.

Please do not hesitate if I may provide additional information on this subject.

Sincerely,

A. E. Desrosiers

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AED:lsp

cc: B Grimes
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