NOTE TO: Document Control
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FROM:

Please place the attached document in the PDR using the following file and file points:

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Reg. Guide	_____	Proposed Rule (PR)	_____
Draft Reg. Guide	_____	Draft Reg. Guide	_____
Petition (PRM)		Reg. Guide	_____
Effective Rule (RM)	_____	Petition (PRM)	_____
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		SD Task No.	_____
		NUREG Report	_____
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Subject: _____

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NOTES FOR

ANN ARBOR MEETING

April 23, 1980

TENNESSEE VALLEY AUTHORITY

DRAFT
RDC:MGR
04/17/80

1. The fundamental requirements for personnel dosimetry are in 10CFR20. In several places through those few pages, it is obvious that the primary function of personnel dosimetry is not dose measurement, but dose control. In assigning surface dose as whole body dose for photons up to 3 mev, in selecting a conservative (i.e., a higher administrative dose than physical dose) algorithm for neutron dosimetry, and in providing for assigning unknown previous years' doses as the average maximum allowable, dose control is effected without rigorous dose measurement. A system failing to provide satisfactory measurement under the criteria of the Standard could still provide control satisfactory to 10CFR20.

2. Continuing with the control emphasis of 10CFR20, most of the text related to control concerns control of areas and materials, then evaluation of area and material control by surveys, with personnel monitoring as a tertiary level of control. In our practice, another personnel dosimetry system, not tested in the Pilot Study, is interprosed between surveys and TLD badge dosimetry. Every radiation worker carries and uses and frequently reco' ls the indication of self-reading pocket dosimeter. This introduces to personnel dosimetry the added reliability of redundancy. The problems that we find and correct by this means are not only of poor precision or poor accuracy, but of mishandled records.

3. The toughest part of our personnel dosimetry system to beat into satisfactory performance is not accuracy, but timeliness. The information must be available in time to support the requirements of control. The Standard does not consider timeliness, nor are the pilot study reporting schedules reasonable for testing this important aspect of personnel dosimetry. Timeliness may be the critical factor in choosing between commercial and in-house processing.

4. It was noted in your Interim Report #2 that there were clerical errors. We had a couple of them. It is not appropriate to treat clerical errors as physics errors. The H,H* business does not apply to that sort of thing. We clean them out of our records by the previously described redundancy. The Standard does not give due credit to personnel dosimetry as a system, supported by surveys and other supplemental records and measurements.

Some recommendations for future development of the Standard and tests of conformance to it:

1. Recognize that the Standard is not a single standard but several. It may be convenient to issue, and justify the cost-benefit ratio of the gamma ray and X-ray categories as separate standards with little additional work. These will cover the majority of medical and industrial monitoring situations. Personnel neutron dosimetry is still a research project for everyone. There is nothing to be gained by pretending that a useful standard of accuracy can be issued now or by delaying the issuance of X-ray gamma ray standards until a neutron standard is appropriate. The new revisions to regulatory guide 8.14 emphasize sensitivity with secondary concern for accuracy.

2. Do not derive from the Standards, rules for things which cannot be done: Cannot use a particular processor, cannot use a particular technique, or whatever. Let the statements be "cannot_____only", or "cannot_____ without supplementary (measurement, survey, control, record, worksheet, etc.)." "Cannot" may be appropriate for some stand-alone systems but will be detrimental to redundant systems.

3. Do not move all testing to a single laboratory. A series of regional facilities, some perhaps specializing in only gamma ray or only X-ray irradiation categories, may provide better service. The regional facilities would of course be required to frequently exchange intercomparisons. This builds in redundancy.

4. To meet the intent of the testing it will be necessary to test equipment and processes actually used for personal monitoring. There will be a great temptation to pass the tests with systems of deliberately greater sophistication than those supplied for field use. It may be appropriate to verify that the systems tested represent systems in use. For example, two or three badges submitted for testing will be opened, weighed, etc., and compared to the public definition of badge content or construction. Nonconforming badges result in a failed category. A slightly more stringent test of power reactor badges could be constructed by having badges selected and submitted for testing by the resident NRC staff. This could approach the integrity of a blind test.

5. The radiography industry may have a unique combination of problems since it has severe field environmental conditions and a relatively high incidence of actual overexposures. Perhaps radiography firms should themselves submit badges for testing and be prepared to show that the standards are met for their peculiar needs.