PDR NM-28
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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MEMORANDUM FOR: H. J. Miller, Section Leader
Uranium Recovery Licensing Branch

FROM: Gregory G. Eadie
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SUBJECT: CHURCH ROCK SOIL SAMPLING PROGRAM REVIEW

The following outline provides general guidance to be considered for the soil sampling program review to be completed by NRC/NMEID with the support of BPNL under SOW modifications.

1. Organize all available data

   a) Identify each separate sample per range/township/section/ subsection, etc., and include all pertinent notes (e.g. sampling depth and description of sampling site, etc.).

   b) Report data for each radionuclide as actual value $\pm$ one sigma error term in units of pCi/g.

   c) Data and informational displays below are to be presented sequentially from the mill site down to Arizona.

   d) Provide a table of results.

2. Display all available data on individual log sheets if practical.

   a) Using the sampling team's log sheet (i.e., the hand-drawn sketches of the various sampling sites) enter all data.

   b) Duplicate log sheets may be used to show results of subsequent clean-up efforts and re-sampling results.

3. Display summary data on aerial photographs (one sq. mile views in possession of NMEID).

   a) Visually summarize the data displayed on the individual log sheets so as to indicate on the photograph the "hot areas" of the arroyo, and their average concentrations of radionuclides.

   b) Radionuclide inventory estimates are to be provided on each photo for the area covered.

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c) A total inventory estimate from the soil sampling scheme for the entire length of arroyo covered (including any in Arizona) is to be compared with the estimate of the amount of radioactivity released as a result of the dam failure. Compare estimates of activity cleaned-up with UNC's data regarding material removed from arroyo, and estimate the residual contamination after clean-up.

4. Evaluate the adequacy of the definition soil sampling scheme.

   a) From the above organization and review, statistically evaluate the adequacy of the initial soil sampling scheme and provide any recommendations for completeness.

5. Statistically derive a verification soil sampling scheme.

   a) This effort shall provide the specific instructions so as to define the sites to be sampled and the number of samples to be collected in order to verify that an area actually meets the clean-up criteria.

   b) For this purpose, the incremental area of concern shall be defined as 75 ft. wide by 1000 ft. in length (i.e. a realistic section of the arroyo from the practical standpoint as well as this land area appears adequate for airborne resuspension modeling purposes as used in MILDOS and there is real data from the initial soil sampling scheme.

6. A Summary/Conclusions shall be provided of the results and lessons learned from this experience, together with any recommendation of future studies or monitoring programs deemed appropriate.

7. A written report containing all of the above topics shall be produced for use in the final NRC/NMEID report of this incident.

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