



Bruce King
GOVERNOR

STATE OF NEW MEXICO
ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87503
(505) 827-5271
Thomas E. Baca, M.P.H., Director

George S. Goldstein, Ph.D.
SECRETARY

Larry J. Gordon, M.S., M.P.H.
DEPUTY SECRETARY

WM-28
PDR

September 24, 1979

H.J. Abbiss, Vice President
Environmental and Safety Services
UNC Mining and Milling
P.O. Box 3951
Albuquerque, New Mexico 87190

Dear Mr. Abbiss:

Your letter of September 12, 1979, has been reviewed and we are forwarding the following comments for your ongoing monitoring program proposal. Until such time that data has been received from UNC demonstrating that the contamination clean-up has been effective in reducing the contamination to background and is below the levels for Radium-226 and Thorium-230 as identified in paragraph (7) of EID's letter of August 13, 1979, we do not agree that the "immediate and reaction clean-up effort has been largely accomplished". We will be looking forward to your data to demonstrate your compliance with EID's August 13, 1979 letter. In order to maximize the use of the Battelle Mobile Laboratory, instructions for sampling procedures are being forwarded separately.

We agree that a follow-up monitoring program is desired and necessary. This follow-up program certainly needs to provide data useful to UNC and others who will be examining this spill in the future. Consideration must be given to sample analysis, quality control using split samples with EID. Water samples shall be filtered and acidified within 12 hours of collection.

1. Helicopter survey for yellow salt formations-frequency should be "repeat as necessary", since reappearance of the salts may occur and this type of survey is the quickest method of determining whether such contamination will be a recurring problem.
2. Background sediments - sampling sites should be upstream in uncontaminated drainages of arroyo and Rio Puerco. Type and treatment of samples - core samples should be three to four feet deep rather than one foot. Each sample should be analyzed separately and then averaged for the composite value for each contaminate. Analyses to be performed - Lead-210 should be added along with soluble (or leachable) sulfates, pH and conductivity.

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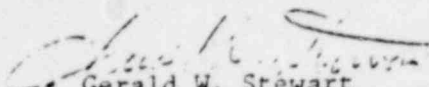
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3. Contaminated arroyo sediments - include known or suspected contaminated side arroyos or pools. Gross gamma measurements are not considered satisfactory to identify low level alpha contaminants. Type and treatment of samples - core samples should be three to four feet deep. Each sample should be analyzed separately and then averaged. Frequency of sampling after clean-up; repeat after six weeks and each three months thereafter. Analyses to be performed - Lead-210 should be added along with soluble (or leachable) sulfates, pH and conductivity, TDS.
4. Ground water - Sand points (2'-3' depth) in the bottom of the water way are inadequate for plume definition. Shallow monitoring wells are needed near the stream bed for samples to check for plume. Frequency should be monthly for three months then quarterly.
5. Leach Tests - Define contaminated samples and two non-contaminated samples (pre or post spill). A location of the source of tailings pile sample should be provided. Type and treatment of samples - contaminated and non-contaminated soils in separate columns, then have leachate move through contaminated column first. Consideration should be given to stream water, if constituents are known rather than "treated mine water". Frequency - may need to be repeated after clean-up. Analyses to be performed - Lead-210 should be added plus the constituents for ground water above.
6. Livestock sampling - Sampling sites and animal sampling should be coordinated with state veterinarian office. Number of samples or observations per site - Both milk and urine samples should be taken as appropriate. Fecal samples are necessary. Frequency - Depending on results of the sampling, every six months may be desirable. Analyses to be performed - Include Thorium-230 and trace metals (moly, selenium, etc.).
7. Vegetation sampling - Type and treatment of samples - Livestock generally graze no lower than about two inches above the ground surface, thus the need for root analyses may not be necessary. Frequency - May need to be semi-annual for a couple of sampling periods. Analyses to be performed - Add Lead-210 to corn samples and trace metals (moly, selenium, etc.) to both vegetation samples.
8. Gamma Survey - At this time, based on two gamma surveys already accomplished, this may not be necessary.
9. Floodwaters - Type and treatment of samples should include sediment after flooding and installation of simple automatic stream water samplers at Rt. 566 bridge and Gallup bridge. Analyses to be performed should include Lead-210, Frequency - Extend to 12 months to insure that seasonal are reflected.
10. Air sampling - Sampling sites should include in the stream bed. Analyses to be performed - Include Lead-210 and Radon.

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11. Surface water (stream) should be added and include total and dissolved samples. Frequency should be weekly for the first three months, then monthly for three months followed by quarterly. Analyses to be performed - Fluid chemistry to include trace metals and radiological parameters.

Sincerely,


Gerald W. Stewart
Program Manager

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