



STATE OF NEW MEXICO

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■ ENVIRONMENTAL IMPROVEMENT AGENCY

P. O. BOX 2348, SANTA FE, NEW MEXICO 87501

HEALTH and
SOCIAL
SERVICES
department

February 24, 1977

H. John Abbiss
Manager, Safety and Environmental Services
United Nuclear Corporation
P. O. Box 3951
Albuquerque, NM 87110

Dear Mr. Abbiss:

As we discussed during our meeting in Santa Fe on February 22, 1977, the Water Quality Division is recommending a temporary (one-year) expansion of the proposed operational surface water sampling program at your new Churchrock mill. Following is a description of the expanded program and the rationale which provide the basis for our recommendations.

The pre-operational surface water monitoring conducted to date appears to have established reproduceable background concentrations for the following parameters:

Total Uranium*	Beryllium	Zinc	Sulfate*
Potassium	Copper	Bicarbonate	pH*
Sodium*	Lead*	Carbonate	Mercury
Arsenic*	Selenium*	Hardness	Nitrate*
Molybdenum*	Vanadium*	Magnesium*	

*NOTE: These constituents may be found in significant concentrations in uranium mill wastes.

Pre-operational monitoring has also established that there is significant variability in several constituents, most notably the radiochemical parameters. This variability partially reflects changes in the operations of the two active uranium mines upstream from the mill site.

In addition, the pre-operational information collected to date lacks data on several parameters which, on the basis of a cursory literature review, are frequently found in elevated concentrations in uranium industry waste streams. These parameters include:

Barium	Chloride	Manganese	Nickel
Fluoride	Iron	Cobalt	Chromium
Total Dissolved Solids	Ammonia	Ra-228	

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Based on the above considerations, we recommend that the proposed operational monitoring program be expanded in conformance with the following for the first year of operation:

1. Quarterly sampling for the parameters below should be initiated at each of the five surface water stations:

Ra-226	Gross Beta	Fluoride	Manganese
Ra-228	Thorium-230	Chloride	Cobalt
Gross Alpha	Barium	Iron	Nickel
Chromium	Total Dissolved Solids	Ammonia	

This program element will help define background levels and variability ranges (whether natural or human-induced) on parameters for which sufficient data do not presently exist.

2. Quarterly sampling should be conducted for the following parameters at stations 4 and 5 only:

Arsenic	Lead	Selenium	Sodium
Vanadium	Molybdenum	Magnesium	Nitrate
pH	Uranium	Sulfate	

This program element considers those parameters for which sufficient background data exist but which may be particularly diagnostic of contamination from the mill facility. Semi-annual sampling for these parameters at stations 1, 2 and 3 is judged to be sufficient at this time.

Our Agency would have no objection to the elimination of the following parameters from the analytical requirements at all surface water stations:

Mercury	Calcium	Potassium	Beryllium
Copper	Cadmium	Zinc	Carbonate
Hardness	Bicarbonate	Total Phosphorus	Total Suspended Solids

After the first year of operations, all data should be evaluated in order to identify appropriate modifications in the surface water monitoring program.

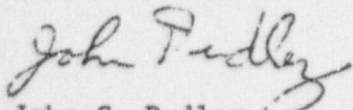
We have carefully evaluated the additional costs of the expanded surface water program balanced against the savings derived should you elect to drop from the program the parameters prescribed above. We feel that the additional costs are reasonable and justifiable.

With respect to ground water monitoring, we feel that the program outlined in the attachment to your June 28, 1976 letter addressed to the Water Quality Division will be entirely satisfactory with the addition of sodium and chromium to the analytical program described therein.

H. John Abbiss
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I will be out of the office from February 28 - March 4. If you wish to discuss the above matters, please feel free to call me at your earliest convenience after March 6.

Sincerely,

A handwritten signature in cursive script, reading "John G. Dudley". The signature is written in dark ink and is positioned above the printed name and title.

John G. Dudley
Geohydrologist III

JGD/mm

cc: Al Topp, Radiation Section