



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

*Duplicate copy on
microfiche*

March 24, 1981



Mr. Christopher McLoed
Foundation for National Progress
625 Third Street
San Francisco, CA 94107

IN RESPONSE REFER
TO FOIA-81-8

Dear Mr. McLoed:

This is in further response to your letter dated December 1, 1980 in which you requested, pursuant to the Freedom of Information Act, all documents relating to five categories of information on uranium mills in Utah, New Mexico, Arizona, Colorado and Wyoming.

The documents listed on the appendix are enclosed.

The NRC has not completed its review of the remaining documents subject to your request. We will response as soon as the review is completed.

Sincerely,

J. M. Felton, Director
Division of Rules and Records
Office of Administration

Enclosures: As stated

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APPENDIX

1. August 15, 1979 Letter to Jack Womack from T. L. Stumph
2. October 18, 1979 Letter to Ed Jeffery from T. L. Stumph
3. September 13, 1979 Letter to Michael Burkhart from Richard Hoffman, M.D.
4. December 2, 1979 Letter to R. A. Scarano from Gregory Eadie
5. October 10, 1979 Letter to R. Scarano from R. L. Douglas
6. October, 1979 Report - A Radiological Dose Assessment of the Church Rock Uranium Mill Tailings Dam Failure, Church Rock, NM
7. April 23, 1980 Letter to Hubert Miller from Thomas E. Buhl
8. May 16, 1980 Letter to Dr. T. Wolff from R. A. Scarano
9. May 28, 1980 Letter to G. Wayne Kerr from T. A. Wolff
10. November 5, 1980 Memo to Guy Cunningham from J. O. Lubenau
11. July 25, 1980 Letter to T. E. Baca from G. Wayne Kerr
12. September 8, 1980 Letter to G. W. Kerr from T. E. Baca
13. Undated Radiation Protection Letter
14. April 21, 1980 Report Environmental Improvement Division Radiation Protection Regulations
15. June 12, 1980 Memo to John Kending from J. F. Klucsik
16. November 13, 1979 Memo to Douglas Sly from G. Wayne Kerr
17. September 12, 1979 Memo to H. Miller and G. Wayne Kerr
18. October 10, 1979 Memo to Doug Sly from G. W. Kerr
19. October 17, 1979 Memo to D. Sly from G. W. Kerr
20. December 20, 1979 Memo to D. Sly from G. W. Kerr
21. August 20, 1979 Report - Status Report on Sampling Program to Determine the Environmental Impact of the United Nuclear Corporation Mill Tailings Spill

APPENDIX

22. May 4, 1979 Letter to K. G. Brown from G. Wayne Kerr
23. March 30, 1979 Letter to Dr. T. A. Wolff from G. Wayne Kerr
24. December 7, 1979 Letter to T. E. Baca from R. A. Scarano
25. November 28, 1979 Memo to D. Sly from G. Wayne Kerr
26. March 11, 1977 Memo to G. W. Kerr from E. P. Resner
27. February 24, 1977 Memo to Lee Rouse from G. Wayne Kerr
28. February 16, 1977 Memo to Dudley Thompson from G. Wayne Kerr
29. March 2, 1976 Report of Analysis in Water Samples
30. December 20, 1979 Memo to R. Scarano from G. Wayne Kerr
31. December 4, 1979 Weekly Report to Cubia Clayton from H. J. Abbiss
32. March 11, 1980 Weekly Report to Cubia Clayton from T. M. Hill
33. September 10, 1980 Weekly Report to Cubia Clayton from T. M. Hill
34. December 9, 1980 Weekly Report to Cubia Clayton from T. M. Hill
35. June 10, 1980 Weekly Report to Cubia Clayton from T. M. Hill
36. December 11, 1979 Weekly Report to Cubia Clayton from H. J. Abbiss
37. July 20, 1979 Letter to T. E. Baca from D. D. Turberville
38. December 2, 1979 Memo to Ross A. Scarano from gregory Eadie
39. May 21, 1980 News Release - Radioactivity Levels in Church Rock Animals
40. Undated Paper - NRC Abnormal Occurrence, Mill Tailings Impoundment Dam Failure
41. April 23, 1980 Letter to Hubert Miller from T. E. Buhl
42. April 11, 1980 Memo to G. Wayne Kerr from J. P. Knight
43. December 31, 1979 Memo to G. W. Kerr from R. A. Scarano
44. December 26, 1979 Memo to Norman M. Haller from R. G. Rayn

APPENDIX

45. December 27, 1979 Memo to R. A. Scarano from R. E. Jackson
46. Undated Paper - Office of State Program Responses to questions and comments contained in the Udall to Hendrie letter of December 6, 1979
47. November 6, 1979 Memo to NRC Office Directors from N. M. Haller
48. December 10, 1979 Letter to T. E. Baca from R. A. Scarano
49. December 10, 1979 Memo to R. A. Scarano from R. E. Jackson
50. Undated Letter to T. E. Baca from John B. Martin
51. October 19, 1979 Letter to J. B. Martin from T. E. Baca
52. November 2, 1979 Report - Status Report on Sampling Program to Determine the Environmental Impact of the United Nuclear Corp. Mill Tailings Spill
53. October 31, 1979 Letter to D. D. Tuberville from Cubia Clayton
54. October 24, 1979 Notice of Non-Routine Event - 79-18C
55. October 15, 1979 Preliminary Notification
56. September 12, 1979 Letter to T. E. Baca from H. J. Abbiss
57. October 12, 1979 Telegram to D. D. Tuberville from Governor Bruce King transmitting NRC Order Conditioning License
58. October 4, 1979 Memo to R. E. Browning from F. Schroeder
59. September 20, 1979 Press release re: aerial survey of river in Church Rock Area
60. September 21, 1979 Letter to John Dubois from R. G. Ryan
61. Undated Report - Pool Survey Data, from aerial survey
62. September 6, 1979 Memo to J. H. Sniezek from G. D. Brown - Special Inspection Report No. 79-01
63. September 7, 1979 Letter to T. Wolff from G. Wayne Kerr
64. August 13, 1979 Letter to D. D. Tuberville from T. E. Baca

APPENDIX

- 65. July 26, 1979 Memo to R. G. Rayn form W. J. Dircks
- 66. June, 1978 Sandia Report - Uranium Mining and Milling
Environmental Effects Program Plan
- 67. August 1, 1979 Letter to H. J. Abbiss from R. A. Searano
- 68. August 2, 1979 Memo to G. W. Kerr from Leo B. Higginbtham
- 69. November 15, 1979 Letter to P. V. Domenici from L. V. Gossick

Foundation for National Progress

FREEDOM OF INFORMATION REQUEST

December 1, 1980

Mr. Joseph Felton
Director, Freedom of Information
Nuclear Regulatory Commission
Washington, D.C. 20555

FREEDOM OF INFORMATION
ACT REQUEST

FOIA-81-8

REC'd 1-9-81

Dear Mr. Felton,

Under 5 U.S.C. 552 et seq., The Freedom of Information Act, I hereby request personal access to all documents, internal memorandum, legal opinions, scientific opinions, letters of communication, meeting minutes, hand written notes, studies, tests, charts, tables, unsanitized reports and all other relevant documents related to the items below as listed. I am requesting this information as it relates to the following states: Utah, New Mexico, Arizona, Colorado, Wyoming.

Request 1: All uranium tailing spills including dam failures, flash floods and all other accidental or planned releases other than the Church Rock Spill of 1979.

Request 2: Uranium milling practices of the 1940's, 1950's, and 1960's, specifically regarding methods of disposal and discharge of solid and liquid wastes.

Request 3: Adverse health effects associated with working in uranium mills, living in mining and milling districts or in close proximity to uranium mill tailings, and living in houses in which uranium mill tailings were used in construction. These adverse health effects should include but not be limited to respiratory diseases, cancer, birth defects and genetic damage.

Request 4: The Church Rock spill of July, 1979. In addition to the information requested in the opening paragraph, please be sure to include all correspondence between the NRC and the New Mexico Environmental Improvement Division and correspondence between the NRC and United Nuclear Corp., regarding the spill.

Request 5: The ability of the state of New Mexico to regulate the uranium industry. In addition to the information requested in the opening paragraph, please be sure to include NRC opinions, analysis and reports on this subject.

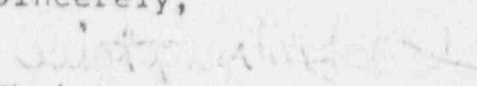
I hereby request a fee waiver for this information because I consider it as primarily benefitting the public interest.

If any part of this request is denied, please inform me of your appeal procedures. I will consider my request denied if I have no communication from you within 10 working days of receipt of this letter.

Please be put on notice that I consider this information clearly releasable under the Freedom of Information Act and that I consider your refusal to release the information to be arbitrary and capricious as defined in the Act.

Thank you for your prompt attention. If you have any questions regarding this request please contact Carolyn Marshall 415-524-7 545 or write the above address.

Sincerely,


Christopher McLoed



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

DEC 02 1979

MEMORANDUM FOR: Ross A. Scarano, Chief
Uranium Recovery Licensing Branch

FROM: Gregory Eadie
Uranium Recovery Licensing Branch

SUBJECT: DOSE ESTIMATES FROM INGESTION OF CHURCH ROCK
LIVESTOCK

At the present time, limited analytical data exists of the actual radioactive concentrations in various tissues of livestock raised locally near the areas of the Rio Puerco affected by the UNC uranium mill tailings dam failure. Data reported by the US EPA-LVF in a letter dated October 12, 1979 (attachment #1) appears to be the only available pertinent data.

In order to estimate the dose received by an individual who might possibly ingest meat contamination to the highest concentration level as reported by the EPA, the following parameters and assumptions have been made:

1. The adult meat ingestion rate is 78.3Kg per year (U.S. NRC, May 1979).
2. The adult dose conversion factors for meat ingestion are as follows (see U.S. NRC, May 1979):

DOSE PER YEAR (IN MREM) PER PCI INGESTED

Organ	U-238	U-234	Th-230	Ra-226*	Pb-210*
Whole Body	4.54×10^{-5}	5.17×10^{-5}	5.70×10^{-5}	4.60×10^{-3}	5.44×10^{-4}
Bone	7.67×10^{-4}	8.36×10^{-4}	2.06×10^{-3}	4.60×10^{-2}	1.53×10^{-2}
Liver	0	0	1.17×10^{-4}	5.74×10^{-6}	4.37×10^{-3}
Kidney	1.75×10^{-4}	1.99×10^{-4}	5.65×10^{-4}	1.63×10^{-4}	1.23×10^{-2}

*Note the relatively higher dose conversion factors for bone dose for radium-226 and lead-210.

U.S. NRC, May 1979, "Calculational Models for Estimating Radiation Doses to Man from Airborne Radioactive Materials Resulting from Uranium Milling Operations."

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3. The highest radioactivity concentrations were reported for cow liver (sample #210874):

	<u>DOSE PER YEAR IN MREM</u>				
	U-238	U-234	Th-230	Ra-226	Pb-210
Concentration (in pCi/kg)	4.4	4.3	1.7	no data	no data
Whole Body	0.016	0.017	0.0076	no data	no data
Bone	0.26	0.28	0.27	no data	no data
Liver	0	0	0.016	no data	no data
Kidney	0.060	0.067	0.075	no data	no data

4. The "control" cow liver results were (sample #210885):

	<u>DOSE PER YEAR IN MREM</u>				
	U-238	U-234	Th-230	Ra-226	Pb-210
Concentration (in pCi/kg)	<0.40	<0.34	0.18	no data	no data
Whole Body	0.0014	0.0014	0.00080	no data	no data
Bone	0.024	0.022	0.029	no data	no data
Liver	0	0	0.0017	no data	no data
Kidney	0.0055	0.0053	0.0080	no data	no data

5. The highest concentrations for sheep liver were (sample #210890):

	<u>DOSE PER YEAR IN MREM</u>				
	U-238	U-234	Th-230	Ra-226	Pb-210
Concentration (in pCi/kg)	2.0	2.1	2.1	no data	no data
Whole Body	0.0071	0.0085	0.0094	no data	no data
Bone	0.12	0.14	0.34	no data	no data
Liver	0	0	0.019	no data	no data
Kidney	0.027	0.033	0.093	no data	no data

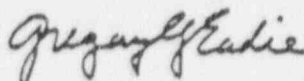
6. The "control" Sheep liver results were (sample #210902):

	<u>DOSE PER YEAR IN MREM</u>				
	U-238	U-234	Th-230	Ra-226	Pb-210
Concentration (in pCi/kg)	0.23	0.30	0.22	no data	no data
Whole Body	0.00082	0.0012	0.00098	no data	no data
Bone	0.014	0.020	0.035	no data	no data
Liver	0	0	0.0020	no data	no data
Kidney	0.0032	0.0047	0.0097	no data	no data

7. Therefore, from the above computations, it appears that the incremental bone dose would be about 0.74 mrem per year for the ingestion of cow's liver and about 0.53 mrem per year from sheep's liver due to the increase above "control" levels for the radionuclides U-238, U-234, and Th-230.

It should be noted that radium-226 and lead-210 have higher dose conversion factors than for uranium and thorium; therefore, the total dose calculations must consider the contribution from radium and lead in these livestock tissues. Unfortunately, at this time, the actual data for radium and lead concentrations is not available. The assumption that these radionuclides may be present at about 10 times the uranium content (i.e., radium and lead of 50 pCi/kg) has been made, and it is estimated that they would contribute less than 240 mrem additional bone dose. This assumption seems conservative in that the available data on radium in water and soil samples from the affected areas has been generally less than 10 times the uranium content.

Therefore, at this time, without confirmatory radium and lead data, it would seem prudent to refrain from eating livestock possibly contaminated by radioactive materials released from the uranium mill tailings dam failure. A complete dose assessment will be performed upon receipt of all the pertinent livestock tissue radiological analyses data.



Gregory G. Eadie
Uranium Recovery Licensing Branch
Division of Waste Management

Attachment



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF RADIATION PROGRAMS-LAS VEGAS FACILITY

P.O. BOX 18416, LAS VEGAS, NEVADA 89114 • 702/736-2969 (FTS 595-2969)

JCT 12 1979

U.S. Nuclear Regulatory Commission
Attn: Mr. Ross Scarano
Willste Building
Mail Stop 396-SS
Washington, DC 20555

Dear Mr. Scarano:

Enclosed is a printout showing the preliminary radionuclide results which we have obtained to date on the tissue samples collected by the Indian Health Service from livestock associated with the United Nuclear Churchrock tailings dam release. In keeping with the convention of the literature in this field, the results are expressed as picocuries of radionuclide per kilogram of wet tissue. Note that the error term is a calculated two-sigma counting error, based on the random nature of the radioactive decay process. It does not account for other errors or variability which may occur in the numerous steps of the analytical process. These other errors are considered to be on the order of 5 to 20%. Of course, sampling variability is probably considerably greater than the total analytical variability.

As I have explained previously, we analyze the samples in groups of six or eight for laboratory operational reasons. This report covers the first two groups of samples which we have analyzed. These particular samples were selected on the combined bases of a) Kay Kreiss' priority listing, b) samples of adequate size to allow for re-analysis in case unforeseen problems arose, and c) our desire to analyze the control animals early in the sequence to provide a basis for comparison of the results. We analyzed the muscle and liver samples first because we felt they were the most significant from the viewpoint of human consumption.

Because of the chemistry involved in our analytical procedures, the sample is separated into two fractions after the initial digestion of the tissue. One fraction is analyzed for uranium, thorium, and polonium using chemical separation of these elements followed by alpha spectroscopy to determine the particular radionuclides. The other fraction is analyzed for radium-226 and lead-210. These analyses take longer because the methods we use depend on the ingrowth of daughter products (radon-222 for radium-226 and polonium-210 for lead-210) which are counted to determine these two radionuclides. Consequently, these results will not be available for a few weeks yet.

I would like to offer a few comments regarding the enclosed results. The Po-210 levels are considerably higher than the uranium and thorium. This is not surprising, since Pb-210 and Po-210 are daughters of Rn-222. Since Rn-222 is released into the air from any material containing Ra-226, its daughters are available in the atmosphere for inhalation. Estimates in the literature indicate that approximately half of the Pb-210 intake (for humans) is from inhalation. Once Pb-210 is deposited in the body, primarily in the skeleton, it becomes a source generating Po-210 which is released into the soft tissues. It has been estimated that as much as 90% of the Po-210 in soft tissue may be from this source.

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A RADIOLOGICAL DOSE ASSESSMENT OF THE
CHURCH ROCK URANIUM MILL TAILINGS DAM FAILURE
CHURCH ROCK, NEW MEXICO

Prepared by Staff of
Uranium Recovery Licensing Branch
Division of Waste Management
Office of Nuclear Material Safety and Safeguards
U. S. Nuclear Regulatory Commission

G. N. Gnugnoli
G. G. Eadie
H. J. Miller

October, 1979

Dupe of 7912140121

Add-S

27PP

DUPLICATE



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAY 16 1980

Dr. T. Wolff
New Mexico Environmental Improvement
Division
P. O. Box 968, Crown Building
Santa Fe, New Mexico 87503

Dear Dr. Wolff:

This is in response to the letter from T. Buhl of your staff to H. Miller of my staff, dated April 23, 1980, and received on April 28, 1980, requesting our review of proposed revisions to cleanup criteria established in connection with the Church Rock dam failure.

I regret to inform you that because of a lack of available resources, we cannot provide the review and technical assistance you requested. As you are aware, we have contracted with Battelle Pacific Northwest Laboratories (BPNL) to reduce and statistically analyze soil sample data gathered from affected streams after the incident. This work is nearing completion and we fully intend to provide the BPNL reports to you as they are completed.

If you have any questions on this matter, please contact me.

Sincerely,

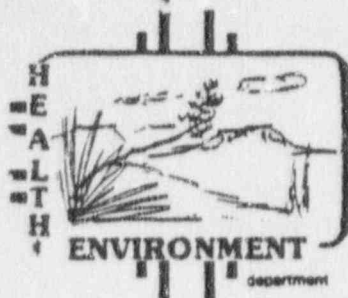
A handwritten signature in dark ink, appearing to read "Ross A. Scarano", is written over the word "Sincerely,".

Ross A. Scarano, Chief
Uranium Recovery Licensing Branch
Division of Waste Management

Cce: G. W. Kerr, SP

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Enclosure 4



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
RADIATION PROTECTION BUREAU

Bruce King
GOVERNOR

George S. Goldstein, Ph.D.
SECRETARY

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

May 28, 1980

G. Wayne Kerr, Assistant Director
For State Agreement Programs
Office of State Programs
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Kerr:

I have received a letter dated May 16, 1980 copied to you from Mr. Scarano stating that a lack of available resources will prevent review of our proposed revision of cleanup criteria established in connection with the Church Rock dam failure.

Since the Uranium Recovery Licensing Branch lacks available resources to assist us in the requested review, I request you seek the assistance we requested from the Office of Standards Development or other appropriate NRC Offices. A copy of our original letter requesting assistance is enclosed.

Sincerely,

Theodore A. Wolff, Ph.D.
Environmental Manager

TAW:ag

Enclosure

cc: Thomas Buhl

Enclosure 5

EQUAL OPPORTUNITY EMPLOYER

18
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