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RADIATION PROTECTION BUREAU

MEMORANDUM

TO: Denise Fort, Director

FROM: Michael Brown, Acting Bureau Chief
Radiation Protection Bureau

DATE: December 16, 1986

SUBJECT: UNC Church Rock Site Reclamation Strategy

I. Introduction and History

The United Nuclear Corporation (UNC) uranium milling operation at Church Rock, New Mexico, stopped milling uranium ore in May 1982. Under the New Mexico Radiation Protection Regulations, Section 12-300.B, UNC had to begin appropriate actions to stabilize their tailings disposal system one year after the end of tailings deposition. UNC applied for an exemption to this requirement; the request, however, was denied by EID. In December of 1984, UNC submitted a "conceptual" reclamation plan designed to meet state's requirements, without regard to more stringent federal requirements which UNC argued were inapplicable in New Mexico. The Radiation Protection Bureau (RPB) then tried unsuccessfully to get UNC to commit to provide a reclamation and stabilization plan in conformance with Nuclear Regulatory Commission's (NRC's) 10 CFR 40 and EPA's 40 CFR 192 regulations. This approach continued until the NRC took over control of the uranium mill licensing program on June 1, 1986, at the request of Governor Anaya.

The NRC now has the mandate to ensure that UNC's license obligations regarding permanent closure are made and that all provisions of the existing 10 CFR 40 requirements are met. This entails UNC's submitting a complete reclamation and stabilization plan that addresses the following major requirements:

i) The 1000-year stability requirements for long-term protection from erosion, floods, etc.;

ii) The 20 pCi/m^2-sec. radon emanation standard; and

iii) The criteria of 10 CFR 40 ground water protection standards (from EPA's 40 CFR 192).

DESIGNATED ORIGINAL

Certified By Mary C. Hanley

Initial concerns over potential seepage due to the location of the mill tailings pile were expressed in early 1976 before the tailings impoundment was constructed in 1977. After the tailings spill in 1979, the Ground Water Bureau documented extensive ground water contamination that was independent of the spill and made many requests for additional studies and ground water reclamation systems to define and ultimately deal with the problem. At that time, the Ground Water Bureau formally requested a discharge plan from UNC. Throughout this period until August 1982, UNC was allowed to continue operating without an approved discharge plan. During this time, frequent exchanges between UNC and the Ground Water Bureau occurred with operational concessions being granted to UNC as various deadlines expired. Simultaneously UNC installed many ground water monitoring wells to define the extent of the contamination and began to operate pumpback systems and neutralization of acidic tailings fluids. In May 1983, after a hearing, it was ruled that NRC was guilty of violating the New Mexico Radiation Protection Regulations with respect to Thorium-230. This ruling was challenged in court by UNC.

In April 1982, UNC was informed by the United States Environmental Protection Agency (EPA) that the Church Rock mill should be on the Interim Priority List for Superfund action. In November 1982, EPA issued an Order of Consent to UNC which outlined remedial measures to be undertaken by the company. EPA proceeded to conduct various studies at UNC, even though they were unsuccessful challenged in court by UNC. The Church Rock Mill site is still on the National Priorities List and EPA is currently evaluating strategy as how to proceed with UNC.

On June 1, 1986, the Nuclear Regulatory Commission took over authority to administer uranium mill licenses in New Mexico and is proceeding to update UNC's license through a series of amendments which should finally result in a complete reclamation and stabilization plan being submitted during Spring 1987. The NRC has reported that UNC has hired a well-respected contractor firm to design the reclamation plan. They further report that this contractor has been given full authority to do whatever necessary to comply with the federal reclamation requirements. They are not using the "Conceptual Stabilization Plan" of December 1984 as a starting point. NRC is well aware of UNC's past litigious and uncooperative attitude towards the state, but NRC reports that UNC is nevertheless working in a responsible and acceptable manner to comply with all federal requirements.

II. Strategy

A. Ground Water Issues

The intent of this memo is to define a strategy for a coordinated effort through NRC, EID, and EPA Superfund to address the whole UNC tailings reclamation problem with emphasis on ground water pollution. It is clear that to successfully solve this problem, a coordinated strategy utilizing the resources of both the NRC's regulations and the WQCC regulations needs to be developed.

Even though the EID has a limited number of staff available to work on reclamation plans, the GWB has had several years of experience with ground water issues at other mill sites through regulation of the companies pursuant to WQCC regulations. The EID has successfully enforced the WQCC regulations at four of the five mill sites, even though contamination preexisted the WQCC regulations. The NRC has acknowledged that this historical and local experience is an extremely valuable resource to them, and has committed to develop the necessary liaison so that approved reclamation plans address all of the state's concerns. The State cannot assume that NRC will satisfy all the State's concerns without a cooperative effort towards review of the reclamation plan. For this reason, the State will be reviewing the stabilization and reclamation plan at NRC's request, for compliance with WQCC regulations. Therefore, it should not be considered a duplication of effort to ask for a discharge plan through the WQCC regulations, and indeed NRC has recently advised EID that NRC expects the State will require such plans.

The NRC is now actively pursuing a systematic, rational approach inclusive of all aspects of reclamation and stabilization that will occur regardless of any action the State might take through other regulations. Recent communications with NRC officials (Harry Pettengill, Ed Hawkins, 11/20/86; see attached memo) indicated that for a successful remedial action to be accomplished, the State is <u>expected</u> to enforce its regulations where applicable. The NRC also includes a general provision in its licenses that requires licensees to comply with all applicable state regulations. Therefore, if the state does not require a discharge plan (i.e., enforce WQCC regulations), EID input to NRC may not be as influential. A discharge plan is also necessary to comply with the WQCC regulations during the clean up period activities. Therefore, it is clear that the WQCC regulations should be utilized. The following scenario describes the projected chain of events.

Sometime before the end of May 1987, all parts of UNC's reclamation plan are due to the NRC, however, as individual sections are completed, they will be submitted to allow the start of the review process. The NRC expects the review process to take about six months before final approval, though up to a year might be necessary. The NRC expects to be able to give final approval to the reclamation plan about October next year. If the process drags out longer than one year, NRC will pursue enforcement action. Within 90 days of final plan approval, the NRC must have an acceptable surety (based on the approved plan) in place.

Given the above conclusion that the State should require compliance with State WQCC regulations, the State should immediately request that UNC submit a new discharge plan by May 30, 1987. Initially, a letter should be sent to UNC outlining the salient points that would need to be addressed by UNC in order for them to comply with WQCC requirements. It is important that the state take advantage of the fact that UNC is currently working on an aquifer restoration plan as a part of the whole reclamation and stabilization

plan required by NRC; it would require little additional effort on UNC's part to concurrently develop a plan that also complies with State WQCC regulations. This parallel plan design and review approach is preferred by the NRC and would be less onerous to UNC. The plan in question would be subject to the appropriate public notice, hearing (if appropriate), and final approval by the Director. Ron Conrad and Amy Childers of GWB could accomplish this aspect of the plan working in conjunction with the NRC and RPB.

If UNC refuses to pursue the development of a discharge plan, one option would be to negotiate a settlement agreement. Should this option fail, then the State should pursue enforcement action through the WQCC regulations. Finally, if all else fails, the State could push EPA to address UNC through CERCLA (see following section). During this time, the State would work to see that UNC remains on the NPL.

To summarize, it is apparent that a cooperative NRC and State effort would have the following advantages:

1) Make available the technical expertise and resources of NRC to the EID.

2) Make available to the NRC, EID's site specific experience and knowledge.

3) Both NRC and NM could enforce appropriate regulations (10 CFR 40, and WQCC regs).

4) By requesting a discharge plan at this time, it would be most compatible with the stabilization plan also being developed, thereby resulting in an integrated plan which would provide the best long term ground water protection.

5) The State is more likely to achieve voluntary compliance from UNC in developing a discharge plan, which, because of practical considerations would be essentially identical to that prepared for NRC concerning the ground water aspects of the NRC required reclamation plan.

B. CERCLA

EPA appears to be unwilling to take action at this time at UNC. They have refused a meeting with State officials. NRC and EPA are in contact and are apparently working on a cooperative agreement on respective policy toward UNC. EPA feels it is appropriate to "wait and see" if NRC is successful in achieving site reclamation under the NRC license, but is ready to take action under CERCLA if NRC does not get cooperation from UNC.

Despite EPA's unwillingness to meet with State officials, this approach is probably the most logical path to follow to achieve reclamation at UNC for the following reasons:

1) NRC indicated early on that they would pursue a reclamation plan as required under the Radioactive Materials License regardless of EPA's actions. This is the most logical first alternative to pursue since the company is legally obligated under the license to comply with federal standards.

2) A "last resort" attitude toward EPA Superfund will reduce EPA's involvement (unless necessary), which in the past has been extremely slow, inefficient, and, unresponsive to the state's input.

3) UNC is probably more willing to cooperate with the NRC than EPA. It would be to the benefit of all to have voluntary cooperation from UNC. (This appears to be what is happening now, and more progress toward a reclamation plan has been made in the last 5 months than ever before).

4) CERCLA remains as an incentive for UNC to voluntarily comply with reclamation requirements, and will used by NRC if necessary.

It is doubtful that the state would achieve anything useful by trying to force EPA to pursue CERCLA action at the site at this time. As mentioned before, all indications are that UNC is working conscientiously on a reclamation plan for NRC, and by the time the state (after expending much legal effort) might have forced EPA action, a reclamation plan may be implemented.

Secondly, if CERCLA action were necessary because of non-cooperation by UNC, the NRC and state together could more effectively pressure the EPA to take action under CERCLA. NRC, at this time, has no reason to pressure EPA for CERCLA action, and, in fact, probably prefers that EPA not be involved until necessary. (However, NRC does not intend to try and remove Church Rock from the NPL, and the State will actively monitor the situation to ensure that no move is made to remove Church Rock from the NPL.)

C. Stabilization Issues

At this time, review of the reclamation plan documents is coordinated through the Radiation Protection Bureau, primarily by Terry Morgan (WRS III). The recent loss of Eloy Montoya (Env. Eng. Spec. I) means the loss of important engineering expertise for the reviews. Also lacking is a Radiation Specialist (due to the loss of Jere Millard) for review of radiation safety aspects of the plans. (Other Bureau priorities makes the hiring of a Radiation Specialist more important than an Engineer.)

Due to the limited number of staff in the Radiation Protection Bureau capable of conducting a very detailed review of reclamation plans, it is not possible for them to conduct a review that is as thorough as that done by the NRC (which has a large multidisciplinary staff.) With this in mind, the kind of review completed by the Radiation Protection Bureau is that of a very general nature (with the exception of ground water issues) since detailed review of specific areas such as geotechnical surveys, geomorphological analyses, construction cost estimation, probable maximum flood calculations, hydraulic design of riprap, radon barrier design calculations, and tailings dam stability assessment is not possible. Previous to this, much of this work was done by contractors to the Radiation Protection Bureau.

NRC expects to have the entire UNC reclamation plan review completed and approved no later than one year from this date. It should be noted that NRC requires a surety in place no later than ninety days after NRC's approval of the stabilization and reclamation plan. Implementation and successful license termination could take as long as another 8-10 years. Finally, if the NRC were unable to achieve any of this through license conditions and enforcement, CERCLA would still be an option to pursue.

III. Other Sites

Although this memo specifically addresses the situation at the UNC Church Rock site, the approved reclamation plans and sureties for the other four mills are expected to be in place before UNC's (most likely around June 1987, and some earlier). Initial comments on the Kennecott/Sohio plan were recently sent to the NRC and review is well along on Kerr-McGee's plan. The other two plans (Homestake and Anaconda) are due the first week of December. These first two plans that are in review represent a good-faith effort by the licensees; no major disagreements or problems are anticipated for final approval. However, the situation at these sites is different from the UNC situation in that DPs have previously been issued by the EID:

Kennecott/Sohio: DP-150 was issued in 1981, and it contains long-term compliance commitments. The federal reclamation plan has been reviewed for compatibility with the state WQCC regulations. (This site has permanently closed.)

Kerr-McGee: Several approved DPs cover Kerr-McGee's activities at Ambrosia Lake. DP-169 covers the tailings disposal activity. A recent review of monitoring data indicates an exceedance of existing levels in violation of the DP requirements. The EID will be requesting additional studies at this site. The reclamation plan is being reviewed for compatibility with WQCC regulations. The NRC is no longer allowing old stope leaching nor mine backfilling activities that were previously approved by the GW/HWB under WQCC regulations. (This site is still operating, at a very low level.)

Homestake: DP-200 was approved in 1984 and contains long-term ground water protection commitments. The reclamation plan will be reviewed for compatibility with WQCC regulations. No application from HMC for changes to the DP is necessary nor expected. (This site is still operating at a very low level.)

Anaconda: A discharge plan was issued in 1982 for the below grade tailings disposal system, but the system was never built. No discharge plan for the old above-grade tailings has ever been issued. The company has been working on a ground water modeling exercise that demonstrates eventual compliance with WQCC standards, though the company may have to apply for a variance to the State WQCC to obtain approval for the above grade tailings facility. The EID has done an initial review of the modeling exercise and indicated that the plan may be acceptable to meet Water Quality Control Commission (WQCC) regulations. (This site has permanently closed.)

MFB/mp

cc: Harry Pettengill, URFO, NRC
Richard Holland, Deputy Director
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EID - NRC MEETING
URANIUM MILL TAILINGS
GROUND WATER QUALITY CONCERNS

November 20, 1986

The following individuals met at the Runnels Building in Santa Fe to discuss coordination of NRC's and EID's roles in addressing ground water quality concerns as part of an NRC license: Richard Young, Gini Nelson, Terry Morgan, Amy Childers, Greg Lewis, J. Margo Keele, Kent Bostick, Ernest Rebuck, Richard Mitzelfelt, and Michael Brown of EID; and Harry Pettengill and Ed Hawkins of NRC.

Harry Pettengill and Ed Hawkins described the NRC licensing procedure and how coordination is handled with the State of Wyoming. There was general discussion of EID having input to the reclamation and clean-up plans which are required under NRC rules.

The following specific activities were discussed and agreed to as follows:

1) NRC will obtain additional copies of the reclamation plan, cleanup plan, and surety arrangement from each licensee for the State of New Mexico. NRC will forward those copies to the Radiation Protection Bureau upon receipt, so the documents can be reviewed simultaneously.

2) NRC and EID will maintain telephone communication during the reviews. Differences generally should be resolved by telephone. EID will have the option to submit comments which will be added to the files of the respective licensees.

3) NRC will incorporate nonhazardous parameters ("secondary parameters") into the criteria for aquifer cleanup. State standards usually serve as the criteria for defining levels of nonhazardous parameters.

4) NRC will enforce only provisions in its licenses. NRC will not enforce State standards per se.

5) The only mechanism for the State to enforce ground water quality provisions is through a discharge plan. NRC expects the State to continue issuing discharge plans. NRC will require licensees to comply with all applicable State regulations, including discharge plan requirements, prior to approving the licenses.

6) EID will give NRC the opportunity to review and comment on discharge plans prior to taking final action. Plans and related correspondence are to be sent to NRC's Uranium Recovery Field Office in Denver, in care of Dale Smith.

7) If possible, the discharge plan and reclamation plan review processes should be completed at about the same time.

8) For the future, NRC and EID will pursue having all the necessary documentation for a discharge plan included in the NRC reclamation plan. This would avoid having the licensees make separate submittals.

9) If the State does not require discharge plans, pursuant to existing law and regulations, NRC will not seriously consider the State's input to the NRC licensing process.