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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

OFFICE OF SECRETARY  
RULEMAKING AND  
ADJUDICATIONS STAFF

The Honorable Peter B. Bloch, Presiding Officer

In the Matter of	)	
	)	
HYDRO RESOURCES, INC.	)	Docket No. 40-8968-ML
(2929 Coors Road, Suite 101	)	ASLBP No. 95-706-01-ML
Albuquerque, NM 87120)	)	

**ENDAUM'S AND SRIC'S MOTION FOR LEAVE  
TO SUBMIT REPLY BRIEF AND REBUTTAL TESTIMONY  
IN RESPONSE TO NRC STAFF'S RESPONSE PRESENTATION ON  
GROUNDWATER PROTECTION ISSUES**

**INTRODUCTION**

Pursuant to 10 C.F.R. § 2.1233(d), Intervenors Eastern Navajo Diné Against Uranium Mining ("ENDAUM") and Southwest Research and Information Center ("SRIC") hereby move for leave to reply to the initial presentation filed by Nuclear Regulatory Commission ("NRC") Staff regarding groundwater protection at the proposed Crownpoint Project.

**FACTUAL BACKGROUND**

On January 12, 1999, Intervenors' served their initial presentation on groundwater issues via e-mail and overnight delivery. Intervenors Written Presentation in Opposition to Hydro Resources, Inc.'s Application for a Materials License with Respect to: Groundwater Protection ("Groundwater Presentation"). Corrected

U.S. NUCLEAR REGULATORY COMMISSION  
RULEMAKING & ADJUDICATIONS STAFF  
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OF THE COMMISSION

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Certificate of Service (January 27, 1999). The presentation included expert testimony from Dr. William P. Staub, Dr. Richard Abitz, and Mr. Michael G. Wallace.

Intervenors' Groundwater Presentation, Exhibits 1, 2, and 3. On January 18, 1999, with leave from the Presiding Officer, Intervenors filed an amended legal brief for the groundwater presentation. On February 20, 1999, HRI filed Hydro Resources, Inc.'s Response to Intervenors' Brief in Opposition to Hydro Resources, Inc.'s Application for a Materials License with Respect to Groundwater Issues ("HRI Response"). On March 12, 1999, the NRC Staff served the NRC Staff's Response to Intervenors' Amended Presentation on Groundwater Issues ("Staff Response"). All counsel for Intervenors received the complete response via first class mail on March 15, 1999.<sup>1</sup>

## **ARGUMENT**

### **I. STANDARD FOR REBUTTAL PRESENTATIONS.**

The NRC's Subpart L regulations generally provide that after a party has filed its initial written presentation, leave must be obtained to file any further presentations, subject to the discretion of the Presiding Officer. 10 C.F.R. § 2.1233(d). In the context of formal adjudications, the Appeal Board has held that the Presiding Officer's discretion is subject to the limited "right" to present rebuttal testimony where it is

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<sup>1</sup> This motion is timely pursuant to the Presiding Officer's ruling that the deadline for submitting motions for leave to reply shall be computed from the first date on which the entire document is in the hands of a party. *See* Electronic Order (Notes of Procedural Conference Held by Telephone) (February 22, 1999).

needed for "full and true disclosure of the facts." *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-787, 20 NRC 1097, 1178 (1984) (upholding Licensing Board's decision to require parties to conduct cross-examination, redirect examination, and re-cross examination in depositions, with deposition transcripts to be filed in lieu of testimony). The requirement to base a decision on a complete and accurate record is no less vital for this proceeding. The opportunity to file reply presentations is also required in order to ensure that the burden of proof is properly allocated to HRI on health and safety issues and to HRI and the Staff on environmental issues.<sup>2</sup> An opportunity for reply briefs and rebuttal testimony should be provided.

**II. ENDAUM AND SRIC SHOULD BE GRANTED LEAVE TO FILE A REPLY PRESENTATION TO ADDRESS THE ERRORS IN THE STAFF'S INITIAL PRESENTATION.**

ENDAUM and SRIC seek leave to reply to a number of factual and legal claims made by the Staff, which are unsupported and misleading. These are listed below. In addition, the Staff states that it agrees with the technical information submitted in HRI's response, and Staff employee, William Ford, asserts that his affidavit statements "are meant to supplement HRI's comments, as they either address points not covered by HRI, or express opinions in addition to those contained [in HRI's response]." Ford Affidavit ¶6. ENDAUM and SRIC previously submitted a motion for leave to reply

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<sup>2</sup> See *Louisiana Energy Services* (Claiborne Enrichment Center), LBP-96-25, 44 NRC 331 (1996) for a discussion of the allocation of the burden of proof.

to the HRI Response due to numerous errors and additional information in that filing. *See* ENDAUM's and SRIC's Motion for Leave to Submit Reply Brief and Rebuttal Testimony in Response to HRI's Response Presentation on Groundwater Protection Issues (March 5, 1999). Because the Staff relies on HRI's Response, ENDAUM and SRIC seek leave to reply to the Staff presentation for the same reasons enumerated in the Motion to Reply to HRI's Response. *Id.* This includes responding to HRI's reliance on a memorandum from the NRC Staff, which misrepresents the scientific opinions of Dr. Shlomo Neuman. *Id.* at 5-6; *See* HRI Response, Brief at 4-5.

The Staff's presumption that Intervenor must prove mining at Section 8 will result in harm to drinking water in this proceeding is erroneous. *See* Staff Response, legal brief at 3-8; Ford Affidavit at ¶¶5,7. In the context of Intervenor's arguments under the Atomic Energy Act ("AEA") and its implementing regulations, Intervenor describe how mining at Section 8 will contaminate a resource of high quality groundwater in a community that is already using Westwater aquifer wells in the vicinity for drinking water purposes. *See* Intervenor's Groundwater Presentation at 8-9, 15-59. Separately, in the context of Intervenor's arguments under the Safe Drinking Water Act ("SDWA"), Intervenor have demonstrated that Church Rock is a underground source of drinking water ineligible for an aquifer exemption within the context of the SDWA and its implementing regulations. *Id.* at 59-65. Apparently, the Staff has confused the requirements of the AEA with the SDWA requirements. An opportunity to reply will allow Intervenor to clarify the legal

standards.<sup>3</sup> Besides being incorrect, the Staff's argument demonstrates a shocking lack of understanding of Navajo rural communities. The Staff asserts that "there are no communities" in the vicinity of Section 8 and refers to the "town of Church Rock" as the focus for analyzing a groundwater contamination threat. Staff's Response, legal brief at 6-8. In fact, there are 87 residences (representing 350-450 people) that are within a 2.5 mile radius of the Section 8 site. *See* ENDAUM's and SRIC's Environmental Justice Presentation, Exhibit 1, Testimony of Dr. Robert Bullard at 25.

ENDAUM and SRIC also seek an opportunity to address, through expert testimony, numerous aspects of the Staff's brief and affidavit which misrepresent or distort facts. Intervenors provide the following five examples:

1. Mr. Ford contradicts himself three times in paragraph 11 of his affidavit, where he attempts to disprove the existence of sand channels. Footnote 2 incorrectly states that "redox interface" is not dependent on lithology.<sup>4</sup> This statement is contradicted in the last sentence of ¶11, where Ford correctly concludes that shale (silt and clay) provides the

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<sup>3</sup> In their confusion, the Staff represents that Intervenors argue contamination may travel from Church Rock to the Crownpoint municipal wells. Staff Response, legal brief at 4-5, 8. Intervenors have not at any time made this argument. This idea is the Staff's flight of fancy.

<sup>4</sup> This statement is wrong because hydraulic conductivity is greater in sand and gravel than in silt and clay. Oxidized water entering the aquifer in recharge zones moves through the sand and gravel faster than through silt and clay. Most of the oxygen in the recharge water, therefore, is delivered to sand and gravel beds, which accounts for the preservation of remnant ore bodies in the "oxidized" portion of the Westwater. The remnant ore bodies are in silt and clay beds that have not received large quantities of oxidized water.

reducing conditions necessary to form a uranium deposit as groundwater velocity is reduced. This statement also indirectly confirms the Intervenor's experts' statements that sand channels bounded by shale exist in the Westwater. Second, ¶11 incorrectly states that the shape of the uranium deposit has nothing to do with the speed of the groundwater.<sup>5</sup> Ford contradicts this statement by correctly concluding that uranium mineralization occurs along a sand/shale interface when the groundwater velocity is reduced. Third, Ford contradicts his conclusion in ¶11 by incorrectly arguing in ¶12 that a uranium deposit could not be longer than the width of a sand channel. In fact, the ore deposits are longer than the width of the channel because an arc-shaped ore body is formed as velocity and oxygen along the sand/shale interface decrease.<sup>6</sup>

2. Ford also errs in ¶¶13, 14, and 15 by making the assumption that sand channels and a large regional aquifer are mutually exclusive. It is true, as Ford points out in ¶13, that the Westwater aquifer is a thick regional aquifer of areal extent, and not a series of

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<sup>5</sup> The arc-shaped geometry of roll-front uranium deposits reflects variable velocity in a sand channel, where the greatest velocity and oxygen flows through the most transmissive sand and gravel, decreasing as the sand facies grades into the shale facies. This results in a concave shape that has its apex pointing down the hydraulic gradient at the point of greatest conductivity.

<sup>6</sup> Ford cites the FEIS' statement that the Church Rock ore body is 5,300 feet long as support for his argument in ¶12. The sand channel width of 400 feet at Church Rock is not in contrast to the observed length of the ore body because the 5,300 foot-long trace of the ore body is likely to be neither continuous nor at the same stratigraphic horizon. The 5,300 length is simply an artifact of the projection of stacked roll-front deposits on to a plan view. HRI provided no detailed cross-sections of the ore body to confirm their statement that the ore body is a continuous trace at a single stratigraphic horizon.

narrow isolated aquifers. But, Ford errs by concluding that a thick regional aquifer cannot contain sand channels. Narrow sand channels are not narrow isolated aquifers. The thick Westwater is comprised of braided stream deposits, which consist of sand and gravel channels, silt and clay, all of which are saturated with water, thus comprising a thick aquifer. Apparently, Mr. Ford does not understand the difference between a thick sand and a thick aquifer. He repeats this error in ¶15, by arguing that the broad arc stretching from Church Rock to Crownpoint does not support sand channels, but confirms the existence of a large aquifer. The arc of the uranium redox front simply maps the projection of stacked roll-front uranium deposits in multiple sand channels, which is a reflection of water moving through the sand channels at approximately the same velocity. The uranium precipitates within the stacked sand channels at about the same distance from the recharge area, regardless of the stratigraphic position in the aquifer.

3. The Staff mistakenly assumes that the reverse osmosis permeate is cleaner than baseline water quality for reinjection outside the monitor wells. Ford Affidavit ¶32. Mr. Ford argues that re-injection of the bleed outside the well field will not interfere with the functions of nearby monitor wells. *Id.* The new information presented in HRI's Response on the water quality of permeate at HRI's North Platte, Wyoming pilot project shows the permeate was poorer in quality in baseline for at least two parameters, radium and chloride. HRI Response, Pelizza Affidavit at 72. High chloride would cause a false excursion if permeate were to be injected near a monitor well.



4. The Staff makes the misleading representation that a commercial ISL well field has been successfully restored, in an attempt to rebut Dr. Staub's testimony that successful restoration has not been achieved. Ford Affidavit ¶16. The well field discussed by the Staff, Bison Basin in Wyoming, was, in fact, little more than a pilot test; it was about one tenth the size of a typical commercial well field. Moreover, the commercial operator did not restore the well field, the Wyoming Department of Environmental Quality had to do so after the owner-operator went bankrupt and forfeited the surety bond. Finally, the Staff fails to address the fact that baseline water quality at Bison Basin was poor in comparison to most of the other Wyoming mine sites and the proposed HRI project in New Mexico.

5. Mr. Ford errs in ¶¶32, and 33 of his affidavit by asserting that it was never the intention of the FEIS to establish baseline water quality values with the information in Table 3.13, and that Dr. Abitz's testimony about establishing baseline values is invalid. Ford, an author of the FEIS, inexplicably ignores FEIS page 4-47, which states, "the average baseline for radium at the Crownpoint site is calculated to be 65.85 pCi/L."<sup>7</sup>

Intervenors should be given the opportunity to respond with expert testimony, to the numerous specific and highly technical arguments by the Staff regarding the reasonableness of Dr. Staub, Dr. Abitz and Mr. Wallace's assumptions, methods, and

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<sup>7</sup> Mr. Ford also make the absurd argument that baseline conditions cannot be established until after the well fields are drilled. There are over thirty monitoring wells surrounding the Church Rock lease. FEIS at Figure 3.11.

conclusions. For example, Mr. Ford endorses an upper control limit (UCL) for excursions of five standard deviations above the mean in order to avoid false positives due to the natural fluctuation of water chemistry. This statement is flawed because study of the groundwater chemistry demonstrates that the major ions in the Westwater groundwater (total dissolved solids), bicarbonate, chloride) fluctuate within two standard deviations of their mean, but never five standard deviations. Mr. Ford relies on the mean values and minimum-maximum ranges in Tables 3.2 and 3.13 of the FEIS as representative of Westwater groundwater, in which, as Mr. Abitz testified, those mean values and ranges were artificially elevated. Groundwater Presentation, Exhibit 1, Abitz Testimony at 21-24, 44. Another example is Mr. Ford's argument in ¶10 of his affidavit, that any uranium excursions would be chemically retarded. This argument does not rebut Dr. Abitz's testimony that groundwater quality in the region of the well field will be degraded by an excursion because monitor wells are proximal to the well fields and the exact point of uranium reduction downgradient of the monitoring wells is unknown.

Mr. Ford states in ¶30 that the ore body has not been shown in detail because the data is proprietary. Intervenors have sought this information to subject HRI's speculative model of uranium deposition and transport in the Westwater Canyon aquifer to independent scientific review. The Staff's reliance on regional geologic data, however reliable that may be, rather than site-specific data, is inexcusable.

Rebuttal testimony is necessary to form a complete record on the numerous

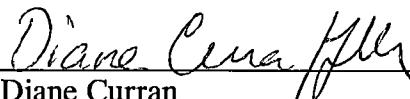
technical issues raised in the initial presentations in this case. Rebuttal testimony is necessary to clarify the proper factual assumptions and analyses required for these issues, and to point out the numerous issues which the Staff Response has ignored, such as the misrepresentation of the bleed rate and site characterization in the FEIS.

## **CONCLUSION**

ENDAUM and SRIC should be allowed to respond to the Staff's Response, which makes numerous errors in responding to the factual assertions of Intervenor's groundwater experts. To do otherwise would result in an incomplete record that is insufficient to allow a meaningful decision on the adequacy of HRI's application. Such a result is unfair, and would effectively place the burden of proof on the Intervenor. For the foregoing reasons, ENDAUM's and SRIC's Motion for Leave to Reply should be granted. In consideration of the novelty of the legal issues, the complexity of the technical issues involved, and the need to prepare expert rebuttal testimony along with a brief, ENDAUM and SRIC request that they be given a period of twenty days, from the Presiding Officer's order granting this motion, to submit their reply presentation.

Respectfully submitted,

  
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NUCLEAR REGULATORY COMMISSION  
ATOMIC SAFETY AND LICENSING BOARD PANEL

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Before Administrative Judge Peter B. Bloch, Presiding Officer

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2929 Coors Road	)	
Suite 101	)	ASLBP No. 95-706-01-ML
Albuquerque, NM 87120	)	
	)	

**CERTIFICATE OF SERVICE**

I hereby certify that:

On March 23, 1999, I caused to be served copies of the following:

**ENDAUM'S AND SRIC'S MOTION FOR LEAVE TO SUBMIT REPLY BRIEF  
AND REBUTTAL TESTIMONY IN RESPONSE TO STAFF'S RESPONSE  
PRESENTATION ON GROUNDWATER PROTECTION ISSUES**

to the following parties marked by an asterisk via e-mail. Service was also made upon the following persons by U.S. mail, first class, and in accordance with the requirements of 10 C.F.R. § 2.712. The envelopes were addressed as follows:

Office of the Secretary\*  
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Washington, D.C. 20555-0001  
Attn: Rulemakings and Adjudications  
Staff

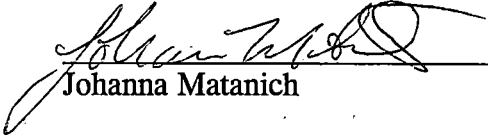
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