

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

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Before Administrative Judges:  
Thomas Moore, Presiding Officer

OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

In the Matter of:	)	
	)	
Hydro Resources, Inc.	)	Docket No.: 40-8968-ML
P.O. Box 777	)	Date: June 21, 2004
Crownpoint, NM 87313	)	

**HYDRO RESOURCES, INC.'S RESPONSE TO INTERVENORS' MOTIONS TO SUPPLEMENT THE FINAL ENVIRONMENTAL IMPACT STATEMENT FOR SECTIONS 8 AND 17 AND TO RE-OPEN AND SUPPLEMENT THE RECORD FOR SECTION 8**

**I. INTRODUCTION**

Hydro Resources, Inc. (HRI), by its undersigned counsel of record, hereby submits this Response to Intervenor's Motions to Supplement the Final Environmental Impact Statement for Sections 8 and 17 and to Re-Open and Supplement the Record associated with HRI's source material license to operate an *in situ leach* (ISL) uranium recovery facility in Church Rock, New Mexico. For the reasons discussed below, HRI respectfully requests that the Presiding Officer deny Intervenor's Motions to Supplement the FEIS for Sections 8 and 17 and to Re-Open and Supplement the administrative record with respect to Section 8.

**II. BACKGROUND AND PROCEDURAL HISTORY**

HRI obtained a source material license (SUA-1580) for its proposed Crownpoint Uranium Project (CUP) from the Nuclear Regulatory Commission (NRC). As part of NRC's review process, a draft and final environmental impact statement (FEIS) were

prepared addressing various potential impacts from HRI's proposed CUP. After HRI's NRC license was approved by NRC Staff, several parties, including the Eastern Navajo Dine Against Uranium Mining (ENDAUM) and the Southwest Research Information Center (SRIC) (hereinafter the "Intervenors"), were allowed to intervene to challenge that license. During the hearing, the Presiding Officer at that time (Judge Peter Bloch) bifurcated the proceeding to address HRI's four proposed ISL mining sites under its NRC license separately: (1) Church Rock Section 8, (2) Church Rock Section 17; (3) Crownpoint Unit One, and (4) Crownpoint. As a result, most of the issues raised by Intervenors with respect to Section 8 were decided by Judge Bloch and, subsequently, by the Commission on appeal.

One final issue remained on which Intervenors appealed to the Commission where they alleged that HRI had not submitted necessary financial information and cost estimates required for a license. On May 25, 2000, the Commission issued an Order requesting that HRI submit, within 180 days of its receipt, "a decontamination, decommissioning and reclamation plan with cost estimates on which a surety will be based."<sup>1</sup> The Commission further stated that, "[t]he plan in the first instance need only address the Section 8 site where HRI plans to begin operations first."<sup>2</sup>

In accordance with the Commission's May 25, 2000 Order, on November 21, 2000, HRI submitted the requested Section 8 Restoration Action Plan (RAP) and accompanying cost estimates addressing only the Section 8 portion of the Crownpoint Uranium Project (CUP). On February 16, 2001, NRC Staff issued a Request for

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<sup>1</sup> See *In the Matter of Hydro Resources, Inc. (Crownpoint Uranium Project)*, CLI-00-08, 51 NRC 227, \*16 (May 25, 2000).

<sup>2</sup> CLI-00-08 at \*23.

Additional Information (RAI) asking HRI to answer questions regarding specific issues associated with the Section 8 RAP.<sup>3</sup> On March 16, 2001, HRI submitted its response to NRC Staff's RAI.<sup>4</sup> On April 16, 2001, NRC Staff completed its review of HRI's Section 8 RAP and determined that the financial assurance cost estimates set forth therein were acceptable.<sup>5</sup> Then, on July 24, 2001, HRI submitted a RAP for its Section 17 site and, subsequently, RAPS for Unit One and Crownpoint. These RAPs and accompanying cost estimates were prepared by HRI personnel who would be responsible for groundwater restoration at Sections 8 and 17, based upon their personal experience implementing groundwater restoration at other ISL uranium mining facilities in Texas operated by HRI's parent company, Uranium Resources, Inc. (URI).

After hearing written and oral presentations regarding the Section 8 RAP and accompanying cost estimates and allowing for a substantial interval for settlement negotiations, on February 27, 2004, the Presiding Officer issued an Order in which HRI's use of its NRC license to conduct ISL uranium mining activities was prohibited pending resolution of three specific issues. *See In the Matter of Hydro Resources, Inc.* (Crownpoint Uranium Project), *Memorandum and Order: Ruling on Restoration Action Plan*, LBP-04-03, at 34, ML040620318 (February 27, 2004) (hereinafter "LBP-04-03"). After issuing LBP-04-03, the Presiding Officer deemed the administrative record for Section 8 at the Licensing Board level closed. *See* LBP-04-03 at 34.

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<sup>3</sup> *See Hydro Resources, Inc., Request for Additional Information Concerning Restoration Costs for Hydro Resources In-Situ Uranium Mining Project*, ML010520228 (February 16, 2001).

<sup>4</sup> *See Hydro Resources, Inc., Response to Request for Additional Information Concerning Restoration Costs for Hydro Resources In-Situ Uranium Mining Project*, ML010810221 (March 16, 2001).

<sup>5</sup> *See Hydro Resources, Inc. Acceptance of Restoration Action Plan for Hydro Resources In Situ Uranium Mining Project, License SUA-1580*, ML011270156 (April 16, 2001).

Section 8 RAP issues were under consideration by the Presiding Officer when Intervenor filed a request to supplement the FEIS for HRI's CUP with NRC Staff based on a proposed housing project to be located in Fort Defiance, New Mexico (hereinafter the Springstead Estates Project or "SEP"), which is approximately two miles from the southern restricted site boundary of the Section 17 mining site. On November 13, 2003, NRC Staff issued a letter indicating that it would review Intervenor's request. After the Presiding Officer issued LBP-04-03 and during a telephone conference regarding the status of the remaining Section 8 litigation, NRC Staff stated that they had reviewed Intervenor's request to supplement the FEIS and had determined that such a supplement was not necessary. As a result, Intervenor indicated that they wished to file their Motion to Supplement the FEIS with the Licensing Board. The Presiding Officer indicated that such a motion with respect to Section 17 could be filed with the Licensing Board, however, the Presiding Officer stated that such a motion with respect to Section 8 would have to be filed with the Commission, because the Licensing Board no longer had jurisdiction over Section 8 matters.

On May 14, 2004, Intervenor filed a motion requesting that the Presiding Officer direct NRC Staff to supplement the FEIS with respect to Section 17. Intervenor also filed a separate motion with the Commission requesting that NRC Staff be directed to supplement the FEIS with respect to Section 8. On May 26, 2004, the Commission issued an Order referring Intervenor's Motion to supplement the FEIS with respect to Section 8 to the Presiding Officer to be considered in conjunction with Intervenor's Motion to supplement the FEIS with respect to Section 17.

Subsequently, Intervenor's filed an additional motion requesting that the Presiding Officer re-open the administrative record with respect to Section 8 to be considered in conjunction with their Motion to Supplement the FEIS with respect to Section 8. In response to these three (3) motions, HRI hereby submits this Response and respectfully requests that the Presiding officer deny Intervenor's Motions to Supplement the FEIS with respect to Sections 8 and 17 and to Re-Open the Administrative Record with respect to Section 8.

### **III. ARGUMENT**

Intervenor's three (3) related motions regarding potential supplementation of the FEIS with respect to Sections 8 and 17 and potential re-opening of the administrative record for Section 8 will be addressed in turn below.

- A. Intervenor's Motion to Supplement the FEIS for Sections 8 and 17 Should Be Denied**
- 1. Standard of Review for Motions to Supplement an Environmental Impact Statement**

The National Environmental Policy Act of 1969 imposes procedural rather than substantive constraints upon an agency's decision-making process. Indeed, the statute requires only that an agency undertake an appropriate assessment of the environmental impacts of its action without mandating that the agency reach any particular result concerning that action. *See e.g., Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989).

Federal agencies are required to prepare an EIS for every major federal action significantly affecting the quality of the human environment. 42 U.S.C. § 4332(2)(c). The environmental review mandated by NEPA is subject to a rule of reason and, as such,

need not include all theoretically possible environmental effects arising out of an action, but may be limited to effects which are shown to have some likelihood of occurring. This conclusion draws direct support from the judicial interpretation of the statutory command imposing the obligation to make reasonable forecasts of the future. *See Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 & 2), ALAB-455, 7 NRC 41, 48-49 (1978).

The activities for which environmental statements such as an EIS need to be prepared and the procedures for preparation are covered generally in 10 CFR Part 51 and with particularity in 10 CFR § 51.92. With respect to supplementing an FEIS, there must be *significant new* information before the need for a supplemental environmental statement arises. *Arizona Public Service Co.* (Palo Verde Nuclear Generating Station, Units 2 and 3), LBP-83-36, 18 NRC 45, 49 (1983). There must either be substantial changes in the proposed action that are relevant to environmental concerns or significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. *See Hydro Resources, Inc.* (Crownpoint Uranium Project), CLI-99-22, 50 NRC 3, 14 (1999); *see also Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-96-7, 43 NRC 235, 269 (1996). Not every change requires a supplemental EIS; only those changes that cause effects that are significantly different from those already studied. The new circumstance must reveal a seriously different picture of the environmental impact of the proposed project. *See Hydro Resources, Inc.* CLI-01-04, 53 NRC 31, 52 (2001). Thus, a supplemental EIS need not necessarily be prepared and circulated even if there is new information. *Arizona Public Service Co.*, 18 NRC at 49.

2. **Intervenors Have Failed to Demonstrate That The FEIS Should Be Supplemented With Respect to the Section 8 and 17 ISL Mining Sites<sup>6</sup>**
  - a. **The SEP Has Not Proceeded Beyond a Conceptual Stage of Development That Could Represent a Significant New Circumstance Warranting a Supplemental EIS**

Intervenors have failed to present evidence of significant new circumstances or information that would warrant a supplemental EIS. Initially, as discussed by the affidavit of Craig Bartels (hereinafter "Exhibit B"), Intervenors have provided no evidence that the SEP has proceeded beyond a conceptual stage of development or, when constructed, would suffer any adverse impacts from ISL mining at the Section 8 or 17 mining sites.<sup>7</sup> Issues related to water usage in the State of New Mexico require comprehensive studies of the potential impacts of such usage on surrounding areas or existing operations such as the Section 8 mining site. These studies include, as stated in Exhibit B, "water quantity required; a timetable of demand, primary water source; if drawn from an aquifer, which aquifer(s); number and location of wells (if any); [and] impacts on other water users...." Exhibit B at ¶ 7. Intervenors, however, provide no reference to any such study that has been performed or is scheduled to be performed in the near future. Indeed, the only study cited by Intervenors on the proposed SEP, a Department of Housing and Urban Development (HUD) environmental assessment (EA), does not even suggest that the SEP, if constructed, will suffer any adverse impacts from HRI ISL mining operations at Section 8 and 17. It is apparent that, with the proposed

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<sup>6</sup> For purposes of this Response, HRI notes that it has not proposed any changes, substantial or otherwise, to its proposed plans for ISL mining at the Section 8 or 17 sites.

<sup>7</sup> To the extent that Intervenors have failed to present any evidence that the SEP has not proceeded beyond the conceptual development stage, HRI asserts that issues related to potential impacts to the SEP from HRI's Section 8 and 17 ISL mining sites may not be ripe for judicial consideration.

SEP still in the very early stages of planning,<sup>8</sup> any conclusions about its potential impacts on groundwater, much less any potential joint impacts of the SEP and HRI activities, amount to nothing more than unsubstantiated speculation. *See generally* Exhibit B. Thus, Intervenors have failed to present sufficient evidence to demonstrate that the *proposed* SEP, which, currently, has reached only a conceptual stage of development, constitutes a “significant” new circumstance warranting a supplemental EIS for Sections 8 and 17.

**b. Potential Impacts to the Proposed SEP From Groundwater**

Common sense and the extensive evaluation of potential public health and safety impacts in the FEIS demonstrate that Intervenors’ allegations regarding potential impacts on groundwater at the proposed SEP from HRI ISL mining activities are without merit. As a general proposition, NRC, in the FEIS, determines that there are no significant potential threats to nearby water sources or surrounding communities from HRI’s Section 8 or 17 ISL mining activities at their restricted site boundaries. Thus, since the SEP is approximately two miles *upgradient* from the southern restricted site boundary for Section 17 and even further from the boundary for Section 8, there can be no basis for supplementing the FEIS without data that reveals a significant, new potential impact.

Intervenors assert that the proposed SEP will pump approximately 400 gallons per minute of water from the aquifers located at or near the SEP. *See* Wallace Affidavit at ¶ 18. According to Mr. Wallace, Intervenors’ expert, one of the aquifers near the proposed SEP site, the Dakota, is a viable source of drinking water for the SEP and could supply his hypothesized water quantity of 400 gallons per minute (gpm). However, Mr. Wallace

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<sup>8</sup> Indeed, the SEP EA only mentions the HRI project in passing without any attempt to address potential impacts. *See* Exhibit B at ¶ 7.

postulates this quantity of water based only on *alleged* demographics at the SEP for which there is no evidence available because the SEP, essentially, is only in the conceptual phase of development. In addition, as noted by Mr. Bartels, Mr. Wallace ignores the existing site geological and hydrological data on the aquifers located at or near the proposed SEP site from which residents *could* pump useable quantities of water, much less 400 gallons per minute. As stated by Mr. Bartels:

“The proposed SEP is at or near the outcrop of the Morrison (containing the Brushy Basin and the Westwater as its upper members), which forms the southern “no-flow” boundary for the Westwater in the San Juan Basin. [Mr.] Wallace fails to even address this outcrop in his affidavit.”

Exhibit B at ¶ 11.

The Dakota aquifer, which is present above the Westwater in certain places *outside* of these outcrops, is not present in any form at these outcrops, including the area where Mr. Wallace postulates that over 400 gallons per minutes of water could be pumped. Based on this existing *data*, Mr. Bartels concludes that the presence of the Westwater outcrop at the surface means that neither the Dakota nor the Westwater can provide the amount of water Mr. Wallace postulates could be pumped at the proposed SEP site. *See id.*

Next, Mr. Wallace postulates that pumping 400 gpm of water at a SEP site located on Section 30 from the Cow Springs aquifer, in conjunction with ISL mining at the Section 8 mining site, would lead to the creation of vertical excursions and the migration of contaminated water to the proposed SEP site. *See Wallace Affidavit at ¶¶ 11-13, 18.* However, Mr. Wallace ignores the findings of NRC in the FEIS and the relationship of such findings to a potential SEP. After reviewing the natural geological and hydrological conditions at the Section 8 site and its surrounding areas, as discussed in Mr. Bartels’ affidavit, NRC determined that “[t]he Cow Springs aquifer is separated from the

Westwater Canyon aquifer at each of the three sites [Section 8, Crownpoint, and Unit 1] by the Recapture Shale, which is estimated to be about 55 m. (180 ft.) thick at the Church Rock site.” FEIS at 4-56; *see also* Exhibit B at ¶ 9. Using this natural geological factor and the unlikelihood that drill holes would penetrate the Recapture Shale, NRC concludes that, “there should be little risk of vertical excursion into the Cow Springs aquifer.” FEIS at 4-56. Further, according to Mr. Bartels, based on the differences in hydraulic head between the Morrison formation and the Cow Springs aquifer, “there is little hydraulic connection between the two aquifers in the area of the SEP and the Section 8 site.” Exhibit B at ¶ 9. Thus, Mr. Bartels concludes, “any potential affect of pumping from the Cow Springs at SEP on HRI’s Church Rock project would be insignificant.”<sup>9</sup> *Id.*

Mr. Bartels models the potential impacts on the proposed SEP site from the third aquifer addressed by Mr. Wallace, the Westwater,<sup>10</sup> and assumes *arguendo* that Mr. Wallace’s assumptions are correct. After completing this model using a “particle” at the southern edge of the Church Rock Section 17 mining site approximately two miles from the SEP pumping wells and “ignoring for the moment that Church Rock is *downgradient* of Springstead,” and the natural north-northeasterly flow of groundwater in the area, Mr. Bartels determines, that “[t]his particle took 869 years to travel the simulated distance from Church Rock to the pumping wells.” *Id.* at ¶ 19. If Mr. Bartels’ groundwater model accounted for the natural north-northeasterly flow of groundwater in the area, “the particle *never* reaches the pumping wells. It moves northeasterly *away* from the five

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<sup>9</sup> Mr. Wallace’s assumptions also ignore License Condition 10.17, which requires HRI to maintain a series of monitoring wells surrounding the wellfields and mine workings at the Section 8 and 17 ISL mining sites to monitor for any potential excursions.

<sup>10</sup> It is worth noting that the Westwater is the aquifer in which HRI will be conducted ISL mining activities and for which HRI has water rights.

wells, not toward them, and the waters from Church Rock are never ‘captured’ by the pumping wells.” *Id.* at ¶ 20. Then, with respect to Mr. Wallace’s allegation that pumping groundwater at the proposed SEP site would affect HRI’s ability to manage its wellfields, Mr. Bartels states:

“if the proposed SEP were able to pump 400 gpm [gallons per minute], then the only reasonable conclusion is that it would help HRI in its wellfield operations at Church Rock because water would continue to move to the northeast away from the proposed SEP, only more slowly.”

*Id.*

Therefore, based on the FEIS and Mr. Bartels’ analysis, Intervenor’s Motions to supplement the FEIS based on potential impacts to the proposed SEP from HRI’s Section 8 and 17 ISL mining activities from groundwater should be denied.

**c. Potential Exposure to the Proposed SEP from Surface Water**

Second, Intervenor’s allegations regarding potential exposure to the SEP from surface water are without merit. Intervenor’s expert, Mr. Eggleston, alleges that the SEP may suffer potential adverse impacts resulting from secondary contamination from soils and runoff water from both the Section 8 and 17 ISL mining sites. *See* Eggleston Affidavit at ¶ 10.

Mr. Eggleston’s allegations fall to account for the final evaluations of potential surface water impacts in the FEIS and existing topographical data regarding the area where the SEP is proposed to be developed. The area where the proposed SEP is to be developed resides *uphill* from the Church Rock Section 8 and 17 sites. In his affidavit (hereinafter “Exhibit A”), Mr. Mark Pelizza notes that:

“The Puerco River described in the FEIS incises the land between the SEP location and HRI’s Section 8 and 17. The valley created by the Puerco River south west of the Section 8 and 17 is at elevation of 6740-

6755 msl. Southward from the Puerco River valley the land surface gently slopes *upgrade* toward the SEP site where it reaches a[n] elevation of approximately 6800 msl on the southern boundary of Section 19 (also northern boundary of Section 30). Church Rock Environmental Report, 1988, Fig. 2.9-1 and Fig. 2.9-2”

Exhibit A at ¶ 40 (emphasis in original).

Taking into account these topographical features, as discussed in Mr. Pelizza’s affidavit, the FEIS states:

“HRI has analyzed the Church Rock site's surface hydrology (HRI 1993d). The land surface in the Church Rock lease area exhibits gentle slopes between 1 and 3 degrees toward the arroyo that traverses southwesterly across the site. The unnamed arroyo is a tributary to the Puerco River and is incised from 1 m (3 ft) at the downstream location to 5 m (17 ft) in the northernmost portion of the site.”

FEIS at 3-42; *see also* Exhibit A at ¶ 39.

Based on this existing data, Mr. Pelizza concludes that, “if *secondary* runoff water were to occur, the runoff would be into the *drainage* evaluated in the FEIS...and not uphill onto the SEP.” *Id.* at ¶ 41 (emphasis added). Thus, as stated by Mr. Pelizza, “[p]otential runoff from the Church Rock site cannot flow uphill after it is intercepted by the drainage.” *Id.* at ¶ 39. Therefore, Intervenor’s allegations regarding potential impacts to the proposed SEP from surface water should not serve as a basis for supplementing the FEIS.

**d. Potential Exposure to Airborne Radiological Effluents**

Next, Intervenor’s allegations regarding potential airborne radiological doses to potential SEP residents are without merit. Similar to the above-discussed potential groundwater impacts, the FEIS for Section 8 addresses all potential exposures to surrounding members of the public from airborne radiological effluents, (primarily radon since there are few particulate issue, if any, associated with ISL uranium mining absent a

yellowcake dryer), at the restricted site boundaries and the closest *downwind* residence. After completing its analyses regarding such potential exposures, NRC determines that, “[t]he calculated exposures and potential concentrations, with emission controls, are a small fraction of the regulatory limit.” See FEIS at 4-83. This finding led NRC to conclude that, “[t]he proposed project would have negligible effects in terms of health physics and radiological impacts.” See FEIS at 4-87.

Intervenors’ allegations regarding potential airborne exposure is based primarily on the proposed SEP’s alleged geographic proximity to Sections 8 and 17 (i.e., approximately two miles from the Section 17 southern restricted site boundary). See Eggleston Affidavit at ¶¶ 20-31. Along with being approximately two miles from the southern restricted site boundary for Section 17, the SEP is also located *upwind* of the both Section 8 and Section 17 mining sites. As stated in Mr. Pelizza’s affidavit, “[i]t is a basic principle that radiation is dissipated by distance...and that radon dissipates rapidly outdoors and will disperse mostly downwind.” Exhibit A at ¶ 26. In addition, HRI will maintain a “continuous air-monitoring program at three separate locations: upwind of the Church Rock satellite facility, downwind from the Church Rock satellite facility at the restricted area boundary, and downwind at the nearest residence.” *Id.* at ¶ 30. If no significant potential exposure to radiological effluents exists at the Church Rock sites’ *restricted site boundaries*, it makes no sense to conduct further analysis on such potential exposures for the proposed SEP, which is at least approximately two additional miles *upwind* of the restricted site boundaries for HRI’s Section 8 and 17 mining sites. Therefore, Intervenors’ allegations regarding potential exposure of SEP residents to

airborne radiological effluents should not serve as grounds for supplementing the FEIS with respect to the Section 8 or 17 mining sites.

**e. Transportation and Environmental Justice Issues**

Intervenors also allege that the potential impacts to the proposed SEP from transportation of Church Rock product from the Section 8 and 17 ISL mining sites and potential environmental justice issues should be analyzed in a supplement to the FEIS. More specifically, Mr. Eggleston, Intervenors' expert, states that there could be potential impacts to the proposed SEP from traffic patterns and radioactive and toxic waste spill response and remediation. *See* Eggleston Affidavit at ¶ 17. Mr. Eggleston also states that the FEIS does not adequately address the environmental justice issues associated with the potential development of a housing community near the Section 8 and 17 ISL mining sites. *See* Eggleston Affidavit at ¶ 22.

Intervenors' allegations regarding potential impacts to the SEP from transportation or environmental justice issues are without merit. The FEIS analyzes the potential impacts to the town of Crownpoint, as well as other surrounding towns, from transportation of Church Rock product in considerable detail. As noted in Mr. Pelizza's affidavit, the FEIS states:

“Shipments associated with the proposed project would contribute to transportation risk on roads in the region (Section 4.5), but the project's contribution to the cumulative impacts of other past, present, and future actions is not expected to be significant. Although some roads in the project vicinity have had relatively high accident rates in the past, increased traffic due to project shipments is not likely to significantly increase transportation risk. In addition, there are no reasonably foreseeable future actions that would combine with the project to significantly increase local transportation risk.”

FEIS 4-124; *see also* Exhibit A at ¶ 45.

While the FEIS analysis regarding transportation assesses potential impacts to towns *along the transport route*, the proposed SEP, if constructed, would not be along that route. Thus, Mr. Pelizza concludes, “[t]he fact that the [proposed] SEP is not along the transportation route makes it unreasonable to speculate that transportation risks would exceed the risks already evaluated for communities along the transport route.” *Id.* at ¶ 47.

In response to Mr. Eggleston’s allegations that the creation of the proposed SEP would increase accident rates and raise the potential threat of a Church Rock product spill, Mr. Pelizza states, “the proportional increase in traffic would be to and from commerce centers.” *Id.* at ¶ 49. Based on this premise and the fact that Gallup is the largest commercial center in the area, Mr. Pelizza concludes that, “[w]ith an increase in population in the [proposed] SEP area, there would be an expected corresponding increase in traffic flow to and from Gallup, but little northward past the Church Rock site.” *Id.* Thus, potential impacts to the SEP from transportation should not serve as a basis for supplementing the FEIS for the Section 8 and 17 sites.

With respect to environmental justice issues, “the FEIS gave full consideration of environmental justice and specifically recognized the minority and low-income population in the vicinity of the Church Rock site.” FEIS at 3-78. As discussed by Judge Bloch in a previous decision<sup>11</sup> and as stated by Mr. Pelizza:

“since the project at Church Rock is safe, there is no serious incremental adverse impact on an environmental justice population that requires mitigation. As demonstrated above, that conclusion holds equally true for the potential inhabitants (environmental justice population) of SEP, i.e. the Church Rock project presents no additional risk of pollution and that there is no basis for taking measures to mitigate or

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<sup>11</sup> See also *In the Matter of Hydro Resources, Inc. (Crownpoint Uranium Project)*, LBP-99-30, 50 NRC 77, \*102 (August 20, 1999).

reduce that effect, and therefore no basis for additional evaluation in a supplemental FEIS.”

Exhibit A at ¶ 52.

Thus, based on the lack of significant adverse impacts from the HRI Section 8 and 17 ISL mining sites, Intervenor's allegations regarding environmental justice cannot serve as a basis for supplementing the FEIS for Sections 8 and 17.

**B. Intervenor's Motion to Re-Open the Administrative Record With Respect to Section 8 Should be Denied<sup>12</sup>**

**1. Standard of Review for Motions to Re-Open An Administrative Record**

As a general proposition, hearings may be re-opened, in appropriate situations, either upon motion of any party or *sua sponte*. See *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-124, 6 AEC 358 (1973). Licensing Boards lack the power to re-open a proceeding once final agency action has been taken. See *Houston Lighting & Power Co.* (South Texas Project, Units 1 & 2), ALAB-381, 5 NRC 582 (1977). Licensing Boards also lack the jurisdiction to consider a motion to re-open the record after a petition to review a final order has been filed. *Northeast Nuclear Energy Co.* (Millstone Nuclear Power Station, Unit 3), CLI-00-25, 52 NRC 355, 357, n. 3 (2000) citing *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-726, 17 NRC 755 (1983). Motions to re-open the record should be referred to the Commission for consideration. *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-823, 22 NRC 773, 775 (1985).

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<sup>12</sup> HRI notes that, should Intervenor's Motion to Re-Open the Administrative Record with respect to Section 8 be denied, the Presiding Officer need not reach a decision on Intervenor's Motion regarding supplementation of the FEIS for Section 8.

As is well-settled, the proponent of a motion to re-open the record has a heavy burden to bear. *See Public Service Company of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-936, 32 NRC 75, 82 & n.18 (1990); *see also Kansas Gas & Electric Co.* (Wolf Creek Generating Station, Unit 1), ALAB-462, 7 NRC 320, 338 (1978). Motions to re-open a record are governed by 10 CFR § 2.734, which requires that a motion to re-open a closed record must be timely, must address a significant safety or environmental issue, and must demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially. *See Pacific Gas and Electric Company* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), LBP-94-35, 40 NRC 180 (1994). The hearing must be re-opened whenever a “significant” unresolved safety question is involved. *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 523 (1973) *reconsid. den.*, ALAB-141, 6 AEC 576.

Matters to be considered in determining whether to re-open an evidentiary record at the request of a party are whether the matters sought to be addressed on the re-opened record could have been raised earlier, whether such matters require further evidence for their resolution, and what the seriousness or gravity of such matters is. *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant, Units 1-4), LBP-78-2, 7 NRC 83 (1978). A Licensing Board has held that the most important factor to consider is whether the newly proffered material would alter the result reached earlier. *Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), LBP-86-15, 23 NRC 595, 672 (1986).

The new material in support of a motion to re-open must be set forth with a degree of particularity in excess of the basis and specificity requirements contained in 10

CFR § 2.714(b) for admissible contentions. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-775, 19 NRC 1361, 1366 (1984), *aff'd sub. nom San Luis Obispo Mothers for Peace v. NRC*, 751 F.2d 1287 (D.C. Cir 1984), *aff'd on reh'g en banc*, 789 F.2d 26 (1986). The supporting information must be more than mere allegations; it must be tantamount to evidence which would materially affect the previous decision. *Id.*

**2. Intervenor Have Failed to Demonstrate That The Issue of the SEP Could Not Have Been Raised Earlier**

Prior to discussing the substance of the proposed SEP's relationship to the FEIS for Sections 8 and 17, Intervenor claim that they could not have raised the issue of the proposed SEP prior to the issuance of LBP-04-03, which effectively closed the administrative record for Section 8 at the Licensing Board level. In support of this claim, Intervenor claim that the issuance of the EA for the proposed SEP in June of 2003, their receipt of the EA on July 5, 2003, and NRC Staff's failure to respond to Intervenor's request for a supplement until the end of 2003 demonstrates that they could not have submitted its motion to supplement the FEIS prior to the issuance of LBP-04-03 on February 27, 2004.<sup>13</sup>

Intervenor's arguments on the issue of "timeliness" are without merit given the length of time between the noticing of the proposed SEP and Intervenor's conduct throughout this proceeding. Intervenor transfer blame for the tardiness of their motion

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<sup>13</sup> To the extent that the Presiding Officer deems the Section 8 administrative record closed, Intervenor essentially would be requesting a new hearing on the FEIS. As such, consistent with the principles of legal standing, Intervenor would have to demonstrate that the potential residents of the proposed SEP are within the class of citizens they are empowered to represent. Since they have made no attempt to do so, Intervenor would not have the requisite legal standing for a new hearing on the FEIS.

to NRC Staff's failure to respond to their request more quickly and the fact that the Presiding Officer did not ask for their Motion until after the issuance of LBP-04-03. However, if they were dissatisfied with the timing of NRC Staff's review of their request, Intervenors easily could have filed their Motion with the Presiding Officer prior to NRC Staff's final decision. Intervenors concede that they were in possession of the EA for the SEP several months prior to the issuance of LBP-04-03 and, indeed, submitted their request for a supplemental EIS to NRC Staff almost seven (7) months prior to the issuance of that decision. Since the administrative record prior to the issuance of LBP-04-03 was still open for evidence, Intervenors could have submitted their Motion prior to the issuance of that decision and sought a ruling from the Presiding Officer. Considering the ample amount of time Intervenors had to file their Motion Re-Open the Administrative Record, the Presiding Officer should deem Intervenors' Motion for a supplement to the FEIS untimely.

**3. Intervenors Have Failed to Demonstrate a "Significant" Unresolved Issue of Public Safety Warranting the Re-Opening of the Administrative Record for Section 8**

In order to re-open the administrative record with respect to Section 8, Intervenors must demonstrate that a "significant" unresolved issue of safety exists warranting re-opening the record. Initially, in support of their Motion, Intervenors allege that their expert affidavits demonstrate that the potential hazards associated with the operation of an ISL uranium recovery operation at the Section 8 site raise "grave" issues for public health and safety. Intervenors' Motion to Re-Open at 9. Intervenors' experts allege that the use of groundwater by HRI during Section 8 and 17 mining operations "will likely affect the groundwater gradient when combined with groundwater pumping for drinking

water from Springstead Estates.” *Id.* at 9-10. These effects allegedly would include the creation of vertical excursions and would result in groundwater gradient reversal which would affect potential SEP residents’ drinking water supply. *Id.* at 10. Further, Intervenor’s allege that the failure of the FEIS to consider the proposed SEP with respect to potential radiological dose to its residents from increased transportation risks and environmental justice concerns warrants re-opening the record. *Id.*

**a. Potential Effects on the SEP From Site Groundwater and Surface Water**

As discussed above, Intervenor’s have failed to demonstrate that a “significant” unresolved matter of public safety exists that would warrant the re-opening the record for Section 8. As a general proposition, it is important to note that, while the following Sections only address the Section 8 ISL mining site, the southern site boundary of the Section 17 site is closer to the proposed SEP than that of the Section 8 ISL mining site. Thus, as noted above, if there are no significant potential adverse impacts to the proposed SEP from the Section 17 ISL mining site, it is highly unlikely that there are any such impacts to the proposed SEP from the Section 8 ISL mining site.

Initially, the existing FEIS for the CUP addresses and resolves all potential environmental impacts at the Section 8 restricted site boundary and all potential impacts to surrounding water sources from ISL mining activities in the exempted portion of the aquifer in which HRI will conduct ISL mining operations, as well as potential runoff into surface water.<sup>14</sup> After completion of its environmental review of HRI’s license

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<sup>14</sup> It is worth noting that HRI is unaware, and, from the very beginning of these proceedings, Intervenor’s have never provided one example, of any instances where groundwater from ISL mining in an exempt aquifer has migrated to and adversely affected the quality of water in a nearby adjacent drinking water aquifer.

application for the Section 8 site, NRC determined that potential effects on surrounding water sources from Section 8 ISL mining operations does not constitute a significant potential threat to public health and safety. *See e.g.*, FEIS at 4-56. This finding demonstrates that any potential threat from Section 8 ISL mining operations to adjacent water sources, including the proposed SEP, already has been assessed.

Further, as noted above, the “evidence” submitted by Intervenors with respect to the potential effects of Section 8 ISL mining operations on the proposed SEP is not set forth with any *particularity*, but rather is based on speculative allegations about the proposed SEP, rather than the necessary comprehensive water use studies by or for relevant regulatory authorities. Intervenors also fail to account for existing geological, hydrological, and topographical data, which are and have been a matter of public record, demonstrating that Intervenors’ speculative allegations are inaccurate, if not physically impossible. Thus, Intervenors have failed to meet their burden for re-opening the record based on potential impacts to the proposed SEP from HRI’s Section 8 ISL mining operations from groundwater or surface water.

**b. Potential Impacts from Airborne Radiological Effluents, Transportation and Environmental Justice Issues**

As discussed above, Intervenors also have failed to demonstrate that there is any potential for impacts to the proposed SEP from airborne radiological effluents due to Section 8 ISL mining operations. When preparing the FEIS for the Section 8 site, NRC evaluated all potential impacts on surrounding members of the public essentially right up to the restricted site boundary for the Section 8 site. NRC’s final determination is that there will be negligible potential adverse impacts on members of the public at the Section 8 restricted site boundary.

There are no potential adverse impacts to the proposed SEP from potential increases in transportation requirements, because the proposed SEP is not located on the transport route for Church Rock product to Crownpoint. Further, as stated above, because there are no significant adverse impacts from ISL uranium mining at the Section 8 and 17 sites, there are also no issues of environmental justice associated with the SEP that require evaluation. In addition, as noted above, the HUD EA does not even mention any indication of potential impacts to the proposed SEP from the Section 8 ISL mining site. Given that HRI is not pursuing any additional changes to its Section 8 ISL mining operation that were previously evaluated, re-opening the Section 8 administrative record on the basis of issues related to airborne radiological effluents, transportation of Church Rock product to Crownpoint or environmental justice is not justifiable.

**4. Intervenor's Claim That a Materially Different Result Would Have Been Reached If The SEP Was Considered Previously Is Incorrect**

Intervenors also claim that the Presiding Officer would have reached a materially different result in the proceeding on Section 8 had evidence of the proposed SEP been considered previously. Intervenor's Motion to Re-Open at 11. In support of this claim, Intervenor's make several assertions that Judge Bloch and the current Presiding Officer would have had to consider the potential effects of the Church Rock mining project on the proposed SEP. After review of such effects, Intervenor's conclude that the Presiding Officer would have reached a materially different decision such as the imposition of additional license conditions. *Id.*

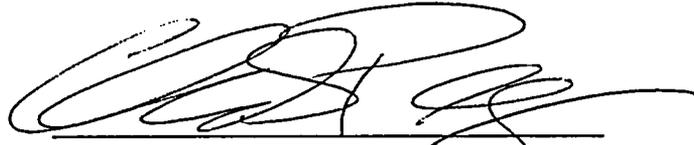
Intervenors' description of a materially different result in this case is directly refuted by the findings in the FEIS and the Pelizza and Bartels affidavits. As stated above, potential exposure to airborne radiological effluents at the proposed SEP are

negligible, because NRC has already considered the potential exposure of members of the public to such effluents at the southern restricted site boundary for the Section 17 ISL mining site, which is closer to the proposed SEP than the Section 8 ISL mining site. *See generally* FEIS. Potential exposure to radiological contaminants in groundwater from the Section 8 site would be unlikely because the proposed SEP is *upgradient* from the Section 8 site and, as shown by Mr. Bartels, Intervenor's expert's conclusions are based on incorrect information and implausible assumptions (i.e., pumping in excess of 400 gpm of water from the Dakota and Westwater formations at the proposed SEP site), while failing to take account of available geologic and hydrologic data on the formations and aquifers near Section 8 and the proposed SEP. Thus, based on each of the factors, Intervenor's cannot claim that the Presiding Officer would have reached a materially different result.

#### IV. CONCLUSION

For the reasons discussed above, HRI respectfully requests that the Presiding Officer deny Intervenors' Motion to Supplement the FEIS with respect to Sections 8 and 17 and deny Intervenors' Motion to Re-Open the administrative record with respect to Section 8.

Respectfully Submitted,



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

**Before the Presiding Officer:**

**Thomas S. Moore, Presiding Officer  
Richard F. Cole, Special Assistant**

In the Matter of: )  
Hydro Resources, Inc. ) Docket No.: 40-8968-ML  
P.O. Box 777 )  
Crownpoint, NM 87313 ) Date: June 21, 2004

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**CERTIFICATE OF SERVICE**

**THIS IS TO CERTIFY** that a copy of the foregoing Hydro Resources, Inc.'s Response to Intervenor's Motions to Supplement the Final Environmental Impact Statement for Sections 8 and 17 and to Re-Open and Supplement the Record for Section 8 in the above-captioned matter has been served upon the following via electronic mail and U.S. First Class Mail on this 21<sup>st</sup> day of June, 2004.

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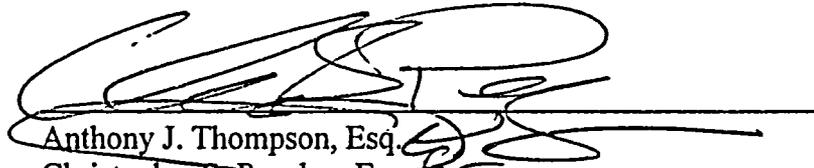
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(hydro resourcesCERTIFICATEOFSERVICE.DOC)

# EXHIBIT A

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

**Before Administrative Judges:  
Thomas Moore, Presiding Officer**

In the Matter of:	)	
	)	
Hydro Resources, Inc.	)	Docket No.: 40-8968-ML
P.O. Box 777	)	
Crownpoint, NM 87313	)	Date: June 21, 2004
	)	
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**HYDRO RESOURCES, INC.'S RESPONSE TO INTERVENORS' MOTIONS TO RE-OPEN AND SUPPLEMENT THE RECORD AND TO SUPPLEMENT THE FINAL ENVIRONMENTAL IMPACT STATEMENT FOR SECTION 8 AND 17**

**AFFIDAVIT OF MARK S. PELIZZA**

Before me, the undersigned notary on this day appeared Mark S. Pelizza, a person known or identified to me, and who after being duly sworn deposes and says the following in response to the May 14, 2004 Affidavit of Alan Eggleston.

**I. Personal**

1. My name is MARK S. PELIZZA; I reside at 3217 Breton Drive, Plano, Texas 75025. I am over 21 years of age; I never been convicted of a felony; and, I am fully capable of making this Affidavit.
2. The factual matters set out herein are within my personal knowledge or my corporate knowledge within my official capacity as set out herein. The opinions set out herein are based upon data and analytic techniques reasonably and customarily used by qualified professionals to form opinions and draw scientific inferences for the purposes of important health, safety, environmental and regulatory decisions in the uranium industry.

**II. Qualifications**

3. I hold a Bachelor of Science in Geology from Fort Lewis College and a Master of Science from Colorado School of Mines in Geological Engineering.
4. I am a Licensed Professional Geoscientist (TX Geology #2552) and Environmental Manager with over 26 years of experience in the *ISL* mineral recovery industry (predominantly uranium). In the uranium industry I also possess extensive experience in groundwater geochemistry and uranium health physics.

5. Professional Affiliations - I serve on the Board of Directors of both the New Mexico Mining Association and the Texas Mining and Reclamation Association.

6. I have served for nine years as Vice President of Health, Safety and Environmental Affairs with Uranium Resources, Inc., parent company to both HRI, Inc. and URI, Inc and five years as President of HRI, Inc. Both firms were founded to explore for uranium producible by *ISL* recovery techniques, acquire properties with uranium reserves suitable for *ISL*, license *ISL* uranium activities, operate in situ uranium facilities, and ultimately to close *ISL* uranium operations after uranium recovery is complete. In that capacity, I have directed health, safety and environmental programs, coordinated staff members and consultants, prepared applications for federal and state environmental permits and licenses, and negotiated the conditions of radioactive materials licenses and other permits. I served as a corporate liaison with lawmakers and regulatory agency staff, and represented the company and industry trade associations in activities such as rulemaking and legislation.

7. Prior to being named Vice President, I served Uranium Resources, Inc. as Environmental Manager with similar corporate environmental responsibilities. I have been employed with Uranium Resources, Inc. for nearly 24 years, and as a health, safety and environmental professional with the in situ uranium industry for 26 years. I have taken an active leadership role with various professional trade organizations in developing the current in situ uranium industry rules, regulations and policies.

8. During my employment with Uranium Resources, Inc., I have personally supervised all radiological and non-radiological occupational health, safety and environmental programs for operations conducted by HRI/URI in New Mexico, Texas, and Wyoming. This includes radiological and non-radiological occupational and environmental baseline data collection, operational programs, restoration/reclamation programs and regulatory liaison. I have also been the primary managerial support representative for all environmental litigation involving Uranium Resources, Inc.

9. I have managed regulatory affairs, including matters related to radioactive materials, other environmental permitting, compliance and enforcement matters and bonding for closure costs on the following *ISL* uranium recovery projects:

A. Alta Mesa Uranium Project. An undeveloped *ISL* project in Brooks County, Texas. Conducted environmental studies, prepared permit/license applications, procured the Underground Injection Control (UIC) Permit for *ISL* activities, the UIC Permit for deep well disposal, the initial Production Area Authorization (PAA), and the Air Control Permit.

B. Benavides Uranium Project. This is a former *ISL* mine located in Duval County, Texas, and was successfully mined, restored, and reclaimed by URI in compliance with all applicable state and federal requirements. I conducted environmental studies, prepared permit/license applications, and procured the Underground Injection Control (UIC) Permit for the well fields used for *ISL* activities, four production area authorizations, the Air Control Permit, the surface discharge permit and the Agreement State Radioactive Materials License. I was responsible for groundwater restoration, surface decommissioning and license termination oversight. I was corporate Radiation

Safety Officer for this project with oversight for the radiation safety, environmental protection programs and permit compliance during operations, aquifer restoration, and final reclamation and closure of the site. I reviewed and managed the "Closure Obligations" for this project.

C. Crownpoint Uranium Project. This is an undeveloped *ISL* project in McKinley County, New Mexico. For this project, I conducted the extensive environmental studies, required by state and federal authorities, prepared the necessary permit and license applications, and secured the necessary radioactive materials from the NRC. I served as the technical support manager during the multi-year licensing hearing held on this matter by the Atomic Safety Licensing Board of the NRC.

Church Rock Site. This is an undeveloped subsite of the Crownpoint Uranium Project in McKinley County, New Mexico. I have conducted the extensive environmental studies by state and federal authorities required for licensure and permitting, I prepared the permit and license applications, and I secured the UIC permit from the New Mexico regulatory authorities (the Aquifer Exemption from the U.S. Environmental Protection Agency) and secured the necessary radioactive materials license from the U. S. Nuclear Regulatory Commission (NRC). I served as the technical support manager during the multi-year licensing hearing held on this matter by the U. S. Atomic Safety Licensing Board of the NRC.

Unit 1 Site. This is an undeveloped subsite of the Crownpoint Uranium Project in McKinley County, New Mexico. For this project, I conducted environmental studies, prepared permit/license applications, and secured the NRC Source Materials License. I served as the technical support manager during lengthy public hearings conducted on the licensure of this project by the U. S. Atomic Safety Licensing Board of the NRC.

D. Kingsville Dome Uranium Project. This is an operational *ISL* project in Kleberg County, Texas. This facility is capable of processing and packaging uranium (yellow cake) from the Kingsville Dome site and from other nearby mine locations. For this project, I conducted environmental studies, prepared required permit and license applications to the Texas Department of Health/Bureau of Radiation Control and the Texas Commission on Environmental Quality (TCEQ) and procured the necessary UIC Permit for uranium production and a major expansion to that Permit, three Production Area Authorizations ("PAA's"), the requisite TCEQ Aquifer Exemptions (the Aquifer Exemption from the U.S. Environmental Protection Agency) and the UIC Permit for on site deep well disposal, the Air Control Permit, and the agreement state Radioactive Materials License. I have served as corporate Radiation Safety Officer for this project with oversight for the radiation safety, environmental protection and permit compliance. I have served as technical support manager during five administrative hearings for the permitting and licensing the project and its expansions.

E. Longoria Uranium Project. This is another *ISL* mine located in Duval County, Texas that was successfully mined, restored, and reclaimed by URI in compliance with all applicable state and federal requirements. I successfully conducted environmental studies, prepared permit/license applications, and procured the UIC Permit for uranium production, two PAA's, the Air Control Permit, the surface discharge permit and the

Radioactive Materials License. Groundwater restoration, surface decommissioning and license termination oversight. I was the corporate Radiation Safety Officer for this project with oversight for radiation safety, environmental protection and permit compliance during operations and reclamation. I reviewed and managed the "Closure Obligations" for this project.

F. Highland Uranium Project. This is an operational *ISL* project in Converse County, Wyoming. This facility processed uranium through the drying and packaging steps from on-location as well as from other near-by mines. I performed extensive due-diligence investigations to determine environmental conditions and potential liabilities of this mine. I also reviewed sources of contamination in the plant area, wellfields and disposal site. I reviewed costs for reclamation activities at this mine.

G. Holiday/El Mesquite Uranium Project. This is a commercial uranium project in Duval County, Texas. I developed contractor plans and procedures for final decommissioning and remediation including the health physics protocol, wellfield survey and remediation, equipment decontamination and closure. I reviewed and managed the costs of performing the "Closure Obligations" on this project.

H. Lamprecht Uranium Project. This is a commercial uranium project in Live Oak County, Texas. I reviewed the files of the TDH/BRC on this project, visited the site, and developed contractor plans and procedures for final decommissioning and remediation of the remaining plant site, wellfield soil survey and remediation and closure for this project.

I. North Platte Uranium Project. URI successfully operated, restored, and reclaimed this *ISL* pilot project in Converse County, Wyoming. For this project, I conducted environmental studies, prepared all required permit/license applications, and procured the State UIC Permit for *ISL* activities, the surface discharge permit and the NRC Source Materials License. I was responsible for groundwater restoration, surface decommissioning and license termination oversight. I was the corporate Radiation Safety Officer for this project with oversight for radiation safety, environmental protection and permit compliance during operations and reclamation.

J. O'Hern Uranium Project. This is a commercial *ISL* uranium project in Duval County, Texas. I developed contractor plans and procedures for final decommissioning and remediation of this project, including wellfield soil survey and remediation and closure. I reviewed and managed the costs of performing the "Closure Obligations" on this project.

K. Palangana Uranium Project. This is a reclaimed *ISL* uranium project in Duval County, Texas. I served as Radiation Safety Officer for this project with oversight for radiation safety, environmental protection and permit compliance.

L. Panna Maria Uranium Mine/Mill. This is a uranium mine and mill in Karnes County, Texas. I served on the team that conducted the environmental studies and prepared the license and permit applications for the mine.

M. Rosita Uranium Project. This is an *ISL* uranium recovery project in Duval County, Texas. I conducted environmental studies for this project, prepared permit/license applications, and procured the original UIC Permit for the wellfield to mine the project and a major expansion to that permit, three PAA's, the requisite TCEQ Aquifer Exemptions (the Aquifer Exemption from the U.S. Environmental Protection Agency), the UIC Permit for deep well disposal of wastes on-site, the Air Control Permit, and the agreement state Radioactive Materials License. I was the corporate Radiation Safety Officer for this project with oversight for radiation safety, environmental protection and permit compliance during operations. I was the technical support manager for one administrative hearing for the permit on this project.

N. Vasquez Uranium Project. This *ISL* project in Duval County, Texas is currently under development. I conducted environmental studies, prepared permit/license applications, and procured the UIC Permit for production operations, the requisite TCEQ Aquifer Exemptions (the Aquifer Exemption from the U.S. Environmental Protection Agency), the UIC Permit for deep well disposal, the initial PAA, the Air Control Permit and the Agreement State Radioactive Materials License.

O. West Cole Uranium Project. This is a successfully reclaimed *ISL* project in Webb County, Texas. For this project, I conducted environmental studies, prepared permit and license applications, and procured the UIC Permit for the wells needed for uranium recovery operations, the UIC Permit for the deep disposal well, the initial PAA, the Air Control Permit and the agreement state Radioactive Materials License. I developed contractor plans and procedures for final decommissioning and remediation including health physics protocol, wellfield survey and remediation, equipment decontamination and closure. I reviewed and managed the costs of performing the "Closure Obligations" on this project.

P. White Mesa Uranium Mill. A fully operational uranium mill that is licensed to accept conventional uranium ores alternate feedstocks from a variety of locations including those owned by the United States Government. The White Mesa mill is also a disposal site for certain types of low-level radioactive waste including uranium byproduct material. I have served as co-leader for the ALARA audit team for that facility for seven years. Pursuant to Nuclear Regulatory Commission license requirements, the annual audit is required to assure that the mill and associated disposal facilities are operating safely and in compliance with NRC requirements.

Q. Zamzow Uranium Project. This is a closed uranium project in Live Oak County Texas. For this project, I visited the site and developed contractor plans and procedures for final decommissioning and remediation of remaining plant site, wellfield soil survey and remediation and closure.

10. I am currently involved with new production activities and the reclamation of a number of uranium recovery sites in Texas.

11. I have been tendered and qualified as an expert witness in a number of vigorously contested public hearings before state and federal administrative agencies, including:

A. Before the Texas Commission on Environmental Quality (TCEQ), formerly the Texas Natural Resource Conservation Commission, and before that, the Texas Water Commission. Administrative Hearing, June 1984; Kingsville Dome Project. Expert in *ISL* technology, groundwater, well drilling and development, and groundwater restoration.

B. Before the TCEQ. Administrative Hearing, 1986, Kingsville Dome Project, Texas. Expert in *ISL* technology, groundwater, well drilling and development, and groundwater restoration.

C. Before the Texas Department of Health (TDH). Administrative Hearing, 1986, Kingsville Dome Project. Expert in *ISL* technology, health physics, environmental impacts, groundwater, reclamation and restoration.

D. Before the TCEQ. Administrative Hearing, 1989, Kingsville Dome Project. Expert in *ISL* technology, groundwater, well drilling and development, and groundwater restoration.

E. Before the TDH. Administrative Hearing, 1989, Kingsville Dome Project. Expert in *ISL* technology, health physics, environmental impacts, groundwater, reclamation and restoration.

F. Before the New Mexico Environment Department Public Hearing, 1993. Church Rock Project DP-558. Expert in *ISL* technology, groundwater, well drilling and development, and groundwater restoration.

G. Before the New Mexico State Engineer, 1998. Church Rock Project Application G-11-a. Expert in *ISL* technology, groundwater, well drilling and development, and groundwater restoration.

H. Before the TCEQ. Administrative Hearing, 1997, Rosita Project. Expert in *ISL* technology, groundwater, well drilling and development, and groundwater restoration.

I. Before the U. S. Nuclear Regulatory Commission (NRC)/Atomic Safety & Licensing Board (ASLB). Federal Administrative Hearing, 1999. The Crownpoint Uranium Project. Expert in *ISL* technology, health physics, waste disposal, environmental impacts, groundwater, reclamation and restoration costs.

**II. There is no Evidence Presented Indicating the Significance of Past Mining Activity at the Springstead Estates Project ("SEP") or that any such Past Mining Activity is Under the Jurisdiction of NRC.**

12. The Navajo Nation Environmental Protection Agency ("NNEPA") comments on the EA (at 34, Appendix C.8, p.2) described by Eggleston at ¶8 do not quantify or specify what the potential impacts from previous uranium mining were or who was responsible for such mining and potential impacts. Eggleston does not explain how HRI's activities and impacts from previous uranium mining may interrelate.

13. If uranium *mining* did impact the SEP area in the past, it is not subject to the jurisdiction of NRC other than treatment as part of natural background pursuant to 10 CFR 20. Eggleston presents no evidence that licensable source material or byproduct material are present at the SEP location that may be subject to NRC jurisdiction.

14. Effects of previous mining and milling operations in the area are considered in the FEIS as they relate to HRI's proposed license (FEIS at 4-124 – 4-125). As stated in the FEIS at 4-125: "The proposed project would result in a negligible increase in cumulative impacts in the area due to uranium mining and milling. HRI has proposed an *ISL* process which, by its nature, does not result in large amounts of tailings or environmental releases of radioactive particulate material. Additionally, HRI has proposed to use a vacuum dryer, which reduces the total releases of radioactive particulates to nearly zero, and a pressurized process circuit with a feedback system to return radon to the mine zone, which reduces environmental radon releases. The expected exposures from the remaining possible sources of radon are a very small fraction of the allowable limits for exposure of the public. The amount of generated tailings is very small, in the tens of cubic meters per year, and would be disposed of at an off-site licensed facility. In addition, the facility and related well fields would be required to be decontaminated and decommissioned to the appropriate State and Federal standards."

15. Any further study on the impacts of past mining that may be warranted to determine the safety of the SEP will be the responsibility of the SEP developer and not HRI. The housing project should have no impact on HRI's plans and vice versa.

#### **IV. The SEP Development Plans, Population Trends and Demographic Projections are Unknown.**

16. Based on the information presented by Eggleston at ¶8, it is obvious that SEP is in the very early stages of planning. There is no timetable for development presented. Eggleston merely provides his opinions on these subjects. In the absence of the necessary specifics, it is futile to speculate about potential SEP effects or effects on the SEP. Therefore, on that basis alone, the request for a Supplemental EIS is groundless, and should be rejected.

17. Eggleston's assertion at ¶14 that "uranium *ISL* uranium mining is normally not an activity that is conducted in very close proximity to housing developments, schools, health centers and other centers of human activity" is at best vague, and arguably inaccurate. He does not qualify or quantify what he means by "close". Two of URI, Inc.'s projects that I am familiar with are close to population centers. For example, the southern boundary of URI, Inc.'s Vasquez *ISL* recovery project is located approximately three miles north of the town of Hebronville (approx. population 4,600) which is the County Seat of Jim Hogg County, Texas. URI, Inc.'s Kingsville Dome *ISL* Project boundary is approximately three miles east of the town of Ricardo (approx. population 120) and five miles southeast of the town of Kingsville (approx. population 25,000) which is the County Seat of Kleberg County, Texas. Additionally, there is a small unnamed community and a number of individual ranch and farm houses adjacent the Kingsville Dome Project boundary. Most important, because of the benign nature of *ISL* recovery, I know of no instance of potential adverse impacts alluded to but not specified by Eggleston that have manifested themselves.

18. In addition to housing units, Eggleston worries about "schools, health centers and other centers of human activity". I have found no information that these types of facilities would be part of the SEP. It is far more likely that existing facilities at the nearby Church Rock Chapter or the City of Gallup would be used.

19. Eggleston at ¶16 states "Based on the plans discussed in the EA, it would not be unexpected to see other types of businesses, such as retail stores, food services, and health care facilities follow the housing development. EA at 4." Again this is pure speculation. Without any documents that would show that these other types of activities are in the SEP plans, no evaluation is necessary.

#### **V. No Credible Evidence is Presented to Warrant a Supplemental Environmental Analysis of Radiological Impacts**

20. Eggleston, in his concern about the potential radiological impacts of HRI's operations on SEP, does not present a single detailed, factual item usable in an impact study. His affidavit merely provides personal opinions without any scientific support. For example, he suggests a general distance ("very close proximity", ¶14) between the proposed SEP and HRI's Church Rock project, but does not explain why the SEP distance is significant in light of the fact that NRC has evaluated and found that radiation levels are only a fraction of the allowable limits at the boundary of the Church Rock sites, a much shorter distance than the SEP. (See LPB-99-30 at 8) So little specific information is available from the SEP EA, he is forced to rely on his own speculation to estimate possible impacts.

21. Eggleston's concerns are contrary to the fact that the *ISL* industry has operated in the United States for over 30 years without adverse offsite radiation impacts ever presenting themselves.

22. I am responsible for the Uranium Resources, Inc. Kingsville Dome facility that Eggleston refers to at ¶11 and understand its engineering design thoroughly. The Kingsville Dome facility is an upflow design with no controls for radon release. The Church Rock facility is a pressurized downflow system, which limits radon release significantly as compared to Kingsville Dome even without the additional controls that were described in the FEIS at 2-15. Pressurized downflow ion exchange systems are not unusual and are currently in use at all of the NRC licensed *ISL* sites in Wyoming. If Eggleston's opinion is that pressurized downflow systems are experimental he is incorrect.

23. HRI plans to remove additional quantities of radon from wastewater by removing radon in an intermediate holding tank using a vacuum pump, compressing the gas and returning it to the groundwater on the injection side. FEIS at 2-15

24. FEIS Table 4.24 lists the airborne concentrations of radon and daughters at selected receptor locations near the Church Rock satellite facility for both a pressurized system *and* an unpressurized system. The FEIS at 4-83 concludes: "For the Church Rock analysis, radon emission controls reduce the airborne concentration by approximately a factor of 10 (see Table 4.24). The resulting values at the nearest residence are approximately 0.5 percent and 7.6 percent of the limit, with and without the emissions controls, respectively. The calculated exposures and potential concentrations, with emission controls, are a small fraction of the regulatory limits." In

other words the FEIS concludes that even without emission controls, at the closest residence the calculated exposures would only be 7.6 percent of the limit.

25. The concern over radiological impacts by HRI's operations on the SEP is unfounded and based on unreasonable principals and speculation. Absent the presence of a dryer, particulates are not associated with in situ uranium recovery. The only radiological air effluent at Church Rock during operations would be radon (FEIS at 4-82). The FEIS describes radiological impacts at the Church Rock restricted boundary and the closest *downwind* residence. (approximately 1/10 the distance to the SEP) (FEIS at 4-84), concluding that: "The calculated exposures and potential concentrations, with emission controls, are a small fraction of the regulatory limit" (FEIS at 4-83), and that: "The proposed project would have negligible effects in terms of health physics and radiological impacts" (FEIS at 4-87).

26. The proposed SEP site is located *upwind* - approximately two miles SW of the southern HRI site boundary receptor - approximately three miles from the process facility (radon source) - and topographically uphill of a major drainage which divides the HRI site from the proposed SEP site (described more fully in ¶39-41 below). FEIS Figure 4.5 (FEIS at 4-84) and Figure 3.1 (FEIS at 3-4) shows the prevailing wind as *from* SEP to the southwest *toward* HRI's Church Rock project. It is a basic principal that radiation is dissipated by distance (and shielding) and that radon dissipates rapidly outdoors and will disperse mostly downwind.

27. More specifically, the point is that the proposed SEP site that is located about two miles SW of HRI's Church Rock Sections 8 and 17 locations is *up* prevailing wind (FEIS at 3-3 & 3-4, Fig. 3.1, and FEIS at 4-84, Fig. 4.5). For radon, the greatest potential for radiological impacts would be at *downwind* receptors. In the case of the analysis conducted in the FEIS for Church Rock, this would include boundary receptors B2, B3, and B4 and the closest *downwind* residence receptor CRR4 (FEIS at 4-84). The boundary receptors are located approximately 800 feet *downwind* from the source (S) and the closest residence (CRR4) approximately 2000 feet *downwind* from the source. By comparison the distance from S to the northmost boundary of Section 30, which is the section of land that the SEP will be located, is approximately 13, 000 feet *upwind*.

28. Because the FEIS analysis shows no adverse radiological impact at boundaries and residences that are far more *susceptible* to potential exposure, it is unreasonable to even speculate that more distant receptors upwind would be impacted by radiation to a larger degree.

29. Eggleston's concern at ¶10 that SEP receptors (to the extent that there actually will be any) were not included in the original receptor inventory is irrelevant because far more sensitive receptors were evaluated. These receptors were either at the site boundary, or *downwind*, and much closer to HRI's Church Rock project than the *upwind* SEP. Evaluation of these more sensitive receptors demonstrates minimal impact, and that study of far more distant sites was not warranted in the FEIS.

30. To ensure compliance with 10 CFR 20.1301, 20.1302 and 20.1501, HRI will maintain a continuous air-monitoring program at three separate locations: upwind of the Church Rock satellite facility, downwind from the Church Rock satellite facility at the restricted area boundary, and downwind at the nearest residence. These sampling locations will contain passive gamma and radon monitoring devices that are changed out on a quarterly basis [Consolidated

Operations Plan (COP) at COP-106]. These results will confirm compliance early in the project during Section 8 operations.

31. As stated above, the proposed SEP site is at a much greater distance and is upwind. Thus, any concern about impacts beyond what has been already considered in the FEIS, makes a supplement to the FEIS unnecessary.

#### **VI. No New Evidence is Presented to Warrant a Supplemental Environmental Analysis of Irrigation, Land Application or Land Use**

32. Eggleston at ¶11 suggests that radon emissions could be worse during groundwater restoration *if* irrigation or land application were used, or from an upset in the proposed HRI methodology. Eggleston does not specify what other “upset” he contemplates but if he means in the way the pressurized system operates I would again note that the FEIS finds radiological impacts both with and without emission controls to be compliant with NRC regulations with an ample margin of safety. See ¶ 24 above.

33. With regard to irrigation or land application, HRI has not developed a new plan that could be used in a supplemental FEIS beyond what has already been stated and evaluated in the FEIS. HRI’s Restoration Action Plan for the Church Rock Section 8 site did not consider irrigation as a restoration option but rather considered reverse osmosis and brine concentration. At this time reverse osmosis and brine concentration are HRI planned water disposal options. Further consideration of land application or irrigation would require a license amendment and supplemental EA. FEIS at 4-80 states: “HRI did not submit a detailed plan for land application and would need to submit a detailed license amendment in the future to use land application for wastewater. This evaluation is based on the assumptions and information presented by HRI in its general concepts on using land application. An environmental assessment of the license amendment for land application would be completed as part of the licensing process.”

34. HRI’s license enforces the requirement for additional environmental assessment if land application is to be utilized to dispose of wastewater as follows: “Prior to land application of waste water, the licensee shall submit and receive NRC acceptance of a plan outlining how the licensee will monitor constituent buildup in soils resulting from the land application. The plan should identify the constituents resulting from land application that will be monitored, constituent threshold values for discontinuing land application and justification for the values selected.” (SUA1580 LC 11.8).

35. HRI’s COP at 43 explains that the land application plan is uncertain with regard to the parcels of land that would be used or if land application would be chosen at all. The COP commits to providing an application if land application is pursued: “HRI will commit to filing an application with NRC at the time irrigation plans have been finalized. Such an application will contain information on the environmental conditions of the parcel of land to be used.”

36. Eggleston’s concern for any impact associated with any possible land application plan, therefore, is not ripe, with or without consideration of the potential existence of the SEP. At this time there is no plan to evaluate.

37. HRI's activities at the Church Rock site will be limited to those described in the FEIS (FEIS at 3-55). There are no new activities planned outside the scope of the FEIS that would impact any land use outside of HRI's project locations.

#### VII. No Credible Evidence is Presented to Warrant a Supplemental Environmental Analysis of Surface Water Impacts

38. As stated in ¶26 above, the proposed SEP is located topographically uphill of a major drainage which *intersects and divides* the HRI site from the SEP site. Potential runoff from the Church Rock site cannot flow uphill after it is intercepted by the drainage.

39. Surface runoff issues are described in the FEIS at 3-42, "HRI has analyzed the Church Rock site's surface hydrology (HRI 1993d). The land surface in the Church Rock lease area exhibits gentle slopes between 1 and 3 degrees toward the arroyo that traverses southwesterly across the site. The unnamed arroyo is a tributary to the Puerco River and is incised from 1 m (3 ft) at the downstream location to 5 m (17 ft) in the northernmost portion of the site."

40. The Puerco River described in the FEIS incises the land between the SEP location and HRI's Section 8 and 17. The valley created by the Puerco River south west of the Section 8 and 17 is at elevation of 6740-6755 msl. Southward from the Puerco River valley the land surface gently slopes *upgrade* toward the SEP site where it reaches a elevation of approximately 6800 msl on the southern boundary of Section 19 (also northern boundary of Section 30). Church Rock Environmental Report, 1988, Fig. 2.9-1 and Fig. 2.9-2. For reference, an annotated excerpt from the Church Rock USGS Topographic map that shows the HRI sites and proposed SEP location is attached.

41. Eggleston's concern at ¶10 about potential impacts from secondary contamination from soils and runoff water from both Section 8 and Section 17, therefore, is unfounded because if secondary runoff water were to occur, the runoff would be into the *drainage* evaluated in the FEIS at 4-64 and not uphill onto the proposed SEP site.

#### VIII. No Credible Evidence is Presented to Warrant a Supplemental Environmental Analysis of Transportation Risks

42. Eggleston at ¶17 states his concern over traffic patterns and radioactive and toxic waste spill response and remediation. There is no new information available at this time that could be evaluated in a supplemental FEIS with regard to transportation risks beyond that already evaluated in the FEIS.

43. FEIS at 2-12 describes the transportation plan for Church Rock product as follows: "At the satellite ion exchange plants, the resins would be eluted and the uranium precipitated and filtered. The resulting yellowcake slurry would be transported by truck to the main Crownpoint facility for drying (FEIS Figure 2.6). HRI's proposal indicates yellowcake would be transported to the Crownpoint processing plant in sole-use semitrailer tankers designed and placarded for this purpose, in accordance with U.S. Department of Transportation requirements." (Also see Figure 2.5-1 at COP-41). FEIS Figure 2.6 at 2-13 evaluates the transportation route from Church Rock to Crownpoint. The route follows NM566 *northward* to Navajo 49 to NM371 to Navajo 9

to Church Road. The SEP is south of the Church Rock site on NM566 and, therefore, will not be on the Church Rock product transportation route.

44. The FEIS at 3-45 and 3-46 evaluates the risk of accidents only along the transportation route using accident rates as follows: "The distance between the Church Rock site and the Crownpoint site is 1 mile on NM 566, 24 miles on Navajo 49, 14 miles on NM 371, 2 miles on Navajo 9, and 1 mile on Church Road (a total of 42 miles per trip). The calculated accident rate per trip on this route is  $5.9 \times 10^{-5}$ ." The FEIS evaluation does not consider communities south of the Church Rock site because they are not on the transportation route. Since HRI's transportation route does not pass the proposed SEP site, no supplemental evaluation is needed.

45. The FEIS contemplates transportation of material from the Church Rock site *through* Crownpoint (FEIS at 4-69) where the population of 2,108 (FEIS at 3-57) is growing rapidly because schools, hospitals and stores are present (FEIS at 3-56). With regard to the shipment of Church Rock product, the FEIS finds that "the consequences would likely be considerably lower than those estimated for the shipment of dry concentrate." (FEIS at 4-70), and "Shipments associated with the proposed project would contribute to transportation risk on roads in the region (Section 4.5), but the project's contribution to the cumulative impacts of other past, present, and future actions is not expected to be significant. Although some roads in the project vicinity have had relatively high accident rates in the past, increased traffic due to project shipments is not likely to significantly increase transportation risk. In addition, there are no reasonably foreseeable future actions that would combine with the project to significantly increase local transportation risk." (FEIS at 4-124).

46. According to the FEIS at 4-70, sufficient statistical is not available for a quantitative analysis of the consequences of an accident involving the transportation of material from the Church Rock site to Crownpoint. Therefore, absent the ability to perform statistical analysis in the FEIS, and without additional data now, no further analysis could be performed in a supplemental FEIS.

47. The fact that the SEP is not along the transportation route makes it unreasonable to speculate that transportation risks will exceed the risks already evaluated for communities along the transportation route. Even if the proposed SEP site were along the transportation route, the transportation risk would be similar to the risk of driving through Crownpoint which has already been evaluated in the FEIS so no supplemental FEIS evaluation is needed.

48. Eggleston at ¶21 asserts that "Springstead Estates would significantly change the amount of traffic on New Mexico routes 566 and 11/49, which provide access to the housing development, and therefore increase the likelihood of an accident involving a truck transporting radioactive or hazardous materials."

49. If the proposed SEP were to grow to the size suggested by Eggleston, the proportional increase in traffic would be to and from commerce centers. Gallup is the largest population center in McKinley County, the County seat and center of commerce for the Church Rock chapter. With an increase in population in the SEP area there would be an expected corresponding increase in traffic flow to and from Gallup but little northward past the Church Rock site. The Pinedale, Mariano Lake and Smith Lake communities offer little by way of

commerce, and Crownpoint has little in the way of retail trade (FEIS at 3-60). Public education would also be at Church Rock where five schools are present (FEIS at 3-62).

#### **IX. No Credible Evidence is Presented to Warrant a Supplemental Analysis of Environmental Justice**

50. Impacts on potential environmental justice population that Eggleston suggests may live at the proposed SEP have been evaluated in the FEIS. It finds that no additional mitigation is required.

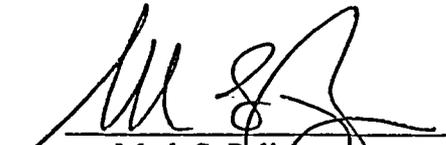
51. Contrary to Eggleston's assertion at ¶22, the FEIS fully considers environmental justice and specifically recognizes the minority and low-income population in the vicinity of the Church Rock site (FEIS at 3-78). In addition to the fact that minority and low income population were addressed in general terms, the FEIS at 3-78 & 3-79 specifically analyzes that the area is inhabited predominantly by Native Americans as follows: "The proposed project would be located in the Navajo communities of Crownpoint and Church Rock. These communities and much of the area within 80 km (50 miles) of the project sites are in "Indian country" as defined in 18 U.S. Code 1151.2 The 80-km (50-mile) area of potential effect also includes almost all of McKinley County, large parts of San Juan and Cibola counties and the Navajo, Ramah Navajo, and Zuni reservations, and a small part of Sandoval County. By nearly any definition, the entire area of impact constitutes an "environmental justice population."

52. As the decision in LPB-99-30 (at 76) finds, since the project at Church Rock is safe, there is no potential serious incremental adverse impact on an environmental justice population that requires mitigation. As demonstrated above, that conclusion holds equally true for the potential inhabitants (environmental justice population) of the SEP, i.e. the Church Rock project presents no additional risk of pollution, therefore, there is no basis for taking measures to mitigate or reduce it, and therefore no basis for additional evaluation in a supplemental FEIS.

#### **X. No Credible Evidence is Presented to Warrant a Supplemental FEIS**

53. In conclusion, because there is no significant effect that HRI's operation could have on the proposed SEP in terms of radiological air emissions, land use and risk of accidents involving radioactive and hazardous materials, in my professional opinion, the Staff should not supplement the FEIS. The evidence in the FEIS supports the fact that HRI's operation will not have an impact on the proposed SEP in terms of radiological air emissions "The proposed project would have negligible effects in terms of health physics and radiological impacts". FEIS at 4-87 For the SEP site to be different would require higher radon concentrations upwind, at a greater distance than has already been found safe in the FEIS. There is no evidence that land use would be impacted beyond what is already described in the FEIS. Any HRI land use impacts will be limited to the license area. Finally, there is no evidence of an increase in risk of transportation accidents involving radioactive and hazardous materials beyond what is already described in the FEIS. The FEIS finding holds true, "Although some roads in the project vicinity have had relatively high accident rates in the past, increased traffic due to project shipments is not likely to significantly increase transportation risk. In addition, there are no reasonably foreseeable future actions that would combine with the project to significantly increase local transportation risk." FEIS at 4-124. This concludes my Affidavit.

I declare on this June 18, 2004, at Lewisville, Texas, under penalty of perjury that the foregoing is true and correct.

  
Mark S. Pelizza

**ACKNOWLEDGEMENT**

SUBSCRIBED and SWORN TO before me, the undersigned authority, on June 18, 2004 by Mark S. Pelizza.

[Seal]



  
[Signature of Notary]

Gail Kirby  
Printed/typed name of Notary

Notary public for the State of Texas. My commission expires 10-16, 2004.

**Attachment**

**Excerpt from the Church Rock USGS Topographic Map**



# EXHIBIT B

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:  
Thomas Moore, Presiding Officer

In the Matter of:

Hydro Resources, Inc.  
P.O. Box 777  
Crownpoint, NM 87313

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)  
) Docket No.: 40-8968-ML

) Date: June 21, 2004  
)  
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**HYDRO RESOURCES, INC.'S RESPONSE TO INTERVENORS' MOTIONS TO RE-  
OPEN AND SUPPLEMENT THE RECORD AND TO SUPPLEMENT THE FINAL  
ENVIRONMENTAL IMPACT STATEMENT FOR SECTION 8 AND 17**

**AFFIDAVIT OF CRAIG S. BARTELS**

On behalf of Hydro Resources, Inc. (HRI), Craig S. Bartels submits the following affidavit in response to the May 14, 2004 affidavit of Michael G. Wallace titled "*AFFIDAVIT OF MICHAEL G. WALLACE IN SUPPORT OF EASTERN NAVAJO DINE AGAINST URANIUM MINING AND SOUTHWEST RESEARCH AND INFORMATION CENTER'S MOTION TO SUPPLEMENT THE FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE CROWNPOINT URANIUM PROJECT*".

1. My name is Craig S. Bartels. The statements herein are true and correct to the best of my knowledge, and the opinions expressed herein are based on my best professional judgment.

2. My education and experience are described in my curriculum vitae, attached to this affidavit as Exhibit C. To summarize, I have a Bachelor of Science degree from Montana College of Mineral Science and Technology in Petroleum Engineering. I am a Licensed Professional Engineer in the State of Illinois, and am also a Licensed Professional Geoscientist in the State of Texas. I am currently a principal in a consulting company specializing in hydrology, geochemistry, aquifer test design and analysis, and groundwater modeling. Over the course of the last 25 years, I have developed a commercial groundwater model, and am now authoring a revision to that groundwater model, significantly expanding its capabilities. Prior to consulting, I

worked in the in-situ leach (ISL) uranium recovery industry for over twenty years and am familiar with all aspects of the ISL mining process, including pumping test design and analysis, well test analysis, hydrologic computer modeling, well pattern design and development, well design and construction, wellfield and plant operations, and wellfield restoration. During that time I have run literally thousands of computer models analyzing lixiviant control for the initial wellfield design, active wellfield operations, and wellfield restoration. I have supervised and trained others in the design and operation of ISL projects. I have evaluated numerous ISL properties and operations of other ISL uranium recovery companies, and, as such, am familiar with their operations and procedures.

3. My testimony concerns the groundwater and hydrologic conditions relative to HRI's Nuclear Regulatory Commission (NRC)-licensed ISL uranium recovery operation at Church Rock, Sections 8 and 17, New Mexico. Throughout my Testimony I refer to the statements of Mr. Michael G. Wallace (Wallace Affidavit, May 14, 2004).

4. For the purposes of this affidavit, I referenced the following documents:

- a. Michael G. Wallace affidavit of May 14, 2004 titled "*Affidavit of Michael G. Wallace in Support of Eastern Navajo Dine Against Uranium Mining and Southwest Research and Information Center's Motion to Supplement the Final Environmental Impact Statement for the Crownpoint Uranium Project*".
- b. The 1997 Crownpoint Uranium Project Final Environmental Impact Statement (CUP FEIS) prepared by NRC (NUREG-1508), in cooperation with the Bureau of Land Management (BLM) (BLM NM-010-93-02), and Bureau of Indian Affairs (BIA) (EUS-92-001).
- c. The June 2003 Environment Assessment ("EA") for the Springfield Estates Housing Project prepared by Howard Bitsui for the Navajo Housing Authority.
- d. Hydrologic Report 6 (1983). "*Hydrogeology and water resources of San Juan Basin New Mexico*", New Mexico Bureau of Mines and Mineral Resources, Hydrologic Report 6, 1983.
- e. Various public and published documents as noted throughout this affidavit.

5. The following acronyms are also used: ENDAUM (Eastern Navajo Dine Against Uranium Mining), SRIC (Southwest Research and Information Center), SEP (Springstead Estates Project).

#### I. NO FACTUAL WATER USE INFORMATION AVAILABLE FOR THE PROPOSED SPRINGSTEAD ESTATES PROJECT ("SEP")

6. Based on the information presented by Wallace and the proposed SEP EA, it is obvious that proposed SEP is in the very early stages of planning. There is no source of water defined. There is no quantity defined. There is no timetable of water needs defined. There is no water rights authorization cited. Wallace merely provides personal opinions unrestrained by any factual or scientific support. He relies on his own suppositions and inferences to estimate eventual water requirements (400 gpm, Wallace at ¶ 15-16), the final source of that water (Wallace ¶ 9, 10, 11, and 12), and a general distance ("*under two miles*", ¶ 18), presumably between the locations of water wells for the proposed SEP and HRI's Church Rock project. In the absence of the necessary specifics, it is futile to speculate about the proposed SEP affects. Therefore, on that basis alone, the request for a Supplemental EIS is groundless, and should be rejected.

7. No potential, high-volume water user in New Mexico is allowed to arbitrarily produce groundwater without considering impacts to others. A comprehensive impact study of water use at the proposed SEP is required by the agencies that regulate water use in New Mexico and in the Navajo Nation, but apparently no such study has been completed and, possibly, not even begun since Wallace fails to mention any. As part of such an impact study, and in preparation for securing the proper permits and licenses, project developers must conduct a comprehensive water resources investigation including: water quantity required; a timetable of demand; primary water source; if drawn from an aquifer, which aquifer(s); number and location of wells (if any); impacts on other water users; and so on. [Such an administrative review has been conducted for HRI's Church Rock project by the New Mexico State Engineer. As a result, water right G-11 for the Westwater Canyon aquifer has been issued to HRI.] The proposed SEP EA discusses area geology and groundwater only very generally (EA, ¶ C and D, pages 7-8, and Appendix C.4: Sole Source Aquifers), and obviously was not intended to be a comprehensive groundwater use impact study. Although critical to the success of the proposed SEP, none of

these decisions are under the control of the NRC, HRI, or ENDAUM/SRIC. Without a comprehensive water resources investigation and impact study by the proposed SEP developers, there is no supplemental information to address in an EIS; any investigation by the NRC and HRI would be merely an academic review of unbridled conjecture. On this additional basis, the request for a Supplemental EIS is groundless, and should be rejected.

8. Regarding the proposed SEP, additional questions should be raised. Does ENDAUM/SRIC represent any affected party? Are all of the parties involved in the proposed SEP aware that a study detailing the impact of their proposed project is being requested? Are they prepared now to share the timing and details of that project so the investigation can be carried out at a Federal level? Does ENDAUM/SRIC speak for the Navajo Nation, for HUD, for the BIA, for the NM State Engineer's Office, or for any major entity officially involved with the proposed SEP? Can ENDAUM/SRIC speak for the timing of the project? Clearly, timing of construction will have a major impact on water demand. There are endless possibilities with respect to number of units and timing of construction. For example, will the full project be completed 10 years from now, or will only 20% of it be completed in the next 10 years? Will HRI's Church Rock Project still be active by the time the proposed SEP even starts? Are the hypothetical wells going to be located at the proposed SEP site, or some distance away (distance and direction unknown) where the aquifer deepens, and/or is water to be piped or hauled to the proposed SEP? Without such basic information, and with ENDAUM/SRIC having no authority to speak for any decision-maker in the proposed SEP, any investigation will involve little more than expensive and time-consuming guess work.

## II. PRODUCTION FROM THE COW SPRINGS AQUIFER WILL HAVE NO AFFECT ON CHURCH ROCK

9. Wallace suggests the possibility of pumping at the proposed SEP from the Cow Springs (§ 11- 13, 18) aquifer underlying the Westwater ("Westwater Canyon" aquifer is abbreviated to just "Westwater" here). The FEIS at 4-56: *"The Cowsprings aquifer is separated from the Westwater Canyon aquifer at each of the three sites [Church Rock, Crownpoint, Unit 1] by the Recapture Shale, which is estimated to be about 55 m (180 ft) thick at the Church Rock Site. Because of the thickness of the Recapture Shale and the low potential that drill holes in the site boundary have penetrated the Recapture Shale, there should be little risk of a vertical*

*excursion into the Cow Springs aquifer.*” In addition, page 40 of Hydrologic Report 6 (1983) states that differences in hydraulic head between the Morrison and Cow Springs was 200 feet in the Munoz 1 test hole north of Gallup (16.18.17.122). This shows that there is little hydraulic connection between the two aquifers in the area. The Report goes on to say that the transmissivity of the Cow Springs is “*relatively low*”, about 50 ft<sup>2</sup>/day in most of the San Juan Basin, and possibly much lower. This is 6+ times less transmissivity than the Westwater transmissivity of 300 ft<sup>2</sup>/day, and requires 6+ times more drawdown from the Cow Springs than for the Westwater to achieve the same flowrate. Wallace provides nothing to show that Cow Springs can actually produce 400 gpm in the area of the proposed SEP. In any event, any potential affect from pumping the Cow Springs at the proposed SEP site on HRI’s Church Rock project would be insignificant.

### III. UNREASONABLE EXPECTATION OF WATER PRODUCTION FROM DAKOTA AND WESTWATER AQUIFERS

10. At ¶ 15 and 16 of his affidavit, Wallace uses the arithmetic of human demographics to project a quantity of 400+ gpm drinking water producible from aquifers at the proposed SEP, rather than the actual geology and hydrology of the aquifer(s) in that area and their ability to produce the projected amount of water. At ¶ 9, 10, 11, and 12, he lists five possibilities as sources for the proposed SEP drinking water: four aquifers [alluvial, Westwater, Dakota, and Cow Springs], and “hauling water from a remote location”. In ¶ 12, Wallace expresses his “*professional opinion*” that the *Dakota, Westwater, or Cow Springs* aquifers will be used, with the Westwater as the most likely. And at ¶ 18, he states: “*Springstead Estates could pump much more than 300 [sic] gpm from either of the Westwater, Dakota or Cowsprings ...*”. However, because Wallace ignores existing hydrologic and geological data and has so little information on this proposed housing project, he speculates as to both achievable flowrate (derived purely from human demographics), and what source of water the developers might finally choose.

11. Wallace should have considered available published and public information (examples below at ¶ 12a – 12f) on the geology and hydrology of the aquifers underlying the proposed SEP site. The proposed SEP is at or near the outcrop of the Morrison (containing the Brushy Basin and the Westwater as its upper members), which forms the southern “no-flow” boundary for the Westwater in the San Juan Basin. Wallace fails to even address the outcrop in

his affidavit. Further, he provides no scientific support that the Dakota and Westwater in the vicinity of the Springstead Estates can produce significant quantities of water at sustained rates from a near-boundary, water table aquifer, much less his hypothesized 400 gpm (§ 15, 16) or “much more than 300” (§ 18).

12. The location of the Morrison outcrop should have been immediately obvious by locating the proposed SEP site in relation to Gallup and Crownpoint on maps and figures included in the numerous references discussing geology, hydrology, and hydrologic models of the San Juan Basin. For example:

- a. FEIS at 7-9: Lyford, F.P., P.F. Frenzel, and W.J. Stone 1980. “Preliminary Estimates of Effects of Uranium-Mine Dewatering on Water Levels, San Juan Basin.” In *Geology and Mineral Technology Uranium Region 1979*. Edited by C.A. Rautman. New Mexico Bureau of Mines and Mineral Resources, Memoir 38, pp 320-333. Especially Figures 1-4.
- b. FEIS at 7-12: Peterson, R.J. 1980. “Geology of Pre-Dakota Uranium Geochemical Cell, Section 13, T16N, R17W, Church Rock Area, McKinley County.” In *Geology and Mineral Technology Uranium Region 1979*. Edited by C.A. Rautman. New Mexico Bureau of Mines and Mineral Resources, Memoir 38, pp131-138. Especially Figures 1 & 2.
- c. FEIS at 7-14. U.S. Department of the Interior 1980. *Uranium Development in the San Juan Basin Region, Final Report*. Bureau of Indian Affairs. Albuquerque, New Mexico. Especially Map III-3, page III-8.
- d. HRI Response to NRC “Q-99”, Figure 4. Figure 4 is a reproduction of Figure 74 from Hydrologic Report 6 (1983).
- e. USGS Report 95-4187, “*Hydrology and Steady-State Simulation of Ground-Water Flow in the San Juan Basin, New Mexico, Colorado, Arizona, and Utah*”. Especially Figure 26.
- f. HAI 1997. Hydrosience Associates, Inc. (HAI), “*Modeled Effects on Water-Levels and Surface Water Flows Due to Ground Water Withdrawals by HRI Under Application G-11-A for Operation of an In-Situ Uranium Leach Operation*,

*McKinley County, New Mexico, December 26, 1997*". Report on modeling the Dakota and Westwater aquifers in the San Juan Basin for a 1998 hearing before the New Mexico State Engineer's Office on water use and its impact at HRI's Church Rock Project. Especially Figures 6-9. The cover sheet for that report is attached to this affidavit as Exhibit A.

13. All of these show the proposed Springstead Estates Project at or very near the outcrop for the Morrison (Brushy Basin + Westwater). This is important for a number of reasons:

- a. First, since the Dakota is above the Westwater in the geologic column, it is completely absent anywhere the Morrison outcrops, and obviously cannot act as an aquifer at those places, yet Wallace speculates that the Dakota might serve as a significant water resource in that area (§ 18) for the proposed SEP. Wallace should know that it can not. In addition, from the FEIS at 3-22: "*The Dakota Sandstone is mostly unused as a water supply in McKinley County because of its generally poorer water quality.*"
- b. Second, the edge of the outcrop at the proposed SEP site will be a no-flow boundary. This is shown schematically in Figure B.1, attached as Exhibit B, as "Southern No-Flow Boundary". Figure B.1 is an un-scaled cross-section comparing wells completed in an unconfined, "water table" aquifer at/near the outcrop (proposed SEP) to wells completed in a confined aquifer (HRI's Church Rock and Crownpoint projects). It shows three wells completed at or near an aquifer outcrop: two of which can produce some water ("Outcrop Well B" and "Near-Outcrop Well C"), and one that will produce no water ("Dry-Outcrop Well A"). For the same pressure drawdown, wells near a noflow-boundary (such as "Outcrop Well B" and "Near-Outcrop Well C") will produce far less water than wells far away from that boundary, such as HRI's Church Rock and Crownpoint.
- c. Third, at the outcrop, there is much less drawdown of pressure available to produce the existing, limited water than further downdip into the aquifer. The Dakota, Westwater and Cow Springs aquifers dip to the northeast (get deeper) at about 200-300 feet/mile. In the case under discussion here, the available drawdown will vary from zero feet (where water contacts the bottom of the

Westwater at the southern noflow-boundary near the proposed SEP site – see Figure B.1) to 300-450 feet in the Westwater at HRI’s Church Rock site, and about 1400 feet at Crownpoint.

- d. Fourth, it will be physically impossible for water from HRI’s Church Rock site to reach many, or all, of the wells at the outcrop in the vicinity of proposed SEP. Aquifer static water levels (WL) directly indicate pressures. In this case, those pressures get *lower* to the northeast, away from the proposed SEP and toward Church Rock, forming an inclined potentiometric surface. This northerly pressure gradient causes natural groundwater movement *away* from the proposed SEP site and *downdip toward* HRI’s Church Rock at 8.7 feet/year (FEIS at 3-35, and Figure 3.11, FEIS at 3-37). Figure B.1 (Exhibit B), shows the static water level at Church Rock at about 6590 feet Mean Sea Level elevation (MSL), and for Crownpoint about 6480 feet MSL. The static water level elevation estimated for proposed SEP site in ¶14 below is 6624-6657 feet MSL (also see Figure B.1), higher than both Church Rock and Crownpoint.<sup>1</sup> A horizontal dashed line, going left toward proposed SEP from the Church Rock static water level, is shown on Figure B.1. Water from Church Rock cannot reach anywhere above that line within the Westwater – it would be a physical impossibility requiring that water naturally flow uphill.

14. The “Location/Vicinity” map presented in the proposed SEP EA shows the location of “Phase 1 Project Site” on a USGS topographic map to be very close to “Springstead Trading Post Well” in the southwest portion of Section 30. HRI, in preparation for its water rights hearing before the New Mexico State Engineer in 1998, found two wells near that location from public records. Those wells were tabulated in Tables 1a and 1b in HAI 1997 hydrologic modeling report referenced earlier. Both wells are at the Morrison outcrop, with the Brushy Basin at the surface and the top of the Westwater about 30 feet deep (HAI 1997, Table 1b, rows 201 and 202). Both wells are over 500 feet deep. The water level in one well is estimated at 226

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<sup>1</sup> As explained in ¶14, it is unknown whether the estimated water levels at the proposed SEP site are for the Westwater or the underlying Cow Springs aquifer. If the water levels are for the deeper Cow Springs aquifer, then the Westwater is completely dry at those locations. This is something that the SEP developer(s) must determine through well drilling, flow testing, etc., as part of their water resources investigation. This is not a matter for either HRI or the NRC.

feet deep [6624 feet MSL], and in the other well at 253 feet (6657 MSL). If the Westwater is 250 feet thick at the outcrop, then the water level would be 27 to 54 feet above the bottom of the Westwater. This would be equivalent to "Outcrop Well B" in Figure B.1 (attached here as Exhibit B). If the Westwater is less than 195 feet thick, then the water level is actually below the bottom of the Westwater into the Cow Springs, equivalent to "Dry-Outcrop Well A" in Figure B.1. Thus, regardless of the thickness of the Westwater, it is essentially dry at that location. Furthermore, since the Morrison formation outcrops at that location, the overlying Dakota sandstone is completely absent, and cannot act as a source of water. Considering the available public/published information, Wallace's contention, based solely on his personal opinion, that the Westwater and Dakota sandstones can individually produce much more than 300 gpm (Wallace, ¶17) in that region, is completely unsupported and, therefore, unreasonable.

15. Obviously, there is much more hydrologic investigation required of the developer of the proposed SEP to understand how much water is available at that site and how best to access it. However, it is not the responsibility of the NRC or HRI to investigate the water resources available for a housing development.

16. Now consider the actual drawdown that would be required to produce 400 gpm from the Westwater. In the area around HRI's Church Rock project, the 1997 HAI model uses a transmissivity of 300 ft<sup>2</sup>/day (HAI 1997, Figure 6), and a specific storage of 1e-6 feet<sup>-1</sup> (HAI 1997 at 38). These are the same values used in the USGS hydrologic model by Lyford, Frenzel and Stone, referenced in Memoir 38 above (¶12a; also FEIS at 7-9). As used by HAI 1997 (¶12f), a Westwater aquifer thickness of 250 feet (HAI 1997 at 38) results in a storage coefficient equal to 2.5e-4 (HAI 1997 at 39). A model run using these values shows that a single well (12" diameter) producing at 400 gpm, and located miles from a boundary, will have a drawdown of about 500 feet after 10 years.<sup>2</sup> With a line of five wells (12" diameter each) at 80 gpm each, and spaced at ¼ mile, the drawdown at 400 gpm after 10 years equals 215-230 feet at each well. These drawdowns (and, consequently, the resulting flowrates) are achievable at Church Rock and Crownpoint, but not in the vicinity of the proposed SEP. By not considering

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<sup>2</sup> When formation values are held constant, a numerical model (such as MODFLOW) provides only an approximation to the exact solution from the well known "analytical", non-equilibrium, Exponential Integral (using either the Well Function [W(u) or the Cooper & Jacob equations]. A numerical model with too coarse a grid near the pumping well can vary dramatically from the correct value for drawdown. As a result, the exact analytical W(u) method was used to calculate drawdowns here.

public/published geologic and hydrologic information, Wallace is incorrect to state at ¶ 18, “*Springstead Estates could pump much more than 300 gpm from either of the Westwater, Dakota or Cowsprings aquifers.*” If he is aware of geologic or hydrologic data contradicting the mass of public/published material available, that information should have been provided now in support of his statements. Since he has failed to do so, this leads to the conclusion that such contrary information does not exist.

17. If the argument is made later that the wells will be located away from the proposed SEP and water piped or hauled to the development, then those wells could be located anywhere. The possible scenarios are infinite, and once again too little information is available to even begin to speculate. Only the developers can make such decisions.

#### IV. ANALYSIS OF UNPROVEN WALLACE HYPOTHESIS

18. In his ¶ 17 and 18, Wallace asks what effect pumping from aquifer(s) at the proposed SEP will have on the groundwater movement at HRI’s Church Rock project. As pointed out above, the first questions that must be answered are what aquifers will be produced (if any), at what well locations, at what flowrates, and on what timetable. These are questions that can only be answered by the project developers and proper regulatory authorities, not by HRI, NRC, or ENDAUM/SRIC.

19. Although Wallace’s speculation about a 400 gpm flowrate from the Westwater or Dakota at the proposed SEP site has been shown to be unreasonable considering published information readily available to the public, some further calculations can be performed to verify the safety of HRI’s Church Rock operations. For the moment, let’s assume *arguendo* that the Westwater outcrop and noflow-boundary are far south of the proposed SEP project, and that there is adequate drawdown available to actually achieve 400 gpm at such a location. It is a simple matter then to set up particle tracking in a hydrologic model to test the affects of that pumping. (Whether called particle tracking, transport, streamline, or pathline, such hydrologic models abound, so the results presented here can be easily verified by a qualified professional). In this instance, an analytical model was set up using the same reservoir parameters described above (¶16) to calculate drawdowns (transmissivity = 300 ft<sup>2</sup>/day, storage coefficient = 2.5e-4, a straight line of five wells, each 12” diameter and pumping at 80 gpm, spaced at ¼ mile intervals). A “particle” representing the southern edge of HRI’s Church Rock ISL facility was

placed two miles (Wallace at ¶ 18) from the pumping wells on a line perpendicular to the row of wells. Ignoring for the moment that Church Rock is down gradient of Springstead, and that the groundwater naturally moves *from Springstead to Church Rock*, the natural groundwater movement in the model was set to zero. This particle took 869 years to travel the simulated distance from Church Rock to the pumping wells.

20. The natural regional movement of groundwater at Church Rock is 8.7 feet/year north-northeastward (FEIS at 3-35). This is also shown graphically in Figure 3.11 (FEIS at 3-37).<sup>3</sup> When the northeastward regional groundwater movement of 8.7 feet/year is entered into the model, the particle *never* reaches the pumping wells. It moves northeasterly away from the five wells, not toward them, and the waters from Church Rock are never “captured” by the pumping wells. Because the natural groundwater movement never reverses, the particle just moves more slowly to the northeast away from the proposed SEP wells pumping at 400 gpm. Therefore, if the proposed SEP were able to pump 400 gpm, then the only reasonable conclusion is that it would help HRI in its wellfield operations at Church Rock because water would continue to move to the northeast away from proposed SEP, only more slowly.

21. At ¶ 17, Wallace states that the municipal wells at Crownpoint have changed the original direction of natural groundwater flow: “*The original flow directions at Unit 1 were to the north by northeast, but were altered to almost due east due to the influence of the water supply wells*”. Then in Wallace at ¶ 18, he states unequivocally that “*Change in regional flow direction would render current monitoring, development, and remediation plans more indefensible and unreliable than they already are.*” This is a gross exaggeration that is entirely unsupported by any scientific evidence. Beyond personal opinion, Wallace presents nothing to support his statement. As shown above (here at ¶19), if the proposed SEP was actually able to produce 400 gpm out of the Westwater, and ignoring any actual north-northeasterly groundwater movement away from the proposed SEP, as well as the groundwater monitoring system at HRI’s Church Rock (FEIS at 3-37, 4-16 to 4-22, 4-56), it would still take 800+ years for the waters at Church Rock to travel to the pumping wells.

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<sup>3</sup> The mine-zone monitor wells surrounding the Church Rock project are also shown on Figure 3.11 (FEIS at 3-37). A generalized schematic of overlying and surrounding mine-zone monitor wells is shown in Figure 2.3 (FEIS at 2-3).

22. Additionally, Wallace's speculation completely disregards monitor wells (required by HRI's NRC license) surrounding the wellfields and mine workings in the Westwater, and overlying them in the Brushy Basin "B" sand and Dakota. The monitor well system and groundwater monitoring procedures (FEIS: Figure 2.3 at 2-3, Figure 3.11 at 3-37, 4-16 to 4-26, 4-43 to 4-44, 4-52 to 4-53, 4-55 to 4-56, A-33, A-34) are specifically designed to detect leach solutions moving beyond the production wellfields (an "excursion"). As stated in the FEIS at 4-16: "*ISL Monitoring programs are designed to ensure that any excursion is detected long before mining solutions can seriously degrade groundwater quality outside the wellfield area.*" Thus, Wallace's scenario requires piling one unproven assumption on top of another: first, that the proposed SEP can pump 400 gpm from either the Dakota or Westwater; second, that natural groundwater movement away from proposed SEP magically disappears; third, that monitor wells do not exist, or are ignored by NRC or other regulatory agencies for 869 years. Wallace presents no credible basis for this could occur because there are none.

23. In his ¶ 17 and 18, Wallace first presumes that pumping will occur at the proposed SEP site, and further that some harm will result from changes in groundwater flow direction. In attempting to make his case, Wallace references Figure 3.10 of the FEIS (his ¶ 17), noting how pumping the Town of Crownpoint water wells has changed the direction of water flow in the area. Although Wallace stresses that the flowrate from the Town of Crownpoint wells (¶ 17) causes a redirection of groundwater movement, he neglects to address the magnitude (or lack thereof) of that change. Shown on the same Figure 3.10 he referenced: it takes 1,657 years for water from Unit 1 to move to the Town wells. The 1,657 years at Unit 1, and the 869 years of travel time calculated above (here at ¶19) for Church Rock and the proposed SEP, demonstrate that water movement resulting from drawdown by pumping wells at any distance is extremely slow, and changes to water movement are extremely small. Neither constitutes any imminent hazard. Additionally, these travel times are calculated assuming that HRI is not in operation at Church Rock, Unit 1 or Crownpoint. Once HRI begins operations, the many safety measures detailed in the FEIS will be initiated and would prevent any such migration. These issues have been addressed in great detail by NRC, and cannot be disregarded. Beyond personal opinion, Wallace provides no evidence that with HRI operating at Church Rock or Unit 1 his concerns regarding "*flow magnitude and direction*" are legitimate.

24. ENDAUM/SRIC has devised a scenario without any scientific basis that is not achievable in light of readily available geologic and hydrologic information. Even so, a test of their hypothesis finds any potential impacts to be at worst ephemeral and, at best, inconsequential. They should have tested the reasonableness of their conclusions themselves, yet they left it to the NRC and HRI. An infinite number of other scenarios could also be imagined – and tested – but to no practical purpose without knowing what the developers plan. Nevertheless, the current scenario and its attendant concerns of Wallace at ¶ 18-22 have been shown to be groundless, as is the request for a Supplemental EIS based upon them.

#### V. ADDITIONAL CLAIMS SHOWN AS UNREASONABLE

25. At ¶ 20 and 21, Wallace discusses the affects of the hypothetical Pipeline Fault on HRI's operations. Specifically at ¶ 21, he states: "*Groundwater pumping from either Section 8 or Section 17 of HRI's Church Rock operations combined with the Springstead Estates groundwater pumping, could affect groundwater flow so that pregnant lixiviant would flow toward the fault, ultimately causing contamination of overlying or underlying aquifers.*" Yet again, he provides only speculation that such a scenario is possible, and supports it with no scientific information. Wallace has chosen to ignore the FEIS at 3-21: "*A more recent detailed geologic map (Kirk and Zech 1987) indicates that the fault does not occur at all. This geologic map indicates no offset structural contours in the area. This interpretation is repeated by several geological studies including Sears and others (1936), O'Sullivan and Beaumont (1957), and Cooley and others (1969). No evidence for the fault is found in any of the site drilling data, and HRI indicates that if it exists, it is probably found some distance to the east.*" Also, see FEIS at 4-55. As before, Wallace's scenario requires piling one unproven assumption on another: first, that the proposed SEP is able to pump 400 gpm; second, that the Pipeline Fault exists; third, that it is near enough to HRI's operations to have some influence; fourth, that the fault will actually allow fluids to migrate through it; fifth, that monitor wells around HRI's wellfields do not exist to identify excursions, or will be ignored in the event thereof (FEIS at 4-18 to 4-22); and sixth, that NRC, or other regulatory agencies, will ignore an uncontrolled flow out of HRI's wellfields. Wallace presents no defensible case for his suppositions.

26. At his ¶ 22-24, Wallace conjectures that pumping at proposed SEP site might prompt collapse of the existing underground mine workings in Section 17 of the HRI's Church Rock

project, and cause vertical pathways for excursions. NRC specifically and extensively addresses this concern in the FEIS (FEIS at 3-31 – 3-40, 4-54 – 4-58, A-33 – A34, and 4-16 – 4-22). Indeed, the FEIS is unequivocal that it is probable that many of the mine workings already have collapsed: FEIS at 3-40 “*However, it is likely that many of the workings have collapsed because the type of underground mining employed at the site would have caused some of the workings to collapse while the mine was still in operation (HRI 1996a).*”, and FEIS at 4-54 “*NRC staff consider it likely that many of the workings have collapsed.*” Even so, a pumping test of the area showed no evidence of the vertical pathway that Wallace postulates: FEIS 3-35 “*No aquifer interconnection was detected by the test (i.e., no draw down was detected by the Dakota Sandstone or Brushy Basin “B” Sand monitor wells).*” But NRC does not rely only on such tests to ensure the safety of the HRI project, because monitoring of the overlying Brushy Basin and Dakota sands is required to prove it: FEIS at 4-56 “*Upper monitor wells completed in the Brushy Basin “B” sand would be located with, at a minimum, one well per 1.6 ha (4 acres) of production area (HRI 1993a). In addition, monitor wells would be placed within 14 m (40 ft) of any likely openings of the existing mine workings into either the overlying Dakota sand or the Brushy Basin “B” Sand. These wells would be placed downgradient from the suspected open section in the direction of groundwater movement to ensure that any excursion would be detected (HRI 1996k). HRI would develop a standard operating procedure to address monitoring at the Church Rock in the vicinity of the existing mine workings (HRI 1996k). Upper monitor wells completed in the Dakota sandstone aquifer would be located with, at a minimum, one well per 3.2 ha (8 acres) of production area (HRI 1993a).*” Further, NRC concludes: FEIS at 4-54 “*Nevertheless, as discussed under Groundwater Monitoring, HRI’s commitment to perform monitoring near the old mine workings should provide adequate detection of potential excursions associated with the old mine shafts.*”, and lower on FEIS 4-54 “*This monitoring plan should provide adequate detection of potential vertical excursions.*” Wallace completely ignores the fact that NRC requires monitoring and provides only conjecture and personal opinion in implying any potential adverse impact from collapse of mine workings, without offering any scientific support for his position. The collapse of mine workings is simply irrelevant in lieu of the detailed investigation and findings already concluded by NRC, and the monitoring program required during HRI’s operations. A request for a Supplemental EIS based on possible collapse of mine workings should be rejected.

27. At his ¶ 25, Wallace states that “*Dewater effects of mine workings on Section 17 could have significantly diminished or eliminated reducing conditions in the aquifer*”. This is certainly true, and has been recognized by HRI and the NRC as pointed out in FEIS at 4-58 (in fact, with much of the same wording). The NRC has already dealt with the issue of old mine workings in detail (p4-54 through 4-66, FEIS), and Wallace presents no new information in this regard. But then Wallace states that “*This is significant because the FEIS evaluated natural attenuation as a means of assuring that groundwater contaminated by HRI’s operation does not spread throughout the entire aquifer.*” Wallace’s statement ignores the thousands of pounds of oxidized uranium now in the Church Rock mine workings. Uranium ISL mining works because uranium oxidizes first, before almost any other part of the rock. The mine workings which were dewatered at Church Rock still contain thousands and thousands of pounds of uranium in the pillars and walls of the workings. If the rock is currently oxidized in and around the workings, then the uranium that it contains is oxidized also. As pointed out in HRI’s response to “Q1-29” to the NRC: “*The OCR mine workings were subject to years of ventilation, which resulted in a highly-oxidized ore zone, and water quality which would resemble oxidized leach water.*” That condition exists now, and has nothing at all to do with HRI. If ENDAUM/SRIC sincerely believes there is a danger to area water users from oxidized leach water, than that danger is present now, without HRI ever operating. And it is the same at all previously dewatered uranium mines. However, if they consider the danger arises only if HRI operates, their concern is hollow, unsupported by science, and obviously targeted at HRI. A Supplemental EIS of HRI’s project will not fix the existing problem for the proposed SEP or any other potential water user. In fact, since those Church Rock mine workings will be within HRI’s monitor well ring (FEIS at 4-56), HRI operations will be committed to keeping any solution from the mine workings within the site boundaries.

28. Wallace at ¶ 21 states “*This is particularly important because all the aquifers in the Church Rock area are of good quality, suitable for drinking water supplies.*” The implication is, of course, that the water is safe to drink now everywhere in the Church Rock area, and will not be if HRI is allowed to operate. This is categorically incorrect, and conveniently ignores that the water in the uranium ore bodies and mine workings does not currently meet drinking water standards (FEIS at 4-37, 4-47, 4-57). First, as just described in ¶ 27 above, Wallace makes the case for an oxidized aquifer in the area of the existing mine workings, but completely disregards

the affects on the uranium ore in such workings. In addition, FEIS at 4-37: "*HRI anticipates that the restored value for radium at the Church Rock, Crownpoint, and Unit 1 sites would be baseline values (HRI 1996a). This is because HRI believes that average pre-mining well field radium concentrations would exceed the U.S. EPA and State of New Mexico drinking water standard for radium (HRI 1996a). HRI's beliefs are supported by radium concentration values gathered from sampling groundwater in the Westwater Canyon aquifer at the Unit 1 and Crownpoint sites.*" And FEIS at 4-57: "*HRI has presented data on TDS to support its opinion that water quality in the existing mine workings has been previously contaminated by conventional underground mining and, unlike native groundwater, does not meet primary drinking water standards for TDS (HRI 1996b).*"

## VI. ATTEMPT TO DISCREDIT CUP FEIS WITHOUT FOUNDATION

29. Wallace's statement at ¶ 18 ("*...would render current monitoring, development, and remediation plans more indefensible and unreliable than they already are.*") attempts to discredit the findings and conclusions of the CUP FEIS. Beyond personal opinions, Wallace presents no science to support this indictment, and dismisses the conclusions of the CUP FEIS arbitrarily.

## VII. CONCLUSIONS

30. Throughout his affidavit, Wallace suggests that serious consequences may result from scenarios he devises. Yet in every instance he fails to test his suppositions, leaving that work to the NRC and/or HRI. And in every case, the scenario using his hypothetical conditions is shown to be unrealistic or inconsequential. If he has evidence to support any consequence he postulates, it should have been presented here as proof of his argument. In every instance, he fails to do so. Failing to prove even a single conjecture on scientific grounds with standard hydrologic techniques, his request for a Supplemental EIS should be rejected.

31. Moreover, requests for a Supplemental EIS should be required to demonstrate hydrologic feasibility of suppositions, and be based on more than personal opinion or speculation. HRI and the NRC should not be required to provide the basic water resources investigations necessary for all proposed water use throughout the San Juan Basin.

I declare on this 18-JUN-04, at Albuquerque, New Mexico, under penalty of perjury that the foregoing is true and correct.

Craig S. Bartels  
Craig S. Bartels

**ACKNOWLEDGEMENT**

SUBSCRIBED and SWORN TO before me, the undersigned authority, on June 18, 2004 by Craig S. Bartels.



OFFICIAL SEAL  
NOEL REAVES  
NOTARY PUBLIC  
STATE OF NEW MEXICO

My Commission Expires: 9-10-2005

Noel Reaves  
[Signature of Notary]

NOEL REAVES  
Printed/typed name of Notary

Notary public for the State of New Mexico. My commission expires 9-10, 2005.

Exhibit A

Cover Sheet for

Hydroscience Associates, Inc. (HAI) Report

26-Dec-97

MODELED EFFECTS ON WATER-LEVELS AND SURFACE WATER FLOWS  
DUE TO GROUND WATER WITHDRAWALS BY HRI UNDER APPLICATION G-11-A  
FOR OPERATION OF AN IN-SITU URANIUM LEACH OPERATION

McKinley County, New Mexico



HYDROSCIENCE ASSOCIATES, INC.

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P.O. Box 21087  
Albuquerque, N.M. 87154  
(505) 271-9175

In cooperation with:

HRI, INC.

2929 Coors NW, Suite 101  
Albuquerque, NM 87120  
(505) 833-1777

December 26, 1997

## Exhibit B

Un-scaled schematic of a cross-section comparing wells completed in an unconfined, “water table” aquifer at/near the outcrop (proposed SEP) to wells completed in a confined aquifer (HRI’s Church Rock and Crownpoint projects)

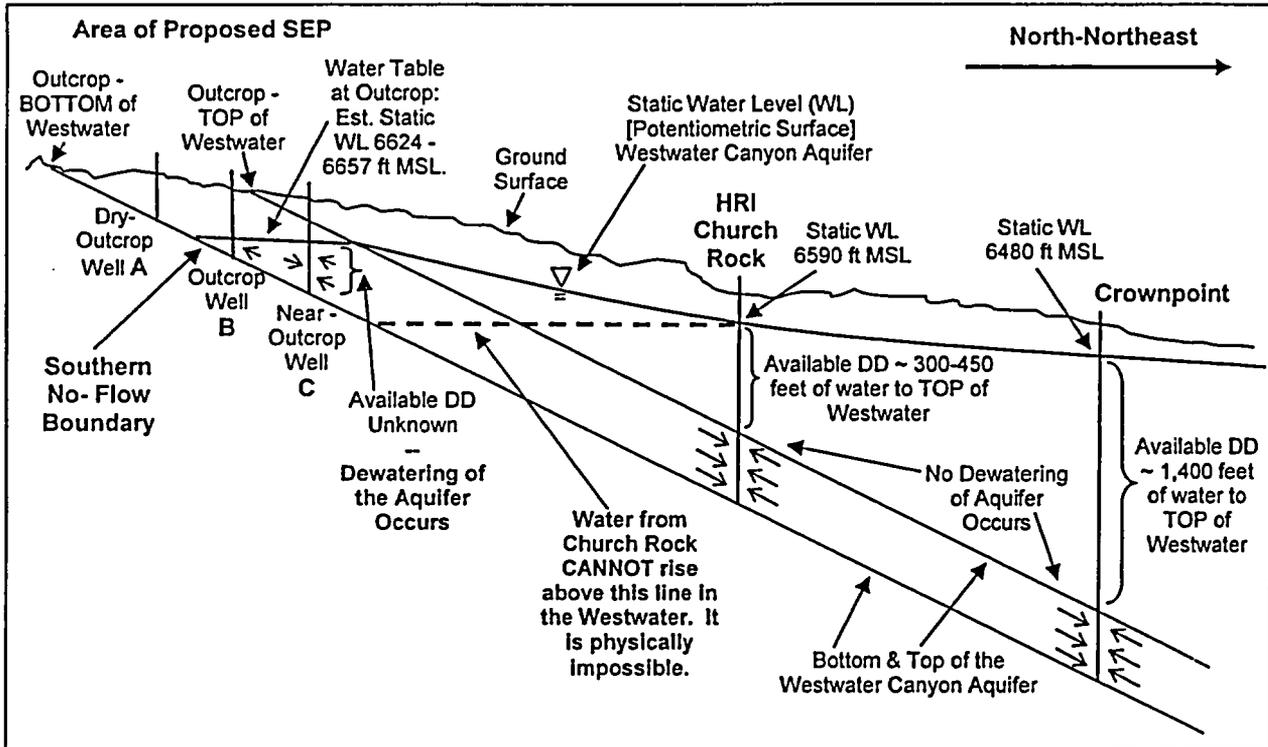


Figure B.1

Un-scaled schematic of a cross-section comparing wells completed in an unconfined, “water table” aquifer at/near the outcrop (proposed SEP) to wells completed in a confined aquifer (HRI’s Church Rock and Crownpoint projects)

[See Text at ¶ 13, 14]

Exhibit C

Curriculum Vitae

Craig S. Bartels

## Curriculum Vitae for CRAIG S. BARTELS

Flow Systems Engineering Group  
345 Alamos Road  
Corrales, NM 87048-7344

### Education:

B.S. Petroleum Engineering, Montana College of Mineral Science and Technology (1972)  
LICENSED PROFESSIONAL ENGINEER - Illinois (By EXAMINATION)  
LICENSED PROFESSIONAL GEOSCIENTIST - Texas

### Continuing Education –

Physical and Contaminant Hydrogeology, Texas A & M University - Kingsville  
USGS Course: Principles & Applications of Modeling Chemical Reactions in Ground Water

### Professional Societies –

American Geophysical Union  
Association of Ground Water Scientists and Engineers  
Society of Petroleum Engineers

### Work and Technical Experience:

#### Flow Systems Engineering Group, Corrales, New Mexico

##### PRINCIPAL – 2001 TO Present

Specialize in groundwater hydrology and geochemistry: aquifer testing & analysis, aquifer hydrologic & geochemical modeling (MODFLOW™, MODPATH™, MT3D™, PHREEQC™, MINTEQA2™, other numerical, analytic & analytical models), wellfield design & operation, hydraulic control of wellfield solutions. Over the past 25 years developed a commercial groundwater model, and currently authoring a major upgrade and revision (*PathCAD*™) to that model.

#### Heathgate Resources Pty Ltd, Adelaide, South Australia

##### Consultant, then VICE-PRESIDENT – OPERATIONS – 1999 TO 2000

Primary liaison between Company and the engineering design and construction firm (AMEC) for development of *Beverley* in situ mining (ISL) project 600 km north of Adelaide. Directly responsible for the geologic team, wellfield design & construction, and well installation & testing.

#### HRI, Inc., Albuquerque, New Mexico

##### VICE-PRESIDENT – TECHNOLOGY – 1996 TO 1999

Responsible for all technical and operational aspects of Company's New Mexico ISL projects, including design, operation and restoration/reclamation, as well as, regulatory compliance, and employee safety and training.

**Crow Butte Resources, Inc., Crawford, Nebraska**

**WELLFIELD MANAGER – 1995 TO 1996**

Responsible for all aspects of wellfield design, operation, and restoration. Directly responsible for all regulatory compliance, and employee training and safety associated with wellfield operations.

**URI, Inc., 1981 to 1994**

**SPECIAL PROJECTS**

Key investigator in numerous evaluations of ISL properties considered for acquisition. Troubleshooter for specific wellfield problems. Conducted informal one week seminar on wellfield design and operations for another ISL company. Designed, supervised and analyzed pumping tests for mine unit and regional ISL permits, focusing on flow characteristics and “leakage” potential of the aquifer.

Developed reservoir computer simulation system used in design and operation of wellfields, combining advective transport (pathlines), unsteady state pressure calculations, ore configuration, and interactive computer graphics to allow efficient design and operation of ISL wellfields. The system allows layered sands and incorporates actual, measured well flowrates.

**MANAGER OF WELLFIELD OPERATIONS, 1994**

Responsible for all design and wellfield operations, including all geology and reservoir engineering staff.

**PLANT MANAGER, Kingsville Dome Project, 1989 to 1994**

Responsible for all operations associated with 5,200 gpm ISL plant and uranium product dryer, including technical aspects, regulatory compliance and employee relations.

**CHIEF RESERVOIR ENGINEER, 1981 to 1989**

Responsible for ISL wellfield design, operation and forecasting. Designed, conducted, and analyzed pumping tests (routinely accepted by state and federal regulatory agencies). Developed multi-layer computer model for advective transport and pressure simulations in multi-layer reservoir.

**Union Carbide Corporation, Metals Division, Palangana ISL Project, 1978 to 1981**

**SUPERINTENDENT OF OPERATIONS, 1980 to 1981**

Responsible for all site activities including production, processing, restoration, employee relations, safety, budget development and review. Coordinator of Division efforts in developing and implementing new restoration technology.

Received management award in special recognition of outstanding contribution.

**TECHNICAL SUPERINTENDENT, 1979 to 1980**

Coordinated all technical operations for the plant and wellfield. Developed production reservoir computer simulation. Responsible for all individual well test and pumping test design, conduct and analysis.

RESERVOIR ENGINEER, 1978 to 1979

Developed enhanced ISL production techniques, as well as, techniques associated with well drilling, mud program design, well casing design, zone isolation and logging methods, well pattern development and flow control, geologic interpretation of roll fronts, and reservoir computer simulation. Analyzed individual well test and pumping test data.

**Natural Gas Pipeline Company of America (NGPL), 1972 to 1978**

RESERVOIR ENGINEER, Chicago, IL, 1974 to 1978

Responsibilities included wellfield deliverability estimates, field and well testing and analysis, water movement calculations, log interpretation, inventory verification, field monitoring, new well locations, general field development for six gas cycling projects. Development of computer code for field simulations utilizing gas cycling and water influx/efflux. Gas storage pumping test analysis (per Witherspoon, Javandel, Neuman, and Freeze).

DRILLING ENGINEER, Columbus Junction, IA, 1972 to 1974

Experience in drilling, blowout control, lost circulation, fishing operations, casing string design and installation, cementing, logging and remedial well work. Direct supervision of field personnel in varied assignments. Field supervision of pumping test for Gas Storage.

*Law Offices of Anthony J. Thompson, P.C.*

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June 21, 2004

**BY ELECTRONIC MAIL AND U.S. FIRST CLASS MAIL**

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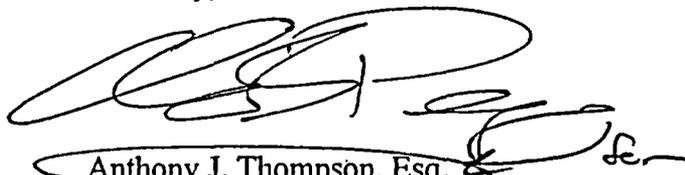
Re: In the Matter of: Hydro Resources, Inc.  
Docket No: 40-8968-ML  
ASLBP No: 95-706-01-ML

Dear Sir or Madam:

Please find attached for filing Hydro Resources, Inc.'s Response to Intervenors' Motions to Supplement the Final Environmental Impact Statement for Sections 8 and 17 and to Re-Open and Supplement the Record for Section 8 in the above-captioned matter. Copies of the enclosed have been served on the parties indicated on the enclosed certificate of service. Additionally, please return a file-stamped copy in the self-addressed, postage prepaid envelope attached herewith.

If you have any questions, please feel free to contact me at (202) 496-0780.  
Thank you for your time and consideration in this matter.

Sincerely,



Anthony J. Thompson, Esq.  
Christopher S. Pugsley, Esq.  
Law Offices of Anthony J. Thompson, P.C.  
Counsel of Record to HRI

Enclosures

(hydro resourcesCOVERLETTTER.doc)