April 1, 1999

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE PRESIDING OFFICER

In the Matter of	)	
	)	Docket No. 40-8968-ML
HYDRO RESOURCES, INC.	)	
2929 Coors Road, Suite 101	)	Re: Leach Mining and Milling License
Albuquerque, New Mexico 87120	)	

NRC STAFF'S RESPONSE TO INTERVENOR PRESENTATIONS ON NEPA ISSUES (PURPOSE, NEED, COST/BENEFIT, ALTERNATIVES, AND SUPPLEMENTATION)

INTRODUCTION

Intervenors Eastern Navajo Diné Against Uranium Mining (ENDAUM) and Southwest Research and Information Center (SRIC), submitted a joint written presentation alleging that NUREG-1508, Final Environmental Impact Statement to Construct and Operate the Crownpoint Uranium Solution Mining Project, Crownpoint New Mexico, dated February 1997 (FEIS), which was prepared by the Nuclear Regulatory Commission Staff, and the Environmental Report (ER) prepared by Hydro Resources, Inc., do not comply with the National Environmental Policy Act, 42 U.S.C. § 4321 *et seq.* (NEPA), or its implementing regulations.[1] Intervenors Grace Sam and Marilyn Sam Morris (Sams) similarly allege that the discussion of alternatives and secondary effects in the FEIS is deficient. Final Written Presentation of Grace Sam and Marilyn Morris, dated February 19, 1999 (Sam NEPA Brief),

[1]ENDAUM's And SRIC's Written Presentation In Opposition To Hydro Resources, Inc.'s Application For A Materials License With Respect To: NEPA Issues Concerning Project Purpose and Need, Cost/Benefit Analysis, Action Alternatives, No Action Alternative, Failure to Supplement EIS, And Lack of Mitigation, dated February 19, 1999 (E/S NEPA Brief), at 2.

at 2.[2] HRI filed responses to these two intervenor filings on March 25 and March 29, 1999.[3] Each intervenor requests that the FEIS be deemed inadequate and HRI's license revoked. *See* E/S NEPA Brief at 75-76; Sams NEPA Brief at 31-32.[4]

As discussed below, the FEIS, when read as a whole, is adequate and the request for revocation of the license should be denied.

DISCUSSION

This phase of the proceeding concerns the proposed operations at HRI's Church Rock Section 8 site, located about five miles north of the town of Church Rock, and the consequences of in-situ leach (ISL) mining on Section 8. *See* September 22 Order, at 3. Nevertheless, Intervenors have addressed NEPA issues that encompass proposed ISL operations at HRI's Unit 1 and Crownpoint sites. Inasmuch as the FEIS addressed all of three

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[2]Intervenor filings were submitted consistent with the schedule set in this proceeding as modified by the Commission. *See* Memorandum and Order (Procedural Issues), dated February 4, 1999; *IUSA,* CLI-99-03, 49 NRC ___, slip op. at 2 (February 11, 1999).

[3]Hydro Resources, Inc.'s Response To ENDAUM and SRIC's Brief With Respect To NEPA Issues Concerning Project Purpose And Need, Cost/Benefit Analysis, Action Alternatives, No Action Alternative, Necessity To Supplement EIS, Mitigation, And Cumulative Impacts, dated March 25, 1999 (HRI NEPA Response); Hydro Resources, Inc.'s Response To The Final Written Presentation Of Grace Sam and Marilyn Morris, dated March 29, 1999. Due to the schedule for successive filings by HRI and the Staff, the Staff files this response within seven days after HRI's March 25, 1999 filing. *See* Presiding Officer's Memorandum and Order (Scheduling and Partial Grant of Motion for Bifurcation), dated September 22, 1998 (unpublished); Joint Notice of Modification of Schedule for Written Presentations, dated November 5, 1998.

[4] The Sams argue that the Staff should be required "to redo the FEIS" and include more balanced discussion of Alternative 2 and the No-action alternative, and a cost-benefit analysis based on realistic assumptions of secondary effects concerning the Navajo and the local community. *See* Sams NEPA Brief at 31-32.

locations, the Staff will waive its usual objection to the scope of Intervenors' presentation and address the matters raised.

A. Procedural Requirements of NEPA

NEPA establishes a "broad national commitment to protecting and promoting environmental quality." *Robertson v. Methow Valley Citizens Council,* 490 U.S. 332, 348 (1989), *citing* 42 U.S.C. § 4331. Chief among the procedures that ensure that federal agencies maintain this commitment is the requirement for the preparation of an environmental impact statement for major federal actions that "'significantly affect[] the quality of the human environment.'" *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 87 (1998) (*LES*) *quoting*, 42 U.S.C. § 4332(2)(C).[5] As the Commission stated:

> The EIS must describe the potential impact of a proposed action and discuss any reasonable alternatives. *See* 42 U.S.C. § 4332.
>
> The principal goals of an FEIS are twofold: to force agencies to take a "hard look" at the environmental consequences of a proposed project, and , by making relevant analyses openly available, to permit the public a role in the agency's decision-making process. *See Robertson,* 490 U.S. at 349-50; *Hughes Watershed Conservancy v. Glickman,* 81 F.3d 437, 443 (4th Cir. 1996). . . The EIS, then should provide a discussion of the relevant issues and opposing view point to enable the decisionmaker to take a 'hard look' at environmental factors and to make a reasoned decision." *Tsongas Conservation Society v. Cheney,* 924 F.2d 1147, 1140 (D.C. Cir. 1991).

LES at 87-88.

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[5]HRI argues that in-situ leach mining projects are low-risks activities that are routinely approved by the NRC without an FEIS and that the FEIS was issued due to a Bureau of Indian Affairs (BIA) regulation which requires BIA, as trustee for Navajo lands, to prepare an EIS in connection with the leave of Navajo territory. HRI NEPA Response at 6-8. The Staff agrees that preparation of the FEIS was a matter of NRC discretion and not required by 10 C.F.R. § 51.20.

While the statute does not mandate a cost-benefit analysis, NEPA is generally considered to call for a weighing of the environmental costs against the economic, technical, or other public benefits of a proposal, but no formal or mathematical cost-benefit analysis is required. *LES*, 47 NRC at 88, *citing, Idaho By and Through Idaho Public Utilities Commission v. ICC,* 35 F.3d 585, 595 (D.C. Cir. 1994); *Calvert Cliffs' Coordinating Committee, Inc. v. AEC,* 449 F.2d 1109 (D.C. Cir. 1971); *Sierra Club v. Lynn*, 502 F.2d 43, 61 (5th Cir. 1974), *cert. denied,* 422 U.S. 1049 (1975). "NRC regulations, direct the Staff to consider and weigh the environmental, technical, and other costs and benefits of a proposed action and alternatives, and 'to the fullest extent practicable, quantify the various factors considered.' 10 C.F.R. §51.71(d). If important factors cannot be quantified, they may be discussed qualitatively. *Id." LES,* 47 NRC at 88. As part of its cost-benefit analysis, the NRC ordinarily examines the need a facility will meet and the benefits it will create.

Generally, a discussion of alternatives to the proposed action as required by 42 U.S.C. §4332(2)(C) (iii) includes a discussion of the agency taking "no-action." *LES,* 47 N.R.C. at 97, *citing* 40 C.F.R. § 1502.14(d). This alternative often maintains the status quo as a result of denial of the action. *Id.* While discussion of a no-action alternative is governed by a "rule of reason" and the overall length (often brief) is not significant, the discussion should reflect an evaluation of both the costs and benefits of not approving a project and thus a comparative analysis and description summary that compares the advantages and disadvantages of not proceeding with a project. *Id.* at 97-99.

Even though an FEIS may be inadequate in certain respects, ultimate NEPA judgments should be made on the basis of the entire record before the adjudicatory tribunal. *Philadelphia*

Electric Co. (Limerick Generating Station, Units 1 and 2), ALAB-262, 1 NRC 163 (1975). Since findings and conclusions of a licensing tribunal are deemed to amend the FEIS, amendment and recirculation of an FEIS may not be necessary to cure deficiencies in the document, particularly where a hearing is held, providing for the public ventilation of the evaulation that an amended FEIS would provide. *See Limerick,* 1 NRC at 196-97. In addition, supplementation of an FEIS is not required unless there are substantial changes in the proposed action that are relevant to environmental concerns or significant new circumstances or information relevant environmental concerns or bearing on the proposed action or its impacts. 10 C.F.R. §51.92; *Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-96-7, 43 NRC 235, 269 (1996).[6]

B. The Discussions of Underlying Purpose and Need for the Project Are Adequate

ENDAUM and SRIC allege that the Council on Environmental Quality regulations require that the underlying purpose and need to which the agency is responding must be addressed and that the FEIS is deficient because it inaccurately states (1) that the purpose of the proposed action "is to license and regulate HRI's proposal to construct and operate facilities for ISL uranium mining and processing" and (2) states that NRC's need for the action

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[6]ENDAUM and SRIC often assert that the NRC is required to follow regulations of the Council on Environmental Quality (CEQ). *See e.g.,* E/S Brief at 7-8. The NRC, as an independent agency, is not required to follow CEQ regulations that the NRC has not specifically adopted. *See Pacific Gas & Electric Co.* (Diablo Canyon Nuclear Power Company), ALAB-880, 26 NRC 449, 461 (1987); *Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-919, 30 NRC 29, 44 (1989), *citing, Limerick Ecology Action, Inc. v. NRC,* 869 F.2d 719, 743 (1984) and *Baltimore Gas & Electric Co. v. Natural Resources Defense Council, Inc,* 462 U.S. 87, 99, n.12.

is to fulfill its statutory responsibility to protect public health and safety. E/S NEPA Brief at 20-21, *citing* FEIS at 1-3.

Contrary to Intervenors' assertion, such statements did not "skew" the FEIS in favor of license issuance. The FEIS can be read as describing the need for the action in terms of the need for issuance of the proposed license to authorize the construction and operation of a ISL mining facility. The balance of the FEIS makes it clear that the NRC is concerned with the impacts of the proposed issuance of a license authorizing HRI mining project. *See* FEIS Sections 3 and 4. Throughout the NEPA process, the Staff endeavored to identify and consider the impacts of the proposed action. *See* FEIS Section 6 (Consultation and Coordination), Section 9 (Agencies and Individuals), and Appendix A (Response to Written Comments). That effort resulted in a document that consists of over 300 pages, 30 figures and 70 tables concerning a materials licensing action that has minimal risks. The Staff took a "hard look" at the proposed action and considered alternatives to the NRC's proposed issuance of the license that were consistent with HRI's stated goals. *See e.g.*, FEIS at xx-xxi; *Citizens Against Burlington, Inc. v. Busey,* 938 F.2d 190, 199 (D.C. Cir. 1991) (agencies should not consider alternatives to the applicant's stated goals, but evaluate alternate ways of achieving agency goals, shaped by the application at issue and by the function that the agency plays in the decisional process). The FEIS identified the benefits of the project as including economic benefits to HRI, socioeconomic benefits to the local community, and the provision of a domestic source for uranium. *See* FEIS Sections 4.9 and 5.1. Such benefits addressed the need for issuance of a license for the proposed project.

Therefore, the analysis in the FEIS was not skewed in favor of license issuance and Intervenors' complaints should be rejected.

C. The Discussion of Alternatives in the FEIS is Adequate

As required by 10 C.F.R. § 51.91(c), the FEIS discussed four alternatives:

> Alternative 1 (the proposed action): [I]ssue HRI a license for the construction and operation of facilities for ISL uranium mining and processing at the Church Rock, Unit I and Crownpoint sites as proposed in the license application and related submittals;
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> Alternative 2 (modified action): [I]ssue HRI a license for the construction and operation of facilities for ISL uranium mining and processing as proposed by HRI, but at alternative sites and/or using alternative liquid waste disposal methods;
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> Alternative 3 (the NRC staff-recommended action): [I]ssue HRI a license for the construction and operation of facilities for ISL uranium mining and processing as proposed by HRI, but with additional measures required and recommended by the NRC staff to protect public health and safety and the environment; and
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> Alternative 4 (no action): [D]o not issue HRI a license for the construction and operation of facilities for ISL uranium mining and processing at the Church Rock, Unit 1, or Crownpoint sites.

FEIS at 2-1.

Intervenors argue that the FEIS discussion of alternatives is inadequate because (1) there is no consideration of the blending down of highly enriched uranium as being within the range of alternatives, (2) there is no comparative discussion of the alternatives and (3) the environmental benefits of the no action alternative are not discussed. *See* E/S NEPA Brief at 54-60; Sams NEPA Brief at 14-24.

The FEIS evaluates the impacts of constructing and operating HRI's project as a result of NRC's proposed approval of the license. The alternatives considered which include

approving of the project as proposed by HRI (Alternative 1) to Alternative 4 (no-action), encompass the reasonably foreseeable range of impacts associated with approving or denying the project. FEIS Section 2.2.1 lists six combinations of ISL mining locations that NRC Staff considered as reasonable alternatives given the proposed licensing action. *See* FEIS Section 2.2.2 lists four alternative sites for yellowcake drying and packaging that NRC Staff considered as reasonable alternatives given the proposed licensing action. FEIS Section 2.2.3 lists four alternative liquid waste disposal methods (and combinations thereof) NRC Staff considered as reasonable alternatives given the proposed licensing action. Each of these possible options were considered in impact assessments described in FEIS Section 4.

Although blending down HEU is a reasonable alternative for providing fuel for the production of electricity by nuclear power plants, *see* E/S NEPA Brief at 58; Written Testimony of David Osterberg, dated February 8, 1999 (Osterberg), at 44, it does not follow that this is a reasonable alternative to the proposed action -- the NRC's issuance of a license for a ISL mining project. It would be unreasonable to examine all alternatives for providing nuclear fuel for electric power production. In addition, Intervenors do not explain why this alternative was not proposed in scoping meetings or comments on the DEIS. *See e.g.*, FEIS, Appendix A.

FEIS Section 2.4 (at 2-32) states that "the no-action alternative for NRC is not to issue HRI a license for the construction and operation of facilities for ISL uranium mining and processing at the Church Rock, Unit 1, or Crownpoint sites." The impacts of this no-action alternative are examined for each resource examined in FEIS Section 4. To the extent that Intervenors assert that these discussions are not sufficient to reveal the benefits of the no-action

alternative, their complaint is not significant since the benefit of maintaining the status quo are encompassed by the discussion in Section 4.

FEIS Section 4 compares the impacts of the proposed action with the impacts of alternatives to the proposed action. While this section may have to be read together with pages xx-xxi of the FEIS, a comparison of the information in FEIS Section 4 enabled the Staff to choose its recommended alternative. *See* Carlson at 1-2. Thus, the argument that the FEIS discussion of alternatives is inadequate should be rejected.

D. The Cost-Benefit Analysis Addressed the Impacts of HRI's Proposed Project

Intervenors claim that the analysis of the costs and benefits of the proposed mining activity is deficient because project benefits are inflated given the shrinking demand for (and value of) uranium, the reliance on secondary benefits to justify the project, and the overestimation of secondary benefits such as employment, royalty benefits and tax revenues. *See* E/S NEPA Brief at 23-45; Sams NEPA Brief at 24-31.

Section 5 of the FEIS quantifies and qualitatively describes that a public benefit of the proposed project is the provision of a domestic source of uranium which can offset the deficit in domestic uranium production. For example:

> The NRC recognizes that the viability of the industry is a Federal concern and that there is a public interest in the uranium supply. Between 1985 and 1994, annual domestic uranium production decreased by 75 percent, while annual imports of uranium increased by 30 percent (DOE 1994b). In 1994, domestic uranium production was less than 5 million lbs., while uranium imports totaled more than 35 million lbs. (DOE 1994b). The proposed project, which would produce about one million pounds of uranium per year at each of the three proposed sites, would have the beneficial effect of helping the United States offset this deficit in domestic production.

FEIS at 5-1. While Section 5 of the FEIS mentions the benefits to HRI, it focuses primarily on qualitative and quantitative discussion of the benefits to the national interest and to federal and local governments, the State of New Mexico, and the local community. *See* FEIS at 5-1 to 5-6. The costs of the project are reasonably discussed (given the limited scope of the mining project) in terms of the effect on the local community (at Crownpoint, Church Rock), the Navajo Nation, and McKinley County, with respect to (1) the infrastructure needed for small population increases induced by employment, (2) the impact on emergency services, and (3) the potential contamination or degradation of the public water supply. *See* FEIS at 5-6 to 5-7.

1. Economic benefits are not inflated.

The Commission has ruled that consideration of secondary benefits such as jobs, tax revenues, and related economic benefits that a proposed project is expected to generate, is appropriate for both reactor and non-reactor facilities, particularly when a project involves socioeconomic costs. *LES*, 47 NRC at 99-100. In fact, the Commission specifically noted that the FEIS at issue in this proceeding contained such a discussion. *Id.* at 100 n. 17.

To the extent that Intervenors claim that uranium demand does not warrant the production contemplated by this project or that the predicted demand is overly optimistic, *see* E/S Brief at 26-30, such arguments are based on information that was not available when the FEIS was prepared or published and do not show that the FEIS discussion was not reasonable.

Intervenors contend that no additional uranium production is needed because the supply is adequate and demand for uranium is shrinking and prices are falling. E/S NEPA Brief at 26-33; Osterberg at 4-36. While domestic demand for uranium is shrinking, it is also true

that worldwide demand for uranium was projected to grow at the time the FEIS was being prepared. For example, at the end of 1996, nuclear capacity in the "Far East" Region (i.e., China, Japan, North Korea, South Korea, and Taiwan) was projected to grow at an annual rate of 3.4 percent through the year 2015, and nuclear capacity in the "other" regions (i.e., Argentina, Brazil, India, Iran, Mexico, Pakistan, South Africa, and Turkey) was projected to grow at an annual rate of 5.6 percent during the same period. *See* Carlson at 4-5, citing Energy Information Administration, *Nuclear Power Generation and Fuel Cycle Report,* dated September 1997. Given the market information cited in the FEIS and the differing opinions about the uranium market, it was reasonable for the FEIS to assume that there would be a demand for uranium from the project. *Compare* FEIS Section 5 *with* E/S NEPA Brief at 26.[7]

Because the NRC's statutory mission under the AEA and NEPA is to determine whether an action is environmentally sound and satisfies regulatory requirements for public health and safety, the FEIS should not be found inadequate because the economic benefits of the project that depends upon a volatile uranium market were not accurately predicted in the short term.[8] NEPA merely requires that the discussion be reasonable in terms of the information available at the time and that the impacts of later changes affecting the environmental concerns are encompassed by the analysis in the FEIS.

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[7]Intervenors reliance on several studies and projections made in 1998, merely highlights the unpredictability of the uranium market and information that was not available during the preparation of the FEIS. *See* E/S NEPA Brief at 26; Osterberg at 4-8.

[8]While Intervenors correctly state that the projection FEIS assumed that the price of uranium in 1999 would be $13.00 per pound" and that "the current spot market price is $10.50, $2.50 less than projected, " *see* E/S NEPA at 32, there is no showing that such information was available at the time the FEIS was prepared.

In addition, the decision to proceed with mining (whether or not it results in local or national benefits) rests squarely on HRI's private determination that the project is economically viable. If HRI decides not to go forward with the project, then both the costs and benefits will be less than assumed in the FEIS, and thereby encompassed by that evaluation (i.e., the no-action alternative that preserves the status quo).

The FEIS squarely recognizes that, if prices of uranium were to decline such that operations were unprofitable, there would be no economic benefits to the community. *See* FEIS at 5-3.[9] The FEIS (at 5–1) acknowledges that "HRI's proposed project would be a private venture and, as such, would not have a direct public purpose."[10] For this reason, the FEIS addresses the primary public benefit of the project, maintaining domestic uranium production capabilities, and the secondary public benefit of providing jobs, wages, and tax revenues for the local economy.

Intervenors assert that the FEIS improperly relies on alleged secondary benefits to justify HRI's proposed mining project or inflated secondary benefits such as local employment, tax revenues, and income. *See* E/S NEPA Brief at 36-45; Sams NEPA Brief at 24-31.

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[9]Intervenors concern that the proposed project threatens peace and security and is not needed, *see* E/S Brief at 33-36, is speculative. Such speculation does not disturb the reasonableness of the reliance on a mandate for the U.S. Secretary of Energy to encourage us of domestic uranium set forth by Congress. *See* FEIS Section 5-1.

[10]Intervenors concern that the Staff erroneously relied on HRI's private economic gain in the cost-benefit analysis set forth in the FEIS, *see* E/S NEPA Brief at 36, is unfounded. The FEIS specifically states that the benefits and costs that are internal to HRI are not "subject to government regulation and, therefore, are not assessed in this FEIS." FEIS at 5-1. Thus, HRI's private gain was not considered.

These criticisms are not well founded. There is a qualitative and quantitative discussion in Section 5 regarding projections on uranium production, uranium prices, Navajo earnings, and county tax revenues. *See* FEIS at 5-1 to 5-6 and section 4.9. The FEIS notes the Congressional mandate related to domestic use of uranium (42 U.S.C. §§ 2201b, 2296b-3) and the public interest in a domestic uranium supply. FEIS at 5-1. Rather than relying on the secondary benefits alone, the public benefits of helping maintain domestic uranium production capabilities and the socioeconomic benefits described were found to outweigh environmental costs, particularly since such costs could be mitigated through conditions in the license. *See* FEIS at 5-1 to 5-7, xx-xxi. A *maximum* production level (of one million pounds per year per site) is assumed as an "upper bound" or "worst case" for assessing the potential environmental impacts of the project. The cost-benefit analysis reasonably assumed the same production level. If mining below that level actually occurs, the maximum production level would actually overstate the economic benefits of the project as well as the environmental impacts, particularly on groundwater. Therefore, the environmental impacts of any reduced uranium production would fall within those evaluated in the FEIS.

Intervenors are correct in stating that "a price close to $15.70 per pound is not forecast until 2010, " *see* E/S Brief at 39, but the use of that figure was reasonable in that the FEIS assumes production at Unit 1 and Crownpoint would continue through 2016 (*e.g.*, FEIS Table 5.3). Given the volatility of the international uranium supply, a projected price of $15.70 per pound may not be speculative for this time period. Similarly, the production costs set forth in the FEIS were prepared in late 1996 using available information and cannot be deemed unreasonable merely because 1999 costs were not accurately predicted.

The projected labor force of 100 persons and wages of $24,000 per year were an estimate of average conditions over the life of the project. *See* FEIS at 5-4 to 5-5. Such figures could be high for 1997, but low for 2010 or 2016, the projected end of the project. Notably, Table 4.28 (FEIS at 4-98) offers the following caveat:

> Note: The estimates contained in this table are intended to provide perspective on the potential effects of the proposed project on local employment and income. The estimates are not certain projections of what will actually happen. Many factors could decrease actual project effects, including hiring from outside local communities and reduced operating levels.

The FEIS assumes that project jobs would be filled by local Navajos because HRI has stated a preference for hiring local Navajos to the extent possible and because, as stated in FEIS, Appendix B, at 6, the Staff recommended: (1) that HRI's preference for hiring local Navajo be made explicit in a written project hiring plan, which would be developed with input from, and reviewed by, the BIA and presidents of the six local Navajo Chapters; and (2) that HRI provide an annual report for submission to BIA and the six local Navajo Chapters stating the number of project employees who are Navajo, the number who are non-Navajo, and the number of Navajo employed from each Chapter.

Intervenors argue that "it is unreasonable to conclude that HRI will employ local Navajos for all 100 positions" because (1) HRI might transfer trained workers from Texas and pay them a lower salary and (2) a preference in hiring Navajo could violate the Navajo Preference in Employment Act ("NPEA"), 15 N.N.C. § 601, because it may favor less-qualified local Navajo residents over better qualified Navajos from other areas. *See* E/S NEPA Brief at 41; Sams NEPA Brief at 28-30.

The FEIS notes that projection of community earnings was consistent with HRI's contractual and stated intention to hire qualified Navajo that the Staff expected to reside within Crownpoint or Church Rock Chapter, but that workers could reside anywhere within driving distance. FEIS at 4-97, Table 4.27, note b. The FEIS also qualified its employment projections as follows:

> Predicting the effect on community employment of HRI's commitment to Navajo hiring preferences is uncertain. Some jobs would probably go to Navajo living outside the Crownpoint Chapter, and some jobs might go to Crownpoint residents now employed outside of the Crownpoint Chapter. Therefore, Crownpoint Chapter unemployment might not be reduced on a one-to-one basis with respect to potential project employment.

FEIS page 4-97. Thus, the FEIS recognized that benefits could be lower than predicted by HRI.

Intervenors' assertion that royalty benefits were inflated, *see* E/S NEPA Brief at 42-43, should also be rejected. The FEIS contained the following caveat about potential royalties:

> There could be about $1.1 million in annual royalty income going to holders of leases negotiated with HRI, depending on production from Unit 1 and the price of U_3O_8. However, this income would be concentrated (about nine lease holders), and would probably not have a widespread effect.

FEIS at 5-4. Thus, contrary to Intervenors' assertion, the FEIS downplays the importance of these revenues as a benefit of the project.

The FEIS offers numerous caveats when discussing potential tax benefits, including that: (1) Table 4.29 acknowledges the uncertainty of annual tax collection estimates by showing various production and price combinations for yellowcake; (2) the Navajo Nation Business Activity Tax (BAT) and BAT Construction Tax apply to activities on the Navajo Reservation and in areas outside the reservation if such areas meet the definition of "Indian

country," and (3), although HRI's project would not be located on the Navajo Reservation, the BAT could apply to the project's gross receipts if it is determined that the project is within Indian country. FEIS at 4-101.

The FEIS also notes that potential contribution of the proposed project to the Navajo Nation could be a significant part of Navajo Nation tax revenues, but that Navajo Nation tax revenues from the project could depend on unresolved legal issues related to taxing jurisdiction (FEIS at 4-103). These statements reflect a reasoned approach to evaluating the potential benefits of the project and Intervenors assertions should be rejected.

2. Environmental Costs Are Not Underestimated

Intervenors claim that the FEIS underestimates environmental costs because mitigation costs were not considered and other environmental impacts (groundwater, land use, radioactive air emissions, liquid waste disposal, cultural resource, and health impacts) are not addressed. *See* E/S NEPA Brief at 45-54.

Because the FEIS evaluated the impacts of a Federal action (the issuance of a license authorizing ISL mining), it was appropriate to frame the cost-benefit analysis in terms of the *public* costs and *public* benefits of the proposed project. Contrary to Intervenors' assertion, the "project's impacts and proposed measures to protect and restore the environment" is discussed in the FEIS Section 4 and Appendices A, B, C, and D. The cost of every mitigative measure is not quantified in the FEIS, but the significant costs are qualitatively discussed regarding relocation of drinking water wells and emergency services. *See* FEIS Section 5.2. Therefore, the FEIS discussion of these matters is adequate.

E. Lack of Cost-Benefit Analysis Among Alternatives

Intervenors contend that 10 C.F.R. § 51.71(d) requires an analysis which considers and balances the environmental and other effects of the proposed action and the alternatives available for reducing or avoiding adverse environmental and other effects. E/S Brief at 54. While Section 5 does not contain a conclusion about whether the benefits of the proposed project outweigh the environmental impacts, it is apparent from reading the various sections under each alternative and the Staff's adoption of Alternative 3 (issuance of the license with certain conditions), *see* FEIS at xx-xxi and Section 4, as later confirmed by the January 1998 issuance of the license, that the Staff found that the benefits of the chosen alternative outweighed the costs.[11]

F. No Supplementation of the FEIS is Required

The NRC prepared and published a Draft Environmental Impact Statement (DEIS) and FEIS in October 1994 and February 1997, respectively.

ENDAUM and SRIC assert that the Staff violated NEPA and 10 C.F.R. §§ 51.72(a), 51.92(a) because no supplement to the DEIS or FEIS was issued. *See* E/S NEPA Brief at 60-72. Intervenors correctly state that a supplement is required when (1) there are substantial changes in the proposed action that are relevant to environmental concerns or

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[11] ENDAUM and SRIC claim that the FEIS does not evaluate or sufficiently discuss the impacts of suggested mitigation measures. E/S NEPA Brief at 73-75. Movement of the Crownpoint water supply, land use impacts, and the testing and surety information that depends on well-field specific information is encompassed by the impacts associated with authorizing Alternative 1 and the discussion of the costs of replacement wells and distribution system. *See* FEIS Section 4; FEIS at 5-6 to 5-7. While adverse impacts to individuals within the local community may exist even with the adoption of mitigation measures, the implied conclusion of the FEIS is that such impacts would be offset by the overall benefits the project.

(2) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. *See* 10 C.F.R. § 51.92. They wrongly conclude, however, that performance-based licensing, the modified alternative in the FEIS, and the reversal of the original sequence of mining (*i.e.,* beginning at Church Rock Section 17 then proceeding north to Church Rock Section 8), warrants supplementation and recirculation of the FEIS. *See id.*

The DEIS was issued for "comment by the public and other affected agencies" in October 1994 and the Staff's responses to public and agency comments on the DEIS are in Appendix A of the FEIS. The matters raised do not constitute "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." First, if the price of uranium remains lower than projected in the FEIS, HRI could abandon the project and the construction and operation impacts would be consistent with the no-action alternative. *See* HRI NEPA Response at 14-15. Thus, the environmental impacts would be less than assumed in the FEIS. Second, the Presiding Officer has already found that the PBL authorizes HRI to make only low-risk changes in its mode of operation, *see* LBP-99-10, 49 NRC ___, slip op. at 2-4 (February 19, 1999) (Partial Initial Decision on Performance-Based Licensing Issues), and, thus it can be concluded that associated environmental impacts would not be significant. Third, to the extent alternatives changed from the DEIS to the FEIS, the alternatives were "qualitatively within the spectrum of alternatives discussed" in the DEIS because Alternative 2 (alternate sites for ISL mining and yellow cake packaging and drying) and Alternative 3 (NRC conditions on license issuance) are variations of HRI's proposal. Fourth, the Staff disputes Intervenors' assertions about the effect of

Section 8 mining on groundwater and the potential for undetected excursions as Intervenors have not shown that drinking water would be affected. *See generally*, NRC Staff's Response to Intervenor Amended Presentation on Groundwater Issues, dated March 12, 1999, at 3-12. Inasmuch as there were no significant changes in the scope of the action or the potential environmental impacts of the proposed action and alternatives, supplementation and recirculation of the FEIS are not warranted.

CONCLUSION

As discussed above, Intervenors have failed to identify any deficiencies in the FEIS which warrant revocation of the license. Accordingly, the Staff requests the Presiding Officer deny their requests.

Respectfully submitted,

Mitzi A. Young
Counsel for NRC Staff

Dated at Rockville, Maryland
this 1st day of April, 1999

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE PRESIDING OFFICER

In the Matter of	)	
	)	Docket No. 40-8968-ML
HYDRO RESOURCES, INC.	)	
2929 Coors Road, Suite 101	)	(Leach Mining and Milling License)
Albuquerque, New Mexico 87120	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF'S RESPONSE TO INTERVENOR PRESENTATIONS ON NEPA ISSUES (PURPOSE, NEED, COST-BENEFIT, ALTERNATIVES, AND SUPPLEMENTATION)" and "AFFIDAVIT OF ROBERT D. CARLSON" in the above-captioned proceeding have been served on the following by U.S. Mail, first class, or, as indicated by a single asterisk through deposit in the Nuclear Regulatory Commission's internal mail system, or, as indicated by double asterisks, via U.S. Mail, first class and e-mail, this 1st day of April, 1999:

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NUCLEAR REGULATORY COMMISSION

BEFORE THE PRESIDING OFFICER

In the Matter of	)	
	)	Docket No. 40-8968-ML
HYDRO RESOURCES, INC.	)	
2929 Coors Road, Suite 101	)	Re: Leach Mining and Milling License
Albuquerque, New Mexico 87120	)	

AFFIDAVIT OF ROBERT D. CARLSON

I, Robert D. Carlson, being duly sworn, state as follows:

1. I am employed by the U.S. Nuclear Regulatory Commission (NRC), Office of Nuclear Material Safety and Safeguards in the Uranium Recovery and Low Level Waste Branch of the Division of Waste Management. I am the NRC Project Manager responsible for managing environmental and safety reviews concerning Hydro Resources, Inc.'s application to conduct an in-situ leach (ISL) mining project at Crownpoint, New Mexico, and have served in this capacity since August 1996. A statement of my professional qualifications was previously filed in this proceeding as an attachment to my February, 1998, affidavit.

2. In preparation of this affidavit, I read: (1) ENDAUM's And SRIC's Written Presentation In Opposition To Hydro Resources, Inc.'s Application For A Materials License With Respect To: NEPA Issues Concerning Project Purpose and Need, Cost/Benefit Analysis, Action Alternatives, No Action Alternative, Failure to Supplement EIS, And Lack of Mitigation, dated February 19, 1999; (2) Final Written Presentation of Grace Sam and Marilyn Morris, dated February 19, 1999; (3) NUREG-1508, Final Environmental Impact Statement to Construct and Operate the Crownpoint Uranium Solution Mining Project, Crownpoint New Mexico, dated

February 1997 (FEIS); (4) Hydro Resources, Inc.'s Response To ENDAUM and SRIC's Brief With Respect To NEPA Issues Concerning Project Purpose And Need, Cost/Benefit Analysis, Action Alternatives, No Action Alternative, Necessity To Supplement EIS, Mitigation, And Cumulative Impacts, dated March 25, 1999; (5) Hydro Resources, Inc.'s Response To The Final Written Presentation Of Grace Sam and Marilyn Morris, dated March 29, 1999; and (6) DOE/EIA-0436(97), "Nuclear Power Generation and Fuel Cycle Report 1997," dated September 1997 (EIA 1997) (prepared by the Energy Information Administration, Office of Coal, Nuclear, Electric and Alternate Fuels, U.S. Department of Energy).

3. The purpose of this affidavit is to address the basis for the Staff's findings in the FEIS. The environmental consequences of the proposed project, including the impacts of various alternatives to the proposed issuance of a license authorizing the construction and operation of HRI's mining project are discussed in detail in FEIS Section 4, "Environmental Consequences, Monitoring, and Mitigation." That section evaluates the individual impacts on, for example, air quality and noise, geology and soils, and groundwater, related to each alternative. Each section contains a qualitative and/or quantitative analyses (where appropriate) in order to assess the impact(s) of the proposed action. Based on this information, the Staff identified consequences that were potentially significant and harmful to human health and safety or the environment and made recommendations to mitigate these adverse impacts as part of its preferred alternative, Alternative 3 (NRC Staff-Recommended Action). Accordingly, based on the conclusions reached concerning each alternative, the staff weighed the costs and benefits of proceeding with Alternative 3.

4. The recommended mitigation measures (e.g., relocation of wells, monitoring requirements, and consultation with local authorities) were discussed in Section 4 of the FEIS and implicitly considered in cost-benefit analysis set forth in Section 5 of the FEIS. The significant human and environmental costs and benefits associated with implementing these mitigative measures were considered in determining whether the project should proceed. See FEIS, Sections 4 and 5; FEIS at xx-xxi.

5. Under License Condition 9.5, a surety amount will be established to cover all restoration and decommissioning costs in the event that HRI fails to complete the approved reclamation in accordance with NRC requirements (10 CFR Part 40, Appendix A, Criterion 9).

6. The primary public benefit of the proposed project would be to help keep the domestic uranium production industry viable, while the secondary public benefit would be in the form of additional employment income, royalty income, and tax revenues generated by the mining operation (FEIS Section 5.1). Although some individuals may be adversely effected by the project (See FEIS impact discussions at Section 4 and Costs at FEIS 5.2), the Staff determined that the local community could benefit from the proposed action. (See FEIS 5.1).

7. Intervenors' assertion that there would be little or no economic benefit from HRI's proposed project is contrary to figures relied on by the Staff (see FEIS ref. DOE 1994b, EIA 1997). The attached EIA 1997 indicates that there will be a continuing world growth need for uranium even though domestic production is projected to decrease (EIA 1997). While domestic demand for uranium is shrinking, it is also true that worldwide demand for uranium was projected to grow at the time the FEIS was being prepared. At the end of 1996, nuclear capacity in the "Far East" Region (i.e., China, Japan, North Korea, South Korea, and Taiwan) was

projected to grow at an annual rate of 3.4 percent through the year 2015, and nuclear capacity in the "other" regions (*i.e.*, Argentina, Brazil, India, Iran, Mexico, Pakistan, South Africa, and Turkey) was projected to grow at an annual rate of 5.6 percent during the same period (EIA 1997). Worldwide, there were 45 nuclear units under construction and 27 units in the planning stages at the end of 1996 (EIA 1997). With these projections of continued nuclear development, annual worldwide uranium requirements for nuclear power reactors from 1997 through 2015 were projected to range from 140 million to 167 million pounds, with cumulative requirements over the same period projected to approach 3 billion pounds (EIA 1997).

8. The foregoing is true and correct to the best of my knowledge and belief.

Robert D. Carlson

Sworn and subscribed to before me
this 1 day of April, 1999

CIRCE E. MARTIN
NOTARY PUBLIC
MONTGOMERY CO., MD.

Circe E Martin
Notary Public
My commission expires: 03/01/03

DOE/EIA-0436(97)
Distribution Category UC-950

Nuclear Power Generation and Fuel Cycle Report 1997

September 1997

Energy Information Administration
Office of Coal, Nuclear, Electric and Alternate Fuels
U.S. Department of Energy
Washington, DC 20585

Overview

Nuclear power is an important source of electric energy and the amount of nuclear-generated electricity continued to grow as the performance of nuclear power plants improved. In 1996, nuclear power plants supplied 23 percent of the electricity production for countries with nuclear units, and 17 percent of the total electricity generated worldwide. However, the likelihood of nuclear power assuming a much larger role or even retaining its current share of electricity generation production is uncertain. The industry faces a complex set of issues including economic competitiveness, social acceptance, and the handling of nuclear waste, all of which contribute to the uncertain future of nuclear power. Nevertheless, for some countries the installed nuclear generating capacity is projected to continue to grow. Insufficient indigenous energy resources and concerns over energy independence make nuclear electric generation a viable option, especially for the countries of the Far East.

Current Status and Recent Developments

Watts Bar 1 May be the Last U.S. Reactor

During 1996, five nuclear reactors worldwide were connected to their respective electricity grid. In the United States, 110 reactors, having a total capacity of 100.7 GWe, were in operation (Figure OV1).[1] Watts Bar 1, connected to the grid in February 1996, could be the last commercial nuclear reactor constructed in the United States within the projected time frame. At year-end 1996, 442 commercial nuclear units with a total capacity of 351 net gigawatts-electric (GWe) were operating in 32 countries, generating 2,300 net terawatthours of electricity (Figure OV2).

Figure OV1. Historical U.S. Nuclear Capacity and Projected Capacity, 1980-2015

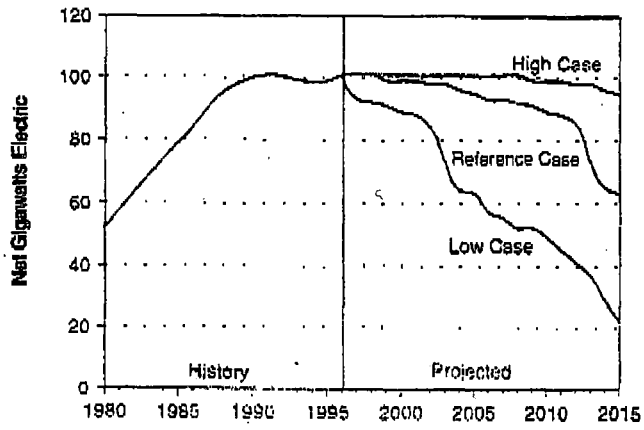
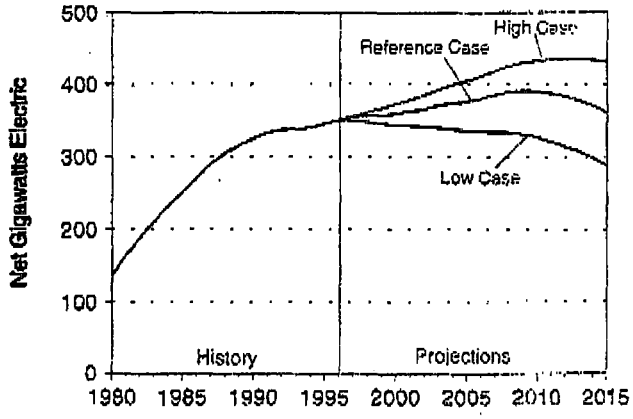


Figure OV2. World Nuclear Capacity, 1980-2015



Russia and South Korea Led in Units Under Construction

As of year-end 1996, 45 nuclear units were under construction. Russia and South Korea each had seven units under construction—the largest number for a single country. Additionally, there were 27 units in the planning stages, and 6 indefinitely deferred units that are not projected ever to be completed. Most of the planned units are located in China and Japan and are scheduled to begin operation between 2002 and 2010.

Record Nuclear Plant Performance Throughout the World

In 1996, record electricity production was reported in several countries, including Bulgaria, Finland, Germany, Hungary, India, Japan, South Korea, Ukraine, and the United States. In the United States, nuclear power accounted for 19.4 percent of the total generated electricity in 1996.[2] Germany's nuclear electricity share was 30 percent with no new nuclear units having come online since 1989.

Reversal in Uranium Spot-Market Prices

The average uranium spot-market price for the unrestricted world market and the restricted U.S. market in 1996 were \$14.17 and \$15.57 per pound U_3O_8, respectively. Both prices had risen from 1995. However, prices began to decline in mid-1996 in response to utilities purchasing uranium in excess of immediate requirements. By May 1997, prices had fallen to \$10.50 per pound U_3O_8

Overview

for the unrestricted market and $11.40 per pound U_3O_8 for the restricted market.

Commercialization of Surplus Defense Material

In 1996, a five-year contract was signed between the United States Enrichment Corporation (USEC) and Techsnabexport regarding the sale of low-enriched uranium (LEU), which will be derived from highly enriched uranium (HEU) taken from dismantled Russian nuclear warheads. By 2004, uranium derived from Russian HEU could supply 33 percent of U.S. commercial requirements. In addition, the U.S. Department of Energy announced plans to sell or transfer inventories of HEU, LEU, and natural uranium that have been declared surplus to national defense needs. A total of about 470 million pounds of U_3O_8 and 100 million separative work units (SWU) are expected to be displaced under current plans to commercialize U.S. and Russian inventories formerly held for defense purposes. The penetration of surplus defense material into the U.S. uranium market is restricted by legislation and trade policies.

Yucca Mountain Tunnel Boring Successful

In April 1997, DOE completed its Exploratory Studies Facility (ESF) tunnel at the Yucca Mountain site. Excavation of the ESF began in September 1994. The ESF will serve as an underground laboratory for determining whether the Yucca Mountain site can provide a suitable geologic repository for the long-term storage of spent fuel and other high-level nuclear waste. DOE hopes to complete by 1998 an assessment of the viability of Yucca Mountain to serve as such a repository. Yucca Mountain is scheduled to begin receiving nuclear waste in 2010.

Outlook

World's Nuclear Capacity Begins to Decline by 2010

Nuclear capacity for the reference case is projected to increase from 351.0 net GWe to 390.5 net GWe by 2010 before falling to 359.6 net GWe by 2015. The low growth in projected capacity is attributed to the projected retirement of several U.S. nuclear reactors. In Asia, primarily South Korea, China, Japan, Taiwan, and India, there is a genuine desire for building new plants because these countries, with the exception of China and India, are without an abundance of natural gas or coal and face the alternative of importing fuels at relatively high cost. Over 70 percent of the world's new nuclear capacity is anticipated in these five countries. In the reference case, the nuclear capacity of the Far East and "Other" regions grow at an annual rate of 3.4 and 5.6 percent, respectively, through 2015. In North America, Western Europe, and Eastern Europe, capacities show declining growth rates of 2.3, 0.5, and 0.4 percent, respectively.

Uranium and Enrichment Services Requirements Continue to Grow

For EIA's reference case, the annual worldwide uranium requirements for nuclear power reactors from 1997 through 2015 are projected to range from 140 million to 167 million pounds. Cumulative requirements over the same period are projected to approach 3.0 billion pounds. Reactors in Western Europe account for 30 percent of the cumulative requirements, followed by the United States (26 percent) and the Far East (24 percent). In response to its growing nuclear power capacity, the Far East is anticipated to increase its share of worldwide uranium requirements over time.

Annual worldwide enrichment service requirements are projected in EIA's reference case to range from 32 million SWU to 37 million SWU. Cumulative enrichment requirements over the same period are projected at 661 million SWU. Western Europe, the United States, and the Far East require the largest share of enrichment services. The Far East's share of worldwide requirements will rise in conjunction with the region's increased nuclear power generating capacity in the later years of the projection period.

MOX Fuel Reduces Requirements for both Uranium and Enrichment Services

Mixed oxide (MOX) fuel for nuclear reactors is being utilized in Belgium, France, Japan, Germany, and Switzerland. Although not incorporated in the EIA reference case, EIA projects that the continuing use of MOX fuel in these countries will reduce uranium requirements over the forecast period by around 7 percent and enrichment services by 8 percent.

Spent Fuel Continues to Accumulate

In the EIA reference case, world nuclear reactors are projected to discharge 10,000 metric tons of uranium as spent fuel in 1997, while U.S. reactors are projected to discharge 2,000 metric tons. In the period 1997-2015,

world cumulative discharges of spent fuel are projected to total 206 thousand metric tons of uranium, with the U.S. share at 38 thousand metric tons.

Uranium Price to Decline Before Rising to Higher Level

The spot-market price (in constant 1996 dollars) for the U.S. market is projected to decline in 1997 following increased purchases by utilities during previous years. U.S. uranium production in 1997 is projected to decline to 5.9 million pounds U_3O_8 from the 1996 output of 6.3 million pounds. The price is expected to rise in 1998 as the market adjusts to a reduction in excess commercial inventories. The decline in commercial inventories is expected to be offset by increased production, particularly from Australia and Canada, and sales of Government surplus inventories. By 2003, the price is projected to rise above $15.00 per pound U_3O_8 as the rate of introduced Government surplus inventories is stabilized and lower cost reserves are depleted. In 2010, the spot-market price in constant 1996 dollars is projected to be around $16.00 per pound U_3O_8. For most of the forecast period, U.S. production is projected to range from 6.6 to 8.5 million pounds U_3O_8. Over half of U.S. reactor requirements are projected to be filled by imports. In addition to imports, government inventories previously held for defense purposes and commercial inventories will supply uranium to U.S. utilities.