NUREG–0750
Vol. 49, No. 1
Pages 1–22

NUCLEAR REGULATORY COMMISSION ISSUANCES

January 1999

U.S. NUCLEAR REGULATORY COMMISSION

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A year's subscription consists of 12 softbound issues,
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Office of the Chief Information Officer
U.S. Nuclear Regulatory Commission
Washington, DC 20555–0001
(301–415–6844)

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This report includes the issuances received during the specified period from the Commission (CLI), the Atomic Safety and Licensing Boards (LBP), the Administrative Law Judges (ALJ), the Directors' Decisions (DD), and the Decisions on Petitions for Rulemaking (DPRM)

The summaries and headnotes preceding the opinions reported herein are not to be deemed a part of those opinions or have any independent legal significance.

U.S. NUCLEAR REGULATORY COMMISSION

Prepared by the
Office of the Chief Information Officer
U.S. Nuclear Regulatory Commission
Washington, DC 20555–0001
(301–415–6844)

COMMISSIONERS

Shirley A. Jackson, Chairman
Greta J. Dicus
Nils J. Diaz
Edward McGaffigan, Jr.
Jeffrey S. Merrifield

G. Paul Bollwerk III, Acting Chief Administrative Judge
Atomic Safety & Licensing Board Panel

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Shirley Ann Jackson, Chairman
Greta J. Dicus
Nils J. Diaz
Edward McGaffigan, Jr.
Jeffrey S. Merrifield

In the Matter of **Docket No. 40-8968-ML**

HYDRO RESOURCES, INC.
(2929 Coors Road Suite 101,
Albuquerque, NM 87120) **January 29, 1999**

Exercising its *sua sponte* supervisory authority over adjudications, the Commission reviews and vacates a scheduling order issued by the Presiding Officer on January 21, 1999, and reaffirmed on January 25, 1999.

RULES OF PRACTICE: *SUA SPONTE* REVIEW (SCHEDULING ORDER)

The Commission is loath to supervise filing schedules in matters being handled by licensing boards and presiding officers, but will do so when appropriate.

RULES OF PRACTICE: SCHEDULING

The Commission discourages extensions of deadlines absent extreme circumstances, for fear that an accumulation of seemingly benign deadline extensions will in the end substantially delay the outcome of the case. *See Statement of Policy on Conduct of Adjudicatory Proceedings*, CLI-98-12, 48 NRC 18, 21 (1998).

MEMORANDUM AND ORDER

In this Subpart L proceeding, several Intervenors challenge Hydro Resources, Inc.'s, license to conduct an *in situ* leach mining project in McKinley County, New Mexico. The proceeding is complicated. It already has been the subject of several Commission decisions, including one issued last October that rejected a petition for review challenging a scheduling order issued by the Presiding Officer. CLI-98-22, 48 NRC 215 (1998). Today, exercising our inherent *sua sponte* supervisory authority over adjudications,[1] we review another of the Presiding Officer's scheduling orders, this one issued on January 21, 1999, and reaffirmed on January 25. It extends the deadline for Intervenors' final briefs from February 1 until March 5. We vacate that scheduling order and require Intervenors to file their briefs by February 16.

We are loath, of course, to supervise filing schedules in matters being handled by licensing boards and presiding officers, but we will do so when appropriate. *See Baltimore Gas & Electric Co.* (Calvert Cliffs Nuclear Power Plant, Units 1 and 2), CLI-98-19, 48 NRC 132, 134 (1998). In this longstanding case, we repeatedly have advised the parties and the Presiding Officer of our interest in resolving as many issues as possible as soon as possible. Indeed, our commitment to expedition and efficiency is what persuaded us *not* to second guess the Presiding Officer's decision last September to bifurcate his consideration of the case between issues of immediate concern and those of more remote concern:

> The Presiding Officer's decision to concentrate on deciding the most time-critical issues at the outset should conserve resources and expedite decisions, and thus is consistent with our guidance calling on presiding officers "to establish schedules for promptly deciding the issues before them, with due regard for the complexity of contested issues and the interests of the parties." *Statement of Policy on Conduct of Adjudicatory Proceedings*, 48 NRC at 20. Our most recent decision in this very proceeding stressed our interest in fair, but speedy, decisionmaking. *See* CLI-98-16, 48 NRC 119, 120 (1998).

CLI-98-22, 48 NRC at 217.

In the current order, the Presiding Officer inexplicably granted Intervenors a *5-week* extension of briefing time, nearly 3 weeks *more* than Intervenors themselves had requested. (Intervenors had asked for a February 16 deadline; the Presiding Officer established a March 5 deadline.) The Licensee, Hydro Resources, filed a motion to reconsider and vigorously opposed the extension of time, the Presiding Officer issued a one-page order refusing to reconsider and commenting that "[i]n light of the complexity of the record, a deadline

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[1] *See Statement of Policy on Conduct of Adjudicatory Proceedings*, CLI-98-12, 48 NRC 18, 20 (1998).

for Intervenors' Final Brief prior to March 5, 1999, would not contribute to an efficient determination of this case." *See* Order dated Jan. 25, 1999.

We do not question the complexity of this proceeding. It has generated innumerable issues and hundreds of pages of briefs and affidavits. The Presiding Officer and the parties face a formidable task in bringing coherence to the many factual and legal questions posed by the proceeding. That said, however, we expect the parties and the Presiding Officer to continue to move expeditiously toward a resolution. It does not advance that goal to stretch out briefing deadlines well beyond what even the hard-pressed parties themselves need or request, as the Presiding Officer appears to have done here. In fact, the policy statement on adjudicatory proceedings that we issued last summer explicitly discourages extensions of deadlines absent extreme circumstances, for fear that an accumulation of seemingly benign deadline extensions will in the end substantially delay the outcome of the case. *See* CLI-98-12, 48 NRC at 21. Accordingly, we vacate the Presiding Officer orders of January 21 and January 25 setting a March 5 filing deadline for Intervenors' next round of briefs, and establish the deadline for February 16.[2] In fairness, we also suggest that the Presiding Officer look favorably on a 2-week extension of the deadline for responsive briefs by Hydro Resources and the NRC Staff should those parties so request.

We have two final points on case management. First, our understanding from the Presiding Officer's original decision to divide the case into segments, and to allow staggered briefing of issues, was that he would issue a series of partial decisions as he resolved the set of issues presented by each briefing phase. That continues to be our expectation. A series of partial decisions, rather than one grand decision at the proceeding's end, would accommodate efficient appellate review by the Commission, if it is sought. *See* 10 C.F.R. § 2.1253.

Second, the Presiding Officer thus far has resolved various threshold controversies before him with admirable dispatch, frequently within a few days of the parties' submissions. We anticipate that he will continue to do so, although we fully recognize the complexity of many of the merits controversies awaiting decision. *See, e.g.*, Presiding Officer Order dated Jan. 26, 1999 ("Motions to reply or to request oral argument should be made promptly," because "[t]he Presiding Officer is proceeding to prepare analyses and draft decisions" and must "allocate time efficiently"). Our expectation is that the Presiding Officer will complete his series of merits decisions on all matters related to the Church

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[2] February 16 is the deadline requested by Intervenors in their January 19 motion for an extension of time. In view of the Presiding Officer's January 21 decision to establish a March 5 deadline, we cannot now deny Intervenors' extension request outright, and thereby leave intact the original February 1 deadline. At this point, Intervenors undoubtedly are in no position to file adequate pleadings by the original deadline. We caution all parties in this case, however, to pay heed to the guidance in our policy statement that ordinarily only "unavoidable and extreme circumstances" provide sufficient cause to extend filing deadlines. *See* CLI-98-12, 48 NRC at 21.

Rock Section 8 property — the first area where Hydro Resources intends to engage in mining — no later than June 15. If he cannot do so, we ask that he issue an order stating the reasons why the June 15 date is impracticable and establishing an alternate final decision date. *See generally* CLI-98-12, 48 NRC at 21 (Commission "strongly encourages presiding officers to issue decisions within 60 days after the parties file the last pleadings permitted by the board's schedule for the proceeding").

IT IS SO ORDERED.

For the Commission[3]

ANNETTE VIETTI-COOK
Secretary of the Commission

Dated at Rockville, Maryland,
this 29th day of January 1999.

[3]Commissioners Dicus and Merrifield were not available for the affirmation of this Memorandum and Order. Had they been present, they would have affirmed the Memorandum and Order.

Directors' Decisions Under 10 CFR 2.206

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION

Samuel J. Collins, Director

In the Matter of **Docket No. 50-213**

CONNECTICUT YANKEE ATOMIC POWER COMPANY
(Haddam Neck Plant) **January 12, 1999**

By a petition dated September 11, 1998, submitted by Rosemary Bassilakis on behalf of the Citizens Awareness Network (Petitioners), Petitioners requested that (1) the U.S. Nuclear Regulatory Commission (NRC) immediately revoke or suspend the Connecticut Yankee Atomic Power Company's (CYAPCO's) operating license for the Haddam Neck Plant (HNP), (2) an informal public hearing on the petition be held in the vicinity of the site, and (3) the NRC consider requiring CYAPCO to conduct decommissioning activities under 10 C.F.R. Part 72. Petitioners alleged that (1) CYAPCO demonstrated incompetence in creating and maintaining a safe work environment and an effective, well-trained staff; (2) CYAPCO was not conducting its decommissioning activities in accordance with its post-shutdown decommissioning activities report (PSDAR) and, therefore, posed an undue risk to public health; (3) the problems encountered at the plant during the summer of 1998 might not have occurred if the requirements under Part 72 had been applied; and (4) the spent fuel stored on site in the spent fuel pool (SFP) was the primary risk to public health and safety.

The Director of the Office of Nuclear Reactor Regulation issued a Director's Decision on January 12, 1999, concluding that the petition contained no information of which the NRC was not already aware and denying Petitioners' requests for revocation or suspension of the operating license and an informal public hearing. The Licensee's actions have been documented in NRC inspection reports and appropriate enforcement actions have been taken or are being evaluated. The Director granted Petitioners' request to consider applying the requirements of Part 72 to the Connecticut Yankee plant. The NRC's consid-

eration of the applicability of Part 72 was presented in the Director's Decision, which found that Part 72 did not apply to the decommissioning activities under way at the plant. The requirements of 10 C.F.R. Part 50 apply to spent fuel storage and decommissioning at Connecticut Yankee and provide adequate protection of public health and safety.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

I. INTRODUCTION

On September 11, 1998, Ms. Rosemary Bassilakis submitted a petition pursuant to Title 10 of the *Code of Federal Regulations*, section 2.206 (10 C.F.R. § 2.206), on behalf of the Citizens Awareness Network requesting (1) that the U.S. Nuclear Regulatory Commission (NRC) immediately revoke or suspend the Connecticut Yankee Atomic Power Company's (CYAPCO's) operating license for the Haddam Neck Plant (HNP), (2) an informal public hearing on the petition be held in the vicinity of the site, and (3) that the NRC consider requiring CYAPCO to conduct decommissioning activities under 10 C.F.R. Part 72.

In support of their requests, the Petitioners state that (1) CYAPCO demonstrates incompetence in creating and maintaining a safe work environment and an effective, well-trained staff; (2) CYAPCO is not conducting its decommissioning activities in accordance with its post-shutdown decommissioning activities report (PSDAR) and, therefore, poses an undue risk to public health; (3) the problems encountered at the plant during the summer of 1998 might not have occurred if the requirements under Part 72 had been applied; and (4) the spent fuel stored on site in the spent fuel pool (SFP) is the primary risk to public health and safety.

II. BACKGROUND

CYAPCO submitted written certifications of permanent cessation of operations of HNP and permanent removal of fuel from the HNP reactor vessel on December 5, 1996. Upon the docketing of these documents, in accordance with 10 C.F.R. § 50.82(a)(2), CYAPCO was no longer authorized to operate the reactor or to place fuel into the reactor vessel. CYAPCO submitted its PSDAR on August 22, 1997, which, among other items, described its schedule and commitments for decommissioning HNP. The Licensee chose the DECON option for the plant.

The Licensee plans to keep its spent fuel stored in the SFP until such time as the Department of Energy takes possession of it. Systems supporting the

SFP are being modified to operate independently of the rest of the site so that decommissioning activities will have no impact on the SFP.

On March 4, 1997, the NRC issued a confirmatory action letter to document the Licensee's commitments to improve its radiological controls program. Subsequently, on May 5, 1998, the NRC determined that CYAPCO had met its commitments to make those improvements.

The Petitioners state that since May 5, 1998, a series of incidents that occurred at HNP raises questions regarding the ability of CYAPCO to protect worker and public health and safety and the environment. The incidents noted by the Petitioners and a brief statement of NRC's enforcement actions taken to date are listed below:

1. On June 20, 1998, 800 gallons of radioactive liquid, containing approximately 2200 microcuries total activity (excluding tritium and noble gases), were inadvertently released into the Connecticut River from the HNP waste test tank (WTT). The Licensee did not report the release for 2 days.

This event is discussed in Inspection Report 50-213/98-03, which was issued on August 21, 1998. The release was within regulatory limits. However, the event resulted in a Severity Level IV violation because of the Licensee's failure to declare an Unusual Event for an unplanned liquid discharge in which the total activity exceeds 1000 microcuries (excluding tritium and noble gases). The event also contributed to a Severity Level IV violation for inadequate configuration control in that a valve required to be closed was open.

2. On July 7, 1998, 350 gallons of demineralized water were inadvertently spilled, spraying workers in the spent fuel building.

This event is discussed in Inspection Report 50-213/98-03, which was issued on August 21, 1998. The workers involved were neither contaminated nor injured. However, the event contributed to a Severity Level IV violation for inadequate configuration control in that valves red-tagged shut and verified as closed were found open.

3. On July 27, 1998, approximately 1000 gallons of reactor coolant system (RCS) decontamination solution were spilled inside the plant.

This event is mentioned in Inspection Report 50-213/98-03, which was issued on August 21, 1998, as an example of inadequate configuration control in that a valve required to be full open was found less than full open, which contributed to pressure transients and vibrations that resulted in the spill. The partially closed valve contributed to a Severity Level IV violation for inadequate configuration control.

The event is discussed in detail in Inspection Report 50-213/98-04, which was issued on October 29, 1998. There was no release of radioactive water to the environment. However, the report found that the Licensee did not perform walkdown inspections or visual leak checks in the plant's pipe trenches during leak testing of the systems in preparation for the RCS decontamination. In

addition, the report found that the Licensee failed to adequately address potential transient conditions in the letdown system equipment. The NRC identified these deficiencies as apparent violations in that corrective actions to address weaknesses in configuration control were inadequate. The need for enforcement action related to this event is being evaluated by the NRC.

4. On August 11, 1998, the SFP demineralizer retention element and filter failed, allowing contaminated resin beads to enter plant piping.

This event is discussed in Inspection Report 50-213/98-04, which was issued on October 29, 1998. The failures were caused by a combination of increased flow and corrosion due to operating conditions created by the RCS decontamination procedure. The contaminated resin beads increased radiation levels in the pipe trench and containment, areas not readily accessible to workers. The NRC identified this event as an apparent violation in that the Licensee's technical evaluations and procedural controls failed to ensure that contaminated resin remained inside the demineralizer tank.

The final disposition of the apparent violations identified in items 3 and 4 above will be taken in accordance with the NRC's enforcement policy. The NRC is currently evaluating the events and the need for enforcement action. The results of the evaluation will be made available to the public.

The series of events during the summer of 1998 prompted the NRC to conduct a number of conference calls and management meetings with the Licensee. Conference calls were made to Licensee management on July 8 and 15, 1998. During the calls, the Licensee described the results of its preliminary root-cause analyses of the events of June 20 and July 7, 1998, and presented the corrective actions it took to ensure that no similar events would occur during the RCS decontamination procedure. The Licensee documented the commitments it made during those calls in a letter dated July 16, 1998. As a result of the July 27 event, a management meeting was held at the plant site on August 3, 1998, to discuss additional corrective actions taken by the Licensee. These commitments were documented by the Licensee in a letter dated August 12, 1998. The Regional Administrator for NRC Region I met with Licensee management on August 20, 1998, to discuss concerns raised by the Licensee's performance. On September 3-4, 1998, Region I and Headquarters personnel conducted interviews at the site with thirty Licensee managers, supervisors, and workers to obtain information on organizational and management issues associated with the events during the RCS decontamination.

The Petitioners state that CYAPCO never finished its root-cause analysis for the incident on June 20, 1998, before commencing similar work. By letter dated July 16, 1998, CYAPCO committed to completing a root-cause analysis by July 27, 1998, but did not commit to limit or prohibit similar work until the analysis was completed. Inspection Report 50-213/98-03 stated that the Licensee's preliminary analysis of the June 20 event found that the root cause was accidental

bumping of a cross-connect valve, which allowed part scharge of the "A" WTT while the "B" WTT was being discharged. Both had been properly prepared for release; however, they were intended to be leased one at a time. The Licensee suspended WTT discharges until a number of corrective actions, such as installation of a locking device on the cross-connect valve, were taken to prevent recurrence of a similar event. After the preliminary corrective actions were taken, the Licensee removed the prohibition on WTT discharges. The final root-cause analysis was issued by CYAPCO as an internal document and was approved by the HNP Unit Director on July 29, 1998. However, there was no requirement to place the analysis on the docket.

The Petitioners also state that, as of the time of their September 11, 1998 petition, they had not received a response to their letter dated July 7, 1998, to NRC Chairman Jackson, in which they requested that NRC delay the start of the RCS chemical decontamination. The NRC Staff issued a response to the Petitioners in a letter dated August 31, 1998. The response was docketed on September 8, 1998, under accession number 9809080105.

III. DISCUSSION OF PETITIONERS' REQUESTS

The Petitioners' first request is to revoke or suspend the HNP operating license. The Petitioners' basis for the request is that CYAPCO continues to demonstrate incompetence in creating and maintaining a safe work environment and an effective, well-trained staff.

The Petitioners present the series of events outlined in Section II, "Background," as evidence to support their basis.

The NRC considers the series of events that occurred during the summer of 1998 to have been challenges to the Licensee's ability to maintain a safe work environment. As noted in Section II, NRC has taken enforcement action in response to the events. The enforcement actions are based on the Commission's regulations, which place certain requirements on a licensee. To place a licensee under the authority of the regulations, the Commission issues a license with appropriate conditions. As a result, the facility operating license becomes a mechanism through which the Commission holds a licensee to its regulatory responsibilities. Revoking or suspending the HNP license would not relieve the Licensee of its responsibilities but could impede the NRC's ability to enforce regulatory requirements.

The events previously outlined did not result in a radiological release to the environment above regulatory limits, did not cause radiation exposure above regulatory limits, and did not cause injury to workers or the public. In addition, the permanently shutdown and defueled condition of the plant substantially reduces the risk to public health and safety. In light of these facts, the

NRC believes that revoking or suspending the HNP license is not necessary or appropriate. The NRC's enforcement policy provides objective criteria for responding to licensee actions and is adequate to require CYAPCO to take appropriate corrective actions in response to the events outlined. Therefore, the request to revoke or suspend the HNP operating license is denied.

The Petitioners' second request is to hold an informal public hearing in the vicinity of the site. The Petitioners' basis for the request is that CYAPCO is not conducting its decommissioning activities in accordance with its PSDAR and, therefore, poses an undue risk to the public.

With regard to the Petitioners' request for an informal public hearing, the Staff reviewed the PSDAR and found that CYAPCO has followed the sequence of activities included in the PSDAR as Figure 1, "CY Decommissioning Schedule." Additionally, in its PSDAR, CYAPCO committed to controlling radiation exposure to offsite individuals to levels less than both the Environmental Protection Agency's Protective Action Guidelines and NRC's regulations. Both radiation exposures to individuals and effluents to the environment due to decommissioning activities have been within regulatory limits. On the basis of these facts, the Staff finds that there is no undue risk to public health and safety. The Staff also determined that the Petitioners neither provided new information that raised the potential for a significant safety issue (SSI) nor presented a new SSI or new information on a previously evaluated SSI. Therefore, the criteria for an informal public hearing on a petition submitted under the provisions of 10 C.F.R. § 2.206, contained in Part III(c) of Management Directive 8.11, are not satisfied and the Petitioners' request for an informal public hearing has been denied.

The Petitioners' third request is for the NRC Staff to consider applying the requirements of Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste," to decommissioning activities at HNP. The Petitioners present two bases for this request. First, the problems encountered during the decommissioning activities in the summer of 1998 might not have occurred if Part 72 had been applied at HNP. Second, the spent fuel stored in the SFP is the primary risk to public health and safety.

The problems encountered by the Licensee during the summer of 1998 have been examined by the NRC. As illustrated in Section II, the problems were not due to a lack of regulatory requirements. Therefore, the Staff believes that the requirements of Part 72, which address activities associated with an independent spent fuel storage installation (ISFSI), would not have been applicable to the decommissioning activities under way at HNP during the summer of 1998.

The second basis for the request concerns the safe storage of spent fuel at HNP. The Staff's consideration of applying the requirements of Part 72 at HNP is presented in Section IV, below. Therefore, the third request is granted.

IV. APPLICATION OF 10 C.F.R. PART 72 AT HNP

The Staff reviewed the requirements of Part 72 and compared them with the requirements of 10 C.F.R. Part 50, "Domestic Licensing of Production and Utilization Facilities," which currently apply to HNP. The scope of Part 72, as stated in 10 C.F.R. § 72.2, is limited to the receipt, transfer, packaging, and possession of power reactor spent fuel and other radioactive materials associated with spent fuel storage. As a result, decommissioning activities under Part 72 would apply only to the portion of the Part 50 site licensed as an ISFSI. However, the Licensee has not applied for a Part 72 license to establish the SFP as an ISFSI. Furthermore, the Licensee does not intend to decommission the SFP until after the Department of Energy takes possession of the spent fuel. In light of these facts, Part 72 does not apply to HNP and, even if CYAPCO held a Part 72 license, the decommissioning provisions of that part would not apply to the decommissioning activities currently under way at the facility. Because the HNP facility consists of contaminated and activated structures, systems, and components associated with a permanently defueled reactor as well as the SFP, the limited scope of Part 72 is not sufficient to cover the full range of decommissioning activities at a power reactor facility such as HNP.

In contrast, the scope of Part 50 applies to HNP and covers all the structures, systems, and components of a power reactor facility, including the SFP. Part 50 contains specific provisions for decommissioning power reactors in section 50.82, as well as other applicable sections. It follows that the decommissioning of HNP must proceed under Part 50, at least until such time as the decommissioning activities at HNP fall completely within the scope of Part 72 and the Licensee applies for and obtains a Part 72 license. As of now, the activities at HNP extend beyond the scope of Part 72, and Part 50 would continue to apply even if a licensed ISFSI were established at the site.

After considering the applicability of the regulations noted above, the Staff concludes that Part 72 does not apply to HNP at this time because the Licensee does not possess an ISFSI licensed under Part 72 and many of the decommissioning activities to be performed cannot be accommodated within the scope of Part 72.

V. DECISION

For the reasons stated herein, the petition is denied in part and granted in part. The requests to revoke or suspend the HNP operating license and to hold an informal public hearing in the vicinity of the site are denied. The request to consider application of the requirements of 10 C.F.R. Part 72 to HNP is granted. The Staff's evaluation of the applicability of Part 72 at HNP is

presented in Section IV; however, the Staff finds that Part 72 does not apply to the decommissioning activities now under way at the plant.

The Decision and the documents cited in the Decision are available for public inspection in the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW, Washington, D.C., and at the Local Public Document Room for HNP at the Russell Library, 123 Broad Street, Middletown, Connecticut.

In accordance with 10 C.F.R. § 2.206(c), a copy of this Decision will be filed with the Secretary of the Commission for the Commission's review. As provided for by this regulation, the Decision will constitute the final action of the Commission 25 days after issuance, unless the Commission, on its own motion, institutes a review of the Decision within that time.

FOR THE NUCLEAR
REGULATORY COMMISSION

Samuel J. Collins, Director
Office of Nuclear Reactor
Regulation

Dated at Rockville, Maryland,
this 12th day of January 1999.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

Carl J. Paperiello, Director

In the Matter of **Docket No. 40-3453**
(License No. SUA-917)

ATLAS CORPORATION
(370 Seventeenth Street, Suite 3050,
Denver, CO 80202) **January 20, 1999**

On August 2, 1988, Atlas Corporation (Atlas) submitted an application for a license amendment to revise its site reclamation plan for uranium mill tailings at its site near Moab, Utah. On April 4, 1994, notice of Receipt of Application and notice of opportunity for hearing on the application were published in the *Federal Register*. 59 Fed. Reg. 16,665 (1994). On July 13, 1998, the State filed its petition stating that if the petition is found to be untimely that it be treated as a 10 C.F.R. 2.206 petition in accordance with 10 C.F.R. § 2.1205(*l*)(2). The petition was filed by Denise Chancellor, Assistant Attorney General, on behalf of the State. By Memorandum and Order dated August 13, 1998, the ASLB determined that the petition was inexcusably late and would be treated as a petition under section 2.206 in accordance with 10 C.F.R. 2.1205(*l*)(2). On October 22, 1998, notice of receipt of the petition was published in the *Federal Register*. 63 Fed. Reg. 56,667 (1998).

In its petition the State asserted that if Atlas were to proceed with its reclamation plan as approved by the Nuclear Regulatory Commission, it would be in violation of 10 C.F.R. Part 40, Appendix A. The petition was referred to the Director of the Office of Nuclear Material Safety and Safeguards. As provided in section 2.206 and discussed in the *Federal Register* notice, appropriate action was taken on this petition. The Staff reviewed the specific assertions made by the State and concluded that the petition should be denied. The basis for the Staff's conclusions are detailed in this Director's Decision.

DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

I. INTRODUCTION

On August 2, 1988, Atlas Corporation (Atlas or Licensee) submitted an application for a license amendment to revise its site reclamation plan for uranium mill tailings at its site in Moab, Utah. On April 4, 1994, notice of Receipt of Application and notice of Opportunity for Hearing on the application were published in the *Federal Register*. 59 Fed. Reg. 16,665 (1994). On July 13, 1998, the State of Utah (State or Utah) filed the State's Request for Hearing and Petition for Leave to Intervene (petition). By Memorandum and Order dated August 13, 1998, the Atomic Safety and Licensing Board determined that the petition was inexcusably late and would be treated as a petition under 10 C.F.R. § 2.206, in accordance with 10 C.F.R. § 2.1205(*l*)(2).

In its petition, the State asserts that if Atlas were to proceed with its reclamation plan as approved by the U.S. Nuclear Regulatory Commission (NRC), it would not meet the requirements of 10 C.F.R. Part 40, Appendix A. More specifically, the State asserts that the rock apron design (armoring the side slope and toe of the tailings pile) does not provide reasonable assurance against engineering failure at the Atlas Uranium Tailings Site, and thus does not satisfy Appendix A. As bases for its assertion it is stated that the unpredictability of flood events, erosion, and vegetation growth along the river banks makes computation of the probability of river migration extremely difficult and that, therefore, conservatism should be built into how the tailings pile is armored. The State, furthermore, references an April 2, 1998 memorandum from its Department of Environmental Quality, Division of Radiation Control (DRC), wherein it is stated that: (1) there are two different conceptual designs for the Atlas tailings pile apron — one presented by Atlas and accepted by NRC, and the second presented by the U.S. Army Corps of Engineers (ACE); (2) assumptions and inputs to the conceptual models result in the size, gradation, and volume of rock necessary to protect the tailings pile from erosion by the Colorado River; (3) the DRC staff has concluded that the ACE approach is more protective of the tailings pile side slopes; and (4) the DRC staff disagrees with the NRC conclusion that the Atlas design provides the necessary protection of the tailings pile in the event of river migration. A letter acknowledging receipt of the petition and its status for consideration pursuant to section 2.206 was sent to the State on September 26, 1998.

II. BACKGROUND

In 1997, the NRC Staff issued NUREG-1532, "Final Technical Evaluation Report for the Proposed Revised Reclamation Plan for the Atlas Corporation Moab Mill" (TER), presenting its evaluation of technical issues related to Atlas Corporation's proposed reclamation plan for the uranium mill tailings pile. Among the issues considered was the ability of the proposed erosion protection design to prevent erosion from various flooding events over long periods of time. One of the features of the erosion protection design evaluated in the TER was the ability of the self-launching rock apron to prevent erosion of the tailings if the Colorado River were to migrate to the pile.

In the TER, the Staff concluded that the rock apron provided adequate protection for the reclaimed tailings pile, in the unlikely event that the Colorado River migrated several hundred feet and reached the toe of the pile. The adequacy of the apron design was questioned by the State and the Grand County Council (GCC). In addition, the GCC funded a report developed by the ACE that indicated that the rock apron had not been designed properly. The GCC also solicited the opinions of vegetation and geomorphic experts and provided those opinions to the State. These reports, questions, and comments were transmitted to the NRC Staff by the State by letters dated November 10, 1997, and January 9, 1998.

Because the 1997 TER only summarized the NRC Staff review of the rock apron, a supplemental report (SR) was developed to address in detail the questions and concerns raised by the DRC. The SR addressed specific aspects of the Staff review and provided a detailed technical basis for the Staff's conclusions on the adequacy of the rock apron. The SR also addressed issues raised by the GCC and the ACE. Specific topics that were addressed included: (1) potential for erosion and migration of the Colorado River; (2) riprap size needed for the side slopes to protect from overland or overtopping flows; (3) riprap size needed to protect the side slope from velocities in the river; (4) rock volume needed; (5) river velocities; (6) vegetation/tamarisk growth and the effects on river flow velocities; (7) ACE design procedures, including specific discussions of computations and analytical methods; (8) potential for cohesive soils to affect the performance of the rock apron; (9) reasonable assurance requirements, NRC Staff review procedures, and other regulatory requirements; (10) post-licensing monitoring and maintenance; and (11) other conservatisms in the design. Each of these factors was discussed in a degree of detail that was not provided in the TER. In addition, specific contentions and questions raised by the GCC, ACE, and/or DRC were addressed.

III. DISCUSSION

As discussed in the TER, the Staff considers that an adequate design has been provided for the rock apron to be placed at the toe of the Atlas tailings pile side slope near the Colorado River. This conclusion is based on many factors including evaluation of design details that are very site-specific.

For the Atlas site, the design of the rock apron is affected by three principal factors: (1) the velocity or shear stress that is used in various analytical methods to determine the rock size necessary to resist erosive forces; (2) the analytical methods that are used to determine rock size, layer thickness, and rock volume; and (3) the estimated scour depth that is used to determine volume of rock needed in the apron. For each of these factors, there may be several acceptable methods for estimating and calculating the parameters. For example, a designer could assume various combinations of values for velocity, shear stress, radius of curvature, or other inputs to a design method and arrive at different estimates of rock size and rock volume. Also, each parameter requires input data, based to a great extent on the assumed configuration of the river and other assumptions related to expected river velocities.

It should also be emphasized that there are many procedures for determining the rock sizes necessary to resist erosion. Over the years, various government agencies and individuals have developed procedures that best suit their needs, given the degree of conservatism necessary, the risk to public health and safety, and other factors, such as cost. Use of any specific one of those procedures, including the ACE procedure, for determining rock size, is not necessarily "correct" or required. It should be recognized that different methods are used by different organizations and agencies. ACE's special need to protect embankments, where erosion or failure could immediately jeopardize many lives behind those structures, is not necessarily the needs of designers to provide reasonable assurance of tailings stability, or to meet the requirements of 10 C.F.R. Part 40, Appendix A.

The Staff considers it important to use input parameter values that can be reasonably expected to affect the rock apron (if the river were to migrate), not values that are based on very conservative assumptions. For many situations where streambank erosion is imminent, a bank configuration can be easily determined, based on observed conditions. However, in this case, the main river channel is hundreds of feet away and not threatening the tailings pile, and the rock apron must be designed for some future unknown configuration of the river. Therefore, the Staff assumed that the river would retain its principal characteristics, even though it had migrated. Recognizing that exact characteristics would be difficult to predict, the Staff assumed that the river would retain the same width, depth, radius of curvature, and velocity. It is also possible that the river would migrate and develop characteristics such as

increased width, decreased depth, decreased velocity, and increased radius of curvature; such assumptions would result in lesser rock apron designs being protective of the pile.

In making assumptions such as those discussed above, the Staff is required by 10 C.F.R. Part 40, Appendix A, to have reasonable assurance of tailings stability. The Staff is not required to make a determination with absolute certainty. Therefore, given the fact that river migration to the pile in itself is unlikely, the Staff is required only to assume a reasonable configuration, not necessarily an extreme configuration that maximizes every design parameter or input to a riprap design method. Recognizing that a considerable amount of judgment is necessary to predict design conditions at this site , such as river configuration or river velocity, it is not the position of the NRC Staff to assume the most critical value for every input parameter that is used in every calculation. Reasonable assurance only requires that input parameters be selected within a reasonably conservative range of values of the parameter.

It should be emphasized that the Staff does not consider the ACE analyses or design method to be incorrect or inappropriate. Rather, the Staff considered that the input parameters selected for use in the analyses were overly conservative for this specific application and do not represent conditions that can reasonably be expected to occur if the river were to migrate to the rock apron. In the SR, the Staff provided many reasons to support its conclusion that the Licensee's design was adequate and provided extensive discussion to show that the ACE report overestimates the riprap sizes and quantity of rock required for the rock apron to provide reasonable assurance of tailings stability. In summary, based on independent analyses of the Licensee's proposal and the information provided the DRC and ACE, the Staff concludes that Atlas proposes to use a volume and size of rock that is larger than the volume and size computed by the Staff.

Each of the assertions made by the State in the petition have been addressed previously by the Staff. The Staff provided its initial findings in its TER and provided further details of the Staff analysis in its supplemental report that was transmitted to the State by letter dated February 26, 1998. The Staff has provided detailed technical bases for its conclusion that the design of the rock apron meets the requirements of 10 C.F.R. Part 40, Appendix A.

The State was offered an opportunity to provide additional information to further address its assertions. The State indicated that no additional information would be provided for Staff review or consideration.

Each of the State's assertions is addressed in the following discussions. Each assertion is stated and a brief summary of the Staff's analysis is provided. If additional details are needed, they may be found in the Staff's SR.

Assertion 1. The unpredictability of flood events, erosion, and vegetation growth along the river banks makes computation of the probability of river migration very difficult, and therefore conservatism should be built into the tailings pile design.

The Staff agrees that the computation of the probability of river migration is difficult. However, the Staff has concluded that the potential for migration of the Colorado River to the tailings pile is very low and has provided several bases supporting that conclusion. The Staff has also concluded that adequate conservatism has been provided by the apron design to demonstrate that Part 40 requirements have been met and has provided detailed analyses and technical bases supporting that conclusion.

First, the Staff examined aerial photographs of the Colorado River in this area, taken over a period of about 47 years. Those photographs verified that very little erosion has occurred over that period of time.

Second, the Staff reviewed a report prepared by expert geomorphologists that addressed the river migration issue. In that report, it was concluded that river migration was unlikely and that lateral accretion, rather than erosion, has occurred in some areas near the pile. Those expert geomorphologists also examined aerial photographs and concluded that: "Review of available historical photographs indicates that the right bank . . . has remained *remarkably fixed* spatially." (Emphasis added.)

Third, the Staff has visited the site several times and has determined that only some minor erosion of the river banks has occurred and that this can be attributed to sloughing, rather than erosion from river velocities. In fact, it was this minor erosion that led the Staff to question the original conclusion of the Licensee that the river would not erode.

Fourth, despite the information available on channel stability, a conservative approach was taken by Atlas in its reclamation plan by assuming that the Colorado River would migrate to the tailings pile and by designing the erosion protection apron to account for that event. This approach eliminated the need for Atlas to conduct further detailed analyses of river migration and provided a design that exceeds the reasonable assurance requirements specified in Part 40, Appendix A.

Fifth, the Staff examined the effects of increased vegetation growth on the erosion potential of the Colorado River. The Staff performed independent calculations and concluded that the potentially increased density of vegetation and tamarisks in the floodplains of the river will not significantly affect river velocities. Staff computations indicate that the maximum velocity will be only slightly increased in the river channel near the tailings pile. Based on Staff experience with vegetated floodplains and the widespread use of vegetation to stabilize channel banks, it is also likely that increased vegetation density of the

river will *increase* the erosion resistance of the channel banks and floodplain area near the tailings pile.

Assertion 2. There are two different conceptual designs: one presented by Atlas and accepted by the Staff; and the second presented by the ACE.

The Staff has recognized for some time that there are two designs and that the designs are different. In the SR, the Staff addressed the ACE design and provided a detailed analysis of the ACE method and the use of various input parameters to the ACE method. The Staff performed a detailed review of the analyses, provided in the ACE report, that were used to assess the rock requirements for the apron. The Staff evaluated input parameters related to computation of scour depths, river velocities, increases in river velocities at channel bends, and factors of safety. The Staff also examined the technical basis for the development of the ACE procedure, including the supporting laboratory data. The Staff's analysis of the ACE report is also discussed in Assertion 3, below.

Assertion 3. Assumptions and inputs to the conceptual models result in differences in the size, gradation, and volume of rock necessary to protect the tailings pile from erosion by the Colorado River.

The Staff has recognized that differences in input parameters can significantly affect the size and volume of rock required for the rock apron. Extensive discussion of the ACE report and the ACE design method were provided in the SR.

Based on its review of the ACE report, the Staff concluded that the design parameters selected for use in the ACE calculations of rock size were very conservative and did not reflect conditions that are likely to occur at the rock apron if the river migrated to the tailings pile. Velocities, radii of curvature, and scour depths were based on conditions that currently exist upstream, but do not exist in the vicinity of the apron. Velocities that would affect the apron will likely be smaller, and radii of curvature greater, than those that currently exist upstream of the site. In addition, the methods used by ACE to determine design velocities, increases in velocities in bends, and scour depths are conservative and incorporate large factors of safety that may not be necessary to provide reasonable assurance that Appendix A requirements are met. The Staff, however, concluded that if reasonable and likely, values of channel velocity and channel curvature are used in the ACE method, the rock apron design proposed by Atlas is acceptable, even if all the other ACE safety factors are taken into account.

Assertion 4. The DRC staff has concluded that the ACE approach is more protective of the tailings pile side slope.

The Staff agrees that the ACE design is more conservative than the design approved and would protect the pile under more severe conditions if such conditions were to occur. Use of the ACE approach to determine rock size and volume results in larger quantity of larger rock. However, the Staff has concluded that the design proposed by Atlas is acceptable and that more and larger rock is not required to meet the requirements of Appendix A.

In the SR, the Staff provided an extensive discussion of how the reasonable assurance requirements are met by the proposed design. Further discussion was also provided on the use of standard review plans and design procedures that reflect an approach to tailings management that incorporates an appropriate level of safety.

Of considerable importance in the NRC Staff's assessment of Atlas' proposed design of the rock apron is the concept of "reasonable assurance." NRC regulations require (Part 40, Appendix A, Criterion 6) "a design which provides reasonable assurance of control of radiological hazards to . . . be effective for 1000 years. . . ." This requirement comes directly from U.S. Environmental Protection Agency (EPA) requirements in 40 C.F.R. Part 192. These standards do not require absolute nor even near certainty.

Several reasons can be offered to justify the appropriateness of a "reasonable assurance" requirement, rather than a more conservative requirement. Of primary importance is that exposure to uranium mill tailings do not pose an immediate acute risk to the health and safety of individuals. Rather, the risk posed by tailings is from continual exposure to low levels of radioactivity and is a long-term cumulative risk. If control of tailings was lost (for example, if an earthquake beyond the design basis were to damage the cover and expose tailings), actions could be taken to repair the damage, with little likelihood of endangering individuals.

Additionally, uranium mill tailings disposal sites will be under perpetual government custodial care. If the features providing control of the tailings were damaged or compromised in the future, the government custodian could assess the situation and provide repairs. Although NRC standards require that the design for control of radiological hazards not rely on maintenance, the concept of "reasonable assurance" does not preclude contemplation of government custodian actions in unusual or unlikely situations.

Finally, the rock apron does not have to withstand a single, severe event that could occur without warning at any time. This is unlike the situation in designing protection from earthquakes or severe precipitation. For those events, the protective design may not be tested for decades or centuries and then, in a very short time, have to perform with a design event. If the Colorado River

were to migrate toward the tailings pile, it would occur over decades or centuries. There would be ample time to determine whether the assumptions used in the design of the rock apron (e.g., the scour depth, river curvature, river velocity) were correct or appropriate.

In summary, NRC regulations and EPA standards do not require the degree of certainty about the potential future threats to the rock apron that would require an extremely conservative design, but rather "reasonable assurance" that the design will protect the tailings pile.

Assertion 5. The DRC disagrees with the NRC conclusion that the Atlas design provides the necessary protection of the tailings pile. DRC asserts that the apron design does not meet the requirements of 10 C.F.R. Part 40, Appendix A.

As discussed in the TER and SR, the Staff performed detailed evaluations of the proposed design. Based on those evaluations, the Staff concludes that: (1) a conservative approach was taken by Atlas in its reclamation plan by assuming that the Colorado River would migrate to the tailings pile and by designing the erosion protection apron to account for that event; (2) the rock size of 11 inches proposed by Atlas for the rock apron is greater than the rock size of about 2.4 inches required to resist velocities produced by the Colorado River on the collapsed rock apron, based on the most conservative calculated channel velocity and considering the effects of channel curvature and increased shear forces on the outside of channel bends; (3) the volume of rock provided for the apron is acceptable; (4) the maximum river velocity that should be used for the design of the rock apron for reasonable assurance is approximately 5.2 feet per second (ft/s), rather than the 6.9 ft/s used by ACE; (5) the potentially increased density of vegetation and tamarisks in the floodplains of the river will not significantly affect river velocities in the channel; (6) the design parameters selected for use in the ACE calculations of rock size are very conservative and are not likely to reflect conditions that will exist at the rock apron, if the river were to migrate to the pile in the future; (7) cohesive soils that could adversely affect the performance of the apron are not significantly present; (8) the requirement of reasonable assurance of site stability for a period of 200-1000 years is met by the proposed apron design; (9) a post-licensing monitoring and maintenance program will be implemented for this by the long-term custodian and will help to ensure that requirements are continuously met and to ensure that any unexpected problems occurring at the site will be promptly detected and mitigated; (10) the current design includes an over-designed volume of 5.3-inch rock on the side slope of the tailings pile that would be available to also launch into any gaps formed in the launched 11-inch rock; (11) the riprap for the side slopes is designed for a precipitation intensity approaching the world

record rainfall intensity; and (12) the riprap layer thickness exceeds the design criteria routinely accepted by the Staff; and (13) the rock sizes that will actually be constructed will likely exceed the sizes proposed by Atlas.

IV. CONCLUSIONS AND RECOMMENDATIONS

The NRC Staff has reviewed the concerns and issues raised in the State's petition and has concluded that the rock apron design for the Atlas reclamation plan complies with 10 C.F.R. Part 40, Appendix A. For the reasons discussed above, no basis exists for taking any action in response to the petition. Accordingly, no action pursuant to section 2.206 is being taken.

FOR THE NUCLEAR
REGULATORY COMMISSION

Carl J. Paperiello, Director
Office of Nuclear Material Safety
and Safeguards

Dated at Rockville, Maryland,
this 20th day of January 1999.

NUREG–0750, Vol. 49, No. 1
Pages 1–22

JANUARY 1999