NRC SELLS ENVIRONMENT DOWN THE RIVER:

Radiation Flows Unchecked into the Colorado River

March 23, 1999

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FOREWORD

In 1996, the Project On Government Oversight (POGO) released *"Who The Hell Is Regulating Who?" The NRC's Abdication of Responsibility*. This report analyzed the prolonged process by which the Nuclear Regulatory Commission (NRC) identifies and addresses significant safety problems at nuclear power plants. Our investigation uncovered a cozy relationship between the NRC and the nuclear industry, allowing the industry to go decades without fixing what the NRC considered "high priority" safety issues. The report demonstrated that the NRC was unable to regulate adequately the nuclear industry.

Following the release of our NRC report, POGO was contacted by many citizens, Members of Congress, and whistleblowers within the nuclear industry. One case presented to us involved the NRC's acquiescence to a corporation that was soliciting approval for a plan to clean up a former uranium mill.

Although this case involved primarily a single site, POGO believes there is a greater systemic problem involved — acquiescence to the nuclear industry. The NRC, which is the lead agency in administering the reclamation program at the Atlas Corporation's uranium tailings pile near Moab, Utah, is allowing a corporation to manipulate a very important environmental and human health and safety debate. These actions affect the Colorado River's aquatic life and the drinking water for nearly 25 million people.

Had there not been public outcry after the NRC released their "finding of no significant impact," the cap over the site would likely already be in place, along with the continued contamination of the ecosystem in and around the area.[1] As it is, the NRC is still offering to lower federal standards and make other exceptions on Atlas's behalf — even after Atlas has sought to absolve itself from all responsibility for the site through filing a motion to abandon it.[2]

Currently, under the Uranium Mill Tailings Reclamation Act, the NRC has 26 sites which are in various stages of clean-up. The NRC's actions regarding the site in Moab are a prime example of the culture inherent to the NRC. To resolve these problems, fundamental changes are necessary to ensure that the Atlas site and the other sites currently under NRC authority receive the proper clean-up and disposal.

POGO is a non-partisan non-profit organization that, since 1981, has worked to investigate, expose, and remedy abuses of power, mismanagement, and subservience to special interests by the federal government. POGO's goal is to improve the way the government works by revealing examples of systemic problems, offering possible solutions, and initiating change.

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1 Nuclear Regulatory Commission, "Draft Environmental Impact Statement Related to Reclamation of the Uranium Mill Tailings at the Atlas Site (NUREG-1531)," January 1996, p. 1-5. (Hereinafter — NUREG-1531)

2 United States Bankruptcy Court for the District of Colorado, "Notice Pursuant to Local Rule 202 of Atlas Corporation's Amended Motion for Order Abandoning Moab Uranium Tailings Site Pursuant to 11 U.S.C. Section 554(a) (Case No. 98-23331 DEC Chapter 11)," Signed by Harvey Sender, Attorney for Debtor, February 26, 1999. (Hereinafter — U.S. Bankruptcy Court for the District of Colorado Case No. 98-23331)

EXECUTIVE SUMMARY

The Problem

☞ The Atlas Corporation's uranium tailings pile in Moab, Utah — currently the fifth largest in the United States — contains approximately **10.5 million tons of uranium mill wastes, including 426 million gallons of highly-contaminated liquid** which is seeping from the unlined site. This 130-acre site is contaminating the groundwater feeding into the **Colorado River with radioactive uranium** and other toxins.

☞ Toxins leaking from the Moab tailings pile travel down river, contaminating the source of **drinking water for approximately 25 million people** (7% of the U.S. population) in Arizona, Nevada, and Southern California. Uranium content in groundwater near the Moab site is **530 times higher** than EPA standards for groundwater at uranium tailings piles.

☞ The Nuclear Regulatory Commission (NRC) has been acquiescing to the Atlas Corporation's efforts to limit the Moab site clean-up expense. The NRC is going along with Atlas's proposed plan of capping the tailings — covering them with rock and sand — instead of moving the tailings away from the Colorado River. Atlas is liable for clean-up costs, but is currently filing for bankruptcy and has filed a motion to abandon the site.

☞ Oak Ridge National Laboratory's (ORNL) 1998 report calculated that **even if Atlas Corporation's plan is implemented, the highly-contaminated liquid will leak into the Colorado River for approximately the next 270 years.**

☞ The NRC admits that "**. . . the high financial cost of moving the tailings may be the only significant disadvantage . . . .**" Unfortunately, Atlas does not even have the resources to meet its commitment to do the minimal cleanup of capping the site in place, contrary to their prior claims.

☞ As contaminants continue to flow into the Colorado River, the NRC and other federal and State agencies, without direction from Congress, are restricted in their ability to relocate this dangerous source of pollution.

The Solution

✔ The NRC should deny Atlas's plan because it does not meet the environmental standards set forth by federal law.

✔ Moving the site to the alternate location identified by the Bureau of Land Management is supported by Department of the Interior Secretary Bruce Babbitt, Utah Governor Mike Leavitt, the Fish and Wildlife Service (FWS), and the National Park Service.

✔ The FWS conclusion that "Congressional action or legislation would be required to move the pile to another location" makes it clear that legislative action is necessary.

✔ Representatives George Miller (D-CA), Bob Filner (D-CA), Nancy Pelosi (D-CA), and Luis Gutierrez (D-IL) have introduced H.R. 393 transferring the site from the jurisdiction of the NRC to the Department of Energy (DOE) in order to make removal of the site possible. Representative Chris Cannon (R-UT) is also planning to introduce legislation to relocate the Moab site.

✔ All of the remaining un-reclaimed sites should be moved from the purview of the NRC to the DOE which has a successful track record with the clean-up of similar sites. Uranium concentration levels at Moab exceed 26 milligrams per liter, whereas DOE sites which contained groundwater uranium levels less than 2 milligrams per liter were moved for environmental safety reasons.

INTRODUCTION

The Moab uranium tailings pile — currently the fifth largest in the United States — contains approximately **10.5 million tons of uranium mill wastes, including 426 million gallons of highly-contaminated liquid. The contaminating waste is located only 750 feet from the Colorado River** and is seeping from the unlined site into the groundwater and ultimately into the river.[3] The Colorado River provides **drinking water for approximately 25 million people** (7% of the U.S. population) in Las Vegas, the Central Arizona Project, and Southern California including Los Angeles.[4]

The tailings contain 85% of the radioactivity present in the unprocessed uranium ore.[5] **Uranium content** in groundwater near the Moab site is **over 530 times higher than EPA groundwater standards at uranium tailings piles.**[6] **Ammonia concentrations**, a clear marker of mill contamination, **rose by a factor of 166** at sampling sites in the Colorado River, and water level data from the tailings pile suggests concentrated ammonia will continue to seep into the ground water.[7] The Fish and Wildlife Service (FWS) stated the following, "almost all of the constituents have been found in higher concentrations in fish tissue downstream of the Atlas tailing pile . . . ."[8]

The contaminated pile is owned by the Atlas Corporation and located in the Moab Valley of Southeastern Utah. Capping the site — covering it with rock and sand — is Atlas Corporation's proposal for "cleaning-up" the site.[9] However, Interior Secretary Bruce Babbitt, Utah Governor

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3 NUREG-1531, p. xvii.

4 Metropolitan Water District of Southern California, <http://www.mwd.dst.ca.us/pr/crr/cr2.htm> as of 3/12/99.

5 "UMTRA: Uranium Mill Tailings Remedial Action Project: Fiscal Year 1996 Annual Report to Stakeholders," October 1, 1996, p. 1., U.S. Department of Energy, Office of Environmental Management. "Uranium ore was crushed and processed for use in developing weapon sand in the emerging nuclear energy industry. But for every ounce of uranium that was extracted from ore, 99 ounces of waste were produced in the form of mill tailings — a finely ground, sand-like material." General Accounting Office, Report to Congressional Committees, "Cleanup Continues, but Future Costs Are Uncertain," December 1995, GAO/RCED-96-37, p.12. (Hereinafter — GAO/RDED-96-37)

6 Oak Ridge National Laboratory / U.S. DOE, "Limited Groundwater Investigation of the Atlas Corporation Moab Mill, Moab Utah, January 9, 1998, p. 44. (Hereinafter — ORNL) This value is derived from the EPA standard of .044 mg/l and the uranium concentration found by ORNL of 23.5 mg/l

7 Loren Morton, Utah Department of Environmental Quality, Memorandum to Myron Fliegel, NRC, June 20, 1997, p. 2.

8 Fish and Wildlife Service, "Final Biological Opinion for the Proposed Reclamation of the Atlas Mill Tailings Site in Moab, Utah," July 29, 1998, p. 66. (Hereinafter — FWS, Final Biological Opinion)

9 FWS, Final Biological Opinion, p. 16.

Mike Leavitt, the FWS and the National Park Service (NPS) all support moving the pile.[10] As contaminants continue to flow into the Colorado River, the Nuclear Regulatory Commission (NRC) and other federal and State agencies, without direction from Congress, are restricted in their ability to relocate this dangerous source of pollution.

Capping of the tailings pile as proposed by Atlas Corporation will not prevent further groundwater contamination nor clean up the groundwater that has already been contaminated. While the Atlas Corporation has disagreed with certain data, "neither they nor the Nuclear Regulatory Commission [NRC] have disputed the fact that **leaching will continue with the proposed action** [capping the tailings pile next to the Colorado River]."[11] (emphasis added)

Reed Harris, field supervisor for the FWS's Salt Lake City office stated, "It's important for the public to understand the Service's opinion that capping of the tailings pile as proposed by Atlas will not prevent further groundwater contamination nor, within a reasonable time, cleanup the groundwater that has already been contaminated."[12]

A 1998 Oak Ridge National Laboratory (ORNL) study estimated the steady rate of uranium tailing **contaminant leakage** into the Colorado River at **9,648 gallons per day (6.7 gallons per minute)**.[13] According to Atlas Corporation personnel, during spring runoff, the river level often reaches the contaminates in the tailings pile. The ORNL report also found that, at normal to low water levels, the bottom of the tailings pile lies only 10-20 feet above the underground water aquifer.[14] The report calculated that even if Atlas Corporation's plan is implemented, **the highly-contaminated liquid will leak into the Colorado River for approximately the next 270 years.**[15]

POGO is not alone in its concern. In April 1998, a coalition of environmental groups, including the Grand Canyon Trust, the Sierra Club, Earth Justice Legal Defense Fund, several area residents, and local river businesses began suing the Atlas Corporation for violations of

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10 Department of Interior, <http://www.doi.gov/news/981119.html> as of 3-12-99; Governor of Utah Mike Leavitt's web site, <http://www.governor.state.ut.us/html/dec_4.htm> as of 3-12-99. *Salt Lake Tribune*, "Tailings Removal No Longer on Agency's 'Most Wanted' List," April 19, 1998. Kim A. O'Connell, National Parks and Conservation Association web site, <http: www.npca.org/np/96-07/ja9611ne.html> as of 3-12-99.

11 FWS, Final Biological Opinion, p. 72.

12 FWS, NEWS RELEASE 98-13, "Revised Draft Biological Opinion finds Atlas Mill tailings Site Jeopardizing Endangered Fish," April 16, 1998, p. 1. (Hereinafter — FWS, NEWS RELEASE 98-13)

13 ORNL, p. 43.

14 ORNL, pp. 10-14.

15 ORNL, p. 43

environmental law.[16] The groups assert that because the NRC will not force the Atlas Corporation to relocate the pile, alternate measures are necessary to hold the corporation accountable to the environment and the public. Additionally, in February of 1999, Friends Of the Earth, Sierra Club, American Rivers, Public Citizen - Critical Mass Energy Project, Grand Canyon Trust, Physicians for Social Responsibility, U.S. Public Interest Research Group, Progressive Review, Southern Utah Wilderness Alliance, Government Accountability Project, and POGO sent a letter urging the Congress to support H.R. 393, which authorizes moving the site.

Even the NRC released a report prepared by the Center for Nuclear Waste Regulation Analyses (affiliated with the NRC), which recommends that further sampling is necessary to determine the extent to which the alluvial aquifer is contaminated before a final decision is made.[17] A 1996 NRC document confirmed that relocation of the pile would be the most preferable solution, but despite that position the NRC is choosing financial considerations over the environmental and human health concerns:

> "In conclusion, the differences in potential long-term impacts suggest that the Plateau site alternative [the plan to relocate contaminants away from the Colorado River] is environmentally preferable to the Atlas proposal. No aspect of the Plateau site alternative would have a potential significant, adverse, environmental or socioeconomic impact . . . **Thus, the high financial cost of moving the tailings may be the only significant disadvantage of the Plateau site alternative.**"[18] (emphasis added)

A PATTERN OF ACQUIESCENCE

The role of the NRC as defined by the NRC's mission statement is "to ensure adequate protection of the public health and safety, . . . and the environment in the use of nuclear materials in the United States." Through their concessions to the Atlas Corporation, the NRC has not upheld its mission. The environment and the public's health are both at risk:

- **Atlas's plan lacks a comprehensive groundwater plan and the NRC did not require one before issuing its finding of "no environmental impact."** Currently, Atlas's groundwater program does not meet the standards set forth by the State of Utah nor the

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16 Grand Canyon Trust, et al. v. Bruce Babbitt, et al., Atlas Corporation. Second Amended Complaint for Declaratory and Injunctive Relief, Case No. 2:98CV0803S, January 20, 1999, p. 1.

17 Center for Nuclear Waste Regulatory Analyses, "Infiltration, Seepage, and Groundwater Contamination Modeling for the Atlas Corporation Uranium Mill Tailings Pile Near Moab, Utah," December 1998, p. 7-1.

18 NUREG-1531, p. 2-26.

NRC.[19] The NRC allowed Atlas to separate their comprehensive groundwater plan from their reclamation plan. In doing so the NRC made approval of the plan easier for Atlas — they did not have to explain how they would clean up and protect groundwater before getting the NRC's "no environmental impact" finding on their reclamation plan.[20]

◆ **The NRC has left the option open to grant Atlas Corporation exemptions from compliance with federal environmental standards for clean water.** However, the FWS has challenged the NRC suggestion to create alternate contaminate concentration limits specifically for the Moab site, stating, "Alternate concentration limits [ACLs] may not be strict enough to avoid the Endangered Species Act section 9 (harm) standard protective of endangered species."[21] In other words, if the NRC permits ACLs for the Atlas Corporation site, it will allow pollution above accepted standards. ACLs are at the regulatory discretion of the NRC and must only be shown to be "as low as is reasonably achievable," a very subjective standard.[22]

◆ **The cost of capping the site has been grossly underestimated and the NRC is not moving to force the Atlas Corporation to include these costs in the estimate for clean-up.** Three items have gone unaddressed, the added cost of removal of the water currently in the tailings pile, the cost of clean-up for an additional contaminated site identified by the ORNL evaluation, and the cost of the comprehensive groundwater program.[23]

◆ **Although NRC regulations prohibit the active maintenance of a reclaimed site, it is almost a certainty due to the level of contaminates that are seeping into the groundwater as well as the potential for flooding.** Even the NRC admits that with Atlas's proposed plan some level of maintenance may be required. However, this is prohibited by NRC regulations.[24] This will increase the long-term cost of this site to taxpayers.

◆ **The NRC joined forces with Atlas to bully the FWS into watering down their Environmental Impact Statement.** FWS originally recommended moving the tailings pile rather than capping it in place. Atlas and the NRC joined forces and told FWS that in order to obtain a needed deadline extension, FWS would have to state that the NRC did not have

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19 FWS, Final Biological Opinion, p. 86.

20 NUREG-1531, p. 1-8.

21 Fish and Wildlife Service, "Revised Draft Biological Opinion for the Proposed Reclamation of the Atlas Mill Tailings Site in Moab, Utah," April 14, 1998, p. 91. (Hereinafter — FWS, Revised Draft Biological Opinion)

22 10 Code of Federal Regulations (CFR) 40, Appendix A, Criterion 5B(6).

23 FWS, Final Biological Opinion, p. 66.

24 FWS, Revised Draft Biological Opinion, p. 89.

the authority to require Atlas to move the pile.[25] FWS reluctantly accepted the Atlas/NRC demand, but continued to take the position that moving the site was the preferred option.[26]

◆ **Finally, the NRC has not rejected Atlas's plan even when confronted with these many different problems with the plan.** Although the NRC would like the public to believe that they can not reject the plan, they can and should. This is particulary true considering that Atlas is threatening to abandon the site.[27]

HISTORY OF MOAB SITE

In 1947, the Atomic Energy Commission, the predecessor to the NRC and the Department Of Energy, established a uranium buying station near Moab, Utah, just north of the Colorado River. After years of government operation, the Uranium Reduction Corporation (URC) built a processing facility at the buying station. In 1962 the Atlas Corporation bought the plant from URC and ran the mill until it was placed on standby in 1984.

Since the mill's inception over fifty years ago, contamination has continued to seep out of the Moab mill's unlined location into the ground and eventually into the Colorado River by means of the underground aquifer. The Moab tailings pile is located 750 feet from the Colorado River and within a quarter of a mile of the Arches National Park. In addition, the Moab tailings pile is adjacent to the Matheson Wetland and upstream from additional national parks, including the Grand Canyon.

As early as the 1970's, the Atlas Corporation was attempting to receive the NRC's approval for on-site reclamation. At that time the Atlas Corporation proposed ten alternatives for cleaning up the Moab site. These alternatives mixed both on-site reclamation and off-site relocation plans. The main proposal was to recap the contaminated pile in place, similar to Atlas's most current proposal.

In 1981 the NRC approved Atlas's plan to reclaim the tailings pile on-site. After changes to environmental regulations, Atlas revised its previous plan for NRC review and approval. In 1993 the NRC signed off on the revision, issuing a finding of no significant impact and moved toward approval. However, the NRC received over 300 different comments from 80 individuals concerning its finding.[28] As a result, the NRC was forced to reevaluate the entire revised plan rather than just the changes to Atlas's old cleanup plan. The NRC decided to start the process from scratch, precipitating the current debate.

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25 Ralph Morgenweck, FWS Regional Director, Memorandum to Joseph Holonich, NRC, March 11, 1998, p. 1.

26 FWS, NEWS RELEASE 98-13, p. 2.

27 U.S. Bankruptcy Court for the District of Colorado Case No. 98-23331.

28 Joseph Holonich, NRC, Memorandum to POGO, July 24, 1998, pp. 1-2.

As estimated by the NRC, moving the tailings site to solve this problem conclusively would cost an estimated $78 to $101 million (in 1996 dollars) more than on-site reclamation. Atlas Corporation wants to limit its Moab site clean-up expense by covering the tailings pile, instead of moving it away from the Colorado River. The federal government is responsible for 56% of the clean-up cost of the uranium tailings pile, up to approximately $36 million.[29] Atlas Corporation is liable for costs over the $36 million marker and is fighting implementation of the more expensive relocation plan.

The Atlas Corporation has set aside a sum of $6.5 million posted against the reclamation cost.[30] This number is approximately 44% of Atlas's share of $14 million — a 1996 estimate for on-site cleanup. However, in its most recent annual report to stockholders, Atlas shows that capping the pile in place will be a liability of up to $22 million — an amount nearly 50% over their last estimate.[31] Atlas may have chosen its only way out, filing for Chapter 11 protection, as was rumored it would do if the cost of reclamation increased. During the bankruptcy proceedings Atlas recently filed a motion to abandon the site as well as a motion to abandon their license, in an effort to absolve themselves of responsibility for the site.[32]

ATLAS CORPORATION'S MISLEADING DEFENSE

The Atlas Corporation has lobbied hard to persuade the public and the NRC that leaving this contaminated site along the Colorado River is the best choice for all parties. One example of Atlas's efforts to change the prevailing public sentiment toward this site is its misrepresentation of the Sharon Steel Corporation site along the Jordan River.

In a report prepared for the Atlas Corporation, this on-site clean-up along a major waterway was depicted as a success story. The authors of the report cited the EPA's decision to leave the Sharon Steel tailings in place along the banks of the Jordan River in Midvale, Utah, as a reason to accept the Atlas Corporation cleanup proposal.[33] However, the Sharon Steel site has a much higher record for environmental compliance than Atlas Corporation's Moab site and the site did not involve

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29 Public Law 104-259, § 3, Amended Section 1001 of the Energy Policy Act of 1992. The amendment increased (from $5.50 to $6.25 per ton) the amount of reimbursement paid to any licensee for uranium mill tailings generated as an incident of sales to the United States. The $36 million is the approximately 56% of 10.5 million tons times $6.25.

30 Joseph Holonich, NRC, Memorandum to POGO, July 24, 1998, p. 1.

31 Atlas Annual Report to Stockholders, 1997, p. 52.

32 U.S. Bankruptcy Court for the District of Colorado Case No. 98-23331.

33 Shaw, Pittman, Potts & Trowbridge, "Rebuttal to Representative George Miller's Letters to The NRC and Vice President Gore Concerning Atlas Corporation's Uranium Mill & Tailings Site Moab, Utah," June 1997, p. 15.

radioactive wastes. Despite this, three parties, including the Sharon Steel Corporation, reached a $2.3 million settlement with the FWS for injuries sustained to endangered species, migratory birds, and wetlands caused by contamination of the Jordan River from the Sharon Steel site **after the site was cleaned up**.[34] The threat to endangered species is one the major concerns cited by opponents of the Atlas Corporation's plan. Atlas's attorneys failed to mention the resulting problems with capping the Sharon Steel site in place along the Jordan River.

FOUR REASONS THE ATLAS PLAN SHOULD BE REJECTED

Atlas Corporation's on-site reclamation proposal, which the NRC has so far accepted, has many flaws:

1. Inadequate Groundwater Plan Threatens Drinking Water for Millions

The goal of any reclamation plan is to "design tailings so that seepage of toxic materials into the groundwater system is eliminated or reduced."[35] Currently, Atlas has a groundwater program in place which does not meet this standard, nor standards set forth by the State of Utah or the NRC. In fact, Atlas Corporation's plan does not include an updated long-term (over 200 years according to ORNL) groundwater corrective action plan. Both the NRC and the FWS have agreed that the old corrective action plan needs to be "revisited." An NRC official stated that "Atlas should look at ways of accelerating the cleanup of current contamination in the groundwater."[36] Because the NRC is not requiring an updated groundwater action plan as part of the current surface cleanup plan and Atlas has not proposed one, the cost and problems of groundwater cleanup have also been ignored.[37]

The NRC dismisses its own requirement for a groundwater plan in its evaluation report by stating, "Criteria 5, 7, and 13 concern groundwater protection. As previously discussed, groundwater is being addressed under separate licensing actions. However, groundwater protection standards at the site will be in accordance with these criteria."[38]

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34 Fish and Wildlife Service, <http://www.r6.fws.gov/jordan/history.htm> as of 3-12-99.

35 United States Department of Energy / Energy Information Administration, "Decommissioning of U.S. Uranium Production Facilities," February 1995, p. 51. (Hereinafter — U.S. DOE/EIA, Decommissioning)

36 Joseph Holonich, NRC, Memorandum to POGO, June 5, 1998, p. 1.

37 FWS, Final Biological Opinion, p. 86.

38 Nuclear Regulatory Commission, "Final Technical Evaluation Report for the Proposed Revised Reclamation Plan for the Atlas Corporation Moab Mill (NUREG-1532)," March 1997, p. 7-5 (Hereinafter — NUREG-1532) and NUREG-1531, p. 1-8.

The groundwater feeds into the Colorado River, contaminating it with radioactive uranium and other toxins. The river is the source of drinking water for approximately 25 million people (7% of the U.S. population) in Arizona, Nevada, and Southern California.

2. Alternate Concentration Limits Threaten Endangered Species

The NRC's solution to Atlas's problem is to weaken regulations and offer "alternative concentration limits." That the NRC is preserving its option to grant Atlas Corporation exemptions from compliance with the NRC's own environmental standards exemplifies the NRC's extensive acquiescence.

However, the FWS has challenged the NRC suggestion to create alternate contaminate concentration limits specifically for the Moab site, stating, "Alternate concentration limits [ACLs] may not be strict enough to avoid the Endangered Species Act section 9 (harm) standard protective of endangered species."[39] The FWS concluded that the Atlas plan would jeopardize the continued existence of four endangered species which have habitats in the Colorado River near the tailings pile:

> "It is the Service's biological opinion that the action, as proposed [capping the tailings pile on-site], is likely to jeopardize the continued existence of the razorback sucker, humpback chub, bonytail chub and Colorado squawfish [Colorado white salmon], and is likely to destroy or adversely modify designated critical habitat."[40]

In other words, if the NRC permits ACLs for the Atlas Corporation site, it will allow pollution above accepted standards. ACLs are at the regulatory discretion of the NRC and must be shown to be "as low as is reasonably achievable."[41] The NRC argues that any allowance of ACL's are permitted under its regulations as long as they conform to EPA standards.

Ammonia is one pollutant for which the EPA does not provide a maximum concentration limit and therefore is limited only by what the NRC deems to be "as low as reasonably achievable." **Ammonia concentrations**, a clear marker of mill contamination, **rose by a factor of 166** at sampling sites in the Colorado River. Water level data from the tailings pile suggests concentrated ammonia will continue to seep into the groundwater.[42] While ammonia is the major constituent

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39 FWS, Revised Draft Biological Opinion, p. 91.

40 FWS, Final Biological Opinion, p. 83.

41 10 CFR 40, Appendix A, Criterion 5B(6).

42 Loren Morton, Utah Department of Environmental Quality, Memorandum to Myron Fliegel, NRC, June 20, 1997, p. 2.

affecting endangered fish, the NRC may decide to approve ACLs for ammonia. FWS fears ACLs may be high enough to adversely impact endangered fish.[43]

While the granting of ACLs are at the discretion of the NRC, the FWS could limit their use depending on the ACL's impact on endangered species in the Colorado River. The FWS has stated on the record that it will fight any such alternate limits and has pleaded with the NRC to deny any such increase. **"The NRC shall deny all requests for alternate concentration limits, and exceptions thereto, at the site unless prior concurrence is obtained from the Service [FWS] that the alternate concentration limit or exception will not 'harm' listed species."**[44] (emphasis added)

3. Hidden Clean-up Costs

Atlas's estimates for the cost of capping and groundwater clean-up continue to increase. In 1979, the Atlas Corporation estimated that on-site reclamation would cost $3.3 million in 1977 dollars.[45] In 1996, the Atlas Corporation updated the on-site estimate to cost between $13 million and $16 million in 1996 dollars.[46] However, in its most recent annual report to stockholders, Atlas shows that capping the pile in place will be a liability of up to $22 million — an amount nearly 50% over their last estimate.[47]

Clearly, the amount set aside by Atlas — a surety of $6.5 million — will not be enough to cover the minimal-cost clean-up effort. There have also been additional costs that have not even been considered in Atlas's plan.

The first additional major clean-up issue involves the water which has accumulated in the pile over the years. This water needs to be drained to a level which ensures an end to the leakage of contaminates into the groundwater table.[48]

The second involves a newly discovered source of uranium contamination on Atlas Corporation's Moab site, which was discovered by ORNL and will have to be reclaimed.[49] Proper

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43 FWS, Final Biological Opinion, p. 67.

44 FWS, Revised Draft Biological Opinion, pp. 91-92.

45 Nuclear Regulatory Commission, "Final Environmental Statement Related to Operation of Moab Uranium Mill, Atlas Minerals Division, Atlas Corporation (NUREG-0453)," January 1979, p. 10-3.

46 NUREG-1531, p. 5-1.

47 Atlas Annual Report to Stockholders, 1997, p. 52.

48 FWS, Final Biological Opinion, p. 86.

49 FWS, Final Biological Opinion, p. 53.

clean-up of this second contamination area will entail reclamation of more than a hundred acres not accounted for in Atlas Corporation's cost estimates.

DOE also believes that, "groundwater problems are often unpredictable. . . .The impact of unanticipated groundwater problems on costs can be substantial."[50] As Atlas has not yet provided its groundwater plan, its costs have not been considered.

Capping in place as a short term solution also adds some financial disincentive to pursuing a more thorough remedy down the line:

> "Capping the pile in place would require an immediate commitment of $20 to $40 million in financial resources, hereby creating a strong disincentive to moving the pile, even if that were determined to be necessary in the future in order to eliminate long term exposure of listed fishes to leaching environmental contaminants. Also, if the pile were capped now, the cost of a future move would be increased due to the additional capping material that would have to be moved."[51]

4. Neglecting Long-Term Maintenance Costs

The NRC regulations mandate that a tailings pile not require active maintenance. Active maintenance is almost a certainty due to the level of contaminates that are seeping into the groundwater and the potential for flooding. Even the NRC admits that with Atlas's proposed plan some level of maintenance may be necessary. The FWS has pointed out that relocation of the site would be the best option for avoiding this problem:

> "For these reasons, **the Service believes that relocation of the tailings pile would, in the long term, be the best means to achieve optimal protection for listed fishes while meeting Nuclear Regulatory Commission requirements of no active maintenance**. Also, with the pile removed, site cleanup will be effected to a higher standard and eventually the property would be suitable for other human uses."[52] (emphasis added)

Because the NRC is currently unwilling to deny Atlas's plan and force Atlas to relocate the contaminated pile, the Moab tailings will run the risk of **requiring future maintenance at additional cost to the federal government.** One of the main purposes of reclamation is to reduce radiation from the site, "to eliminate the need for an ongoing monitoring and maintenance program

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50 U.S. DOE/EIA, Decommissioning, p. 47.

51 FWS, Revised Draft Biological Opinion, p. 89.

52 FWS, Revised Draft Biological Opinion, p.89.

following successful reclamation."[53] Unfortunately, these goals will likely not be met. In order to save money in the short-term by capping the site, the government would be forced to spend money indefinitely maintaining it.

STRONG-ARMING THE FISH AND WILDLIFE SERVICE

Originally, the FWS was the primary federal agency voicing support for transfer of the uranium tailings to a location away from the Colorado River.

> "In its original draft biological opinion, the Service recommended to the NRC that the Atlas Corporation be required to move the tailings pile out of the floodplain."[54]

However, in a March 1998 letter to the NRC, the FWS revealed the pressure it was under, from the NRC and Atlas, to absolve both parties from any responsibility:

> "In a letter to you [NRC] dated March 11, 1998, Richard E. Blumbaugh of Atlas Corporation proposed to consent to an extension of the Fish and Wildlife Service's deadline for issuing a revised draft biological opinion on Atlas's proposed surface reclamation plan for the Atlas Mill Tailings site in Moab, Utah. Atlas proposed the extension to allow the parties engaged in the section 7 consultation process further opportunities for cooperation and discussion. **However, to grant this consent to an extension requires the Service [FWS] to confirm that relocation of the tailings pile at Atlas' expense cannot be compelled by the Nuclear Regulatory Commission** as a result of the Endangered Species Act section 7 consultation process on the surface reclamation plan."[55] (emphasis added)

The FWS finally bowed to the pressure and changed their findings. The April 1998 FWS's Revised Draft Biological Opinion concluded that:

> "**Based on subsequent information and legal advice, the FWS acknowledged that the NRC does not have the authority to require relocation of the pile.** The only decision the NRC can make with regard to the pile is to approve the capping as proposed by Atlas Corporation, approve the capping proposal with modifications, or deny the proposed cap."[56] (emphasis added)

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53 U.S. DOE/EIA, Decommissioning, p. 14.

54 FWS, NEWS RELEASE 98-13, p. 2.

55 Ralph Morgenweck, FWS Regional Director, Memorandum to Joseph Holonich, NRC, March 11, 1998, p. 1.

56 FWS, NEWS RELEASE 98-13, p. 2.

While the FWS remained firm in its assessment that the most environmentally sound decision is to relocate the pile, the FWS has removed relocation as a "reasonable and prudent alternative" from its Final Biological Opinion after being strong-armed by Atlas Corporation and the NRC:

> "Although this course of action would provide the greatest environmental safeguards, the Service determined that requiring Atlas to move the tailings pile was outside of the present legal authority of the Nuclear Regulatory Commission, and, therefore, Service regulations would not allow its inclusion as a reasonable and prudent alternative."[57]

OTHER AGENCIES WEIGH IN

The Office of the Secretary of the Department of the Interior (DOI) has also expressed concern with the NRC's handling of the Moab site. DOI has raised concerns about groundwater quality and contaminates leaching into the Colorado River.[58]

DOI has criticized NRC for failing to conduct a more complete evaluation of the site prior to the release of the draft Environmental Impact Statement (EIS). "Many questions surrounding the environmental impacts of the Nuclear Regulatory Commission (NRC) proposal remain unanswered."[59]

Also the National Park Service (NPS) has emphasized its own concerns with the proposed on-site plan and has been quoted in the press that it would prefer moving the pile.[60] Additionally, throughout the Final Environmental Impact Statement (FEIS) the NRC admits that, "The NPS does not necessarily agree with the analysis and conclusions in this FEIS."[61]

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57 FWS, Final Biological Opinion, p. 2.

58 NUREG-1532, p. A-59.

59 Department of Interior / Office of the Secretary, "Comments of the Department of Interior on the Draft Environmental Impact Statement for the Reclamation of the Atlas Mill Tailings Pile Site, Moab, Grand County, Utah," April 25, 1996, Enclosure 1, p. 1.

60 Church, Lisa "Interior Secretary, Utah Delegation Join in Turning Up Pressure to Move Moab Tailings Pile; Pressure Is On To Move Tailings Pile Near Moab," *The Salt Lake Tribune*, November 24, 1998.

61 NUREG-1531, p. 1-1.

DEPARTMENT OF ENERGY'S SUCCESSES SHOULD BE REPLICATED

Two government programs were established to clean up uranium-contaminated sites caused by the production of nuclear weapons during the Cold War. First, the DOE was granted jurisdiction over the surface cleanup of Title I sites — twenty-four sites around the country whose owners were at that point defunct. Clean-up of these sites and nearby properties was funded through federal appropriations and minimal amounts (10%) of state support.

In addition the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA) established Title II sites which are the responsibility of the private owners or operators.[62] There are twenty-six Title II sites. These sites come under the jurisdiction of the NRC, which approves the owner's reclamation plan and ensures that the owner supplies the federal government with adequate funds for long-term monitoring and maintenance of the site. DOE is the federal agency in charge of conducting the monitoring and maintenance programs. Under UMTRCA, the EPA sets standards by which the NRC and DOE approve and implement clean-up of closed uranium mills. After a cleanup plan meets NRC approval, the site is turned over to DOE for long-term care. Title II sites differ in their level of federal participation. In the case of the Moab site, the federal government is responsible for 56% of the cost, up to a predetermined limit.[63] In turn, Atlas is responsible for not only its share (44%), but any amount over the federal government's limit. This causes major complications for the government, which must approve the owner's cleanup proposal and then rely on the owner to pay any long-term costs.

DOI argues that the NRC should consider prior DOE action involving tailings reclamation, "particularly in the Colorado River basin."[64] Several sites originally located along the Colorado River were moved by DOE to locations at which standards could better be achieved. For example, **uranium concentration levels at Moab exceed 26 milligrams per liter, whereas DOE sites which contained groundwater uranium levels less than 2 milligrams per liter were moved for environmental safety reasons.**[65] These relocation activities were based on findings that permanent sites adjacent to or near the Colorado River were not appropriate in terms of long-term protection of the environment or of human health concerns. **The Moab site needs to be transferred because it poses the same, if not a greater, threat to the environment as the sites that have already been moved.**

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62 State governments may assume custody of Title II sites, however DOE does not expect any to do so.

63 Federal Register, Vol. 59, No. 95, May 23, 1994, p. 26718.

64 Department of Interior / Office of the Secretary, "Comments of the Department of Interior on the Draft Environmental Impact Statement for the Reclamation of the Atlas Mill Tailings Pile Site, Moab, Grand County, Utah," April 25, 1996, Enclosure 1, p. 5.

65 FWS, Revised Draft Biological Opinion, p. 69.

DOE set a well-founded precedent when it relocated a group of contaminated uranium mills that posed a potential threat to nearby rivers and groundwater. Of the 24 Title I sites that DOE controlled, twelve were relocated to more protected locations. Many of the sites DOE relocated were situated along the Colorado River or other sources of water. This remedy was considered the most environmentally sound resolution for the contaminated uranium piles.[66]

The DOE Title I program has a reputation for running relatively well. DOE's program was completed in coordination with state governments and Native American nations within whose boundaries the sites were located.

However, now it is the NRC's turn to tackle this arena. Unlike the DOE, the NRC appears to be struggling with its task — mainly due to owner involvement. Because the NRC only considers cleanup proposals submitted by the owner, many additional concerns enter the equation when compared to the DOE reclaimed Title I sites. In addition, the NRC regulations only require that the owners of uranium tailings "provide a 'reasonable assurance' that all applicable standards and criteria developed" will be satisfied.[67] These concerns are likely to be just the tip of the iceberg of financial and environmental omissions in Atlas Corporation's proposed cleanup plan.

POGO'S PROPOSED ACTIONS

First, to relocate the contaminants at Moab, **it is necessary that the NRC deny Atlas Corporation's plan to cap the tailings pile** — particularly as the plan does not even include a groundwater corrective action program. FWS has noted, "the only decision the NRC can make with regard to the pile is to approve the capping as proposed by Atlas Corporation, approve the capping proposal with modifications, or **deny the proposed cap**."[68] (emphasis added)

Secondly, **passage of legislation is needed to ensure that the uranium tailings pile is transferred to a safer location**. The FWS, and even the NRC, have both determined that Congressional action is needed for the pile to be moved to another location. This would allow the least amount of contamination to the ecosystem in the future.

Finally, a permanent solution to this ongoing problem must be sought. **All of the Title II sites need to be moved from the purview of the NRC to the DOE.** The DOE has a much better track record with the clean-up of uranium mill tailings sites. This would help to ensure that such poor public policy will not occur in the future.

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66 GAO/RCED-96-37, p. 28.

67 Atlas Corporation, Response of Atlas Corporation to the Nuclear Regulatory Commission's Draft EIS (NUREG-1531) and Draft TER (NUREG-1532), April 29, 1998, p. iv.

68 FWS, NEWS RELEASE 98-13, p. 2.

GLOSSARY

Atlas	Atlas Corporation
BLM	Bureau of Land Management
DOE	Department of Energy
DOI	Department of the Interior
EIS	Environmental Impact Statement — a document which is required by the government to accompany proposals for projects that will have an impact on the surrounding environment.
EPA	Environmental Protection Agency
FEIS	Final Environmental Impact Statement
FWS	Fish and Wildlife Service
GAO	General Accounting Office
NPS	National Park Service
NRC	Nuclear Regulatory Commission
ORNL	Oak Ridge National Laboratory
Reclamation	The process of cleaning up or restoring contaminated land.
Tailings	Naturally radioactive rock or soil that are products of uranium mining and milling operations. The rock and soil have low levels of radiation from the small amount of radium that decays and emits radon, a radioactive gas.
Title I	Part of UMTRCA which governs the cleanup of uranium sites that were inactive at the time the legislation was enacted. Title I sites and nearby properties which were contaminated are the responsibility of DOE and the affected states.

Title II	Part of UMTRCA which governs the cleanup of uranium sites that were still active at the time the legislation was enacted. Title II site are the responsibility of the private companies which owned and operated them and later turned over to the federal government or the stat for long-term custody.
UDEQ	Utah Department of Environmental Quality
UMTRA	Uranium Mill Tailings Remedial Action
UMTRCA	Uranium Mill Tailings Radiation Control Act of 1978
URC	Uranium Reduction Corporation — The company from which the Atlas Corporation bought the processing mill near Moab, Utah.