MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Report

Water System Operations

- **Update on Uranium Mill Tailings Remediation at Moab, Utah and Uranium Mining Activities in the Grand Canyon Area**

Summary

Uranium Mill Tailings Remediation at Moab, Utah

A 16-million-ton pile of uranium mill tailings in Moab, Utah lies approximately 750 feet from the Colorado River. Due to the proximity of the pile to the Colorado River, there is a potential for the tailings to enter the river as a result of a catastrophic flood event or other natural disaster. In addition, contaminated groundwater from the site is slowly seeping into the river. The United States Department of Energy (DOE) is responsible for the remediation of this site, which includes removal and offsite disposal of the tailings and onsite groundwater remediation. This update provides background on the site's history, current status of ongoing remedial activities, and plans for future cleanup.

Uranium Mining Activities in the Grand Canyon Area

There have been significant increases in the number of uranium mining claims in the Colorado River Basin as a result of the renewed interest in nuclear energy. Recent attention has been given to federal lands around the Grand Canyon National Park area, due to the thousands of claims within a few miles of the Grand Canyon and Colorado River. The potential water quality impacts that these activities may have on the Colorado River on a cumulative basis are not known. This update provides background information on this topic, identifies recent activities pertaining to federal lands adjacent to the Grand Canyon, and documents correspondences that Metropolitan has had with various federal officials on this issue.

Attachments

Attachment 1 – Moab Uranium Mill Tailings Remediation Site

Attachment 2 – Uranium Mining Claims in the Grand Canyon Area

Detailed Report

URANIUM MILL TAILINGS REMEDIATION – Moab, UT

Background

In 1952, a large deposit of uranium ore was discovered near Moab, Utah. The Uranium Reduction Company built a processing mill and began operations in 1956; the mill was later purchased by Atlas Minerals Corporation. The mill produced uranium concentrate which was used for national defense programs and fuel for nuclear power plants. It ceased operation in 1984, leaving an estimated 16 million tons (12 million cubic yards) of uranium mill tailings and contaminated soil in an unlined impoundment. Decommissioning of the site began in 1988 and ownership was transferred to DOE in 2001.

Site Description

The Moab mill tailings pile covers an area of approximately 130 acres, is 94 feet above the Colorado River floodplain, and lies approximately 750 feet from the Colorado River (**Attachment 1**). A portion of the tailings pile lies within the 100-year floodplain of the Colorado River and Moab Wash. The site is approximately 150 miles upstream of Lake Powell and 650 miles upstream of Metropolitan's Whitsett Intake at Lake Havasu.

Investigations have shown uranium concentrations contained within the pile at levels significantly above the California Maximum Contaminant Level (MCL) of 20 pCi/L. Leachate from the pile is contaminating the local groundwater which is slowly seeping into the Colorado River. Ammonia, total dissolved solids, and other constituents are also present in the tailings and the local groundwater.

Date of Report: October 27, 2008

Remedial Actions

Current remedial actions consist of vertical drains in the pile and extraction wells between the tailings pile and the Colorado River. An injection trench was added to create a hydraulic barrier to mitigate movement of contaminated groundwater towards the river. To date, the project has extracted over 120 million gallons of contaminated groundwater (representing over 2,400 pounds of uranium and 550,000 pounds of ammonia).

In July 2005, DOE issued its Final Environmental Impact Statement with the preferred alternative of permanent offsite disposal by rail to a disposal cell at Crescent Junction, Utah, located approximately 30 miles northwest of the Moab site.

Recent Activities

In 2007, DOE awarded Energy*Solutions* a $98 million remedial action contract and, in July 2008, authorized construction of the Crescent Junction disposal cell. The current schedule for completion of the project is 2028 at a total cost between $723 and $951 million. The final date of completion has been an issue of contention. Utah Congressman Jim Matheson included an amendment in the National Defense Authorization Act of 2008 requiring DOE to complete the project by 2019. In order to meet this timeline, DOE indicated the need to allow truck transport in addition to rail transportation. This option was rejected by the majority of the public; therefore, DOE kept 2028 as its target completion date, with the 2019 date remaining as a goal, should additional and consistent annual funding be appropriated by Congress. It is anticipated that movement of the tailings by rail will begin in May 2009.

Metropolitan's Actions

Metropolitan has been involved in advocating for remediation of the Moab site since 1998. During this time, Metropolitan has provided detailed comment letters to federal agencies overseeing the project and has supported legislation for remediation of the tailings pile. In February 2000, Metropolitan's Board hosted a meeting with U.S. Energy Secretary Bill Richardson, Congressional representatives, Indian tribes, and other agency officials to sign an agreement to move the mill tailings pile. Metropolitan's Board has also visited the Moab site to meet with DOE and elected officials in support for a rapid cleanup of the site.

Metropolitan has been monitoring for uranium in the Colorado River Aqueduct and treatment plant effluents since 1986. Monitoring at Lake Powell began in 1998. Uranium levels measured at Metropolitan's intake have ranged from 1-6 pCi/L, well below the California MCL of 20 pCi/L.

Metropolitan will continue to monitor uranium levels within the Colorado River system to assess any potential changes. In addition, Metropolitan will track DOE's progress in movement of the tailings pile and onsite groundwater remediation. Metropolitan will also provide the necessary legislative support for the rapid cleanup and remediation of the Moab site, including continuing to work with Congressional representatives to support increased annual appropriations for this effort.

URANIUM MINING ACTIVITIES – Grand Canyon Area, AZ

Background

In early 2008, Metropolitan learned of a significant increase in uranium mining claims occurring throughout the Western United States due to a renewed, worldwide interest in nuclear energy. Of particular concern are those mining claims within a few miles of Grand Canyon National Park and the Colorado River. **Attachment 2** identifies the locations of these claims. These mining claims in the Grand Canyon National Park area were the focus of a March 28 Congressional Oversight Field Hearing in Flagstaff, Arizona.

In response to these proposed mining activities, the House Committee on Natural Resources (HCNR) issued a resolution on June 25, 2008 for emergency withdrawal of federal lands adjacent to the Grand Canyon. This resolution would direct the Secretary of Interior (SOI) to withdraw these lands from uranium exploration or mining for up to a three-year period; however, the SOI has yet to implement the resolution resulting in a lawsuit filed in September 2008 by several environmental groups. In October 2008, the Bureau of Land Management (BLM) issued a proposed rule for public comment that would eliminate the regulations used by the HCNR to

issue emergency withdrawals. This proposed rule could potentially allow continued uranium exploration in areas adjacent to the Grand Canyon.

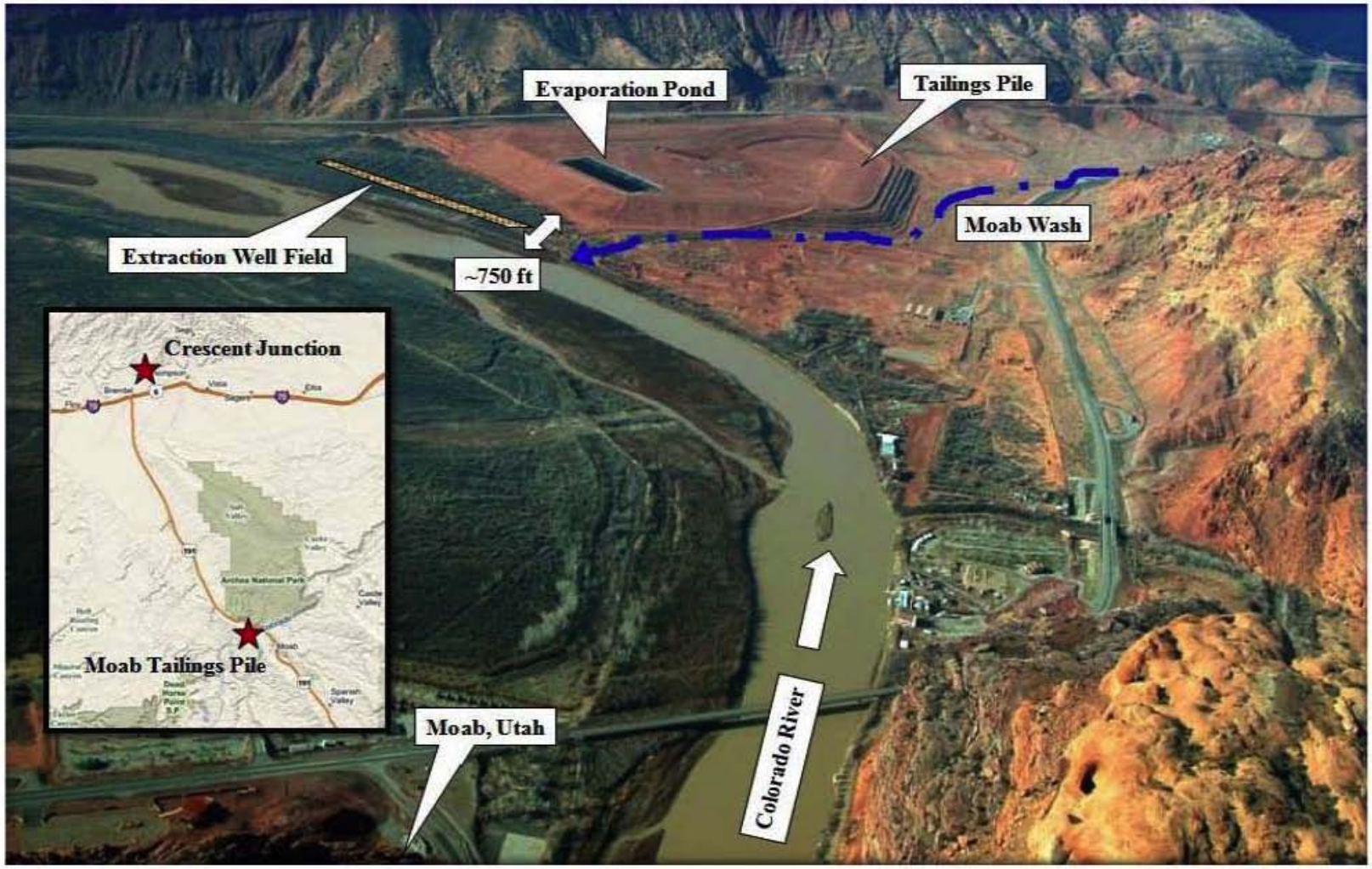
Metropolitan's Actions

Metropolitan routinely monitors for uranium in its source waters and is not aware of any exceedances of regulated levels of uranium as a result of mining operations. Despite this undetermined link between current uranium mining operations and direct drinking water quality impacts, Metropolitan recognizes that uranium mining in areas near the Colorado River can also have impacts on the public's confidence in the safety and reliability of this water supply.

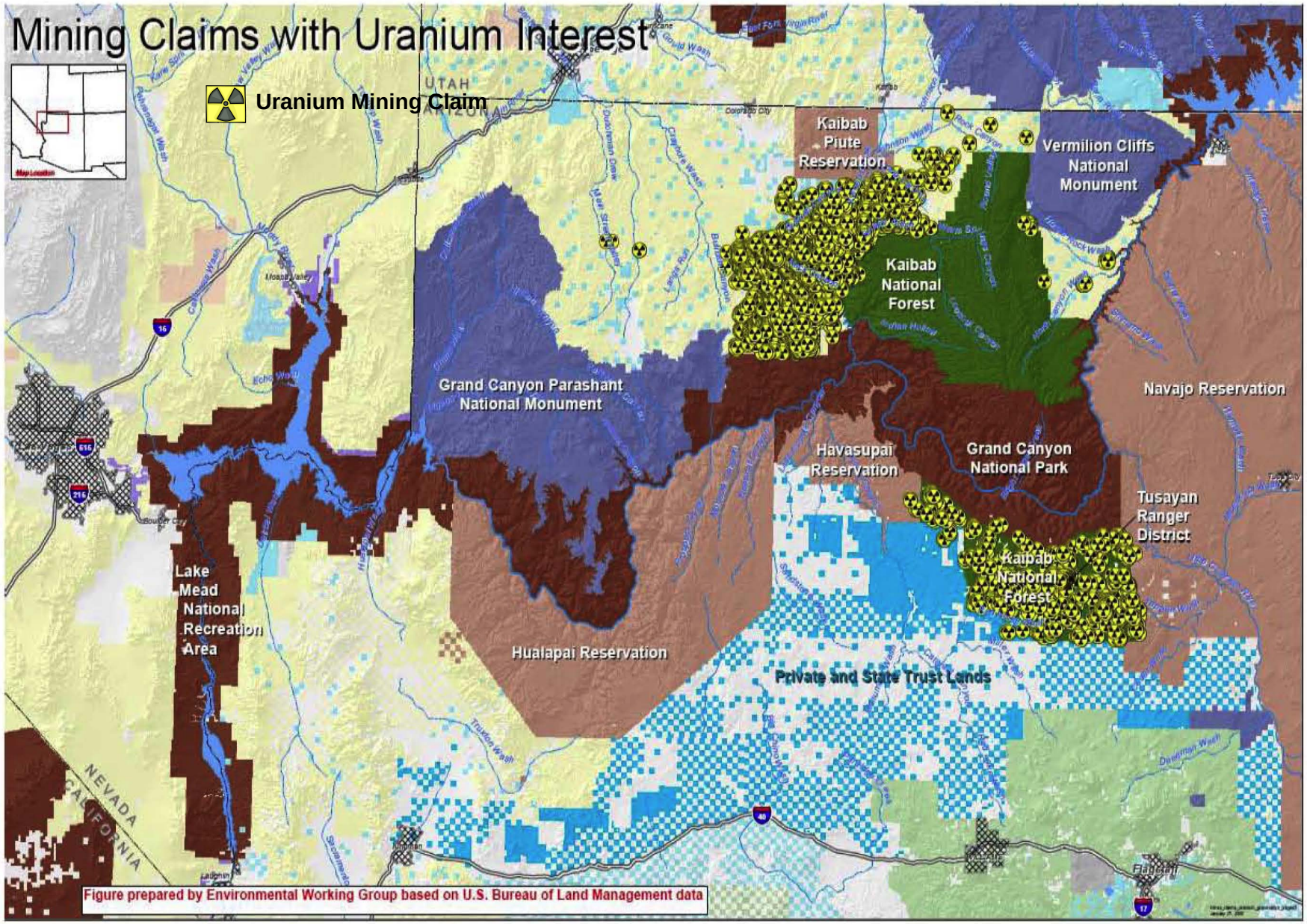
Metropolitan commented on this issue through a March 25, 2008 letter to Secretary Dirk Kempthorne of the U.S. Department of Interior, seeking assurance that the effects on Colorado River drinking water supplies were being closely examined during federal authorizations of uranium mining activities. BLM Director James Caswell responded by identifying the regulatory authority and processes that pertain to their oversight of mining operations. In October 2008, Metropolitan commented on the BLM proposed rule to eliminate regulations allowing emergency withdrawals of federal lands from mining activities. Metropolitan's comment letter reiterated the importance of protecting Colorado River water supplies from uranium exploration and mining, and sought assurance that this proposed rule would not adversely affect source water protection efforts.

Senator Dianne Feinstein introduced a bill in March 2008 that would establish a fund for the cleanup of abandoned mines and mills. Senator Feinstein's staff approached Metropolitan to discuss this bill and inquired about possible studies that could be pursued by federal agencies to better assess the potential impact that mining activities could have on Colorado River water quality. Metropolitan responded in an August 6, 2008 letter to Senator Feinstein, supporting the bill and identifying potential study topics.

Metropolitan will continue to track uranium mining activities and related legislation, and advocate for greater federal oversight over mining authorizations. Metropolitan will also coordinate with the appropriate federal agencies on studies that may be pursued to assess the cumulative impacts of mining activities on Colorado River water quality.



Attachment 1 – Uranium Mill Tailings Remediation Site, Moab, Utah


Mining Claims with Uranium Interest
Uranium Mining Claim
UTAH
ARIZONA
Kaibab Piute Reservation
Vermilion Cliffs National Monument
Kaibab National Forest
Grand Canyon Parashant National Monument
Navajo Reservation
Havasupai Reservation
Grand Canyon National Park
Tusayan Ranger District
Kaibab National Forest
Lake Mead National Recreation Area
Hualapai Reservation
Private and State Trust Lands
NEVADA
CALIFORNIA
Figure prepared by Environmental Working Group based on U.S. Bureau of Land Management data