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UMTRA Ground Water Project

Public Involvement Plan for the Environmental Assessment of Ground Water Compliance at the Monument Valley, Arizona, Uranium Mill Tailings Site

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Prepared by
U.S. Department of Energy
Grand Junction Office
Grand Junction, Colorado

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Introduction

This Public Involvement Plan is tiered to the Uranium Mill Tailings Remedial Action (UMTRA) Ground Water Project Public Participation Plan dated October 1997. This Public Involvement Plan applies to the Monument Valley, Arizona, UMTRA Project site and details the activities that have been or will be carried out to meet the public participation requirements of the National Environmental Policy Act (NEPA) of 1969 and the Uranium Mill Tailings Radiation Control Act of 1978, as amended.

The objectives of this plan are to promote stakeholder involvement in the NEPA process and participation in the project decision-making processes; to maintain an active public affairs program that accurately identifies public and media concerns and provides timely information; and to establish stakeholder involvement and information to promote communication between the U.S. Department of Energy's Grand Junction Office (DOE**S**GJO) and affected stakeholders to accomplish the project mission successfully.

History

In 1978, public concern about potential human health and environmental effects of uranium mill tailings led Congress to pass the Uranium Mill Tailings Radiation Control Act (42 U.S.C. 7901 *et seq*.). In the Uranium Mill Tailings Radiation Control Act, Congress acknowledged the potentially harmful health effects associated with uranium mill tailings and designated 24 inactive uranium-ore processing sites for cleanup (Figure 1). These sites are located in 10 states; 23 sites are in states west of the Mississippi River. Of those, four sites are on Navajo Nation lands.

In 1983, the U.S. Environmental Protection Agency (EPA) developed standards to protect the public and the environment from potential radiological and nonradiological hazards at abandoned processing sites. These standards included exposure limits for surface contamination and proposed compliance options for ground water contamination. Under the UMTRA Surface Project, DOE has been cleaning up surface contamination since 1983. Work at the Monument Valley site was completed in 1994.

The second phase of the UMTRA Project is to meet ground water standards at the 24 millsites; thus, the UMTRA Ground Water Project was established. Project management for the UMTRA Ground Water Project was transferred to DOE–GJO during fiscal year 1996. The ground water standards (40 CFR 192) were made final in 1995. DOE is responsible for bringing surface and ground water contaminant levels at the 24 sites into compliance with EPA standards.

In 1992, DOE began preparation of a Programmatic Environmental Impact Statement (PEIS) for the UMTRA Ground Water Project. The PEIS presents analyses of the potential effects of four alternatives for implementing the UMTRA Ground Water Project: the proposed action, no action, active remediation to background levels, and passive remediation. Nineteen public scoping meetings were conducted between November 1992 and April 1993. Nine public hearings and a

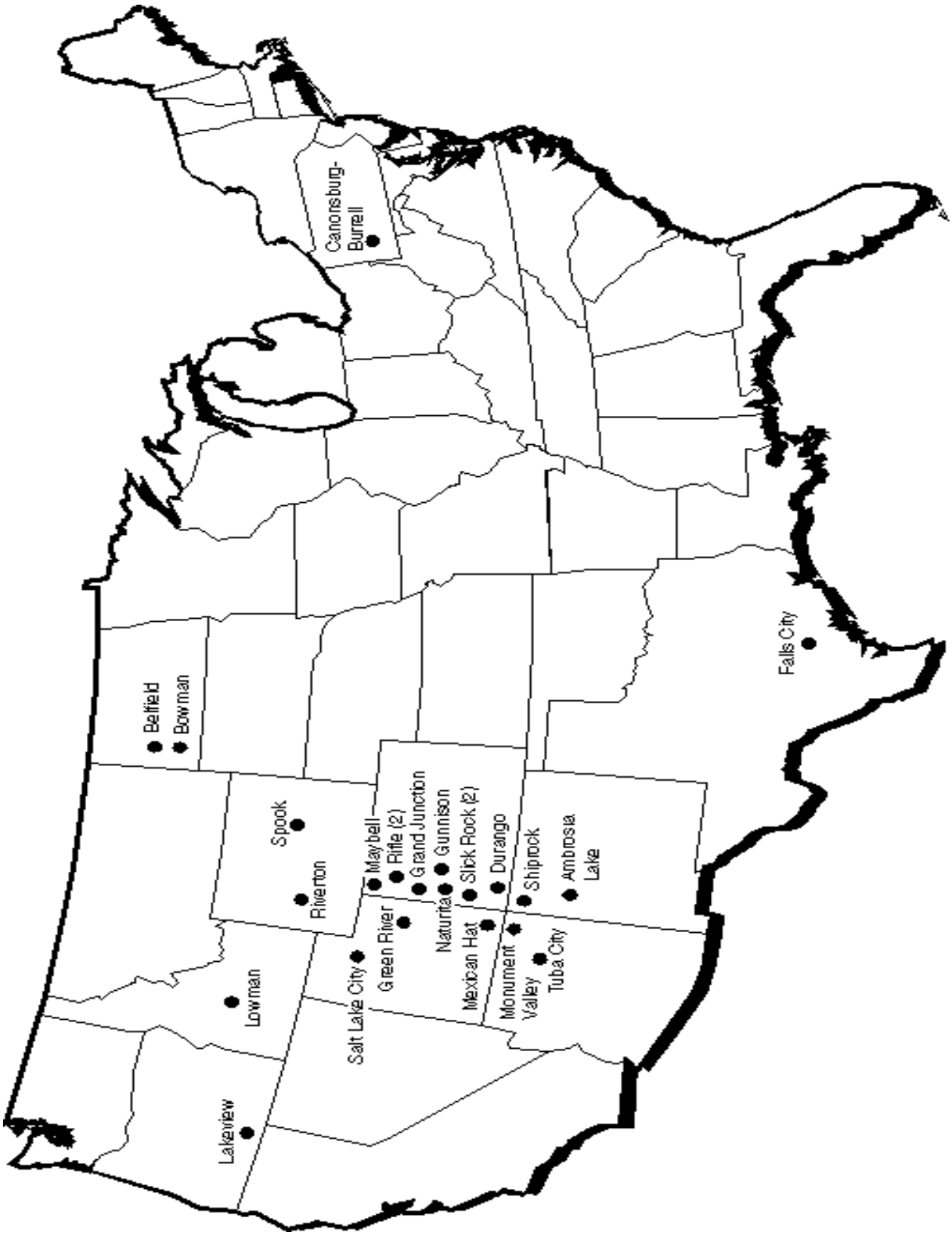

Figure 1. Locations of the Former Uranium-Ore Processing Sites

120-day public comment period followed the issuance of the draft PEIS in April 1995. The final version was distributed to the public in December 1996.

The Record of Decision issued in April 1997 identified the preferred alternative that became the programmatic foundation for conducting the UMTRA Ground Water Project at all sites. Under the proposed-action alternative, three ground water compliance strategies are presented to meet the EPA standards and may be selected for a given site: no remediation, passive remediation with natural flushing and monitoring, and active remediation. DOE may select one strategy or a combination of strategies to meet the EPA standards for a site.

Roles and Responsibilities

The DOE UMTRA Ground Water Project Manager (also the NEPA document manager) and the Public Affairs Specialist are responsible for identifying the need for, and proposing the scope and content of public information materials and activities that meet the public participation requirements of NEPA. These individuals are also responsible for developing appropriate plans to establish and maintain communication, identify and resolve issues of concern to stakeholders, implement these plans, and evaluate the success of the communication programs.

The DOE-GJO Public Affairs Office has day-to-day management responsibility for public affairs acitivities for the UMTRA Ground Water Project. DOE-GJO personnel are the principal spokepersons for the UMTRA Ground Water Project in public meetings and interviews with the media.

Site Information

The Monument Valley UMTRA Ground Water Project site is on the Navajo Indian Reservation (Navajo Nation) in northeastern Arizona, approximately 15 miles south of Mexican Hat, Utah (Figure 2). The site, which is accessible by U. S. Bureau of Indian Affairs (BIA) Navajo Service route 6440, is the location of a former uranium mill that operated from 1955 through 1968. The surface clean-up was completed in 1994.

The former millsite is on the west side of Cane valley, which is drained to the north by Cane Valley Wash. The elevation along Cane Valley Wash is approximately 4,800 ft. above mean sea level. The valley is bordered on the east by Comb Ridge, a 600-ft-high escarpment of Navajo, Kayenta, and Wingate Sandstones. On the west side of the valley near the former millsite, the bedrock dips to the east at approximately 5 degrees and rises up to Yazzie Mesa at an elevation of over 5,300 ft. Cane Valley between Comb Ridge aned Yazzie Mesa is filled with a reddish-yellow eolian sand and minor amounts of water-transported sand, gravel and bedrock fragments.

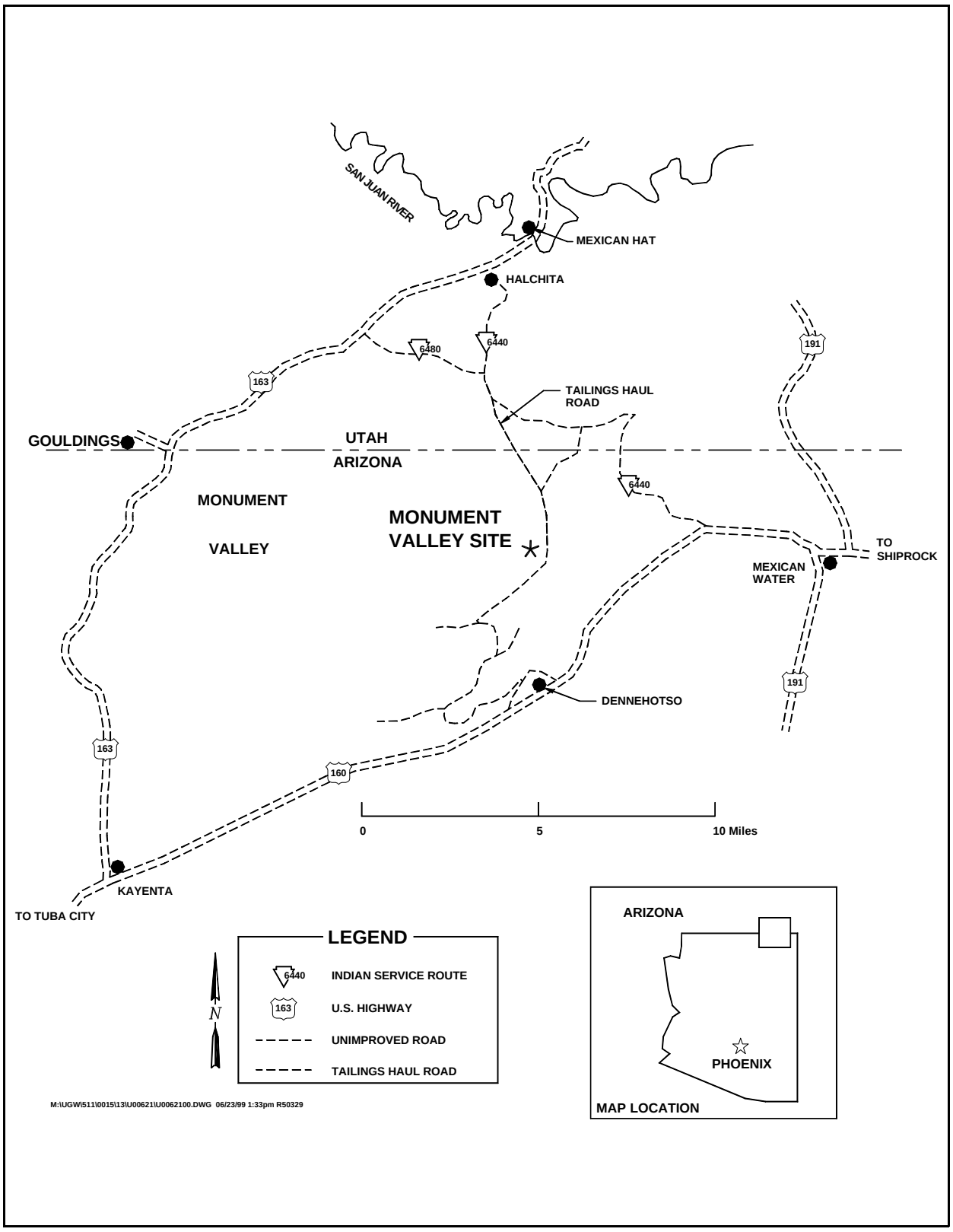

Figure 2. Location of the Monument Valley UMTRA Site

Uranium was discovered in 1942 by Luke Yazzie approximately one-half mile west of the former millsite. Vanadium Corporation of America (VCA) acquired mining rights for the deposit from the Office of Indian Affairs in 1943 and named the property Monument No. 2. VCA mined the property from 1943 to 1968. Total production was 767,166 tons of ore averaging 0.34 percent U_30_8 (uranium oxide) and 1.42 percent V_2O_5 (vanadium oxide). Included in the production estimate are products from a mechanical upgrader, a concentrator, and a heap leach that operated at various times at the site. The Monument No. 2 mine has produced more uranium than any other mine in Arizona.

Before 1955, there was no mill at the site. From 1943 to 1956, the ore was shipped to Metal Reserve at Monticello, Utah. From 1947 to 1952, low-grade ore from the mine was mechanically upgraded at a small plant on the bank of the San Juan River near the Mexican Hat bridge. This upgrader is believed to be the prototype for the plant that was built at the Monument Valley site in 1955. Ore concentrated from the upgrader was hauled to a mill at Naturita, Colorado.

The upgrader constructed at the Monument Valley site in 1955 consisted of a mechanical separator. In this operation, ore was crushed and sorted by grain size using large amounts of water from two on-site wells in the De Chelly Sandstone. The finer grained material, which was higher in uranium content, was shipped off-site for concentration at the Durango, Colorado, mill before March 1963 and later at the VCA mill at Shiprock, New Mexico. No chemicals were used except minor amount of flocculants. The coarser grained material remained on the site and was piled in the areas identified as the former mill and old tailings pile. The mechanical milling operations at the Monument Valley site continued from 1955 to 1964.

In October 1964, batch-leaching equipment was installed at the mill. Acids were applied to the crushed ore to leach the uranium from the heap piles. Batch leaching continued for approximately 3 years, during which approximately 1,000,000 tons of sandy tailings were processed (925 tons per day) in large steel tanks. A seperate heap leaching operation was used on an additional 100,000 tons of low-grade ore in 1966 and 1967.

The millsite was leased from the Navajo Nation until 1968, when the mill closed and the lease expired. Control of the site, structures, and materials reverted to the Navajo Nation at that time.

The mill buildings and milling equipment were removed after 1968. Beginning in 1992, the tailings piles, windblown tailings, contaminated radioactive materials, concrete foundations, and debris were removed and placed in the Mexican Hat UMTRA Project disposal cell, approximately 10 miles north of the former millsite. Relocation of these materials was completed in January 1994.

Minimal ground water contamination probably occurred during the mechanical processing period (1955 to 1964) as a result of water draining from stockpiles of the finer grained materials prior to shipment off-site for chemical separation and from the coarser materials that remained on-site. The heap leach operation contributed the predominant amount of contaminant to the ground water. The primary contaminants would have been relatively soluble components of the ore, such as uranium, calcium, and sulfate (the source of calcium and sulfate would have been

gypsum, which was part of the ore body).

Contaminants of concern in the alluvial aquifer are identified as nitrate and sulfate. Nitrate concentrations exceeding the DOE maximum concentration limit (MCL) of 44.0 milligrams per liter (mg/L) are present in the alluvial aquifer up to a maximum of 4,500-feet downgradient from the site. Elevated concentrations of contaminants of concern are not present in the Shinarump bedrock aquifer. Uranium is present in the DeChelly bedrock aquifer at concentrations that slightly exceed the 0.044 mg/L uranium MCL; however, the area of impact is small, isolated, and the concentrations appear to be decreasing with time. Sulfate does not have a ground water cleanup standard.

Proposed Compliance Strategy

The proposed compliance strategy to cleanup contaminants of concern in the alluvial ground water at the Monument Valley site is active ground water remediation of ammonia-contaminated soils and shallow portions of the aquifer using phytoremediation (using plant root systems to treat shallow contamination zones), and distillation (for nitrates and sulfates) of deeper portions of the aquifer, in combination with natural flushing (for uranium).

Public Participation Activities

In October 1998, the DOE held a public scoping meeting to discuss the proposed ground water cleanup strategy at the Monument Valley, Arizona, Uranium Mill Tailings site. Additional meetings to discuss the cleanup strategy, including a workshop on June 30 - July 1, 1999, have been held with representatives of the Navajo Nation. DOE will continue to meet with local stakeholders through participation in their local chapter house meetings.

In compliance with NEPA, an Environmental Checklist has been prepared and submitted to the U. S. Department of Energy Albuquerque Operations Office. The DOE has determined that an Environmental Assessment is the appropriate level of NEPA documentation for the Monument Valley site.

Table 1 provides information on additional public participation activities proposed to support the environmental assessment at the Monument Valley site.

Table 1. Scheduled Public Participation Activities for the Environmental Assessment (EA) of Ground Water Compliance at the Monument Valley site

Activity	Timing
Review of final draft by Management Review Team	August 1999
Notify availability of EA • News release • Federal Register notice (not required)	September 1999
Transmit final draft EA to interested stakeholders, the Navajo Nation, other agencies, public (upon request)	September 1999
Place copies of draft EA in public locations: • Mesa County Library • Various Arizona Public Libraries • DOE**S**GJO Reading Room • Other	October 1999
Hold public meetings • Public Scoping Meeting - Mexican Hat, UT • Ground Water Workshop - Grand Jct. CO • Chapter House Meetings	As Needed October 6, 1998 (completed) June 30, July 1, 1999 (completed) As Appropriate
Receive comments from stakeholders	October 1999
Address comments	November 1999
Issue news release of Finding of No Significant Impact (FONSI) approval	November 1999
Issue final EA and FONSI to the public, stakeholders, and agencies	November 1999
Place copies of EA in public locations: • Mesa County Library • Various Arizona Public Libraries • Halchita Elementary School Library • DOE**S**GJO Reading Room • Other	November 1999

Information Contacts

Requests for information should be directed to the DOE UMTRA Ground Water Project Manager or Site Manager listed below. A toll-free hotline (1–800–399–5618) has been established to provide information and to take public comments. In addition, the DOE**S**GJO Home Page has information relevant to the UMTRA Ground Water Project. The home page address is **http://www.doegjpo.com**.

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