Sustainable Acquisition Success Story

Product Spotlight on Moab UMTRA Project

Waterless Urinals at Moab UMTRA Project

Over the last decade, sites within the Moab Uranium Mill Tailings Remedial Action (UMTRA) Project have been transitioning their restroom facilities to use waterless urinals to improve the Project's water conservation efforts.

The Moab UMTRA Project is a former uranium-processing site in Moab, Utah, and is comprised of two locations, the former processing site (in Moab, Utah) and the disposal site located near Crescent Junction, Utah. The Moab site has three restrooms containing a total of 12 urinals, and the Crescent Junction site has one restroom with a total of five urinals.

Moab and Crescent Junction, both located in eastern Utah, are in very arid environments where water is a scarce and valuable resource. Water conservation is a key issue and a priority concern. Moab UMTRA Project is significantly improving its water conservation efforts through their replacement of their 17 urinals with waterless alternatives.

In 2002, the DOE remediated the Moab site and facilities were built using the standard toilets with reduced water requirements. These toilets used between 1.28-1.6 gallons of water per flush. By 2015, Moab had installed seven waterless urinals and seen a cost reduction of $875.00 per urinal per year. In addition, waste water volume was reduced by about 4,500 gallons per urinal per year, totaling a 31,500 gallons of waste water reduction. From reduced water consumption and maintenance cost savings, the urinals were able to pay for themselves within 12-18 months.

In 2017, Moab UMTRA Project began increasing the use of waterless urinals by replacing 7 urinals at the Moab site with waterless urinals. In December 2021, the Facility Maintenance Group installed waterless urinals at both sites, replacing the remaining 10 urinals with waterless ones. This upgrade to waterless urinals has saved the sites several thousand gallons of water and reduced the amount of maintenance required in the restroom facilities.

Like the standard flushing urinals of Moab UMTRA's past, the new waterless urinals flush liquid waste, only without the use of any water. This reduces not only the amount of water consumed at the site, but also the amount of liquid waste they send to the septic system. The transfer of liquid waste is a two-part system that consists of a cartridge and a biodegradable sealant. The sealant inside the cartridge prevents liquid waste from being exposed to the air which prevents odor issues and serves as a barrier to inhibit liquid waste from flowing back into the urinal bowl. These urinal cartridges and their biodegradable sealant are the most important part of the waterless urinal and allow for the device to operate to the same

standards and expectations as their standard flushing predecessors. The cartridge in the waterless urinal acts as a funnel, allowing the liquid waste to flow from the bowl to the drainpipes.

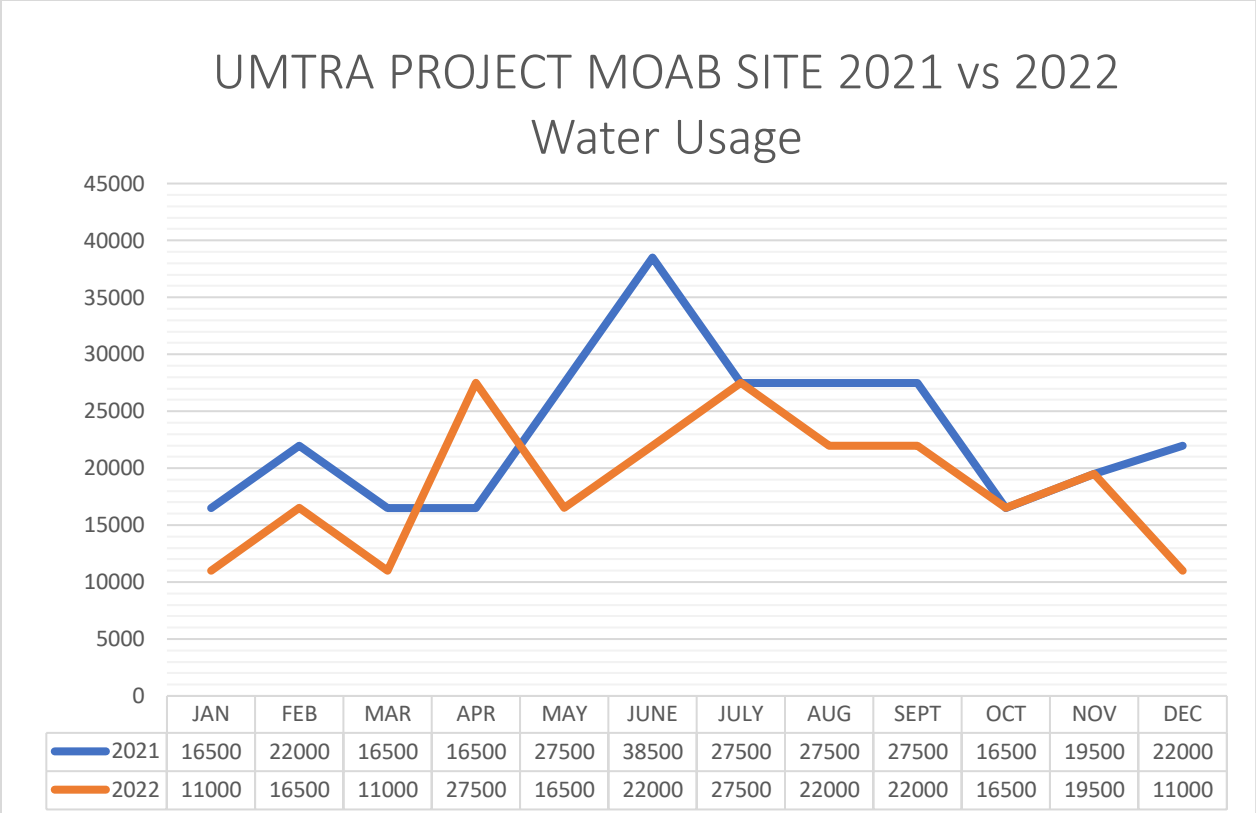
The amount of water saved from switching to waterless urinals has been estimated by the number of workers at each site, the average amount of urinal uses per day per individual, and the average amount of water used per flush in the previous flushing urinals (between one and two gallons per flush). At the Moab site there are 64 male workers who use the urinals approximately four times a day. During Fiscal Year (FY) 2022, the Moab site saved an estimated 51,200 gallons of water.

Moab UMTRA-Waterless Urinal Cartridge

The Crescent Junction site has 37 male workers with the same average urinal usage of four times a day. From their transition of five standard urinals to waterless urinals, the Crescent Junction site saved an estimated 29,600 gallons of water in FY 2022. During FY 2022, with both sites combined, the Moab UMTRA Project is estimated to have conserved 80,800 gallons of water from their switch to waterless urinals.

By switching to these waterless urinals, the Moab site has seen an annual savings of $5,790.50 and is now spending less than $600 a year on cartridges and maintenance of the new waterless urinals. These savings come from the reduced amount of water being purchased by the site (between 44,000-55,000 gallons less per year) and reduced maintenance including regular servicing and pumping of septic tanks.

Cost savings for the Crescent Junction site cannot be as precisely calculated as the site operates on a flat rate service model. For both the Moab and Crescent Junction site, the annual cost of operating these waterless urinals is $853 which includes the cost of maintenance and replacement cartridges.



	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
2021	16500	22000	16500	16500	27500	38500	27500	27500	27500	16500	19500	22000
2022	11000	16500	11000	27500	16500	22000	27500	22000	22000	16500	19500	11000

Keys to Success

Challenge

- How to conserve water at the Moab UMTRA sites

Solution

- Waterless Urinals

Results/Benefits

- Annual water savings of approximately 80,800 gallons of water
- Annual cost savings of $5.790.50 at the Moab site
- Reduced need for urinal and plumbing maintenance hours
- Annual cost of $853 for device and maintenance at both sites combined

Key Stakeholders

Moab UMTRA Facility Maintenance Team

Moab UMTRA on-site employees

Moab City Municipality

Thompson Water District

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