



MARS SAMPLE RETURN – HAZARDOUS MATERIALS AND WASTE

Hazardous materials are generally considered to be hazardous substances, hazardous wastes, and elevated temperature materials. Hazardous wastes include substances that, because of their concentration, physical, chemical, or other characteristics, may present substantial danger to public health or welfare or to the environment when released into the environment or otherwise improperly managed.



Proposed Action (see Proposed Action and No Action Alternative Factsheet)

Programmatic Analysis

Transportation of the Earth Entry System (EES) to a Sample Receiving Facility (SRF) would not be expected to involve the use of hazardous materials or generation of hazardous wastes. Hazardous materials may be used, and waste generated, as part of the construction and operation of an SRF. Typical construction-related hazardous wastes consist of petroleum, oils, and lubricants, as well as paints, adhesives, and solvents. Types of hazardous materials and wastes associated with operation of an SRF facility would likely be consistent with other similar types of facilities such as flammable liquids; flammable, toxic liquids; corrosive liquids; oxidizing liquids; and ethidium bromide solids. The types and quantities of hazardous materials and wastes used would be particular to the size and function of an SRF. Regardless, all hazardous materials and wastes would be managed according to applicable Federal, state, and local requirements depending on hazardous waste generator status (i.e., large, small, or very small quantity generator).

Site-Specific Analysis (Utah Test and Training Range (UTTR) / Dugway Proving Ground)

No significant adverse impacts associated with hazardous materials and wastes are anticipated at the UTTR or Dugway Proving Ground. Landing site preparation would include target dart removal. Target darts are non-hazardous material (consisting of wood and metal), and the small amount of waste material could be disposed of as standard industrial waste or recycled. Any soil and/or debris associated with landing site preparation that would be disposed of off-site would require sampling to determine appropriate disposition (e.g., solid waste or hazardous waste fill). The UTTR, as a range, does have unexploded ordnance; however, unexploded ordnance encounters are unlikely and any potential unexploded ordnance encountered would be handled in accordance with U.S. Air Force Explosive Ordnance Disposal Program requirements.

The EES contains negligible amounts of hazardous materials consisting of standard aerospace adhesive materials; there are no fuels or other petroleum products used in the EES. As a precautionary measure, EES recovery procedures, including placement into the vault for transportation, would use methods applicable to the handling of biological substances and toxins. Recovery personnel would wear personal protective equipment (PPE), which would be decontaminated or properly disposed of after the EES recovery is complete.

NASAfacts

NASA would coordinate all handling and disposal of waste with UTTR (U.S. Air Force) and Dugway Proving Ground (U.S. Army) personnel as appropriate. Occupational Safety and Health Administration requirements would also apply depending upon the status of personnel (civilian, military, contractor) regarding the use of appropriate PPE, etc. NASA may need a waiver from the Department of the Air Force and/or U.S. Army to bring any required hazardous materials onto respective properties. For hazardous waste disposal, NASA would work with the Department of the Air Force and U.S. Army to determine waste management responsibilities.

No Action Alternative

Under the No Action Alternative, the Mars Sample Return Campaign would not involve the landing of Mars samples at the UTTR and an SRF would not be developed. Therefore, the No Action Alternative would not result in any additional impacts to hazardous materials and wastes within or adjacent to the proposed landing site outside of those associated with ongoing and potential future military operations and other activities occurring at the site. Potential impacts associated with development of an SRF would not be realized.