

PUBLIC NOTICE

Hawthorne Army Depot (HWAD) Invitation to Review the Munitions Response Sites Prioritization Protocol (MRSPP) for the Munitions Response Site (MRS): **HWAAP-022-R-01 Old Bomb Rocket Firing Range – East**

For decades, the Department of Defense (DoD) has utilized military munitions in training and testing to maintain force readiness. Munitions remaining from DoD activities may pose explosive, chemical agent, human health, and environmental hazards at active installations under DoD control. Whenever a former range or disposal site is repurposed, remediation actions must be taken to address any remaining explosive hazards in the environment.

The Protocol mandates that DoD Components apply a prioritization methodology to determine the relative priority for munitions response actions at MRS. The priority assigned is based on the overall conditions at each MRS.

The United States Army offers all stakeholders opportunities to participate throughout the Protocol's application. This typically occurs upon the completion of an environmental investigation phase. The Army is required to notify the public of the opportunity to participate in the application of the Protocol, publish an announcement requesting participation, consider stakeholders' input in prioritization decisions, and document stakeholder input. The Army recognizes that stakeholder involvement is an effective way to identify and address concerns about environmental and safety issues related to MRSs. Once an MRS's relative priority is determined, the Army will provide stakeholders with the opportunity to review and comment on how an MRS is scored for response actions.

HWAD has updated the MRSPP proposed scores for the Old Bomb Rocket Firing Range. HWAD invites all stakeholders to review and comment on the MRSPP documents, which will be available for public viewing at 1 South Main Avenue, Building 5, Hawthorne, NV 89415. Please call number below, or email justine.a.barati.civ@army.mil with comments or questions before 30 June 2026.

Remedial Restoration Project
Manager Environmental Division
Hawthorne Army Depot
1 South Main Avenue, Bld. 5
Hawthorn, NV 89415
(775) 945-7493

Table A

MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental non-munitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: OLD BOMB ROCKET FIRING RANGE–EAST (OBRFRE)
HWAAP-022-R-01

Component: ARMY

Installation/Property Name: HAWTHORNE ARMY DEPOT

Location (City, County, State): HAWTHORNE, MINERAL COUNTY, NEVADA

Site Name/Project Name (Project No.): HWAAP-022-R-01

Date Information Entered/Updated: 15 December 2025

Point of Contact (Name/Phone): DONALD STEVENS (559) 824-8711

Project Phase (check only one):

<input type="checkbox"/> PA	<input type="checkbox"/> SI	<input type="checkbox"/> RI	<input type="checkbox"/> FS	<input type="checkbox"/> RD
<input type="checkbox"/> RA-C	<input type="checkbox"/> RIP	<input type="checkbox"/> RA-O	<input checked="" type="checkbox"/> RC	<input type="checkbox"/> LTM

Media Evaluated (check all that apply):

<input type="checkbox"/> Groundwater	<input type="checkbox"/> Sediment (human receptor)
<input checked="" type="checkbox"/> Surface soil	<input type="checkbox"/> Surface Water (ecological receptor)
<input type="checkbox"/> Sediment (ecological receptor)	<input type="checkbox"/> Surface Water (human receptor)

MRS Summary:

Documents used throughout this Munitions Response Site Prioritization Protocol (MRSP) can be found below.

The MRS was used as a rocket testing range from 1971 to about 1980, and previous investigations identified the potential for munitions and explosives of concern (MEC) contamination, based on the discovery of munitions debris (MD) (Decision Document [DD] Sections 2.2.1 and 2.2.2 [Page 7/8]). The MRS consists of 845 acres (DD, Section 1.1, Page 1).

Suspected MEC for this MRS includes: 105-millimeter (mm) and 155-mm high-explosive (HE) projectiles, 2.75-inch rockets, 5-inch rockets, 40-mm projectiles (practice), and unidentifiable aluminum fuzes and fragments (DD Sections 1.3 [Page 2]);

In 2017 a Remedial Action (RA) was conducted to address the potential of MEC contamination. Based on the RA results, the Conceptual Site Model (CSM) was revised to reflect that potential exposure to surface MEC/munitions items is now considered low due to 100% coverage via a detector-assisted surface sweep of accessible areas and the small, unmanned aircraft system (sUAS) survey of inaccessible areas (Removal Action Completion Report [RACR], Section 5.4 [Page 5-5]).

EHE Module: a module alternative rating of "No Longer Required" is assigned to the EHE module because a RA has been completed in accordance with the DD, and all that remains are 5-year reviews (RACR, Sections 6.3 & 7.3 [Pages 6-2 & 7-2]).

CHE and HHE Modules: are assigned an alternative rating of "No Known or Suspected Hazard" since there is no historical or physical evidence of suspected previous chemical weapons use or conditions resulting in a munitions constituent (MC) hazard at the site (DD Sections 1.3 [Page 2])

Description of Pathways for Human and Ecological Receptors:

An RI was conducted by Parsons Corporation in 2013 and identified MEC as a potential hazard to human receptors at the MRS over 845 acres of the original 15,496-acre MRS, and that MEC is potentially present on the ground surface (Parsons, 2013). A complete description of potential MEC exposure pathways can be found in the DD, Section 2.5.6 (Page 14).

The RI concluded there was no risk posed to human health and no unacceptable risk to the environment at the MRS (RACR, Section 1.2, Page 1-3).

Description of Receptors (Human and Ecological):

The MRS is currently comprised of undeveloped land managed by the Bureau of Land Management (BLM), is used for recreation (e.g., hunting, hiking, off-highway vehicle [OHV] use) and cattle grazing. There are no structures present in the MRS and only a few dirt roads access the area. The site is open to the public for recreational purposes; however, the site is not heavily used due to its remote location and mountainous terrain. Human receptors consist of persons anticipated to access the MRS, such as BLM employees, and ecological receptors, commercial/industrial workers, and site visitors (DD Section 2.6 [Page 15]).

References:

- Census profile: BG 1, Tract 9707, Mineral, NV. (n.d.). *Census Reporter*. Retrieved November 14, 2025, from [Old Bomb Rocket Firing Range - East MRS
Hawthorne Army Depot, Mineral County, Nevada](http://censusreporter.org/profiles/15000US320219707001-bg-1-tract-9707-mineral-nv/Engineering/Remediation Resources Group (ERRG), 2017. Final Uniform Federal Policy for Quality Assurance Project Plan for Military Munitions Response Program, Remedial Action at Old Bomb RFR-East. April.</p><p>Hawthorne Army Depot (HWAD), 2015. <i>Final HWAAP-022-R-01 Munitions Response Site Remedial Action Decision Document, Old Bomb Rocket Firing Range–East, Version 02</i>. June.</p><p>Parsons, 2013. <i>Final Remedial Investigation Report, Hawthorne Army Depot, Old Bomb Rocket Firing Range–East Munitions Response Site, Mineral County, Nevada</i>. Revision No. 2. September.</p><p>Tanaq-ECM-8A JV, 2025. <i>Final Remedial Action Completion Report, Remedial Action Old Bomb Rocket Firing Range–East Munitions Response Site</i>. October</p></div><div data-bbox=)

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with all the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions*, *small arms ammunition*, *physical evidence*, and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	<ul style="list-style-type: none"> • UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). • Hand grenades containing energetic filler. • Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard. 	<input type="checkbox"/> 30
High explosive (used or damaged)	<ul style="list-style-type: none"> • UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered sensitive.” • DMM containing a high-explosive filler that have: <ul style="list-style-type: none"> ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability. 	<input checked="" type="checkbox"/> 25
Pyrotechnic (used or damaged)	<ul style="list-style-type: none"> • UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). • DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: <ul style="list-style-type: none"> ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability. 	<input type="checkbox"/> 20
High explosive (unused)	<ul style="list-style-type: none"> • DMM containing a high-explosive filler that: <ul style="list-style-type: none"> ■ Have not been damaged by burning or detonation ■ Are not deteriorated to the point of instability. 	<input type="checkbox"/> 15
Propellant	<ul style="list-style-type: none"> • UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). • DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: <ul style="list-style-type: none"> ■ Damaged by burning or detonation ■ Deteriorated to the point of instability. 	<input checked="" type="checkbox"/> 15
Bulk secondary high explosives, pyrotechnics, or propellant	<ul style="list-style-type: none"> • DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). • DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard. 	<input type="checkbox"/> 10
Pyrotechnic (not used or damaged)	<ul style="list-style-type: none"> • DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: <ul style="list-style-type: none"> ■ Have not been damaged by burning or detonation ■ Are not deteriorated to the point of instability. 	<input type="checkbox"/> 10
Practice	<ul style="list-style-type: none"> • UXO that are practice munitions that are not associated with a sensitive fuze. • DMM that are practice munitions that are not associated with a sensitive fuze and that have not: <ul style="list-style-type: none"> ■ Been damaged by burning or detonation ■ Deteriorated to the point of instability. 	<input checked="" type="checkbox"/> 5
Riot control	<ul style="list-style-type: none"> • UXO or DMM containing a riot control agent filler (e.g., tear gas). 	<input type="checkbox"/> 3
Small arms	<ul style="list-style-type: none"> • Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.) 	<input type="checkbox"/> 2
Evidence of no munitions	<ul style="list-style-type: none"> • Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present. 	<input type="checkbox"/> 0
MUNITIONS TYPE	Record the single highest score from above in the box to the right (maximum score = 30).	25

Suspected MEC for this MRS includes: 105-millimeter (mm) and 155-mm high-explosive (HE) projectiles, 2.75-inch rockets, 5-inch rockets, 40-mm projectiles (practice), and unidentifiable aluminum fuzes and fragments (DD Sections 1.3 [Page 2].

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with all the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range*, *practice munitions*, *small arms range*, *physical evidence*, and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	<ul style="list-style-type: none"> The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones. 	<input checked="" type="checkbox"/> 10
Former munitions treatment (i.e., OB/OD) unit	<ul style="list-style-type: none"> The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal. 	<input type="checkbox"/> 8
Former practice munitions range	<ul style="list-style-type: none"> The MRS is a former military range on which only practice munitions without sensitive fuzes were used. 	<input type="checkbox"/> 6
Former maneuver area	<ul style="list-style-type: none"> The MRS is a former maneuver area where no munitions other than flares, simulators, smoke, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category. 	<input type="checkbox"/> 5
Former burial pit or other disposal area	<ul style="list-style-type: none"> The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment. 	<input type="checkbox"/> 5
Former industrial operating facilities	<ul style="list-style-type: none"> The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility. 	<input type="checkbox"/> 4
Former firing points	<ul style="list-style-type: none"> The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range. 	<input type="checkbox"/> 4
Former missile or air defense artillery emplacements	<ul style="list-style-type: none"> The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range. 	<input type="checkbox"/> 2
Former storage or transfer points	<ul style="list-style-type: none"> The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system). 	<input type="checkbox"/> 2
Former small arms range	<ul style="list-style-type: none"> The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.) 	<input type="checkbox"/> 1
Evidence of no munitions	<ul style="list-style-type: none"> Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present. 	<input type="checkbox"/> 0
SOURCE OF HAZARD	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 10).	10

DIRECTIONS: Document any MRS-specific data used in selecting the **Source of Hazard** classifications in the space provided.

Background documents including the RI (Parsons, 2013) and DD indicate that the MRS is a former military range where munitions (including practice munitions) have been used (DD Sections 1.3, Page 2).

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with all the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed*, *surface*, *subsurface*, *small arms ammunition*, *physical evidence*, and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	<ul style="list-style-type: none"> Physical evidence indicates that there are UXO or DMM on the surface of the MRS. Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS. 	<input type="checkbox"/> 25
Confirmed subsurface, active	<ul style="list-style-type: none"> Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. 	<input type="checkbox"/> 20
Confirmed subsurface, stable	<ul style="list-style-type: none"> Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. 	<input type="checkbox"/> 15
Suspected (physical evidence)	<ul style="list-style-type: none"> There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS. 	<input checked="" type="checkbox"/> 10
Suspected (historical evidence)	<ul style="list-style-type: none"> There is historical evidence indicating that UXO or DMM may be present at the MRS. 	<input checked="" type="checkbox"/> 5
Subsurface, physical constraint	<ul style="list-style-type: none"> There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM. 	<input type="checkbox"/> 2
Small arms (regardless of location)	<ul style="list-style-type: none"> The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.) 	<input type="checkbox"/> 1
Evidence of no munitions	<ul style="list-style-type: none"> Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present. 	<input type="checkbox"/> 0
LOCATION OF MUNITIONS	DIRECTIONS: Record <u>the single highest score</u> from above in the box to the right (maximum score = 25).	10

DIRECTIONS: Document any MRS-specific data used in selecting the *Location of Munitions* classifications in the space provided.

The potential for MEC contamination at the MRS was established by the discovery of MD, specifically fragments derived from 105-mm and 155-mm HE projectiles, 2.75-inch rockets, and 5-inch rockets (DD Sections 1.3 [Page 2]). This physical evidence, also including fragments of 40-mm projectiles (practice) and unidentifiable aluminum fuzes, ultimately resulted in the recovery of 1,202 pounds of MDAS (Material Documented as Safe) during the remedial surface clearance (RACR Sections 2.5 [Page 2-5/6]).

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	<ul style="list-style-type: none"> There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible). 	<input checked="" type="checkbox"/> 10
Barrier to MRS access is incomplete	<ul style="list-style-type: none"> There is a barrier preventing access to parts of the MRS, but not the entire MRS. 	<input type="checkbox"/> 8
Barrier to MRS access is complete but not monitored	<ul style="list-style-type: none"> There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS. 	<input type="checkbox"/> 5
Barrier to MRS access is complete and monitored	<ul style="list-style-type: none"> There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS. 	<input type="checkbox"/> 0
EASE OF ACCESS	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 10).	10

DIRECTIONS: Document any MRS-specific data used in selecting the **Ease of Access** classification in the space provided.

Currently the majority of the MRS is BLM-managed property, which is unfenced, unmarked, and public access is unrestricted (RACR Section 1.1.3, Page 1-2).

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	<ul style="list-style-type: none"> • The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. • The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day. 	<input checked="" type="checkbox"/> 5
Scheduled for transfer from DoD control	<ul style="list-style-type: none"> • The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied. 	<input type="checkbox"/> 3
DoD control	<ul style="list-style-type: none"> • The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year. 	<input type="checkbox"/> 0
STATUS OF PROPERTY	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	5

DIRECTIONS: Document any MRS-specific data used in selecting the *Status of Property* classification in the space provided.

Currently the majority of the MRS is BLM-managed property (RACR Section 1.1.3, Page 1-2).

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	<ul style="list-style-type: none"> There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located. 	<input type="checkbox"/> 5
100–500 persons per square mile	<ul style="list-style-type: none"> There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located. 	<input type="checkbox"/> 3
< 100 persons per square mile	<ul style="list-style-type: none"> There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located. 	<input checked="" type="checkbox"/> 1
POPULATION DENSITY	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	1

DIRECTIONS: Document any MRS-specific data used in selecting the **Population Density** classification in the space provided.

The MRS is located in Census Tract 9707 in Mineral County, NV. The 2023 census data indicate the population density of Tract 9707 is 18 persons per square mile (U.S. Census Bureau, 2025).

The only town within two miles of the MRS boundary is Hawthorne Army Depot.

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Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	<ul style="list-style-type: none"> There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both. 	<input type="checkbox"/> 5
16 to 25 inhabited structures	<ul style="list-style-type: none"> There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both. 	<input type="checkbox"/> 4
11 to 15 inhabited structures	<ul style="list-style-type: none"> There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both. 	<input type="checkbox"/> 3
6 to 10 inhabited structures	<ul style="list-style-type: none"> There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both. 	<input type="checkbox"/> 2
1 to 5 inhabited structures	<ul style="list-style-type: none"> There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both. 	<input type="checkbox"/> 1
0 inhabited structures	<ul style="list-style-type: none"> There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both. 	<input checked="" type="checkbox"/> 0
POPULATION NEAR HAZARD	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	0

DIRECTIONS: Document any MRS-specific data used in selecting the *Population Near Hazard* classification in the space provided.

No structures are currently present on the MRS, and only a few dirt roads provide access to parts of the site, which is not heavily used due to the remote location and difficult mountainous terrain (RACR Section 1.1.3 [Page 1-2]).

https://earth.google.com/web/@38.42484832,-118.52405342,1663.08193027a,6708.78617285d,35y,-0h,0t,0r/data=CgRCAggBQgIIAEoNCP_____wEQAA

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with all the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	<ul style="list-style-type: none"> Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering. 	<input type="checkbox"/> 5
Parks and recreational areas	<ul style="list-style-type: none"> Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses. 	<input checked="" type="checkbox"/> 4
Agricultural, forestry	<ul style="list-style-type: none"> Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry. 	<input checked="" type="checkbox"/> 3
Industrial or warehousing	<ul style="list-style-type: none"> Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing. 	<input type="checkbox"/> 2
No known or recurring activities	<ul style="list-style-type: none"> There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary. 	<input type="checkbox"/> 1
TYPES OF ACTIVITIES/ STRUCTURES	DIRECTIONS: Record <u>the single highest score</u> from above in the box to the right (maximum score = 5).	4

DIRECTIONS: Document any MRS-specific data used in selecting the *Types of Activities/Structures* classifications in the space provided.

The MRS is currently used for recreation (e.g., hunting, hiking, off-highway vehicle [OHV] use) and cattle grazing. The site is open to the public for recreational purposes; however, the site is not heavily used due to its remote location and mountainous terrain (DD Section 2.6 [Page 15]; RACR Section 1.1.3 [Page 1-2]).

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	<ul style="list-style-type: none"> There are both ecological and cultural resources present on the MRS. 	<input type="checkbox"/> 5
Ecological resources present	<ul style="list-style-type: none"> There are ecological resources present on the MRS. 	<input type="checkbox"/> 3
Cultural resources present	<ul style="list-style-type: none"> There are cultural resources present on the MRS. 	<input type="checkbox"/> 3
No ecological or cultural resources present	<ul style="list-style-type: none"> There are no ecological resources or cultural resources present on the MRS. 	<input checked="" type="checkbox"/> 0
ECOLOGICAL AND/OR CULTURAL RESOURCES	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 5).	0

DIRECTIONS: Document any MRS-specific data used in selecting the *Ecological and/or Cultural Resources* classification in the space provided.

The MRS, characterized by desert scrub vegetation including big sagebrush, is managed by the BLM as habitat for desert mountain goats (a game species), but contains no federally listed species, wetlands, or known cultural or archaeological resources (RACR Section 1.1 [Page 1-1]; DD Section 2.5.1 [Page 11/12]).

Table 10
Determining the EHE Module Rating

Source Score Value

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	25	35
Source of Hazard	Table 2	10	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	10	25
Ease of Access	Table 4	10	
Status of Property	Table 5	5	
Receptor Factor Data Elements			
Population Density	Table 6	1	5
Population Near Hazard	Table 7	0	
Types of Activities/Structures	Table 8	4	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			65
EHE Module Total		EHE Module Rating	
92 to 100		<input type="checkbox"/> A	
82 to 91		<input type="checkbox"/> B	
71 to 81		<input type="checkbox"/> C	
60 to 70		<input type="checkbox"/> D	
48 to 59		<input type="checkbox"/> E	
38 to 47		<input type="checkbox"/> F	
less than 38		<input type="checkbox"/> G	
Alternative Module Ratings		<input type="checkbox"/> Evaluation Pending	
		<input checked="" type="checkbox"/> No Longer Required	
		<input type="checkbox"/> No Known or Suspected Explosive Hazard	
EHE MODULE RATING		NO LONGER REQUIRED	

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO*, *CWM/DMM*, *physical evidence*, and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: <ul style="list-style-type: none"> • CWM that are UXO (i.e., CWM/UXO) • Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged. 	<input type="checkbox"/> 30
CWM mixed with UXO	<ul style="list-style-type: none"> • The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO. 	<input type="checkbox"/> 25
CWM, explosive configuration that are undamaged DMM	<ul style="list-style-type: none"> • The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged. 	<input type="checkbox"/> 20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: <ul style="list-style-type: none"> • Non-explosively configured CWM/DMM either damaged or undamaged • Bulk CWM (e.g., ton container). 	<input type="checkbox"/> 15
CAIS K941 and CAIS K942	<ul style="list-style-type: none"> • The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M- 2/E11. 	<input type="checkbox"/> 12
CAIS (chemical agent identification sets)	<ul style="list-style-type: none"> • CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS. 	<input type="checkbox"/> 10
Evidence of no CWM	<ul style="list-style-type: none"> • Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS. 	<input checked="" type="checkbox"/> 0
CWM CONFIGURATION	DIRECTIONS: Record the single highest score from above in the box to the right (maximum score = 30).	0

Only conventional munitions were suspected MEC. No evidence of CWM was found in previous investigations (DD Sections 1.3 [Page 2]; Quality Assurance Project Plan (QAPP) Worksheet (WS)#10 [ERRG, 2017]).

Tables 12-19 have been omitted per Army guidance.

Table 20

Determining the CHE Module Rating

Source Score Value

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12		
Accessibility Factor Data Elements			
Location of CWM	Table 13		
Ease of Access	Table 14		
Status of Property	Table 15		
Receptor Factor Data Elements			
Population Density	Table 16		
Population Near Hazard	Table 17		
Types of Activities/Structures	Table 18		
Ecological and/or Cultural Resources	Table 19		
CHE MODULE TOTAL			0
CHE Module Total		CHE Module Rating	
92 to 100		<input type="checkbox"/> A	
82 to 91		<input type="checkbox"/> B	
71 to 81		<input type="checkbox"/> C	
60 to 70		<input type="checkbox"/> D	
48 to 59		<input type="checkbox"/> E	
38 to 47		<input type="checkbox"/> F	
less than 38		<input type="checkbox"/> G	
Alternative Module Ratings		<input type="checkbox"/> Evaluation Pending	
		<input type="checkbox"/> No Longer Required	
		<input checked="" type="checkbox"/> No Known or Suspected CWM Hazard	
CHE MODULE RATING		NO KNOWN OR SUSPECTED CWM HAZARD	

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	
CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	DIRECTIONS: Record <u>the CHF Value</u> from above in the box to the right (maximum value = H).		
<u>Migratory Pathway Factor</u>			
DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.			
Classification	Description		Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.		<input type="checkbox"/> H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.		<input type="checkbox"/> M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).		<input type="checkbox"/> L
MIGRATORY PATHWAY FACTOR	DIRECTIONS: Record <u>the single highest value</u> from above in the box to the right (maximum value = H).		
<u>Receptor Factor</u>			
DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.			
Classification	Description		Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).		<input type="checkbox"/> H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).		<input type="checkbox"/> M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).		<input type="checkbox"/> L
RECEPTOR FACTOR	DIRECTIONS: Record <u>the single highest value</u> from above in the box to the right (maximum value = H).		
No Known or Suspected Groundwater MC Hazard			<input type="checkbox"/>
Comments: There are no groundwater wells within the MRS and the exposure pathway is incomplete (2013 RI Report, Appendix E, E-1). Therefore, MC contamination was not considered for remedial action in the Feasibility Study (FS), nor were chemical action objectives developed (DD, Section 2.5.2.2, Page 13/14).			

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L) Ratios	Comparison Value (µg/L)	
CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	DIRECTIONS: Record the CHF Value from above in the box to the right (maximum value = H).		
<u>Migratory Pathway Factor</u>			
DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.			
Classification	Description	Value	
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	<input type="checkbox"/> H	
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	<input type="checkbox"/> M	
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	<input type="checkbox"/> L	
MIGRATORY PATHWAY FACTOR	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		
<u>Receptor Factor</u>			
DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.			
Classification	Description	Value	
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	<input type="checkbox"/> H	
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	<input type="checkbox"/> M	
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	<input type="checkbox"/> L	
RECEPTOR FACTOR	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		
No Known or Suspected Surface Water (Human Endpoint) MC Hazard			<input type="checkbox"/>
Comments: There are no perennial surface waters within the OBRFRE MRS, and the surface water and sediment exposure pathways are incomplete (2013 RI Report, Appendix E, E-1). Therefore, MC contamination was not considered for remedial action in the FS, nor were chemical action objectives developed (DD, Section 2.5.2.2, Page 13).			

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	DIRECTIONS: Record <u>the CHF Value</u> from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	<input type="checkbox"/> H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	<input type="checkbox"/> M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	<input type="checkbox"/> L
MIGRATORY PATHWAY FACTOR	DIRECTIONS: Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	<input type="checkbox"/> H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	<input type="checkbox"/> M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	<input type="checkbox"/> L
RECEPTOR FACTOR	DIRECTIONS: Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard

Comments: There are no perennial surface waters or sediments within the OBRFRE MRS and the surface water and sediment exposure pathways are incomplete (2013 RI Report, Appendix E, E-1). Therefore, MC contamination was not considered for remedial action in the FS, nor were chemical action objectives developed (DD, Section 2.5.2.2, Page 13).

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	DIRECTIONS: Record the CHF Value from above in the box to the right (maximum value = H).		
<u>Migratory Pathway Factor</u>			
DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.			
Classification	Description		Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.		<input type="checkbox"/> H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.		<input type="checkbox"/> M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).		<input type="checkbox"/> L
MIGRATORY PATHWAY FACTOR	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		
<u>Receptor Factor</u>			
DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.			
Classification	Description		Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.		<input type="checkbox"/> H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.		<input type="checkbox"/> M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.		<input type="checkbox"/> L
RECEPTOR FACTOR	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		
No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard			<input type="checkbox"/>
Comments: There are no perennial surface waters or sediments within the OBRFRE MRS and the surface water and sediment exposure pathways are incomplete (2013 RI report, Appendix E, E-1). Therefore, MC contamination was not considered for remedial action in the FS, nor were chemical action objectives developed (DD, Section 2.5.2.2, Page 13).			

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	DIRECTIONS: Record <u>the CHF Value</u> from above in the box to the right (maximum value = H).		
<u>Migratory Pathway Factor</u>			
DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.			
Classification	Description	Value	
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	<input type="checkbox"/> H	
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	<input type="checkbox"/> M	
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	<input type="checkbox"/> L	
MIGRATORY PATHWAY FACTOR	DIRECTIONS: Record <u>the single highest value</u> from above in the box to the right (maximum value = H).		
<u>Receptor Factor</u>			
DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.			
Classification	Description	Value	
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	<input type="checkbox"/> H	
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	<input type="checkbox"/> M	
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	<input type="checkbox"/> L	
RECEPTOR FACTOR	DIRECTIONS: Record <u>the single highest value</u> from above in the box to the right (maximum value = H).		
No Known or Suspected Sediment (Ecological Endpoint) MC Hazard			<input type="checkbox"/>
Comments: There are no perennial surface waters or sediments within the OBRFRE MRS and the surface water and sediment exposure pathways are incomplete (2013 RI Report, Appendix E, E-1). Therefore, MC contamination was not considered for remedial action in the FS, nor were chemical action objectives developed (DD, Section 2.5.2.2, Page 13).			

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
Aluminum	15,000	77,000	0.19
Barium	110	15,000	0.0073
Copper	17	3,100	0.0055
Zinc	41	23,000	0.0018
CHF Scale	CHF Value	Sum the Ratios	0.2
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
> CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	DIRECTIONS: Record <u>the CHF Value</u> from above in the box to the right (maximum value = H).	L
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Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	<input type="checkbox"/> H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	<input type="checkbox"/> M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	<input checked="" type="checkbox"/> L

MIGRATORY PATHWAY FACTOR	DIRECTIONS: Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	L
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Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	<input type="checkbox"/> H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	<input type="checkbox"/> M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	<input checked="" type="checkbox"/> L

RECEPTOR FACTOR	DIRECTIONS: Record <u>the single highest value</u> from above in the box to the right (maximum value = H).	L
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Sampling Data can be found in the RI, Table 5.5, Page 5-7 No Known or Suspected Surface Soil MC Hazard

Comments: Information indicates low potential for MC contaminant migration from a potential source area via surface soil to MRS exposure points. Although no MEC or MD was observed, two soil samples from the Impact Assessment Area, located adjacent to where MD was recovered, were collected during the RI. Since metals detections were below USEPA regional screening levels, no chemicals of potential concern (COPCs) were identified in the source area and surface soil migration pathways are considered incomplete (2013 RI Report, Sections 5.3, 5.4.2.3 and 7.3). Similarly, there is little or no potential for receptors to have access to surface soil to which MC contamination has moved or can move due to absence of a release, no identified COPCs, and incomplete migration pathways from the source to any exposure point within the MRS.

Table 28

Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard, Migration Pathway, and Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media’s three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media’s rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)					
Surface Water/Human Endpoint (Table 22)					
Sediment/Human Endpoint (Table 23)					
Surface Water/Ecological Endpoint (Table 24)					
Sediment/Ecological Endpoint (Table 25)					
Surface Soil (Table 26)	L	L	L	LLL	G

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING

G

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	<input type="checkbox"/> Evaluation Pending <input type="checkbox"/> No Longer Required <input checked="" type="checkbox"/> No Known or Suspected MC Hazard

Table 29

MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating		Priority	CHE Rating		Priority	HHE Rating		Priority
			A	<input type="checkbox"/>	1			
A	<input type="checkbox"/>	2	B	<input type="checkbox"/>	2	A	<input type="checkbox"/>	2
B	<input type="checkbox"/>	3	C	<input type="checkbox"/>	3	B	<input type="checkbox"/>	3
C	<input type="checkbox"/>	4	D	<input type="checkbox"/>	4	C	<input type="checkbox"/>	4
D	<input type="checkbox"/>	5	E	<input type="checkbox"/>	5	D	<input type="checkbox"/>	5
E	<input type="checkbox"/>	6	F	<input type="checkbox"/>	6	E	<input type="checkbox"/>	6
F	<input type="checkbox"/>	7	G	<input type="checkbox"/>	7	F	<input type="checkbox"/>	7
G	<input type="checkbox"/>	8				G	<input type="checkbox"/>	8
Evaluation Pending			Evaluation Pending			Evaluation Pending		
No Longer Required			No Longer Required			No Longer Required		
No Known or Suspected Explosive Hazard			No Known or Suspected CWM Hazard			No Known or Suspected MC Hazard		
MRS PRIORITY or ALTERNATIVE MRS RATING						NO LONGER REQUIRED		