

7.0 ENVIRONMENTAL PROTECTION PLAN

This Environmental Protection Plan has been developed to minimize impacts to the project area from RI/FS activities at the Former BMA. Additionally, it identifies cultural and biological resources found in and around BMA and outlines possible mitigation measures that can be used to avoid or lessen the impacts from surface visual surveys, geophysical investigations, and MEC intrusive investigations.

This plan will discuss multiple topics of environmental protection including:

- Applicable or Relevant and Appropriate Requirements (ARAR)
- Threatened and Endangered Species Protection
- Wetlands
- Cultural Resource Protection
- Waste Removal
- Dust and emissions control
- Spill control and prevention
- Storage and temporary facilities
- Access routes

USACE guidance requires discussion of the following topics when applicable: coastal zones, trees and shrubs removed during site activities, burning activities conducted at the site, control of water run on and run off, and decontamination and disposal of equipment. These topics are not applicable to the BMA RI/FS, therefore discussion will be very limited. If it is deemed necessary to perform one or more of these activities, an attachment to this plan will be developed and provided before the activity commences at the project site.

This document addresses eight MRAs within the BMA, including, the Mechanized Artillery Range Impact Area, Mechanized Artillery Range Buffer Zone, Camp Ensign, Clark Dry Lake, Military Wash Target Area, Borrego Hotel, Benson Dry Lake Practice Bomb Target, and Both Winona Bombing Targets.

7.1 ASSESSMENT OF APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

This plan presents an initial assessment of Applicable or Relevant and Appropriate Requirements (ARAR)s for BMA. Throughout the investigation processes at BMA, ARAR lists will be updated as additional ARARs are identified. Section 121 of CERCLA requires that site cleanups comply with federal ARARs, or state ARARs in cases where these requirements are more stringent than federal requirements. ARARs are derived from both federal and state laws. Under CERCLA Section 121(d)(2), the federal ARARs for remedial action could include requirements under any of the federal environmental laws (i.e., Clean Air Act [CAA], Clean Water Act [CWA], Safe Drinking Water Act [SDWA]). State ARARs include promulgated

requirements under state environmental or facility siting laws that are more stringent than federal ARARs and that have been identified in a timely manner, according to 40 Code of Federal Regulations (CFR) Part 300.400(g)(4). A requirement may be either “applicable” or “relevant and appropriate,” or “To Be Considered.”

Applicable requirements are defined as those cleanup or control standards, or other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state laws. Applicable requirements are identified on a site-specific basis by determination of whether the jurisdictional prerequisites of a requirement fully address the circumstances at the site or the proposed remedial activity. All pertinent jurisdictional prerequisites must be met for the requirement to be applicable. These jurisdictional prerequisites are as follows:

- The party must be subject to the law
- The substances or activities must fall under the authority of the law
- The law must be in effect at the time the activities occur
- The statute or regulation requires, limits, or protects the types of activities

A requirement is applicable if the specific terms (or jurisdictional prerequisites) of the statute or regulation directly address the circumstances at the site.

If not applicable, a requirement may be relevant and appropriate if circumstances at the site are sufficiently similar to the problems or situations regulated by the requirement. “Relevant and appropriate” refers to those cleanup standards, or other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law, that, while not necessarily applicable, address problems or situations sufficiently similar to those encountered at the CERCLA site, and whose use is well suited to the particular site (U.S. Environmental Protection Agency, 1993). The relevance and appropriateness of a requirement can be judged by comparing a number of factors, including the characteristics of the remedial action, the items in question, or the physical circumstances of the site, with those addressed in the requirement. If there is sufficient similarity between the requirements and circumstances at the site, determination of the requirement as relevant and appropriate may be made.

Determining whether a requirement is both relevant and appropriate is a two-step process. First, to determine relevance, a comparison is made between the response action, location, or chemicals covered by the requirement and related conditions at the site, release, or potential remedy. A requirement is relevant if it generally pertains to these conditions. Second, to determine whether the requirement is appropriate, the comparison is further refined by focusing on the nature of the items, the characteristics of the site, the circumstances of the release, and the proposed response action. The requirement is appropriate if, based on such comparison, its use is well suited to the particular site. The facility must comply with requirements that are determined to be both relevant and appropriate.

In addition to ARARs, non-promulgated advisories or guidance referred to as “to be considered” (TBC) materials may also apply to the conditions found at a site. TBCs are not legally binding.

There are certain circumstances under which ARARs may be waived. CERCLA Section 121(d) allows the selection of alternatives that will not attain ARAR status if any of six conditions for a waiver of ARARs exists. However, the selected alternative must be protective even if an ARAR is waived. Only five of the conditions for a waiver may apply to a DOD site. The conditions for a waiver are as follows:

- The clearance action selected is only part of a total response action that will attain such level or standard of control when completed.
- Compliance with such a requirement at a particular site will result in greater risk to human safety and the environment (i.e., worker safety) than alternative options.
- Compliance is technically impracticable from an engineering perspective
- The clearance action selected will result in a standard of performance that is equivalent to an applicable requirement through the use of another method or approach.
- A state requirement has not been equitably applied in similar circumstances on other clearance actions within the state.
- A fund-financed clearance action does not provide a balance between available monies and the need for protection of public safety and the environment at sites where the need is more immediate (not applicable to DOD sites).

ARARs that govern actions at CERCLA sites fall into three broad categories based upon the chemical contaminants present, site characteristics, and alternatives proposed for cleanup. These three categories (chemical specific, location specific, and action specific) are described in the following subsections.

7.1.1 Chemical-Specific ARAR's

Chemical-specific ARARs include those environmental laws and regulations that regulate the release to the environment of materials with certain chemical or physical characteristics or that contain specified chemical compounds. These requirements generally set health- or risk-based concentration limits or discharge limits for specific hazardous substances by media. Chemical-specific ARARs are triggered by the specific chemical contaminants found at a particular site. The U.S. EPA presently considers standards developed under the RCRA, the SDWA, the CWA, and federal Ambient Water Quality Criteria for the protection of aquatic life as potential ARARs.

A more stringent standard, requirement, criterion, or limitation promulgated pursuant to a state environmental statute is also a potential ARAR.

7.1.2 Location-Specific ARAR's

Location-specific ARARs govern activities in certain environmentally sensitive areas. These requirements are triggered by the particular location and the proposed activity at the site. An example of a location-specific ARAR is compliance with the Endangered Species Act (ESA) of 1973, as amended, to avoid sensitive ecosystems or habitats. Location-specific ARARs also focus on wetland or floodplain protection areas, or on archaeologically significant areas.

7.1.3 Action-Specific ARAR's

Action-specific ARARs are restrictions that define acceptable treatment and disposal procedures for hazardous substances. These ARARs generally set performance, design, or other similar action-specific controls or restrictions on particular kinds of activities. An example might be a state Air Quality Management Authority that sets limitations on fugitive dust generated during grading and excavation activities during a clearance action.

7.1.4 Screening of ARAR's

In determining whether a requirement was pertinent to future MEC response actions (i.e., Surface Clearance of MEC, Subsurface Clearance of MEC to Depth of Detection), potential ARARs were initially screened for applicability. If determined not to be applicable, the requirement was then reviewed for both relevance and appropriateness. Requirements that are considered relevant and appropriate command the same importance as applicable requirements. Initial potential federal and state ARARs determined to be specific to the BMA are listed in Table 7-1.

Table 7-1. Applicable or Relevant and Appropriate Requirements (ARARs), Former Borrego Maneuver Area

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Requirement	Citation	Description	Type	A/RA/TBC	Comments
Federal Resource, Conservation, and Recovery Act (RCRA) Subpart M (Military Munitions Rule)	40 CFR Part 266	Identifies when military munitions become a solid waste, and, if these wastes are hazardous, the management standards that apply.	Contaminant specific	TBC	Recovery, collection, and on-range destruction of MEC and munition fragments are not subject to hazardous waste regulations or permits. MEC discovered in burial pits or trenches could be considered solid waste in accordance with the rule. However, this requirement is not applicable until the state implements the federal Military Munitions Rule as a state-implemented federal requirement.
RCRA	40 CFR Part 261.23	Identifies characteristics of reactivity, including explosives.	Contaminant specific	A	Solid waste that meets the characteristics of reactivity should be treated as hazardous.
RCRA, Identification and Listing of Hazardous Wastes	40 CFR Part 261.3	Requires that waste be analyzed to determine if it represents RCRA hazardous waste based on established lists and hazardous waste characteristics, such as reactivity and toxicity.	Action specific	A	There is the possibility that an analysis of excavated soils may be required to determine if they are classified as an RCRA hazardous waste.
Fish & Wildlife Coordination Act	16 U.S.C. 661 et seq.	Prohibits actions from harming local fish and wildlife.	Location specific	RA	Activities are projected to occur in areas populated with wildlife. Provisions of this act should be followed.
Endangered Species Act (ESA)	16 U.S.C. 1533	Prohibits federal actions from modifying critical habitats or jeopardizing the continued existence of protected endangered or threatened species.	Location specific	A	Prior to and throughout the field activities, all steps necessary should be conducted to minimize the impacts to listed plant and animal species and their habitats (see Section 2.1.6). All on-site employees should undergo a briefing regarding the species present and measures for precluding impacts to those species and their habitat.

Table 7-1. Applicable or Relevant and Appropriate Requirements (ARARs), Former Borrego Maneuver Area

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Requirement	Citation	Description	Type	A/RA/TBC	Comments
Clean Air Act Amendments (CAAA) of 1977 and 1990	42 U.S.C. 7401 et seq. 40 CFR 50 et seq.	Establishes primary and secondary air quality standards necessary to protect health, welfare, plant and animal life, buildings, materials, and visibility. The responsible agency is the U.S. EPA.	Location specific	A	Activities may occur that would require air quality monitoring for PM ₁₀ , sulfur oxide, particulate matter, ozone, nitrogen dioxide, and lead.
Clean Water Act (CWA) of 1972 and 1977	33 U.S.C. 1251 et seq.	Establishes the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so they can support in the protection and propagation of fish, shellfish, and wildlife.	Location specific	A	Section 404 of the CWA is the principal federal regulatory program protecting our remaining wetland resources.
Archaeological Resources Protection Act (ARPA)	16 U.S.C. 470	The ARPA prohibits unauthorized excavation of, and sets standards for protection of, archaeological resources. Prohibits disclosure of archaeological resources by federal agencies.	Location specific	A	If any sites (properties) are uncovered or affected by the fieldwork, proper procedures must be in place under the ARPA to evaluate and protect cultural resources.
National Historic Preservation Act (NHPA)	16 U.S.C. 470	Requires action to be taken to locate, identify, evaluate, and protect cultural resources.	Location specific	A	If additional properties are uncovered or existing sites are affected by intrusive MEC sampling, conditions of the NHPA must be followed.
Executive Order No. 11988	42 F.R. 26951	Order to reduce risk of flood loss and minimize impacts of floods on human safety.	Location specific	TBC	If activities include major construction or excavation work, planning and procedures must be in place to reduce flooding.
Executive Order No. 11990	42 F.R. 26961	Order to minimize the obstruction, loss, or degradation of wetlands during federal projects.	Location specific	TBC	If activities or sites are within areas containing wetlands proper planning and procedures must be in place to protect wetlands.

Table 7-1. Applicable or Relevant and Appropriate Requirements (ARARs), Former Borrego Maneuver Area

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Requirement	Citation	Description	Type	A/RA/TBC	Comments
Occupational Safety and Health Administration (OSHA)	29 CFR Part 1910.120	Defines the manner in which hazardous waste and emergency response actions must be carried out. Covers emergency response operations for the release of, or substantial threat of, hazardous substances without regard to the location of the hazard.	Action specific	A	The possibility of a fire or explosion will exist during intrusive MEC clearance activities. All site personnel must be in compliance with 29 CFR Part 1910.120, requiring workers to be 40-hour health and safety trained with an 8-hour refresher. An annual medical surveillance examination is also required.
Hazard Communication	29 CFR Part 1910.1200	Specifies that the hazards associated with all chemicals produced or imported be evaluated, and that information concerning their hazards be transmitted to employers and employees.	Action specific	RA	All employees and visitors must be made aware of the hazards associated with MEC clearance and UXO demolition activities.
Public Affairs	40 CFR Part 300	Public affairs coordination must be conducted in accordance with directives for the CERCLA response action.	Action specific	A (HTW) RA (MEC)	Provisions of this code should be followed.
Transportation	49 CFR Parts 100-199	Regulates transport of hazardous substances in California.	Action specific	RA	Provisions of this code should be followed.
Federal Transportation Act	49 CFR Part 172.101	The DOT considers MEC "hazardous material" for manifesting purposes under the DOT regulations.	Action specific	A	Transportation of explosives to be used in the detonation of MEC as a means of on-site disposal must comply with DOT regulations. UXO-qualified personnel must inspect the loading of the explosives, and the transport vehicle must be appropriately placarded.

Table 7-1. Applicable or Relevant and Appropriate Requirements (ARARs), Former Borrego Maneuver Area

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Requirement	Citation	Description	Type	A/RA/TBC	Comments
OSHA	29 U.S.C. 651-678	Regulates worker health and safety.	Action specific	RA	Under 40 CFR Part 300.38, requirements of the act apply to all response activities under the NCP.
State					
California Endangered Species Act	CESA Code 2080.2081	Protects endangered species from being exported or imported. Establishes authority permitting processes and mitigation requirements to protect endangered species.	Location specific	A	Disturbances to riparian, wetland habitats, or vegetation may require mitigation such as contouring the ground surface to pre-project elevation and replanting native vegetation in appropriate ratios.
California Health and Safety Code (HSE)	HSC Division 20 Chapter 6.5, 6.8	Establishes regulations and incentives to ensure generators of hazardous waste to employ safe handling practices, treatment, recycling, and destruction of hazardous waste prior to disposal. Also establishes a program for response authority for release, spills, disposal sites, and compensation for medical expenses resulting from injuries caused by exposure to releases of hazardous substances.	Action specific	TBC	Under Title 22, Section 66261.23, MEC is considered a hazardous waste. Provisions of this Code should be considered.
Drinking Water Primary Standards	Title 22, Sections 64431, 64443, and 64444	Established Maximum Contaminant Levels (MCLs) for public water systems.	Chemical specific	R/RA	Groundwater may be considered a potential source of drinking water. State MCLs are more stringent than federal MCLs. Applicable if HTW found in drinking water. RA if unsuitable for human consumption.
California Designated level Methodology for Waste Characterization and Cleanup Level Determination	Staff Report, California Regional Water Quality Control	Proposes a methodology for determining cleanup levels in soil based upon impact on groundwater.	Chemical specific	TBC	Can be used in determining cleanup levels in soil that are protective of groundwater quality.
Streambed Alteration Agreement	Section 1600-1606 of State Fish and Game	Protects flow, bed, and bank of streams and lakes.	Location specific	TBC	Project may require a CDFG Section 1603 under specific conditions for potential impacts

Table 7-1. Applicable or Relevant and Appropriate Requirements (ARARs), Former Borrego Maneuver Area

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Requirement	Citation	Description	Type	A/RA/TBC	Comments
CFR	=	Code of Federal Regulations			
CDFG	=	California Department of Fish and Game			
DFG	=	Department of Fish and Game			
DOT	=	Department of Transportation			
EPA	=	Environmental Protection Agency			
HRS	=	Hazardous Ranking System			
MEC	=	ordnance and explosives			
PM ₁₀	=	particulate matter equal to or less than 10 microns in diameter			
U.S.C.	=	United States Code			
UXO	=	unexploded ordnance			

7.2 CURRENT CONDITIONS

7.2.1 Biological Resource

The BMA is within the Colorado Desert, which is a part of the larger Sonoran Desert. The Colorado's regional terrestrial habitats include Creosote bush scrub, mixed scrub (including yucca and cholla cactus), desert salt bush scrub, sand soil grasslands and desert dune.

The BMA boundary contains the southern portion of the Santa Rosa Mountain Range and an area known as the Borrego Badlands.

The Santa Rosa Mountains within the BMA can be characterized as desert slope. Desert slope is an ecological subregion generally comprised of the following natural plant communities: creosote bush series, creosote bush-white bursage series, chamise series and redshank-chamise series, mixed chaparral shrublands, single pinyon pine series, and California juniper series.

The Borrego Badlands, a generally sparsely vegetated ecosystem, is situated within the larger Borrego Valley-West Mesa area. The Borrego Valley-West Mesa area is an ecological subregion generally comprised of the following natural plant communities: ocotillo series and creosote bush-white bursage series. There are some fan palm series in the riparian areas. Mixed saltbush series is common on the basin floors.

The following is a list of common flora found within the Colorado Desert and these species could occur within the boundaries of the BMA: bursage (*Ambrosia dumosa*), brittle bush (*Encelia farinosa*), various chollas and prickly pears (*Opuntia* sp.), desert holly (*Atriplex hymenelytra*), saltbush (*Atriplex polycarpa*), indigo bush (*Psoralea schottii*), creosote bush (*Larrea tridentata*), ocotillo (*Fouquieria splendens*), and various ephedras (*Ephedra* sp.).

The following is a list of common fauna found within the Colorado Desert and these species could occur within the boundaries of the BMA: zebra-tailed lizard (*Callisaurus draconoides*), western whiptail (*Aspidoscelis tigris*), sidewinder (*Crotalus cerastes*), California quail (*Callipepla californica*), Red-tailed hawk (*Buteo jamaicensis*), Common Raven (*Corvus corax*), black-throated sparrow (*Amphispiza bilineata*), Bullock's oriole (*Icterus bullockii*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), bobcat (*Lynx rufus*), badger (*Taxidea taxus*), and black-tailed jackrabbit (*Lepus californicus*).

The majority of the MRAs are within the Anza-Borrego Desert State Park (ABDSP). The ABDSP contains a number of sensitive biological resources. The possibility of affecting several sensitive species that inhabit ABDSP may also exist. Sensitive animals identified by the U.S. Fish and Wildlife Service (USFWS) and the CDFG may occur in the area and have the potential to be affected by vehicle-towed geophysical instruments and MEC intrusive investigation activities.

The information compiled for this EPP was obtained primarily from documents and information furnished by the Government and follow-up research through the California Department of Fish and Game's (CDFG) California Natural Diversity Database for all the 7.5 minute quadrangles with and adjacent to the Former BMA, USFWS and State Park websites. 21-7.5 Minute Quadrangles were investigated within the California Department of Fish and Game's (CDFG)

California Natural Diversity Database (CNDDDB) for known and unprocessed occurrences of listed species that have the potential to occur on the proposed Project Site. The CNDDDB is a tool which documents all CNDDDB elements (species, natural communities) that have been documented to occur on the selected USGS topographic quads. Species lists derived from the CNDDDB contain recent and historical records of occurrence. Sources include: Archive Research Report Findings for the Former Borrego Hotel (Target Area and Emergency Landing Field (U.S. Army Corps of Engineers, Rock Island District, 1997),; Archive Research Report Findings for the Former Borrego Maneuver Area (U.S. Army Corps of Engineers, Rock Island District, 1997); Archive Research Report Findings for Benson/Ocotillo Dry Lake (U.S. Army Corps of Engineers, Rock Island District, 1997); and Archive Research Report Findings for Camp Ensign (U.S. Army Corps of Engineers, Rock Island District, 1997).

7.2.1.1 Endangered / Threatened Species

Table 7-2 provides the threatened and endangered species that may be found within or adjacent to BMA.

7.2.1.2 Reasons for Mitigation Actions

Section 7 of the ESA prohibits the take of listed species without an incidental take permit. Taking is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, collecting, or attempting to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Under the terms of Section 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act, provided that such taking is in compliance with the incidental take statement. Although direct take is not expected, alteration of foraging habitat is expected to be unavoidable, but could be minimized.

Section 2 of the Migratory Bird Treaty Act (MBTA) prohibits, at any time, by any means, or in any manner, pursuit, hunting, take, capture, killing, or any attempt to take, capture, or kill migratory birds protected by the MBTA, except as exempted by federal and state regulations. Until recently, only regulatory agencies had promoted project compliance with the MBTA. Compliance with the MBTA is currently under greater scrutiny, as recent circuit court decisions have upheld private interest group claims of MBTA violations by project proponents in Texas and other states. The proposed project could have impacts on birds protected by the MBTA, as previously stated.

7.2.1.3 Wetlands

Wetlands are defined as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (U.S. Army Engineer Waterways Experiment Station, 1987).

The National Wetland Inventory (NWI) was used to determine the classification of wetlands found within the boundary of the BMA. The potential wetlands identified within the BMA were Clark Lake, Borrego Sink, Benson Lake, Borrego Sink Wash, Anza Wash, Palm Wash, and San Felipe Creek.

Clark Lake, Borrego Sink and Benson Lake are classified as intermittently flooded areas situated within a topographic depression. Surface water is present for variable periods without detectable seasonal periodicity. Weeks, months or years may intervene between periods of inundation. These areas may not fall within the actual definition of a wetland because they do not have hydric soils or support vegetation dependant of wetland habitats (<http://enterprise.nwi.fws.gov>).

Borrego Sink Wash, Anza Wash, Palm Wash, and San Felipe Creek are classified as intermittently flooded streambeds. Surface water only flows part of the year without detectable seasonal periodicity. Weeks, months or years may intervene between periods of inundation. Some of the areas along these riverine systems may not fall within the actual definition of a wetland because they do not have hydric soils or support vegetation dependant of wetland habitats (<http://enterprise.nwi.fws.gov>).

In addition to the aforementioned wetlands, there were a number of palustrine systems identified. These systems were described as being either intermittently flooded or emergent (herbaceous hydrophytes present during a majority of the growing season). In many cases, these palustrine wetlands were situated within a man-made basin (<http://enterprise.nwi.fws.gov>)

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Table 7-2. Species List for BMA

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Species	Common Name	Habitat Requirements	Status		Potential to Occur Within Project Boundary
			CDFG	USFWS	
Cyprinodon macularius	Desert pupfish	Habitats include springs, streams and margins or larger bodies of water. Prefer shallow, clear water with soft substrate.	E	E	Moderate; Southeast corner of site part of San Felipe Creek system.
Gila bicolor mohavensis	Mohave tui chub	Native to Mojave River Drainage. Prefer lacustrine habitats; ponds and slow water slough conditions.	E	E	Low; more than likely a non-indigenous occurrence.
Gasterosteus aculeatus williamsoni	Unarmored threespine stickleback	Require clear, flowing, well oxygenated water with associated pools and areas of dense vegetation for cover and food supply.	E	E	Low; more than likely a non-indigenous occurrence.
Phrynosoma mcallii	Flat-tailed horned lizard	This lizard is restricted to areas of fine sand and sparse vegetation in desert washes and flats. Most abundant in creosote bush areas and associated desert scrub, wash succulent and alkali scrub habitats.	sc	-	High

Table 7-2. Species List for BMA

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Species	Common Name	Habitat Requirements	Status		Potential to Occur Within Project Boundary
			CDFG	USFWS	
Uma notata	Colorado desert fringe-toed lizard	Restricted to fine, loose, wind-blown san dunes, dry lakebeds, sandy beaches or riverbanks, desert washes, and sparse desert scrub.	sc	-	High
Phrynosoma coronatum (blaivillii)	Coast (San Diego) horned lizard	Inhabits open country, especially sandy areas, washes, flood plains, and wind-blown deposits. Found below 900 m.	sc	-	Moderate
Thamnophis hammondi	Two-striped garter snake	Associated with permanent or semi-permanent bodies of water bordered by dense vegetation in a variety of habitats.	sc	-	Low
Crotalus ruber ruber	Northern red-diamon rattlesnake	Occurs in a wide variety of arid and semi arid habitats that provide dense vegetation or rocky cover	sc	-	High
Coleonyx switaki	Barefoot banded gecko	Species seems to be restricted to areas dominated by massive rock formations.	T	-	Moderate

Table 7-2. Species List for BMA

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Species	Common Name	Habitat Requirements	Status		Potential to Occur Within Project Boundary
			CDFG	USFWS	
Falco mexicanus	Prairie falcon	Primarily associated with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub. Requires sheltered cliff ledges for cover and nesting.	sc	-	High (incidental--forage, fly-over), Moderate (nesting)
Toxostoma lecontei	Le Conte's thrasher	Occurs primarily in open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats.	sc	-	Moderate
Plegadis chihi	White-faced ibis	Fresh emergent wetland, shallow lacustrine waters and muddy ground of wet meadows and irrigated or flooded pastures and croplands.	sc	-	Low (incidental fly-over April-September), occurrence within quad more than likely associated with Salton Sea.
Vireo bellii pusillus	Least Bell's vireo	Inhabits low, dense riparian growth along water or dry parts of intermittent streams. Typically associated with willow, cotton wood, baccharis, or mesquite in desert localities.	E	E	Moderate
Asio otus	Long-eared owl	Frequents dense, riparian and live oak thickets near	sc	-	Low (incidental--forage, fly-over), winter visitant.

Table 7-2. Species List for BMA

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Species	Common Name	Habitat Requirements	Status		Potential to Occur Within Project Boundary
			CDFG	USFWS	
		meadow edges, and nearby woodland and forest habitats. Winter visitant of tamarisk stands in arid habitats.			
<i>Sterna nilotica</i>	Gull-billed tern	Prefers sandy beaches for nesting, and forages over shallow waters, mudflats, grasslands, and croplands.	sc	-	Low (incidental fly-over), occurrence within quad more than likely associated with Salton Sea.
<i>Ovis Canadensis nelsoni</i> dps	Peninsular bighorn sheep	Prefer open areas of low growing vegetation for feeding, with close proximity to steep, rugged terrain for escape, lambing and bedding.	T	E	High
<i>Antrozous pallidus</i>	Pallid Bat	Most common in open, dry habitats with rocky areas for roosting. Roosts in caves, crevices, mines, and occasionally hollow trees and buildings	sc	-	Moderate
<i>Nyctinomops femorosaccus</i>	Pocketed free-tailed bat	Rare in California. Prefers rocky desert areas with high cliffs or rock outcrops.	sc	-	Moderate
<i>Corynorhinus townsendii</i>	Townsend's big eared bat	Prefers mesic (requires a moderate amount of moisture) habitats. Roosts in caves, tunnels, mines and buildings.	sc	-	Moderate

Table 7-2. Species List for BMA

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Species	Common Name	Habitat Requirements	Status		Potential to Occur Within Project Boundary
			CDFG	USFWS	
Chaetodipus californicus femoralis	Dulzura pocket mouse	Chaparral	sc	-	Moderate
Chaetodipus fallax pallidus	Pallid San Diego pocket mouse	Moderate canopy coverage of arid shrubland or pinyon-juniper habitats on or near rocky slopes and sandy areas.	sc	-	Moderate
Onychomys torridus ramona	Southern grasshopper mouse	Frequents desert areas (mixed chaparral, sagebrush, low sage, and bitterbrush habitats), especially scrub habitats with friable soils for digging.	sc	-	Moderate
Astragulus magdalenae var. peirsonii	Peirson's milk vetch	Occurs within the Algodones dune system.	E	T	Low, Occurrence within the Borrego Sink Quad could be historical.
Berberis nevinii	Nevin's Barberry	Chaparral with strong desert affinities. Reported site within foothills of Anza-Borrego has never been relocated.	E	E	Low
Galium angustifolium ssp. Borregoense	Borrego bedstraw	Sonoran desert sage scrub. Presumed to utilize upland terrain (Acid Igneous rock lands), with protected slope aspects and perhaps a more mesic seasonal condition than what generally prevail within the arid region.	Rare	-	Low
Note: sc = species of concern; T = Threatened; E = Endangered					

7.2.1.4 Mitigation Measures

Non-intrusive methods, such as visual surveys and digital geophysical mapping have a low potential of impacting biological resources. The noise generated by the field crews and their equipment could disrupt wildlife at the site. Minor vegetation damage could occur as the survey crew conducts transects through the site. Intrusive activities have a small, temporary, localized impact at the site of the anomaly investigation. Disturbance of the wildlife will cause a temporary shift in their activities. Although the disruption should only be temporary, the application of mitigation measures, if required, could reduce impacts. Impact minimization measures for biological resources are discussed in subsection 7.3.2. Every effort will be made to avoid field activities during the nesting season of sensitive bird species.

7.2.1.5 Potential Effects on Sensitive Species and Sensitive Habitats

Recent sensitive species surveys have not been conducted at BMA. Consequently, the specific areas in which these species occur have not yet been determined. Sensitive wildlife and plant species could be affected by project activities.

Federally-listed threatened and endangered species and their habitat could be affected by project activities resulting in a take of listed species. Take could be avoided by having each field crew accompanied by an approved biologist or biological monitor who would survey along planned transects for any listed species or their habitat so that they can be avoided by field crews. Through avoidance of listed species and their habitat, there would be no effect on listed species.

If activities are to occur during the nesting season of birds, field crews would be particularly sensitive to the presence of potential nesting sites to avoid impacts to nesting birds, including several sensitive species, as well as non-listed birds protected by the MBTA.

Vegetation disturbance may reduce the available foraging habitat and decrease raptor prey populations. This disturbance would be temporary, and there is other available foraging habitat in surrounding areas.

A number of measures that vary in effectiveness and cost are available to mitigate impacts to biological resources. These range from avoidance to on-site monitoring and species removal or protection (Table 7-4).

Table 7-3. Possible Mitigation Strategies for Biological Resources

Strategy	Avoidance	Monitoring
Procedure	Pre-Surveys to avoid sensitive resources Worker Education	Full-time Monitor On-call Monitor
Effectiveness	Most resources can be identified and avoided Educate field personnel to environmental sensitivities. Good for avoiding unanticipated resources.	All resources would be identified before impacting them. Most resources could be avoided through preserving and marking; possible risk to individual species.

7.2.1.6 Worker Education Briefing

Prior to commencement of field activities, all on-site personnel will be briefed on health and safety issues and the ecology of sensitive species in the area. Methods for minimizing potential impacts to these species will form an integral part of the on-site training.

7.2.1.7 Mitigation by Avoidance

Incorporated into the field activities will be sensitive-area and sensitive-species mitigation by avoidance. In order to avoid adverse effect to any federally listed threatened or endangered species and their habitat, a USFWS-approved biologist or biological monitor will accompany each field team and survey for listed species and their habitat. Listed species and their habitat would be avoided. This measure would ensure that there would be no effect on listed species. In order to comply with the MBTA, disturbance of nesting and breeding activities could be avoided by restricting project activities to the non-breeding season. Pre-project surveys should be conducted if activities are occurring during the nesting season (March-September) in areas where transects may affect nests to ensure MBTA-listed species protection.

7.2.1.8 Minimize Vegetation Impacts

During field operations only areas necessary to conduct surface visual surveys, geophysical investigations, intrusive investigations, and MEC disposal will be disturbed.

7.2.1.9 Site Restoration/Compensation

If sensitive habitats are disturbed during the course of field investigation activities, they will be carefully recorded and documented by the project biologist. Photographs, drawings, or video recordings, and GPS readings will all be used to restore disturbed areas as close as possible to their original contours, soil strata, compaction, and vegetation planting. The types of habitats, and acreage for each type, will be recorded for purposes of acquiring replacement habitat acreage at the appropriate ratio, as specified by the U.S. Fish and Wildlife Service, in their biological opinion.

7.2.2 Cultural Resources

The ABSP contains numerous sensitive cultural resources, including village sites, tool

construction sites, sleeping circles, pictographs, etc. Although there are no cultural resources located on the RI/FS MRAs, known prehistoric sites are located within 1 mile from the Benson Target Area and Emergency Landing Field and rock petroglyphs/ pictographs are located in the area of Clark's Dry Lake.

Cultural resources in this area are associated with Native Americans from the Cahuilla, and Kumeyaay tribes. The Kumeyaay came into the region from the Colorado River area between 2,000 and 1,200 years ago, while the Cahuilla migrated out of the Great Basin about 1,500 to 1,000 years ago. Both tribes were semi-nomadic, spending winters in the desert and traveling to higher ground to harvest acorn and pinenuts from late spring to fall.

Features that may be encountered in the surveyed area would include:

- Rock-lined storage cysts
- Flat top boulders and bedrock outcrops that show depressions caused by grinding activity. These depressions may be round or basin shaped. Grinding activity is also evident by the presence of smooth, flat, shiny surfaces called "slicks".
- Roasting pits (areas of dark soil with presence of charcoal and fire-cracked rock.
- Rock cairns
- Middens (areas of dark soil with high amounts of organic matter, charcoal, and other debris). These were areas of refuse deposit.
- Petroglyphs (designs and symbols etched into the surface of large boulders or rocks).
- Pictographs (designs and symbols painted on the surface of large boulders or rocks).

7.2.2.1 Regulatory Setting

For federal undertakings, in compliance with the National Historic Preservation Act (NHPA), Public Law 89-665; 16 U.S.C. 470-470m, as amended, 16 U.S.C. 460b, 470l-470n, and 36 CFR 800. Cultural resources are located using two principal methods. Before starting a project, a records and literature search is conducted at repositories of archeological site records. The search may show that an archeological, or historical survey has been conducted in the project area and that cultural resources have been identified. That information may be enough to proceed with the significance evaluation stage of the project. If no previous survey has been done, or if a previous survey was either out of date or inadequate, a pedestrian survey of the ground surface within the proposed project boundaries may be conducted. Subsurface testing may also be performed if deemed appropriate by the cultural resources professional.

After a cultural resource(s) has been identified during a survey or record and literature search the federal agency overseeing the undertaking proceeds to determine whether the cultural resource is eligible for listing in the National Register of Historic Places (National Register). Section 106 of the National Historic Preservation Act mandates this process. The Federal Regulation that guides the process is called 36 CFR 800. For a cultural resource to be determined eligible for listing in the National Register it has to meet certain criteria. The resource has to be either minimally 50 years old or exhibit exceptional importance. After

meeting the age requirement, cultural resources are evaluated according to four criteria: a, b, c, and d. The National Register criteria for evaluation as defined in 36 CFR 60.4 are:

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:

- that are associated with events that have made a significant contribution to the broad patterns of our history; or
- that are associated with the lives of persons significant in our past; or
- that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- that have yielded, or may be likely to yield, information important in prehistory or history.

After a cultural resource has been determined eligible for inclusion in the National Register it is accorded the same level of protection as a property that is included. It then becomes formally known as a “historic property” regardless of age. The following law may also apply to the project:

American Indian Religious Freedom Act of 1978: Public Law 95-341; 42 U.S.C. 1966. The American Indian Religious Freedom Act makes it policy of the federal government to protect and preserve the inherent rights of American Indians, Eskimo, Aleut, and Native Hawaiian to believe, express and exercise their traditional religions. This includes, but is not limited to access to religious sites, use and possession of sacred objects, and freedom to worship through ceremonials and traditional rites. It directs federal agencies to evaluate their policies and procedures to determine if changes are needed to ensure that such rights and freedoms are not disrupted by agency practices. The act also requires that the views of Native American leaders are to be obtained and considered where a proposed land use might conflict with traditional Indian religious beliefs or practices.

The type and degree of adverse effect(s) must be assessed, and steps must be taken, in consultation with the SHPO/THPO, to avoid, minimize, or mitigate adverse affects. In efforts to reduce vandalism and destruction of archaeological sites, it is illegal to collect or disturb historical artifacts located within a California State Park.

7.2.2.2 Prehistoric Sites

Although there are no cultural resources located on the RI/FS MRAs, known prehistoric sites are located within 1 mile from the Target Area and Emergency Landing Field site and petroglyphs / pictographs are known to be in the area of Clark’s Dry Lake. It is likely that similar as well as additional types of prehistoric resources are present throughout the non-surveyed

portion of the project area. See Section 7.2.2 for a list of potential sites located within and adjacent to the project sites.

7.2.2.3 Historic Sites

No registered historic sites are located within any of the project MRAs. The Benson /Ocotillo Dry Lake and Clark's Dry Lake both contain remains of rake structures and stone target circles used by aircraft for practice bombing. It is likely that similar as well as additional historic site types are anticipated throughout the non-surveyed portion of the project area.

7.2.2.4 Potential Impacts of RI/FS Field Activities

Non-intrusive and intrusive methods of field investigation will be utilized during RI/FS activities. Non-intrusive methods include visual surveys conducted by foot or by small utility vehicles (gators), and digital geophysical mapping using magnetic, electromagnetic, or ground penetrating radar equipment. Intrusive methods include digging up an item after it has been identified by using either a handheld metal detector and digging when an item is discovered; or by using previously recorded data and digging a discrete anomaly identified as potentially containing MEC. The method(s) used will be dictated by the topography, access, cultural and biological resource considerations, agency approval, and other similar considerations on a site by site basis. The field-work, as planned, has a potential to affect sensitive cultural and biological resources in and around the project site. Section 7.4 addresses minimization of these impacts.

7.2.2.5 Mitigation Measures

Placement of Transect and Grids. The first level of mitigation will be to avoid placement of transects and grids in sensitive areas based on archeological records searches, archeological surface inventory, and in consultation with the Corps (LAD) and State archeologists. This goal will be achieved by mapping sensitive aquatic, biological and archaeological resources using a GIS, and placing preliminary transects and grids in non-sensitive areas.

Non-intrusive methods, such as visual surveys and digital geophysical mapping have a low potential of impacting cultural resources depending on what type of equipment is used to conduct the survey. Intrusive methods may impact a cultural resource if the dig area is within close proximity of a cultural resource. Therefore, application of mitigation measures is required to reduce potential impacts. Impact minimization measures for the protection of cultural resources are discussed in subsection 7.3.4.

Activities within Transects and Grids. The following measures will be taken within transects and grids designated for geophysical survey:

Field archaeological assessments will be conducted by CESPL and State archeologists, per approval by the CESPL Safety Officer, in advance of any phase of the project. The placement of grids and the "meandering path" geophysical survey method will not impact any resources even if they were present. However, the GIS will be used in the field to avoid these resources in the location of the transects/grids. Further archaeological investigations cannot be performed on OE/UXO sites during the intrusive phase for safety reasons, unless allowed by the CESPL safety officer. Otherwise, these investigations will be performed after the completion of the intrusive phase.

All soil removal will be placed in the vicinity and once actions are complete, the soil will be returned to the area from which it came. Excavations will be examined by the CESPL and State archeologists. All disposal, storage, and staging areas will be cleared by CESPL and State archeologists.

During ordnance removal activities, soil may be displaced by intrusive excavation of small areas (typically 2-ft by 2-ft or less). All excavations will be restored by backfilling with the displaced soil. Each site will be regraded to its former condition so that local drainage is not modified. Backfilling and regrading will be accomplished manually with shovels and rakes. Excavations and spoil piles will be examined by CESPL and State archeologists.

CESPL and State archeologists will have access to all non-hazardous scrap metal prior to disposal to determine the presence of historic artifacts.

Historic properties will be avoided to the extent possible during field activities. The boundaries of known sites will be delineated so that they can be protected. Site damage by vehicular traffic will be avoided by utilization of the maintained roadways on site. Sites unexpectedly discovered during fieldwork will require identification and evaluation, and a determination of effect needs to be developed before appropriate mitigation measures can be finalized. Removal of certain non-hazardous discarded military munitions and munitions debris from the sites may be coordinated with the California State Park Service and California SHPO due to the historic context. Table 7-3 identifies possible mitigation strategies to lessen or eliminate any impacts on historic properties.

7.2.2.6 Worker Education Briefing

Prior to commencement of field activities, all on-site personnel will be briefed on health and safety issues, and on the cultural resources sensitivity of the area. Methods for minimizing potential impacts on historic properties will form an integral part of the on-site training.

Table 7-4. Possible Mitigation Strategies for Historic Properties

Strategy	<u>Avoidance</u>		<u>Preservation</u>	<u>Resources Data</u> <u>Recovery</u>
	On-Call Monitoring ^(a)	Full-Time Monitoring ^(b)	Identification/Evaluation	Recordation/Recovery
Procedure	Monitor will investigate any unanticipated resources or anomalies as they occur.	All resources will be avoided to the extent possible through identification by monitor and coordination with field crews prior to field activities.	Identify area that contains the significant resource to be avoided. Evaluate for eligibility to National Register of Historic Places. Implement protection measures as appropriate.	Document the resource through mapping and photo recordation. Conduct excavation to recover data in accordance with data recovery plan approved by the shpo.
Effectiveness	Most unanticipated significant resources can be identified and recorded as they are encountered.	All significant resources can be identified and avoided as encountered.	Any significant resources will be preserved in place; will not facilitate all UXO being removed.	Adequate sample of data from significant resource will be collected, analyzed, documented, and archived.
Burden/cost	Relative low cost; some potential historic properties could be affected.	Moderate cost; less potential for resource loss/impact.	Moderate cost, but inefficient for removal of uxo.	Very expensive; health and safety concerns for archaeological field personnel if conducted concurrently with uxo activities.

Notes: (a) A part-time monitor will travel to the job site only when unanticipated/potential cultural resources are identified.

(b) A full-time monitor would remain on site for the duration of all field activities.

SHPO = State Historic Preservation Officer

UXO = unexploded ordnance

7.2.2.7 Treatment of Unanticipated Finds

Every effort will be made to identify historic properties within the project area. However, the potential for unexpected cultural remains to be encountered always exists. In the event that prehistoric or historic archaeological resources or traditional resources are encountered (particularly human remains), the location will be noted in the field log and recorded using a GPS unit (if possible). A professional archaeologist will be consulted. Subsequent activities will be coordinated with the California SHPO.

7.2.2.8 NHPH Documentation

The CESPL archeologist, in coordination with the State archeologist, will prepare all documentation required for compliance with Section 106 of the National Historic Preservation Act. This includes coordination with the California State Historic Preservation Officer and Native American Tribes. The CESPL archeologist will prepare all cultural resources sections as part of any environmental documentation required by NEPA.

7.3 COSTAL ZONES

There are no coastal zones located within the project area; therefore, this section is not applicable.

7.4 VEGETATION REMOVAL

It is not likely that any vegetation removal (trees and/or shrubs) will be occurring. Minimal vegetation impacts will occur if a contact or anomaly is located below ground surface at the base of a tree or shrub. Field crews will remove as little soil as necessary to access the contact while working around any vegetation. Vegetation will not be removed to allow transects to pass through the area. If a large amount of vegetation is encountered while performing a transect, the field crew will go around the vegetation, and the location of the vegetation will be noted in the field log and transect log. The crew will continue the transect once they have passed around the vegetation.

7.5 WASTE DISPOSAL

At this time, there are no waste disposal sites located within the project sites. Any waste generated by the ABSP or at non-ABSP sites is carried out of the site and placed at trash receptacles located at various public access areas. Other solid waste may be placed within dumpsters located at the ABSP facilities compounds. Some non-ABSP sites may have areas that have been used as illegal dump sites by the general public.

7.6 PROJECT MITIGATION PLANS

Other foreseeable impacts to the environment can be created from normal logistical activities including waste removal and disposal, dust and emissions, storage areas and temporary facilities, access routes to the sites and post activity clean up. The following are mitigation measures that are to be followed to reduce impacts to the sites and logistical areas.

7.6.1 Waste Removal and Disposal

Waste generated during the day to day activities will be collected and removed at the end of the day's work. All solid waste will be collected and contained until the survey crews depart from the site at the end of the day. Upon leaving the site, all solid waste will be disposed of in dumpsters or other proper receptacles at the project base. All pin flags and other marking devices will be collected when they are no longer needed.

Munitions Debris (MD) that is collected during the day will be staged at a single location at the site for removal at the end of the day. The collection point will be near an established access route (such as a dirt road or paved road that provides sufficient area for a vehicle to turn around). Upon completion of the day's activities, the MD shall be removed from the site and transported to the offsite bin or container designated for MD.

Discarded munitions material (DMM) that is deemed safe to move by on-site UXO personnel will be collected and staged at a single location at the site for removal at the end of the day. The collection point will be near an established access route (such as a dirt road or paved road that provides sufficient area for a vehicle to turn around). Upon completion of the day's activities, the DMM shall be removed from the site and transported to the offsite magazine designated for DMM.

7.6.2 Burning Activities

No burning activities will be taking place during this project; therefore, this section is not applicable.

7.6.3 Dust and Emissions

Survey activities will likely generate little fugitive dust and other emissions. The survey methods include:

- Visual surveys conducted on foot,
- Visual surveys conducted on a small all terrain vehicle or small utility vehicle,
- Digital Geophysical Mapping surveys using assorted detectors that are towed by a person, horse, small all terrain vehicle or small utility vehicle.
- "Mag and Dig" survey method where personnel will have handheld metal and other detectors and dig up contacts using hand tools such as shovels.

Mitigation measures for these activities include driving any motorized vehicle used on site at a slow speed and digging only enough soil to uncover the contact or anomaly. Other activities that may generate dust or emissions are traveling to and from the sites in the support vehicles. The survey crews will drive no faster than 20 miles per hour along the dirt roads leading to the sites and will not leave established roadways.

7.6.4 Spill Control and Prevention

All vehicle fueling will be conducted off site at paved and contained areas either within the ABSP facilities or an off site locations. No vehicle fueling will be required while on the project site.

7.6.5 Storage Areas and Temporary Facilities

Storage areas and temporary facilities for logistic support will be located in existing storage compounds utilized by the ABDSP or at other non-sensitive sites that provide easy access to the project location. These sites will be utilized to store project equipment, such as all terrain vehicles, temporary offices for personnel and project management, dumpsters and roll-off bins for waste and UXO related material, and a secured area for the project magazine if necessary.

No mitigation is needed if these areas are within an existing ABDSP compound. Mitigation measures such as temporary fencing, erosion control, and other site specific measures may be necessary if the project base is not within an existing secured compound.

7.6.6 Access Routes

Mitigation measures regarding access routes will be dependant upon the protected status of the site and the protected status of the surrounding environment. Access within the BMA will have to be coordinated with park personnel and private landowners. In general, survey crews will travel to and from the site only on established roadways (dirt or paved), unless the site is within a designated wilderness area. Wilderness designation will require the survey crews to leave the support vehicles outside the boundaries of the wilderness site and walk in to the site. All motorized equipment must be left outside the boundaries of these designated areas. Access to the dry lake sites may be limited by the soft soil found within these sites.

7.6.7 Vegetation Removal (Trees and Shrubs)

See Section 7.4 for discussion on this topic.

7.6.8 Water Run-on and Run-off

Storage and facilities placed within existing ABDSP facilities will be protected by the existing water containment and storm water facilities. Any temporary facilities placed outside of the ABDSP facilities will be developed with basic water containment facilities for erosion control.

7.6.9 Decontamination and Disposal of Equipment

The project does not involve chemicals or practices that require decontamination; therefore, this section is not applicable. Decontamination procedures related to MC sampling are included in the Sampling and Analysis Plan, Appendix G.

7.6.10 Minimizing Areas of Disturbance

Discussions regarding minimizing areas of disturbance are found in Sections 7.2.1 and 7.2.2.

7.6.11 Post-activity Cleanup

Post-activity cleanup will be accomplished on a daily basis as field crews collect solid waste associated with lunch breaks and other daily breaks and remove them from the site. Solid waste will be disposed of in an approved off-site location.

7.6.12 Air Monitoring Programs

Air monitoring programs are not necessary and will not be implemented for the RI.

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